

USE Case - Finding the Winning Strategy in a card game in Python

Problem description:-

Imagine a card game where each player receives a hand of cards with values. The objective is to find the best way to maximize cast from the remaining pile.

Assumptions

- Each player tries to max their score
- Cards are represented by integers which indicates their value
- Two players alternate turns and each player picks a card from either the beginning or end of the list

Plan:- We can solve problem dynamic programming by calculate the optimal score for every possible scenario

Steps:- Define the Game; Represent the Pile of card as list of integers

2) Recursive Strategy

3) Dynamic Program

4) Base Case

Program `def find_optimal_strategy(cards):`

`n = len(cards)`

`# Create a memorization table to store subproblem result`

`dp = [[0] * n for _ in range(n)]`

~~Fill the table for sub problem of increasing size~~

for length in range(1, n+1):	
for i = 0	for j = length - 1
else:	
# Choose the best of two strategies	

Example Walk through:- Consider the array of cards = [3, 9, 1, 8, 5]

Optimizing Strategy:- By using dynamic programming we ensure that the solution is computed efficiently avoiding redundant calculations. This approach ensures both players play optimally and the first player gets the highest score possible given the optimal play.

VEL TECH	
EX No.	13
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	
REMARKS (5)	
TOTAL (20)	
DATE	