HackWithInfy Coding Question Patterns & Practice Sheet

1. String & Substring Manipulation

- Common: Longest unique substring, Palindrome removal, Count distinct substrings
- Techniques: Sliding Window, HashMap, Two Pointers
- Example: Longest substring without repeating characters
- Practice: https://leetcode.com/problems/longest-substring-without-repeating-characters/

2. Arrays - Prefix Sum, Difference Array, Subarrays

- Common: Subarray sum equals K, Kadanes Algo, Range updates
- Techniques: Prefix Sum, HashMaps
- Example: Count subarrays with sum = K
- Practice: https://leetcode.com/problems/subarray-sum-equals-k/

3. Recursion & Backtracking

- Common: Generate subsets/permutations, Recursive path finding
- Techniques: Recursion, Backtracking
- Example: Subsets with sum divisible by K
- Practice: https://leetcode.com/problems/subsets/

4. Greedy Algorithms

- Common: Activity selection, Coin change (min coins), Scheduling problems
- Techniques: Sorting + Decision Making
- Example: Select max number of non-overlapping activities
- Practice: https://practice.geeksforgeeks.org/problems/activity-selection-1587115620/1

5. Binary Search on Answer

- Common: Minimum capacity, Search bounds, Kth element
- Techniques: Binary Search, Feasibility Check
- Example: Smallest divisor given threshold

- Practice: https://leetcode.com/problems/find-the-smallest-divisor-given-a-threshold/

6. Bit Manipulation

- Common: XOR tricks, Bitmasking subsets, Set bits count
- Techniques: XOR, AND, OR, Bitmask loops
- Example: Unique element in array where others appear twice
- Practice: https://leetcode.com/problems/single-number/

7. Graph (Optional)

- Common: Connected components, DFS/BFS
- Techniques: Matrix traversal, Graph adjacency
- Example: Number of islands in a grid
- Practice: https://leetcode.com/problems/number-of-islands/

8. Custom Simulation Logic

- Common: Grid movement, Parsing, Game simulation
- Techniques: Conditions, Loops, State Tracking
- Example: Robot returns to origin
- Practice: https://leetcode.com/problems/robot-return-to-origin/