ap On Laptop For Much Better User Experience(Might not be able to see act			
Don't Miss This Video. One Time EffortTo Use This Roadmap Really Well : https://youtu.be/qqvYFlBJMSw	**StartDate (Change whenever you start this roadmap)**	**29.04.2023**	
Must Read This Before Following This Roadmap!	***Topic***	***Total Questions***	***Questions Done***
Basic DSA			
Most common questions asked by every company (product based or service based) or any startup. These are the basic things which every programmer should know. For every role in tech including software development, backend development, front-end development, full stack web development, data scientists etc., these questions can be asked.	Arrays	5	0/5
	String	5	0/5
	2d Arrays	5	0/5
	Maps/Sets	5	0/5
	Two Pointers	4	0/4
	Basic Algorithms	6	0/6
	Mixed Questions - 1	20	0/20
	Overall Basic DSA Progress	**50**	**0/50**
		Revision/Break Days	
Intermediate DSA			
Asked by most of the product based companies or even small/big product based startups. Roles include software development, backend development, full stack web development, data scientists. Some big product companies like Amazon, Google, Microsoft can ask these for front-end development role as well.	Binary Search	5	0/5
	Recursion Basics	5	0/5
	Linked List	10	0/10
	Stacks & Queues	10	0/10
	Binary Trees & BST	15	0/15
	Mixed Questions - 2	30	0/30
	Overall Intermediate DSA Progress	**75**	**0/75**
		Revision/Break Days	
Advanced DSA			
Mostly asked by Amazon, Microsoft, Google, Uber or other big product based companies. Some big startups like Zomato, Ola can also ask these questions. Roles include backend development, software development, full stack web development. Not much asked for	Greedy Techniques	5	0/5
	Tries	5	0/5
	Silding Window & Dequeue	7	0/7
	Priority Queues & Heaps	7	0/7
	Advanced Recursion & Backtracking	8	0/8
	Dynamic Programming	15	0/15
	Graphs	13	0/13
	Mixed Questions - 3	40	0/40

front-end developer or data scientist roles.	**Overall Advanced DSA Progress**	**100**	**0/100**
		Revision/Break Days	

DSA Project

This is a great DSA project as it includes solving the problem with the use of various data structures like trees, heaps, arrays etc. Also concepts of bits are used. This really gives us great feeling of applying data structures and algorithms.	**Huffman Coding**	1	0/1

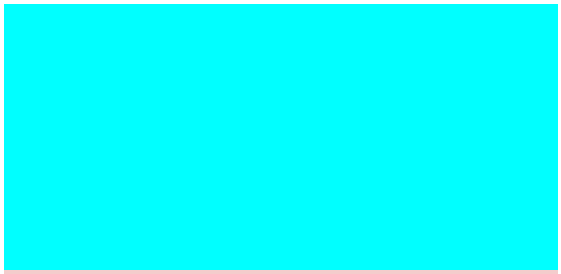
Miscelleanous DSA

Asked by companies like Codenation, DirectI, and sometimes Google which do very hard interviews related to DSA. Not asked in interviews of majorly other companies.	Bit Manipulation	7	0/7
	String Algorithms	5	0/5
	Segment Tree	6	0/6
	Number Theory	5	0/5
	DP With Trees	2	0/2
		25	0/25
	OVERALL PROGRESS	**251**	**0/251**

Important :
If you have not created a copy, you will not be able to make changes in the sheet. Make your own copy by choosing 'Make Copy' option from 'File' Menu.

Email Id	**upskillwithparikh@gmail.com**	
Status	***Number of days***	***Deadline (Set According To Start Date)***
Not Started	2	5.1.2023 0:00:00
Not Started	2	5.3.2023 0:00:00
Not Started	2	5.5.2023 0:00:00
Not Started	2	5.7.2023 0:00:00
Not Started	2	5.9.2023 0:00:00
Not Started	3	5.12.2023 0:00:00
Not Started	8	5.20.2023 0:00:00
Not Started		
	3	
Not Started	2	5.25.2023 0:00:00
Not Started	2	5.27.2023 0:00:00
Not Started	4	5.31.2023 0:00:00
Not Started	4	6.4.2023 0:00:00
Not Started	7	6.11.2023 0:00:00
Not Started	15	6.26.2023 0:00:00
Not Started		
	6	
Not Started	3	7.5.2023 0:00:00
Not Started	3	7.8.2023 0:00:00
Not Started	4	7.12.2023 0:00:00
Not Started	4	7.16.2023 0:00:00
Not Started	4	7.20.2023 0:00:00
Not Started	8	7.28.2023 0:00:00
Not Started	7	8.4.2023 0:00:00
Not Started	20	8.24.2023 0:00:00

Not Started	
	10
FALSCH	
Not Started	3
Not Started	3
Not Started	3
Not Started	3
Not Started	2
Not Started	



Topic	Problem Name With Link	Done	Mark For Revision
	Arrays		
	Second Largest Element	FALSCH	FALSCH
	Rotate An Array By K	FALSCH	FALSCH
	Non Decreasing Array	FALSCH	FALSCH
	Equilibrium Index	FALSCH	FALSCH
	First Missing Positive	FALSCH	FALSCH
	String		
	Reverse String Word Wise	FALSCH	FALSCH
	String encoding	FALSCH	FALSCH
	Minimum Paranthesis	FALSCH	FALSCH
	Beautiful Strings	FALSCH	FALSCH
	Next smallest palindrome	FALSCH	FALSCH
	Multi-Dimensional arrays		
	Sum of zeroes	FALSCH	FALSCH
	Matrix Symmetric	FALSCH	FALSCH
	Inplace rotate matrix 90 degree	FALSCH	FALSCH
	Set Matrix Zeroes	FALSCH	FALSCH
	Spiral Order	FALSCH	FALSCH
	Maps/Sets		
	Make Unique Array	FALSCH	FALSCH
	First Non Repeating Character in String	FALSCH	FALSCH
	Longest Subarray Zero Sum	FALSCH	FALSCH
	Count all sub-arrays having sum divisible by k	FALSCH	FALSCH
	Group Anagrams	FALSCH	FALSCH

Two Pointers		
Pair Sum	FALSCH	FALSCH
Move Negative Number To Start	FALSCH	FALSCH
Container With Most Water	FALSCH	FALSCH
Check subsequence	FALSCH	FALSCH
Basic Algorithms		
Insertion Sort	FALSCH	FALSCH
Selection Sort	FALSCH	FALSCH
Bubble Sort	FALSCH	FALSCH
Kadane's Algoritm	FALSCH	FALSCH
Dutch National Flag Algorithm	FALSCH	FALSCH
Moore's Voting Algorithm	FALSCH	FALSCH
Mixed Questions-1 (Concepts learned in topics above will be used in below questions. This is critical to become great in DSA.)		
Check permutation	FALSCH	FALSCH
Intersection Of Two Arrays	FALSCH	FALSCH
N/3 repeated number in array	FALSCH	FALSCH
Counting Sort	FALSCH	FALSCH
Rotate Matrix To Right	FALSCH	FALSCH
FInd Kth Character of Decrypted String	FALSCH	FALSCH
Move Zeroes To End	FALSCH	FALSCH
Sum of Two Elements Equals Third	FALSCH	FALSCH
Minimum Operations to Make String Equal	FALSCH	FALSCH

Maximum Sum Circular Array	FALSCH	FALSCH
Longest Consecutive Sequence	FALSCH	FALSCH
Maximum Subarray Sum After K Concat	FALSCH	FALSCH
Maximum Product Count	FALSCH	FALSCH
Multiply Strings	FALSCH	FALSCH
Find All Subsquares of size K	FALSCH	FALSCH
Repeat And Missing Number Array	FALSCH	FALSCH
4 Sum Problem	FALSCH	FALSCH
Count All Subarrays With Given Sum	FALSCH	FALSCH
Maximum Sum Rectangle	FALSCH	FALSCH
Nth element of spiral matrix	FALSCH	FALSCH

Notes	Codes

Topic	Problem Name With Link	Done	Mark For Revision
	Binary Search		
	Square Root	FALSCH	FALSCH
	Search in Rotated Sorted Array	FALSCH	FALSCH
	FInd element that appears twice	FALSCH	FALSCH
	Matrix Median	FALSCH	FALSCH
	Aggressive Cows	FALSCH	FALSCH
	Recursion Basics		
	Merge Sort	FALSCH	FALSCH
	Quick Sort	FALSCH	FALSCH
	Find Kth Element	FALSCH	FALSCH
	Family Structure	FALSCH	FALSCH
	Binary String With no consecutive 1s	FALSCH	FALSCH
	Linked List		
	Reverse A Linked List	FALSCH	FALSCH
	Mid Point In Linked List	FALSCH	FALSCH
	Merge Sort	FALSCH	FALSCH
	Add Two Linked Lists	FALSCH	FALSCH
	Insertion Sort on Linked List	FALSCH	FALSCH
	Delete Kth node from End	FALSCH	FALSCH
	Detect And Remove Cycle	FALSCH	FALSCH
	Swap Nodes In Pairs	FALSCH	FALSCH
	Append Nodes	FALSCH	FALSCH
	Segregate Odd even	FALSCH	FALSCH
	Stacks & Queues		
	Implement Stack Using Array	FALSCH	FALSCH
	Implement Stack Using Linked List	FALSCH	FALSCH
	Implement Queue Using Array/LinkedList	FALSCH	FALSCH
	Implement Queue Using 2 Stacks	FALSCH	FALSCH
	Implement Stack Using 2 Queues	FALSCH	FALSCH
	Min Stack	FALSCH	FALSCH
	Next Greater Element	FALSCH	FALSCH
	Stock Span Problem	FALSCH	FALSCH
	Reverse Queue	FALSCH	FALSCH
	Valid Parantheses	FALSCH	FALSCH
	Binary Trees & BST		
	Diameter Of Binary Tree	FALSCH	FALSCH
	LCA Of Binary Tree	FALSCH	FALSCH
	Level Order Traversal Binary Tree	FALSCH	FALSCH
	ZigZar Order Traversal Binary Tree	FALSCH	FALSCH
	Left View Of Binary Tree	FALSCH	FALSCH
	Top View Of Binary Tree	FALSCH	FALSCH
	Construct Binary Tree From Inorder And Preorder	FALSCH	FALSCH
	Vertical Order Traversal Of Binary Tree	FALSCH	FALSCH
	Inorder Traversal Binary Tree Using Stacks	FALSCH	FALSCH

LCA of two nodes in BST	FALSCH	FALSCH
BST Delete	FALSCH	FALSCH
Check if binary tree is BST?	FALSCH	FALSCH
Kth smallest element in BST	FALSCH	FALSCH
Predecessor And Successor In BST	FALSCH	FALSCH
Pair sum in BST	FALSCH	FALSCH

Mixed Questions - 2
(Concept learned in BASIC DSA and topics above will be used here. This is critical to become great in DSA.)

Find whether array is subset of another array	FALSCH	FALSCH
Median of 2 Sorted Arrays	FALSCH	FALSCH
LCA of 3 nodes	FALSCH	FALSCH
Remove Keys Outside Given Range	FALSCH	FALSCH
Seach in a row wise and column wise sorted matrix	FALSCH	FALSCH
Check Linked List is Palindrome?	FALSCH	FALSCH
K Reverse Linked List	FALSCH	FALSCH
Tower Of Hanoi	FALSCH	FALSCH
BST Iterator	FALSCH	FALSCH
Flatten Binary Tree To Linked List	FALSCH	FALSCH
Rearrange Linked List	FALSCH	FALSCH
Largest Rectangle In Histogram	FALSCH	FALSCH
Quick Sort On Linked List	FALSCH	FALSCH
Sorted Linked List To Balanced BSTs	FALSCH	FALSCH
Binary Tree to Doubly Linked List	FALSCH	FALSCH
Bottom Right View Of Binary Tree	FALSCH	FALSCH
Merge Two BSTS	FALSCH	FALSCH
Merge Two Binary Trees	FALSCH	FALSCH
Sort A Stack	FALSCH	FALSCH
Boundary Traversal of Binary Tree	FALSCH	FALSCH
Longest Substring with K Distinct Characters	FALSCH	FALSCH
HashMap Implementation	FALSCH	FALSCH
Closest Distance Pair	FALSCH	FALSCH
Time to burn tree	FALSCH	FALSCH
Allocate Books	FALSCH	FALSCH
Clone A LinkedList With Random And next Pointer	FALSCH	FALSCH
Fix BST	FALSCH	FALSCH

Nth root of Integer	FALSCH	FALSCH
Size of the largest BST	FALSCH	FALSCH
LRU Cache	FALSCH	FALSCH

Notes	Codes

Topic	Problem Name With Link	Done	Mark For Revision
Greedy Techniques			
	Fractional Knapsack	FALSCH	FALSCH
	Gas Tank	FALSCH	FALSCH
	Job Sequencing	FALSCH	FALSCH
	Next Greater Number	FALSCH	FALSCH
	Minimum Cash Flow	FALSCH	FALSCH
Tries			
	Implement A Trie(Insert,Search)	FALSCH	FALSCH
	Trie (Delete)	FALSCH	FALSCH
	Count distinct substrings	FALSCH	FALSCH
	Spell Checker	FALSCH	FALSCH
	Maximum XOR	FALSCH	FALSCH
Sliding Window & Deque			
	Smallest Subarray With K Distinct Elements	FALSCH	FALSCH
	Count Distinct Element in Every K Size Window	FALSCH	FALSCH
	Longest Substring Without Repeating Characters	FALSCH	FALSCH
	Anagram Substring Search	FALSCH	FALSCH
	Implement Dequeue	FALSCH	FALSCH
	Sliding Maximum	FALSCH	FALSCH
	Maximum in Subarrays of length K	FALSCH	FALSCH
Priority Queues & Heaps			
	Implement Priority Queue	FALSCH	FALSCH
	Convert Min Heap To Max heap	FALSCH	FALSCH
	Kth Smalles & Largest Element	FALSCH	FALSCH
	Kth Largest Sum Subarray	FALSCH	FALSCH
	Merge K Sorted Arrays	FALSCH	FALSCH
	Running Median	FALSCH	FALSCH
	Connect n ropes with minimum cost	FALSCH	FALSCH
Advanced Recursion & Backtracking			
	N Queen Problem	FALSCH	FALSCH
	Sudoku Solver	FALSCH	FALSCH
	Rat in a Maze	FALSCH	FALSCH
	Letter Combinations Of Phone Number	FALSCH	FALSCH
	Subsequences of String	FALSCH	FALSCH
	Combination Sum	FALSCH	FALSCH

Print Permutations	FALSCH	FALSCH
Restore IP Addresses		
Dynamic Programming		
Count way to reach nth stair	FALSCH	FALSCH
House Robber	FALSCH	FALSCH
Ways to make coin change	FALSCH	FALSCH
Rod Cutting Problem	FALSCH	FALSCH
Minimum Jumps To Reach End	FALSCH	FALSCH
Minimum steps to reach target by Knight	FALSCH	FALSCH
Longest Increasing Subsequence	FALSCH	FALSCH
Longest Common Subsequence	FALSCH	FALSCH
Edit Distance	FALSCH	FALSCH
Interleaving 2 strings	FALSCH	FALSCH
Minimum Deletions	FALSCH	FALSCH
0-1 Knapsack	FALSCH	FALSCH
Best Time to buy and sell stock	FALSCH	FALSCH
Matrix Chain Multiplication	FALSCH	FALSCH
Partition Equal Subset Sum	FALSCH	FALSCH
Graphs		
Largest Island	FALSCH	FALSCH
Is Graph A Tree?	FALSCH	FALSCH
Snake & Ladder Problem	FALSCH	FALSCH
Shortest path in Binary Matrix	FALSCH	FALSCH
Djikstra's Algorithm	FALSCH	FALSCH
MST Using Prim's Algorithm (With Priority Queue)	FALSCH	FALSCH
MST Using Kruskal's Algorithm (With Disjoint Set Union)	FALSCH	FALSCH
Topological Sort	FALSCH	FALSCH
M Coloring Problem	FALSCH	FALSCH
Detect Cycle In Directed Graph	FALSCH	FALSCH
Bipartite Check	FALSCH	FALSCH
Bellman Ford Algorithm	FALSCH	FALSCH
Floyd Warshall Algorithm	FALSCH	FALSCH
Mixed Questions - 3 (Concept learned in Basic DSA , Intermediate DSA and topics above will be used here. This is critical to become great in DSA.)		
Minimum Fountains	FALSCH	FALSCH
Minimum Coins	FALSCH	FALSCH
Implement Atoi Function	FALSCH	FALSCH
Generate Paranthesis	FALSCH	FALSCH
Minimum insertions to make string palindrome	FALSCH	FALSCH
Convert BST to Min Heap	FALSCH	FALSCH

Fruit And Baskets	FALSCH	FALSCH
Subset Sum	FALSCH	FALSCH
Path With Good Nodes	FALSCH	FALSCH
Longest Path In Directed Graph	FALSCH	FALSCH
Minimum Window Subsequence	FALSCH	FALSCH
Longest Bitonic Subsequence	FALSCH	FALSCH
Longest Palindromic Substring	FALSCH	FALSCH
Number of balanced binary trees	FALSCH	FALSCH
Merge intervals	FALSCH	FALSCH
Merge K Sorted Linked List	FALSCH	FALSCH
LCS of 3 strings	FALSCH	FALSCH
Clone Graph	FALSCH	FALSCH
Minimum K product	FALSCH	FALSCH
Longest Increasing Path in 2d matrix	FALSCH	FALSCH
City With Smallest Number of Neighbours	FALSCH	FALSCH
Non Overlapping Intervals	FALSCH	FALSCH
K most frequent elements	FALSCH	FALSCH
Maximum Equal Stack Sum	FALSCH	FALSCH
Minimum subset sum difference	FALSCH	FALSCH
Word Break Problem	FALSCH	FALSCH
Find all occurrences of multiple patterns	FALSCH	FALSCH
Unbounded Knapsack	FALSCH	FALSCH
Fact Digit Sum	FALSCH	FALSCH
Palindrome Partitioning	FALSCH	FALSCH
Sorted Matrix	FALSCH	FALSCH
Alien Dictionary	FALSCH	FALSCH
Word Ladder	FALSCH	FALSCH
Scramble String	FALSCH	FALSCH
Painter's Partition	FALSCH	FALSCH

Longest Chunked Palindrome Decomposition	FALSCH	FALSCH
Most Stones Removed	FALSCH	FALSCH
Buy And Sell Stock Advanced	FALSCH	FALSCH
Maximum Size Rectangle Sub-matrix With All 1's	FALSCH	FALSCH
Path With Minimum Effort	FALSCH	FALSCH

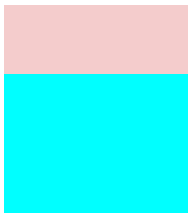
Notes	Codes

Topic	Problem Name With Link	Done	Mark For Revision
Bit Manipulation			
	Find a value whose XOR with a given value is maximum.	FALSCH	FALSCH
	Set K Bits	FALSCH	FALSCH
	X or Y	FALSCH	FALSCH
	Count Bitwise OR of all subarrays	FALSCH	FALSCH
	Power of 2	FALSCH	FALSCH
	Flip Given Bits	FALSCH	FALSCH
	Braille's Dilemma	FALSCH	FALSCH
String Algorithms			
	Boyer Moore Algorithm	FALSCH	FALSCH
	Z Algorithm	FALSCH	FALSCH
	KMP Algorithm	FALSCH	FALSCH
	Rabin Karp Algorithm	FALSCH	FALSCH
	Manacher's Algorithm	FALSCH	FALSCH
Segment Tree			
	Range Minimum Query	FALSCH	FALSCH
	Fastest Horse	FALSCH	FALSCH
	Maximum Subarray Sum Queries	FALSCH	FALSCH
	Ninja and Meteorites	FALSCH	FALSCH
	Squares Sum	FALSCH	FALSCH
	AP Queries	FALSCH	FALSCH
Number Theory			
	Sieve of Eratosthenes	FALSCH	FALSCH
	Sum Of Factors	FALSCH	FALSCH
	Extended Euclid Algorithm	FALSCH	FALSCH
	Modulo Calculation	FALSCH	FALSCH
	Modular Exponentiation	FALSCH	FALSCH
DP with Trees			
	Maximum Height Tree	FALSCH	FALSCH
	Ninja and Numbers	FALSCH	FALSCH

Notes	Codes

Revision Problems	
Problem Name	**Problem Link**

Status (Not Done Yet, Need To Revise Again, Done And Dusted)



Most Important Things While Following This Ro

Don't Miss this video :It's a one time effort, but that will give you lot of clarity behind this roadmap. That will really motivate you to follow this roadmap and make you best in DSA.

Important :
If you have not created a copy, you will not be able to make changes in the sheet.
Make your own copy by choosing 'Make Copy' option from 'File' Menu.

Deadlines are set according to the start date from the top. If you are starting today, you can change the start date and deadlines will be set accordingly.

Also, for each topic deadline is assigned according to the number of days. I have set according to my own experience. But you can increase or decrease it, and deadlines will be changed accordingly.

Whichever problem, you will mark for revision, will start getting updated in the revision problem section, which you can navigate from the bottom.

You can sync your calendar with the topic deadlines by changing your email id and clicking sync google calendar from top.
Sometimes we need to do sync multiple times. So if in first time it will not show. Try second time again.
If you still face issue, please create a new copy from original link : https://parikh.club/dsa-251-yt and try again. It should work.
Last Request, this has been made with a lot of efforts and experience of learning and teaching DSA. But there can be lot of suggestions/feedback from your side which you want to improve.

Also, it would be a great motivation for me if you will share it on social media platforms like LinkedIn, Instagram etc. that you have started following this DSA-251 Roadmap.
It will be great to know that people are actually doing it.

Other Important Videos Helpful For You

How to Make Notes in DSA?
How How Not To Learn DSA? Most Common Mistakes.
How To Learn To Code in 2023 From Scratch?
How To Manage DSA, Development, College or Office Together?

oadmap :

Video link : https://youtu.be/qqvYFlBJMSw

Make your own copy by choosing 'Make Copy' option from 'File' Menu.

Change Start Date From Here

Change Deadlines According To Days Here

Check Revision Problems Here

Change Email Id To Sync With Google Calendar

Suggestion Form Link :
https://forms.gle/Qb3QpZac6Xh7FVEo8

ı

https://youtu.be/Ip0LcF5a1xQ
https://youtu.be/RRjekv8D-O8
https://youtu.be/cTwALtdYmCo
https://youtu.be/TLAARB9v9IE