Name_____ 06.03 Coding and Careers

This assignment has three parts.

Part One: Design the program

Write a program that demonstrates your programming skills acquired during this course. Use the following guidelines to write your program:

1. Pick one of the following options for your program:
    a. Create a game, such as Rock, Paper, Scissors.
    b. Write a short story in the style of a Mad Lib. Include non-numeric and numeric values.
    c. Expand on a program you've already written or write a new program related to an interest of yours.
2. Think through the needs of your program such as rules, the storyline, or equations.
3. Make the program interactive by asking the user to provide input.
4. The program must contain one list **or** one user-defined function.
5. Include at least one decision block (if, if-else, or elif).
6. Display output that is informative and easy to read.
7. Write the pseudocode for this program. Be sure to include any needed input, calculations, and output.

Insert your pseudocode here:

- **Import modules**
- **Define main**
    - **Print "Welcome to Rock, Paper, Scissors!"**
    - **Print "Rules: Rock beats Scissors, Scissors beats Paper, Paper beats Rock."**
    - **Set moves**
    - **While the input of "Play a round? (y/n): " lower equals y**
        - **Call play_round using moves**
    - **Print "Thank you for playing!"**
- **Define play_round**
    - **Set choice to the result of get_user_choice**
    - **Set computerchoice to random choice of moves**
    - **Print "You chose: " + (moves[int(user_choice)-1] if user_choice.isdigit() else user_choice)**

- ➢ **Print "Computer chose: " + computer_choice**
- ➢ **Set result to determine_winner using user_choice and computer choice**
- ➢ **Print result**

❖ **Define get_user_choice**

- ➢ **While true**
  - ■ **Set user input to the input of "Enter your choice (rock:1, paper:2, scissors:3): " lower**
  - ■ **If input is in moves**
    - ● **Return user input**
  - ■ **Else**
    - ● **Print "Invalid choice. Please choose rock, paper, or scissors."**

❖ **Define determine_winner**

- ➢ **If user input equals computer input**
  - ■ **Return "It's a tie!"**
- ➢ **Else if theres a win**
  - ■ **Return "You win!"**
- ➢ **Else**
  - ■ **Return "Computer wins!"**

❖ **Call main**

Part Two: Code the program

Use the following guidelines to code your program:

1. To code the program, use the Python IDLE.
2. Using comments, type a heading that includes your name, today's date, and a short description of the program.
3. Follow the Python style conventions regarding indentation and the use of white space to improve readability.
4. Use meaningful variable names.

Example of expected output: The output for your program should resemble the following. Your specific results will vary depending on the choices you make and the input provided.

Output:

```
Let's play Rock, Paper, Scissors!
R is rock.
P is paper.
S is scissors.

You picked: R
Opponent picked: P
Your opponent wins this round!

You picked: P
Opponent picked: S
Your opponent wins this round!

You picked: S
Opponent picked: R
Your opponent wins this round!

Thank you for playing!
```

Insert a copy of your code from IDLE here:

```
# Jonathan Meyer
# 11.2.2024
# a program to play rock, paper, scissors
import random

def main():
    # Display the rules
    print("Welcome to Rock, Paper, Scissors!")
    print("Rules: Rock beats Scissors, Scissors beats Paper, Paper beats
Rock.")

    # List of possible moves
    moves = ["rock", "paper", "scissors", "1", "2", "3"]
    while input("Play a round? (y/n): ").lower() == "y":
        play_round(moves)
    print("Thank you for playing!")

def play_round(moves):
```

```
    # Ask for user's choice
    user_choice = get_user_choice(moves)

    # Generate computer's choice
    computer_choice = random.choice(moves)

    # Display both choices
    print("You chose: " + (moves[int(user_choice)-1] if
user_choice.isdigit() else user_choice))
    print("Computer chose: " + computer_choice)

    # Determine the winner
    result = determine_winner(user_choice, computer_choice)
    print(result)

def get_user_choice(moves):
    # Prompt the user to choose
    while True:
        user_input = input("Enter your choice (rock:1, paper:2,
scissors:3): ").lower()
        if user_input in moves:
            return user_input
        else:
            print("Invalid choice. Please choose rock, paper, or
scissors.")

def determine_winner(user, computer):
    if user == computer:
        return "It's a tie!"
    elif ((user == "rock" or user == "1") and computer == "scissors") or \
         ((user == "scissors" or user == "2") and computer == "paper") or
\
         ((user == "paper" or user == "3") and computer == "rock"):
        return "You win!"
    else:
        return "Computer wins!"
```

```
# Entry point
main()
```

Part Three: Post Mortem Review

Complete the Post Mortem Review (PMR). Write a thoughtful two to three sentence response to each of the questions in the PMR chart.

Review Question	**Response**
What was the purpose of your program?	To allow the user play rock paper scissors with the computer using random inputs.
How could your program be useful in the real world?	It could be used to allow users to play with the computer.
What is a problem you ran into, and how did you fix it?	I didnt run into any issues while writing or programming my program
Describe one thing you would do differently the next time you write a program.	Make the program run faster.