

MUST DO:

Easy : <https://leetcode.com/list/xix1yu51/>

Medium : <https://leetcode.com/list/xixy4dq7/>

What are the important topics I should study ?

Big O Notation:

Theory

Practice problems from Cracking the Coding Interview

Stack DS

Queue DS

Arrays and Maths:

Practice a lot of Questions on Arrays and Maths. Some important topics are mentioned below.

Circular Arrays - Typical ways to solve on Leetcode

Boyer Moore Voting Algorithm Leetcode

Two Sum Problem - Leetcode

Three Sum Problem - Leetcode

Four Sum Problem - Leetcode

Buy and Stock problem - Leetcode

Buy and Stock problem II - Leetcode

Buy and Stock problem III - Leetcode

Buy and Stock problem IV - Leetcode

Buy and Stock With Cooldown - Leetcode

Questions relating to Palindromes.

Longest Palindromic Subsequence

Finding square root of a number in logn time - Leetcode

Subarray and Subsequence problems.

Link : <https://www.geeksforgeeks.org/array-data-structure/>

- a. Array rotation - 20 problems
- b. Array rearrangement - 20 problems
- c. Order statistics - 20 problems
- d. Range queries - 20 problems
- e. Searching and sorting - 20 problems
- f. Optimization problems - 20 problems
- g. Matrix - 20 problems
- h. Misc - 10 problems

Binary Search:

Binary Search from Topcoder(MUST)

Link : <https://www.geeksforgeeks.org/binary-tree-data-structure/>

- a. Introduction - min 20 problems
- b. Traversals - min 20 problems
- c. Construction & conversion - min 20 problems
- d. Checking & printing - min 20 problems
- e. Summation - min 20 problems
- f. Longest common Ancestor - min 10 problems

Binary Search Tree:

Link : <https://www.geeksforgeeks.org/binary-search-tree-data-structure/>

- a. Construction and Conversion
- b. Checking the largest and smallest element
- c. Red Black Tree and threaded binary tree

Bitwise manipulation:

A summary: how to use bit manipulation to solve problems easily and efficiently - LeetCode Discuss

Good website to visualize bitwise operations

<https://www.geeksforgeeks.org/bits-manipulation-important-tactics/>

Trees:

- Pre-order(BOTH recursive and iterative)
- Post-order(BOTH recursive and iterative)
- In-order(BOTH recursive and iterative)
- N-ary Tree Pre-order Traversal
- N-ary Tree Pre-order Traversal
- N-ary Tree Level Order Traversal
- Maximum Depth of N-ary Tree
- Serialization and deserialization of trees - Leetcode
- Binary Search Tree
- Lowest Common Ancestor - Leetcode
- Morris In-order traversal by Tushar Roy (Video)
- Threaded Binary Tree

Recursion and Backtracking:

- Recursion and Backtracking Tutorial
- Blog by csgator(BEST)
- Interview Bit Theory
- Turnpike problem
- Word break Problem Leetcode
- Word break Problem 2 Leetcode
- Letter combinations of a phone-number Leetcode

Graphs:

- Representing graphs
- Minimum Spanning Tree
- Graph cycle detection
- DFS, BFS Explanation by csgator(BEST)
- Topological Sorting
- Prims and Kruskal
- Dijkstra
- Dijkstra on sparse graphs - Competitive Programming Algorithms
- Number of Islands
- Friend Circles
- Decode String
- shortest path

Sorting :

- a. Bubble sort

- b. Selection sort
- c. Insertion sort
- d. Quick sort
- e. Heap sort
- f. Merge sort
- g. Counting sort
- h. Radix sort

Geometry:

Geometric Algorithms - GeeksforGeeks

Hashing:

map vs unordered_map in C++ - GeeksforGeeks

Design HashMap

Design Hashset

Sliding Window algorithm template to solve all the Leetcode substring search problem. - LeetCode Discuss (This is important !)

String Hashing

Linked List:

Insertion

Deletion of Node

Reverse Linked List (iterative and recursive)

Circular Linked List

Doubly Linked List

Floyd's Cycle Detection Algorithm

Linked List Cycle - Leetcode

LRU Cache - C++ Implementation - Bhargu Srivastava

Copy list with random-pointer (BEAUTIFUL QUESTION!)

Dynamic Programming:

Link : https://www.youtube.com/watch?v=8LusJS5-AGo&list=PLrmLmBdmIlpsHaNTPP_jHHDx_os9ItYXr

TopCoder Article (VERY IMPORTANT!!! MUST)

Top 20 DP questions(Geeks for geeks) Important!

Tushar Roy DP playlist

Do Questions from Interview Bit (Good List) :P

Top 50 DP questions

Difference between DP and Divide and Conquer

Disjoint Set Union:

DSU CP-Algorithm

Sorting:

Be clear with the basic algorithm and time complexity of all sorting algorithms.

Additionally read up count sort, bucket sort and radix sort.

Greedy:

Basics of Greedy

Linked list (single, circular, double) :

Normal implementation (Least asked)

Reversal

swap nodes

hare and tortoise

cloning 2 or more linked lists

other important :

topological sort

connected components in a graph

graph problem archives in Geeks/LeetCode

Rotten oranges problem

Disjoint set / Union-Find

Minimum spanning tree