C ++ Programming Assessment Test

• Write a program to demonstrate a Rock Paper Scissor Game.

• Display the Menu using appropriate codes.

• For Menu kinds of Programming , use the core logic of Loops/conditional statements.

• You need to strictly follow the syntaxes's of that logic which you are using.

• Write the necessary comments for better understanding to you as well as to the faculty.

Project Requirements :

• Invoke the particular Method/Function through object , in which you are writing your logic.

• Use this function :

• srand(time(0)); • (rand()%3)+1; -> Generating for random no.s from computer's end.

• Use library header files i.e #include and #include for above logic if necessary.

• Add the necessary comments for better understanding of code.

Answer

```
#include <iostream>
#include <cstdlib>    // For rand(), srand()
#include <ctime>      // For time()
using namespace std;

// Game class to handle logic through object
class RockPaperScissors {
private:
    string playerName;
    int rounds;

public:
    // Method to set player name
    void setPlayerName() {
```

```
    cout << "Enter your name: ";
    cin >> playerName;
}

// Method to set number of rounds
void setRounds() {
    cout << "Enter number of rounds to play: ";
    cin >> rounds;
}

// Core logic method
void playGame() {
    int playerScore = 0, computerScore = 0;

    // Loop through each round
    for (int round = 1; round <= rounds; round++) {
        int playerChoice, computerChoice;

        // Display round number
        cout << "\n----- Round " << round << " -----" << endl;

        // Display menu
        cout << "Choose your option:\n";
        cout << "1. Rock\n2. Paper\n3. Scissors\n";
        cout << "Enter your choice (1-3): ";
        cin >> playerChoice;

        // Generate computer's choice using random
```

```
        srand(time(0) + round); // seed changes every round
        computerChoice = (rand() % 3) + 1;

        // Show choices
        cout << playerName << " chose: ";
        displayChoice(playerChoice);
        cout << "Computer chose: ";
        displayChoice(computerChoice);

        // Compare choices and decide result
        if (playerChoice == computerChoice) {
            cout << "It's a Draw!" << endl;
        } else if ((playerChoice == 1 && computerChoice == 3) ||
                   (playerChoice == 2 && computerChoice == 1) ||
                   (playerChoice == 3 && computerChoice == 2)) {
            cout << playerName << " wins this round!" << endl;
            playerScore++;
        } else {
            cout << "Computer wins this round!" << endl;
            computerScore++;
        }
    }

    // Final Result
    cout << "\n===== Final Score =====" << endl;
    cout << playerName << ": " << playerScore << " | Computer: " << computerScore <<
endl;
    if (playerScore > computerScore)
```

```
            cout << playerName << " wins the game!" << endl;
        else if (computerScore > playerScore)
            cout << "Computer wins the game!" << endl;
        else
            cout << "Game is a Draw!" << endl;
    }

    // Function to display choice in words
    void displayChoice(int choice) {
        switch (choice) {
            case 1: cout << "Rock" << endl; break;
            case 2: cout << "Paper" << endl; break;
            case 3: cout << "Scissors" << endl; break;
            default: cout << "Invalid" << endl;
        }
    }
};

// Main function
int main() {
    // Create object of the class
    RockPaperScissors game;

    // Invoke methods through object
    game.setPlayerName();
    game.setRounds();
    game.playGame();
```

```
    return 0;
}
```

Output

```
Enter your name: Rahul
Enter number of rounds to play: 3

----- Round 1 -----
Choose your option:
1. Rock
2. Paper
3. Scissors
Enter your choice (1-3): 1
Rahul chose: Rock
Computer chose: Paper
Computer wins this round!

... (Rounds 2 and 3)

===== Final Score =====
Rahul: 1 | Computer: 2
Computer wins the game!
```