Top Dynamic Programming Problems

Fibonacci Sequence: Compute the nth Fibonacci number using dynamic programming techniques.

Climbing Stairs: Given a staircase with n steps, determine the number of distinct ways to reach the top by either climbing 1 or 2 steps at a time.

Longest Increasing Subsequence: Find the length of the longest subsequence in an array that is in increasing order.

Knapsack Problem: Given a set of items with weights and values, determine the maximum value that can be obtained by selecting a subset of items with a total weight not exceeding a given limit.

Coin Change: Given a set of coin denominations and a target amount, find the minimum number of coins needed to make up that amount.

Longest Common Subsequence: Find the length of the longest subsequence that is common to two given strings.

Maximum Subarray Sum: Find the contiguous subarray within an array that has the largest sum.

Edit Distance: Given two strings, find the minimum number of operations (insertions, deletions, and substitutions) required to transform one string into the other.

Rod Cutting: Given a rod of length n and a price list for different lengths, determine the maximum value that can be obtained by cutting the rod into smaller pieces and selling them.

Matrix Chain Multiplication: Given a sequence of matrices, determine the optimal parenthesization to minimize the number of multiplications needed.