	ap On Laptop For Much Bette ble to see actual problems in I		rience	If you have not created changes in the sheet 'Make Cop	Important : d a copy, you will no . Make your own c y' option from 'File'	ot be able to make opy by choosing Menu.
Don't Miss This Video. One Time EffortTo Use This. Roadmap Really Well : https://youtu. be/ggvYFIBJMSw	StartDate (Change whenever you start this roadmap)	4/29/2023		Email Id		w@gmail.com
Must Read This Before Following	Topic	Total	Questions	Status	Number of days	Deadline (Set According To
This Roadmap!		Questions	Done			Start Date)
Basic D	<u>DSA</u>					
	Arrays	5	0/5	Not Started	2	5/1/2023 0:00:00
	String	5	0/5	Not Started	2	5/3/2023 0:00:00
	2d Arrays	5	0/5	Not Started	2	5/5/2023 0:00:00
Most common questions asked by every company (product based or	Maps/Sets	5	0/5	Not Started	2	5/7/2023 0:00:00
service based) or any startup. These	Two Pointers	4	0./4	Not Started	2	5/9/2023 0:00:00
are the basic things which every programmer should know. For every	Basic Algorithms	6	0/6	Not Started	3	5/12/2023 0:00:00
role in tech including software development, backend development.	Mixed Questions - 1	20	0/20	Not Started	8	5/20/2023 0:00:00
ront-end development, full stack web	mixed Questions - 1	20	0/20	Not Statted		5/20/2023 0.00.00
development, data scientists etc., these questions can be asked.			0/50			
	Overall Basic DSA Progress	50	U/SU	Not Started		
		Revision/Brea	sk Days		3	
lataras dia	-t- DCA					
Intermedia						
	Binary Search Recursion Basics	5	0/5	Not Started Not Started	2	5/25/2023 0:00:00
Asked by most of the product based	Linked List	10	0/10	Not Started	4	5/31/2023 0:00:00
companies or even small/big product ased startups. Roles include software	Stacks & Queues	10	0/10	Not Started	4	6/4/2023 0:00:00
development, backend development,	Binary Trees & BST	15	0/15	Not Started	7	6/11/2023 0:00:00
full stack web development, data scientists. Some big product	Mixed Questions - 2	30	0/30	Not Started	15	6/26/2023 0:00:00
companies like Amazon, Google, Microsoft can ask these for front-end	mixed Questions - 2	30	UISU	Not Statted	10	0/20/2023 0:00:00
development role as well.	Overall Intermediate DSA	75	0/75	Not Started		
		Revision/Brea	sk Days		6	
	1001					
Advanced	 '					
	Greedy Techniques	5	0/5	Not Started	3	7/5/2023 0:00:00
	Tries Silding Window & Dequeue	5 7	0/5	Not Started Not Started	3 4	7/8/2023 0:00:00 7/12/2023 0:00:00
	Priority Queues & Heaps	7	0/7	Not Started	4	7/16/2023 0:00:00
Mostly asked by Amazon, Microsoft, Google, Uber or other big product	Advanced Recursion & Backtracking	8	0/8	Not Started	4	7/20/2023 0:00:00
based companies. Some big startups like Zomato. Ola can also ask these	Dynamic Programming	15	0/15	Not Started	8	7/28/2023 0:00:00
questions. Roles include backend	Graphs	13	0/13	Not Started	7	8/4/2023 0:00:00
development, software development, ull stack web development. Not much						
sked for front-end developer or data scientist roles.	Mixed Questions - 3	40	0/40	Not Started	20	8/24/2023 0:00:00
	Overall Advanced DSA Progress	100	0/100	Not Started		
		Revision/Brea	sk Days		10	
DSA Pro This is a great DSA project as it toludes solving the problem with the use of various data structures like see, heaps, array etc. Also concepts of bits are used. This really gives us great feeling of applying data	OJECT Huffman Coding	1	0/1	FALSE		
structures and algorithms. Miscelleano		7	07	Not Clarted		
	Bit Manipulation String Algorithms	7 5	0/7	Not Started Not Started	3	
Asked by companies like Codenation, Directl, and sometimes Google which	String Algorithms Segment Tree	6	0/6	Not Started Not Started	3	
o very hard interviews related to DSA. Not asked in interviews of majorly	Number Theory	5	0/5	Not Started	3	
other companies.	DP With Trees	2	0/2	Not Started	2	
		25	0/25	Not Started		
			0/251			
	OVERALL PROGRESS	251				

Topic	Problem Name With Link	Done	Mark For Revision	Notes	Codes					
	Arrays									
	Second Largest Element	FALSE	FALSE							
	Rotate An Array By K	FALSE	FALSE							
	Non Decreasing Array	FALSE	FALSE							
	Equilibrium Index	FALSE	FALSE							
	First Missing Positive	FALSE	FALSE							
	I I St. Missing County	TALOL	TACOL							
	String									
	Reverse String Word Wise	FALSE	FALSE							
	String encoding	FALSE	FALSE							
	Minimum Paranthesis	FALSE	FALSE							
	Beautiful Strings	FALSE	FALSE							
	Next smallest palindrome	FALSE	FALSE							
	Multi-Dimensional arrays									
	Sum of zeroes	FALSE	FALSE							
	Matrix Symmetric	FALSE	FALSE							
	Inplace rotate matrix 90 degree	FALSE	FALSE							
	Set Matrix Zeroes	FALSE	FALSE							
	Spiral Order	FALSE	FALSE							
	Maps/Sets									
	Make Unique Array	FALSE	FALSE							
	First Non Repeating Character in String	FALSE	FALSE							
	Longest Subarray Zero Sum	FALSE	FALSE							
	Count all sub-arrays having sum divisible by k	FALSE	FALSE							
	Group Anagrams	FALSE	FALSE							
	Two Pointers									
	Pair Sum	FALSE	FALSE							
	Move Negative Number To Start	FALSE	FALSE							
	Container With Most Water	FALSE	FALSE							
	Check subsequence	FALSE	FALSE							
	Basic Algorithms									
	Insertion Sort	FALSE	FALSE							
	Selection Sort	FALSE FALSE	FALSE							
	Bubble Sort		FALSE							
	Kadane's Algoritm	FALSE	FALSE							
	Dutch National Flag Algorithm Moore's Voting Algorithm	FALSE	FALSE							
	Moore's Voting Algorithm	FALSE	FALSE							
Concepts	Mixed Questions-1 s learned in topics above will be used i critical to become great in I	DSA.)								
	Check permutation	FALSE	FALSE							
	Intersection Of Two Arrays	FALSE	FALSE							
	N/3 repeated number in array	FALSE	FALSE							
	Counting Sort	FALSE	FALSE							
	Rotate Matrix To Right	FALSE	FALSE							
	Find Kth Character of Decrypted String	FALSE	FALSE							
	Move Zeroes To End	FALSE	FALSE							
	Sum of Two Elements Equals Third	FALSE	FALSE							
	Minimum Operations to Make String Equal	FALSE	FALSE							
	Maximum Sum Circular Array	FALSE	FALSE							
	Longest Consecutive Sequence	FALSE	FALSE							
	Maximum Subarray Sum After K Concat	FALSE	FALSE							
	Maximum Product Count	FALSE	FALSE							
	Multiply Strings	FALSE	FALSE							
	Find All Subsquares of size K	FALSE	FALSE							
	Repeat And Missing Number Array	FALSE	FALSE							
	4 Sum Problem	FALSE	FALSE							
	Count All Subarrays With Given Sum	FALSE	FALSE							
	Maximum Sum Rectangle	FALSE	FALSE							
	Nth element of spiral matrix	FALSE	FALSE							

Topic	Problem Name With Link	Done	Mark For Revision	Notes	Codes								
	Binary Search												
	Square Root	FALSE	FALSE										
	Search in Rotated Sorted Array	FALSE	FALSE										
	Find element that appears twice	FALSE	FALSE										
	Matrix Median Aggressive Cows	FALSE FALSE	FALSE										
	Aggressive Cows	FALSE	FALSE										
	Recursion Basics												
	Merge Sort Quick Sort	FALSE FALSE	FALSE FALSE										
	Find Kth Element	FALSE	FALSE										
	Family Structure	FALSE	FALSE										
	Binary String With no consecutive 1s	FALSE	FALSE										
	Linked List												
	Reverse A Linked List	FALSE	FALSE										
	Mid Point In Linked List	FALSE	FALSE FALSE										
	Merge Sort Add Two Linked Lists	FALSE FALSE	FALSE										
	Insertion Sort on Linked List	FALSE	FALSE										
	Delete Kth node from End	FALSE	FALSE										
	Detect And Remove Cycle	FALSE	FALSE										
	Swap Nodes In Pairs Append Nodes	FALSE FALSE	FALSE FALSE										
	Segregate Odd even	FALSE	FALSE										
	Stacks & Queues												
	Implement Stack Using Array	FALSE	FALSE										
	Implement Stack Using Linked List	FALSE	FALSE										
	Implement Queue Using Array/LinkedList	FALSE	FALSE										
	Implement Queue Using 2 Stacks Implement Stack Using 2 Queues	FALSE FALSE	FALSE FALSE										
	Min Stack	FALSE	FALSE										
	Next Greater Element	FALSE	FALSE										
	Stock Span Problem	FALSE	FALSE										
	Reverse Queue Valid Parantheses	FALSE	FALSE FALSE										
	Vaid Parantieses	FALSE	FALSE										
	Binary Trees & BST												
	Diameter Of Binary Tree LCA Of Binary Tree	FALSE FALSE	FALSE FALSE										
	Level Order Traversal Binary Tree	FALSE	FALSE										
	ZigZar Order Traversal Binary Tree	FALSE	FALSE										
	Left View Of Binary Tree	FALSE	FALSE										
	Top View Of Binary Tree restruct Binary Tree From Inorder And Preorder	FALSE FALSE	FALSE FALSE										
	Vertical Order Traversal Of Binary Tree	FALSE	FALSE										
	Inorder Traversal Binary Tree Using Stacks	FALSE	FALSE										
	LCA of two nodes in BST	FALSE	FALSE										
	BST Delete Check if binary tree is BST?	FALSE	FALSE FALSE										
	Kth smallest element in BST	FALSE	FALSE										
	Predecessor And Successor In BST	FALSE	FALSE										
	Pair sum in BST	FALSE	FALSE										
(Concept le	Mixed Questions - 2 arned in BASIC DSA and topics above critical to become great in	ve will be used DSA.)	d here. This is										
F	and whether array is subset of another array	FALSE	FALSE										
	Median of 2 Sorted Arrays	FALSE	FALSE										
	LCA of 3 nodes	FALSE	FALSE										
	Remove Keys Outside Given Range leach in a row wise and column wise sorted	FALSE FALSE	FALSE FALSE										
	Check Linked List is Palindrome?	FALSE	FALSE										
	K Reverse Linked List	FALSE	FALSE										
	Tower Of Hanoi	FALSE	FALSE										
	BST Iterator Flatten Binary Tree To Linked List	FALSE FALSE	FALSE FALSE										
	Rearrance Linked List	FALSE	FALSE FALSE										
	Rearrange Linked List Largest Rectangle In Histogram	FALSE	FALSE										
	Quick Sort On Linked List	FALSE	FALSE										
	Sorted Linked List To Balanced BSTs Binary Tree to Doubly Linked List	FALSE	FALSE										
	Binary Tree to Doubly Linked List Bottom Right View Of Binary Tree	FALSE FALSE	FALSE FALSE										
	Merge Two BSTS	FALSE	FALSE										
	Merce Two Binary Trees	FALSE	FALSE										
	Sort A Stack	FALSE	FALSE										
H .	Boundary Traversal of Binary Tree oncest Substring with K Distinct Characters	FALSE FALSE	FALSE FALSE										
	HashMap Implementation	FALSE	FALSE										
	Closest Distance Pair	FALSE	FALSE										
	Time to burn tree	FALSE	FALSE										
	Allocate Books ne A LinkedList With Random And next Pointer	FALSE FALSE	FALSE FALSE										
Cas	ne A LinkedList With Handom And next Pointer Fix BST	FALSE	FALSE										
	Nth root of Integer	FALSE	FALSE										
	Size of the largest BST	FALSE	FALSE										
	LRU Cache	FALSE	FALSE										

Topic Problem Name With Link	Done	Mark For Revision	Notes	Codes						
Greedy Techniques										
Fractional Knapsack	FALSE	FALSE								
Eractional Knapsack Glas Tank Job Sequencing Next Greater Number Mnimum Cash Flour	FALSE FALSE	FALSE FALSE								
Job Sequencing Next Greater Number	FALSE	FALSE								
Mnimum Cash Flow	FALSE FALSE	FALSE								
Tries										
Tries	FALSE	FALSE								
Implement A Trie(Insert, Search) Trie (Delete)	FALSE	FALSE								
Trie (Delete) Count distinct substrings Spell Checker Maximum XOR	FALSE	FALSE								
Spell Checker	FALSE FALSE	FALSE FALSE								
Sliding Window & Deque										
Smallest Subarray With K Distinct Elements	FALSE	FALSE								
Count Distinct Element in Every K Size Window Longest Substring Without Reneating Characters	FALSE FALSE	FALSE FALSE								
Anagram Substring Search	FALSE FALSE FALSE	FALSE FALSE FALSE								
Implement Dequeue	FALSE	FALSE								
Smales dunaray With Kistoric Riements Court Distinct Rement in Frank Size Mindow Longest Bushring Without Research Characters Amaginan Substring Search Institute Thousase Sidning Markman Macrimum in Subarrays of length K	FALSE	FALSE								
Priority Queues & Heaps										
Implement Priority Queue Convert Min Heap To Max heap	FALSE FALSE	FALSE FALSE								
	FALSE	FALSE								
Kih Largest Sum Subarray Merge K Sorted Arrays	FALSE FALSE	FALSE FALSE								
Running Median	FALSE	FALSE								
Connect n ropes with minimum cost	FALSE	FALSE								
Advanced Recursion & Backtracking										
N.Queen Problem	FALSE	FALSE								
Sudoku Solver	FALSE FALSE	FALSE FALSE								
Rat in a Maze	FALSE FALSE	FALSE FALSE								
Subsequences of String	FALSE FALSE	FALSE FALSE								
Combination Sum	FALSE FALSE	FALSE FALSE								
N. Cuesa Problem Badels Solvet Bar in a Mana Letter Continuation of Phone humber Subsequences of Strong Combination Sum Pair Perint Permittation Baster I P. Advasses	1 PLOE	· PLOE								
Dynamic Programming										
Count way to reach nth stair	FALSE FALSE	FALSE FALSE								
Ways to make coin change	FALSE	FALSE								
Rod Cutting Problem	FALSE	FALSE								
Minimum Jumps To Reach End Minimum steps to reach target by Knight	FALSE FALSE	FALSE FALSE FALSE								
Longest Increasing Subsequence		FALSE								
Longest Common Subsequence Edit Distance	FALSE FALSE	FALSE FALSE								
Interleaving 2 strings		FALSE								
Minimum Deletions 0-1 Knapsack	FALSE FALSE	FALSE FALSE								
Best Time to buy and sell stock	FALSE	FALSE								
Operander Programming Control and American Control and	FALSE FALSE	FALSE FALSE								
Graphs										
Lampert Mained School Time 2 School And Time 2 School And Time 2 Senders can be Timed Mained Senders can be Timed Mained MAT Lamp Senders Apportion With Engine Columns MAT Lamp Senders Apportion With Engine Columns MAT Lamp Senders Apportion With Engine Send Mat Colonian Lambdam Deposite Colonian Deposi	FALSE FALSE	FALSE FALSE								
Snake & Ladder Problem	FALSE	FALSE								
Shortest path in Binary Matrix	FALSE FALSE	FALSE								
MST Using Prim's Algorithm (With Priority Queue)	FALSE	FALSE								
MST Using Kruskal's Algorithm (With Disjoint Set.	FALSE FALSE	FALSE FALSE								
M Coloring Problem	FALSE	FALSE								
Detect Cycle In Directed Graph	FALSE FALSE FALSE	FALSE								
Binaritie Check Beliman Ford Algorithm Floyd Warshall Algorithm	FALSE	FALSE FALSE								
Floyd Warshall Algorithm	FALSE	FALSE								
Mixed Questions - 3										
(Concept learned in Basic DSA, Intermediate DSA used here. This is critical to become great in DSA	and topics	above will be								
Moreon Francisco Decome great in DSA										
Minimum Fountains Minimum Coins Implement About Function Generate Parenthesis Minimum insertions in mainst string patientome Convert BST to Min Heads Foundation	FALSE FALSE	FALSE FALSE								
Implement Atol Function	FALSE FALSE	FALSE FALSE								
Generate Paranthesis Minimum insertions to make string palindrome	FALSE FALSE FALSE	FALSE								
Convert BST to Min Heap	FALSE FALSE	FALSE FALSE								
Subset Sum	FALSE FALSE	FALSE								
Path With Good Nodes	FALSE FALSE	FALSE FALSE								
Minimum Window Subsequence	FALSE	EAL GE								
Longest Bitonic Subsequence	FALSE FALSE FALSE	FALSE FALSE								
Number of balanced binary trees	FALSE	FALSE								
Montant Insortion to Inside a ship agel of the Insortion Committee of the Inside Committee of Inside Commi	FALSE FALSE FALSE	FALSE FALSE								
LCS of 3 strings	FALSE	FALSE								
Cione Graph	FALSE FALSE	FALSE FALSE								
Longest Increasing Path in 2d matrix	ENI GE	EAL GE								
City With Smallest Number of Neighbours	FALSE FALSE	FALSE FALSE								
K most frequent elements										
Maximum Equal Stack Sum	FALSE FALSE	FALSE FALSE								
Minimum subset sum difference Word Break Problem										
Word Break Problem Find all occurrences of multiple patterns Unbounded Knapsack	FALSE FALSE	FALSE FALSE								
Palindrome Partitioning Sorted Matrix	FALSE FALSE	FALSE FALSE								
Sorted Matrix Alien Dictionary										
Alen Dictionary Wood Ladder Scramble String Painter's Partition	FALSE FALSE	FALSE FALSE								
Scramble String										
Longest Churked Palindrome Decomposition	FALSE FALSE	FALSE FALSE								
Longest Churked Palindrome Decomposition Most Stones Removed Buy And Sell Stock Advanced	FALSE FALSE	FALSE								
Maximum Size Rectangle Sub-matrix With All 1's Path With Minimum Effort	FALSE	FALSE								
Path With Minimum Effort	FALSE	FALSE								

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

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

Most Important Things While Following This Road	dmap :	
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.	Video link: https://youtu.be/qqvYFIBJMSw	
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.	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.	Change Start Date From Here	
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.	Change Deadlines According To Days Here	
Whichever problem, you will mark for revision, will start getting updated in the revision problem section, which you can navigate from the bottom.	Check Revision Problems Here	
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.	Change Email Id To Sync With Google Calendar	
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.	Suggestion Form Link: https://forms.gle/Qb3QpZac6Xh7FVEo8	
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?	https://youtu.be/lp0LcF5a1xQ	
How How Not To Learn DSA? Most Common Mistakes.	https://youtu.be/RRjekv8D-08	
How To Learn To Code in 2023 From Scratch?	https://youtu.be/cTwALtdYmCo	
How To Manage DSA, Development, College or Office Together?	https://youtu.be/TLAARB9v9IE	