■ ICPC 2-Week Preparation Roadmap

■ WEEK 1: Core Foundation + Implementation + Speed

■ Goal: Build coding fluency & core algorithm understanding

Day 1: Basic Implementation & I/O

- Fast input/output, loops, conditions, STL basics (vector, set, map)
- Practice: Codeforces A-level implementation problems.

Day 2: Math & Number Theory

- GCD, LCM, Prime check, Modular arithmetic, Binary exponentiation
- Practice: Sieve, power mod problems, divisors.

Day 3: Arrays & Prefix/Suffix

- Prefix sum, difference array, sliding window, frequency count
- Practice: Subarray sum problems, Kadane’s algorithm.

Day 4: Strings & Patterns

- String manipulation, palindrome, two pointers, KMP basics
- Practice: CF 'Petya and Strings', 'Beautiful Year'.

Day 5: Sorting + Searching

- Sorting custom comparator, Binary Search, lower/upper bound
- Practice: Binary search on answer problems (e.g., 'Aggressive cows').

Day 6: Greedy Algorithms

- Sort + choose technique, interval scheduling, coin change
- Practice: Activity selection, Job sequencing.

Day 7: Mixed Practice

- Solve 5–6 problems across previous topics.
- Simulate 1 timed practice contest.

■ WEEK 2: Data Structures + Graph + DP + Contest Simulation

■ Goal: Master problem-solving with DS, Graphs, and DP

Day 8: Recursion & Backtracking

- Recursion tree understanding, subset/permutation generation.

- Practice: N-Queens, Subset sum.

Day 9: Stack, Queue, Deque

- Next Greater Element, Monotonic stack/queue, sliding window maximum.
- Practice: Largest rectangle in histogram.

Day 10: Graph Basics

- Graph representation, DFS/BFS, Connected components.
- Practice: Number of islands, basic graph traversal.

Day 11: Advanced Graph

- Dijkstra, Topological sort, Cycle detection.
- Practice: Shortest path problems, Kahn's algorithm.

Day 12: Dynamic Programming – Level 1

- 1D DP (Fibonacci, Coin Change), 2D DP (Knapsack, Subset sum).
- Practice: 0/1 Knapsack, House Robber.

Day 13: Dynamic Programming – Level 2

- DP on strings (LCS, Edit distance), DP on grids.
- Practice: LCS, Edit Distance, Grid paths.

Day 14: Mock ICPC Contest Day

- Take 2 virtual contests (3 hours each).
- Upsolve all unsolved problems after contest.

■ Most Important ICPC Topics

- Implementation
- Greedy
- Math & Number theory
- Graph (BFS, DFS, Dijkstra)
- Dynamic Programming (1D, 2D)
- Sorting & Searching (Binary search)
- Prefix sum / Sliding window
- Recursion & Backtracking
- String processing (KMP / hashing basics)