Programming Practice Problems (Beginner → Advanced)

Beginner

1. Hello, name!
2. Sum of two numbers
3. Even or odd
4. Largest of three
5. Simple loop counter
6. Factorial (iterative)
7. Swap two variables
8. Basic function: isPrime(n)
9. Sum of array
10. Reverse a string
11. Count vowels
12. Simple average
13. Linear search
14. Print pattern (triangle)
15. Basic calculator

Easy

1. Palindrome number/string
2. Fibonacci (iterative)
3. Count frequency of elements
4. Remove duplicates (array)
5. Max subarray (brute force)
6. String anagrams check
7. Binary representation

8. Simple queue using array

9. Stack implementation

10. GCD and LCM

11. 2-sum (sorted/unsorted)

12. Rotate array by k

13. Merge two sorted arrays

14. Count set bits

15. Validate parentheses

Medium

1. Linked list basics

2. Reverse linked list

3. Detect cycle in list

4. Binary search

5. Quick sort & Merge sort

6. Find kth largest (heap)

7. BFS on graph

8. DFS recursive

9. LCA in BST

10. Validate BST

11. Topological sort

12. Expression evaluation

13. Longest common prefix

14. Two-sum unique pairs

15. Count islands

Hard

1. Longest Increasing Subsequence (LIS)

2. Knapsack (0/1)

3. Dijkstra's shortest path

4. Minimum spanning tree

5. Word ladder (BFS)

6. Segment tree (range sum)

7. Binary indexed tree

8. Serialize/deserialize binary tree

9. All paths in DAG

10. Edit distance

11. Max flow

12. Articulation points/bridges

13. Palindrome partitioning

14. Median of two sorted arrays

15. Subset sum (meet-in-the-middle)

Advanced

1. Bitmask DP (TSP)

2. Suffix array / automaton

3. Convex hull

4. Persistent segment tree

5. Heavy-Light Decomposition

6. Min-cost max-flow

7. Dynamic graph algorithms

8. Max clique / independent set

9. Streaming algorithms

10. Randomized algorithms

11. Advanced string matching

12. Graph isomorphism basics

13. Regex engine (subset)
14. Approximate nearest neighbour
15. Mini in-memory DB design