Institute of Computer Technology

B. Tech. Computer Science and Engineering

Semester: IV

Sub: Functional Programming

Course Code: 2CSE403

Practical Number:2

Objective:

Q1. Four friends are playing cards. One person has to assume whether the opponent is giving correct judgment or not? The scenario is to simulate a person to pick a card from a deck of 52 cards. The opponent should be able to recognize the rank and suit of the card. i.e. (Rank can be: Ace, 2, 3, 4, 5, 6, 7, 8, 9, 10, Jack, Queen, king and suit: Clubs, Diamonds, Heart, Spades).

Code :

```
import random


ranks = ['Ace', '2', '3', '4', '5', '6', '7', '8', '9', '10', 'Jack', 'Queen', 'King']
suits = ['Clubs', 'Diamonds', 'Hearts', 'Spades']


def pick_card():
  rank = random.choice(ranks)
  suit = random.choice(suits)
  return rank, suit


print("A card has been picked from the deck.")
rank, suit = pick_card()


opponent_rank = input("Opponent, guess the rank of the card: ")
opponent_suit = input("Opponent, guess the suit of the card: ")
```

```
print(f"\nActual Card: {rank} of {suit}")
if opponent_rank == rank and opponent_suit == suit:
    print("Correct Judgment! The guess is accurate.")
else:
    print("Incorrect Judgment. Better luck next time!")
```

Output :-

```
================= RESTART: S:\ICT\SEM-4\FP\Practicals\p3\q1.py =================
A card has been picked from the deck.
Opponent, guess the rank of the card: 3
Opponent, guess the suit of the card: heart

Actual Card: 3 of Clubs
Incorrect Judgment. Better luck next time!
```

Q2. An astrologer is interested to do analysis for the calculations w.r.t zodiac signs. The zodiac sign depends upon the month, day and date on which any person is born. To make his work easy, help the astrologer to display first days of each month by considering his requirements. He has to only provide the year and first day of the year. Sample: if the user entered year 2025, and 2 for Wednesday, January 1, 2025, the program should display the following

Code :

```
def get_first_days(year, first_day):
    # Days in each month
    months = ["January", "February", "March", "April", "May", "June",
              "July", "August", "September", "October", "November", "December"]
    days_in_month = [31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31]

    if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
        days_in_month[1] = 29

    days_of_week = ["Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday"]

    first_days = []
```

```
    current_day = first_day

    for i, days in enumerate(days_in_month):
        first_days.append((months[i], days_of_week[current_day]))
        current_day = (current_day + days) % 7

    return first_days

year = int(input("Enter the year: "))
first_day = int(input("Enter the first day of the year (0=Sunday, 1=Monday, ..., 6=Saturday): "))

print("\nFirst days of each month:")
for month, day in get_first_days(year, first_day):
    print(f"{month}: {day}")
```

Output :-

```
================== RESTART: S:\ICT\SEM-4\FP\Practicals\p3\q2.py ==================
Enter the year: 2025
Enter the first day of the year (0=Sunday, 1=Monday, ..., 6=Saturday): 3

First days of each month:
January: Wednesday
February: Saturday
March: Saturday
April: Tuesday
May: Thursday
June: Sunday
July: Tuesday
August: Friday
September: Monday
October: Wednesday
November: Saturday
December: Monday
```

Q3. Teaching assistance is asked to prepare program to generate a quiz corresponding to faculties requirement. The program should generate questions depending on faculties requirement should report correct answers after a student answer all of them. Also, the time spent on the test by student should be known.

Code :

```
import time

quiz = [
  {"question": "What is the capital of France?", "answer": "Paris"},
  {"question": "What is 5 + 7?", "answer": "12"},
  {"question": "What is the color of the sky?", "answer": "Blue"}
]

def start_quiz():
  correct_answers = 0
  total_questions = len(quiz)

  print("\nStarting the quiz...")

  start_time = time.time()

  for q in quiz:
    print("\n" + q["question"])
    user_answer = input("Your Answer: ").strip()
    if user_answer.lower() == q["answer"].lower():
      correct_answers += 1

  end_time = time.time()
  time_taken = end_time - start_time

  print("\nQuiz Completed!")
  print(f"Correct Answers: {correct_answers} out of {total_questions}")
  print(f"Time Taken: {time_taken:.2f} seconds")

start_quiz()
```

Output :-

```
================= RESTART: S:\ICT\SEM-4\FP\Practicals\p3\q3.py =================

Starting the quiz...

What is the capital of France?
Your Answer: aaa

What is 5 + 7?
Your Answer: 12

What is the color of the sky?
Your Answer: orange

Quiz Completed!
Correct Answers: 1 out of 3
Time Taken: 21.31 seconds
```