Data Structures & Algorithms Roadmap :→

C Programming :→
* Storage Classes
* File Handling
* Recursion
* Structures & Unions
* DMA (m, c, r, f)
* Pointers
* Compiler / exe

C++ (OOP)
namespaces
extra data types
bool, string, auto
template <typename T>
OOPs (4 pillars)
Exceptions
File Handling

Prep Insta (Top 100 codes)
Practice the questions C & C++

Python Basics
Java Basics
OOPs + Exceptions
+ File Handling

(C++ or Java) (450 dsa. com) (GFG)

Linear Data Structures :→
stacks
queues
linked lists
arrays
+ questions

Non-linear DS
Trees :→ {Recursion
* Binary Tree
* Binary Search Tree
* AVL Tree
* Red Black Tree
* Complete Binary Tree

K-D Tree
Orthogonal Tree
Skewed Tree

Heap :→
* Trie :→ (Suffix Tree)
Autocomplete
Contact Book

Operating System (Heaps (Heap Sort)) ******

Graphs → Traversals (DFS & BFS)
Representation (Matrix) (List)
↓
Algos :→
(i) Dijkstra's Algorithm
(ii) Bellman Ford
(iii) Floyd Warshall
(iv) Kahn's Algorithm
(v) Prim's Algorithm
(vi) Kruskal's Algorithm
(vii) Kosaraju's Algo
(viii) Tarzan's Algo

Dynamic Programming (DP)
* (i) Recursion) **
(ii) Memoization
(iii) Tabulation
(iv) Space Optimization

* Bit Manipulation → (Apple)
Masking

* Backtracking (Appl^n of recursion)
* N Queens
* Sudoku
* Rat in a Maze
* Subsets of array / String

Power Set
{1, 2, 3} = 2^3
3
(8)

Greedy Algorithms :→ (min/max)
Chocolate distribution
Activity Selection
Job Scheduling
House Robber
Nikunj & Donuts
Gas Station Problem

Huffman Encoding
(31) (20, 10, 1)
{1, 2, , ... 100}
(91) 20, 20, 50, 1
1 x 91

Searching
linear
binary
recursive binary
jump
interpolation

Time Complexity
Compare

Sorting
bubble
selection
insertion
merge } fastest
quick
shell sort
count sort
radix sort
heap

CN
OS
NT
CISCO
NCA

bizotictraining.com
2020 4