Course Content – Data Structure(DSA) Using C

Introduction to Data Structure

Overview of data structures and algorithms

Importance of data structures in computer science

Basic terminology: Arrays, linked lists, stacks, queues

Analysis of time and space complexity

Arrays & Sorting

Arrays: definition, properties, and operations
Sorting Algorithms: Bubble sort, Selection sort, Insertion sort, Merge sort, Quicksort
Searching algorithms: Linear search, Binary search

Linked List

Singly linked List

Doubly linked List

Circular Singly linked List

Circular Doubly linked List

Operations on linked lists

Stack

Definition, properties, and Operations (push, pop, peek)
Implementing Dynamic Stack
Problem Solving using Stack
Implementation of infix to postfix expression Conversion

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Queue

Definition, properties, and operations (enqueue, dequeue, front)

Implementing Dynamic Queue

Problem Solving using Queue

Tree

Introduction to trees: Binary trees, Binary Search Trees (BST)

Tree traversal: inorder, preorder, postorder

AVL trees: balancing and operations

Problem Solving using Tree

Graph

Graph representation: Adjacency Matrix, Adjacency List
Graph traversal: Depth-first Search (DFS),Breadth-First search (BFS)

Hash Table

Hash functions and collisions
Resolving collisions: chaining, open addressing
Hash table operations: insertion, deletion, sear

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Course Completion Certificate

At the end of course you will get Techno Comp Academy's Course Completion Certificate.

Duration

3 Months

Mr. Sachin Dhane
Techno Comp Academy, Pune.