Data Structure

Definition of all the Important topics in Data Structure:-

1. **Trees and Graphs**:-

Terminologies in a Tree:-

A Tree is a type of Graph but not all the graphs are a tree

1.1 Binary search tree:- The Binary search tree is a tree where all the left nodes < root node < right nodes

1.2 complete binary tree:- Where all the nodes are fully filled except for the right outer most node

1.3 full binary tree:- where every node has either zero or two children

1.4 perfect binary tree:- combination of complete and perfect binary tree

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1.5 minHeap:- A complete binary tree where each node is smaller than its children, therefore root node is the smallest

1.6 maxheap:- A complete binary tree where each node is greater than its childres, therefore root node is the greatest

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{Hint: left node will always be traversed before the right in all kind of traversals}

Binary tree Traversals:-

1.7 inOrderTraversal:- to visit(or print) the left branch then central node and then finally the right branch

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inOrderTraversal(node.left)
visit(node)
inOrderTraversal(node.right)
```

1.8 preorderTraversal:-

```
visit(node)
```

preOrdertraversal(node.left)

preOrderTraversal(node.right)

1.9 postOrderTraversal:-

postOrderTraversal(node.left)

postOrderTraversal(node.right)

visit(node)
