LeetCode Problems - Concepts, Related Practice & Links

CODEBOOSTERS PRACTICE PROBLEMS BASED ON CONCEPT PROBLEMS

Arrays & Strings (Sliding Window, Binary Search, Matrix)

Problem	Concepts Learned	Related Practice
Rotate Image (48)	In-place matrix rotation using transpose + reverse; index mapping `(i,j)->(j,n-1-i)`	Spiral Matrix (54), Spiral Matrix II (59)
Spiral Matrix (54)	Matrix traversal layer by layer with boundary pointers	Spiral Matrix II (59), Merge Sorted Array (88)
Search in Rotated Sorted Array (33)	Modified binary search in rotated sorted array	Search in Rotated Sorted Array II (81), Find Peak Element (162)
Find Minimum in Rotated Sorted Array (153)	Binary search to find rotation pivot (min element)	Find Minimum in Rotated Sorted Array II (154), First Bad Version (278)
Longest Repeating Character Replacement (424)	Sliding window, frequency count, max freq in window	Longest Substring Without Repeating (3), Longest Substring with At Most K Distinct (340)
Sliding Window Maximum (239)	Sliding window with monotonic deque	Minimum Window Substring (76), Shortest Subarray with Sum >= K (862)
Minimum Size Subarray Sum (209)	Sliding window two-pointer technique for minimal length	Fruit Into Baskets (904), 3Sum Closest
Largest Rectangle in Histogram (84)	Monotonic stack to find nearest smaller left/right	Maximal Rectangle (85), Count Submatrices With All Ones (1504)
Maximal Rectangle (85)	2D -> histogram heights + Largest Rectangle in Histogram	Count Submatrices With All Ones (1504), N-Queens II (52)
Find All Anagrams in a String (438)	Sliding window with char frequency array	Minimum Window Substring (76), Permutation in String (567)

Linked List & Advanced Data Structures

Problem	Concepts Learned	Related Practice
Copy List with Random Pointer (138)	Deep copy with hash map or interleaving	Intersection of Two Linked Lists (160), Populating Next Right Pointers (117)
Sort List (148)	Merge sort on linked list; split using slow/fast pointer	Merge Two Sorted Lists (21), Merge k Sorted Lists (23)
Intersection of Two Linked Lists (160)	Two-pointer technique to detect intersection	Linked List Cycle II (142), Palindrome Linked List (234)
Flatten a Multilevel Doubly Linked List (430)	DFS or stack-based traversal to flatten hierarchy	Binary Tree Right Side View (199), As Far from Land as Possible (1162)
Design Skiplist (1206)	Probabilistic multi-level list for O(log n) ops	LRU Cache (146), Design Linked List (707)
Design Twitter (355)	System design: min-heap or ordered feed + user graph	Insert Delete GetRandom O(1) (380), Flatten Nested List Iterator (341)

Graphs & BFS/DFS/Union-Find

Problem	Concepts Learned	Related Practice
Number of Islands (200)	BFS/DFS flood-fill on grid, count components	Max Area of Island (695), Island Perimeter (463)
Max Area of Island (695)	DFS/BFS area aggregation for connected components	Flood Fill (733), Number of Enclaves (1020)
Clone Graph (133)	Graph traversal BFS/DFS + hash map for deep copy	Copy List with Random Pointer (138), Graph Valid Tree (261)
Pacific Atlantic Water Flow (417)	Multi-source BFS/DFS from ocean borders	Surrounded Regions (130), 01 Matrix (542)
Surrounded Regions (130)	Multi-source flood-fill from boundary	Pacific Atlantic Water Flow (417), Flood Fill (733)
Word Search II (212)	Backtracking with Trie pruning	Word Search (79), Longest Word in Dictionary (720)
Minimum Height Trees (310)	Tree centroids via leaf trimming (BFS layers)	Course Schedule (207), Graph Valid Tree (261)
Redundant Connection (684)	Union-Find to detect first cycle edge	Redundant Connection II (685), Graph Valid Tree (261)

Problem	Concepts Learned	Related Practice
Graph Valid Tree (261)	Connectivity + acyclicity check with DFS or Union-Find	Number of Connected Components (323), Course Schedule (207)
Network Delay Time (743)	Dijkstra's algorithm (min-heap) or Bellman-Ford for shortest path	Cheapest Flights Within K Stops (787), Path With Minimum Effort (1631)
Alien Dictionary (269)	Topological sort on directed graph (Kahn's algorithm / DFS)	Course Schedule II (210), Sequence Reconstruction (444)

Advanced Heaps & Intervals

Problem	Concepts Learned	Related Practice
Find Median from Data Stream (295)	Two heaps (max-heap + min-heap) to maintain streaming median	Sliding Window Median (480), IPO (502)
Sliding Window Median (480)	Dual heaps with lazy removal or multiset balancing	Find Median from Data Stream (295), Kth Largest Element in a Stream (703)
Task Scheduler (621)	Greedy with max-heap for task frequencies + cooldown intervals	Reorganize String (767), Minimum Interval to Include Each Query (1851)
Minimum Number of Arrows to Burst Balloons (452)	Greedy interval scheduling by sorting end points	Non-overlapping Intervals (435), Merge Intervals (56)
Car Fleet (853)	Sort + stack-based simulation of fleet merging	Car Fleet II (1776), Minimum Number of Arrows to Burst Balloons (452)
Minimum Interval to Include Each Query (1851)	Sort + min-heap for active intervals	Meeting Rooms II (253), Task Scheduler (621)

Key Techniques Covered

- **Sliding Window**: character replacement, window maximum, minimal subarray sum
- **Binary Search Variants**: rotated arrays, peak finding, pivot search
- **Monotonic Stack**: largest rectangle in histogram, maximal rectangle
- **Graph Traversals (BFS/DFS)**: islands, Pacific Atlantic, clone graph
- **Shortest Path & Topological Sort**: Dijkstra, Kahn's algorithm
- **Union-Find (DSU)**: redundant connections, valid tree detection
- **Linked List Techniques**: two-pointer, merge sort, deep copy
- **Backtracking + Trie**: word search II

- **Greedy + Sorting for Intervals**: car fleet, arrows, meeting rooms
- **Heaps/Priority Queues**: median data stream, task scheduler
- **System Design**: skiplist, mini-twitter
