Data Structure : Discussed Topics

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1   Array

1. Inserting an element in an array

2. Deleting an element in an array

3. Sorting

    (a) Bubble Sort

4. Searching in an array

    (a) Linear Search
    (b) Binary Search

5. Representation of Multidimensional Arrays in Memory

    (a) Row-major Order
    (b) Column-major order

6. Pointer and Pointer Array

7. Sparse Matrices

2   Linked List

1. Traversing a Linked List

2. Insertion and Deletion-

    (a) After a node
    (b) Before a node
    (c) With a given item of information

3. Header Linked List

4. Traversing a Circular Header List

3 Stack

1. PUSH, POP procedure

2. Arithmetic Expression: Polish Notation

   (a) Infix to Postfix conversion
   (b) Postfix expression evaluation
   (c) Infix expression evaluation

4 Recursion

1. Factorial

2. Fibonacci

3. Tower of Hanoi

5 Queues

1. Queues

2. Deques

   (a) Input Restricted
   (b) Output Restricted

3. Priority Queues

6 Tree

1. Tree and Binary Tree

2. Complete Binary Tree

3. Extended Binary Tree

4. Representing Binary Trees in Memory

5. Preorder Traversal Using Stack

6. Inorder Traversal Using Stack

7   Graph

1. Graph Theory Terminology

2. Directed Graphs

3. Sequential Representation of Graphs

    (a) Adjacency Matrix
    (b) Path Matrix

4. Warshall's Algorithm; Shortest Paths Algorithm

5. Linked Representation of a Graph

6. Traversing a Graph

    (a) Depth-First Search
    (b) Breadth-First Search

8   Concept of Hashing

1. Hash Function

    (a) Remainder Theorem
    (b) Folding Method
    (c) Mid Square Method
    (d) Character-Based Method

2. Collision Resolution

    (a) Open Addressing
    (b) Linear Probing
    (c) Plus 3 Probe
    (d) Quadratic Probe
    (e) Chaining