ARUNAI ENGINEERING COLLEGE

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BACHELOR OF ENGINEERING

THIRD YEAR

SIXTH SEMESTER

CS8651-INTERNET PROGRAMMING

(REGULATION-2017)

QUESTION BANK

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UNIT-1
PART-A

1.what is meant by web server? Give two examples. (Nov -Dec 2019)

Web server is a hardware/software that aids to deliver the information to be accessed through internet. It uses HTTP that works on any platform for the interaction between client and server. It is a network server that handles file access, firewall access and system resources over internet or local internet.

Example: Google web server,Apache

2.Mention any four advantages of CSS.(Nov -Dec 2019)

- Easier to maintain and update
- Greater consistency in design
- More formatting options
- Light weight code

3. Mention the difference between the internet and intranet.
(Nov-Dec 2016,Apr-may 2018)

Internet	Intranet
• It is world wide network of networks that allow user to send data ,voice, browse, web pages etc.	• It is private network that is separated from outside world i.e., non-public network link.
• The structure of internet is very complex. It connects different networks including intranet and extranet.	• The structure of a intranet network is relatively simple.
• It connects million of computers i.e., public	• It contents internal staff of an organization.
• It forms network with world Web.	• It forms network with local area network

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4.Define Cascading Style Sheet.(Apr-May 2019)

Cascading Style Sheet (CSS) forms one of the most interesting concepts of HTML as it specifies the rules for organizing elements of a given web documents. It not extends its features in controlling colors and sizes of font, but also controls spaces between various elements, the color and width of a given line etc. Thus,CSS’s are used to determine the style and layout of web pages. Generally, Style defines the way in which the HTML elements are shown on the web pages. A style can be used in the following format,

Selector(property:value)

5. Give an example of inline style sheet.(Nov-Dec 2018)

```
<!DOCTYPE html>
<html>
<head>
< meta charset=”UTF-8”>
<title> INLINE STYLESHEET</title>
</head>
< body>
<h1 =”color:blue;margin-left:30 px;”> Demonstration of inline
stylesheet</h1>
</body>
</html>
```

6.When user enter a Uniform Resource Locator(URL) address, into a web browser, how is the specific document retrieved from a web server? (Apr-May 2018)

1.Type the URL in the web browser.

2.Browser checks in the cache memory to find the IP address(or) DNS record of URL.

3.If it is not present in the cache, then the DNS server initiate DNS query to find IP of host address.

4. If the host address is found, then the browser initiates a TCP connection with server.

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5.The browser sends a HTTP request to server and waits for response.

6.The server takes the request, work on it and sends the response to browser.

7.The server's response is in the form of http having status code,compression type etc is converted to html by the browser.

8.Finally, the browser displays the html response on the screen to the user.

7.What is web 2.0? Give example.

Web 2.0 is a second generation World Wide Web (WWW) which is enhanced version of web 1.0. It adds new features and functionalities to the web 1.0. It is platform that enables multiple users to share and collaborate the information on web(i.e., online)through social media,blogging and web-based communities. It provides an open two way communication between users and web publishers. Example: Facebook, Google,Twitter,Whatsapp

8.Difference between container and standalone tag.(Nov-Dec 2018-19)

Container Tag	Standalone tag
• The container tags come in a pair i.e.,<></ > • They are used for formatting only specific text on web page. • These tags take some text for formatting. • Example: <b> Get well Soon</b>	• The standalone tags does not come in pair i.e., <> • They are used for inserting images on webpage. • These tags are empty tags since they do not contain any text within the them • Example: • <hr> Complete work

9. Write appropriate inline CSS to show a section of the HTML document with a font size of 20. (May-june 2016)

```
//Program for inline CSS to show a section to HTML document with font 20.
<!DOCTYPE html>
<html>
  <head>
    <title>Playing with Inline Styles</title>
  </head>
```

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```
  <body>
   <p style="color:blue;font-size:20;">
     INTERNET <strong>PROGRAMMING</strong>
   </p>
  </body>
</html>
```

OUTPUT:

INTERNET **PROGRAMMING**

10.Difference between website and web server.(Apr-may 2017)

Website	Webserver
• Website is defined as the collection of webpages that are grouped together.	• Web server is defined as a computer program which hosts a website on the internet browser.
• Static and dynamic are the two types of wesbsite.	• Tomcat web server,Internet information services and personal web server are the three types of web server.
• It is also known as simple'Site'.	• It is also known as web host.
• It is platform independent on particular/specific systems	• It is platform independent on all systems.

11. List any two rich internet applications**.(Apr-may 2017)**

- Google docs, Google maps
- Adobe flash,Adobe flex

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Define Server.

A Server is a computer that provides service to other clients. The purpose of a Server is to share data as well as to Share resources. For example, web Servers provide web pages to its clients. Some other servers are mail server, file server etc.

. Define client.

A client is a computing device that initiates contact with a server in order to access a service. For example, web browsers are clients that connect to web servers and retrieve web pages.

Define TCP/IP

TCP- Transmission Control Protocol is a connection oriented protocol and offers end-to-end packet delivery. It acts as a backbone for connection. TCP is reliable. TCP offers stream data transfer.

IP - Internet Protocol is connectionless and unreliable protocol. It does not guarantee the successful transmission of data. IP transmits the data in the form of datagram.

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1. What is. HTTP?

HTTP - Hyper Text Transfer Protocol. It defines a mechanism for communication between the browser and server. It is also called Request and Response protocol because the communication between the server and browser takes place in request - response pairs.

. List out the various layers present in www architecture.

1. Identifiers and character set
2. Syntax
3. Data interchange
4. Taxonomies
5. Ontologies
6. Rules
7. Proof
8. Cytography
9. User interface and applications.

6. Mention few HTML5 Control elements.

<datalist> <progress>

<output> <meter>

<keygen>

7. What are HTML5 semantic elements?

The elements with an associated meaning are called semantic elements. A semantic element clearly describes its meaning to both the browser and developer. Examples: <table>, <article>, <form>

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Differentiate <progress> element and <meter> element.

<Progress> element	<meter> element
It represents the progress of a task	It defines a scalar measurement within a known range
It is commonly used to show the progress of a file uploading in a web page	It is used to measure data within a given range.
Syntax: <progress value="22" max = "100"> </progress>	Syntax: <meter value="2" min = "0" max = "10"> </meter>

What are HTML5 semantic elements?

The elements with an associated meaning are called semantic elements. A semantic element clearly describes its meaning to both the browser and developer.

Examples: <table>, <article>, <form>

What are the various file formats for audio?

- mp3
- ogg
- wav
- mp4

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11. Define css.

css stands for cascading style sheets. css describes how HTML elements are to be displayed on screen, paper or in other media. css saves lot of work. It can control the layout of multiple web pages all at once.

12. State the types of css.

There are three types of css,

1. Inline css - every style content is in HTML elements
2. Internal css - the style of css is specified in the <head> section.
3. External css - we create .css file and use it in our HTML page as per our requirements.

13. what is Rule cascading?

cascading means that styles can fall or cascade from one style sheet to another, enabling multiple style sheets to be used on one HTML document. The order of css rules matter. when two rules apply that have equal specificity, the one that comes last in the css will be applied.

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14. what is css inheritance?

Inheritance is a process of receiving values of properties by a child element from its parent element. Some css property values set on parent elements are inherited by their child elements and some properties are not inherited.

15. what is animation? List out some animation properties.

An animation lets an element gradually change from one style to another. Some animation properties are,

1. Animation - name
2. Animation - duration
3. Animation - delay
4. Animation - direction

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PART-B

1. A form in HTML 5 to provide the list of grocery for the month from the list in the website using forms, labels, text boxes and lists. Allow the user to enter his details to get the grocery deliver to his house. (Apr -May 18)

Program:

```
<html>
<Title> Grocery </title>
<head><hl>Online Grocery Shopping</h1></head>
<body bgcolor="tan”>
<form>
<label><b>Select the items you want to purchase from the below list</b><label>
<fieldset style="background-color:lightgreen;">
<label><b>Vegetable<br></label>
<select multiple>
<option>Cabbage</option>
<option>Spinach</option>
<option>Broccolis/option>
<option>Mushrooms</option>
<option>Brinjal</option>
</select>
<label><br>Rice</br></label>
<select>
<option selected ="selected" value = “”>--Select any one-</option>
<option>Brown Rice</option>
<option>Basmati</option>
```

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```
<option> White</option>
<option>Arborio/option>
<select>
<label><br> Oil</br></label>
<select Align="Right">
<option selected="selected" value="”>--Select any one-- </option>
<option>Gold Drop Sunflower Oil</option>
<option Olive Oil</option>
<option>Refined Oil</option>
<option>Coconut Oil</option>
</select><input type="reset"></input>
</fieldset>
</form>
<br>
<form>
<label><b>Enter your details to get the grocery delivered to your destination<b><label>
<fieldset>style="background-color:Tomato;”>
<label>Name</label>
<input type="text" id="Name" placeholder="Enter you name here”></input>
<br><br><label>Email</label>
<input type="text" id="Email" placeholder="Enter your mail id here”></input>
<br><br><label>Contact Number</label>
<input type="number" id=”cn1" maximum="10”length=“10” placeholder="10-digit Number"></input>
<label>Alternate Contact No.</label>
```

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```
<input type="number" id="cn1" maximum=“10”length="10" placeholder="10-digit Number”></input>

<br><label>Address<br></label>

<textarea rows="2" cols="50" id="Address" placeholder="Enter your address here"></textarea><br>

<label>br>Landmark</label>

<input type="text" id="landmark" placeholder=“near by landmark"></input><br>

<label><br>State</label>

<input type="text" id="State" placeholder="Sate"></input><br>

<label><br>Pin Code</label>

<input type="text" id=”State" placeholder="Pin Code"></input>

<br><br><input type=”reset”></input>

<input type="submit" value="Confirm Delivery" onclick="alert('Order Successfully')"”></input>

</form>

</body>

</html>
```

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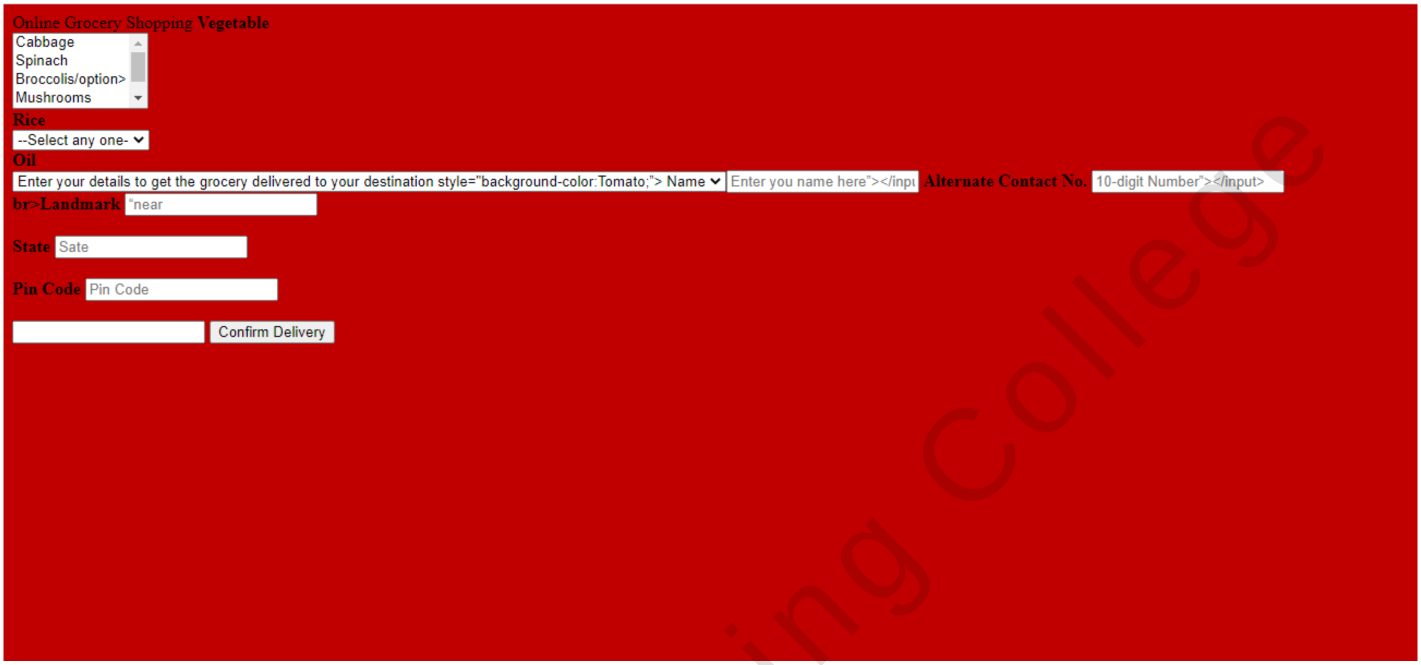
OUTPUT:



Online Grocery Shopping **Vegetable**

Cabbage
Spinach
Broccolis/option>
Mushrooms

Rice

--Select any one-

Oil

Enter your details to get the grocery delivered to your destination style="background-color:Tomato;"> Name Enter you name here"></inpu **Alternate Contact No.** 10-digit Number"></input>

br>Landmark "near

State Sate

Pin Code Pin Code

Confirm Delivery

2.Create a website to get feedback from the users using CSS. (Apr-May 18)

```
<html>
<head><title> Feedback Form</title>
<style>
Body{font-family: Arial,Hevetica,sans-serif;}*{box-sizing: border-box;}
Input[type=text],select,textarea,radio{width: 100%;
Padding: 6px;
border:1px solid;
border-radius: 5px;
margin-top: 6px;
margin-bottom:6px;
}
Input[type=submit]{
```

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```
Background-color:maroon;
color:white;
padding:12 px;
}
input[type=submit]:hover{
background-color:Green;
}
.field{
border-radius:5px;
background-color:tan;
padding: 30px;
}
</style>
</head>
<body>
<h2> Feedback Form</h2>
<div class=”f
<ield”>
<form onsubmit=alert(“Thank you”)>
<label for=”uname”>User name=”firstname” placeholder=”Your name.”><br>
<br><label for=”r0”> would you opt for our service in future?</label><br>
<input type=”radio” name=”ratings2” id=r0>No
<input type=”radio” name=”ratings2” id=r0>Yes
<input type=”radio” name=”ratings2” id=r0>May be, I don’t know.
<br><br>
```

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```
<label for=”r2”>Overall Experience in using our service:</label><br>
<input type=”radio” name=”ratings1” id=r2>Bad
<input type=”radio” name=”ratings1” id=r2>Average
<input type=”radio” name=”ratings1” id=r2>Good
<input type=”radio” name=”ratings1” id=r2>Excellent
<br>
<textarea idd=”subject” name=”subject” placeholder=”write something.
.”style=”height”:100 px”></textarea>
<input type=”submit value=”submit”>
</form>
</div>
</body>
</html>
```

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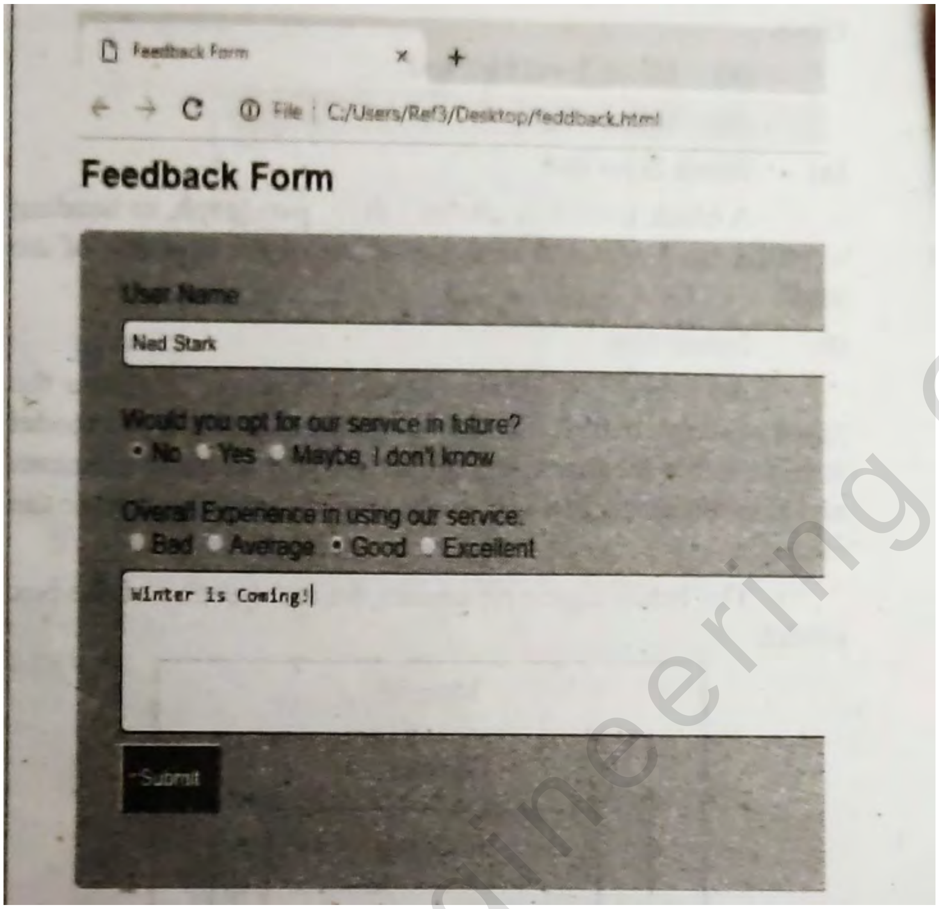
OUTPUT:



Feedback Form

User Name

Ned Stark

Would you opt for our service in future?
● No ○ Yes ○ Maybe, I don't know

Overall Experience in using our service:
○ Bad ○ Average ● Good ○ Excellent

Winter is Coming!

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PART-B

Discuss on web Servers. [Apr /May 2019] [Nov /Dec 2015] [8 marks]

A web Server is a Service that handles specifically requests in the HTTP protocol format. The server responses to requests made using the HTTP format, and in turn respond using a valid HTTP response. A web server may respond with a content type that supports non-HTML formats, such as PDF files, binary files, and JSON/XML responses. The Key factor in understanding that these requests came from a web Server understands that response is a HTTP response. The content in the response is just an application specific content type.

A web server may run multiple CGI languages to provide the HTTP responses. These can include Python, PHP, Java and ASP. These languages operate under the web server, but in turn provide valid HTTP responses.

A web server will respond to the client reque in any one of the following two ways,

1. Sending the requested file to the client
2. Generating response by calling a script and communicating with database.

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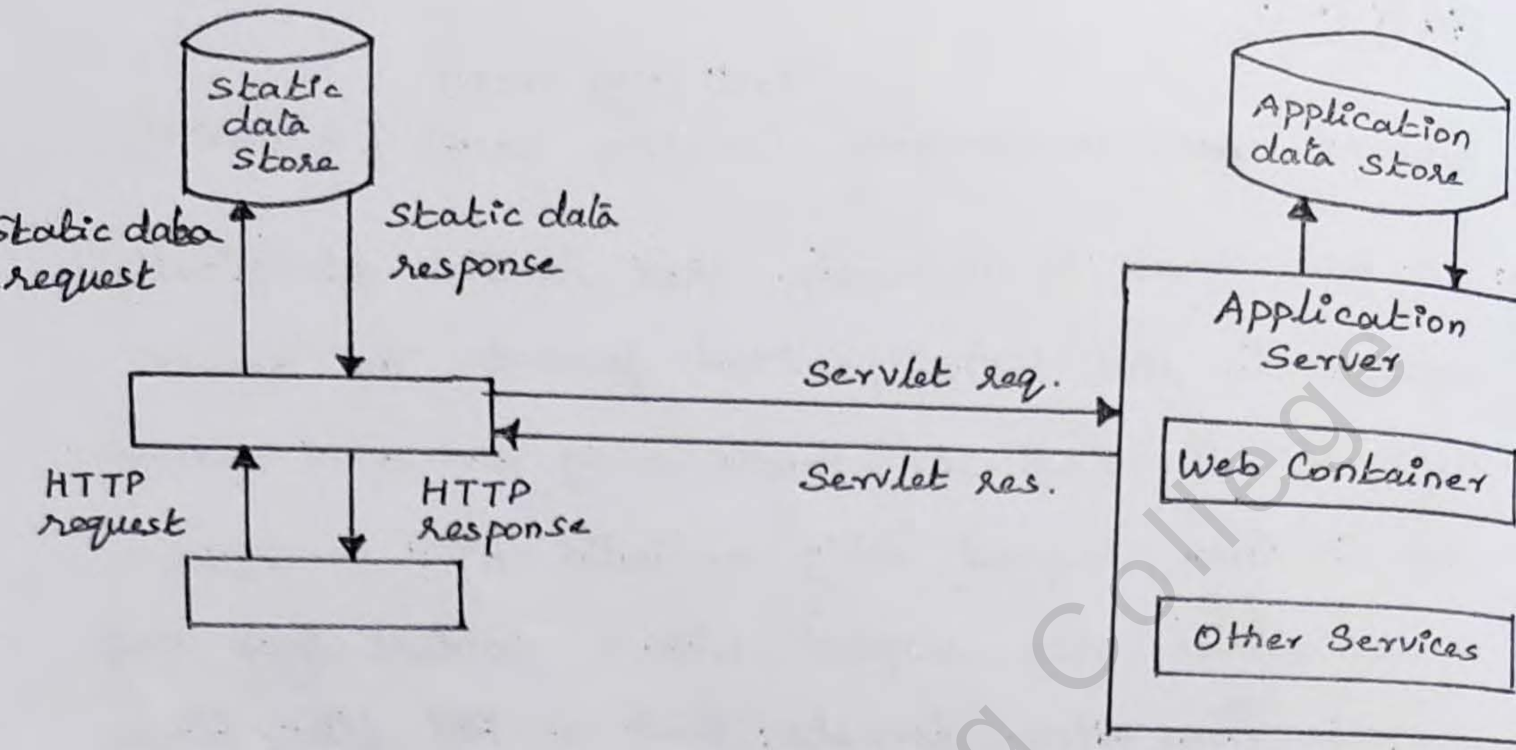
Working of web Server



When a client sends request for a web page, the web server searches for it and if found returns HTTP response.

If the requested web page is not found, the web server will send the following response

404 File Not Found

If client has requested for some other resources then, the web server will contact the application server and data store to construct the HTTP response.

Architecture of web Server :

(i) Single - Threaded web server

One process sequentially handles all client connections. It is simple and does not require synchronization. It is not scalable. It cannot handle one client at a time.

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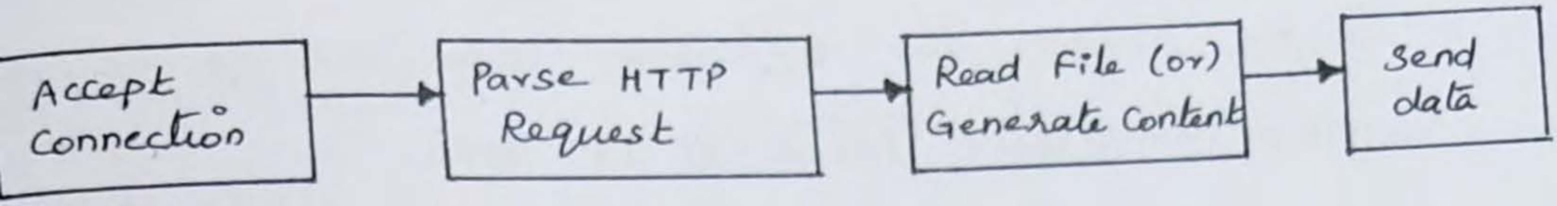
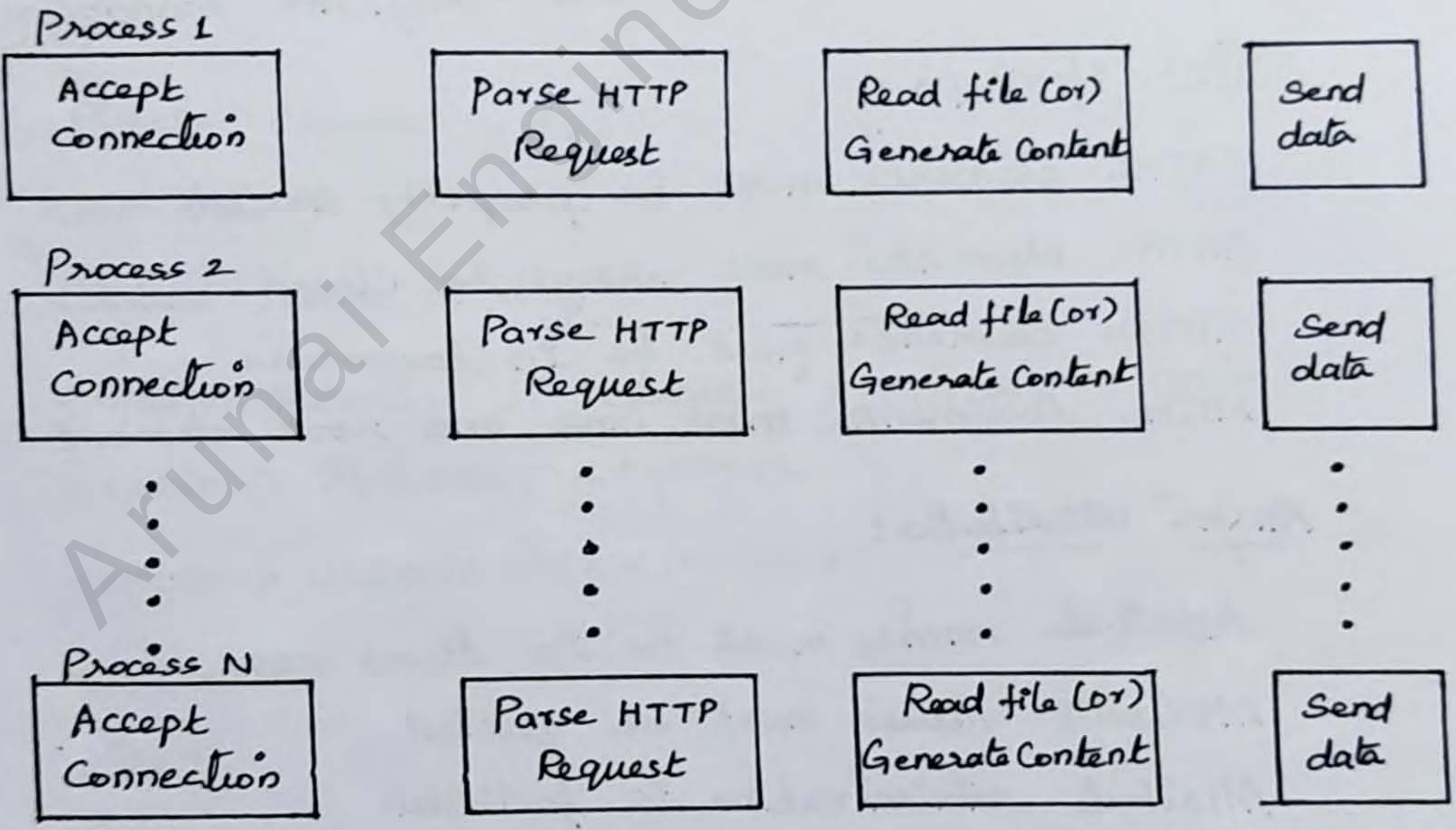


) Multi-process Architecture:

It utilizes multiple processes. It is easy to debug. The drawback of this architecture is that the Inter process communication is difficult and expensive. It involves context switching and thereby it results in high memory cost.



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Discuss on XHTML [Nov/Dec 2015] [8m]

XHTML stands for Extensible HyperText Markup La

XHTML is almost identical to HTML

XHTML is stricter than HTML

XHTML is HTML defined as an XML application

XHTML is supported by all major browsers.

The most important differences from HTML:

Document structure:

XHTML DOCTYPE is mandatory

The xmlns attribute in <html> is mandatory

<html>, <head>, <title> and <body> are mandatory

XHTML elements:

XHTML elements must be properly nested

XHTML elements must always be closed

XHTML elements must be in lowercase

XHTML documents must have one root element

XHTML attributes:

Attribute names must be in lower case

Attribute values must be quoted

Attribute minimization is forbidden

<!DOCTYPE ...> is mandatory.

Example:

```
<!DOCTYPE html PUBLIC "-/W3C// DTD XHTML 1.0
    Transitional//EN" "http://www.w3.org/TR/
     xhtml1/DTD/Xhtml1-transitional.dtd">
```

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Example:

```
<?xml version = "1.0" encoding = " UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C/DTD XHTML 1.0 Strict/EN
 " DTD/xhtml1-strict.dtd">
<html xmlns = "http://www.w3.org/1999/xhtml"
 xml:lang = "en" lang = "en">
 <head>
  <title> Strict DTD XHTML Example </title>
  </head>
  <body>
  <p>
   Please choose a day
  <br/> <br/>
  <select name = "day">
  <option selected = "Selected"> MONDAY </option>
  <option> TUESDAY </option>
  <option> WEDNESDAY </option>
  </select>
  </p>
  </body>
  </html>
```

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Explain the three ways of inserting a css to a document with examples. [Nov/Dec 2016] [8 m]

CSS stands for Cascading Style Sheets. CSS describes how HTML elements are to be displayed on screen. It can control the layout of multiple web pages all at once. External style sheets are stored in CSS files.

There are three types of CSS,

1. Inline CSS
2. Internal (or) Embedded CSS
3. External CSS

Inline CSS :

Inline CSS contains the css property in the body section attached with the element. This kind of style is specified within an HTML tag using style attribute.

Example:

```
<html>
  <head> <title> Inline css </title></head>
  <body>
  <p style = "color : green ; font-size : 12px ;">
                Inline css
   Inline demo
   </p>
   </body>
 </html>
```

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Internal (or) Embedded css :

This can be used when a single HTML document must be styled uniquely. The internal css should be written within the head section in the HTML file.

Example :

```
<html>
<head> <title> Internal css </title>
  <style>
        • main { text - align : centre ; }
        • content { font- size : 16 px ;            Internal
                    font- weight : bold ; }          css
  </style>
  </head>
  <body>
      <div class = "main" > Hello world
          <div class = " content" > Internal css demo
          </div>
      </div>
   </body>
   </html>
```

External css :

External css contains separate css file with .css extension. It should be linked to the HTML document using <link> tag.

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Example :

External stylesheat : [ext.css]

```
body
{
  background-color : cyan;
}
.main { text-align: centre ;}
.content { font-size: 16px ; font-weight : bold ;}
```

HTML file which makes use of the above externa
stylesheet (ext.css) is,

```
<html>
 <head>
  <link rel="stylesheet" href="ext.css">
 </head>
 <body>
   <div class = "main" > Hello world
   <div class = "content" > External css demo
   </div>
   </div>
 </body>
 </html>
```

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4. Explain transitions and animations in css.

CSS Transitions:

css transitions allows to change property values smoothly, over a given duration.

Transition Properties:

1. Transition
2. Transition - delay
3. Transition - duration
4. Transition - property
5. Transition - timing - function

Using CSS Transitions:

To create a transition effect, two things must be specifie

⇒ The css property to which you need to add an effect

⇒ The duration of the effect

If the duration part is not specified, the transition will have no effect, because the default value is 0. The transition effect will start when the specified css property changes value.

Example:

```
div: hover {
        width: 300 px;
}
```

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change several property values:

```
div {
    transition: width 2s, height 4s;
}
```

this example adds a transition effect for both the width and height property with a duration of 2 seconds for width and 4 seconds for height.

Speed Curve of the Transition:

The transition-timing-function property specifies the speed curve of the transition effect. It can have the following values,

1. ease - specifies a transition effect with a slow start, then fast, then end slowly
2. linear - specifies a transition effect with the same speed from start to end
3. ease-in - specifies a transition effect with slow start
4. ease-out - specifies a transition effect with slow end.
5. ease-in-out - specifies a transition effect with a slow start and end
6. cubic-bezier(n, n, n, n) - lets to define our own values in a cubic-bezier function

Delay the transition effect:

The transition-delay property specifies a delay in seconds for the transition effect.

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Example:

```
div{
    transition-delay: 1s;
}
```

Transition + Transformation:

This example adds a transition effect to the transformatio

```
div{
    transition: width 2s, height 2s, transform 2s;
}
```

CSS Animations:

CSS allows animation of HTML elements without using Java Script or Flash.

Animation Properties

1. @ Keyframes
2. animation - name
3. animation - duration
4. animation - delay
5. animation - iteration - count
6. animation - direction
7. animation - timing - function
8. animation - fill - mode
9. animation -

An animation lets an element gradually change from one style to another.

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To use css animation, first it is necessary to specify some keyframes for the animation. Keyframes hold what styles the element will have at certain times.

Example:

```
/* Animation code */
@keyframes example {
        from { background - color : red ; }
        to { background - color : yellow ; }
}
/* The element to apply the animation to */
div {
    width : 100px;
    height : 100px;
    background - color : red ;
    animation - name : example;
    animation - duration : 4s ;
}
```

Delay an animation:

The animation - delay property specifies a delay for the start of an animation.

Example:

```
div { . . . . .
    animation - name : example ;
    animation - duration : 4s;
    animation - delay : 2s ;
}
```

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Negative values are also allowed. If we are using negative values, the animation will start as if it had already been playing for N seconds.

Example:

```
div {
   width : 100 px;
   height : 100px;
   position : relative;
   background - color : red;
   animation - name : example;
   animation - duration : 4s
    animation - delay : -2s
 }
```

Set how many times an animation should run

The animation - iteration - count property specifies the number of times an animation should run.

Run animation in reverse direction for alternate cycles

The animation - direction property specifies, whethe an animation should be played forwards, backgrounds or in alternate cycles. This property can take any one or the following value,

Normal reverse
alternate
alternate - reverse

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Specify the speed curve of the Animation:

The animation - timing - function property specifies the speed curve of the animation. It can take any one of the following values,

ease, ease-in, ease-out, ease-in-out, linear etc.

Specify the fill-mode for an Animation

css Animations do not affect an element before the first Keyframe is played or after the last Keyframe is played. The animation fill-mode property can override this behaviour. It can have one of the following values,

None
forwards
backwards
both

5. Explain the enhanced features in HTML 5.0 with a neat example. [Apr/May 2017]

HTML 5 is the latest and most enhanced version of HTML. HTML is a mark-up language. HTML 5 is the next major version of the HTML superseding HTML 4.0.1, XHTML 1.0 and XHTML 1.1. HTML 5 is a standard for structuring and presenting content on web. HTML 5 is developed through the cooperation between w3c and the WHATWG (Web HyperText Application Technology working Group.

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The new standard incorporates features like video playback and drag-and-drop. Earlier such features are available only through third-party plug-ins such as adobe flash, Google gears etc.

Browser Support:

The latest versions of Apple safari, Google Chrome, Mozilla FireFox and Opera support many HTML 5 features and Internet Explorer 9.0 also supports HTML 5. The mobile web browsers in iphones, ipads and android phones all have excellent support for HTML 5.

New Features

HTML 5 introduces a number of new elements and attributes which can help in building modern websites. Some of the most prominent features are,

New semantic elements - <header>, <footer>, <section>

Forms 2.0 - Improvements to HTML web forms where new attributes have been introduced for <input> tag.

websocket - A next generation bidirectional Communicat technology for web applications.

Server-sent events - HTML 5 introduces events which flow from server to Browser and they are called Server-sent events (SSE)

Canvas - 2D drawing surface that can be programmed with Java script.

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Audio and video - It allows to embed audio or Video in web pages without depending on 3rd party plugins.

Drag and Drop - Drag and Drop the items from one location to another on the same web page.

Backward Compatibility

HTML 5 is designed to be backward compatible with existing browsers. It is suggested to detect support for individual HTML 5 features using a few lines of Java Script.

HTML 5 syntax

HTML 5 supports the following features

⇒ Uppercase tag names

⇒ Quotes are optional for attributes

⇒ Attribute values are optional

⇒ Closing empty elements are optional

The <script> tag :

```
<script src = "sample.js">
</ script>
```

The <link> tag :

```
<link rel = "stylesheet" href = "styledemo.css">
```

HTML 5 tag names are case sensitive.

All HTML elements can have attributes

Attributes provide additional information about an

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Attributes are always specified in start tag

Attributes are specified as Name-value pairs.

Example: [advertise.html]

```
<html>
<head>
<title> Advertise Demo </title>
</head>
<frameset rows="150,* " frameborder="0" border="0"
                framespacing="0">

<frame src=" welcome.html">
<frame src= "http://www.yahoo.com">
</frameset>
</html>
```

[welcome.html]

```
<html>
<head> <title> Home page </title> </head>
<body bgcolor="pink">
<center>
<img src="logo.jpg" align="left">
<h1> My Book Store </h1>
</center>
<h3> <div align="left"> <i> Here you can find
          every book of your interest...
     </i> </div> </h3>
</body>
</html>
```

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6. Summarize the difference between HTML and XHTML.

Apr/May 2019. 1·

	HTML	XHTML
1.	The HTML tags are not case sensitive. Hence <body> or <BODY> or <Body> are treated as one and the same	The XHTML is case sensitive and all the tags in XHTML document must be written in lower case
2.	we can omit the closing tags sometimes in HTML document	For every tag there must be a closing tag. There are 2 ways for mentioning the closing tags. <a href="apple.html"> </a> (or) <a href="apple.html" />
3.	In HTML the attribute values is not always necessary to be quoted	In every XHTML document the attribute values must be quoted
4.	In HTML there are some implicit attribute values	In every XHTML the attribute values must be specified explicitly
5.	In HTML even if we do not follow the nesting rules strictly it does not cause much difference	In XHTML document the nesting rules must be strictly followed.

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. Discuss in detail HTTP Request Message and HTTP Response Message in detail.

HTTP Request Message

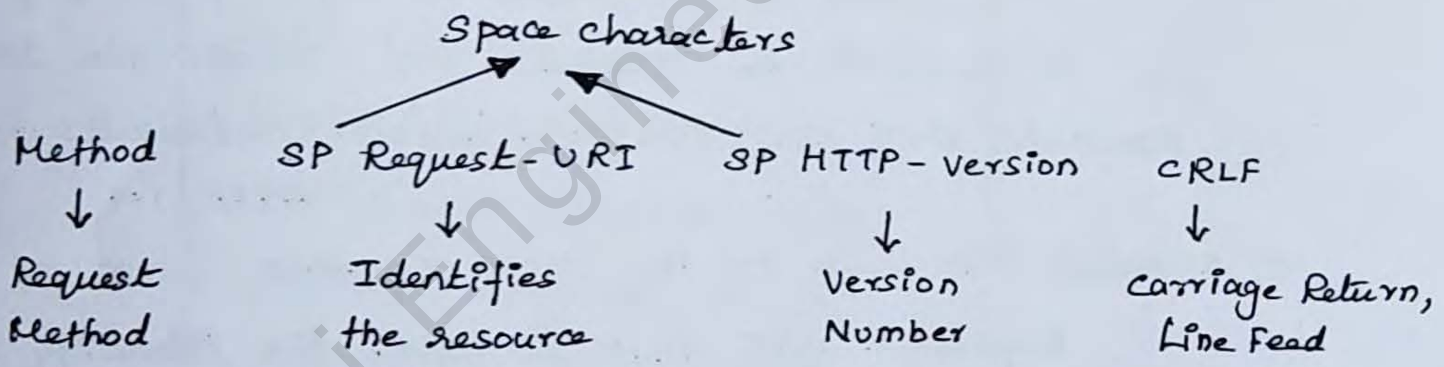
A HTTP client sends a HTTP request to a server in the form of a request message.

Format of HTTP request message:

A request-line
Zero or more header fields
An empty line indicating the end of the header fields
optionally, a message body

Request-line

syntax:



Space characters

Method SP Request-URI SP HTTP-version CRLF

Method → Request Method

Request-URI → Identifies the resource

HTTP-version → Version Number

CRLF → Carriage Return, Line Feed

The request method indicates the method to be performed on the resource identified by the given URI. Some of the methods are,

GET - To retrieve information from the given server

HEAD - To transfer the status line and header section only

POST - To send data to the server, for example, customer information, file upload etc.

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PUT - To replace current content with uploaded content

DELETE - To remove the current content of the resource.

CONNECT - Establishes a tunnel to the Server.

OPTIONS - To describe the communication options

TRACE - To perform a message loop back test.

The request-URI is a uniform resource identifier and identifies the resource. The URI can be specified in one of the following ways,

a) * - used when a request applies to all resources on the server. Example: OPTIONS * HTTP/1.1

b) Absolute URI - Used when an HTTP request is being made to a proxy. The proxy is requeste to forward the request, and return the respo

Example: GET http://www.annauniv.edu/results.php HTTP/1.1

c) Absolute Path - It is the most common form of request - URI that is used to identify a resource

Example: GET onespace/samples/www/demo.html HTTP/1.

Request header fields

Request header fields allow the client to pass additional information about the request and about the client to server.

Some important request - header fields are,

1. Accept - charset
2. Aceept - Encoding

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3. Accept - Language

4. From

5. Host

6. If-Match

7. Max - Forwards

8. Range

9. TE

10. User - agent

Example - HTTP Request Message (GET Method)

The following is a sample request message to fetch sample.html page from the web server running on www.annauniv.edu

```
GET /sample.html   HTTP 1.1
User - Agent : Mozilla/4.0
HOST : www. annauniv.edu
Acept - Language : en-US
Acept - encoding : gzip
Connection : keep-Alive
```

In the above example, we are not sending any data to server, just we are fetching a page, so, the GET method has been used

Example - HTTP Request Message (POST Method)

The following example shows how to send data to the server using POST method,

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```
POST /cgi-bin/process.cgi HTTP/1.1
User-Agent : Mozilla/4.0
HOST: www.annauniv.edu
Content-type : text
Content-length : 135
Accept-Language : en-US
Accept-Encoding : gzip
Connection : keep-Alive

Regno = BigInt & name = string } message body
                                 (data being
                                 sent to server)
```

HTTP Response Message :

On receiving a request message, the server responds with a HTTP message.

Format of HTTP Response Message :

- A status-line
- Zero (or) more header fields
- An empty line
- Optionally, a message body

Status-line

It consists of the protocol version followed by a numeric status code and its text. The elements are separated by space character (SP).

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Syntax

HTTP-version SP status-code SP Reason CRLF
↓ ↓ ↓
HTTP/1.1 404 File Not Found

HTTP version returns the version information.

Status code is a 3-digit integer. There are 5 values for the first digit, They are

1xx - Request was received and process is continuing
2xx - Success
3xx - Redirection
4xx - Client Error
5xx - Server Error

Last two digit represents specific status within the specified class

Response header Fields

These fields allow the server to pass additional information about the response.

Some of the fields are,

⇒ Acept - Ranges
⇒ Location
⇒ Retry - After
⇒ vary
⇒ www - Authenticate.

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Example: HTTP Response Message

The following is a sample response message that returns the sample.html page from the server

```
HTTP/1.1 200 ok  → Status-line
Date : Mon, 05 Aug 2019 11:35:49 GMT
Server : Apache/2.2.14 (win 32)
Last-modified : wed, 31 Jul 2019 18:35:44:GMT
Content - length : 267
Content - type : text/html
Connection : closed
<html>                          }
<body>                          }
<h1> Hello, web <h1>            }  Message
</body>                         }  Body
</html                          }
```

8. Discuss on web client.

web client is an application software that allows us to view and explore information on the web. User can request for any web page by just entering an URL in the address bar. Any web client that is designed to directly support user access to webserver is known as user agent. Usually, the web client is a browser such as chrome Mozilla FireFox etc. A web browser can show text, audio, video, animation and even more. It is the task of a browser to interpret and display the conten

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of a web page. Some of the web browsers are,

Internet Explorer - Microsoft

Chrome - Google

FireFox - Mozilla

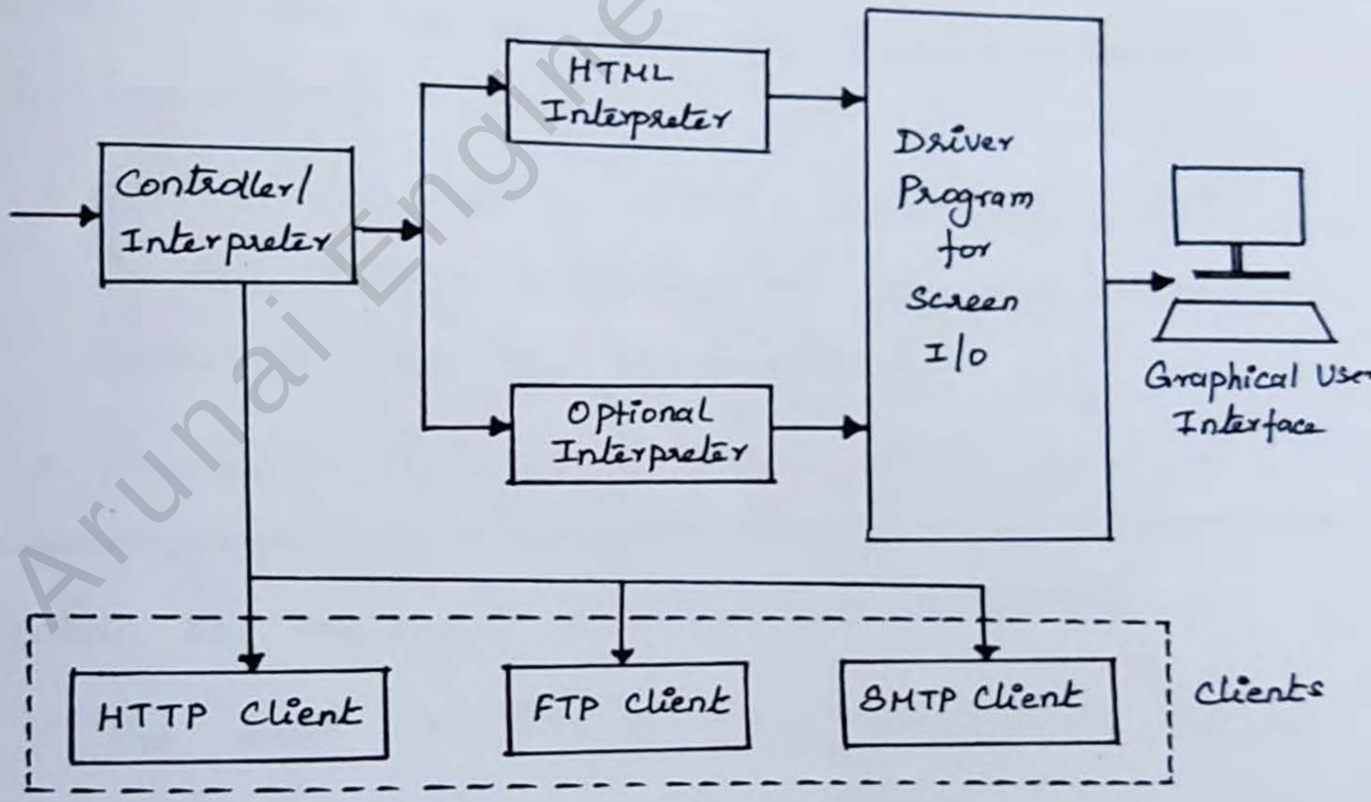
Netscape Navigator - Netscape Corp.

Safari - Apple

Architecture

The most basic component that all web browser most exihibit are,

1. Controller / Dispatcher
2. Interpreter
3. Client Programs



Controller works as a control unit in CPU. It takes input from the Keyboard, mouse, interpret it and make other services to work on the basis of input it

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Interpreter receives the information from the controller and execute the instruction line by line. Some interpreter are mandatory while some are optional. For example, HTML interpreter is mandatory and Java interpreter is optional.

client program describes the specific protocol that will be used to access a particular service. Some of the commonly used client programs are,

HTTP
SMTP
FTP
POP.

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UNIT-2

PART -A

1. List any four methods of date object. (Nov -Dec 19, Nov -Dec 16)

a) var currentdate =new Date("month,dd,yyyy")
It returns a snapshot of system's month,date and year values of that particular instant.

b) var currentdate =new Date("month dd,,yyyy hh:mm:ss")
It not only returns month,date and year values of a system but also appends hour, minutes and seconds value of their particular instant to them

c) var currentdate= new Date("yy,mm,dd")
It returns the current year, month and date values of the system.

d) Var currentdate= new Date(yy,mm,dd,hh,mm,ss)
It returns current year, month,date,hour, minute and seconds values of the system.

e) var currentdate = new Date(GMT milliseconds from 1/1/1970)
It returns the Greenwich mean time value.

2.What is JavaScript? (Apr -May 19)

Javascript is a programming language that provides support to object oriented methodologies. It facilitates inclusion of Certain executable data along with it. Hence ,it can be said that , with the usage of javascript, a given webpage will no longer remain a store house of static data that is, it maintains dynamic data and allow creation of dynamic HTML context. Besides this ,it also controls the browser actions.

3.Mention various Java script object models.(Nov -Dec 18)

- Math object
- Date object
- String object
- Array object
- Navigator or Browser object
- Window object
- Document object

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4.Write the Javascript methods to retrieve the date and time based on the computer locale.(Apr -May 18)

The Javascript method to retrieve date and time based on the computers locale is as follows,

```
<Script>
var cur= new Date ();
day= cur.getDate();
month = cut.getMath()+1;
year=cur.getfullYear();
var cur time=new Date();
var curtime=newDate();
hours= curtime.getHours();
mins=curtime.getMinutes();
if(mins <10)
{
mins="0"+ mins;
}
document.write(day +"/" + month +"/" +year);
document.write(hours +"."+ mins);
</Script>
```

5.How exceptions are handled in JavaScript. (Apr-May 17)

- Exceptions are handled in JavaScript using try,catch and throw statements.
- A block of statements are written in try block which when executed will throw an exception . When this execution stops, the catch block will handle the exception.
- In above case exceptions are usually thrown implicitly, which are later caught by the catch construct provided in the code. But while using throw statement, it is possible to throw the exception explicitly. Hence the throw statement has the following form.

```
<HTML>
<BODY>
{
if statement
throw statement
}
Catch (exception)
{
```

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```
if statement
}
</Body>
</HTML>
```

6.write appropriate JavaScript code to remove an element (current element)from a Dom. (May -June 16)

```
   <! DOCTYPE HTML>
   <HTML lang ="en">
   <head>
   < meta charset ="UTF-8">
   < title> REMOVING ELEMENT FROM DOM  </title>
  </head>
  <body>
  <ul id = "Elements">
  < li> book </li>
  < li> pen</li>
  < li> pencil</li>
  </ul>
  <p> Press the button to remove the first element from the record </p>
<button onclick ="func ()"> button </button>
<Script>
function func ()
{
var record = document.getElementById("Elements");
record.removeChild(record.childNodes[0]);
}
</Script>
</body>
</html>
```

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1. State the purpose of Java Script.

Java Script is a client side scripting language for web-based applications. It enhances the functiona and appearance of web pages.

2. write a Java code in JS to display welcome message

```
<script type = "text/javascript">
 Document.writeln("Welcome">;
</script>
```

3. what is the use of alert and prompt functions in javascript?

1. alert() is used to display some information to the user in a dialog box. It pops up on screen to grab the user's attention.
2. prompt() is used to obtain input from user.

4. What is Document Object Model (DOM)?

The DOM is like a road map of a webpage. The path starts from HTML document down to various elements on the page.

Example: document.Formname.Button1.

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5. Define Regular Expression.

A regular expression is an object that describes a pattern of characters.

Example: [^a-z A-z]

6. Mention some built in objects in Javascript.

1. Math
2. Date
3. Boolean
4. Number

7. what are the merits of using DHTML?

⇒ Allows the designer to control how the HTML displays web pages content

→ Realt and change with the actions of the visitor.

⇒ Can hide and show the content as needed.

8. write the code for adding sound to webpages.

```
<embed src = "music.wav"> </embed>
<bgsound src = "music.wav">
<img dynsrc = "clouds.avi">
```

9. what is JSON?

JSON stands for JavaScript Object Notation. It is lightweight format for storing transporting data. It is often used when data is sent from a server to a web page. JSON is self-describing and easy to understand.

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10. Write down the JSON Syntax rules.

1. Data is in name/value pairs
2. Data is separated by commas
3. Curly braces hold objects
4. Square brackets hold arrays

11. How to create a JSON object?

JSON objects are written inside curly brackets. Just like in JavaScript, objects can contain multiple name-value pairs.

Example : {"firstname" : "Sri", "lastname" : "Ram"}

12. Define SQL.

SQL is a database computer language designed for the retrieval and management of data in a relational database. SQL stands for Structured Query Language.

13. Enumerate few of the SQL Commands.

1. SELECT - extracts data from database
2. UPDATE - updates data in a database
3. DELETE - deletes data from a database
4. INSERT INTO - inserts new data into a database
5. CREATE DATABASE - creates a new database
6. ALTER DATABASE - modifies a database.

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14. what are the aggregate functions in SQL?

1. COUNT counts how many rows are in a particular column.

2. SUM adds together all the values in a particular column.

3. MIN and MAX return the lowest and hightest values in a particular column respectively.

4. AVG calculates the average of a group of Selected values.

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PART-B

1.write a javascript to find a factorial of a given number. (Nov -Dec 17)

PROGRAM:

```
<!doctype .html>
<html>
<head>
<script>
function show()
{
var i,no,fact;
fact=1;
no=document.getElementById("num")value;
for(i=1;i<=no;i++){
fact=fact*i;
}
document.getElementById("anwser").value=fact;
}
</script>
</head>
<body>
enter the number:<input id="num"><br>
<br><button onclick="show()">calculate</button></br>
<br>the factorial of number :<input id="answer"></br>
</body>
</html>
```

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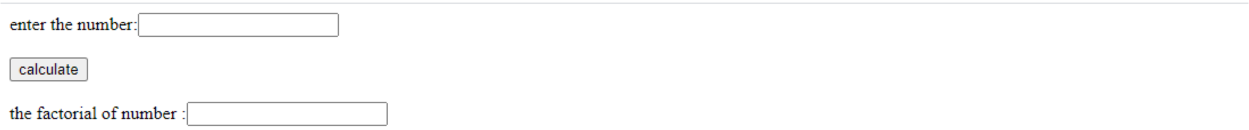
OUTPUT:



enter the number:

calculate

the factorial of number :

2. write ajavascript to find the prime numbers from1to100. (Apr-May 16,Nov -Dec 18)

PROGRAM:

```
<html>

<head>

<title>javascript to print prime numbers!</title>

<meta charset ="UTF-8">

<script>

function printprime(){

vari=0;

var j=0;

limit=document.getElementById('limit').value;

//loop till iequalsto $limit

for(i=1;i<=limit;i++){

c=0;

for(j=1;i<=i;j++){

//here %gives the remainder value,if itis 0then i value is divisible .otherwise it is not divisible

if(i%j==0){

//increment the value of c

c++;

}

}
```

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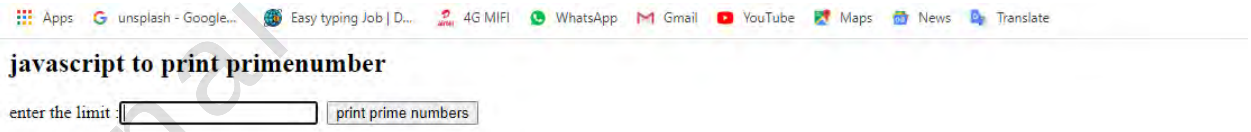
```
//if the value of c is 2 then the prime  number

//because a primenumber should be exactly divisible by its and 1

if(c==2){

document.getElementById("result");

insert AdjacentHTML('beforeend',i+'<br>');

}

}

}

</script>

</head>

<body>

<h2>javascript to print primenumber</h2>enter the limit :<input
type=numbers"name=limit"id="limit"min="0"max="100"style="width";100px;"/>&nbsp;

<input type="submit"value="print prime numbers"onclick="printprime()"name="ptint"/>

<divid="result"></div>

</body>

</html>
```

OUTPUT:



javascript to print primenumber

enter the limit :

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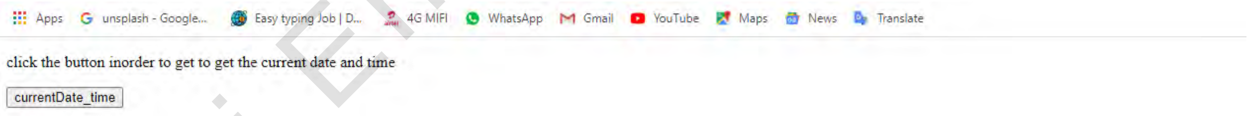
3.Write the DHTML program to handle the user click events. (Nov -Dec 16)

DHTML PROGRAM:

```
//onclick event

<!DOCTYPE html>

<html lang ="en">

<head>

<meta charset ="utf-8">

<title>onclick event</title>

</head>

<body bg color="pink">

<p>click the button inorder to get to get the current date and time</p>

<button on click="getElementById('demo1')innerHTML=date()">currentDate_time</button>

<p id="demo 1"></p>

</body>

</html>
```

OUTPUT:



click the button inorder to get to get the current date and time

4.Use javascript and HTML to create a page with two panes. The first pane (on the left) should have a text area where HTML code can be typed by the user. The pane on the right side should display the preview of the HTML code typed by the user, as it would be seen on the browser.

PROGRAM:

```
<!DOCTYPE html>

<html lang"en">
```

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```
<head>
<meta charset="UTF-8">
<title>Page with two panes</title>
<script>
var fileID=" ";
var Save= false;
function getSavedFile()
{
Save true;
var htmlCode;
var paramObj = {};
paramObj.fileid = "" ;
fileID =paramObj.fileid;
}
</script>
<style>
*{
webkit-box-sizing: border-box;
moz-box-sizing: border-box;
box-sizing: border-box;
}
#container
{
width:100%;
overflow:auto;
position:absolute;
top:138px;
bottom:0;
```

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```
height:auto;
}
#textareacontainer, #iframecontainer
{
float:left;
height:100%;
width:50%
}
#textarea, #iframe
{
height:100%;
width: 100% ;
padding-bottom: 10px;
padding-top:1px;
}
#textareawrapper
{
width:100%;
height:100%;
position:relative;
box-shadow:0 1px 3px rgba(0,0,0,0.12), 0 1px 2px rgba(0,0,0,0.24);
}
#iframewrapper
{
width:100%;
height:100%
-webkit-overflow-scrolling: touch ;
box-shadow:0 1px 3px rgba(0,0,0,0. 12), 0 1px 2px rgba(0,0,0,0.24);
```

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```
}
#textareaCode
{
font-family: consolas, "courier new",monospace;
font-size:15px;
height:100%;
width:100% ;
padding:8px;
resize:none ;
border:none;
line-height:normal;
}
#iframeResult, #iframeSource
{
height:100%;
width:100%;
}
</style>
</head>
<body>
<div id-"'shield"></div>
<div id-"container">
<button class="w3-button w3-bar-item w3-
green w3-hover-white w3-hover-text-green"
onclick-"submit Tryit(1)">Run &raquo;</button>
<div id="menuOverlay" class="w3-overlay w3- transparent" style="cursor:pointer;z-index:4"></div>
<div id-"textareacontainertextareacontainer">
<div id-"textarea'">
```

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```
<textarea autocomplete="off" id="textareaCode" wrap="logical" spellcheck="false">
//code for Text area Pane
<!DOCTYPE html>
<html>
<body>
<h1> Welcome to SIA PUBLISHERS AND
DISTRIBUTORS<h1>
<body>
<html>
<textarea>
</div>
</div>
</div>
<div id-"iframecontainer>
<div id-"iframe">
<div id-"iframewrapper"></div>
</div>
</div>
</div>
</div>
</div>
<script>
submitTryit()
function submitTryit(n)
{
if (window.editor)
{
window.editor.save ();
```

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```
}
var text document. getElementByld("textareaCode").
value;
var ifr = document.create Element("iframe");
ifr.setAttribute("frameborder", "0") ;
document. getElementById("iframewrapper"). innerHTML = " ";
document.getElementById("iframewrapper").appendChild(ifr);
if (Save == true)
{
ifr.setAttribute ("src", "/code/opentext.htm");
}
else if(filelD !=" "  && Save==false)
{
var t-text;
var pos-t.search(/script/i)
while (pos>0)
{
t=t.substring(0,pos)+ "w3" + t.substr(pos,3) + "w3"+ t.substr(pos+3,3) + "tag"+ t.substr(pos+6);
pos=t.search(/script/i);
}
document.getElementById(' codeForm').target = iframeResult";
document.getElementByld("codeForm").submit();
else
{
var ifrw= (ifr.contentWindow)? ifr.content Window :
(ifr.contentDocument.document)? ifr. contentDocument,
document:ifr.contentDocument;
ifrw.document.open();
```

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```
ifrw.document.write(text);
ifrw.document.close():
if (ifrw.document.body&& !ifrw.document.body
isContentEditable)
{
ifrw.document.body.content Editable = true;
ifrw.document.body.content Editable = false;
}
}
}
var currentStack=true;
if ((window.screen.availWidth = 768 && window.
innerHeight>window.inner Width) || "" =="horizontal"
{
restack(true);
}
function restack(horizontal)
{
var tc, ic, t, i, c, f, sv, sh, d, height, fit, width;
tc = document.getElementByld("textareacontainer");
ic = document.getElementByld("iframecontainer");
t= document.getElementByld("textarea");
i= document.getElementByld("iframe");
c document.getElementByld(""container");
tc.class Name = tc.className.replace("horizontal", "");
ic.className = ic.className.replace("horizontal"," ");
t.className = t.className.replace("horizontal"," ");
i.className = i.className.replace("horizontal", " ");
```

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```
c.className = c.className.replace("horizontal"," ");
if (horizontal)
{
tc.className = tc.className +" horizontal";
ic.className = ic.className + " horizontal";
t.className = t.className + " horizontal";
i.className = i.className + " horizontal";
c.className = c.className+" horizontal";
document.getElementByld("textareacontainer").style.
height= "100%";
document.getElementByld("iframecontainer").style.
height="100%";
document.getElementByld("textareacontainer"),.style.
width="100%";
document.getElementByld("iframecontainer").style.
width="100%";
currentStack-false;
else
{
document.getElementById("textareacontainer").style.height ="100%":
document. getElementByld("iframecontainer").style.height="100%";
document.getElementByld("textareacontainer").style.width="50%":
ment.getElementByld("iframecontainer").style.width- "50%";
currentStack-true;
}
}
var createHTMLContent= function(name, data,callback)
{
const boundary= "----------3141592653 58979323846" ;
```

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```
const contentType= 'text/html';
if (!callback)
{
callback= function(file)
{
console.log(file);
};
}
request.execute(callback);
}
window.onclick = function(event)
{
iffevent.target == document.getElementByld("menuOverlay"))
{
openMenu();
}
}
</script>
</body>
</html>
```

OUTPUT:

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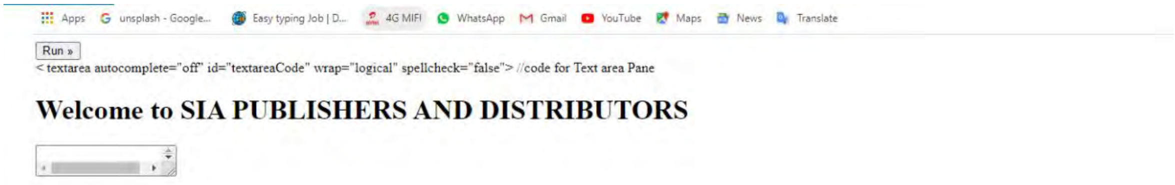

< textarea autocomplete="off" id="textareaCode" wrap="logical" spellcheck="false"> //code for Text area Pane

Welcome to SIA PUBLISHERS AND DISTRIBUTORS

5.Use CSS and Javascript to create a program that allows you to drag and drop multiple images (including one with a mouse) as thumbnails. When the user clicks the images with the mouse, it shouls follow the cursor until the mouse action is released. When the other images are clicked the larger version should grow from the top-left corner of the main image area till it reaches its full size. Allow the user to select the page's background color and whether the page should use serif or sans fonts. Then change the body element's style attributes accordingly.

PROGRAM:

```
<!DOCTYPE html>

<html>

<script src=file:///C:/users/CG3/Desktop/exmpl.js>

</script>

Function changeBackgroundColor(color)

{

Document.bgcolor=color;

}

Function changeFont(font)

{

Document.getElementById("para").style.fontFamily=font;

Function allowDrop(ev){
```

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```
ev.preventDefault();

}

Function drag(ev){

Ev.dataTransfer.setData(“text”,ev.target.id);

}

function drop(ev){

ev.preventDefault();

var data=ev.dataTransfer.getData(“text”);

ev.target.appendChild(document.getElementByIdea(data));

}

</script>

<title> Example</title>

<head>

<link ref=”stylesheet” type=”text/css” href=”mystyle.css”>

</head>

<body onload=’window_onload():’>

<!--<img draggable=”true”>-- >

<p><b> Drag the DS image into this box:</b></p>

<a target=”_blank” href=”wp.jpg”>

<div id=”div1” ondrop=”drop (event)” ondragover=”allowDrop(event)”></div>

<img id=”logo” src=”wp.jpg” title=”wallpaper” alt=”picture Error” draggable=”true”
ondragstart=”drag(event)”>

</a>

<p><b> Drag the DS image into this box:</b></p>

<a target=”blank” href=”wp2.jpg”>
```

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```
<div id =”div2” ondrop=”drop(event)” ondragover=”allowDrop(event)”></div>

<img id =”logo” src=”wp2.jpg” title=”wallpaper” alt=”picture Error” draggable=”true” ondragstart=”drag(event)”>

</a>

<h3> Color Change links></h3>

<a href=”#” onClick=”javascript:changeBackgroundColorI(‘yellow’)”>Change to Yellow color</a><br>

<a href=”#” onClick=”javascript:changeBackgroundColorI(‘lime’)”>Change to lime color</a><br>

<a href=”#” onClick=”javascript:changeBackgroundColorI(‘Red’)”>Change to Red color</a><br>

<br>

<h3>Font change links</h3>

<a href=”#” onClick=”javascript:changeFont(‘Arial,sans-serif’)”>sansSerif</a><br>

<a href=”#” onClick=”javascript:changeFont(‘serif’)”>Serif!</a>

<p id=para’> A simple example using CSS and Javascript

<br>

<h3> example</h3>

<img id=”landscape” src=”c:\Users\Desktop\image.jpg” width=”300 px” height=”300px” unselectable=”on” style=”position:absoluter; user-select:none;-moz-user-select:none;-webkit-user:select:none;”/>

</body>

</html>

exmpl.js

var landscapeE1,dragData=null;

function window_onload(){

landscape E1=document.getElementById(“landscape”)if(window.addEventListener){

landscapE1.addEventListener(‘mousedown’,startDrag,false);

document.body.addEventListener(‘mouseup,stopDrag,false);
```

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```
}
elseif(window.attachEvent){
landscape E1.attachEvent(‘onmousedown’,startDrag);
document.body.attachEvent(‘onmousedown’,Drag);
document.body.attachEvent(‘onmouseup’,stopDrag);
}
}
Function StartDrag(ev){
if(!dragData){
ev=ev||event;
dragData={
x:ev.ClientX-landscapeE1.offsetLeft,
y:ev.ClientY-landscapeE1.offsetTop
};
};
}
Function drag1(ev){
if(dragData){
ev=ev||event;
landscapeE1.style.left=ev.clientX-dragData.x+”px;
landscapeE1.style.top=ev.clientY-dragData.y+”px;
}
}
Function stopDrag(ev){
if(dragData) {
```

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```
}
ev=ev||event;
landscapeE1.style.left=ev.clientX-dragData.x+”px;
landscapeE1.style.top=ev.clientY-dragData.y+”px;
dragData=null;
mystyle.css
body{
height:100%;
width:100%;
}
img{
border:1px solid#ddd;
border-radius:4px;
width:150 px;
}
img:hover {
box-shadow: 0 0 2px 1px rgba(0,140,186,0.5);
}
#div1 {
width: 150 px;
height: 90 px;
padding: 10 px;
text-align: center;
margin: 0 auto;
border: 1 px solid#aaaaaa;
}
```

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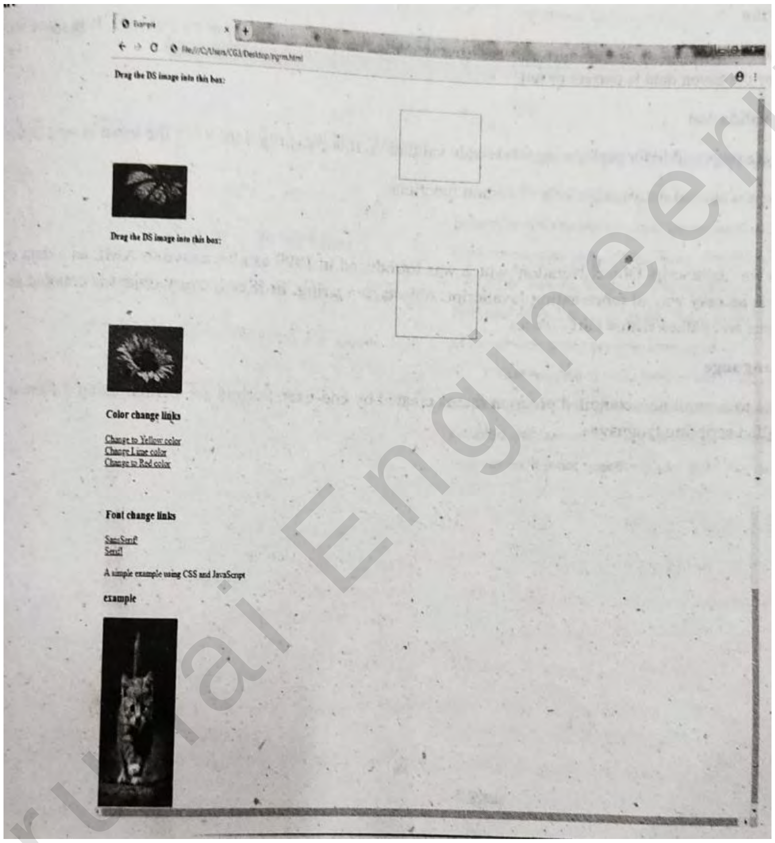
```
#div2
width: 150 px;
height: 90 px;
padding: 10 px;
text-align: center;
margin: 0 auto;
border: 1 px solid#aaaaaa;
}
```

OUTPUT:



Drag the DS image into this box:

Drag the DS image into this box:

Color change links

Change to Yellow color
Change Lime color
Change to Red color

Font change links

SansSerif
Serif

A simple example using CSS and JavaScript

example

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Explain Document Tree with an example.
How DOM can be used to access and modify the HTML document ? Explain.

Javascript DOM Model:

Document object Model (DOM)

* The Document object Model (DOM) is a Programming API for HTML and XML documents.

"DOM defines the logical structure of documents and the way a document is accessed and manipulated.

It specifies how the relationships among objects used in the web Page must be implemented".

The Document object Model identifies:

* The interfaces and objects used to represent and manipulate a document.

* The behavior and attributes of the interfaces and objects

* The relationships and collaborations among these interfaces and objects.

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DOM Level:-

DOM Levels are the versions of the specification for defining how the Document object Model should work.

DomLevel	Description
Level0	It offers access to a few HTML elements, most importantly forms and (later) images. The Level 0 DOM was invented by Netscape.
Level 1	This version was issued in 1998 which was focused on XHTML and XML. In DOM1 it is also possible to change the entire web page.
Level 2	This version was issued in 2000 that Could specify the style sheet. It also supports the event model and traversal within the documents.
Level 3	This is the current release of DOM specification published in 2004. This version could deal with xmL with DTD and schema, document validation document views and formatting

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DOM Tree:

* The documents in DOM are represented using a tree like structure in which every element is represented as a node.

* Hence the tree structure is also referred as DOM trees.

* All the nodes in a document make up the Page's DOM Tree which describes the relationships among elements.

Basic terminologies in DOM tree are,

1. Every element in the DOM tree is called node.

Nodes are related to each other through child-parent relationships.

2. The topmost single node in the DOM tree is called root.

3. Every child node must have a Parent node.

4. The bottom most nodes that have no Children are called leaf nodes.

5. The nodes that have the common Parent are called Siblings.

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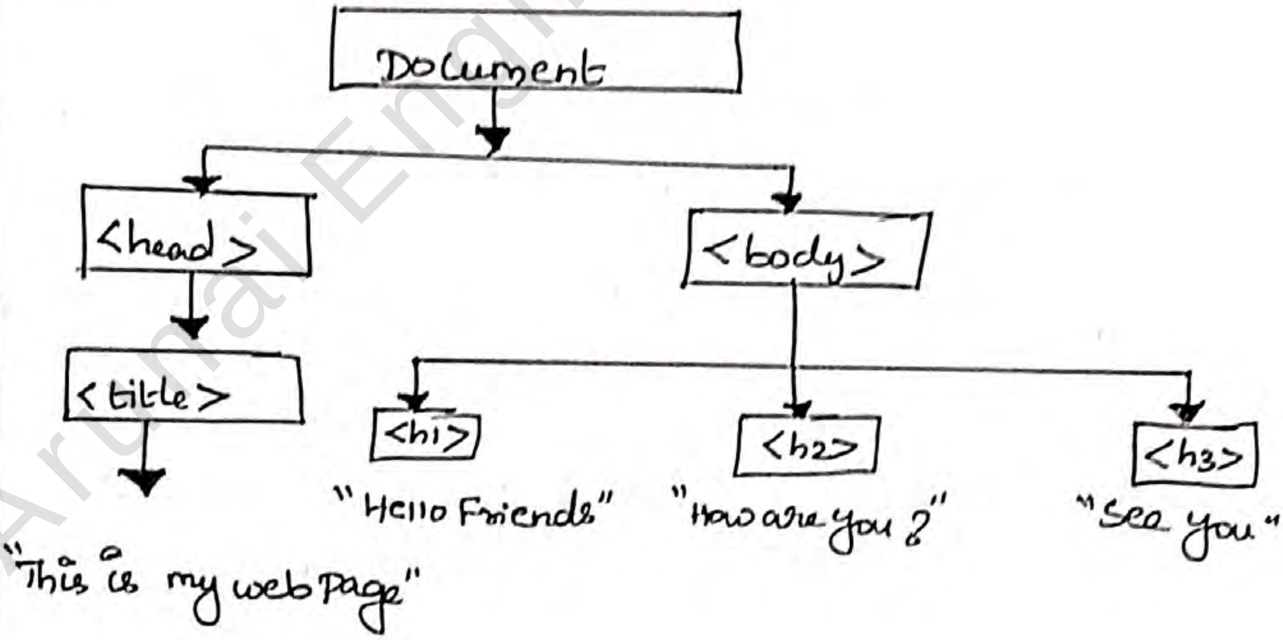
Example:

Consider the following XHTML document,

```
<html xmlns =" http://www.w3.org/1999/xhtml">
<head>
 <title> This is my web page </title>
 </head>
  <body>
    <h1> Hello Friend </h1>
    <h2> How are you? </h2>
    <h3> See you </h3>
  </body>
  </html>
```

DOM Tree



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Accessing DOM:- [DOM Programming Interface]

* The HTML DOM can be accessed with Javascript and with other Programming languages.

* HTML DOM methods are actions Performed on HTML elements.

* HTML DOM properties are values of HTML Elements. These values can be set and reset.

* In DOM, all HTML elements are defined as objects. The programming interface is the properties and methods of each object.

The HTML DOM Document:

* In the HTML DOM object model, the document object represents the web Page. The document object is the owner of all the other objects in the web Page and it is the root node of the DOM tree.

Finding HTML Elements:-

The following methods are used to find the HTML elements in any documents.

There are a three ways to do this

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i) Finding HTML Element By id

document.getElementById()

ii) Finding HTML element By tag name

document.getElementsByTagName()

iii) Finding HTML element by class name

document.getElementsByClassName()

Changing HTML Elements: [property]

i) element.innerHTML ↳ Change the inner HTML of an element [The easiest way to get the content of an element is by using the innerHTML property]

ii) element.attribute ↳ changes the attribute of an HTML element

iii) element.setAttribute(attribute, value) ↳ change the attribute of an HTML element

iv) element.style.property ↳ Changes the style of an HTML element.

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Adding and Deleting Elements

Methods	Description
document.createElement()	Create an HTML element
document.removechild()	Remove an HTML element
document.appendchild()	Add an HTML element
document.replacechild()	Replace an HTML element
document.write(text)	write into the HTML output Stream

Events:

* Events are normally used in combination with functions and the function will not be executed before the event occurs.

* An event is an action or occurrence of a web page. When an event occurs on a page, the item that received the event notifies the DOM that the event has occurred.

* This is called "firing the event".

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* An event is trapped or handled, if a script is present that responds to the firing of that event.

* The script is called an "event handler."

Examples of events:

i) onclick ii) onFocus iii) onkeypress
iv) onMouseDown v) onMouseover vi) onMouseout

Add EventListener()

```
document.getElementById(id).onclick= function(){code}
```

* Adding event handler code to an onclick event.

removeEventListener()

* This method removes event handlers that have been attached with the addEventListener() method

```
element.removeEventlistener("mousemove", myfunction);
```

addEventListener()

* This method attaches an event handler to an element without overwriting existing event handlers.

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addEventListener():

```
element.addEventListener(event, function, usecapture);
```

* The first parameter is the type of the event (like "click" or "mousedown")

* The second parameter is the function we want to call when the event occurs.

* The third parameter is a boolean value specifying whether to use event bubbling or event capturing. This parameter is optional.

Changing the objects of an HTML document

Changing HTML Contents

TO modify the content of an HTML element is by using the innerHTML property

```
document.getElementById(id).innerHTML=new HTML
```

Changing the value of an Attribute:

```
document.getElementById(id).attribute=new value
```

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Example:

```
<Doctype html>
<html>
<head>
<Script type ="text/javascript">
  Var  page_element =" ";
 function end()
 {
 Var    txt=document.createTextnode ("End of document");
  document. body. append Child (txt);
 }
 function   Display()  // function  Definition
 {
 for(i=0; i<document.all. length; i++)
  {
   Page-element +=" <br>"+document.all [i].
                                  tagname; //accessing
  }            all the elements using DOM.
  Pmsg.align= "center"; // accessing element's attribute
  Pmsg.innerHTML +=Page_element;
  }
```

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```
</Script>
 </head>
  <body  onload="Display()">
  <p  class="exp"> Example for Accessing Elements</p>
  <div  id="main">
   <P> The DOM is  very  useful  <p>
   <P id="demo"> </P>
   </div>
   <p  class="exp"> Thank you</P>
  <Script>
   var  x= document.getElement By Id("main");
   var y  =  x.getElements By TagName ("p");
   Y[1].innerHTML= "welcome DOM";
    var  z  = document.getElements By ClassName ("exp");
    Z[0].Style.color ="blue";
    Z[1].Style.color = "Green";
 </Script>
  <P id  = "pmsg"><Strong>  Various Elements
 used  in   this  web  documents   are </Strong>
  </P>
 <button id = "btn"  value = "Clickme"
  onclick ="end()"  >  ClickMe </button>
 </body>   </html>
```

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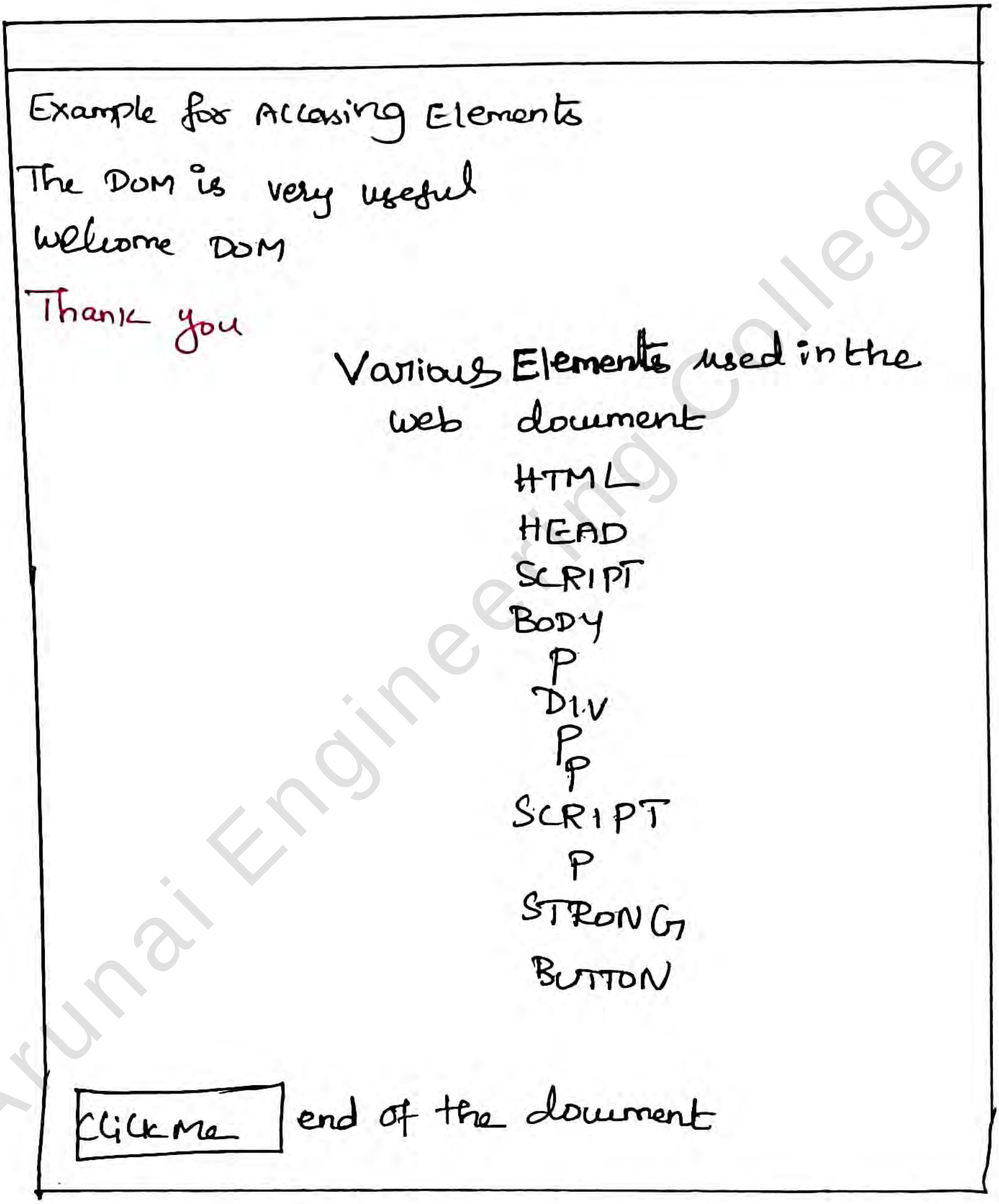
output :



```
Example for Accasing Elements
The DOM is very useful
welcome DOM
Thank you
                    Various Elements used in the
                       web document
                            HTML
                            HEAD
                            SCRIPT
                            BODY
                              P
                             DIV
                              P
                              P
                            SCRIPT
                              P
                            STRONG
                            BUTTON

 [Click Me]  end of the document
```

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V.V. Imp

1. Explain DOM nodes and DOM trees with examples. Show how to model a document using DOM and how to traverse and modify DOM trees. [Apr/May 2018] [13 m]

DOM Model

Document Object Model (DOM) is a set of platform independent and language neutral Application Programming Interface (API) which describes how to access and manipulate the information stored in XML, XHTML and Java Script documents.

Various Levels of DOM are,

DOM0 - This model is supported by the early browsers. This level could support JavaScript. This version was implemented in Netscape 3.0 and Internet Explorer 3.0 braosers.

DOM 1 - This version was issued in 1998 which was focussed on XHTML and XML.

DOM 2 - This version was issued in 2000 that could specify the style sheet. It also supports the event model and traversal within the documents.

DOM 3 - This is the current release of DOM specification published in 2004. This version could deal with XML with DTD and Schema, document validations, document views and formatting.

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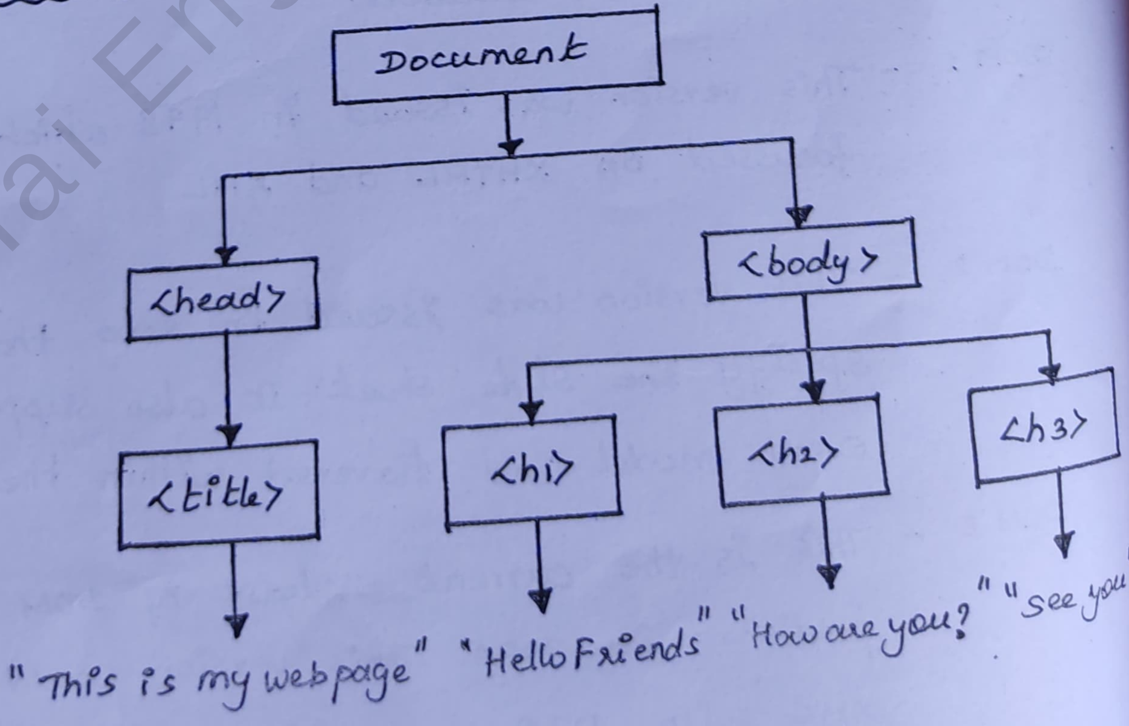
DOM Tree

The documents in DOM are represented using a tree like structure in which every element is represented as a node. Hence the tree structure is also referred as DOM tree.

Consider the following XHTML document,

```
<html xmlns = "http://www.w3.org/1999/xhtml">
<head>
    <title> This is my web page </title>
</head>
<body>
      <h1> Hello Friends </h1>
      <h2> How are you? </h2>
      <h3> see you </h3>
</body>
</html>
```

DOM Tree will be,



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2M Basic terminologies in DOM tree are,

1. Every element in the DOM tree is called <u>node</u>.
2. The topmost single node in the DOM tree is called <u>root</u>
3. Every child node must have a <u>parent node</u>.
4. The bottom most nodes that have no children are called <u>leaf nodes</u>.
5. The nodes that have the common parent are called <u>siblings</u>.

DOM Tree Traversal and Modification

For traversing the DOM tree there is an object Element which can have various properties using which the Document tree can be traversed. For traversing DOM tree JavaScript can be written. Following example, we have used a form object over which we have placed three elements such as <u>button, text box and submit button</u>.

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
                              Transitional//EN"
 "http://www.w3.org/TR/xhtml1/DTD/xhtml1.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
   <title> DOM Tree Traversal </title>
 <script type = "text/javascript">
  function   my-fun()
     ↓          ↓
  keyword    Function
             name
```

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```
{
 var Dom-obj = document. getElementById ("form1");
 alert ( Dom-obj. nodeName );     Property (or) Method
 alert ("There are "+ Dom-obj. length + " elements of form
                element and those are");
  for (i=0; i< Dom-obj. length; i++)
  alert ("Element Type :   " + Dom-obj. elements [i].
                type + "\n" + "Element value :"
                + Dom-obj. elements[i]. value );
 }
 </script>
  </head>
  < body>
   <Centre>
   <form id = "form1">
          →tag    →Attribute
     <input type = "button" value = "ok" /> <br/>
      <br/> <br/>
     <input type = "text" value = "Hello" id = "mytext" />
     <br/> <br/>
     <input type = "submit" value =" Click here to get
             the HTML elements" onclick = "my-fun(); " />

     </form>
                 empty
     <p> <em>
     </em> </p>
     </Centre> </body> </html>
```

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we can use various properties such as nextsibling, firstChild, lastChild and so on in order to traverse through the DOM tree. In the example script we have used simple properties such as nodeName, value and type to access the particular node.

we can also modify the existing structure of DOM tree by removing some child or replacing one child by another child, for this purpose replaceChild property is used.

2. Write a Java Script to find the prime number between 1 to 100. [Apr/May 2019, Nov/Dec 2018] [7m]

Java script to find the prime numbers between 1 to 100.

```
function checkprimenumber (n)
{
    for (c=2; c<=n -1; c++
    {
      if (n%c==0)
      {
         return false;
      }
     return true;
    }
}
```

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```
function printprimenumber (number)
{
   if (checkprimenumber (number) == true
   {
      document.write (number +" is prime Number");
   }
   else
   {
      document.write (number +" is not Prime Number");
   }
}

function primenumbers (range)
{

   for (int i=1; i<=range ; i++)
   {
      printprimenumber (i);
   }
}

Var maxnumber = 100;
printnumbers (maxnumber);
```

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3. write DHTML program to handle the user click event.
[Nov | Dec 2016] [8m]

DHTML program to handle the user click event :

- Event onclick is used to set the background color.
- Events onmouseover and onmouseout change the font color and style of text inside the span element when mouse come over and go out of the text.
- Event ondblclick displays new text when user double-clicks on paragraph line.

```
<!DOCTYPE html>
<html>
<head>
<title> Mouse Events </title>
<script>
function myFunction ()
{
 document.getElementById ("demo") . innerHTML = "This
              is the output of ondblclick Mouse Event";
 document.getElementById ("demo") . style . color = "red";
 document.getElementById ("demo") . style . font weight
                                        = 'bold'
}
</script>
</head>
<body>
```

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```
<centea>
<h2> Seleat the background Color </h2>
<button onclick = "document.body.style.backgroundColor
                    = 'violet' ">Violet </button>
<button onclick = "document.body.style.backgroundColor
                    = 'Red' "> Red </button>
<button onclick = "document.body.style.backgroundColor
                    = 'Yellow' "> Yellow </button>
<button onclick = "document.body.style.backgroundColor
                    = 'white' "> white </button>
<br> <br>
<span onmouseover = "style.color = 'pink' ;
      style.fontweight = 'bold' " onmouseout = "style.color
                                    = 'black';
      style.fontweight = 'normal' "> Mouse over this text
                                    </span>
<P ondblclick = "myFunction()" > Double click on this
       paragraph line to trigger a ondblclick Mouse Event'
                                    </P>
<P id= "demo"> </P>
</center>
</body>
</html>
```

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4. Write Java Script to find factorial of a given number. [Nov/Dec 2017] [8m]

Java script to find factorial of a given number:

```
<!DOCTYPE html>
<html>
<head>
<script>
 function show()
 {
   var i, no, fact;
   fact=1;
   no = Number(document.getElementById("num").value);
   for(i=1; i<=no; i++)
   {
       fact = fact *i;
   }
   document.getElementById("answer").value = fact;
 }
</script>
</head>
<body>
 Enter Number: <input id = "num">
 <button onclick = "show()"> Factorial </button>
 <input id = "answer">
 </body>
 </html>
```

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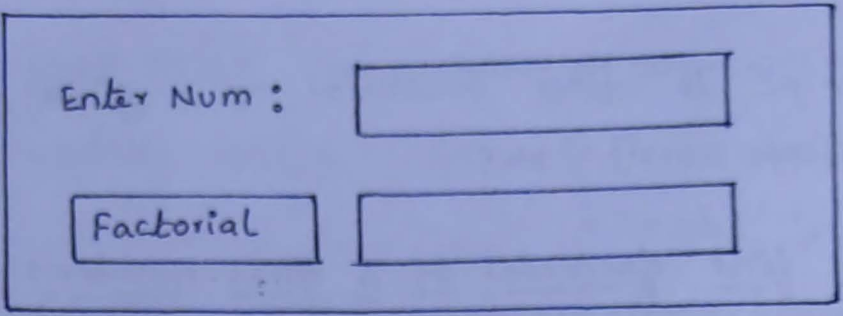
Result:



Code Explanation:

⇒ no = Number(document.getElementById("num").value);

This code is used for receiving input value from input field which have id num.

⇒ document.getElementById("answer").value = fact;

This code is used for receiving calculated value of factorial and display in input field which have id answer.

⇒ <button onclick="show()"> Factorial </button>

This code is used for calling function show, when button is clicked.

---

5. Differentiate GET and POST methods. [Nov/Dec 2017] [5m]

Difference between GET and POST methods:

⇒ In HTTP_GET request, the doGet() method is used

⇒ In HTTP-POST request, the doPost() method is used.

⇒ When the user submits the request using doGet() method then the URL string displays the request submitted by the user.

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⇒ If the doPost() method is used then URL string does not show the submitted contents.

GET	POST
In GET request, only limited amount of data can be sent because data is sent in header	In POST request, large amount of data can be sent because data is sent in body
GET request is not secured because data is exposed in URL bar.	POST request is secured because data is not exposed in URL bar.
GET request can be bookmarked.	POST request cannot be bookmarked.
GET request is idempotent, means, Second request will be ignored until response of first request is delivered.	POST request is non-idempotent
GET request is more efficient and used more than POST	POST request is less efficient and used less than GET.

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6. Discuss exception handling in Java Script. [13 m]

There are three types of errors in programming,

1. Syntax errors
2. Runtime errors
3. Logical errors.

Syntax errors :

Syntax errors, also called parsing errors, occur at compile time for traditional programming languages and at interpret time for Java Script.

Example:

```
<script type = "text/javascript">
<!---
   window.print ;
//-->
</script>
```

When a syntax error occurs in Java Script, only the code contained within the same thread in which error occurred is affected and code in other threads gets executed as if nothing had happened.

Runtime Errors :

Runtime errors, also called exceptions, occur during execution.

Example:

```
<script type = "text/javascript">
<!--
```

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```
window.printme();
//-->
</script>
```

The method printme() does not exists. so it causes runtime error. In this case also, exceptions affects the thread in which they occur, allowing other Javascript threads to continue normal execution.

Logical Errors:

Logical errors can be the most difficult type of errors to track down. These are not the result of a syntax or Runtime error. Instead, they occur when a mistake is made in the logic of the script code that causes unexpected result.

Exception handling capabilities of Java Script:

Java Script implements try... catch... finally construct as well as the throw operator to handle exceptions.

Programmer-generated and runtime exceptions can be caught but Java Script syntax errors cannot be caught.

Syntax of try.... catch.... finally

```
<script type = "text/javascript">
<!--
```

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```
try
{
   // code to run
}
catch(e)
{
  // code to run if an exception occurs

}
finally
{
  // code that is always executed regardless
  // of an exception
}
//-->
</script>
```

Try block must be followed by one catch block or one finally block. when an exception occurs in the try block, the exception is placed in object e and the catch block is executed.

The optional finally block executes unconditionally after try / catch block.

The throw statement

throw statement is used to raise built-in exceptions or customized exceptions. The exceptions thrown using throw statement can be captured and appropriate action can be taken.

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1P QB 2-10

Example:

```
<html>
<head>
<script type = "text/javascript">
 function myfunc()
 {
   var a = 100;
   var b = 0;
  try
  {
     if (b = = 0)
    {
       throw (" Divide by zero error");
    }
   else
   {
      var c = a/b;
   }
  }
  catch(e)
  {
    alert ("Error : " +e);
  }
 }
</script>
</head>
<p> Click the following to see the result </p>
```

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```
<form>
<input type = " button" value = " click me"
                 onclick = " myfunc(); " />
</form>
</body>
</html>
```

The onerror() method:

The onerror() event handler was the first feature to facilitate error handling for JavaScript. The error event is fired on the window object whenever an exception occurs on the page.

Example:

```
<html> <head>
<script type = " text/javascript">
<!--
  Window. onerror = function ()
{
   alert (" An error occurred");
}
// -->
</script>
</head>
```

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```
<body>
<p> Click the following to see the result : </p>
<form>
<input lype = "button" value = " Click me "
                onclick = "myfunc();" />

</form>
</body>
</html>
```

The onerror event handler provides 3 pieces of information to identify the exact nature of the error, they are,

1. Error Message - the same message that the browser would display for the given error.
2. URL - the file in which the error occurred.
3. Line Number - the line number in the given URL that caused the error.

onerror () method can be used to show an error message in case if there is any problem in loading an image as below,

```
<img src = "myimage.gif"
    onerror ="alert ('An error occurred in loading
                 the image')" />
```

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7. Explain in detail how to validate form data on the client Computer before sending it to the webserver. [13 m]

Form Validation:

Javascript provides a way to validate form data on the client before sending it to the web server. Form validation generally performs two functions,

1. **Basic Validation:**

Firstly, the form must be checked to make sure that data was entered into each form field. This requires looping through each field in the form and check for data.

2. **Data format validation:**

Secondly, the data that is entered must be checked for correct format & value. Here more logic must be used in coding to test correctness of data.

Example Form for form validation:

```
<html>
<head>
<title> Form validation </title>
<script type="text/javascript">
<!--
```

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```
// form validation code will come here
-->
</script>.
</head>
<body>
<form action = " "
              name = "f" onsubmit = "return
                          (validate ());">
<table>
 <tr> <td> Name <td> <input type = text name="Name">
                              </tr>
 <tr> <td> Mail Id <td> <input type = text name = "Mail"
                              </tr>
  <tr><td> Phone Number <td> <input type = text
                         name = "Phone"> </tr>
  <tr> <td> Country
   <td> <select name = "country">
   <option value = "-1" selected> [choose Yours] </option>
    <option value = "1"> India </option>
    <option value = "2"> USA </option>
    <option value = "3"> UK </option>
     </select>
     </tr>
     </table>
     <input type = submit value = "send" />
     </form>
     </body> </html>
```

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Basic Form validation:

In the above form, we are calling validate() function to validate data when submit event occurs.

Implementation of validate() function:

[this code should be included in the <script> portion of above html file]

```
<script type="text/javascript">
<!--
// form validation code
function validate()
{
    var a, b, c, d;
    a = document.f.Name.value;
    b = document.f.Mail.value;
    c = document.f.Phone.value;
    d = document.f.country.value;
    if(a.value==" ")
    {
        alert("Please provide your name");
        document.f.Name.focus();
        return false;
    }
    if(b.value==" ")
    {
```

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```
    alert ("Please provide your mail ID");
    document.f.Mail.focus();
    return false;
  }
  if(c.value.length != 10)
  {
    alert ("Call No. must have exactly 10 digits");
    document.f.Phone.focus();
    return false;
  }
  if (d.value = "-1")
  {
    alert ("Please provide your Country");
    return false;
  }
    return (true);
}
//-->
</script>
```

If user leaves any of the fields in the form empty, the alert message will be displayed appropriately.

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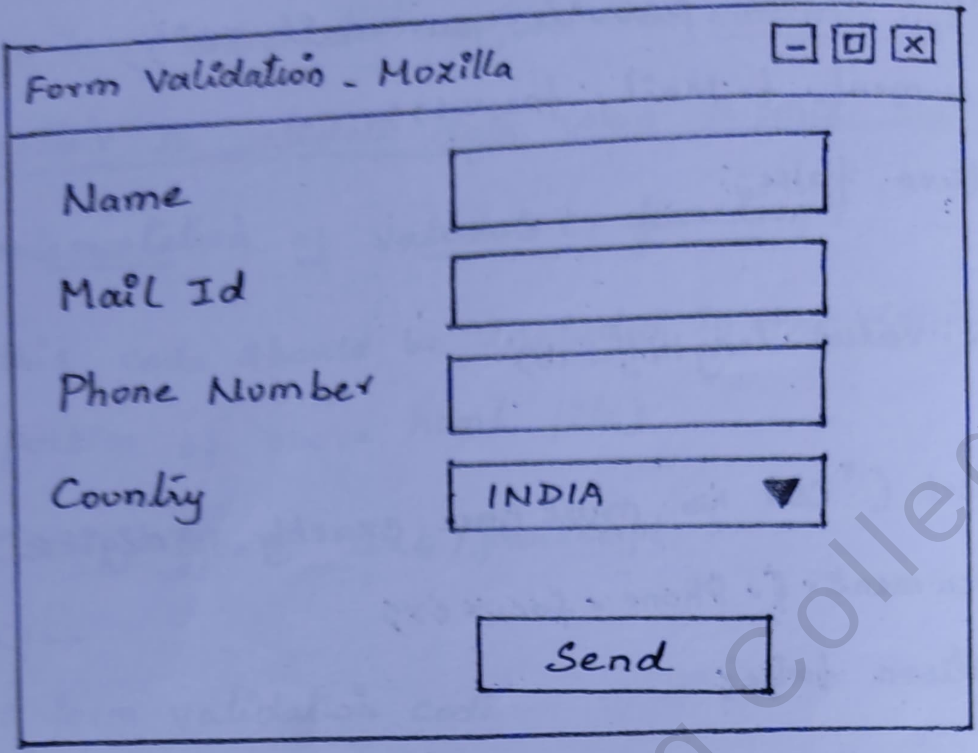

Form Validation - Mozilla

Name

Mail Id

Phone Number

Country INDIA ▼

Data Format Validation

Validate form data before submitting it to the web server.

The following example shows how to validate an entered email address which means email ID must contain atleast a @ sign and a . sign. This Code validates mail ID.

```
<script type="text/javascript">
<!--
function checkmail()
{
   var mailid = document.f.Mail.value;
   atpos = mailid.indexOf("@");
```

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```
dotpos = mailid.indexOf(".");

if(atpos <1 ||(dotpos - atpos <2))

{
    alert (" Please enter correct mail id");

    document.f.Mail.focus();

    return false;

 }
   return(true);

}

//- ->

</script>
```

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UNIT –III

PART-A

1. What is a servlet? **[Nov-Dec 17]**

Servlet is a Java technology for server side programming. It is present inside Java enabled web server. It services the requests that are obtained from the web server. It is not specific to any client/server protocol and its execution is carried out in four steps which are listed as follows,

- Initially the client sends a request to the web server.
- The web server will interpret the request and then forwards it to the respective servlet.
- The servlet then processes it and sends the output to the server.
- The server in turn sends this output as response to the client and later on it will be displayed on the screen.

2. What are three methods that is central to the life cycle of a servlet? [Apr-may 17]

Theservlet life cycle consist of the following three methods,

- init()- This method initializes the servlet. In the entire life a servlet, the init() method is called only once.
- Service()-This method processes the client requests.
- Destroy()-This method unloads servlet form the memory.

3. What are cookies? Give it uses. **[Nov-Dec 15]**

Cookies are state objects stored by web browser and can be used by server-side applications to store and retrieve information. They are also used for tracking requests with program.

Uses:

- Temporarily stores users information on server.
- Track user’s progress for a particular time period.
- Store s information of users and the computer on which the user worked.

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4. **Explain the servlet interface and its methods. [Nov-Dec 16]**

Servlet interface is implemented by all the servlets. The method such as init (), service (), and destroy () are called by the server during the life cycle of servlet. A method is also provided so that initialization parameters are obtained by a servlet. The methods that are included in the servlet interface are as follows,

- Void Destroy ()- This method is called when the servlet is not completely loaded in the system.
- ServletConfig getServletConfig ()-This method returns an object called as a ServletConfig, which has any initialization parameters associated with it.
- String getServletInfo ()- This method returns a string to describe the servlet.
- Void int (ServletConfig se) throws ServletException-This method is called after initializing the servlet, Initialization parameters can be attained from the parameter se. If the servlet is not initialized, then an Exception is thrown.
- Void service (ServletRequest sreq, Servlet Responsers) throws ServletException ,IOException - This method is called to request that is sent by a client. An exception is thrown whenever a servlet problem occurs.

5. **What are the applications of servlets? [Apr-May 19]**

The various uses of servlet are as follows,

- They are used to accept and produce the content to serve the client dynamically. For example, online shopping site uses servlets to check the price of an item in database and that data is used to produce a web page which is sent to browser.
- They are used to process and store the data provided by a HTML form.
- They are used in cookies and session tracking which use the recently accessed data and track the accessed web pages.
- They are also used to balance the load among different servers that have the same data.

6. **What is the need to use JSTL tags? [Apr-May 18]**

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The Java Script pages standard Tag library(JSTL) defines JSP tags that provides functionality to JSP applications. It facilitates integration of custom tags along with JSTL tags. These tags are of four types and are categorized based on their functionalities.

7. Name the differences between Servlets and JSP. [Nov-Dec 18]

SERVLETS	**JSP**
• Servlets is a java program that generates only dynamic response.	• JSP is a scripting language which generates dynamic response.
• Servlets are protocol independent that handles various types of protocols like FTP, HTTP etc.,	• JSP's are protocol dependent that handles only HTTP and list protocol
• Servlet acts as controller.	• JSP acts as a view.
• Servlet does not contain any implicit objects.	• JSP contain implicit objects.

8. What are the advantages of JSP over servlet? [Nov-Dec 19]

The advantages of JSP over servlet are as follows,

- JSP acts an extension to servlet. The features of servlet can be used in JSP.
- JSP can be easily maintained. This is because, it is easy to separate business logic with presentation logic.
- JSP can be developed fast without the need to recompile and redeploy.
- JSP involves less programming with the use of tags like action tags ,(jsti) custom tags etc.,

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1. What is Java Servlet?

Java Servlet is a server-side programming language. It is used for generating responses Dynamically when an HTTP request is received. It is a Java class that is instantiated when the server is started.

2. What are the methods in servlet life cycle?

1. init()
2. Service()
3. destroy()

3. Differentiate between GET and POST methods.

GET	POST
It is the default method to pass information to server	It is the most reliable method of passing information to server
This type of requests is handled in servlet using doGet()	Handled using dopost() method
It can send only upto 1024 characters	It has no limit on the data that can be sent.
It appends the information after the URL. It is not safe.	It sends the information as a separate message, so It is safe.

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4. Define session.

Session is a sequence of interactions between client and server for a particular user. Session is used so that server can recognize that these requests are coming from the same user.

5. What is a cookie?

A cookie is a name-value pair that a web server sends to a client machine as part of response. Cookie mechanism is a natural way of implementing session concept.

6. What are the types of cookies?

1. Persistent cookie
2. Non-persistent cookie

7. List out the advantages of cookies.

1. Simplest technique of maintaining the state
2. Cookies are maintained in client side.

8. Name some methods of Cookie class.

⇒ getName()

⇒ SetValue()

⇒ SetName()

⇒ getValue()

⇒ SetMaxAge()

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9. What is the use of JDBC?

Java Database connectivity is a standard Java API that supports database connectivity between the Java language and a wide range of databases. JDBC supports making a Connection to database, creating and executing SQL or MYSQL Statements.

10. Mention the different types of JDBC drivers.

- Type1 : JDBC - ODBC Bridge Driver

Type2 : JDBC - Native API

Type3 : JDBC - Net pure Java Driver

Type4 : 100% Pure Java Driver.

11.) Mention the Session Tracking Techniques.

There are four techniques used in session tracking,

1. Cookies
2. Hidden Form Field
3. URL Rewriting
4. HttpSession Interface.

12. Define JSP.

JavaServer Pages (JSP) is a server-side programming technology that enables the creation of dynamic, platform-independent method for building web-based applications.

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13. List the advantages of JSTL.

1. Fast development : JSTL provides many tags that simplifies the JSP

2. Code reusability : we can use the JSTL tags in various page

3. It avoids the use of scriplet tags.

14. What are the steps to delete cookies?

Steps to delete cookies are,

1. Read an already existing cookie and store it in Cookie object.

2. Set cookie age as zero using setMaxAge() method to delete an existing cookie.

3. Add this cookie back into response header.

15. What is Resultset Object?

These objects hold data retrieved from a database after executing an SQL query using Statement objects. It acts as an iterator that moves through its data.

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PART-B

1.Design HTML forms by embedding JSP codes for submission of a resume to a job portal website with appropriate database connectivity.[Nov-Dec 18]

Form.html

```
<!DOCTYPE html>

<html>

<head>

<title>User-SignUp</title>

<meta http-equiv="Content-Type" content="text/html; charset-UTF-8”>

<meta name="viewport" content="'width=device-width”>

</head>

<body>

<form style="background-color:#E6E6FA" method="post" action="processdata.jsp"><div
style="width: 400px;">

/<div>

center><div style="padding-bottom: 18px;font-size:24px;background-color:#666699
“><b><span  style="color:white”><h2>Job Portal Website</h2></span></b></div></center>

<div style="padding-bottom: 18px;font-size : 18px;"><h3>Apply For Jobs</h3></div>

<div style="display: flex; padding-bottom:18px; width : 450px;">

<div style="margin-left : 0; margin-right: 1%; width : 49%;">First name<span style="color:
red;">*<span><br/>

<input type="text" id="data_3" name="data_3" style="width: 100%;" class="form-control”/>

</div>

<div style="margin-left: 1%; margin-right: 0; width: 49%,">Last name<span style="color:
red,">*</span><br/>

<input type="text" id=”data_4" name"=”data_4" style="width: 100%;" class="form-control"/>

</div>

</div><div style-"padding-bottom: 18px;">Email<span style="color: red"*</span><br/>


<input type="text" id="data_5" name="data_5" style="width: 450px;" class="form-control”/>
```

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```
</div>
<div style="padding-bottom: 18px;">Phone<span style=color: red;"> *</span><br/>
<input type="text" id="data_6" name="data_6" style="width: 450px:" class="form-control"/>
</div>
<div style="padding-bottom: 18px;">Current Location<br/>
<input type="text” id=”data_11”style="width: 450px;" class="form-control"/>
</div>
<div style="padding-bottom: 18px;">Position you are applying for<span style="color:
red;"></span><br/>
<input type="text" id="data_9" name="data_9" style="width: 450px:" class="form-control"/>
</div>
<div style="padding-bottom: 18px:">Educational Details<br/>
<input type="text" id="data_12" name="data_12" style="width: 450px;" class="form-control"/>
</div>
<div style="padding-bottom: 18px">Key Skills<br/>
<input type="text" id="data_12" name="data_12" style="width: 450px;" class="form-control"/>
</div>
<div style="padding-bottom: 18px;">Total Experience<br/>
<input type="text" id="data_13" name="data_13" style="'width: 450px;" class="form-control"/>
</div>
<scriptsrc="https://cdnjs.cloudflare.com/ajax/libs/pikaday/1.4.0/pikaday.min.js"
type="text/javascript"></script>
<link href=”https://cdnjs.cloudflare.com/ajax/libs/pikaday/1.4.0/css/pikaday.min.css"
relF'stylesheet" type="text/css”/>


<Script type="text/javascript">new Pikaday({ field: document.getElementByld('data_13')
})</script>
</div>
<div style="padding-bottom: 18px;">Last company you worked for<br/>
<input type="text" id="data_15" name="data_15" style="'width: 450px;" class="form-control”/>
```

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```
</div>

<div style="padding-bottom: 18px;">Resume upload<br/>

<input id="data_10" name="data_10" style="width: 450px;" type="file" class="form-control"/>

</div>

<div style="'padding-bottom: 18px;">Comments<br/>

<textarea id="data_16" false name="data_16" style="width: 450px;" rows="6" class="form-
control”></textarea>

</div>

<center><div style="padding-bottom: 18px;"><input name="'skip_Submit" value="Submit"
type="submit"></div>

Center>

<div>

<div style="float:right"><a href="https://www.100forms.com" id="lnk100" title="form to
email">from to email</a></div>

<script src="https://www.
100forms.com/js/FORMKEY:SJR2CKEPRLBU/SEND:my@email.com"
type=”text/javascript”></script>

</div>

</form>

</body>

</html>
```

Processdata.jsp

```
<%@page language="java" import="java.sql.*”%>

<%

String fname = request.getParameter("data_3");

String lname = request.getParameter("data_4");

String email = request.getParameter('data_5");:

String phone =request.getParameter("data_6"): A d

String loc=request.getParameter("data_11");

String role= request.getParameter("data_9");
```

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```
String qualification = request.getParameter("data_12");
String exp= request.getParameter("data_13");
Try{
Class.forName("oracle.jdbc.driver.OracleDriver");
Connection con= DriverManager.getConnection("jdbc:oracle:thin:@mcndesktop07:1521:XE",
“sandeep", "welcome”
PreparedStatementps=con.prepareStatement("insert into reg values(?,?,7,?,2,2,2)");
ps.setString(1, fname);
ps.setstring(2,lname);
ps.setstring(3,email);
ps.setstring(4,phone);
ps.setstring(5,loc);
ps.setstring(6,role);
ps.setstring(7,qualification);
ps.setstring(8,exp);
ps.executeUpdate();
out.print("data saved successfully");
}catch(exception e){
out.println(e);
}
%>
```

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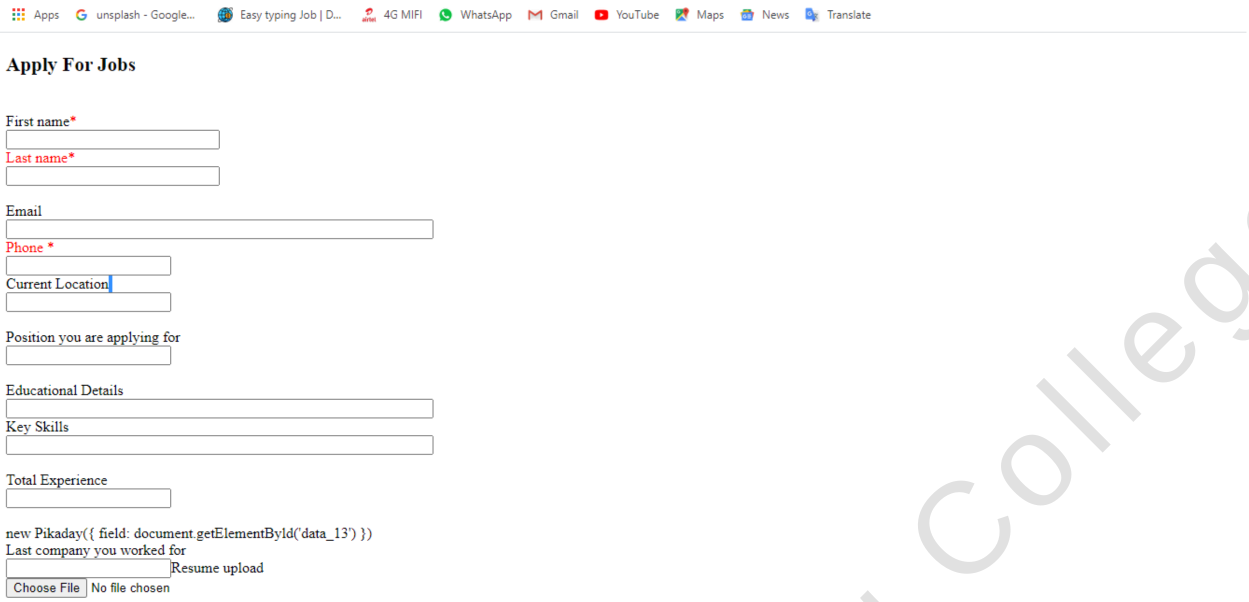

Apply For Jobs

First name*

Last name*

Email

Phone *

Current Location

Position you are applying for

Educational Details

Key Skills

Total Experience

new Pikaday({ field: document.getElementByld('data_13') })

Last company you worked for

Resume upload

Choose File No file chosen

2.write aprogram that allows the user to select a favourite programming language and post the choice to the server.The response in a web page in which the user can click a link to view a list of book recommentation. The cookies previously stored on the client are read by the servlet and from a webpage containing the book recommentation.use servlet, cookies and html.[Apr-May 17]

```
//cookies selectlanguage.html

<?xml version="1.0"?>

<!DOCTYPE html PUBLIC"-//W3C//DTD XHTML 1.0 strict//EN">

<html>

<head>

<title>using cookies</title>

</head>

<body>

<form action="cookies servlet"method="post">

<p>select a programming language:</p>

<p>

<input type="radio"name="language"value="c"/>c</br>

<input type="radio"name="language"value="c++"/>c++</br>
```

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```
<!--this radio button checked by default-->
<input type="radio"name="language"value="java"checked="checked"/>java</br/>
<input type="radio"name="language"value="VB6"/>
</p>
<p><input type="submit"value="submit"/></p>
</form>
</body>
</html>
```

```
//cookieservlet.java
package favouriteP;
import java.io.IOexception;
import java.io.printwriter;
import java.util.HashMap;
import java.util.Map;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;
@web servlet("/cookies servlet")
public class cookies servlet extends http servlet
{
private static final long serial VersionUID=IL;
private final Map books=new HashMap();
public void init()
{
books.put("c","0130895725");
books.put("c++","0130895717");
```

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```
books.put("java","0130125075");
books.put("VB6","0134569555");
}protected void doGet(httpservletRequestrequest,HTTPservletResponseresponse)throws
Servletexception.

IOExcepion
{
cookie cookies[]=request.getcookies();
response.setContentType("text/html);
PrintWriter out=response.getWriter();
out.println("</head>");
out.println("<title>Recommendations</title>");
out.println("</head>");
out.println("</body>");
if(cookies!=null&&cookies.length!=0){
out.println("<h1>recommendations</h1>");
out.println("<p>");
for(int i=0;i<cookies.length;i++)
out.println(cookies[i].getName()+
"how to program.ISBN#:"+
cookies[i].getvalue()+"<br/>");
out.println("</p>");
}
else{
//there were no cookies
out.println("<h1>No recommendations</h1>");
out.println("<p>you did not select a language</p>");
}
out.println("</body>");
```

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```
out.println("</html>");
out.close();
}
protected void dopost(httpservlet Request request,httpservlet Response response)throws Servlet
Exception,
IOException
{
string language=request.getparameter("language");
string isbn=books.get(language).to string();
cookie cookie=new cookie(lanuage,isbn);
response.addCookies(cookie);
response.setContentType("text/html");
ptintWriter out=response.getWriter;
out.println("<?xml version=\"1.0\"?>");
out.println("<!DOCTYPE html PUBLIC\"-//W3C//
DTD"+"/TR/xhtml11/DTD/xhtml11-strict.dtd\">");
out.println("<head>");
out.println("<title>welcome to cookies</title>");
out.println("</head>");
out.println("<body>");
out.println("<p>welcome to cookies!youselect+language+"</p>");
out.println("<p><a href="+"\"/favouriteP/CookiesSelectLanguage.html\">"+"clickhere to choose
anotherlanguage</a></p>");
out.println(<p><a href=\"/favouriteP/cookiesservlet\">"+"click here to grt book
recommedations</a></P>");
out.println("</body>");
out.println("</html>");
out.close();//close stream
}
```

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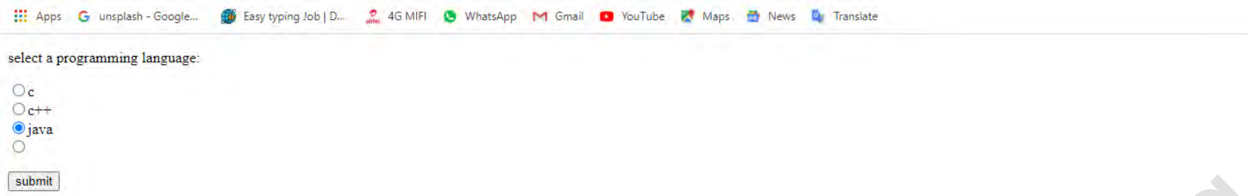
```
}
```



select a programming language:

○ c
○ c++
● java
○

3.Using HTML and JSP,design a scientific calculator.[Nov-Decs 15]

Ans:

```
<html>
<title>SCIENTIFIC CALCULATOR</title>
<head>
<SCRIPT LANGUAGE="JavaScript">
function addChar(input, character)
If(input value == null || input.value=="0")
Input.value = character
else
input.value += character
 }
function cos(form)
 {
form.display.value = Math.cos(form.display.value);
 }
function sin(form)
{
form.display.value = Math.sin(form.display.value);
 }
function tan(form)
 {
```

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```
form display.value = Math.tan(form.display.value);
 }
function In(form)
 {
form.display.value =Math.log(form.display.value);
 }
function exp(form)
 {
form.display.value = Math.exp(form.display.value);
 }
function deleteChar(input)
 {
input value = input.value.substring(0, input.value.length - 1)
 }
function compute(form)
 {
form.display.value = eval(form.display.value)
 }
function check Num(str)
 {
for (var i=0;i<str.length;i++)
 {
var ch = str.substring(i, i+1)
if (ch<”0”|| ch> "9")
 If(ch!=”/”&&ch!=”*”&&ch!=”+”&&ch!=”-”&&ch!=”.”
&&ch!=”(“&&ch!=”)”){
alert(“invalid entry!”)
return false
```

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```
}
}
}
return true
 }
</SCRIPT>
<body>
<FORM NAME=”sci-calc">
<TABLE CELLSPACING=”0”CELLPADDING="1”>
<TR>
<TD COLSPAN="5"ALIGN="center"><INPUT NAME="display" VALUE="O" SIZE=”28"
MAXLENGTH=”25”</TD>
</TR>
<TR>
<TD ALIGN="center"><INPUT TYPE"=button" VALUE="cos"
ONCLICK="if(checkNum(this.form.display.value){cos( this. form)}”></TD>
<TD ALIGN="center><INPUT TYPE="button" VALUE="sin"
ONCLICK="if(checkNum(this.form.display.value){sin(this.form) }"></TD>
<TD ALIGN="center"><INPUT TYPE="button" VALUE="tan"
ONCLICK=if(checkNum(this.form.display.value) {tan(this.form) }"></TD>
<TD ALIGN="center"><INPUT TYPE="button" VALUE="In"
ONCLICK=if(checkNum(this.form.display.value) {In this.form)}”></TD>
<TD ALIGN="center"><INPUT TYPE="button" VALUE="exp"
ONCLICK=if(checkNum(this.form.display.value) {exp(this.form) }"></TD>
</TR>
<TR>
<TD ALIGN="center"><INPUT TYPE=”button" VALUE="7"
ONCLICK="addChar(this.form.display, ‘7’)”>
</TD>
<TD ALIGN="center"><INPUT TYPE="button" VALUE="8"
ONCLICK="addChar(this.form.display, ‘8’)”>
```

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```
</TD>

<TD ALIGN="center"><INPUT TYPE="bution" VALUE="9"
ONCLICK="addChar(this.form.display,’9’)”>

</TD>

<TD ALIGN="center"><INPUT TYPE="button" VALUE="DEL"
ONCLICK="deleteChar(this.form.display)"></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="AC" ONCLICK=”this.form
display.value-0">/TD>

</TR>

<TR>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="4"
ONCLICK=”addchar(this.form.display,’4’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="5"
ONCLICK=”addchar(this.form.display,’5’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="6"
ONCLICK=”addchar(this.form.display,’6’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="*"
ONCLICK=”addchar(this.form.display,’*’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="/"
ONCLICK=”addchar(this.form.display,’/’)”></TD>

</TR>

<TR>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="1"
ONCLICK=”addchar(this.form.display,’1’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="2"
ONCLICK=”addchar(this.form.display,’2’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="3"
ONCLICK=”addchar(this.form.display,’3’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="+"
ONCLICK=”addchar(this.form.display,’+’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="-"
ONCLICK=”addchar(this.form.display,’-’)”></TD>

</TR>
```

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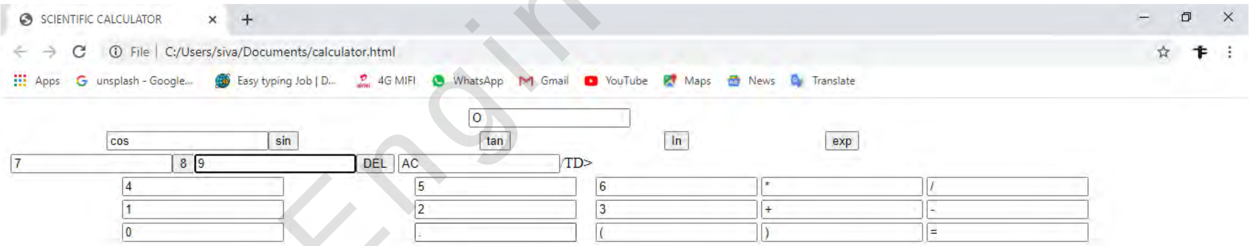
```
<TR>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="0"
ONCLICK=”addchar(this.form.display,’0’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="."
ONCLICK=”addchar(this.form.display,’.’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="("
ONCLICK=”addchar(this.form.display,’(’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE=")"
ONCLICK=”addchar(this.form.display,’)’)”></TD>

<TD ALIGN="center"><INPUT TYPE=”button" VALUE="="
ONCLICK=”if(checkNum(this.form.display)) {compute(this,form) }”></TD>

</TR>

</TABLE>

</FORM>

</body>

</head>

</html>
```



4.Develop JSP program to display the grade of a student by accepting the marks of five subjects.[Apr-May19]

Page1.jsp

```
<html>

<head><title>student Marks</title></head>

<body>
```

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```
<form method="post"action="page2.jsp">
<h1><center>student marks</center></h1>
First subject: <input type="text" Name="No 1" Value=""/>
<br/><br/>
Second subject: <input type="text" Name="no2" Value=""/>
Third subject: <input type="text" Name="no3" Value=""/>
Fourth subject: <input type="text" Name="no4" Value=""/>
<br/><br/>
Fifth subject: <input type= "text" Name="no5" Value=""/>
<br/><br/>
<input type="submit" Value="submit"name="submit"/>
</form>
</body>
</html>
```

Page2.jsp

```
<html>
<head><title>student Grade </title></head>
<body>
<%
int a, b, c, d, e;
int sum;
float avg;
a=Integer.parseInt(request.getparameter("no1")) ;
b=Integer.parseInt(request.getparameter("no2")) ;
c=Integer.parseInt(request.getparamater("no3")) ;
d=Integer.parseInt(request.getparamter("no4")) ;
e=Integer.parseInt(request.getparameter("no5")) ;
Sum=a+b+c+d+e;
```

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```
avg=sum/5;
If(avg>90)
{
out.print("The Grade of the student is A+") ;
out.print("<br>") ;
}
Else if (avg>80)
{
Out. Print("The Grade of the student is A") ;
Out. Print("<br>") ;
}
else if (avg>70) ;
{
out.print("The Grade of the student is B") ;
out.print("<br>") ;
}
Else if (avg>60) ;
{
out.print("The Grade of the student is C") ;
out.print("<br>") ;
}
else
{
out.print("The Grade of the student is D") ;
out.print("<br>") ;
}
%>
</body>
```

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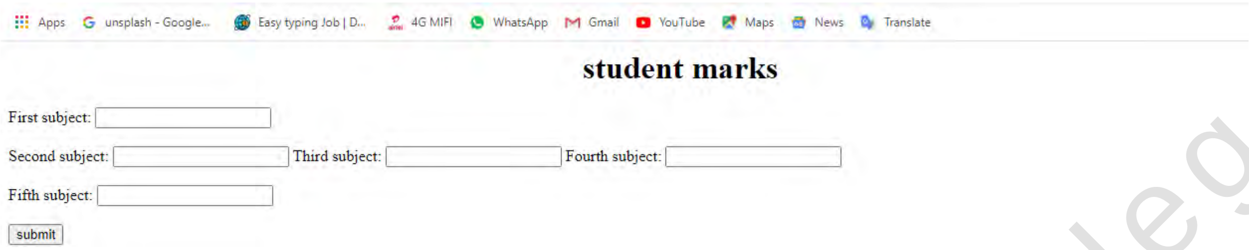
```
</html>
```



student marks

First subject:

Second subject: Third subject: Fourth subject:

Fifth subject:

5.Write a JSP page that enables the users to input the first name and in response outputs the last name. [Apr-May17]

```
<html>
<title> First and Last Name</title>
<script>
function ln()
{
var fn=document.f1.t1.value;
if(fn==”Balon”||fn==”Theon”)
document.getElementById(“d1).innerHTML=”<b>Greyjoy”;
if(fn==”Ned”||fn=”Arya”)
document.getElementById(“d1).innerHTML=”<b>Stark”;
if(fn==”Lyanna”||fn==”Jorah”)
document.getElementById(“d1).innerHTML=”<b>Mormont”;
if(fn==”Aegon”||fn==”Raeghar”)
document.getElementById(“d1).innerHTML=”<b>Targeryon”;
}
</script>
<body>
<form name=”f1”>
```

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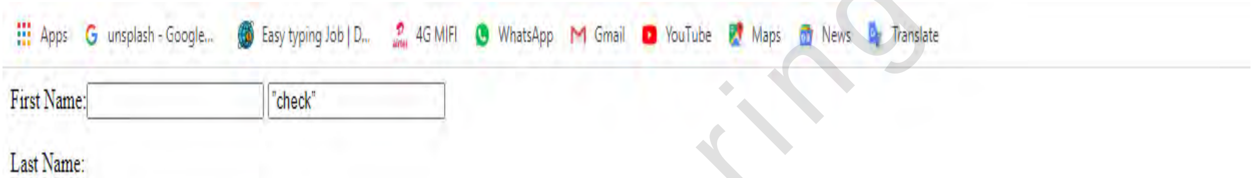
```
First Name:<input type=”text name=”t1”>
<input type=”button” value=”check” onclick=”ln()”>
</form>
Last Name: <h id=”d1”>
</body>
```

Output:



First Name: "check"

Last Name:

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1. Explain Database connectivity [Nov/Dec 2015]

Open DataBase Connectivity (ODBC) provides a standard Software API method for using databases.

We can use ODBC for servlets or JSP by using the bridging configuration because direct ODBC support for Java Servlets/JSP is not available. Hence the bridging configuration is introduced by means of JDBC. JDBC stands for Java DataBase Connectivity. JDBC is an API (Application Programming Interface) which consist of various classes, interfaces, exceptions using which Java application can send SQL statements to a database. JDBC is useful for both application developers and JDBC driver vendors.

JDBC specification is prepared by SunMicroSystems. Any third party vendor can design their own JDBC drivers using this specification. These JDBC drivers are then used by the application developers for getting connected to the database.

JDBC is specially used for having connectivity with RDBMS packages such as Oracle or MYSQL using corresponding JDBC driver.

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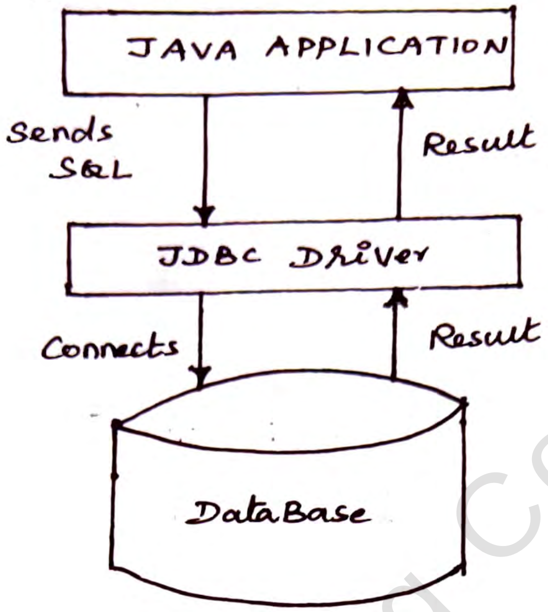
Role of JDBC



Java application establishes connection with the data source. Then Java application invokes classes and interfaces from JDBC driver for sending queries to the data source.

The JDBC driver connects to corresponding database and retrieves the result. These results are based on the SQL statements which are then returned to Java application. Java application then uses the retrieved information for further processing.

The components that are used for establishing the connection with the database using JDBC are,

⇒ JDBC API

⇒ JDBC Driver Manager

⇒ JDBC - ODBC Bridge

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The JDBC API classes are supported by java.sql Hence we must import java.sql.* in our program. The statement used for refering the JDBC-ODBC bridge is,

Class.forName("sun.jdbc.odbc.jdbcodbcDriver");

There is a JDBC Driver Manager which connects the Java application or servlet to the JDBC driver. we can connect the Java program to MS Access, database with JDBC-ODBC Bridge using the

DriverManager.getConnection() method.

In this method, the first parameter is passed as

jdbc:odbc:database-name

The JDBC-ODBC driver helps to translate the JDBC function calls into the ODBC function calls. JDBC-ODBC bridge is implemented in sun.jdbc.odbc

JDBC ARCHITECTURE

The JDBC architecture consists of two major Components

⇒ JDBC API

⇒ JDBC Driver

JDBC classes and interfaces that belong to java.sql package are,

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Driver Manager

When Java application needs connection to the database it invokes the DriverManager class. This class then loads JDBC drivers in the memory. The DriverManager also attempts to open a connection with the desired database.

Connection

This is an interface which represents connectivity with the data source. The connection is used for creating the statement instance.

Statement

This interface is used for representing the SQL statements.

Resultset

This interface is used to represent the database resultset.

SQL Exception

For handling SQL exceptions this interface is used.

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2. Explain the use of cookies for tracking requests with an example program and Explain the types of cookies. [Nov/Dec 2016, Apr/May 2018, 2019] [13m]
with diagram

The session tracking technique is a mechanism by which we can keep track of previous sessions between server and the browser.

The session tracking can be done using three techniques and those are,

1. Use of cookies
2. Embedding hidden fields in an HTML form
3. Sending URL string in response body.

Cookies are some little information that can be left on our computer by the other computer when we access an internet.

Here is a simple HTML form in which a servlet is invoked. This servlet creates a cookie by the name My-cookie and stores the value entered by the user in the text box of HTML form. We can get further information stored in the cookie by another servlet program getCookieServlet.

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So we have to write three programs,

⇒ Normal HTML Script in which some value is entered in the textbox.

⇒ The servlet program named mycookieServlet which will set cookies and take the value entered by the user in the HTML form

⇒ Another servlet program named getCookieServlet which helps us to view the cookie.

HTML Program

```
<html>
<head>
<title> Demo - Cookie </title>
</head>
<body>
 <form name = "form1" method = "post"
       action = "http://localhost:8080/examples/servlet/
                 mycookieservlet">
  <h3> Enter the Value for my Cookie :</h3>
  <input type = text name = "txt-data" size = 30
                 value = " " >
  <input type = submit value = "submit">
  </form>
  </body>
  </html>
```

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Servlet Program [myCookieServlet.java]

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class mycookieservlet extends HttpServlet
{
  public void doPast(HttpServletRequest req,
                     HttpServletResponse res) throws
              ServletException, IOException
  {
      String txt-data = req.getParameter("txt-data");
// create Cookie
Cookie cookie = new Cookie("My-Cookie", txt-data);
// Adding Cookie to HTTP response
     res.addCookie(cookie);
     res.SetContentType("text/html");
     Printwriter out = res.getWriter();
     out.println("<h2> My Cookie has been set to :");
     out.println(txt_data);
     out.println("<br> <br> <br>");
     out.println("This page shows that the Cookie
                         has been added");
  } out.Close();
}
```

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Servlet Program [getCookieservlet.java]

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class getCookieServlet extends HttpServlet
{
  public void doGet(HttpServletRequest req,
                          HttpServletResponse res)
        throws ServletException, IOException
  {
     Cookie [] mycookies = req.getCookies();
     res.setContentType("text/html");
     Printwriter out = res.getWriter();
     out.println("<b>");
     int n = mycookies.length;
     for (int i=0; i<n; i++)
     {
        String name = mycookies[i].getName();
        String value = mycookies[i].getValue();
        out.println("name = " + name);
        out.println("and value = " + value);
     }
        out.close();
  }
}
```

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In the above program, Using getName() and getValue() functions, we can get the name of the cookie as well as the value of the cookie respectively.

There are two types of Cookies in Servlets,

1. Non-persistent Cookie
2. Persistent Cookie

Non-Persistent cookie is valid for single session only. It is removed each time when the user closes the browser.

Persistent Cookie is valid for multiple sessions. It is not removed each time when user closes the browser. It is removed only if user logout or signout.

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3. Using HTML and JSP, design a scientific calculator. [Nov/Dec 2016] [13m]

HTML code for scientific calculator: [calci.html]

```
<html>
<body>
<form action = "calci.jsp" method = "post">
<center>
<h1> JSP scientific calculator </h1>
 Type +, -, *, /, sin, cos, tan, sqr, sqrt in the
                                   operator text field <br>
```

```
<input type = "text" name = "op1" size = "3" value =0>
<input type = "text" name =op" size="3" value = "operator">
<input type = "text" name = "op2" size =" 3" value = 0>
<br>
<input type = "sumbit" value = " &nbsp; &nbsp; = &nbsp;
                                        &nbsp;">
</center>
</form>
</body>
</html>
```

Calci.jsp

```
<html>
<body>
<h2>
<center>
The sum is:
<%
double a = Double.parseDouble (request.getParameter("op1")
double b = Double.parseDouble (request.getParameter ("op2",
String c = request.getParameter ("op1);
double result;
if (c.equals(" + "))
{
    result = a+b;
}
```

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```
else if(c.equals("-"))
{
  result = a - b;
}
else if (c.equals ("*"))
{
  result = a * b;
}
else if (c.equals ("/"))
{
  result = a/b;
}
else if (c.equals ("sqr"))
{
  result = a * a;
}
else if (c.equals("sqrt"))
{
   result = Math.sqrt(a);
}
 else if (c.equals ("sin"))
{
 double result = Math. sin(a* Math.PI/180);
}
 else if (c.equals ("cos"))
{
 double result = Math.cos (a * Math.PI/180);
}
 else if (c.equals("tan"))
```

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```
{
double result = Math.tan(a*Math.PI/180);
}
out.println(result);
%>
</center>
</h2>
</body>
</html>
```

4. Explain JSP Scripting components in detail with examples. [Nov/Dec 2016] [13 m]

JSP - Java Server Pages is a kind of scripting language in which we can embed Java code along with HTML elements.

JSP is used for server side programming. It can be used along with Servlets. Hence business logic for any application can be developed using JSP.

Dynamic contents can be used by JSP. JSP allows creating and using our own custom tag libraries. JSP is a specification and not a product. Hence developers can develop variety of applications and add up to performance and quality of software products.

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JSP is an essential component of J2EE. Using JSP it is possible to develop simple as well as Complex applications.

JSP is a simple web page which contains the JSP elements and template text.

The template text can be scripting code such as HTML, WML, XML or a simple plain text.

Various JSP elements are,

⇒ action tags

⇒ Custom tags

⇒ JSTL Library elements

These JSP elements are responsible for generating dynamic contents.

JSP code

```
<%@ page language = "java" Content Type = "text/html" %>
```

↑ JSP element

```
<html>
<head>
<title> Demo for Template Text </title>
</head>
<body bgcolor = "gray">
<h1> Welcome JSP </h1>
```

← Template Text

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```
<h2> To Learn the working of JSP </h2> }  ← Template Text
<li> Architecture of JSP </li>
<p>
<% out.print ("JSP is equal to HTML and Java"); %>
                                   ↑ JSP Element
</p> <h3> Today's Date is :
   <%= new Date().toString() %>
                                 ↑ JSP Element
</h3>    }
</body>  }  ← Template Text
</html>  }
```

When JSP request gets processed template text and JSP elements are merged together and sent to the browser as a response.

WORKING OF JSP

JSP pages can be processed using JSP containe only. Following steps are to be followed while processing the request for JSP page.

1. client makes a request for required JSP page to the server. The server must have JSP Container so that JSP request can be processed

2. On receiving this request the JSP container searches and then reads the desired JSP page. Then this JSP page is straight away converted

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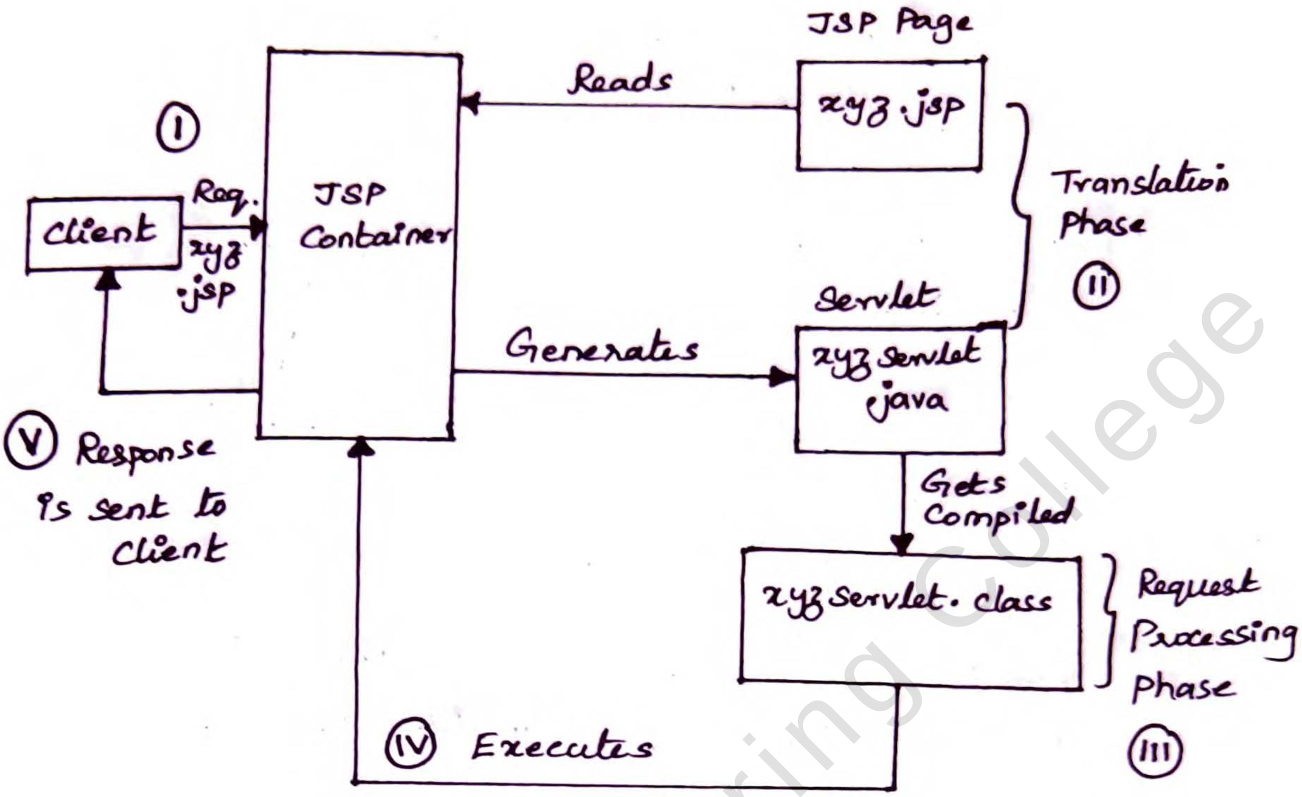
JSP Processing



to corresponding servlet. Basically any JSP page is a combination of template text and JSP element. Every template text is translated into corresponding println statement.

```
<html>                          out.println("<html>");
<head>                          out.println("<head>");
<title> Demo </title>           out.println(" <title>
...                                  Demo </title>");
                                ...
```

Every JSP element is converted into corresponding Java code. This phase is called "Translation Phase". The output of translation phase is a servlet.

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3. This servlet is then compiled to generate the servlet class file. using this class the response can be generated. This phase is called 'Request Processing Phase".

4. The JSP Container thus executes the servlet class file.

5. A requested page is then returned to the client as a response.

---

5. Explain lifecycle of Servlets with suitable example. [Nov/Dec 2017, Apr/May 2018] [13m]

Servlets are simple Java programs that run on the servers. Hence it is called Servlets. Servlets are most commonly used with HTTP so called as HTTP servlets.

Uses of Servlets :

1. Servlets can process and store the data submitted by an HTML form.
2. Servlets are useful for providing the dynamic contents. Eg. Retrieving and updating the db.
3. Servlets can be used in the cookies and session tracking.

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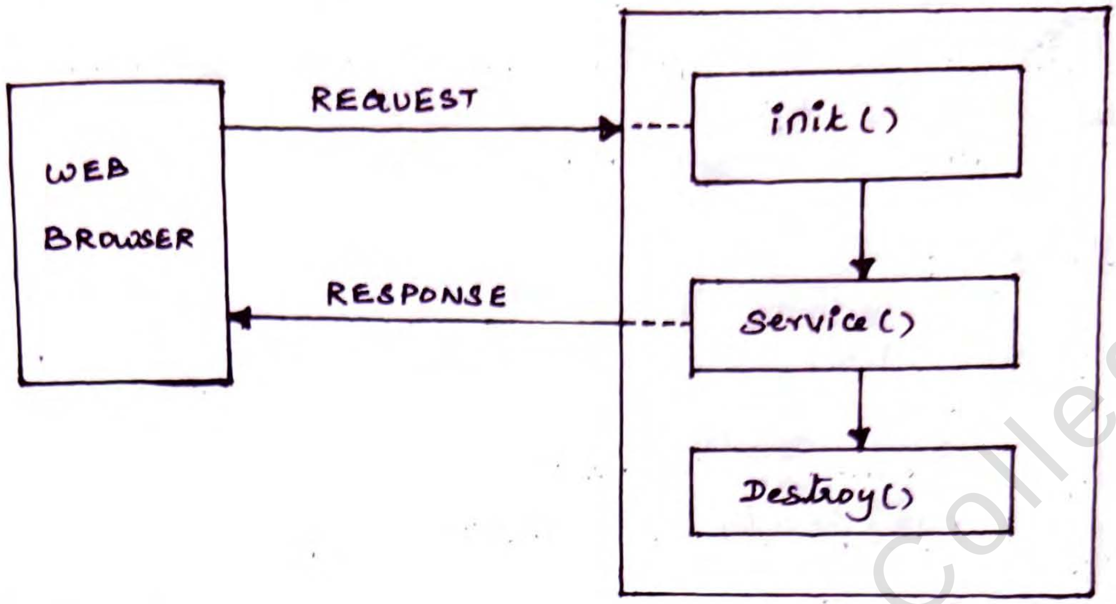
Servlet Life Cycle:



In the life cycle of servlet, there are three important methods, they are,

init()
service()
destroy ()

The client enters the URL in the web browser and makes a request. The browser then generates the HTTP request and sends it to the web server.

Web server maps this request to the corresponding servlet. The server basically invokes the init() method of servlet. This method is called only when the servlet is loaded in the memory for the first time. Using this method initialization parameters can also be passed to the servlet in order to configure itself.

Server can invoke the service for particular HTTP request using service() method. The servlets

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can then be read the data provided by the HTTP request with the help of Service() method.

Finally Server unloads the servlet from the memory using the destroy() method.

Example:

[Lifecycle.java]

```
import javax.servlet.*;
import javax.servlet.http.*;
import java.io.*;
public class Lifecycle extends GenericServlet
{
    public void init(ServletConfig config) throws
                                ServletException
   {
      System.out.println("init");
   }
   public void service (ServletRequest request,
                           ServletResponse response)
       throws ServletException, IOException
  {
     System.out.println(" from Service");
     PrinterWriter. out = response.getWriter();
     out.println("Implementing Servlet Lifecycle"
     out.println("In Java Programming");
  }
```

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```
    public void destroy()
    {
      System.out.println("Destroy");
    }
}
```

Explanation :

⇒ In the above program, an init() method is used to which object of the ServletConfig interface is passed.

⇒ This interface allows the Servlet to get the initialization parameters.

⇒ Service() method is used to which the ServletRequest and ServletResponse parameters are passed for making the HTTP request and getting the HTTP response from the Servlet.

⇒ Output stream is created using getwriter() and along this output stream some messages are written.

⇒ These messages will then be displayed on the web browser when the Servlet gets executed

⇒ Finally, the destroy() method is invoked in order to unload the Servlet from the memory.

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1. Compile this program and copy the class file in the class folder of Tomcat

2. Edit the web.xml by mentioning the Servlet name and Servlet mapping.

3. Start the Tomcat Server.

4. Open the web browser and request for the above servlet using the URL.

The output will be displayed in the web browser.

The Tomcat Console will be running behind, Init() method is invoked and then the Service() method is invoked.

If we try to shutdown the Tomcat Server we will get the message "Destroy".

---

6. Discuss the advantages and disadvantages of Servlets. [Apr/May 2019] [6m]

Advantages:

1. Servlets provide a way to generate dynamic documents that is both easier to write and faster to run.

2. Provide all the powerful features of JAVA,

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such as Exception Handling and garbage Collection.

3. Servlets enables easy portability across web servers.

4. Servlet can communicate with different servlet and servers.

5. Since all web applications are stateless protocol, servlets uses its own API to maintain session.

Disadvantages :

1. Designing in Servlet is difficult and slows down the application.

2. Writing complex business logic makes the application difficult to understand.

3. We need a Java Runtime Environment on the Server to run Servlets.

---

7. Draw the Servlet architecture and explain its working. [April May 2019] [13 m]

Working of Servlet

First the HTTP requests coming to the server are delegated to the servlet Container.

The servlet container loads the servlet before invoking the service() method.

Then the servlet container handles multiple requests by spawning multiple threads, each thread executing

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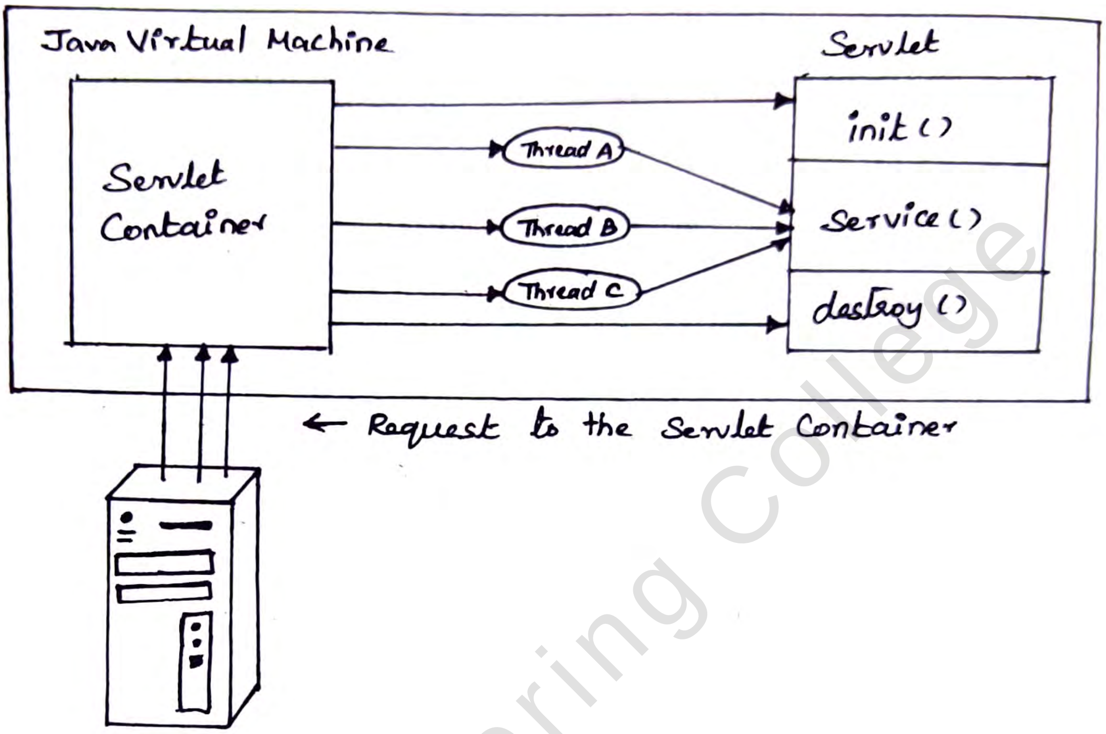
the service() method of a single instance of the Servlet.



Servlets are Java classes which service HTTP requests and implement the javax.servlet.Servlet interface. Web application developers typically write servlets that extend javax.servlet.http.HttpServlet, an abstract class that implements the Servlet interface and is specially designed to handle HTTP requests.

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Servlet Example to Show Hello world

```
// Import required java libraries
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
```

```
// Extend HttpServlet class
public class HelloWorld extends HttpServlet
private String message;
public void init() throws ServletException
{
    message = "Hello world !!";
}
public void doGet (HttpServletRequest request,
                          HttpServletResponse response)
    throws ServletException, IOException
{
  // Set response content type
    response. setContentType ("text/html");
  // Actual logic goes here
  PrintWriter out = response. getWriter();
  out. println ("<h1>" + message + "</h1>");
}
  public void destroy()
  {
      // do nothing
  }
}
```

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Compiling a Servlet

Create a file HelloWorld.java and Compile with the Command,

```
$ javac HelloWorld.java
```

Copy the Class file in the Class folder of Tomcat.

Servlet deployment

Copy the HelloWorld.class into

<Tomcat-installationdirectory>/webapps/ROOT/WEB-INF/classes

and create the following entries in web.xml file located in <Tomcat-installation-directory>/webapps/ROOT/WEB-INF/

web.xml

```
<servlet>
    <servlet-name> Helloworld </servlet-name>
    <servlet-class> HelloWorld </servlet-class>
</servlet>
<Servlet-mapping>
    <Servlet-name>HelloWorld <Servlet-name>
    <url-pattern>Helloworld <url-pattern>
</servlet-mapping>
```

Open the web browser and request for the above servle
using the URL http://localhost:8080/Helloworld.
The output will be shown in the browser screen displaying
Hello world !!

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8. List some advantages of JSP [Nov/Dec 2017] [5m]

Advantages of JSP over other technologies,

(1) JSP Vs ASP (Active Server Pages)

The advantages of JSP are two fold. First, the dynamic part is written in Java, not Visual Basic or other MS specific language, so it is more powerful and easier to use. Second, it is portable to other OS and non-Microsoft web servers.

(2) JSP Vs Pure Servlets

It is more convenient to write and modify regular HTML than to have plenty of println statements that generates the HTML.

(3) JSP Vs Server-side Includes (SSI)

SSI is really only intended for simple inclusions, not for "real" programs that use form data, make database connections and the like.

(4) JSP Vs JavaScript

JavaScript can generate HTML dynamically on the client but can hardly interact with the web server to perform complex tasks like database access and image processing etc.

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(5) JSP Vs Static HTML

Regular HTML cannot contain dynamic information.

---

9. Explain in detail about Servlet DB Connectivity with an example of student database. [Nov/Dec 2018] [13m]

Solution :

```
// Loading required libraries
import java.io.*;
import java.util.*;
import javax.servlet.*;
import javax.servlet.http.*;
import java.sql.*;
public class DatabaseAccess extends HttpServlet
{
  public void doGet (HttpServletRequest request,
                    HttpServletResponse response) throws
        ServletException, IOException
  {
  // JDBC driver name and database URL
  static final string JDBC_DRIVER = "com.. mysql.jdb
                                        Driver";
  static final string DB_URL = "jdbc:mysql://localhost
                                  TEST";
```

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```
// Database credentials
static final string USER = "root";
static final string PASS = "password";

// Set response content type
response.setContentType("text/html");
PrintWriter out = response.getWriter();
string title = "Database Result";
string docType = "<!doctype html public\"-//w3c//dtd
                    html 4.0 " + "transitional//en\">\n";

out.println(docType +
    "<html>\n" +
    "<head><title>" + title + "</title></head>\n" +
    "<body bgcolor = "blue"> \n" +
    "<h1 align = \"center\">" + title + "</h1>\n");

try
{
    // Register JDBC driver
    Class.forName("com.mysql.jdbc.Driver");

  //open a connection
  Connection conn = DriverManager.getConnection(DB-URL,
                            USER, PASS);

  //Execute SQL Query
  statement stmt = conn.createStatement();
  string sql;
```

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```
sql = "SELECT id, first, last, age FROM Students";
ResultSet rs = stmt.executeQuery(sql);
// Extract data from result set
 while(rs.next())
 {
  // Retrieve by column name
   int id = rs.getInt("id");
   int age = rs.getInt ("age");
   string first = rs.getString (" first");
   string last = rs.getString(" last");
  // Display values
   out.println(" ID: " + id + " <br>");
   out.println(", Age: " + age + " <br> ");
   out.println(", First : " + first + " <br> ");
   out.println(", Last :" + last + " <br>");
 }
   out.println(" </body></html>");
  // clean-up environment
    rs.close();
    stmt.close();
    Conn.close();
 }
 catch(SQLException se)
 {
    //handle errors for JDBC
```

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```
        e. printStackTrace();
    }
    finally
    {
     // finally block used to close resources
     try
     {
        if (stmt != null)
           stmt. close();
     }
     catch (SQLException se2)
     {
     }
     try
     {
       if (conn != null)
          conn. close();
     }
    catch (SQLException se)
    {
       se. printStackTrace();
    }
   }
  }
 }
```

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UNIT-IV

PART-A

1. **What is PHP? [Nov-Dec 16]**

PHP stands for (Personnel Home Page) hypertext preprocessor. It is a scripting language used at the server side. It is merged into the HTML and uses the scripting features of Perl and UNIX. It also uses the procedural features of C running on UNIX OS platform. It supports a large number of UNIX system calls (present within the library routines) and interfaces. It also support databases such MYSQL, Oracle. It can run on different types of platforms such as UNIX, LINUX, Windows, etc.,

2. **List the important characteristics of PHP. [Nov-Dec 18]**

The various characteristics of PHP are as follows,

- Simplicity
  PHP scripts are very simple and they does not have any library files to be included.
- Familiarity
  PHP code does not require any training or any basic knowledge of PHP. This is because, it usually follows the format of C and Perl.
- Efficiency
  PHP provides efficiency to the users with the help of resource allocation mechanism and session management features.
- Security
  PHP provide programmers a high amount of security with the help of safeguards like system level and application level.

3. **Name any four built-in functions. [Nov-Dec 15]**

The various built-in functions supported by PHP are as follows,

- Output functions
- String functions
- Math functions
- Date and Time functions

4. **How can a PHP program determine the type of browser that a web client is using? [Apr-May 17]**

In PHP program, the get browser () function is used to determine the type of browser being used by the client. This function looks up for the particular browser in “browscap.ini” file and then returns its type along with its capabilities.

Syntax:

get_browser(user_agent,return_array)

Example:

```
<?PHP

echo  $_SERVER ['HTTP_USER-AGENTS];

$ browser =get_browser();

Print_r($browser);

?>
```

5. **List out the advantages of PHP? [Nov-Dec 17]**

The advantages of PHP are as follows,

- It is simple and easy to learn.
- It provides security and supports all types of servers.
- It is cost effective and scalable.
- It supports wide range of databases.

6. **When should the super global arrays in PHP be used? Which super global array in PHP would contain a HTML form's POST data? [May-June 16]**

Super Global arrays are special array variable used in PHP programs in order retrieve information based on users request. They are accessed within any part of the PHP code without considering their scope. The various super global array variables supported by PHP are as follows,

$_GLOBALS
$_SERVER
$_POST
$_FILES
$_COOKIES
$_SESSION
$_REQUEST
$_EMV

The $_POST global array variable is used to store the data of the HTML form using POST method.

7. **What is XML parse tree? [Nov-Dec 15]**

XML parse tree is a tree that is used for representing an XML document. It defines a hierarchal and descriptive structure to organize various elements of the XML document, The structure of XML parse tree is as follows,

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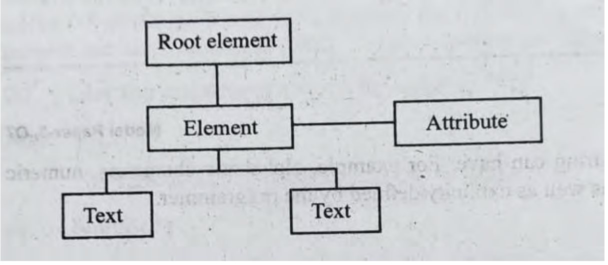

8. **What is an XML parser? [Nov-Dec 18]**

XML parsers are also called as XML processors. They are the programs that transforms an XML document into a program structure to access a document's element. During transformation, the XML parser reads the XML document and checks the XML syntax to determine whether, there exists some syntax errors or not. Since, XML is case sensitive , the start and end tags must be declared properly, the use of quotations for attribute values must be done properly and the use of capitalization must be written properly.

9. **List any two advantages of XMLdocument. [Apr-May 17]**

The advantages of XML document are as follows,

- XML documents are in human readable format since they are written using standard text.
- XML document are easily transferable over internet or any business network.
- XML documents can run on any operating system.\

10. **Define XMLname space. [Nov-Dec 16]**

XML namespace is defined as a set of elements and attribute names where every namespace has an exclusive name. This name is used to avoid collisions/clashing. It serves as a medium for document authors to explicitly address the elements with their identical name.

Example:

<city>Hyderbad</city>

<city> Mumbai</city>

The above example displays the names of the cities . However, it is difficult to identify the names of their states. This issue can be resolved by using prefix before the XML namespaces.

Example:

<Telangana: city> Hyderabad </Telengana:city>

<Maharashtra:city> Mumbai</Maharashtra:city>

11. **Why is XSLT an important tool in development of web applications? [May-June 16]**

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XSLT is an important tool in development of web application, since it performs various tasks which include modification, reformatting, etc., Some of the important Tasks of XSLT are as follows,

- It can be used for inserting/deleting the elements or attributes in/from the output file.
- It can also be used in rearranging or sorting elements.
- It allows the user to perform tests and decide whether to display or hide an element of a file.
- It enables the user to suppress the sensitive information.

12. Explain DTD for XML schemas. [Nov-Dec 18]

Document Type Definition (DTD) refers to certain pieces of code which acts as major building blocks to the original XML document. They are also referred as grammatical specifications to which one or more. XML documents can be adhered. Each DTD's carries certain list of elements (which specifies the rules for structuring a given XML document). DTDs can be declared as external files (with .DTD extension) being referred from the XML file or they can be introduced within the given XML document.

13. What is the advantage of RSS documents? [Apr-May 18]

The advantages of RSS documents are as follows,

- A user can choose any sort of news using RSS documents.
- A user can easily separate the spam information from unwanted information like in gmails.
- A user can create his/her channel and publish it to the internet.

14. List the rules for creating variables in PHP. [Apr-May 19]

The rules for creating variables in PHP are as follows,

- A variable must starts with sign, followed by the variable name.
- A variable name should start either with a letter (or) underscore character.
- A variable name should not start with number.
- A variable name must contain alpha-numeric characters, underscore like A_Z, 0-9 and __.
-

15. What is XSL? [Apr-May 19]

XSL is a language which helps in transforming as well as formatting the given XML documents. Hence, it is referred to as a language,

- Which can format or structure XML data depending on the supplied values and
- Which can sort or filter XML documents.

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1. What are the characteristics of PHP? [Nov/Dec 2018]

⇒ Simplicity

⇒ Efficiency

⇒ Security

⇒ Flexibility

2. Mention four built-in functions in PHP. [Nov/Dec 2015]

1. Array-pop()
2. Method-exists()
3. chdir()
4. Error-log()

3. What is a cookie? [Nov/Dec 2015]

Cookies are text files stored on the client computer and they are kept for user tracking purpose. Cookies are usually set in an HTTP header.

4. What are Regular Expressions?

Regular expressions are sequence or pattern of characters itself. They provide the foundation for pattern-matching functionality.

5. What are the major portions of XML document structure?

⇒ XML Declaration

⇒ Document Type Declaration

⇒ Element Data

⇒ Attribute Data

⇒ Character Data / xml content

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6. State the advantages of XML over SGML [Apr/May 2017]

SGML	XML
Not permissive in its syntax	simple and permissive syntax
Direct implementation on Internet is difficult	Easy implementation on Internet
It provides significant flexibility for a diverse community of users	XML simplified the specification by eleminating unnecessary flexibility.

7. Differentiate XML and HTML.

XML	HTML
It has the capability to represent metadata	It cannot represent metadata
It is meant for both machine and human consumption	Consumption by humans only
Extensible	Not Extensible

8. What is CDATA?

CDATA means character Data. Some documents will contain a large number of characters and text that an XML processor should ignore and pass to an application. These are known as character Data or CDATA sections.

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9. what is the use of Document Type Definition?

DTD allows the author of the document to specify a set of rules for an XML document to make it valid. DTD defines the elements as attributes that should be present in a document.

10. what do you mean by XML Schema? [Nov/Dec 2018]

XML Schema is an XML based alternative to DTD. It describes the structure of an XML document. XML Schemas are richer in data types and more useful than DTDs.

11. What is a complex element? what are its types?

A complex element is an XML element that contain other elements and/or attributes.

Types:

Empty elements

Elements that contain other elements

Elements that contain only text

12. what is the purpose of XML DOM?

XML DOM defines a standard for accessing and manipulating XML. DOM is a w3c standard. XML DOM is a standard of how to get, change, add or delete XML elements.

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13. Expand JAXP and SAX.

JAXP - Java API for XML Processing

SAX - Simple API for XML Processing

14. Differentiate DOM and SAX

DOM	SAX
DOM loads entire XML document in memory	SAX loads only a portion of XML document in memory
DOM parses XML in space	SAX parses XML in time
DOM is fast	SAX is slow
DOM is not event-based	SAX is event-based

15. Define ATOM.

Atom is a simple HTTP-based protocol for creating and updating web resources. web feeds allows software programs to check for updates published on a website.

16. State the applications of RSS.

- News sites - Lists news with title, date and descriptions
- Companies - Lists new products
- calenders - Lists upcoming events and important dates
- Site changes - Lists changed pages or new pages.

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17. What are the advantages of RSS. [Apr/May 2018]

1. User can choose the desired news
2. Remove unwanted information
3. Increase your site traffic.

18. What is XSL? [May/June 2016, Apr/May 2019]

XSL stands for Extensible Stylesheet Language. It deals with XML document transformation and presentation. It consist of three parts,

1. XSLT - XSL Transformation
2. XPATH - XML Path Language
3. XSL - FO - XSL Formatting object.

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PART-B

1. Create an XML document that marks up various sports and their descriptions.Use XSLT to tabulate neatly the elements and attributes of the document. [Apr-May 17]

ANSWER:

```
// Program to describe sports using XML.
<Sports>
<Cd>
<Game>Football</Game>
<Description>it is the top most popular spectator sport.it
has almost 4 billion viewers around the globe.The most
watched tournament in Football is FIFA.</Description>
</Cd>
<Cd>
<Game>Cricket</Game>
<Description>it is the second most popular spectator
sport.it has almost 2.5 billion viewers around the world.The
most watched tournament in ICC world cup and IPL
T20.</Description>
</Cd>
<Cd>
<Game>Hockey</Game>
<Description>it is the third most popular spectator
sport.it has almost 2 billion viewers around the world.The most
watched tournament in Hockey is Olympic games
</Description>
</Cd>
<Cd>
<Game>Tennis</Game>
<Description>It is the four most popular spectator
```

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```
sport. It has almost 1 billion viewers around the world. The
most watched tournament in Tennis are the four grand
slams.</Description>
</Cd>
<Cd>
<Game>VolleyBall</Game>
<Description> it is the Fifth most popular spectator
sport. It has almost 900 million viewers around the world.The
watched tournament in Volleyball is Olympics.</Description>
</Cd>
<Cd>
<Game>TableTennis</Game>
<Description>it is the sixth most popular
spectator sport.it has almost 850 million viewers around the
world. The watched tournament in TableTennis is
Olympics.</Description>
</Cd>
<Cd>
<Game>Baseball</Game>
<Description> it is the seventh most popular
spectator sport. It has almost 800 million viewers around the
world.The watched tournament in Baseball is NBA in
England.</Description>
</Cd>
<Cd>
<Game>Golf</Game>
<Description>it is the Eighth most popular
spectator sport.it has almost 450 million viewers around the
```

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```
world. The most watched tournament in Golf is PGA
tour.</Description>
</Cd>
<Cd>
<Game>Baseketball</Game>
<Description> it is the Ninth most popular
spectator sport. It has almost 400 million viewers around the
world. The most watched tournament in Baseketball is FIBA
American League.</Description>
</Cd>
< Cd>
<Game>Rugby</Game>
<Description> it is the Tenth most popular
spectator sport. It has almost 1.68 million viewers around the
world. The most watched tournament in Rugby is Rugby World
Cup.</ Description>
</ Cd >
<Sports>
// Work.php file.
<?php
//Load XML file
$xml= new DOMDocument;
$xml->load ('signal.xml');
//Load XSL file
$xsl=new DOMDocument;
$xml->load('signal.xsl');
//Configure the transformer
$proc= new XSLTProcessor;
```

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```
//Attach the xsl rules
$proc->importStyleSheet($xsl);
 Echo $proc->transformToXML($xml);
?>
//XSL File
<?XML version=”1.0”encoding=”UTF-8”?>
<xsl: stylesheet version=”1.0”
Xmlns:xsl=http://www.w3.org/1999/XSL/Transform>
<xsl.template match =”/”>
<html>
<head>Sports Page</head>
<title>
Sports
</title>
<Body>
<h2>The Sports Description Page.</h2>
<table border=”1”>
<tr>
<th style=”text-allign:left”>Game</th>
<th style=”text-allign:left”>Description</th>
</tr>
<xsl:for-each select=”sports/cd”>
<tr>
<td>
<xsl:value-of select=”Game”/>
</td>
<td>
<xsl:value-of select=”Description”/>
```

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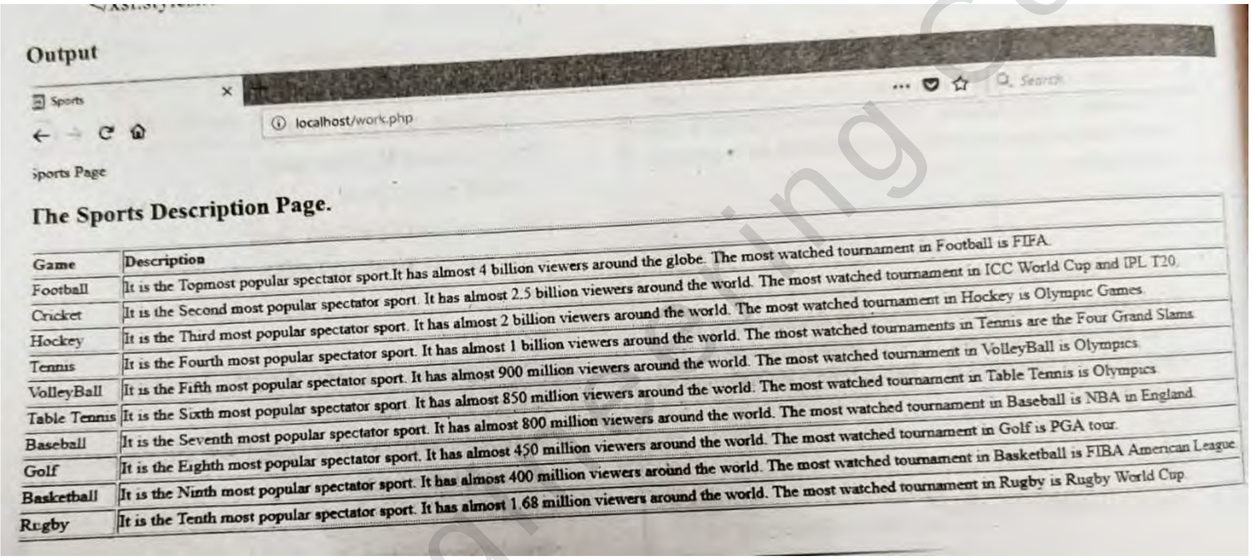
```
</td>

</tr>

</xsl:for-each>

</table>

</body>

</html>

</xsl:template>

</xsl: stylesheet>
```



Output

Sports Page

The Sports Description Page.

Game	Description
Football	It is the Topmost popular spectator sport.It has almost 4 billion viewers around the globe. The most watched tournament in Football is FIFA.
Cricket	It is the Second most popular spectator sport. It has almost 2.5 billion viewers around the world. The most watched tournament in ICC World Cup and IPL T20.
Hockey	It is the Third most popular spectator sport. It has almost 2 billion viewers around the world. The most watched tournament in Hockey is Olympic Games
Tennis	It is the Fourth most popular spectator sport. It has almost 1 billion viewers around the world. The most watched tournaments in Tennis are the Four Grand Slams
VolleyBall	It is the Fifth most popular spectator sport. It has almost 900 million viewers around the world. The most watched tournament in VolleyBall is Olympics
Table Tennis	It is the Sixth most popular spectator sport. It has almost 850 million viewers around the world. The most watched tournament in Table Tennis is Olympics
Baseball	It is the Seventh most popular spectator sport. It has almost 800 million viewers around the world. The most watched tournament in Baseball is NBA in England
Golf	It is the Eighth most popular spectator sport. It has almost 450 million viewers around the world. The most watched tournament in Golf is PGA tour.
Basketball	It is the Ninth most popular spectator sport. It has almost 400 million viewers around the world. The most watched tournament in Basketball is FIBA American League
Rugby	It is the Tenth most popular spectator sport. It has almost 1.68 million viewers around the world. The most watched tournament in Rugby is Rugby World Cup

2.write a php program that tests whether email address is input correctly.verify that the input with a series of charactersfollowed by the @character another series of character a periods a final series of character .test your program with both valid and invalid email address.[Apr-May 17]

```
<?php

function is validEmail($email)

{

$pattern="^[a-Z0-9-]+(\[a-Z0-9-]+)*@[a-Z0-9-]+(\[a-Z]{2,3})$^"";

if(preg_match($pattern,$email))

{

return true;
```

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```
}
else
}}
return false;
}
}
?>
<head>
<title>Email validity</title>
</head>
<body>
<form action="<?php
echo$_SERVER['PHP_SELF'];?>"method="post"name="emailvalidationForm">
<table>
<br>
<td>Emailid:<input name="email">
</td>
<tr>
<?php
if(isset($_POST['email']))
{
if(is ValidEmail($_POST['email']))
{
echo"<tr><td>the email is valid!</td></tr>";
}
```

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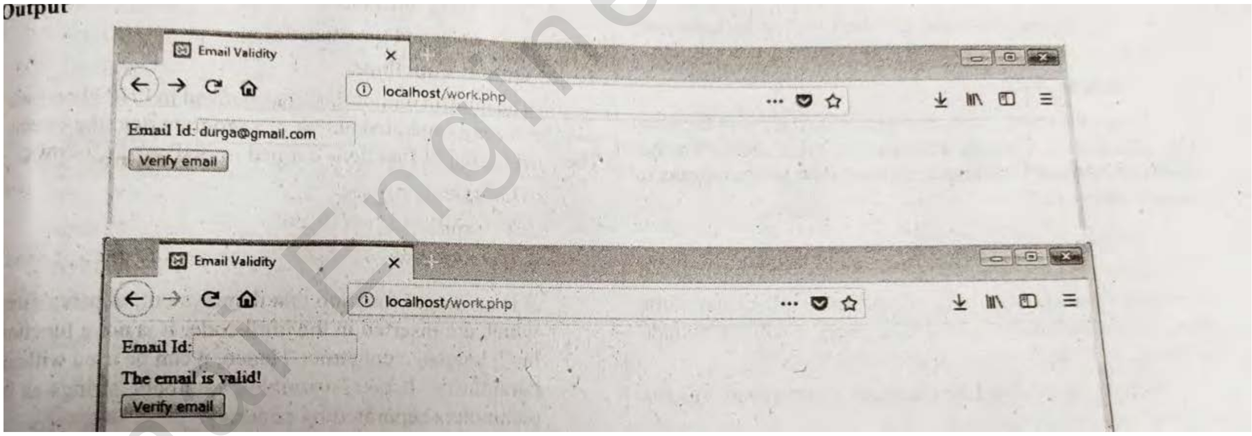
```
else
{
echo"<tr><td>The email is invalid!</td></tr>";
}
}
?>
<tr>
<td><inputtype="submit"name="submit"value="verify email">
</td>
</tr>
</table>
</form>
</body>
```



Output

Email Id: durga@gmail.com

Email Id:

The email is valid!

3.Design application to send an emailusing PHP. [Nov-Dec 17]

Ans:

```
<?php>
```

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```
//Multiple recipients
$to = ‘Venisa.456@gmail.com’;
// Subject
$subject = ‘Birthday Remainders forAugust’;
//Message
$message =’
<html>
<head>
<title>Birthday Remainders for
August’</title>
</head>
<body>
<p>Here are the birthdays upcoming inAugust!</p>
<table>
<tr>
<th>Person</th><th>Day</th>Month</th>
<th>Year</th>
</tr>
<tr>
<td>Tom</td><td>10th</td><td>August</t
d><td>1970</td>
</tr>
<tr>
<td>Dick</td><td>17th</td>August</td><td
>1973</td>
```

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```
</tr>
<table>
</body >
</html>;
Echo “message sent successfully”;
//To send HTML mail, the contents-typeheader must be set
$headers[]=’MIME-Version:1.0’;
$headers []=’Content-type header must beset
$headers[]=’MIME-Version:1.0’;
$headers[]=’Content-type:text/html;charset=iso-8859-1’;
//Additional headers
$headers
[]=’To:Harry<don.suedo@gmail.com >,sia
<siaedugroup@work.com>';
$headers []=’From: Birthday
Remainder<siacse2@gmaik.com>';
$headers[]=’Cc’;siacse2@gmail.com’;
//Mail it
Mail($to, subject, Smessage,implode(“\r\n”,$headers));
?>
```

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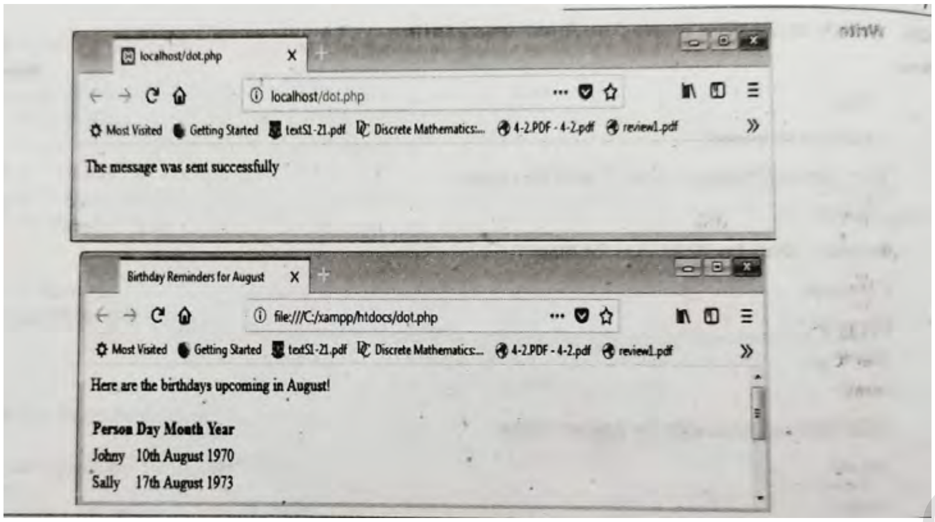

The message was sent successfully

```
Here are the birthdays upcoming in August!

Person Day Month Year
Johny  10th August 1970
Sally  17th August 1973
```

4.Design a PHP application for college Management System with appropriate built-in functions and database. [Nov-Dec 18]

Homepage.html

```
<html>
<head>
<link rel=”File-list” href=”sia_files/filelist.xml”>
<title>sia</title>
<!—[if! Mso]>
<style>
v\:*      {behaviour :url(#default#VML)}
o\:*      {behaviour :url(#default#VML)}
.shape    {behaviour :url(#default#V?M)}
</style>
<![endif]--><!—gtemso 9]>
<xml><o:shapedefaults v:text=”edit” spidmax=”1027”/>
</xml><![endif]-- >
</head>
<body bgcolor=”#00FFFF”>
```

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```
<H1><b><font size=”5”><center> SIA COLLEGE OF
ENGINEERING<center>&nbsp;&nbsp;&nbsp;

<font><b></H1>

<p>&nbsp;</p>

< p align=”center”><font color=”#800000”><b><marquee>SIA COLLEGE OF
ENGINEERING</margquee></b></font></p>

<HR color=”800000”align=”left”></HR>

<div align=”right’ style=”width:229;height;175; border-style:solid; border-width:1;padding-left:
4;padding right: 4;padding-top: 1;padding bottom: 1”>

<table border=”1” cellpadding=”0” cellspacing=”0” style=”border-collapse; collapse; border-
width:0” bordercolor=”#111111” width=”221” height=”15” id=”AutoNumber1”>

<tr><td width=”221” height=”15” style=”border-style: none; border-width:medium”>

<palign=”center”><!—[if gtevml 1]><v:shapetype id=”x0000_t165” coordsize=”21600,21600”
o:spt”165” adj=”10125” path=”m,c7200@0,14400@0,21600,m,21600r21600,e”>

<v:formulas>

<v:feqn=”prod# 0 4 3”/>

<v:feqn=”val#0”/>

<v:feqn=”prod#0 2 3”/>

<v:feqn=”sum 21600 0@2”/>

</v:formulas>

<v:pathtextpathok=”t”
o:connecttype=”custom”o:connectlocs=”10800,@1;0,1800;1800,21600;21600,1800”
o:connectangles=”270,180,90,0”/>

<v:textpath on=”t” fitshape=”t” xscale=”t”/>

<v:handles>

<v:h position=”center,#0” yrange=”0,20250”/>

</v:handles>

<o:lock v: ext=”edit” text=”t” shapetype=”t”/>

</v:shapetype><v:shape id=”_x0000_s1029”type=”#_x0000-t165” style=’width:35.25pt;
height:22.5pt’ fillcolor=”gray” strokeweight=”1pt”>
```

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```
< v: fill src=”your_sia_home_page_files/images001.gif’ o:title=”Narrow vertical”
color2=”yellow” type=”pattern”/>

<v:shadow on=”t” opacity=”52429f” offset=”3pt”/>

<vtextpath style=’font-family;”Arial Black ;font-size:10pt;v-text-kern:t’ trim=”t” fitpath=”t”
xscale=”f” string=”LOGIN”/>

<v:shape><![emdif]-- ><![if !vml]><img border=0 width=52 height=35
src=”your_sia_home_page_files/image002.gif” alt=LOGIN
v:shape=”_x0000_s1029”><![endif]></p>

<form method=”POST” action=”—WEBBOT-SELF—“>

<!—webbot bot=”SaveResults” u-file=”C:\Documents and settings\Administration\My
Document\My Webs\_private\form-results.csv” s-format=”TEXT/CSV” s-label-
fields=”TRUE”→<p align=”center”>E-MAIL&gt;gt;<input type=”text” name=”T1”
size=”20”></p>

</form>

<p align=”center”>PASSWORD&gt;&gt;</p>

<form method=”POST” action=”—WEBBOT-SELF--“>

<!—webbotd bot=”SaveResults” u-file=”c:\Documents and Settings\Administration\My
Documents\My Webs\_Private\form_results.csv” s-format=”TEXT/CSV” s-label-
fields=”TRUE” -- ><p alignl=”center”>

<input type=”text” name=”T1” size=”20”></p>

</form>

<form method=”POST” action=”—WEBBOT-SELF –“>

<!—webbot bot=” SaveResults” u-file=”C:\Documents and Settings\Administration\My
Documents\My Web\_private\form_results.csv” s-format=”TEXT/CSV” s-label -fields=”TRUE”
-- ><p align=”center”>

<input type=”submit” value=”submit” name=”B1”></p>

</form></td></tr></table></div>

<p></HR>&nbsp;<p>&nbsp;</p>

<p>&nbsp;</p>

<hrnoshade color=”800000”>

<p><u><b> CATEGORIES OF DEPARTMENTS<b></u></p>

<div align=”right”>
```

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```
<CENTER><table border=”1” cellpadding =”0” cellspacing=”0” style=”border-collapse:
collapse” bordercolor=”#111111” width=”694” height=’35” id=”AutoNumber2”>

<tr><td width=”93” height=”35’ align=”center”>

<p align=”center”.<i><b>

<a href=”CSE.htm”>CSE</a></b></i></td>

<td width=”97”  height=”35” align=”center”>

<p align=”center”><b><i>

<a href=”ECE.htm”>CSE</a></i></b></td>

<td width=”97”  height=”35” align=”center”><b><i>\

< a href=” mechanical_department.htm”>MECH</a></i></b></td>

<td width=”90” height=”35” align=”center”><b><i>

<a href=”AE.htm”>AE</a><i><b></td>

</tr></table><CENTER><div>

<p><b>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp:<HR color=”#800000”
align=”left”></HR>&nbsp;&nbsp;&nbsp;

<!—[if gtevml 1]><v:shapetype id=”_x0000_t136” coordsize=”21600,21600” o:spt=”136”
adj=”10800” path=”m@7,1@8,m@5,216001@6,21600e”>

<v:formulas?

<v:feqn=”sum # 0 0 10800”/>

<v:feqn=”prod #021”/>

<v:feqn=”sum 21600 0@1”/>

<v:feqn=”sum 0 0@2”/>

<v:feqn=”sum 21600 0 @3”/>

<v:feqn=”if @0@3 0”/>

<v:feqn=”if@a 0 21600 @1”/>

<v:feqn=”if@ 0 0@2”/>

<v:feqn=”if@0 @4 21600”/>

<v:feqn=”mid @5 @6”/>

<v:feqn=”mid @8 @5”/>
```

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```
<v:feqn=”mid @7 @8”/>
<v:feqn=”mid @6 @7”/>
</v:formulas>
<v: pathtextpathok=”t” o:connecttype=”custom” ok:connectlocs=”@9,0;
@10,10800;@11,21600;@12,10800” o:connectangles=”270,180,90,0”/>
<v:textpath on =”t” fitshape=”t”/>
<v:handles>
<v:h position=”#0,bottomRight” xrange=”6629,14971”/>
</v:handles>
<o:lock v:text=”edit” text=”t” shapetype=”t”/>
</v:shapetype><v:shape id=”_x0000_s1032” type=”#_x0000_t136”
style=’width:228pt;height:33pt’fillcolor=”#60c” strokecolor=”#c9f”>
<c:fillcolor2=”#c0c” focus=”100%” type=”gradient”/>
<v:shadow on=”t” color=”#99f” opacity=”52429f” offset=”3pt,3pt”/>
<v:textpath style=’font-family:” Impact” ;font-size:18pt;v-text-kern:t’ trim=”t” fitpath=”t”
string=”PHOTO GALLERY OF THE MEMBERS”/>
</v:shape><![endif]-- ><![if !vml]><img border=0 width=309 height=49
src=”your_sia_home_page_files/image004.gif” alt=”PHOTO GALLERY OF THE
MEMBERS”v:shapes=”_x0000_s1032”><![endif]>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;</p></b>
<p>&nbsp;&nbsp;<img name=””src=”vickram.jpg” width=”155” height=”178”
alt=””style=”background-color: #AAFFFF”>&nbsp;&nbsp;&nbsp;&nbsp;<img name=”HELP”
src=”help[1].jpg”width=”182” height=”178” alt=””>&nbsp;&nbsp&nbsp;&nbsp;&nbsp;<img
name=”HELP” src=”writing450.jpg” width=”183” height=”182” alt=””></p>
<b><p>&nbsp; &nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp; &nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
</p></b></p></body></html>
```

A.E.html

```
<html>
<head><title> AERONAUTICAL ENGINEERING  DEPARTMENT </title></head>
<body bgcolor=”#00FFFF”>
```

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```
<p align=”center”><font color=”#000080” size=”5”><b><i> AERONAUTICAL
ENGINEERING DEPARTMENT”</i></b></font></p>

<p align=”center”>

<img border=”0” src=”images/AE.jpg” width=”135” height=”90”></p>

<p align=”center”><HR color=”#800000” align=”left”></HR></P>

</body></html>

MECH.html

<html>

<head><title>MECHANICAL DEPARTMENT</title>

</head>

<body color=”#FF99CC”>

<p align=”center”><i><b><font size=”6”>MECHANICAL
DEPARTMENT</font></b></i></p>

<p align=”center>

<img border=”0” src=”images/MECHANICAL.jpg” width=”183” height=”125”></p>

< p align=”center”><HR color=”#800000” align=”left”></HR></p>

</body></html>

CSE.html


<html>

<head><title>COMPUTER SCIENCE DEPARTMENT</title></head>

<body bgcolor=”#FFCC99”>

<a align=”center”><font color=”#000080” size=”6”><b> COMPUTER SCIENCE
DEPARTMENT</b></font></p>

<p align=”center”><img border=”0” src=”images/CSE.jpg” width=”187” height=”153”></p>

<p align=”center”><HR color=”#800000” align=”left”></HR></p>

</body></html>

ECE.html

<html>
```

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```
<head><title> ELECTRONICS AND COMMUNICATION
DEPARTMENT</title></head><body bgcolor=”#999966”>

<p align=”center”><font color=”#FFCC66” size=”5”><b> ELECTRONICS AND
COMMUNICATION DEPARTMENT</b></font></p>

< p align=”center””><HR color=”#800000” align=”left”></HR></p>

</body></html>
```

Body.php

```
<?php

Include_once(“admin/admin2008.php”);

$abd=new adminbase();

$mid=$_GET[‘mailid’];

$query=sprintf(“select  * from mails where skey=’%1d”’,$mid);

$rs=$adb->_read($query);

echo”From: “ .$rs[0][‘source’].”<br>”;

echo “To:”.$rs[0][‘desc’].”<br>”;

echo”subject;”.$rs[0][‘subject;].”<br”>;

echo $rs[0][‘body].”<br>”;

echo $rs[0][‘attach’].”<br>”;

?>
```

Admin.php

```
</php

Class adminbase

{

var $dbhost=’localhost’;

var $dbuser=’root’;

var $dbpass=”;

var $dbname=’dbsmtp’;

var $conn;
```

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```
var $rcset;
function constructor()
{
$this- >conn=mysql_connect($this ->dbhost,$this- >dbuser,$ this->dbpass)or die('MySql
Connection Error:' .mysql_error());
Mysql_select_db($this- >dbname,$this- >conn) or die('Database Connection
Error:'.mySql_error());
}
function_readexecute($query)
{
$this- >rcsetmySql_query($query,$this- >conn) or die('Query Syntax Error:');
}
function_read($query)
{
$this- >readexecute)($query);
$set=array();
if( !empty($this- >rcset))
{
While ($ row=mySql_fetch_array($this- >rcset, MYSQL_ASSOC) )
$set[]=$row;
}
Return $set;
}
function_write($query)
{
Mysql_query($query,$this ->conn);
$err=mysql_error($this->connO);
$rs=mysql_affected_rows($this ->conn);
If($rs !=1)
```

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```
return $err;
return $rs;
}
function_upcheck($user,$pass)
{
$query=”SELECT oemail,pass FROM register where oemail=“’.$user.’””;$rs=$this-
>_read($query);
If(strcmp($rs[0] [‘oemail’],$user)==0 &&strcmp($rs[0] [‘pass’],$pass)==0)
return 1;
return 0;
}
function destructor()
if( !empty($this- >rcset))
mysql_free_result($this- >rcset);
if(!empty($this->conn))
mysql_close($this->conn);
}
function_destruct()
{
if(!empty($this- >rcset) )
mysql_free_result($this- >rcset);
}} ?>
```

Process.php

```
<?php
if(isset($_POST[‘submit’]))
{
$value=$_POST[‘submit’];
```

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```
switch($value)
{
Case ‘SignIn’:
userpasschk();
break;
case’send’:
compose();
break;
}   }
Function newregister()
{
$user=$_POST[‘user’];
$user=$POST[‘address’];
$oemail=$POST[‘o-email’].’@vickram.net’;
$pass=$_POST[‘pass’];
$pass=$_POST[‘pass2’];
$bdate=$_POST[‘bdate’];
$bmonth=$_POST[‘bmonth’];
$byear=$_POST[‘byear’];
$gender=$_POST[‘gender’];
$prof=$_POST[‘menu2’];
$dept=$_POST[‘menu3’];
If( !empty($user) && !empty($oemailP) && !empty($pass) && ( strcmp($pass,$pass)==0 )
&&!empty($date) && !empty($month)&& !empty($dept) && !empty($prof) )
{
include_once(“admin/admin2008.php”);
$adb= new adminbase();
$query=sprint(“insert into register (user,address,
oemail,pass,bdate,bmonth,byear,gender,profession,department)
```

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```
values('%s','%s','%s','%s','%u','%u','%u','%s','%s','%s')",$user,$addr,$oemail,$pass,$bdate
,$bmonth,$byear,$gender,$prof,$dept);
if($adb- > _write($query) ==1)
{
$_POST['sts']=$oemail."successfully created";
Include_once("status.php");
}
else
{
$_POST['sts']=$oemail," email already exist";
}  }
else
{
$_POST['sts']="some field data missing";
}  }
function userpasschk()
{
include_once("admin/admin2008.php");
$adb=new admindbase();
$user=$_POST['user'];
$pass=$_POST['pass'];
if( !empty($user) && !empty($pass) )
{
if($adb- >_upcheck($user,$pass) )==1 )
{
retrive();
return;
}   }
header("Location: index.php");
```

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```
}
function compose()
{
$attach="";
$from=$_POST['form'];
$to=$_POST['to'];
$subj=$_POST['subj'];
$sbody=$_POST['body'];
$tfname=$_FILES['files']['tmp_name'];
 if ( ! empty($from) && !empty($to) && !empty($subj) && !empty($body) )
{
include_once("admin/admin2008.php");
$adb=new adminbase();
if (! Empty($tfname) )
$attach=setattach($tfname);
$query=sprint("insert into mails(source,dest,subject,attach,body)
values('%s','%s','%s','%s','%s')',$from,$to,$subj,$attach,$body);
if($adb- >_write($query)==1)
{
$_POST['sts']="email failed to send".$to;
include_once("status.php");
}  }
else
{
$_POST['sts']="field missing";
}  }
function setattach($tfname)
{
is($_FILES['files']['error'][0]==UPLOAD_ERR_OK)
```

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```
{
$size=filesize($tfname,”r”);
$fp=fopen($tfname,”r”);
$content=addslashes(fread($fp,$size));
fclose($fp);
return $content;
}
Else
return “”;
}
Function retrive()
{
include_once(“admin/admin2008.php);
$adb= new admindbase();
$user=$_POST[‘user’];
$query=sprintf(“select * from mails where dest=’%s”’,$user);
$rs=$adb- >_read($query);
For ($i=0;$i<count)($rs);$i++)
echo $rs [$i] [‘source’] . “< a
href=body.php?mailid=”.$rs[$i][‘skey’].”>”.$rs[$i][‘subject’].”</a><br>”;
}   ?>
```

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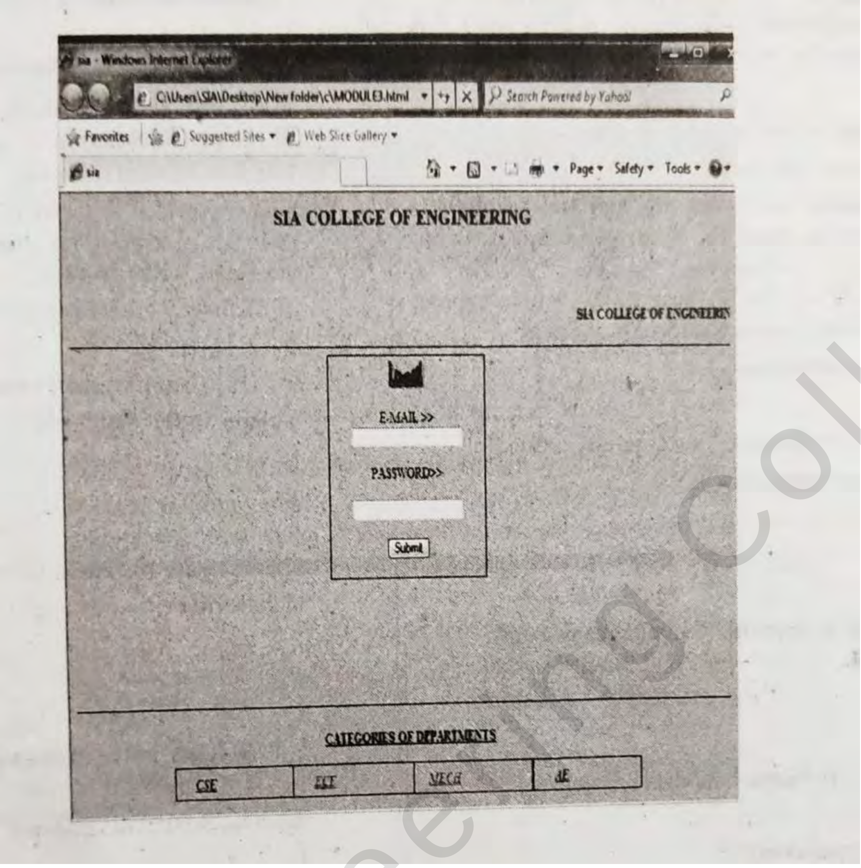
sia - Windows Internet Explorer
C:\Users\SIA\Desktop\New folder\c\MODULE3.html
Search Powered by Yahoo!
Favorites
Suggested Sites
Web Slice Gallery
sia
Page
Safety
Tools
SIA COLLEGE OF ENGINEERING
SIA COLLEGE OF ENGINEERIN
E-MAIL >>
PASSWORD>>
Submit
CATEGORIES OF DEPARTMENTS
CSE
ECE
MECH
dE

5.Write a PHP program to do string manipulation.[Nov-Dec 15]

Program to perform string manipulation in PHP

```
<?php
$str=”welcome to SIA Publishers and Distributors”;
echo”The string is:”;
echo trim($str).”<br>”;
echo “The word count of string is:”str_word_count($str).”<br>”;
echo “The lowercase of string is:”.strtolower($str).”<br>”;
echo “The uppercase of string is:"strtoupper($str).”<br>”;
$strarr=split(‘ ‘,$str);
$limit=count($strarr);
echo”The string is splitted as follows”;
for($i=0;$i<$limit;$i++)
echo $starr[$i].”<br>”;
```

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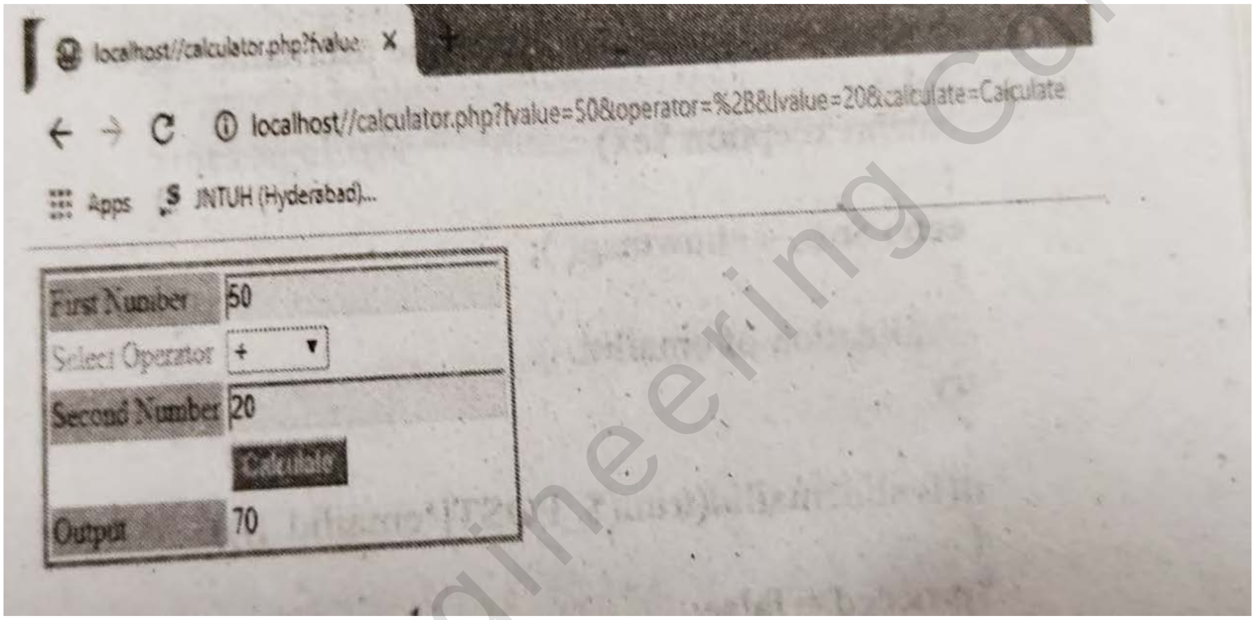
```
 echo “The length of the string is :".strlen($str).”<br>”;
echo”The reverse of string is:”.strrev($str).”<br>;
$strarr=array(0=>”Welcome”,1=>”To”,2=>”SIA”);
$st=join(‘,’,$strarr);
echo"The position of the word Publishers' is:"strpos($str"Publishers”).”<br>”;
ech0"The string is joined using ‘,’is:”.$sr;
?>
```



localhost//calculator.php?fvalue=50&operator=%2B&lvalue=20&calculate=Calculate

First Number	50
Select Operator	+
Second Number	20
Output	70

6.Write an XML markup for a business letter and explain the elements used.[Apr-May 18]

```
<letter>
<contact type=”form”>
<name> HR</name>
<address1>12345</address1>
<address2>koti</address2>
<city>Hyderabad</city>
<state>Telangana</state>
<zip>501401</zip>
<phone>554-4321</phone>
```

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```
<flag gender=”F”/>
</contact>
<contact type=”to”>
<name>Manager</name>
<address1>123</address1>
<address2>Vellur</address2>
<city>Chennai</city>
<state>TamilNadu</state>
<zip>12345</zip>
<phone>555-1234</phone>
<flag gender=”M”/>
</contact>
<salutation>Dear Sir:</salutation>
<paragraph>It is our privilege to inform you about the speedy increase in sales of our books in
your state. The rate of sales were high in the B.E CSE,ECE,EEE etc. With this, we are also
expecting to start preparing books for other streams also. We hope the same support and
acknowledgment from your organization in future.
</paragraph>
<paragraph>Thanking you,
</paragraph>
<closing> Sincerely</closing>
<signature> HR</signature>
</letter>
```

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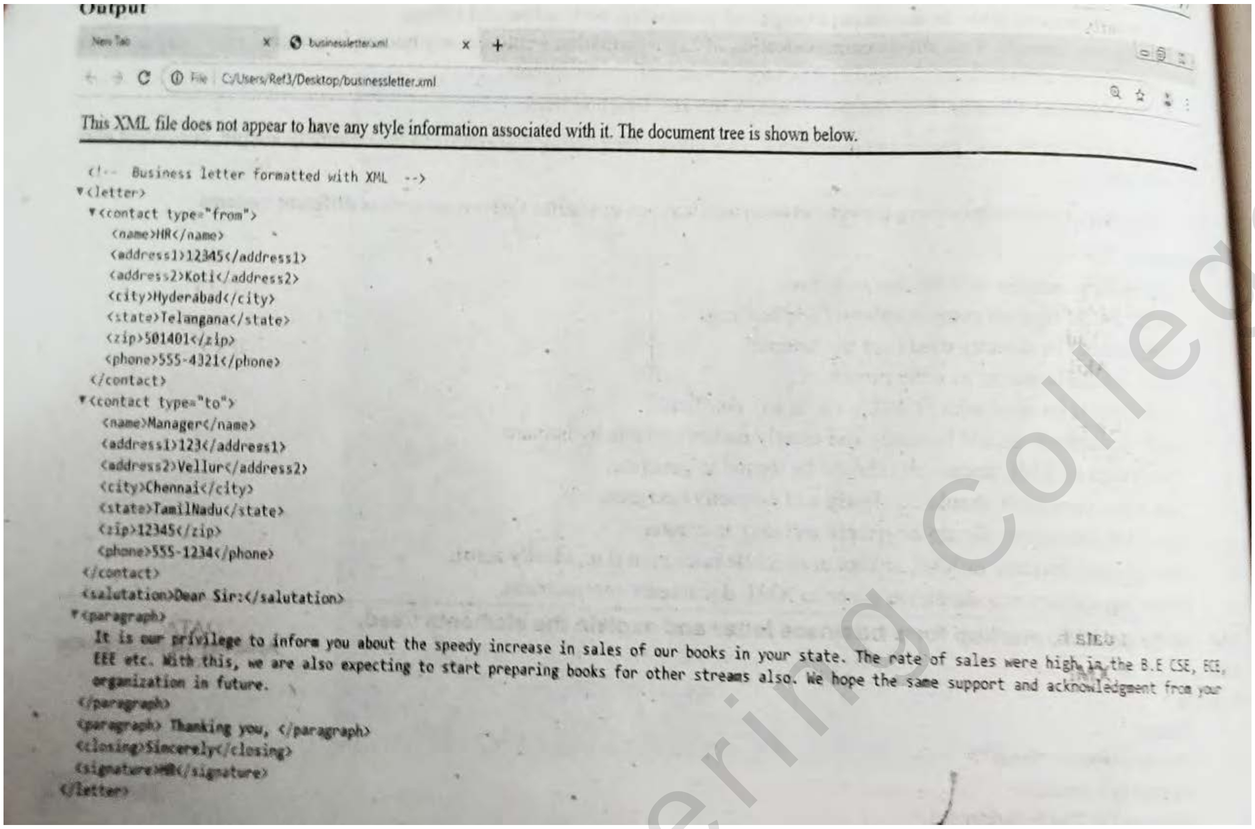

Output

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
 <!-- Business letter formatted with XML -->
▼<letter>
  ▼<contact type="from">
     <name>HR</name>
     <address1>12345</address1>
     <address2>Koti</address2>
     <city>Hyderabad</city>
     <state>Telangana</state>
     <zip>501401</zip>
     <phone>555-4321</phone>
   </contact>
  ▼<contact type="to">
     <name>Manager</name>
     <address1>123</address1>
     <address2>Vellur</address2>
     <city>Chennai</city>
     <state>TamilNadu</state>
     <zip>12345</zip>
     <phone>555-1234</phone>
   </contact>
   <salutation>Dear Sir:</salutation>
  ▼<paragraph>
     It is our privilege to inform you about the speedy increase in sales of our books in your state. The rate of sales were high in the B.E CSE, ECE,
     EEE etc. With this, we are also expecting to start preparing books for other streams also. We hope the same support and acknowledgment from your
     organization in future.
   </paragraph>
   <paragraph> Thanking you, </paragraph>
   <closing>Sincerely</closing>
   <signature>HR</signature>
</letter>
```

7.Design simple calculator using PHP. [Nov-Dec 15]

```
<?php
ini_set('display_errors',0);
if(isset($_REQUEST['calculate']))
{
$operator=$_REQUEST['operator'];
if($operator=="+")
{
$add1=$_REQUEST['fvalue'];
$add2=$_REQUEST['lvalue'];
$res=$add1+$add2;
}
if($operator=="-")
{
```

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```
$add1=$_REQUEST[‘fvalue’];
$add2=$_REQUEST[‘lvalue’];
$res=$add1-$add2;
}
if($operator==”*”)
{
$add1=$_REQUEST[‘fvalue’];
$add2=$_REQUEST[‘lvalue’];
$res=$add1*$add2;
}
if($operator==”/”)
{
$add1=$_REQUEST[‘fvalue’];
$add2=$_REQUEST[‘lvalue’];
$res=$add1/$add2;
}
If($_REQUEST[‘fvalue’]==NULL &&$_REQUEST[‘lvalue’]==NULL)
{
Echo”<script language=javascript> alert(/”Please Enter Values,\”);</script>”;
}
else if($_REQUEST[‘fvalue’]==NULL)
{
Echo”<script language=javascript> alert(\”Please Enter First Value.\”);</script?>”;
}
else if($_REQUEST[‘lvalue]==NULL)
{
Echo”<script language=javascript> alert(\”Please Enter Second Value.\”); </script?>”;
}
}
```

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```
?>
<form>
<table style=”border:grove #00FF99”>
<tr>
<td style=”background-color:aqua; color:red;font-family:’Times New Roman”’> First
Number</td>
<td colspan=”1”>
<input name=”fvalue” type=”text” style=”color:red”/></td>
<tr>
<td style=”color:burlywood; font-family: Times New Roman”’>Select operator</td>
<td>
<select name=”operator” style=”width:63px”>
<option>+<option>
<option>-<option>
<option>*<option>
<option>/<option>
<select></td>
</tr>
<tr>
<td style=”background-color:aqua;color:red;font-family:’Times New Roman”’> Second
Number</td>
<td class=”auto-style5”>
<input name=”lvalue” type=”text” style=”color:red”/></td>
</tr>
<tr>
<td></td>
<td><input type=”submit” name=”calculate” value=”Calculate” style=”color:wheat;background-
color:rosybrown”/></td>
</tr>
```

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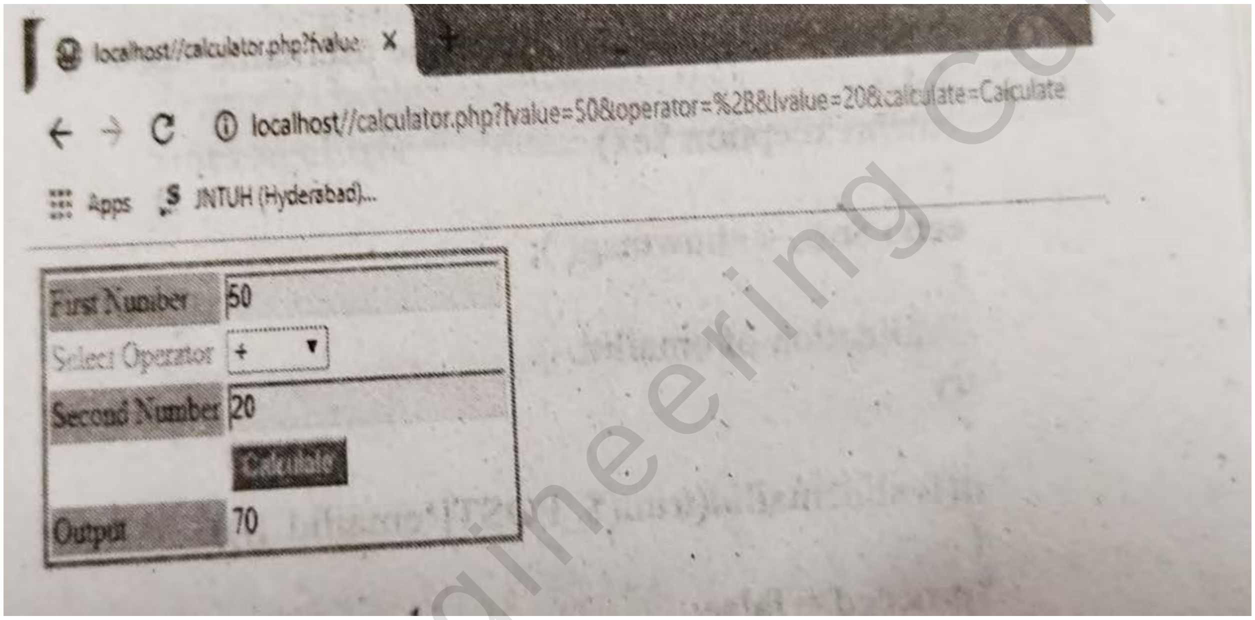
```
<tr>
<td style=”background-color:aqua;color:red”>Output</td>
<td style=”color:darkblue”><?php echo $res:?></td>
</tr>
</table>
</form>
```



localhost//calculator.php?fvalue=50&operator=%2B&lvalue=20&calculate=Calculate

First Number	50
Select Operator	+ ▾
Second Number	20
	Calculate
Output	70

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1. Write a PHP program that tests whether an email address is input correctly. Verify that the input begins with a series of characters, followed by the @ character, another series of characters a period '.' and a final series of characters. Test your program with both valid and invalid email addresses. [Apr/May 2017]

Solution:

```
 <?php
 function isValidEmail($email)
 {
 $pattern = "^[a-z 0-9]+(\.[a-z 0-9]+)*@[a-z 0-9]+
                (\.[a-z 0-9-]+)*(\.[a-z]{2,3})$^";
 if (preg-match($pattern, $email))
 {
   return true;
 }
 else
 {
  return false;
 }
}
?>
<head>
<title> Email Validity </title>
</head>
<body>
```

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```
<form action = "<?php echo $_SERVER['PHP_SELF']; ?>"
 method = "post" name = "emailvalidationForm" >
<table >
 <tr>
  <td> Email Id : < input name = "email" >
  </td>
  </tr>
  <? php
   if (isset($_POST ['email']))
   {
        if (isValidEmail($_POST['email']))
        {
          echo "<tr> <td> The email is valid! </td> </tr>";
        }
    }
    else
    {
      echo " <tr><td> The email is invalid! </td> </tr>";
    }
  }
  ?>
  <tr>
  <td> <input type = "submit" name = "submit"
                        value = "verify email" >
  </td>
  </tr>
  </table> </form> </body>
```

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2. write a PHP Program to do string manipulation.
[Nov/Dec 2015]

```
// Program to perform string manipulations in PHP

<? php
 $str = "welcome to PHP world";
 echo " The string is :";
 echo trim($str)."<br>"; // remove spaces at the beginning
                                  and at the end
 echo " The word count of String is :".str-word-count
                                       ($str)."<br>";
                   // counts the number of words
 echo " The lowercase of String is :".strtolower($str).
                                     "<br>";
                // Convert to lowercase
echo " The uppercase of string is :".strtoupper($str)."<br>";
               // Convert to uppercase
$strarr = split(' ' , $str); // split function
$limit = Count($strarr);
echo " The string is splitted as follows";
for($i=0; $i<$limit; $i++)
echo $strarr[$i]."<br>";
echo " The length of the string is :".strlen($str)."<br>"
                        // length of the string
```

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```
echo " The reverse of string is :" . strrev($str) . " <br>";
                // reverse of a string

$strarr = array(0 => "Welcome", 1 => " To", 2 => "PHP");

$st = join(',', $strarr); // join function

echo " The position of the word 'world' is : .strpos($str,
                                    "world") . "<br>";
echo " The string is joined using ',' is : ". $sr;
?>
```

3. Explain about various file operations on text files in PHP. [Apr / May 2017]

The various file operations on text files in PHP are,

1. Opening a file
2. Reading a file
3. Writing to a file
4. Closing a file

Opening a file :

A file is opened using a fopen() function.

```
resource fopen(string $filename, string $use_indicator
        [, int $use_include_path [, resource context]])
```

The fopen() function has two mandatory parameters,

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the 'filename' and the 'use indicator' (or mode).

The filename is the name of the file, which should be opened. The filename can have absolute or relative path. The use indicator specifies, what operations will be performed on the file. The possible values for the use indicator should be mentioned.

Reading a file:

A file can be read in different ways using different functions and one of them is fread().

fread() function reads a part of the file or the entire file and returns the number of bytes actually read. It takes two parameters, the filename and the number of bytes to be read. The reading operations ends, when the EOF is reached or the specified number of bytes have been read. The entire file can be read, by determining the length of the file using filesize() function.

string fread (resource $fileoperation int$no-of-bytes)]

Writing to a file

There are several functions used to write a data to a file and one of them is fwrite()

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```
int fwrite (resource $filepointer, string $data[, int
                                          $length])
```

The fwrite function writes the data to the file pointed by the file pointer. The length is an optional parameter, which specifies the number of bytes to be written. If length is not specified, then the entire string is written to the file. This function returns the number of bytes actually written to the file.

Closing a file

Once a file is opened for any purpose, it must be closed using the fclose() function.

```
boolean fclose (resource $filepointer)
```

This function takes the file pointer to the previously opened file as the parameter. It returns TRUE, on success and FALSE otherwise.

---

4. Explain the steps in connecting PHP code to a database [Nov/Dec 2016]

Connecting to MySQL Database

In order to connect to MySQL database, first a link to it must be opened. This can be done with the help of mysql_connect().

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After the completion of the work, the link to the database is closed. The prototype of mysql-connect () can be represented as,

mysql-connect ([String Server [, String username [, String password [, bool new-link [, int client-flags]]]]])

Here, 'server' is the name of server to which connection need to be established, username is the name of user and password is for security purpose.

Example:

```
<?php
$sqlhost = "localhost";    // set the host
$sqluser = "root";  // set the user name
$sqlpasswd = "   "; // set the password
// passing host username and password to mysql-connect()
if ($database = mysql-Connect ($sqlhost, $sqluser,
                               $sqlpasswd))
{
 echo "Successful Connection to the database";
 mysql-close($database); // After completion close the
                                              Connection
}
else
{
   echo "sorry, the connection to mysql has failed";
}
?>
```

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5. Write an XML markup for a business letter and explain the elements used. [Apr/May 2018]

XML Markup for a business letter

```
<letter>
<contact type = " from ">
<name > HR </name>
<address 1> 12345 </address1>
<address2 > Nehru Street </address 2>
< city> Delhi </city>
 < pincode > 501401 </pincode>
 < phone > 555-4321 </phone>
  <flag gender = " F "/>
 </ contact>
<contact type = " to">
< name> Manager </name>
<address 1 > 678 < /address 1>
<address 2 > Vellur < address 2>
<city> Chennai </city>
<pincode > 606 777 </pincode >

<phone > 444-4215 </phone>
<flag gender = " M " />
</contact >
```

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```
<salutation> Dear Sir: </salutation>
<paragraph> It is our privilage to inform you about
 the speedy increase in sales of our books in your
 State. The rate of sales were high in the B.E
 CSE, ECE, EEE, CIVIL and MECH. With this, we
 are also expecting to start preparing books for
 other streams also. We hope the same support and
 acknowledgement from your organization in future.
</paragraph>
<paragraph> Thanking you
 </paragraph>
 <closing> Sincerely
 </closing>
 <signature> HR </signature>
 </letter>
```

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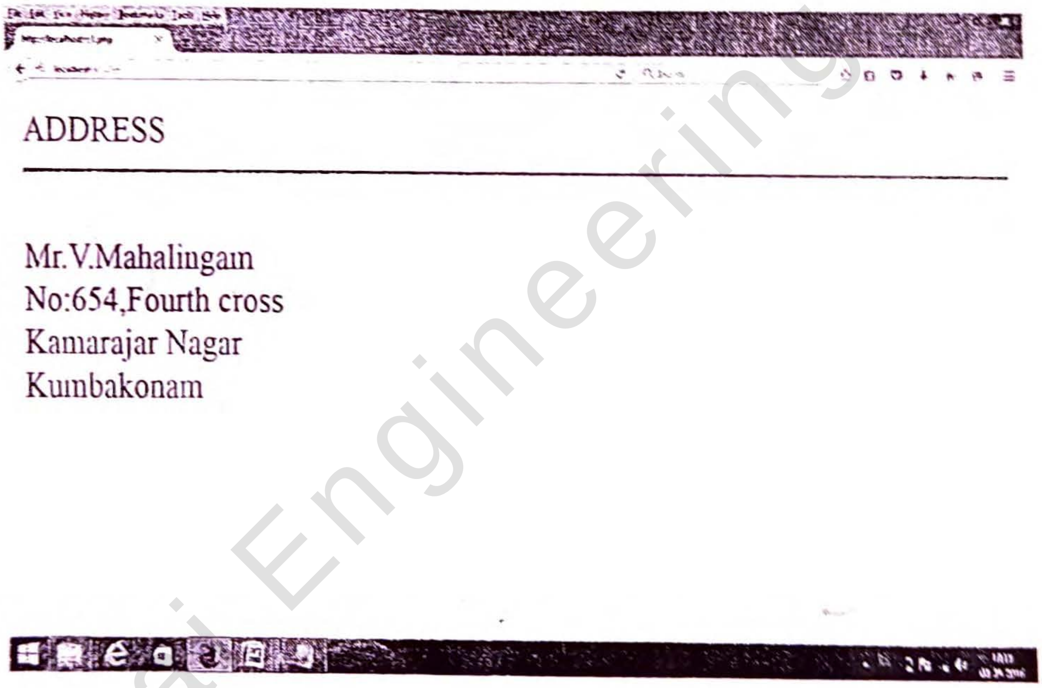
Using PHP

1. Write PHP code to display the address of a person.

```
<?php
echo "ADDRESS<hr><br>";
echo "Mr.V.Mahalingam<br>";
echo "No:654,Fourth cross<br>";
echo "Kamarajar Nagar<br>";
echo "Kumbakonam";
?>
```

Output



```
ADDRESS
________________________________________

Mr.V.Mahalingam
No:654,Fourth cross
Kamarajar Nagar
Kumbakonam
```

2: Write PHP code to perform arithmetic operations on two numbers.

```
<?php
echo "ARITHMETIC OPERATIONS ON TWO NUMBERS<hr><br>";
$a=25;
$b=10;
$c=$a+$b;
$d=$a-$b;
$e=$a*$b;
```

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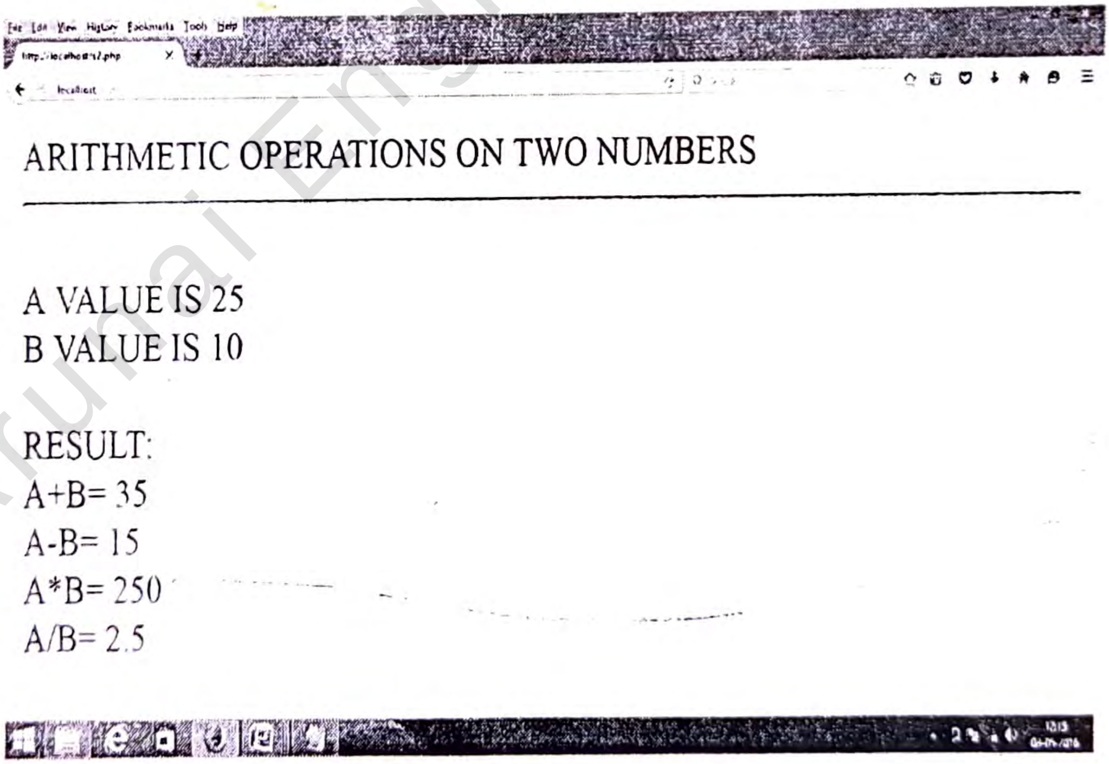
```
$f=$a/$b;
echo "A VALUE IS ".$a."<br>";
echo "B VALUE IS ".$b."<br>";
echo "<br>RESULT: <br>";
echo "A+B= ".$c."<br>";
echo "A-B= ".$d."<br>";
echo "A*B= ".$e."<br>";
echo "A/B= ".$f."<br>";
?>
```

Output



```
ARITHMETIC OPERATIONS ON TWO NUMBERS

A VALUE IS 25
B VALUE IS 10

RESULT:
A+B= 35
A-B= 15
A*B= 250
A/B= 2.5
```

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UNIT-V

PART-A

1.what is web service? Give any four examples. [Nov-Dec 15,17]

Web service is defined as a collection of distributed system over a network to produce one system.Specifically, web service is a collection of classes, interfaces, structure and enumeration, which make it to act as black box to remote clients.

Examples:

1.Payment through credit card

2.Exchanging stock with respect to prices

3.Converting temperatures

4.Invoking web services by a client/user.

2. List any four merits for usage of AJAX in web services. [Nov-Dec 15]

The following are the merits for usage of AJAX in web services

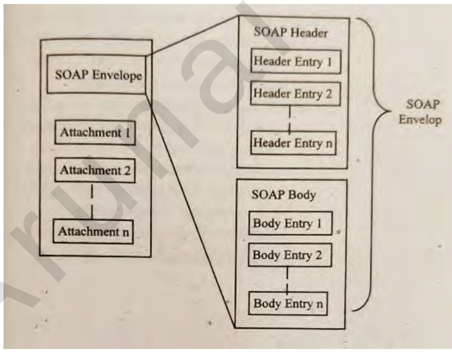
1.It enables user to decrease the traffic to and from the server.

2.It decreases the average waiting time of user

3.It allows user to maintain the data

4.It allows user to transfer data of a complete page at particular instance of time in a sensitive manner.

3.Draw the structure of a SOAP message. [May-June 16]



4.What is the role of a callback function in performing a partial page update in an AJAX application? [Apr-May 19, May-June 16]

A call back function is a higher order function which is passed as a parameter to another function. That is, it is executed inside some other function. It is also referred as a client-side function which is called by XML Http request object. It is used in an ajax application to perform the partial page updates and it displays the data of the current webpage without reloading the whole page. This function updates only a selected/specific part of the webpage and makes the web application to become highly responsive.

5. Define WSDL

Or

State the significance of a WSDL document. [Nov-Dec 18]

WSDL is an abbreviation for "web services Description language" It is a specification that specifies how to describe and locate web services in an XML language.WSDL 2.0 is recent version of specification. It specifies how the interaction takes place between client and a web service, how to encode parameters and return values in a message and which protocol to be used for the data transmission.WSDL document consists of the following details

1. Web services which are invoked by website
2. Web services methods
3. Parameters which are required to pass to web services method
4. Results that are returned on request
5. Data formed which is used by user to access web service

6.State the advantage of AJAX. [Nov-Dec 16]

1. It provides asynchronous processing

2. It supports multiple browser like Internet Explorer, Netscape, mozilla etc.

3. It allows the client side application to communicate directly with web server without refreshing the page

4. It maintains platform and architecture neutrality

5. It gives quick response to the user.

7.What is the need of SOAP? [Apr-May 17]

The need of soap are as follows

1. It is used to define the format of an XML document.
2. It is used to exchange the data among various applications in a distributed computing environment

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3. It defines a standardized format that is used for transmitting the data over a network
4. It acts as messaging service to allow the service invocation calls among service provider and services requestor
5. It is used while developing the web service as it acts as an interface between the client and the web service
6. It is used to define the rules and procedures which is required to allow the communication among applications.

8.What is the use of XML Http request object? [Nov-Dec 17]

The XML Http request object is used to exchange data with a server behind the scenes. A developer uses this object because he can,

1.Request and receive the data from the server after the page gets loaded.

2.update a webpage without reloading the page

3.send data to a server in the background.

9.Describe AJAX control extender toolkit. [Nov-Dec 18]

AJAX control Extender Toolkit is a set of extenders used to extend the functionalities of ASP-NST controls. These extenders make use of block of javascript code to add new and enhanced capabilities the ASP-NST controls.

10.list some examples of web services.[Apr-May 19]

1.payment through credit card

2.Exchanging stack with respect to prices

3.Converting temperature

4.Invoking Web services by clients/users

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Unit - V

Introduction to Ajax and WEB Services

Part - A

1. What is need of SOAP?

The need of SOAP are as follows,

- It is used to define the format of an XML document.
- It is used to exchange the data among various applications in a distributed computing environment.
- It defines a standarized format that is used for transmitting the data over a network.
- It acts as messaging service to allow the service invocation calls among service provider and service requestor.
- It is used while developing the web services as it acts as an interface between the client and the web service.
- It is used to define the rules and procedure which is required to allow the communication among applications.

2. Define web services. List some examples of web services.

Web service is defined as a collection of distributed system over a network to produce one System. Specifically, web services is a collection of

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classes, interfaces, structures and enumerations, which make it to acts as a blackbox to remote clients.

Web services can be used in the following fields,

- Payment through credit card.
- Exchanging stock with respect to prices.
- Converting temperatures
- Invoking web services by a client /user.

3. What is use of XMLHttpRequest Object?

The XMLHttpRequest object is used to exchange data with a server behind the scenes. A developer uses this object because he can,

- Request and receive the data from the server after the page gets loaded.
- Update a webpage without reloading the page.
- Send data to a server in the background.

4. State the significance of a WSDL document.

- WSDL is an abbreviation for "Web Services Description Language". It is a specification that specifies how to describe and locate web services in an XML language.

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- WSDL 2.0 is recent version of speification.

It specifies how the interaction takes place between client and a web servie, how to encode parameters and return values in a message and which protocol to be used for the data transmission.

- WSDL document consists of the following details,

* web services which are invoked by website.

* web service methods

* Parameters which are required to pass to web Servie methods.

* Results that are returned on request.

* Data format which is used by user to access web service.

5. Describe AJAX control Extender Tool kit.

- AJAX control Extender toolkit is a set of extenders used to extend the functionalities of ASP-NST controls.

- These extenders make use of block of Javascript code to add new and enhanced capabilities the ASP.NET controls.

6. List SOAP elements.

The various elements of SOAP are as follows

- SOAP Envelope

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- SOAP Header
- SOAP Body
- SOAP Fault.

7. Compare SOAP and HTTP.

SOAP	HTTP
• SOAP stands for Simple Object Access Protocol.	• HTTP stands for Hypertext Transfer Protocol.
• It is XML based used for Sending and receiving messages.	• It is used to transfer information over the internet.
• It supports web socket (or) WS - addressing, WS- security, SWA.	• It do not supports web socket or WS- Addressing, WS- Security, SWA.
• SOAP is over HTTP.	• HTTP is over TCP and IP
• It support runtime checking against WSDL.	• It do not support runtime checking against WSDL.

8. What is AJAX?

• AJAX stands for Asynchronous Javascript and XML. It is a Rich Internet Application (RIA), which assists the programmer in generating interactive web pages.

• It makes use of client -Side scripting to generate highly responsive web pages.

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- Besides this, for minimizing the server side processing delays, the AJAX enabled application partitions the client side interactions from server side interactions and operate them parallely (i.e., side by side).

9. Name the types of indicators along with the definition.

- Order indicators - Order indicators are used to define the order of the elements.

→ All, choice, Sequence indicator

- Occurrence indicators - occurrence indicators are used to define how often an element can occur.

→ maxOccurs, minOccurs indicator

- Group indicators - Group indicators are used to define related sets of elements.

→ Group name, attribute Group name indicator.

10. What is UDDI?

- UDDI describes a method that registers and classifies web services in a general-purpose registry. This registry is used by the users for communication when they discover or search for registered Services.

- To locate a service, UDDI registry has to be queried. As a result, the WSDL description for that Service is returned.

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- This description can be used by the developers for the construction of SOAP client interface for its communications with the service provider.

11. Write short notes on JWSDP.

- Java Web Services Developer Pack (JWSDP) is a package of Java API web services. It was released by sun Microsystems.

- It is used to build and test web services. Some of the important API components are listed below,

* Java API for XML Messaging (JAXM)
* Java API for XML Processing (JAXP)
* Java API for XML Registries (JAXR)
* Java API for XML Binding (JAXB)
* Java API for XML-based RPC (JAX-RPC)
* Java Server Pages Standard Tag Library (JSTL)
* Java WSDP Registry Server (JWSDP)

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PART-B

1.Create an XML Http request to retrievedata from an XML field and display thedata in an HTML table. The data to beretrieved is collection of stationaryitems stored in an XML file. [Apr-May 17]

Ans:

```
//Program to retrieve data from an XML
document
<!DOCTYPE html>
<html>
<head>
<meta charset=”UTF-8”>
<title>Retrieve Data from XML</title>
</head>
<body>
<p><button onclick = ”loadXMLDoc()”>Get
Table info</button></p>
<table id=”demo” border=”1”>
<tr><th>Company</th>Item</th></tr>
</table>
<script>
function loadXMLDoc()
{
Var xmlhttp = new XMLHTTP Request ();
Xmlhttp.onreadystatechange = function()
{
If(this.readystate==4 &&this.status==200)
```

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```
{
myFunction(this);
}
};
Xmlhttp.open(“GET”, “stationary.xml”,true);
XMLhttp.send();
}
function myFunction(XML)
{
Var x, i, xmlDoc, table;
xmlDoc = XML.reponseXML;
table =
“<tr><th>Company</th><th>Item</th></tr
>”;
x = xmlDoc.getElementsByTagName(“shop”)
for(i=0;i<x.lenght;i++)
{
table+=”<tr><td>”+
x[i].getElementsByTagName(“company”)[0].
childNodes[0].nodeValue+”</td><td>”+
x[i].getElementsByTagName(“Item”)[0].
childNodes[0].nodeValue+”</td></tr>”;
}
document.getElementById(“demo”).innerH
TML=table;
```

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```
}
</script>
</body>
</html>
//STATIONARY.XML
<?XML version = “1.0 encoding=”UTF-8”?>
<stationary>
<shop>
<Company>Classmate</Company>
<Item>Book</Item>
<PRICE>10.90</PRICE>
</shop>
<shop>
<Company> Apsara</Company>
<Item>Pencil</Item>
<PRICE>10.90</PRICE>
</shop>
<shop>
<Company>Nataraj</Company>
<Item>Sharpener</Item>
<PRICE>10.90</PRICE>
</shop>
<shop>
<Company>Scotch</Company>
<Item>Glue Stick</Item>
```

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```
<PRICE>10.90</PRICE>
</shop>
<shop>
<Company>Cello</Company>
<Item>Pen</Item>
<PRICE>10.90</PRICE>
</shop>
<shop>
<Company>Camlin</Company>
<Item>Sketch</Item>
<PRICE>10.90</PRICE>
</shop>
<shop>
<Company>Link</Company>
<Item>Scale</Item>
<PRICE>10.90</PRICE>
</shop>
<shop>
<Company>Rortio</Company>
<Item>Correction Pen</Item>
<PRICE>10.90</PRICE>
</shop>
<shop>
<Company>Kangaro</company>
<Item>Stapler</Item>
```

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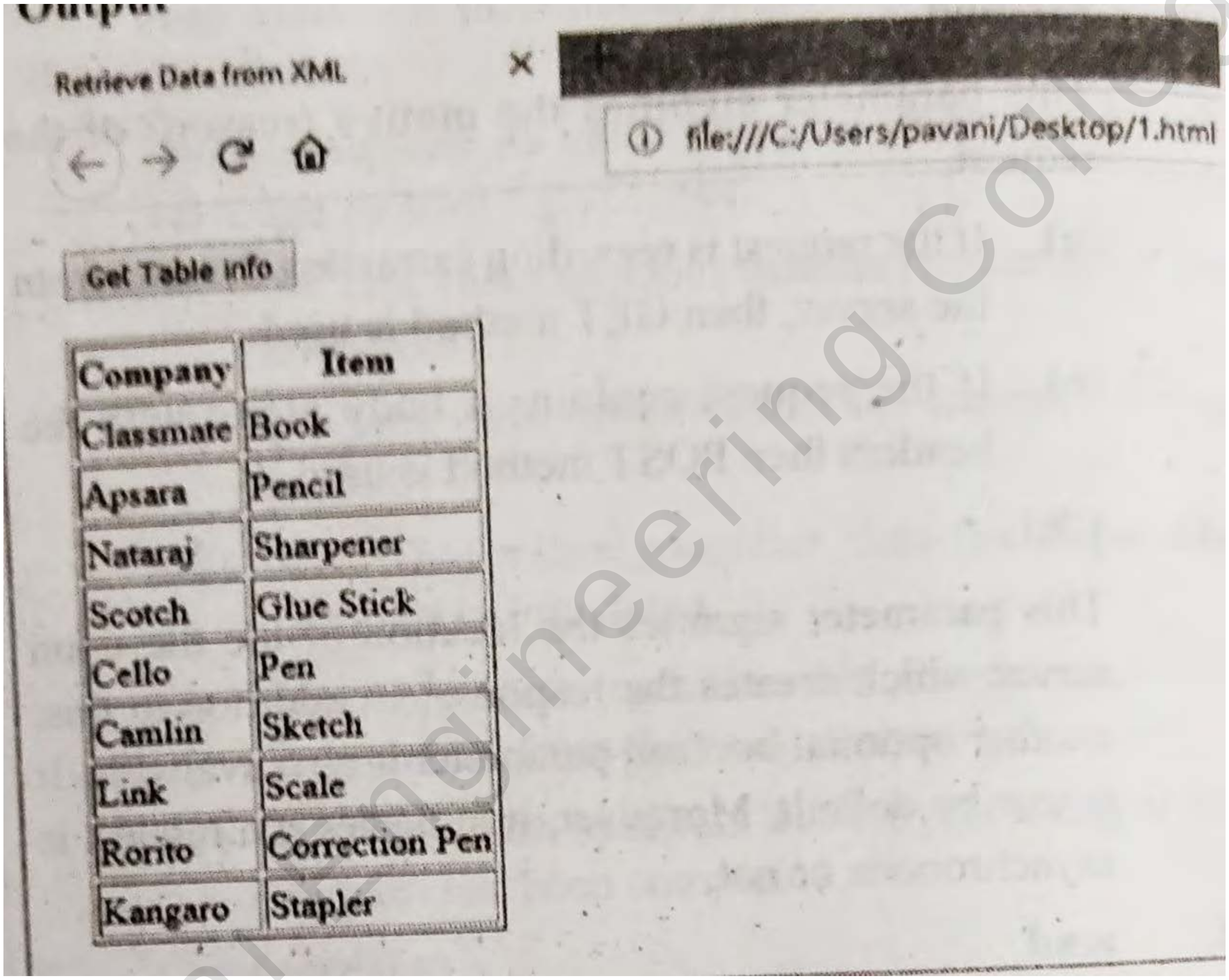
```
<PRICE>10.90</PRICE>
</shop>
</stationary>
```



Company	Item
Classmate	Book
Apsara	Pencil
Nataraj	Sharpener
Scotch	Glue Stick
Cello	Pen
Camlin	Sketch
Link	Scale
Rorito	Correction Pen
Kangaro	Stapler

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Explain the AJAX client Server architecture in detail with a diagram [NOV/DEC-17]

* AJAX stands your Asynchronous Javascript and XML It is a Rich Internet Application [RIA], which assists the programmer is generating interactive webpages.

* It makes use of client-side scripting to generate highly responsive webpages.

* Besides this, to minimize the server side processing delays, the AJAX enabled application partition the client side interactions from server side interaction and operates them parallely (i.e., side by side)

AJAX Client - Server Architecture

* Ajax client-server architecture consists of client and a server. The client side processing of an Ajax application is coded using various scripting languages like XHTML, CSS, javascript etc.

* These languages are used to increase the functionality of user interface.

* For instance, Javascript is used for sending asynchronous request to the sender and DOM (Document object Model) is used for making updation to the webpage.

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* In addition to this, XML (extensible makeup language and JSON (Javascript object Notation) are also used to organize the data which is transferred among the client and the server

* Here, a Javascript object called XMLHttpRequest (XHR) is used to execute the Ajax component. This component generally controls the side interaction

* However the operation on the server-side are managed using various server-side scripting language like PHP, ASP.Net, Javaserver Pages or Ruby or Rails

The Ajax client - Server Architecture is shown in figure below

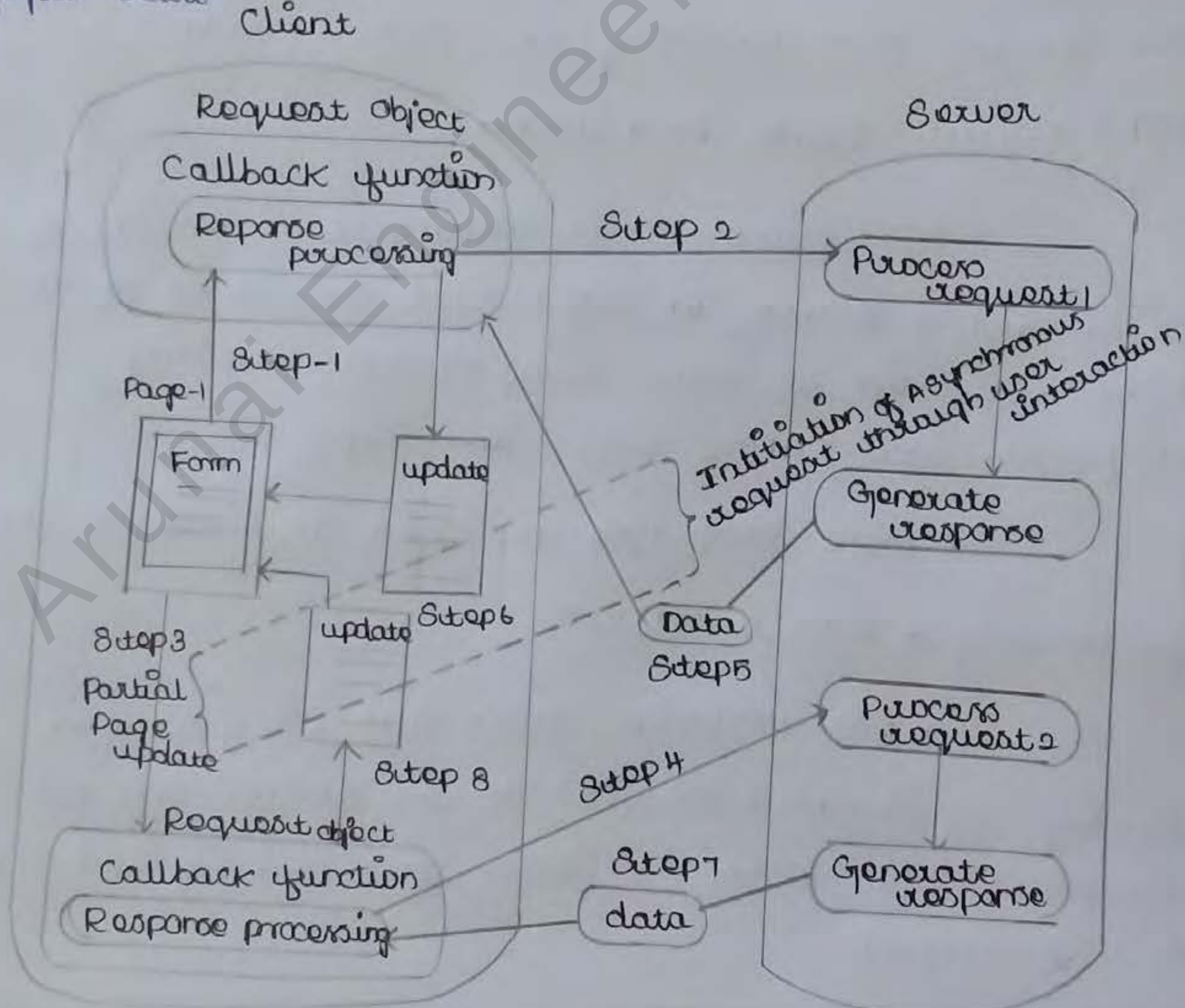

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Figure: Asynchronous Interaction among client & Server via Ajax: Enabled web application

The steps involved in the interaction among the client and the server are asynchronous. These steps are

Step 1 : In this step, the user sends a request by interacting with the page. The client generates an object named XML Http Request in order to maintain the request

Step 2 : In this step, the object (i.e., XML Http Request) sends the request to the server and waits for response

Step 3 : In this step, the user can simultaneously perform tasks like interaction of the user with application on the client side, and process the received request at the server side. This is done because the requests are asynchronous

Step 4 : In this step, the XMHttp next interaction of the user results in another request, which is then send to server.

Step 5 : In this step, the XMHttpRequest object (which is the request) calls client-side function in order to process the data that has been returned by the server. The request is made after receiving a request from the server on original request. Here, the client-side function which was called by XML Http Request object can be termed as a call-back function

Step 6 : In this step, the callback function displays the

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data of the present webpage by means of partial page This prevents the reloading of entire page

Step 7: In this step, the server gives response to the (i.e., second) request.

Step 8: In this step, the client might begin the updation of some other partial page

Advantages of Ajax

* It provides asynchronous processing

* It supports multiple browsers like Internet Explorer, Netscape, Mozilla etc.

* It allows the client side application to communicate directly with the webserver without refreshing the page.

* It allows the client and server to communicate freely with eachother.

* It maintains the platform and architecture neutrality

* It allows the user to load specific part of the page without reloading the entire page. Hence, it provides a faster access than other traditional technologies

* It gives quicker response to the user

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Disadvantages of Ajax

* It is highly dependent on Javascript which makes it quite difficult to implemented on various browser

* It encounters various complexities while debugging the webpage

* It includes multiple lines of code for creating the webpage

* It provide less security for the webpage

* It increase the load on the webserver

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Explain the XMLHttpRequest Method in detail.
[Apr/May - 19]

XMLHttpRequest :

XMLHttpRequest (XHR) is an Application Programming Interface (API) that can be used in Javascript and various web browsers scripting languages to transmit and alter the XML data being transferred from the webserver.

XMLHttpRequest object are used for handling the asynchronous requests of Ajax application. This object lies on the client and acts as a layer in between the client and server for managing asynchronous requests sent by client. However, initiation of an asynchronous request can be accomplished in following manner,

1. By generating an instance of XMLHttpRequest object.
2. By setting the request using open method.
3. By setting the request using send method.

XML HttpRequest Object Properties :

The various properties of XML HttpRequest are as follows,

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1. onreadyState change
2. readyState
3. responseText
4. response XML
5. Status
6. StatusText

1. onready State change

This property is used to store the call back function of the event handler that is called by the server response.

2. readyState

This property is used in callback function inorder to know the time of developing the code that processes the response. Apart from this, the property readyState even maintains information regarding the progress of the request.

'readyState' sets its values ranging from 0 to 4 each value has its own significance.

(i) 0 - This value specifies that the request is being initialized.

(ii) 1 - This value specifies that the request is being loaded.

(iii) 2 - This value specifies that the request is completely initialized.

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(iv) 3 - This value specifies that the data is being transmitted from the active server.

(v) 4 - This value specifies that the processing of the request has been completed.

3. responseText

The text which the server returns to the client is specified as the responseText.

4. responseXML

This property stores the responses of the server in the form of XML document provided that the response should be in XML format or else it remains null. In Javascript it is used as an object of document. This facilitates Javascript to receive complex data.

5. Status

This property specifies the status of a code for HTTP request. There are certain Values that define the status as follows,

Status == 200, it signifies that the request is successful.

Status == 404, it signifies that the source which is requested was not found.

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Status = = 500, it signifies the existence of an error during the process of request by the server.

6. StatusText

This property gives extra details on the Status of the request. It is usually used to display an error message on the request failure.

XML HttP Request Object Methods :

The various methods of XML HttP Request Objects are illustrated below,

1. Open
2. Send
3. SetRequestHeader
4. getResponseHeader
5. getAll ResponseHeaders
6. abort

1. open

This method is used to initialize the request. It consists of two essential parameters. They are,

i) Method

ii) URL.

i) Method

This parameter signifies the motive (reason) of the request,

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(a) If the request is regarding Extracting the data from the server, then GET method is used.

(b) If the request contains a body along with the headers then POST method is used.

(ii) URL

This parameter signifies the location of the file upon the server which creates the response. In addition to this, another optional boolean parameter is also available. It is true by default. Moreover, it indicates if a request is asynchronous or not.

2. Send

This method is used to transmit the request to the server. It consists of an optional parameter called 'data'. This parameter signifies the data which is to be posted to the server. By default this method has a null value.

3. SetRequestHeader

This method is used to alert/change the request's header. It takes two parameters which defines the header and its another value. Generally, SetRequestHeader method is used to Create/adjust the field of the content-type.

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4. getResponseHeader

This method is used to return the header data which comes before the response body. It has one parameter that retrieves the header name. Generally, it signifies about the type of response so that the response can be parsed accurately.

5. getAllResponseHeaders

This method is used to return an array. This array consists of all the headers which comes before the response body.

6. abort

This method is used to nullify (cancel) the present request.

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Describe the structure of WSDL document, It's element and their purpose with appropriate examples [May-June 16]

The structure of WSDL Definition Document:-

* Following are the elements that are contained within the structure of a WSDL definition document.

<definition>

* The <definition> element is the root element of the WSDL document. It is used in the document for declaring the namespaces and defining the name of the web service.

<Type>

* The <Type> element is used for defining the type of message that can be transmitted between the web service provider and the web service requestor. The default message type is XML Schema.

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<message>

* The <message> element is used for defining the data logically that can be transmitted between the service requestor and the service provider. zero or more numbers of <part> elements can be included within it for describing the request parameters or response return values.

<porttype>

* The <porttype> element is used for defining the operations of the web service abstractly. It does this by integrating request and response messages.

<binding>

* The <binding> element is used for defining the operations of the web service in detail by using the concrete protocol and data format.

<port>

* The <port> element is used for representing the address with which one can bound to the web service.

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<service>.

* The <service> element has one or more <port> element indicates the binding information of a web service. The <service> element indicates the potentiality of the web Serivice which can be called over multiple bindings.

Example:

*consider the following WSDL document definition for the service providing the weather information.

```
<?xml version = "1.0"?>
<definition name = "weather detail"
    target Namespace = "http:ll about
weather.com/weather detail. wsdl"
    xmlns: tns = "hHp: ll aboutweather.
com/weatherdetail. wsdl"
    xmlns: xsdl = "hHp: ll aboutweather.
com/ weatherdetail. xsd"
    xmlns: soap = "hHp: ll schemas.
xml soap. org /wsdl /soap /"
    xmlns = "http: ll schemas. xmlsoap.
org /wsdl /">
```

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```
<types>
< Schema targetNamespace =
"http://aboutweather.com/weatherdetails.xsd"
    xmlns = "http://www.w3.org/2000/10/
XMLSchema">
    <element name = "Request for weather
Details">
    <complax Type>
    <all>
    <element name = "city" type = "String"/>
    <element name = "zp" type = "String"/>
    <element name = "Instnt" type = "String"/>
    </all>
    </complex Type>
    </element>
    <element name = "weatherdetail">
    <complex Type>
    <all>
    <element name = "Tmp" type = "float"/>
    <element name = "Hmdty" type = "float"/>
    </all>
    </complex types>
    </element>
    </Schema>
```

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```
    </types>
   <messagename="obtain weather Details1">
   <part name ="weather Details Requests"
   element ="xsdl:Request for weather
Details"/>
    </message>
    <message name ="obtain weather Details()">
    <part name ="weather detail"
    element =" xsdl: weather detail"/>
    </message>
    <port Type name ="Weather Detport
Type">
    <operation name ="Obtain weather Details">
    <Input message ="tn s:obtain weather Details">
    <output message ="tns :obtain weather Detail
()"/>
    </operation>
    </port type>
   <binding name ="Weather Detail Soap
Binding"
     type ="tns:weather Det port type">
     <soap: binding style ="document"
     transport ="http://schemas.xmlsoap.
Org/soap/http"/>
```

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```
<operation name="obtain weather Detail">
<Soap :operation SoapAction =
  "http://about weather.com/obtain weather
Details"/>
      <input>
      <Soap: body use ="literal"/>
      </input>
      <ouput>
      <Soap: body use ="literal"/>
      </output>
      </operation>
      </binding>
      <Service name ="weather Detail Service">
      <documentation>
      provides Weather Details
      </documentation>
      <port name ="weather port"
      binding ="tns: weatherDetail Soap
Binding">
        <Soap: address location ="http://about
weather.com/transmisweather Info"/>
        </port>
        </Service>
        </definitions>
```

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Explanation:

<definition>

i) Represents name of the document i.e, weatherdetail.

ii) Represents instance specific name space by using the attribute target name space which represents the WSDL document as an XML Schema name space.

(iii) Represents default name space by Specifying.

xmlns = "http:// Schemas.xmlsoap.org/ wsdl/" which indicates that <type>, <message> and <porttype> elements are part of it.

<message>

i) two message elements are defined

(a) obtain weather Detail I (defines input message operation)

(b) obtain weather Detail O (defines output message operation)

(ii) The message element 'weather Details I' consists of an <input> element which includes the name as 'weather Detail Requests' and the type as Request for weatherdetail".

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(iii) Similarly the other message element 'obtain weather Details O' consists for <output> element which includes the name as 'weatherdetail' and the type as 'weatherdetail'

<port type> Element :-

1. Defines name of the operation as obtain weather Detail.

2. It includes two <input> message obtain weather Detail I and obtain weather Detail O. defined by the <message> element.

3. The different types of operations are, Supported by WSDL

(a) one-way operation:.

* In this type of operation the Service can only obtain the message. It is defined by only one input element.

(b) Request - response operation:

* It this type of operation the Service can obtain a request message defined by the <input> element and Sends the response defined by the <output> element to the client.

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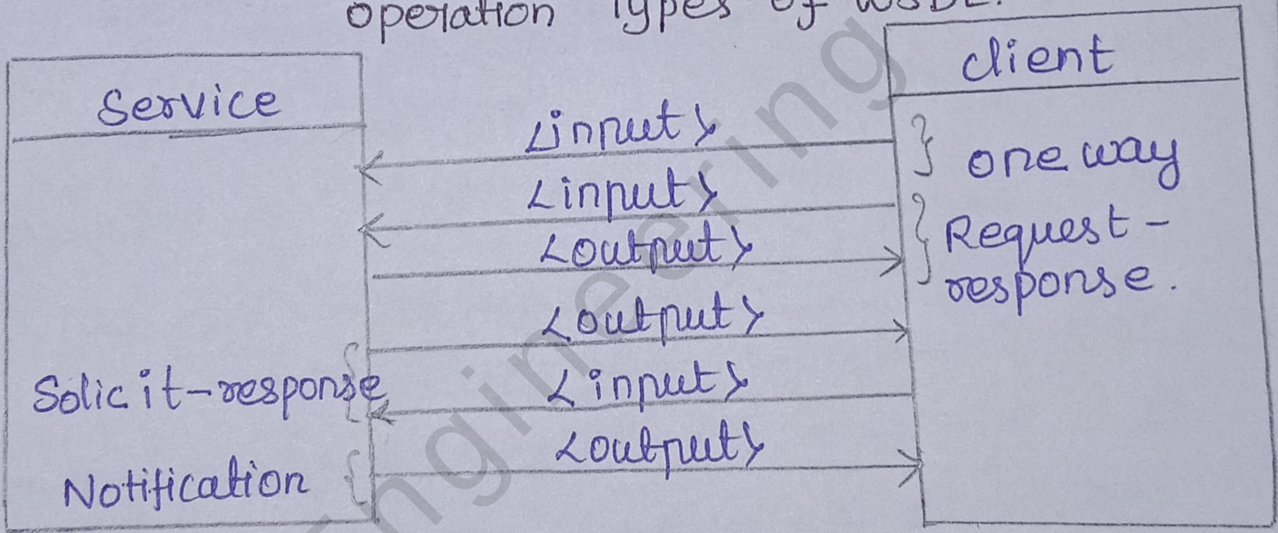
c) Solicit -response operation:-

*In this type of operation the Service sends the request message defined by the <output> element and recives the response from the client defined by the <input>element.

(d) Notification operation:-

* In this type of operation the Services Sends the notification message defined by the <output> element to the client.

operation Types of WSDL.



<binding> Element:-

* Specifies message format
* Specifies details of protocols.
* Includes <Type> attribute which refers <port Type> element i.e, weather Det pot Type.

<Service> Element:-

* represents service location
* represents http://aboutweather detail
*. transmitweatherinfo | as the Service URL.

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How to create, publish and test a web Service? Explain with Suitable Example using WSDL. [Apr-May 17]
[Nov-Dec 16]

Web Service :-

* Web Service are Software components which can be accessed remotely using methods calls. They facilitate reusability and portability of Softwares in applications.

* They use XML and HTML for interaction between other Services. Many Java APIs Support the concept of web Services. They can be published using some tools that implement them and invoke their methods on client applications. One Such tool is "Netbeans" developed by "Sun".

* The Process of provide a web Service whenever there are client requests is known as publishing a web Service.

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Example :-

* Consider a hugeinteger web Service that performs computation for positive number to an extent of 100 digits. It takes two String integer to input and computes the operation that is Specified. These operations are include Sum, difference, greater than, less than and equality of numbers.

Creating a web Service :-

* In Netbeans, the initial Step to create a web Service is to create a "web application project". The Steps to create a web application are as follows

i) Initially Select "New Project" from 'file' option. This opens "New Project" dialog box

ii) Select "web" from dialog box

iii) Select "web application" from the list of "Projects" and click "Next"

iv) Name the project and Specify the location to Store the project in "Project Name" and "Project location" fields respectively. The location can be Specified using the "Browser" button.

v) Then Select SunJava System Application Server 9 and Java EE5 from server and J2EE Version

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drop-down list

vi) Finally, click on "Finish" button.

* Now, a web Service class must be included to this web application project. The Steps to include a web Services class are as follows

i) Initially go to "Projects" tab and right click on the HugeInteger node

ii) Then Select web service from the New option. This opens "New web Services" dialog box

iii) Specify the name in web Services name and package fields with Suitable names. For Example HugeInteger as web Services name and Introduction as package

iv) Finally, click on "Finish" button

* This Creates a web Services class name as HugeInteger. It reside in the "Projects" tab in web Service node

* Then the web service node for HugeInteger is developed and implemented in HugeInteger.java file. The code for implementing web Services is as follows

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```
import javax.jws.WebService;

import javax.jws.Webmethod;

import javax.jws.WebParam;

@WebService(name="HugeInteger", Service name =
                                  "HugeIntegerService")

Public class HugeInteger

{

Private final Static int MAXIMUM =100;

Public int[] num=new int[MAXIMUM];

Public String toString()

{

String value ="    " ;

for (int digit : num)

value=digit+value;

int Size = value.Size();

int location = -1;

for (int x=0; x<Size; x++)

{
if (value.charAt(i)! ='0')

{

location =x;

break;

}}

return (location!=-1? value.Substring(location): "0");
```

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```
}
Public static HugeInteger ParseHugeInteger (String str)
{
HugeInteger temp = new HugeInteger ();
int String Size = Str. Size ();
for (int x = 0; x < StringSize; x++)
temp. num [x] = Str. charAt (StringSize - x - 1) - '0';
return temp;
}
@webMethod (operation Name = "add")
Public String add (@webParam (name = "String 1")
String String 1, @webParam (name = "String 2") String
String 2)
{
int Carry = 0;
HugeInteger operand 1 = HugeInteger
ParseHugeInteger (String 1);
HugeInteger operand 2 = HugeInteger
Parse HugeInteger (String 2);
HugeInteger result = new HugeInteger ();
for (int x = 0; x < MAXIMUM; x ++)
{
result. num [x] = (operand 1. num [x] + operand 2.
            num [x] + Carry) % 10;
```

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```
}
return result.toString();
}
@webMethod (operator Name = "Subtract")
Public String Subtrack @webParam (name = "String1")
String String 1 , @webParam (name = "String 2") String
String 2)
{
HugeInteger operand 1 = HugeInteger
ParseHugeInteger (String 1);
HugeInteger operand 2 = HugeInteger
Parse HugeInteger (String 2);
HugeInteger result = new HugeInteger ();
for (int x = 0; x < MAXIMUM ; x++)
{
if (operand 1. num [x] < operand 2. num [x])
operand 1. borrow (x);
result. num [x] = operand1. num [x] - operand2. num [x];
}
result result. toString ();
}
Private Void borrow (int position)
{
if (position >= MAXIMUM)
throw new IndexOutOfBoundsException ();
```

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```
else if (num[position+1]==0)
borrow(position+1);
num[position]+=10;
--num[position+1];
}
@WebMethod (operationName = "bigger")
Public boolean bigger (@WebParam (name = "String1")
String,String1)
@WebParam (name = "String2") String String2)
{
try
{
String difference = Subtract (String1, String2);
return difference.matches ("^[0]+$");
}
Catch (IndexOutOfBoundsException exp) {
return false;
}}
@WebMethod (operationName = "Smaller")
Public boolean Smaller(@WebParam (name = "String1")
String String1
@WebParam (name = "String2") String String2)
{
return bigger (String2, String1);
}
```

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```
@webParam (operationName = "equals")
Public boolaan equals (@webParam (name = "String1")
String String 1,
@web Param (name = "String 2") String String 2)
{
return ! (bigger (String 1, String 2) || Smaller (String 1,
                                        String 2));
}}}
```

* Every new Service class is plain old java object and hence there is no need of extending a class or implementing an interface. A class that is compiled using JAX-WS 2.0 annotations will allow the compilers to generate compile code framework.

* This framework enables web Services to wait for client request and response to them. The various annotations that are used in creating the HugeInteger web Service are as follows

1. @web Service

This annotations is used at beggining of every new web service class. It specifies the name and ServiceName Properties of web Services. It

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represent the implementation of web Services

Eg:- webService (name = "HugeInteger", Service name = "HugeIntegerService")

* The name indicate proxy class name for the client. The service name indicates the class name that is used to retrieve proxy class object

2. @webMethod.

* This annotation Specifies the name of operation / method to be given to webService client. It specifies @ webParam annotations inside it. This annotation specifies the parameter for method

Eg:- @webMethod (operation name = "add")

* Public String add @webParam (name = "first") String first, @webParam (name = "Second") String Second)

* Here, operation Name can be added, Subtract, bigger, Smaller and equal. They can be called remotely.

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Publishing web Services:-

*Publishing is next step that is to be followed soon after creating web Services. Netbeans Performs publishing by managing building and deploying process of web Services.

*It uses the "Projects" tab for this purpose whenever this tab is right-clicked, a pop-up menu will appear. This menu shows option for building & developing Projects. Some of those are as follows

1. Build Projects:-

*This option builds projects and returns compilation errors

2. Deploy Projects:-

*This option Deploy the project on Server.

3. Run Project:-

*This option performs execution of web application. It even build or deploys project if it was not build or deployed earlier

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Testing web Services:-

* Testing is a next Step that is to be followed after publishing web Services. For Sun Java System application, Server testing can be performed by creating a web page. This Server creates a webpage dynamically for this purpose and also tests the method

* The Steps for testing the methods of web Service are as follows

1) Initially Select projects name from the "Projects tab"

2) Then Select "Properties" option. This will display "Project Properties" dialog box

3) Click on the "Run" option from the categories

4) Type the URL in the "Relative URL" field

5) Finally click on "ok" button.

* The web Service can be accessed when the application server is in running State. If the applicatio Server is build by Netbeans then it gets closed

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automatically when developer closes the Netbeans.

Describing web Service:-

* Describing web Service is the next step after testing it. The description includes methods, parameters and return Values. JAX-WS uses the WSDL for this purpose. The application Server Software (SJSAS) dynamically creates a WSDL for webservice

* Then WSDL can be parsed by clients tool for generating proxy class. This class can be used by client to access web Services. The Description of the webService obtained by clients would be new and updated since the WSDL is dynamically created. The WSDL is dynamically created. The WSDL for description can be viewed by opening the WSDL file link in the tester web Page. Alternatively, it can be also viewed from the browser by entering URL of the web Service.

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Describe the general structure of SOAP Message in detail. [Nov/Dec-17]. [Apr/May-19].

Ans:

SOAP [Simple object Access Protocol]

* SOAP is defined as simple XML-based protocol which permits application to exchange XML-based Messages over computer network using HTTP (Hyper text transfer protocol).

(or)

* SOAP is a Mechanism in which object accessing is carried out in a simple way. this allows applications to call Remote Methods.

SOAP Messages :-

* A SOAP Message is created using MIME multipart/related structure Methods. These Methods dive and determine various parts of the Message. A SOAP Message along with attachments contains four components. They are envelope, header, body and attachments. Structure of a SOAP Message along with attachments is shown below,

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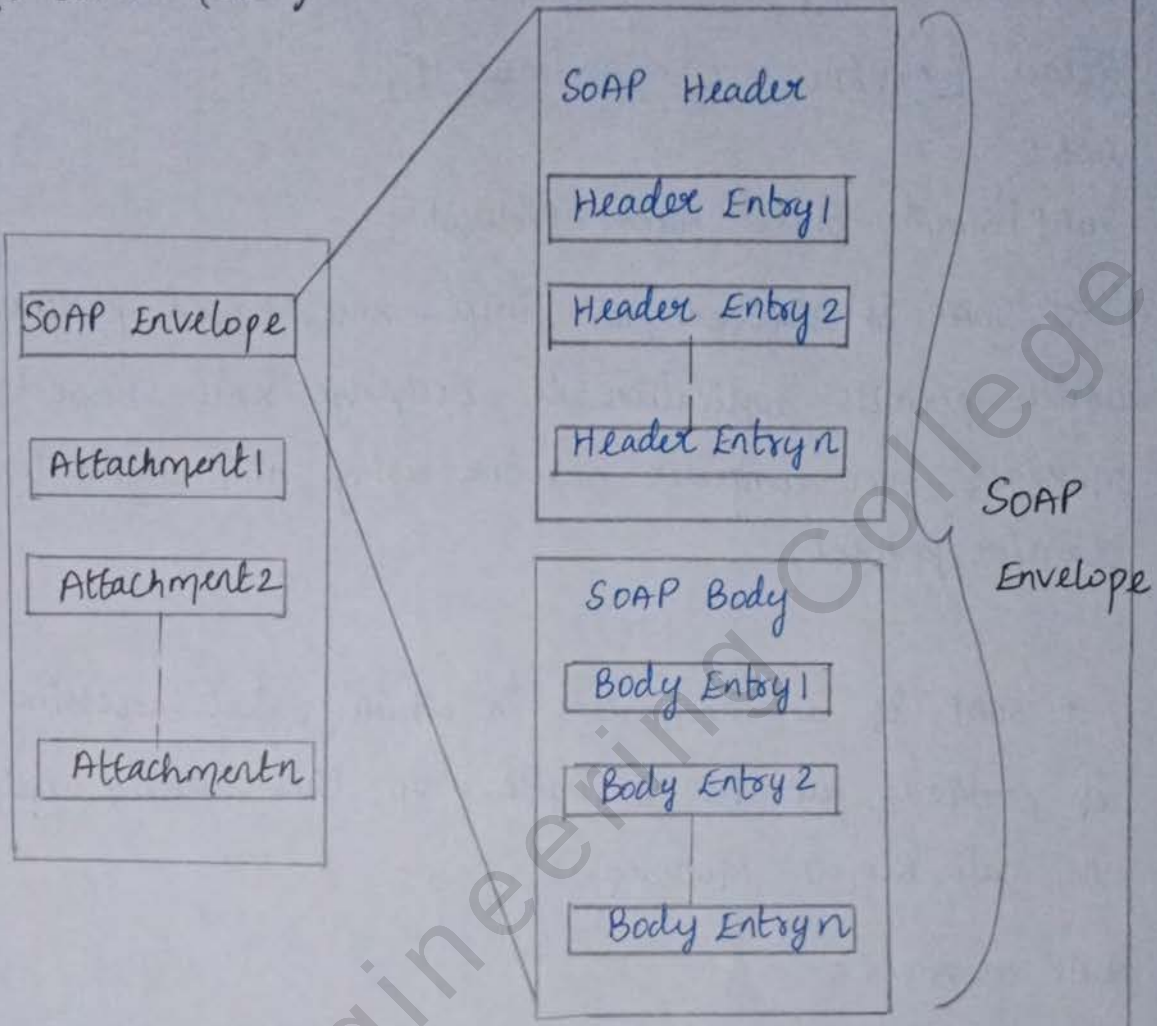
fig :- SOAP Message Structure



Building Blocks of SOAP :-

↳ The building blocks of a SOAP Message are,

1. SOAP envelope
2. SOAP header
3. SOAP body
4. SOAP attachments
5. SOAP faults

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1. SOAP Envelope :-

* SOAP envelope identifies XML document as SOAP Message. it contains the header and the body of a SOAP message. it is the root component of the SOAP Message and is represented as "Envelope". SOAP Messages have a namespace declaration which on violation is considered and is not processed. it is also possible to define a namespace under "Envelope" for representing data types in the message.

2. SOAP Header :-

* SOAP Header is the immediate child of the SOAP envelope header. it is namespace qualified. it may have zero or more children which are considered as SOAP header entries. it contains SOAP "encoding style" attribute that defines encoding of datatypes in the header element entries. it also has SOAP "actor" and SOAP "Must understand" attributes for representing the target SOAP application node i.e., sender, receiver or intermediary and for processing the header entries. SOAP header contains information related to the application. For example authentication details. it also contains data that is not useful to the recipient of the message However, it deals with the intermediate devices that retransmits the communication.

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3. SOAP Body :-

* SOAP body is the child component of the SOAP envelope. An envelope may contain one or more body block entries. SOAP body contains the request/response information and is actual data that is required by the recipeint of the message. it must have a qualified namespace and must be associated with "encodingStyle" attribute for providing encoding conventions. According to SOAP 1.1 specification a message must contain one or more Body block entries in it. The Body block may contain either RPC method and its parameters (or) data related to the target application (or) a SOAP fault that reports error and status information. Structure of a simple SOAP message is as follows,

```
<?XML version = "1.0"?>
<Soap: Envelope xmlns : soap = "http ://www.w3.org/
  2001/12/soap- encoding">
 <soap : Header>
  {
    . . . . . . . . .
    . . . . . . . .
    . . . . . . . . .
  }
```

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```
</soap : Header>
<soap : Body>
{
  .......
  ........
  ......
}
<Soap : Fault>
{
  .......
  .....
  ....
}
</Soap : Fault >
</Soap : Body>
</soap : Envelope>
```

4. SOAP attachment :-

* SOAP attachment is a component of a SOAP message whose data can come in any format i.e., ASCII or binary. A SOAP message is developed using a MIME multipart/related Structure. Therefore, the SOAP attachment component of the message is located in the MIME boundary. Every MIME part has two labels, i.e., content-ID and content-Location. Either of these labels is used for referencing the message Structure. these labels is can also be referred by the header and the body of the SOAP Message. In addition to referencing. the labels can be

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used in the identification of the attachment.

```
MIME-version:1.0
content-Type: multipart/Related; boundary = MIME-
boundary; type = text/xml
Start = "<http://siaedugroup.com/Main page .xml>"
content-Description: SOAP Message description.
--MIME-boundary--
content-Type: text/xml; charset = UTF-8
content-Transfer-Encoding:8 bit
content_ID: <http://siaedugroup.com/mainpage.xml
<?xml version='1.0'?>
<Soap-Env:Envelope
xmlns: SOAP-ENV="http://schemas.xml soap.org/soap/
envelope/">
<SOAP_ENV:Body>
<!--SOAP BODY-->
</SOAP-ENV:Body>
--MIME-boundary--
content-Type: image/gif
content-Transfer-Encoding: binary
content-ID: <http://siaedugroup.com/mainpageimage.
gif>
content-Location: http://siaedugroup.com/mainpage
image.gif
<!--.. binary GIF image...-->
```

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-- MIME- boundary --

5. SOAP Fault :-

* SOAP fault is an element in the SOAP message that handles errors and provide the status information. its usage can be within a Body element or as a body entry. it has various elements that reports error and status of SOAP message in a readable format and displays the information source along with its details. Following are the elements of a SOAP fault.

i) Faultcode :-

* This element gives an algorithm method for determining a fault. it has standard values that identifies error or status of the application. The faultcode values of the namespace identifiers are defined in http://schemas.xmlsoap.org/soap/envelope/. SOAP 1.1 specification defines the following faultcode element values,

a) client :-

↳ This faultcode is an indication that the fault is from the receiving client's side. The fault can occur due to missing element, a wrong SOAP message or a wrong namespace definition.

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b.) server:.

↳ This faultcode is an indication that a fault has been detected while processing the server side of the application. Moreover, the application cannot proceed further because the fault is relevant to the SOAP message content.

c.) version Mismatch :.

↳ This value is an indication of a namespace which is not defined in the SOAP envelope or an unsupported SOAP message.

d.) Must |understand :.

↳ This is a return value which is returned when the SOAP receiver node is unable to manager or identify the SOAP header block on setting the "Must understand" attribute to 1. the attribute value is set to 1 for true and 0 for false.

iii) Faultstring :.

* This element gives the fault description in a readable format.

iv) detail :.

↳ This element gives error information on its status relevant to its Body block.

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↳ The representation of SOAP fault in SOAP message is as follows,

```
<SOAP_ ENV: Envelope xmlns: SOAP_ENV
= "http://schemas.xmlSoap.org/soap/envelope/"
SOAP_ ENV: encoding style =
"http://schemas. xmlSoap.org/soap/envelope/"
SOAP_ ENV: endoding style =
"http://schemas: xmlSoap.org/soap/encoding/">
  <SOAP_ENV: Body>
   <SOAP_ ENV: Fault>
    <faultcode> SOAP_ENV: Mustunderstand</faultcode>
   <faultstring> Header is absent </faultstring>
    <faultfactor> http://siaedugroup.com/SpectrumRate</
   faultactor>
    <detail>
     <siaedu: error
      xmlns: siaedu = "http://siaedugroup.com/spectrumRate">
     <problem> Name of the spectrum is not visible.</
   problem>
   </siaedu: error>
   </detail>
     </Soap_ENV: Fault>
     </SOAP ENV: Body>
     <SOAP_ENV: Envelope>
```

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