



ARUNAI ENGINEERING COLLEGE

(Affiliated to Anna University)
Velu Nagar, Thiruvannamalai-606 603
www.arunai.org



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

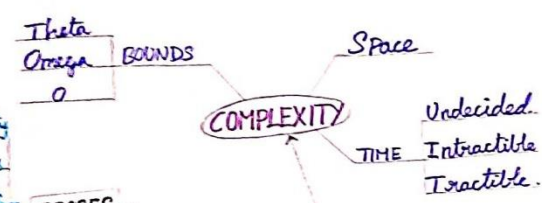
CS8391 – DATA STRUCTURES

MIND MAP



DATA STRUCTURES.

COMPLEXITY



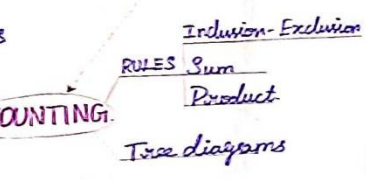
PROOFS

- Complexity
- Correctness
- Recurrence Soln
- Recursive
- Induction
- Loop Invariants

PROBLEMS

- Unordered
- Ordered
- No repetition
- Repetition
- Permutation
- Combination

COUNTING



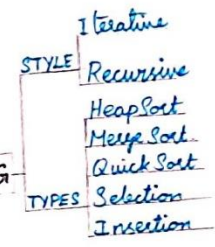
REPRESENTATIONS

- Matrix
- Adjacency list

GRAPHS



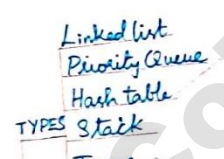
SORTING



HASHING



STRUCTURES



OPERATIONS

- Find
- Delete
- Insert

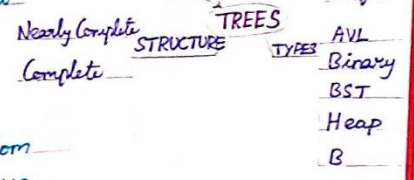
PATTERN

- Random
- Reverse
- Ordered

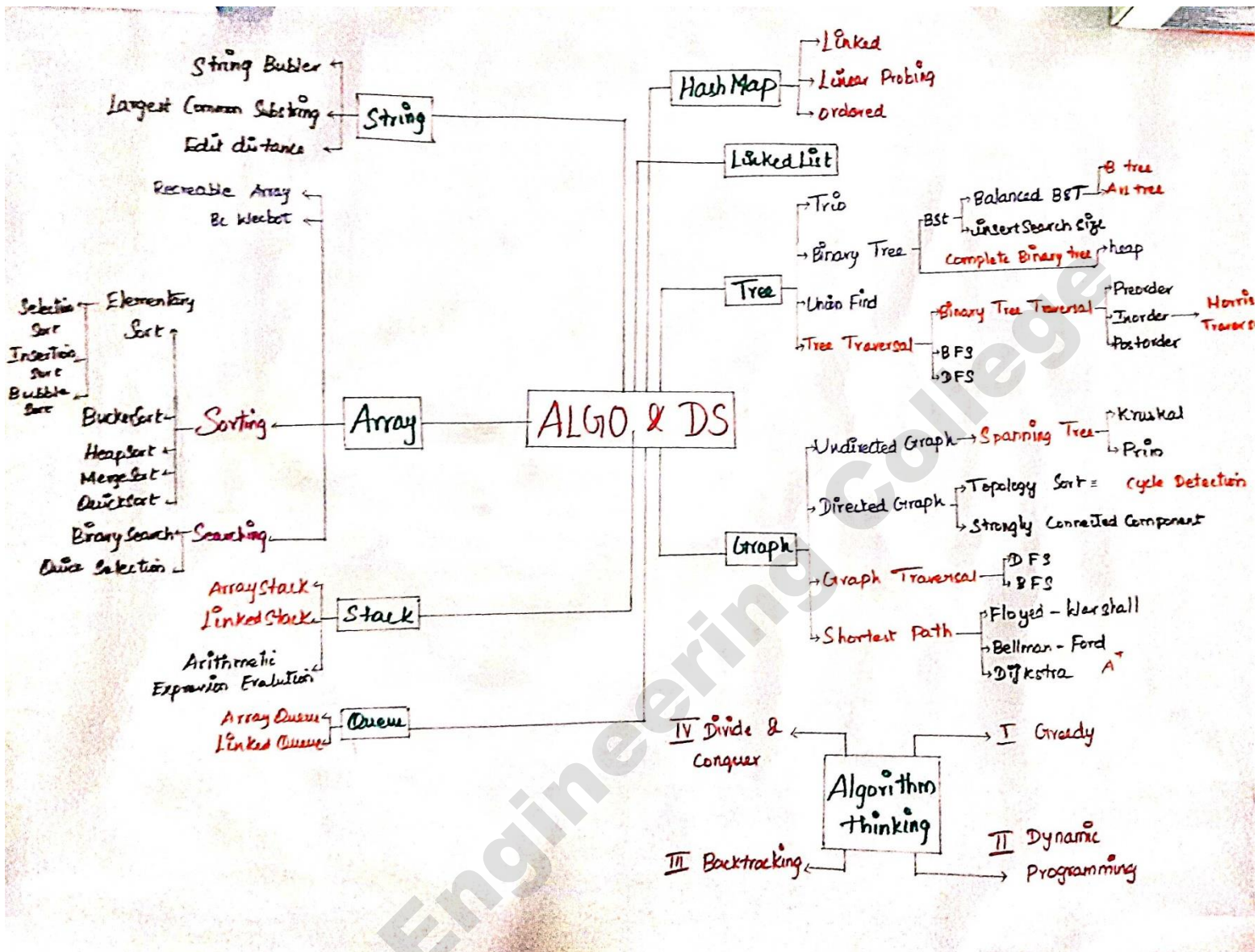
TRAVERSAL

- Postfix
- Prefix
- Infix

TREES



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DATA STRUCTURES - LINEAR AND NON-LINEAR

Node at the top of the tree. There is only one root for tree

Root

Any Node Except root Node has only Edge upward to a Node

Parent

Node below a given Node Connected by its Edge downward

Child

Node with does not have any child Node

Leaf

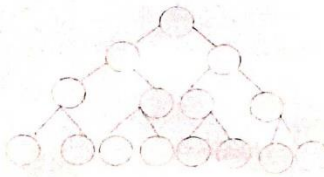
Generation of a Node

Level

Tree

Sequence of Nodes along the Edge of a Tree.

Path



Each Node of the graph

Vertex

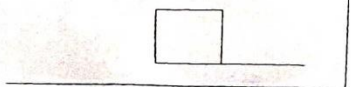
a Path between two Vertices

Edge

Sequence of Edges between two Vertices

Path

Graph



File

Non-Linear

DATA STRUCTURE

Linear

Array
Element
Size
Index

Single Linked List
Data Node
Pointing

Double Linked List
Data Node
Previous Node
Next Node

Circular Linked List
Data Node

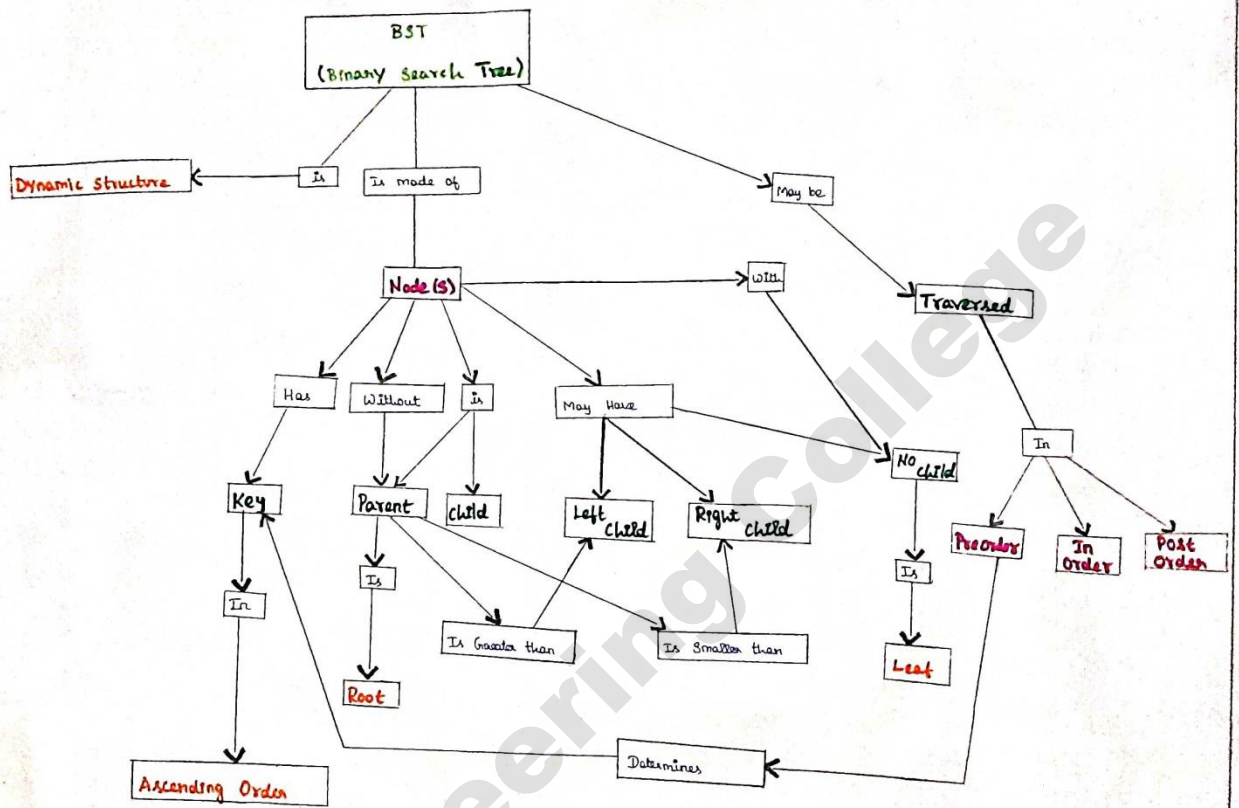
Stack
Push() used to insert new Element into the stack
Pop() to delete an Element from the stack
Top() returns the Element
Overflow() Stack is full

Queue
Enqueue() to add an Element into queue
Dequeue() remove of element of an Element from queue
Peek() to return the value of front Element without removing it

Hash Table
Hashing
Collision
Open Addressing
Linear Probing
Separate Chaining
Rehashing
Extendable Hashing
Used a tree to insert keys into the Hash table

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DATA STRUCTURE - BINARY SEARCH TREE



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