15/10/25

Task 13: finding the winning strategy in a card game.

Aim:- To implement a python program that simulates a card game btw two players and determine the winning strategy using of drawn cards.

Algorithm:-

1. Start the program.
2. Create a deck of cards.
3. Shuffle the deck randomly.
4. Each player draws a fixed number of cards.
5. Define the strategy.
6. Compare the chosen cards of both players
   - If player 1's card > player 2's card → player 2 scores.
   - Else if player 2's card > player 1's card → player 2 scores.
   - Else → Draw.
7. Repeat for all rounds.
8. The player with the highest score wins the game.
9. Display input, output, and final result
10. End the program.

Program:-

```
import random

suits = ["Hearts", "Diamonds", "Clubs", "Spades"]
values = list (range (1,14))
deck = [(value, suit) for suit in suits for value
                                    in values].

random.shuffle (deck)

player1_hand = deck [:5]
player2_hand = deck [5:10]

print ("player 1 Hand:", player1_hand)
Print ("Player 2 Hand:", player2_hand).

def play_highest_card.(hand):
    highest = max (hand, key=lamba x: x[0])
    hand.remove (highest)
    return highest

P1_score, P2_score = 0, 0.
Print ("\n--- Game Rounds ---")
for i in range (5):
    P1_card = play_highest_card (player1_hand)
    P2_card = play_highest_card (player2_hand).
    print (f"Round {i+1}: Player 1 -> {P1_card},
        player 2 -> {P2_card}").

    if P1_card [0] > P2_card [0]:
        print ("Winner: player1").
        P1_score += 1
```

Sample input:

player 1 Hand = [(13, 'Hearts'), (2, 'clubs'), (10, 'spades'),
(5, 'Diamonds'), (7, 'clubs')].

player 2 Hand: [(9, 'Hearts'), (12, 'Diamonds'), (3, 'clubs'),
(11, 'spades'), (6, 'Hearts')].

Sample output:

Round 1: Player 1 → (13, 'Hearts'), player 2 → (12, Diamonds)

winner : player 1.

Round 2: Player 2 → (10, 'spades'), player 2 → (11, 'spades')

Winner : Player 2.

Round 3: Player 1 → (7, 'clubs'), player 2 → (9, 'Hearts')

winner : Player 2.

Round 4: Player 1 → (5, 'Diamonds'), player 2 → (6, 'Hearts')

winner : player 2.

Round 5: Player 1 → (2, 'clubs'), Player 2 → (3, 'clubs')

winner : player 2.

```
        elif P2_card[0] > P1_card[0]:
            print("winner: player 2").
            P2_score += 1.
        else:
            print("Result : Draw")

print("\n--- final Result ---")
print("Player 1 score:", P1_score).
print("player 2 score:", P2_score)

if P1_score. > P2_score:
    print("Player 1 wins the game with winning
          strategy!").
elif P2_score > P1_score:
    print("Player 2 wins the game with winning
          strategy!")
else:
    print("The game is a Draw!").
```

Exp. No.	13
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (25)	25
SIGN WITH DATE	

Result: Thus finding winning strategy in a card game is executed successfully.