Certification in Data Structure & Algorithm using Java

Syllabus

Duration: 60 Hours

1. **DS Tutorial**
   - **DS Introduction**
   - **DS Algorithm**
   - **Asymptotic Analysis**
   - **DS Pointer**
   - **DS Structure**

2. **DS Array**
   - **Array**
   - **2D Array**

3. **DS Linked List**
   - **Linked List**
   - **Types of Linked List**
   - **Singly Linked List**
   - **Doubly Linked List**
   - **Circular Linked List**
   - **Circular Doubly List**
   - **Skip list in DS**

4. **DS Stack**
   - **Stack**
   - **Array Implementation**
   - **Linked List Implementation**

5. **DS Queue**
   - **Queue**
   - **Types of Queues**
   - **Array Representation**
   - **Linked List Representation**
   - **Circular Queue**
   - **Deque**
   - **Priority Queue**

6. **DS Tree**
   - **Tree**

- Binary Tree
- Binary Search Tree
- AVL Tree
- B Tree
- B+ Tree

7. DS Graph
   - Graph
   - Graph Implementation
   - BFS Algorithm
   - DFS Algorithm
   - Spanning Tree

8. DS Searching
   - Linear Search
   - Binary Search

9. DS Sorting
   - Bubble Sort
   - Bucket Sort
   - Comb Sort
   - Counting Sort
   - Heap Sort
   - Insertion Sort
   - Merge Sort
   - Quick Sort
   - Radix Sort
   - Selection Sort
   - Shell Sort
   - Bitonic Sort
   - Cocktail Sort
   - Cycle Sort
   - Tim Sort
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10. Misc
    - Trie Data Structure
    - Heap Data Structure
    - Hash Table
    - Preorder Traversal
    - Tree Traversal
    - Implementation of Queue using Stacks
    - Implementation of Stack using Queue

- **Binomial Heap**
- **Postorder Traversal**
- **Sparse Matrix**
- **Detect loop in a Linked list**
- **Inorder Traversal**
- **Convert Infix to Postfix notation**
- **Convert infix to prefix notation**
- **Conversion of Prefix to Postfix expression**
- **Conversion of Postfix to Prefix expression**
- **Remove the loop in a Linked List**
- **Implement two stacks in an array**
- **Reverse a stack using recursion**
- **Detect cycle in a directed graph**
- **Optimal Binary Search Tree**
- **Priority Queue using Linked list**

11.Project Work

12.Placement Assistance Sessions

- **Mock Interviews**
- **GDs**
- **Preplacement Talks**
- **Industry Exposer Sessions**

13.Internship