Task: 13 | 5 | 6 | 25

# Finding the winning strategy in card game using python

Aim:

To write a python program that simulates a simple card game between two players and determines the winner based on the highest card or a defined strategy.

Algorithm:

1. Start the program
2. Import the random module to simulate card drawing
3. Initialize a list representing card values (eg. 1-13 for Ace - King)
4. Simulate deck shuffling using random.shuffle()
5. distribute cards to two players (equal number each)
6. Calculate total score or highest card value for each player
7. compare results:
   - if player 1's score > player 2's → player 1 win
   - if player 2's score > play 1's → player 2 win
   - if score equal draw
8. Display cards drawn and winning strategy
9. End the program

Program:

```
import random
cards = list (range (1, 14))
def draw_cards (num):
    deck = cards * 4
    random.shuffle (deck)
    return random.sample (deck, num)
def calculate_score (hand):
    return sum (hand)
def card_name (value):
    names = {1: 'A', 11: 'J', 12: 'Q', 13: 'K'}
    return names.get (value, str (value))
print ("simple card game - winning strategy
        simulation")
num_cards = 5
player1_hand = draw_cards (num_cards)
player2_hand = draw_cards (num_cards)
score1 = calculate_score (player1_hand)
score2 = calculate_score (player2_hand)
print ("\n player 1 cards:", [card_name(c)
                for c in player1_hand, "-> Total:"
                score1])
print ("player 2 cards:", [card_name(c) for
        in player2_hand], "-> Total:", score2)
print ("\n --- Result ---")
if score1 > score2:
    print ("player 1 wins! strategy focus
on drawing higher cards (10, J, Q, K, A)")
```

output:

Simple Card Game - winning strategy Simulation

player 1 cards: ['A', '7', 'Q', '3', 'K'] → total: 38

player 2 cards: ['5', '9', '10', 'J', '6'] → Total: 40

player 2 wins! strategy: Focus on higher-value cards and balance between suits

Game over

```
if score2 > score1:
    print("Player 2 wins! Strategy: Focus on
higher value cards and balance between suits")
else:
    print("It's a draw!")
print("\n Game over!")
```

| VEL TECH | |
|---|---|
| EX NO. | 13 |
| PERFORMANCE (5) | 5 |
| RESULT AND ANALYSIS (5) | 5 |
| VIVA VOCE (5) | 5 |
| RECORD (5) | 5 |
| TOTAL (20) | 20 |
| SIGN WITH DATE | |

Result:

The program successfully simulates a card game between two players, compares their cards to each and determines the winning strategy