

=====ShortAnswer=====

1. What is the difference between Data Structures and Data Types?

+ Data Structures are used to store, organize, and manage data in specific formats enabling efficient access and modification.

+ a collection of stored values, the relationships between those values, and the functions or methods which can be applied to the values or structure

2. What is a Stack? What is LIFO?

+ Stack is a linear data structure that has a top and bottom.

+ Items can only be added or removed from the top.

+ LIFO stands for Last In First Out.

3. What is a Queue? What is FIFO?

+ Queue is a linear data structure it has front and back, followed by the first in first out principle.

+ Items may only be removed from the front.

+ Items can be added to the back.

+ FIFO stands for First In First Out.

4. What is a Node? (Data Structures: Trees)

+ Node is a basic datastructure which contain data and one or more links to other nodes.

5. What is a Head Node? A Tail Node?

+ Head Node is the First Node of a linked List, Tail Node is the Last Node of a linked list.

6. What is the difference between a Singly and Doubly Linked List?

+ Both are constructed with Nodes and are linear data structure but singly Linked List is a one way reference chain while Doubly Linked List is a two way reference chain.

7. Describe a Binary Tree

+ A binary tree is a rooted tree follow the tree structure (non-linear) that is also an ordered tree (starting at root node) in which every node has at most two children. Node values are ordered, the left branch of the tree will be smaller than the right branch.

+ A node that have no children is called 'leaf nodes'.

8. What is a Root Node?

+ A Starting Node or topmost node in the tree data structure is referred to as the root node

9. What is DFS? (Depth First Search)

+ The Depth first search is an algorithm to traverse tree, it will start from the root node and traverse through all the possible routes to reach leaf nodes.

10. What is BFS? (Breadth First Search)

+ Breadth First Search starts at the root node and go throughn all the silbing nodes before moving on to the next level.