## **▶** Dynamic Programming

# Pattern 1: Fibonacci/Simple Recurrence

- → Climbing Stairs
- → Min Cost Climbing Stairs
- $\rightarrow$  Dice Combinations
- → Frog Jump
- → Fibonacci Number

### Pattern 2: 0/1 Knapsack

- → 0/1 Knapsack
- → Partition Equal Subset Sum
- → Target Sum
- $\rightarrow$  Subset Sum
- → Last Stone Weight II

## Pattern 3: Unbounded Knapsack

- → Coin Change
- → Coin Change II
- → Rod Cutting
- $\rightarrow$  Combination Sum IV
- → Integer Break

## Pattern 4: Longest Common Subsequence (LCS)

- → Longest Common Subsequence
- → Uncrossed Lines
- → Edit Distance
- → Shortest Common Supersequence
- → Delete Operation for Two Strings

#### Pattern 5: Longest Increasing Subsequence (LIS)

- → Longest Increasing Subsequence
- → Wiggle Subsequence
- → Increasing Triplet Subsequence
- → Continuous Increasing Subsequence
- → Russian Doll Envelopes

#### Pattern 6: Grid-Based DP

- → Unique Paths
- → Unique Paths II
- → Minimum Path Sum
- → Dungeon Game
- → Cherry Pickup

#### Pattern 7: Interval DP

- → Burst Balloons
- → Palindrome Partitioning II
- → Merge Stones
- → Optimal BST
- → Strange Printer

#### Pattern 8: Tree DP

- → House Robber III
- → Binary Tree Maximum Path Sum
- → Tree Diameter
- → Subtree Queries
- → Longest Univalue Path

## Pattern 9: Bitmasking/State Compression

- → Traveling Salesman
- → Campus Bikes II
- → Elevator Rides
- → Count All Possible Routes
- → Bitmask DP Template

## Pattern 10: Digit DP

- → Numbers With Repeated Digits
- → Count Digit One
- → Number of Digit One
- → Digit DP Template
- → Remove Digits

## Pattern 11: Probability/Expectation DP

- $\rightarrow$  Dice Roll Simulation
- → New 21 Game
- → Random Pick with Weight
- → Frog Jump Probability
- → Candy Lottery