[Matric Chain Multiplication(MCM)](https://www.codingninjas.com/codestudio/problems/matrix-chain-multiplication_975344?source=youtube&campaign=striver_dp_videos&utm_source=youtube&utm_medium=affiliate&utm_campaign=striver_dp_videos&leftPanelTab=0)

**Pattern: partition dp**

**Approach:** f(i, j)

1. Start with the entire block/ array.
2. Try all partitions
3. Return the best possible 2 partitions.

**Recursive soln:**

1. Take entire block by passing i = 1, j= n-1

So ith matrix = [i-1][i]

1. Try all possible partitions by taking k = i to j-1

**Value = arr[i-1]\*arr[k]\*arr[j] + f(i, k) + f(k+1, j)**

1. Return the min value of multiplication operations out of all partitions.

**Tabulation(bottom-up):** i = n-2 to 1 and j = i+1 to n-1

1. Initialize dp[n][n] with 0 to counter base case.
2. Use the same recurrence relation to build dp.
3. Return dp[1][n-1]