**Code Library**

**Subscribe to the channel =** [**https://bit.ly/3fBvYkf**](https://bit.ly/3fBvYkf)

***DSA CheatSheet***

1. **Learn a Language**--

C++/Java/Python

**Resources--**

C++ :

R1 = <https://bit.ly/3lQu7ve>

R2 = <http://bit.ly/3nOdZZD>

R3 = <http://bit.ly/38FifE6>

Java :

R1 = <http://bit.ly/3heJQA8>

R2 = <http://bit.ly/3mQ7IuX>

1. **Data Structures**--

1️⃣ Arrays

2️⃣ String

3️⃣ Time & Space Complexity

4️⃣ Searching (Linear/Binary)

5️⃣ Sorting (Selection/Bubble/Insertion/Merge/Quick/Heap Sort)

6️⃣ Stack

7️⃣ Queue

8️⃣ Linked List (Single/Doubly)

9️⃣ Hashing

1️⃣0️⃣ Recursion

1️⃣1️⃣ Backtracking

1️⃣2️⃣ STL for C++ or Java collections for Java

1️⃣3️⃣ Tree & Binary Search Tree

1️⃣4️⃣ Heap/ priority queue

1️⃣5️⃣ Graph

1️⃣6️⃣ Dynamic programming

**Resources--**

R1 = <http://bit.ly/3hhe4m1>

1. **A) C++ STL**--

**Topics--**

1) Vector

2) Stack

3) Set

4) Map

5) unordered\_set

6) unordered\_map

7) pair

8) queue

9) deque

10) list

11) Binary Search/lower\_bound/upper\_bound

11) Custom Comparator

12) \_\_builtin\_popcount()

13) next\_permutation()

14) \*max\_element()

15) priority queue

**Resources--**

R1 = <http://bit.ly/3aICELu>

R2 = <http://bit.ly/3mVoiKc>

R3 = <https://bit.ly/3CyPLu6>

**B) Java Collections--**

R1 = <http://bit.ly/3hi1Utd>

1. **Algorithms--**

1) **Number Theory**--

a) Fibonacci Series/Number

b) Prime

c) Sieve of Eratosthenes

d) Segmented Seive

e) GCD & Euclid's Algorithm

f) Fast Modulo Exponentiation

g) multiplicative modulo inverse

h) fermat's little theorem

2) **Sorting Algorithms**--

a) Selection Sort

b) Bubble Sort

c) Insertion Sort

d) Quick Sort

e) Merge Sort

f) Heap Sort

3) **Searching--**

a) Linear Search

b) Binary Search

4) **Recursion & Backtracking**--

a) Basic Question

b) Fibonacci Recursion

c) Tower of Hanoi

d) Generate Brackets Recursion

e) Knapsack Recursion

f) Phone Keypad Problem

g) Rat in a maze

h) N-Queen Problem

i) Sudoku Problem

5) **Greedy**

6) **Graph Algorithms**--

a) BFS

b) DFS

c) Directed Graph

d) Undirected Graph

e) Disjoint Set Union

f) Minimum Spanning Tree (kruskal's Algo, Prim's Algo)

g) Shortest Path (Dijkstra's Algo, Bellman Ford,

Floyd-Warshall)

h) Cycle Detection

i) Topological Sort / DAG

j) Kosaraju’s Algo

k) Connected components / Strongly Connected Comp

l) Eular Tour

m) Articulation Point and Bridge

n) LCA

7) **DP**--

R1 = <http://bit.ly/3rs78XV>

**Algorithm Resources**--

R1 = <http://bit.ly/3aGKGUV>

R2 = <http://bit.ly/3hgkGkF>

1. **Problem Solving Skills--**
2. LeetCode = <https://leetcode.com/>
3. GFG Practice Site = <http://bit.ly/2KEp2WJ>
4. A2OJ = <http://bit.ly/38yRgua>
5. Hackerrank = <http://bit.ly/3rvG0XQ>