

LeetCode Problems - Concepts, Related Practice & Links

CODEBOOSTERS - PRACTICE ASSESSMENT

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

Problem	Concepts Learned	Related Practice
Rotate Image (48)	In-place matrix rotation using transpose + reverse; index mapping $(i,j) \rightarrow (j,n-1-i)$	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)
Graph Valid Tree (261)	Connectivity + acyclicity check with DFS or Union-Find	Number of Connected Components (323) , Course Schedule (207)

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
- **Union-Find (DSU):** redundant connections, valid tree detection
- **Linked List Techniques:** two-pointer, merge sort, deep copy
- **Backtracking + Trie:** word search II
- **System Design:** skiplist, mini-twitter