

"Ask not, for job; take pride in choosing it"



High Value

C, Data Structures, Algorithms

Program Objectives

- ✓ Master the Concepts
- ✓ Learn C and Data Structures
- ✓ Hands-on Programming
- ✓ Problem Solving - real interview Qs
- ✓ Prepare for Developer Interviews

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Research

Theory

Practical

You will

- ✓ Be Confident in Problem Solving
- ✓ Get skills in C, Data Structures
- ✓ Master the art of problem solving
- ✓ Learn from experts in the field

School of Web Science

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C, Data Structures and Algorithms

Basics (16 classes)

1 class=1 hour; daily 2 classes

1. Vision of Procedural language
2. Variables, Condition, Loop
3. Hands on coding for 1,2
4. Array, Structure
5. Hands on Coding for 4
6. Pointers
7. Hands on Coding for 6
8. File Management
9. Problem Solving

Data Structures (18 classes)

1. LINKLIST (4 classes)
 - THEORY (Create LL, Insert a node, delete a node)
 - ASSIGNMENT (e.g wap to reverse a link list)
 - Problem Solving
2. STACK/QUEUE: (4 classes)
 - THEORY (Create stack with LL, create Q with array)
 - ASSIGNMENT (e.g Get min from an array at any point of time at $O(1)$)
 - Explain relation between stack and recursion
 - Problem Solving
3. Binary Tree: (6 classes)
 - THEORY (CREATE Tree, Create BST, Insert Node in BST, Search in BST, Delete node in BST, tree traversal, Recursion)
 - ASSIGNMENT (e.g wap to count number of leaves in a tree)
 - Problem Solving
4. Graph: (4 classes)
 - THEORY (Representation of Graph, BFS, DFS)
 - ASSIGNMENT (e.g level wise traversal in a graph)
 - Problem Solving

Algorithms (6 classes)

1. Concepts
2. SORTING
 - THEORY (BUBBLE SORT, MERGE SORT, QUICK SORT)
 - (COUNT SORT & HEAP SORT will be covered if time permits)
 - (Divide and conquer, Top Down, Bottom up)
 - ASSIGNMENTS (e.g change the pivot for quick sort)
 - Doubts
 - Explain time complexity and space complexity.
 - Problem Solving