BIRZEIT UNIVERSITY

Computer Science Department

COMP336 (1st semester 2022/2023)

1st Project (Dynamic Programming)

Optimal Strategy for a Game using Dynamic Programming

Write a program that Solves Optimal Game Strategy Problem using Dynamic Programming technique.

Problem Description

This is a two-player game. There are even number of coins arranged in a row. There will be alternate turns. In each turn, a player can either select the first coin in the row or the last coin in the row and keep it with him. The objective of the problem is to determine the maximum possible amount of money a player can definitely win, if he moves first.

Problem Solution

In this problem, we will try to collect maximum amount without underestimating the opponent. We can choose either the first or the last coin in the row. We will pick the one which results in giving us lesser amount to ensure that we can definitely win this much of amount irrespective of opponent's moves.

Expected Input and Output

Coins [] = 4, 15, 7, 3, 8, 9

Expected result=27

Your program should print out the following:

1. The expected result.
2. The DP table.
3. The coins that give the expected result.
4. Demonstrate the result in a good user interface

Good luck!!