

Data Structure

Detail Syllabus

(Duration 100 hours)

Introduction

- What is Data Structure?
- What is Algorithm?
- What is list?
- Types of Data Structure
- Introduction to an array and linked list

Array

- What is array?
- Why Array?
- Operations in an array

Function

- What is function?
- Types of function
- How function works?
- Function recursion and how it works?

Structure

- How structure allocates memory
- Tips on structure
- Why and what is structure
- Use of self-referential structure
- Memory leak and memory linked list

Linked list

- Why linked list
- How to create linked list
- Operation on Linked list
- Doubly linked list
- Operation on doubly linked list
- Programming approach to linked list

Stack as Data Structure

- Implementation of stack in array and linked list
- Operation on Stack
- Polish notation

Queue as Data Structure

- Implementation of Queue in array and linked list
- Operation on Queue
- Double Ended Queue (DeQue)
- Priority Queue

Tree

- Introduction
- Binary tree
- Binary tree representation in memory
- Tree traversal
- Binary search tree
- Balanced binary tree
- Tree rotation
- M-WAY search tree
- B-tree

Graphs

- Introduction
- Representation of graphs
- Graph traversal
- Shortest path algorithm
- Warshall's algorithm for finding path matrix
- Warshal's algorithm for finding the shortest path matrix
- Dijkstra's technique
- Floyed's technique
- Minimum spanning tree
- Kruskal's algorithm
- Prim's algorithm

Searching and sorting

- Various searching technique
- Various sorting technique
- Hashing



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