DSA Homework (15 Levels) — Expanded Question Bank

Submission: GitHub repo (mandatory)
Deadline: 3 weeks from issue date

Rule per level (Applies to all 15 levels)

- Each level contains **multiple questions** under Easy, Medium, and Hard.
- Students must complete **ANY 2 Easy + ANY 1 Medium + ANY 1 Hard (OPTIONAL)** per level.
- Must complete **Any 7 levels**.
- Solving more is encouraged (bonus practice).

Level 1 — Fundamentals (Language Basics)

Easy (choose any 2)

1. Basic Input/Output Link
2. Conditional Statements Link
3. Loops Practice Link
4. Data Types Quiz Link
5. Operators Practice Link

Medium (choose any 1)

1. Array MCQ Link
2. Functions MCQ Link
3. String Basics Link

Hard (choose any 1)

1. Pattern Printing Link
2. Mixed Logic MCQ Link

Level 2 — Arrays

Easy

1. Largest Element Link
2. Second Largest Element Link
3. Reverse Array Link
4. Remove Duplicates from Sorted Array Link
5. Check If Array Sorted Link

Medium

1. Two Sum Link
2. Rotate Array Link
3. Longest Subarray with Sum K Link

Hard

1. First Missing Positive Link
2. Maximum Product Subarray Link

Level 3 — Sorting & Searching

Easy

1. Binary Search Link
2. Peak Index in Mountain Array Link
3. First Bad Version Link
4. Search Insert Position Link
5. Guess Number Higher or Lower Link

Medium

1. Search in Rotated Sorted Array Link
2. Find Minimum in Rotated Sorted Array Link
3. Koko Eating Bananas Link

Hard

1. Divide Two Integers Link
2. Median of Two Sorted Arrays Link

Level 4 — Two Pointers

Easy

1. Move Zeroes Link
2. Valid Palindrome Link
3. Squares of Sorted Array Link
4. Reverse String Link
5. Merge Strings Alternately Link

Medium

1. Container With Most Water Link
2. 3Sum Link
3. Sort Colors Link

Hard

1. Trapping Rain Water Link
2. 4Sum Link

Level 5 — Sliding Window

Easy

1. Best Time to Buy and Sell Stock Link
2. Maximum Average Subarray I Link
3. Max Consecutive Ones Link
4. Contains Duplicate II Link
5. Diet Plan Performance Link

Medium

1. Max Consecutive Ones III Link
2. Longest Substring Without Repeating Characters Link
3. Fruit Into Baskets Link

Hard

1. Sliding Window Median Link
2. Minimum Window Substring Link

Level 6 — Strings (Easy Focus)

Easy

1. Add Strings Link
2. Valid Anagram Link
3. Reverse Words in a String III Link
4. Detect Capital Link
5. To Lower Case Link

Medium

1. Group Anagrams Link
2. Longest Palindromic Substring Link
3. String to Integer (atoi) Link

Hard

1. Distinct Subsequences Link
2. Regular Expression Matching Link

Level 7 — Recursion

Easy

1. Fibonacci Number Link
2. Power of Two Link
3. Reverse String Link

4. Sum of Digits Link

Medium

1. Pow(x, n) Link
2. Generate Parentheses Link

Hard

1. K-th Symbol in Grammar Link
2. Expression Add Operators Link

Level 8 — Stacks

Easy

1. Valid Parentheses Link
2. Implement Stack using Queues Link
3. Baseball Game Link
4. Remove Outermost Parentheses Link

Medium

1. Min Stack Link
2. Daily Temperatures Link
3. Evaluate Reverse Polish Notation Link

Hard

1. Largest Rectangle in Histogram Link
2. Basic Calculator Link

Level 9 — Linked Lists

Easy

1. Reverse Linked List Link

2. Middle of Linked List Link
3. Remove Duplicates from Sorted List Link
4. Linked List Cycle Link

Medium

1. Intersection of Two Linked Lists Link
2. Remove Nth Node from End Link
3. Reorder List Link

Hard

1. Merge k Sorted Lists Link
2. Reverse Nodes in k-Group Link

Level 10 — Trees

Easy

1. Maximum Depth of Binary Tree Link
2. Invert Binary Tree Link
3. Same Tree Link
4. Path Sum Link

Medium

1. Validate BST Link
2. Binary Tree Level Order Traversal Link
3. Lowest Common Ancestor Link

Hard

1. Binary Tree Maximum Path Sum Link
2. Serialize and Deserialize Binary Tree Link

Level 11 — Tries

Easy

1. Implement Trie Link
2. Longest Common Prefix Link

Medium

1. Design Add and Search Words Link
2. Replace Words Link

Hard

1. Word Search II Link
2. Concatenated Words Link

Level 12 — Backtracking

Easy

1. Subsets Link
2. Permutations Link

Medium

1. Palindrome Partitioning Link
2. Combination Sum Link

Hard

1. N-Queens Link
2. Sudoku Solver Link

Level 13 — Heap / Priority Queue

Easy

1. Last Stone Weight Link

2. Kth Largest Element Link
3. Relative Ranks Link

Medium

1. K Closest Points Link
2. Top K Frequent Elements Link
3. Reorganize String Link

Hard

1. Find Median from Data Stream Link
2. Sliding Window Maximum Link

Level 14 — Dynamic Programming

Easy

1. Climbing Stairs Link
2. Min Cost Climbing Stairs Link
3. Divisor Game Link

Medium

1. House Robber Link
2. Coin Change Link
3. Word Break Link

Hard

1. Burst Balloons Link
2. Edit Distance Link

Level 15 — Graphs

Easy

1. Number of Provinces Link
2. Rotting Oranges Link
3. Flood Fill Link
4. Max Area of Island Link
5. Find the Town Judge Link
6. Island Perimeter Link

Medium

1. Course Schedule Link
2. Number of Islands Link
3. Surrounded Regions Link
4. Pacific Atlantic Water Flow Link
5. Shortest Path in Binary Matrix Link

Hard

1. Swim in Rising Water Link
2. Word Ladder II Link
3. Alien Dictionary Link
4. Critical Connections in a Network Link
5. Minimum Cost to Connect All Points Link

Submission (GitHub Repo) — Mandatory

Repository name

`dsa-homework`

Folder structure

```
dsa-homework/
  level-01/
  level-02/
  ...
  level-15/
  README.md
```

Mandatory in EVERY code file

1. **Problem link** at the top as a comment
2. **Short explanation comments** for approach and logic
3. **Complexity analysis at bottom**

Template to include in every file:

```
// Time Complexity:
// Best:
// Average:
// Worst:
// Space Complexity:
```

README.md must include

- Student Name
- Programming Language used
- Level-wise list of solved questions
- How to run code locally

I know a person's capability with just one talk.
Use of all resources is allowed, AI included. Don't Be Oversmart.
Homework is for learning.
I am not going to be at fault If you Cheat.
😢😢😢