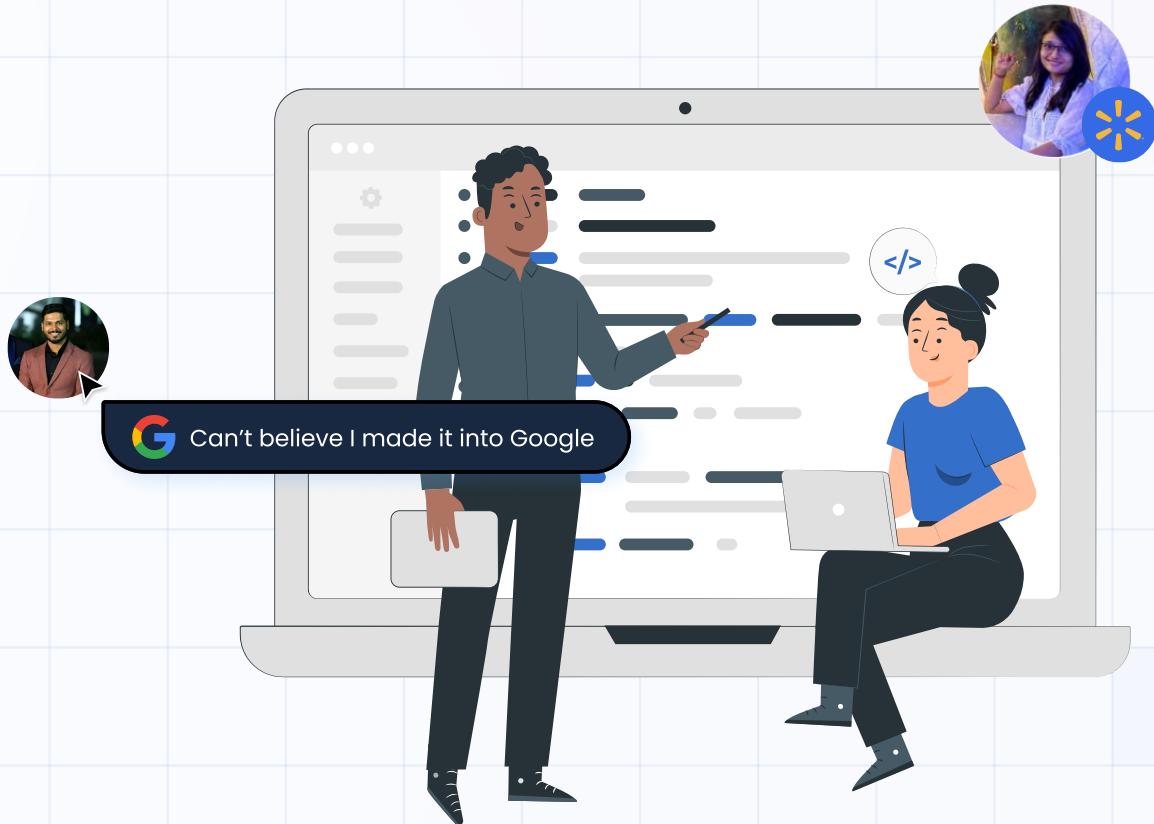


60 DAYS

DSA CHALLENGE

by  tutort academy

A Preparation Guide for MAANG Interviews



Day 1

Two Sum

Easy

Given an array of integers `nums` and an integer `target`, return *indices of the two numbers such that they add up to target*

You may assume that each input would have **exactly one solution**, and you may not use the same element twice.

You can return the answer in any order.

**Practice**

Question asked in:



Valid Parentheses

Easy

Given a string `s` containing just the characters `'('`, `')'`, `'{'`, `'}'`, `'['` & `']'`, determine if the input string is valid.

An input string is valid if:

Open brackets must be closed by the same type of brackets.

Open brackets must be closed in the correct order.

Every close bracket has a corresponding open bracket of the same type.

**Practice**

Question asked in:



Placement Stats

127% Avg Hike

Day 2

Merge Two Sorted Lists

Easy

You are given the heads of two sorted linked lists `list1` and `list2`.

Merge the two lists in a one **sorted** list. The list should be made by splicing together the nodes of the first two lists.

Return *the head of the merged linked list*.

[Practice](#)

Question asked in:



Best Time to Buy and Sell Stock

Easy

You are given an array `prices` where `prices[i]` is the price of a given stock on the `ith` day.

You want to maximize your profit by choosing a **single day** to buy one stock and choosing a **different day in the future** to sell that stock.

Return *the maximum profit you can achieve from this transaction*.

If you cannot achieve any profit, return `0`

[Practice](#)

Question asked in:



Basant Pratap Singh
Software Engineer at Google

From

To

Day 3

Valid Palindrome

Easy

A phrase is a **palindrome** if, after converting all uppercase letters into lowercase letters and removing all non-alphanumeric characters, it reads the same forward and backward. Alphanumeric characters include letters and numbers.

Given a string `s` return `true` if it is a **palindrome**, or `false` otherwise.

 Practice

Question asked in:



Day 4

Invert Binary Tree

Easy

Given the `root` of a binary tree, invert the tree, and return *its root*

 Practice

Question asked in:



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Day 5

Valid Anagram

Easy

Given two strings `s` and `t`, return `true` if `t` is an anagram of `s`, and `false` otherwise.

An **Anagram** is a word or phrase formed by rearranging the letters of a different word or phrase, typically using all the original letters exactly once.

 Practice

Question asked in:



Day 6

Binary Search

Easy

Given an array of integers `nums` which is sorted in ascending order, and an integer `target`, write a function to search `target` in `nums`. If `target` exists, then return its index. Otherwise, return `-1`.

You must write an algorithm with $\Theta(\log n)$ runtime complexity.

 Practice

Question asked in:



Placement Stats

23 Lakh Avg CTC

Day 7

Flood Fill

Easy

An image is represented by an $m \times n$ integer grid `image` where `image[i][j]` represents the pixel value of the image.

You are also given three integers `sr`, `sc` and `color`. You should perform a **flood fill** on the image starting from the pixel `image[sr][sc]`.

Return *the modified image after performing the flood fill*.

 Practice

Question asked in:



Day 8

Lowest Common Ancestor of a Binary Search Tree

Easy

Given a binary search tree (BST), find the lowest common ancestor (LCA) node of two given nodes in the BST.

According to the [definition of LCA on Wikipedia](#): "The lowest common ancestor is defined between two nodes `p` and `q` as the lowest node in `T` that has both `p` and `q` as descendants (where we allow a node to be a descendant of itself)."

 Practice

Question asked in:



Day 9

Balanced Binary Tree

Easy

Given a binary tree, determine if it is height-balanced.

Practice

Question asked in:



Day 10

Linked List Cycle

Easy

Given `head`, the head of a linked list, determine if the linked list has a cycle in it.

There is a cycle in a linked list if there is some node in the list that can be reached again by continuously following the `next` pointer. Internally, `pos` is used to denote the index of the node that tail's `next` pointer is connected to. **Note that `pos` is not passed as a parameter.**

Return `true` if there is a cycle in the linked list. Otherwise, return `false`.

Practice

Question asked in:



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Day 11

First Bad Version

Easy

Suppose you have `n` versions `[1, 2, ..., n]` and you want to find out the first bad one, which causes all the following ones to be bad.

You are given an API `bool isBadVersion(version)` which returns whether `version` is bad. Implement a function to find the first bad version.

 Practice

Question asked in:



Day 12

Ransom Note

Easy

Given two strings `ransomNote` and `magazine`, return `true` if `ransomNote` can be constructed by using the letters from `magazine` and `false` otherwise.

Each letter in `magazine` can only be used once in `ransomNote`

 Practice

Question asked in:



Gerald Amalraj

Fullstack Developer at JPMorgan Chase

From

To



J.P.Morgan

Day 13

Climbing Stairs

Easy

You are climbing a staircase. It takes n steps to reach the top.

Each time you can either climb 1 or 2 steps. In how many distinct ways can you climb to the top?

Practice

Question asked in:



Day 14

Longest Palindrome

Easy

Given a string s which consists of lowercase or uppercase letters, return the length of the longest palindrome that can be built with those letters.

Letters are case sensitive, for example, "Aa" is not considered a palindrome here.

Practice

Question asked in:



Day 15

Add Binary

Easy

Given two binary strings `a` and `b` return *their sum as a binary string.* `s`

 Practice

Question asked in:



Day 16

Diameter of Binary Tree

Easy

Given the `root` of a binary tree, return *the length of the diameter of the tree.*

The diameter of a binary tree is the length of the longest path between any two nodes in a tree. This path may or may not pass through the `root`

 Practice

Question asked in:



Akansha Likhdihari
Software Engineer III at Walmart

From



To



Day 17

Middle of the Linked List

Easy

Given the `head` of a singly linked list, return the middle node of the linked list.

If there are two middle nodes, return **the second middle** node.

[Practice](#)

Question asked in:



Day 18

Maximum Depth of Binary Tree

Easy

Given the `root` of a binary tree, return its maximum depth.

A binary tree's **maximum depth** is the number of nodes along the longest path from the root node down to the farthest leaf node.

[Practice](#)

Question asked in:



Placement Stats

95 Lakh Highest CTC

Day 19

K Closest Points to Origin

Medium

Given an array of `points` , where `points[i] = [xi, yi]` represents a point on the X-Y plane and an integer `k` , return the `k` closest points to the origin `(0, 0)`

You may return the answer in **any order.** ,

Practice

Question asked in:



Day 20

Longest Substring Without Repeating Characters

Medium

Given a string `s` find the length of the longest substring without repeating characters.

Practice

Question asked in:



Day 21

3Sum

Medium

Given an integer array `nums`, return all the triplets

`[nums[i], nums[j], nums[k]]` such that `i != j`, `i != k` and `j != k`,
and `nums[i] + nums[j] + nums[k] == 0`

Notice that the solution set must not contain duplicate triplets.

 Practice

Question asked in:



Day 22

Binary Tree Level Order Traversal

Medium

Given the `root` of a binary tree, return *the level order traversal of its nodes' values*. (i.e., from left to right, level by level).

 Practice

Question asked in:



Anjali Joshi

Data Engineer - L2 at Twilio

From



To



Day 23

Clone Graph

Medium

Given a reference of a node in a connected undirected graph. ,

Return a deep copy (clone) of the graph.

Practice

Question asked in:



Day 24

Evaluate Reverse Polish Notation

Medium

You are given an array of strings tokens that represents an arithmetic expression in a Reverse Polish Notation.

Evaluate the expression. Return an integer that represents the value of the expression.

Practice

Question asked in:



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Day 25

Course Schedule

Medium

There are a total of `numCourses` courses you have to take, labeled from `0` to `numCourses - 1`. You are given an array `prerequisites` where `prerequisites[i] = [ai, bi]` indicates that you must take course `bi` first if you want to take course `ai`.

Return `true` if you can finish all courses. Otherwise, return `false`.

 Practice

Question asked in:



Day 26

Implement Trie (Prefix Tree)

Medium

Implement the Trie class:

- `Trie()` Initializes the trie object.
- `void insert(String word)` Inserts the string `word` into the trie.
- `boolean search(String word)` Returns `true` if the string `word` is in the trie
- `boolean startsWith(String prefix)` Returns `true` if there is a previously inserted string `word` that has the prefix.

 Practice

Question asked in:



Day 27

Coin Change

Medium

You are given an integer array `coins` representing coins of different denominations and an integer `amount` representing a total amount of money.

Return *the fewest number of coins that you need to make up that amount*. If that amount of money cannot be made up by any combination of the coins, return `-1`.

[Practice](#)

Question asked in:



Day 28

Product of Array Except Self

Medium

Given an integer array `nums` return an array `answer` such that `answer[i]` is equal to the product of all the elements of `nums` except `nums[i]`.

You must write an algorithm that runs in $O(n)$ time and without using the division operation.

[Practice](#)

Question asked in:



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Day 29

Min Stack

Medium

Design a stack that supports push, pop, top, and retrieving the minimum element in constant time.

Implement the `MinStack` class:

- `MinStack()` initializes the stack object.
- `void push(int val)` pushes the element `val` onto the stack.
- `void pop()` removes the element on the top of the stack.
- `int top()` gets the top element of the stack.
- `int getMin()` retrieves the minimum element in the stack.

You must implement a solution with $O(1)$ time complexity for each function.:


Practice

Question asked in:



Day 30

Validate Binary Search Tree

Medium

Given the `root` of a binary tree, determine if it is a valid binary search tree (BST).


Practice

Question asked in:



Day 31

Number of Islands

Medium

Given an $m \times n$ 2D binary grid `grid` which represents a map of '1's (land) and '0's (water), return *the number of islands*.

An island is surrounded by water and is formed by connecting adjacent lands horizontally or vertically. You may assume all four edges of the grid are all surrounded by water.

Practice

Question asked in:



Day 32

Rotting Oranges

Medium

You are given an $m \times n$ `grid` where each cell can have one of three values:

- 0 representing an empty cell,
- 1 representing a fresh orange, or
- 2 representing a rotten orange.

Return the minimum number of minutes that must elapse until no cell has a fresh orange. If this is impossible, return -1

Practice

Question asked in:



Day 33

Search in Rotated Sorted Array

Medium

There is an integer array `nums` sorted in ascending order (with distinct values).

Given the array `nums` after the possible rotation and an integer `target` return *the index of `target` if it is in `nums`, or `-1` if it is not in `nums`*

You must write an algorithm with $O(\log n)$ runtime complexity.

[Practice](#)

Question asked in:



Day 34

Combination Sum

Medium

Given an array of distinct integers `candidates` and a target integer `candidates` `target` return *a list of all unique combinations of `candidates` where the chosen numbers sum to `target`* You may return the combinations in **any order**.

[Practice](#)

Question asked in:



Day 35

Permutations

Medium

Given an array `nums` of distinct integers, return all the possible permutations. You can return the answer in **any order**.

[Practice](#)

Question asked in:



Day 36

Merge Intervals

Medium

Given an array of `intervals` where `intervals[i] = [starti, endi]` merge all overlapping intervals, and return an array of the non-overlapping intervals that cover all the intervals in the input.

[Practice](#)

Question asked in:



Subhadip Chowdhury
SWE at Target

From



To



Day 37

Lowest Common Ancestor of a Binary Tree

Medium

Given a binary tree, find the lowest common ancestor (LCA) of two given nodes in the tree.

Practice

Question asked in:



Day 38

Time Based Key-Value Store

Medium

Implement the TimeMap class:

- `TimeMap()` Initializes the trie object.
- `void set(String key, String value, int timestamp)`
- `String get(String key, int timestamp)`

Practice

Question asked in:



Placement Stats

23 Lakh Avg CTC

Day 39

Accounts Merge

Medium

Given a list of `accounts` where each element `accounts[i]` is a list of strings where the first element `accounts[i][0]` is a name, and the rest of the elements are emails representing emails of the account.

After merging the accounts, return the accounts in the following format: the first element of each account is the name, and the rest of the elements are emails **in sorted order**. The accounts themselves can be returned in **any order**.

 Practice

Question asked in:



Day 40

Sort Colors

Medium

Given an array `nums` with `n` objects colored red, white, or blue, sort them in-place so that objects of the same color are adjacent, with the colors in the order red, white, and blue.

You must solve this problem without using the library's sort function.

 Practice

Question asked in:



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Day 41

String to Integer (atoi)

Medium

Implement the `myAtoi(string s)` function, which converts a string string to a 32-bit signed integer (similar to C/C++'s atoi function).

Return the integer as the final result.

[Practice](#)

Question asked in:



Day 42

Spiral Matrix

Medium

Given an `m x n` matrix return all elements of the matrix in spiral order.

[Practice](#)

Question asked in:



Savita Ranganathan
Senior Software Engineer at Freshworks

From



To



Day 43

Subsets

Medium

Given an integer array `nums` of unique elements, return all possible subsets (the power set).

The solution set **must not** contain duplicate subsets. Return the solution in **any order**.

 Practice

Question asked in:



Day 44

Binary Tree Right Side View

Medium

Given the `root` of a binary tree, imagine yourself standing on the right side of it, return *the values of the nodes you can see ordered from top to bottom*.

 Practice

Question asked in:



Placement Stats

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Day 45

Longest Palindromic Substring

Medium

Given a string `s` return the longest Palindromic Substring in `s`

 Practice

Question asked in:



Day 46

Unique Paths

Medium

There is a robot on an `m x n` grid. The robot is initially located at the **top-left corner**. The robot tries to move to the **bottom-right corner**. The robot can only move either down or right at any point in time.

Given the two integers `m` and `n`, return the *number of possible unique paths that the robot can take to reach the bottom-right corner*.

 Practice

Question asked in:



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Day 47

Construct Binary Tree from Preorder and Inorder Traversal

Medium

Given two integer arrays `preorder` and `inorder` where `preorder` is the preorder traversal of a binary tree and `inorder` is the inorder traversal of the same tree, construct and return *the binary tree*.

 Practice

Question asked in:



Day 48

Container With Most Water

Medium

You are given an integer array `height` of length `n`. There are `n` vertical lines drawn such that the two endpoints of the i^{th} line are $(i, 0)$ and $(i, \text{height}[i])$.

Return *the maximum amount of water a container can store*.

 Practice

Question asked in:



Akansha Likhdihari
Software Engineer III at Walmart

From



To

Day 49

Find All Anagrams in a String

Medium

Given two strings `s` and `p`, return an array of all the start indices of `p`'s anagrams in `s`. You may return the answer in **any order**.

[Practice](#)

Question asked in:



Day 50

Minimum Height Trees

Medium

Given a tree of `n` nodes labelled from `0` to `n-1` and an array of `n-1` edges where `edges[i] = [ai, bi]` indicates that there is an undirected edge between the two nodes in the tree, you can choose any node of the tree as the root.

Return a list of all MHTs' root labels. You can return the answer in any order.

[Practice](#)

Question asked in:



Saumya Mishra
Sr. AEM Consultant at Adobe

From
 → To

Day 51

Task Scheduler

Medium

Given a characters array `tasks`, representing the tasks a CPU needs to do, where each letter represents a different task. Tasks could be done in any order. Each task is done in one unit of time.

Return *the least number of units of times that the CPU will take to finish all the given tasks.*

Practice

Question asked in:



Day 52

LRU Cache

Medium

Design a data structure that follows the constraints of a Least Recently Used (LRU) cache.

Implement the `LRUCache` class:

- `LRUCache(int capacity)` Initialize the LRU cache with positive size `capacity`
- `int get(int key)` Return the value of the `key` if the key exists.
- `void put(int key, int value)` Update the value of the `key`

Practice

Question asked in:



Day 53

Kth Smallest Element in a BST

Medium

Given the `root` of a binary search tree, and an integer `k`, return the `kth` smallest value (*1-indexed*) of all the values of the nodes in the tree.

 Practice

Question asked in:



Day 54

Minimum Window Substring

Hard

Given two strings `s` and `t` of lengths `m` and `n` respectively, return the minimum window substring of `s` such that every character in `t` (*including duplicates*) is included in the window. If there is no such substring, return the empty string `""`.

The testcases will be generated such that the answer is **unique**.

 Practice

Question asked in:



Avishkar Dalvi
MTS 3 at VMware

From



To

Day 55

Find Median from Data Stream

Hard

The median is the middle value in an ordered integer list. If the size of the list is even, there is no middle value, and the median is the mean of the two middle values.

- For example, for `arr = [2, 3, 4]`, the median is `3`
- For example, for `arr = [2, 3]`, the median is `(2 + 3) / 2 = 2.5`

 Practice

Question asked in:



Day 56

Word Ladder

Hard

A **transformation sequence** from word `beginWord` to word `endWord` using a dictionary `wordList` is a sequence of words

`beginWord -> s1 -> s2 -> ... -> sk` such that:

Given two words, `beginWord` and `endWord`, and a dictionary `wordList`, return the **number of words** in the **shortest transformation sequence** from `beginWord` to `endWord`, or `0` if no such sequence exists.

 Practice

Question asked in:



Day 57

Basic Calculator

Hard

Given a string `s` representing a valid expression, implement a basic calculator to evaluate it, and return the result of the evaluation.

Practice

Question asked in:



Day 58

Maximum Profit in Job Scheduling

Hard

We have `n` where every job is scheduled to be done from

`startTime[i]` to `endTime[i]`, obtaining a profit of `profit[i]`

Return the maximum profit you can take such that there are no two jobs in the subset with overlapping time range.

Practice

Question asked in:



Basant Pratap Singh
Software Engineer at Google

From

TiDA

To

Google

Day 59

Merge k Sorted Lists

Hard

You are given an array of k linked-lists `lists`, each linked-list is sorted in ascending order.

Merge all the linked-lists into one sorted linked-list and return it.

[Practice](#)

Question asked in:



Day 60

Largest Rectangle in Histogram

Hard

Given an array of integers `heights` representing the histogram's bar height where the width of each bar is 1 , return *the area of the largest rectangle in the histogram*.

[Practice](#)

Question asked in:



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