Data Structures and Algorithm Practice Question on Leet Code

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1. Array

Easy:

1. Two Sum
2. Best Time to Buy and Sell Stock
3. Remove Duplicates from Sorted Array
4. Rotate Array
5. Move Zeroes
6. Contains Duplicate
7. Plus One
8. Intersection of Two Arrays
9. Maximum Subarray
10. Merge Sorted Array

Medium:

1. 3Sum
2. Product of Array Except Self
3. Subarray Sum Equals K
4. Find the Duplicate Number
5. Container With Most Water
6. Missing Number
7. Minimum Size Subarray Sum
8. Spiral Matrix
9. Sort Colors
10. Set Matrix Zeroes

Hard:

1. Trapping Rain Water
2. Sliding Window Maximum
3. First Missing Positive
4. Median of Two Sorted Arrays
5. Maximal Rectangle
6. Largest Rectangle in Histogram
7. Candy
8. Jump Game II
9. Wildcard Matching

10. Palindrome Pairs

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2. Lists

Easy:

1. Merge Two Sorted Lists
2. Reverse Linked List
3. Palindrome Linked List
4. Delete Node in a Linked List
5. Remove Duplicates from Sorted List
6. Intersection of Two Linked Lists
7. Remove Linked List Elements
8. Middle of the Linked List
9. Linked List Cycle
10. Add Two Numbers

Medium:

1. Copy List with Random Pointer
2. Reorder List
3. Odd Even Linked List
4. Partition List
5. Reverse Nodes in k-Group
6. Swap Nodes in Pairs
7. LRU Cache
8. Add Two Numbers II
9. Flatten a Multilevel Doubly Linked List
10. Design Linked List

Hard:

1. Merge k Sorted Lists
2. Reverse Nodes in k-Group
3. Sort List
4. LFU Cache
5. Flatten Binary Tree to Linked List
6. Insert into a Sorted Circular Linked List
7. Split Linked List in Parts
8. Swapping Nodes in a Linked List
9. Clone Linked List with Random Pointer
10. Add Two Numbers in a Cyclic List

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3. Dictionaries (Hash Maps)

Easy:

1. Two Sum
2. Valid Anagram
3. First Unique Character in a String
4. Intersection of Two Arrays
5. Ransom Note
6. Group Anagrams
7. Find the Difference
8. Isomorphic Strings
9. Word Pattern
10. Find All Anagrams in a String

Medium:

1. Subarray Sum Equals K
2. Longest Substring Without Repeating Characters
3. Minimum Window Substring
4. Longest Palindromic Substring
5. Count Primes
6. Group Anagrams
7. Word Break
8. Top K Frequent Elements
9. Find Duplicate Subtrees
10. Valid Sudoku

Hard:

1. Word Ladder
2. Minimum Window Substring
3. Subarrays with K Different Integers
4. Sliding Puzzle
5. Critical Connections in a Network
6. Binary Tree Maximum Path Sum
7. Maximum XOR of Two Numbers
8. Smallest Range Covering Elements from Lists
9. Concatenated Words
10. Word Search II

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4. Sets

Easy:

1. Contains Duplicate
2. Intersection of Two Arrays
3. Happy Number
4. Valid Sudoku (set-based solution)
5. Check if N and its Double Exist
6. Unique Morse Code Words
7. Find the Difference
8. Unique Email Addresses
9. Find Disappeared Numbers
10. Fair Candy Swap

Medium:

1. Longest Consecutive Sequence
2. Subarray Sum Equals K
3. Maximum Erasure Value
4. Count Distinct Elements in Every Window
5. Minimum Operations to Reduce X to Zero
6. K-diff Pairs in an Array
7. Longest Substring with K Unique Characters
8. Set Matrix Zeroes
9. Max Number of K-Sum Pairs
10. Word Ladder

Hard:

1. Number of Distinct Islands
2. Shortest Path Visiting All Nodes
3. Minimum Window Subsequence
4. Concatenated Words
5. Palindrome Pairs
6. Word Search II
7. Critical Connections in a Network
8. Minimum Window Substring
9. Evaluate Division
10. Frog Jump

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5. Tuples

(Note: While there aren't many problems exclusively using tuples, these problems leverage tuples in their solutions.)

Easy:

1. Merge Two Sorted Lists
2. Two Sum (using tuple to return indices)
3. Remove Duplicates from Sorted Array
4. Swap Nodes in Pairs
5. Design HashMap (using tuple for key-value pairs)
6. Design HashSet
7. Valid Parentheses (tuple for matching pairs)
8. Find All Numbers Disappeared in an Array
9. Find the Difference (with tuple-based map)
10. Binary Tree Preorder Traversal

Medium:

1. Copy List with Random Pointer (tuple to maintain original order)
2. Flatten Nested List Iterator
3. Add Two Numbers II
4. Path Sum III
5. K Closest Points to Origin (tuple for points)
6. Number of Islands
7. Network Delay Time
8. Find the Town Judge
9. LFU Cache (using tuple for cache storage)
10. Design Twitter

Hard:

1. Vertical Order Traversal of Binary Tree
2. Design Search Autocomplete System
3. Sliding Puzzle
4. Palindrome Partitioning
5. All Nodes Distance K in Binary Tree
6. Serialize and Deserialize Binary Tree
7. Minimum Window Substring
8. Maximal Rectangle
9. Word Search II
10. Split Array with Same Average

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6. Deque

Easy:

1. Implement Stack using Deque
2. Implement Queue using Deque
3. Min Stack

4. Design Circular Queue
5. Reverse a Deque
6. Basic Calculator
7. Design Browser History
8. Sliding Window Maximum
9. Remove All Adjacent Duplicates In String
10. Rotate Deque

Medium:

1. Evaluate Reverse Polish Notation
2. Design Front Middle Back Queue
3. Online Stock Span
4. Decode String
5. Flatten a Multilevel Doubly Linked List
6. Sliding Puzzle
7. Next Greater Element II
8. Frog Jump
9. Basic Calculator II
10. Simplify Path

Hard:

1. Reverse Nodes in k-Group
2. Maximal Rectangle
3. Largest Rectangle in Histogram
4. Brace Expansion II
5. Word Search II
6. Minimum Cost to Make Valid Parentheses
7. Basic Calculator III
8. Longest Valid Parentheses
9. Remove Invalid Parentheses
10. Frog Jump with Obstacles

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7. Heap

Easy:

1. Kth Largest Element in a Stream
2. Top K Frequent Elements (with priority queue)
3. Sort Characters By Frequency
4. Last Stone Weight
5. Find K Closest Elements
6. Kth Largest Element in an Array

7. Meeting Rooms II
8. Is Subsequence
9. Implement Priority Queue
10. Merge K Sorted Lists

Medium:

1. Network Delay Time
2. Find Median from Data Stream
3. Kth Smallest Element in a Matrix
4. Smallest Range Covering Elements from K Lists
5. Reorganize String
6. Task Scheduler
7. Frequency Stack
8. Sliding Window Median
9. Minimize Deviation in Array
10. Ugly Number II

Hard:

1. Trapping Rain Water II
2. Median of Two Sorted Arrays
3. Maximize Capital
4. Jump Game VI
5. Merge Intervals
6. Campus Bikes II
7. Longest Subarray with Sum Divisible by K
8. Find Critical and Pseudo-Critical Edges
9. Design Twitter
10. Number of Ways to Reach a Destination in Time

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8. Hashing

Easy:

1. Two Sum
2. Contains Duplicate
3. Valid Anagram
4. First Unique Character in a String
5. Intersection of Two Arrays
6. Happy Number
7. Find All Anagrams in a String
8. Ransom Note
9. Find the Difference

10. Design HashSet

Medium:

1. Subarray Sum Equals K
2. Longest Substring Without Repeating Characters
3. Group Anagrams
4. Top K Frequent Elements
5. Word Break
6. Minimum Window Substring
7. Longest Palindromic Subsequence
8. Count Primes
9. Evaluate Division
10. LRU Cache

Hard:

1. Word Ladder II
2. Palindrome Pairs
3. Concatenated Words
4. Minimum Window Substring
5. Critical Connections in a Network
6. Sliding Puzzle
7. LFU Cache
8. Word Search II
9. Number of Distinct Islands
10. All O`One Data Structure

9. Trees

Easy:

1. Maximum Depth of Binary Tree
2. Invert Binary Tree
3. Symmetric Tree
4. Same Tree
5. Path Sum
6. Binary Tree Level Order Traversal
7. N-ary Tree Preorder Traversal
8. Binary Tree Preorder Traversal
9. Binary Tree Inorder Traversal
10. Binary Tree Postorder Traversal

Medium:

1. Validate Binary Search Tree
2. Construct Binary Tree from Preorder and Inorder Traversal
3. Kth Smallest Element in a BST
4. Binary Tree Right Side View
5. Lowest Common Ancestor of a Binary Tree
6. Path Sum II
7. Flatten Binary Tree to Linked List
8. Delete Node in a BST
9. Populating Next Right Pointers in Each Node
10. Sum Root to Leaf Numbers

Hard:

1. Serialize and Deserialize Binary Tree
2. Binary Tree Maximum Path Sum
3. Recover Binary Search Tree
4. Redundant Connection II
5. Binary Tree Cameras
6. All Nodes Distance K in Binary Tree
7. Smallest Subtree with All the Deepest Nodes
8. Construct Binary Tree from String
9. Vertical Order Traversal of Binary Tree
10. Longest Path in Binary Tree

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10. Graphs

Easy:

1. Find the Town Judge
2. Graph Valid Tree
3. DFS of a Graph
4. Clone Graph
5. Number of Connected Components in an Undirected Graph
6. Find if Path Exists in Graph
7. Course Schedule I
8. Flood Fill
9. Island Perimeter
10. Find the Judge

Medium:

1. Course Schedule II
2. Shortest Path in Binary Matrix
3. Pacific Atlantic Water Flow

4. Minimum Knight Moves
5. Word Ladder
6. Topological Sort
7. Number of Islands
8. Critical Connections in a Network
9. Minimum Height Trees
10. Network Delay Time

Hard:

1. Alien Dictionary
2. Graph Coloring
3. Word Search II
4. Minimum Cost to Make at Least One Valid Path
5. Bus Routes
6. Shortest Path with Alternating Colors
7. Cheapest Flights Within K Stops
8. Longest Path with Different Adjacent Characters
9. Reconstruct Itinerary
10. Hardest Worker

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11. Stacks & Queues

Easy:

1. Valid Parentheses
2. Min Stack
3. Implement Queue using Stacks
4. Implement Stack using Queues
5. Daily Temperatures
6. Baseball Game
7. Next Greater Element I
8. Remove All Adjacent Duplicates In String
9. Crawler Log Folder
10. Asteroid Collision

Medium:

1. Next Greater Element II
2. Evaluate Reverse Polish Notation
3. Design Front Middle Back Queue
4. Simplify Path
5. Decode String
6. Basic Calculator II

7. Online Stock Span
8. Sliding Window Maximum
9. Expression Add Operators
10. Valid Parenthesis String

Hard:

1. Basic Calculator
2. Remove Invalid Parentheses
3. Maximal Rectangle
4. Largest Rectangle in Histogram
5. Sliding Puzzle
6. Trapping Rain Water
7. Frog Jump
8. Longest Valid Parentheses
9. Brace Expansion II
10. Reverse Polish Notation

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12. Dynamic Programming (DP) Questions

Easy:

1. Climbing Stairs
2. Fibonacci Number
3. House Robber
4. Maximum Subarray
5. Min Cost Climbing Stairs
6. Pascal's Triangle
7. Counting Bits
8. Best Time to Buy and Sell Stock
9. Longest Palindromic Substring (simplified case)
10. Is Subsequence
11. N-th Tribonacci Number
12. Coin Change (basic case)
13. Maximum Product Subarray (simplified case)
14. Valid Parentheses (using DP for balance check)
15. Unique Paths
16. Decode Ways (simplified)
17. Palindromic Substrings (simplified case)
18. Combination Sum IV
19. Partition Equal Subset Sum (simplified case)
20. Minimum Path Sum (easy version)
21. Target Sum
22. Matrix Chain Multiplication (intro version)

23. Two Sum (using DP/memoization)
24. Subsets II (with duplicates)
25. Maximum Length of Repeated Subarray

Medium:

1. Longest Palindromic Substring
2. Coin Change
3. Partition Equal Subset Sum
4. Word Break
5. Longest Increasing Subsequence
6. Jump Game
7. Decode Ways
8. Minimum Path Sum
9. Unique Paths II (with obstacles)
10. Target Sum
11. Longest Common Subsequence
12. Palindromic Substrings
13. Maximal Square
14. Dungeon Game (simplified case)
15. Perfect Squares
16. Interleaving String
17. Russian Doll Envelopes
18. Minimum Number of Refueling Stops
19. Longest Arithmetic Subsequence
20. Edit Distance (simplified case)
21. Word Ladder II
22. Knapsack Problem
23. Longest String Chain
24. Burst Balloons (simplified case)
25. Cherry Pickup

Hard:

1. Burst Balloons
2. Wildcard Matching
3. Regular Expression Matching
4. Palindrome Partitioning II
5. Edit Distance
6. Interleaving String (advanced case)
7. Longest Valid Parentheses
8. Minimum Insertions to Make a String Palindrome

9. Minimum Cost to Merge Stones
10. Scramble String
11. Concatenated Words
12. Maximal Rectangle
13. Frog Jump
14. Split Array Largest Sum
15. Minimum Difficulty of a Job Schedule
16. Hardest Worker (graph + DP)
17. Longest Increasing Path in a Matrix
18. Maximum Profit in Job Scheduling
19. Number of Ways to Paint N × 3 Grid
20. The Skyline Problem (advanced DP variant)
21. Number of Digit One (using DP)
22. Count of Smaller Numbers After Self
23. Tiling a Rectangle with Fewest Squares
24. Distinct Subsequences
25. House Robber III

13. Mathematical Computations

These questions cover essential topics in number theory, combinatorics, and modular arithmetic.

Easy

1. Power of Three
2. Happy Number
3. Count Primes
4. Missing Number
5. Excel Sheet Column Number
6. Add Digits
7. Reverse Integer
8. Sum of Two Integers (without using `+` or `-`)
9. Fibonacci Number
10. Check If It Is a Straight Line

Medium

1. Modular Exponentiation
2. Permutations of Array Elements
3. Fraction to Recurring Decimal
4. Multiply Strings
5. Divide Two Integers (without using `*`, `/`, `%`)
6. Integer to Roman
7. Combinations (Pascal's Triangle-based solution)
8. Factorial Trailing Zeroes
9. Pow(x, n) (Exponential calculation with large integers)

10. Combinations and Permutations (using recursive or iterative solutions)

Hard

1. Median of Two Sorted Arrays (using binary search)
2. Integer to English Words
3. Find Median from Data Stream
4. Random Pick with Weight (distribution-based random selection)
5. Maximum Points You Can Obtain from Cards
6. Sum of Distances in Tree (using modular arithmetic)
7. Basic Calculator III (expression parsing)
8. Valid Number (checking valid floats and integers)
9. Super Egg Drop
10. Max Points on a Line (combining slope calculations with modular arithmetic)

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14. Backtracking

Backtracking problems focus on generating solutions through recursive and brute-force exploration.

Easy

1. Letter Case Permutation
2. Binary Watch
3. Subsets
4. Palindrome Partitioning (simple cases)
5. Permutations of Array Elements (without duplicates)
6. Generate Parentheses (basic cases)
7. Path Sum (for binary tree paths)
8. Word Search (simple version)
9. Combination Sum
10. Climbing Stairs (recursive)

Medium

1. Permutations II (handling duplicates)
2. Subsets II (with duplicates)
3. Generate Parentheses
4. Palindrome Partitioning
5. Word Search
6. N-Queens Problem
7. Combinations
8. Sudoku Solver
9. Restore IP Addresses

10. Letter Combinations of a Phone Number

Hard

1. Word Ladder
2. K-Sum Paths
3. Word Squares
4. The Skyline Problem (advanced DP/backtracking variant)
5. Remove Invalid Parentheses (backtracking to find minimum removals)
6. Regular Expression Matching
7. Maximum Length of Concatenated String with Unique Characters
8. K-th Permutation Sequence
9. Split Array with Same Average
10. Brace Expansion II

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15. Greedy Algorithms

Greedy algorithms aim to find an optimal solution by making locally optimal choices at each step.

Easy

1. Assign Cookies
2. Lemonade Change
3. Largest Number at Least Twice of Others
4. Maximum Subarray (Kadane's algorithm for max sum)
5. Non-decreasing Array
6. Min Cost to Move Chips to the Same Position
7. Valid Parenthesis String (greedy balance)
8. Maximum Product of Two Elements in Array
9. Can Place Flowers
10. Maximize Sum Of Array After K Negations

Medium

1. Partition Labels
2. Gas Station
3. Queue Reconstruction by Height
4. Task Scheduler
5. Candy Distribution Problem
6. Jump Game
7. Minimum Deletion Cost to Avoid Repeating Letters
8. Non-overlapping Intervals
9. Minimum Number of Arrows to Burst Balloons

10. Car Fleet

Hard

1. Jump Game II
2. Trapping Rain Water
3. Candy
4. Minimum Cost to Connect Sticks
5. Remove Duplicate Letters
6. Split Array Largest Sum
7. Find the Right Interval
8. Maximum Performance of a Team
9. Minimum Swaps to Make Sequences Increasing
10. Minimum Number of Refueling Stops