

 Pattern Type	 Unlocking Problem(s)	 What It Teaches
Monotonic Deque	239, 862, 1438, 1696, 1425	Optimize sliding window problems with max/min in $O(n)$
Greedy + Stack	402, 316, 321	Lexicographically smallest/largest results via stack
Prefix Sum + Hashing	560, 974, 325, 930	Count subarrays with given sum/remainder
2-Pointer w/ Invariant	11, 3, 76, 340, 159	Move pointers while preserving constraints (e.g. unique chars)
Digit DP / Bitmask DP	233, 1012, 698, 1879	Rare but powerful — appears in Google/Facebook
Subsequence DP	300, 1143, 712	Build up from smaller subproblems using sequence comparison
Union-Find (DSU)	684, 547, 1319, 1579	Dynamic connectivity problems
Tree Rerooting / DP on Trees	124, 337, 834	DP beyond linear arrays — structured graphs
Meet in the Middle	2025, 1755	Used when N is big (~ 30), but we can split input
Backtracking w/ Pruning	51, 37, 1263	Reduce exponential search space intelligently
Binary Search on Answer	875, 410, 1482, 774	Binary search when answer lies in range, not array
Sliding Window + Frequency Map	3, 76, 567, 438	Track count of characters in dynamic window