SFWRTECH 3PR3:
Procedural and Objective Oriented Programming Concepts
(Assignment #1)

Student Name: Dojae Kim

Student Number: 400420323

Professor Name: Dr. Seshasai Srinivasan

Objective

The purpose of this Assignment 1:

1. To give students practice writing python code.
2. To learn how to use the case statement (if-elif-else) to solve given conditions.
3. To understand how to import module from python library.

Introduction

Rock, Paper, Scissors, Spock, Lizard is the upgraded version of Rock, Paper, Scissors. This game that is generally played by two people and the main idea is to make hand shapes that represent a rock, paper, scissors, spock, and lizard. The program will produce a random outcome. Based on each player's outcome that would determine who is the winner.

* Basic rule table of Rock Paper Scissors Spock Lizard

#	Hand Shape	Beat	Lose	Tie
1	Rock	Scissors, Lizard	Paper, Spock	Rock
2	Paper	Rock, Spock	Scissors, Lizard	Paper
3	Scissors	Paper, Lizard	Rock, Spock	Scissors
4	Spock	Scissors, Rock	Paper, Lizard	Spock
5	Lizard	Spock, Paper	Rock, Scissors	Lizard

Input Specification

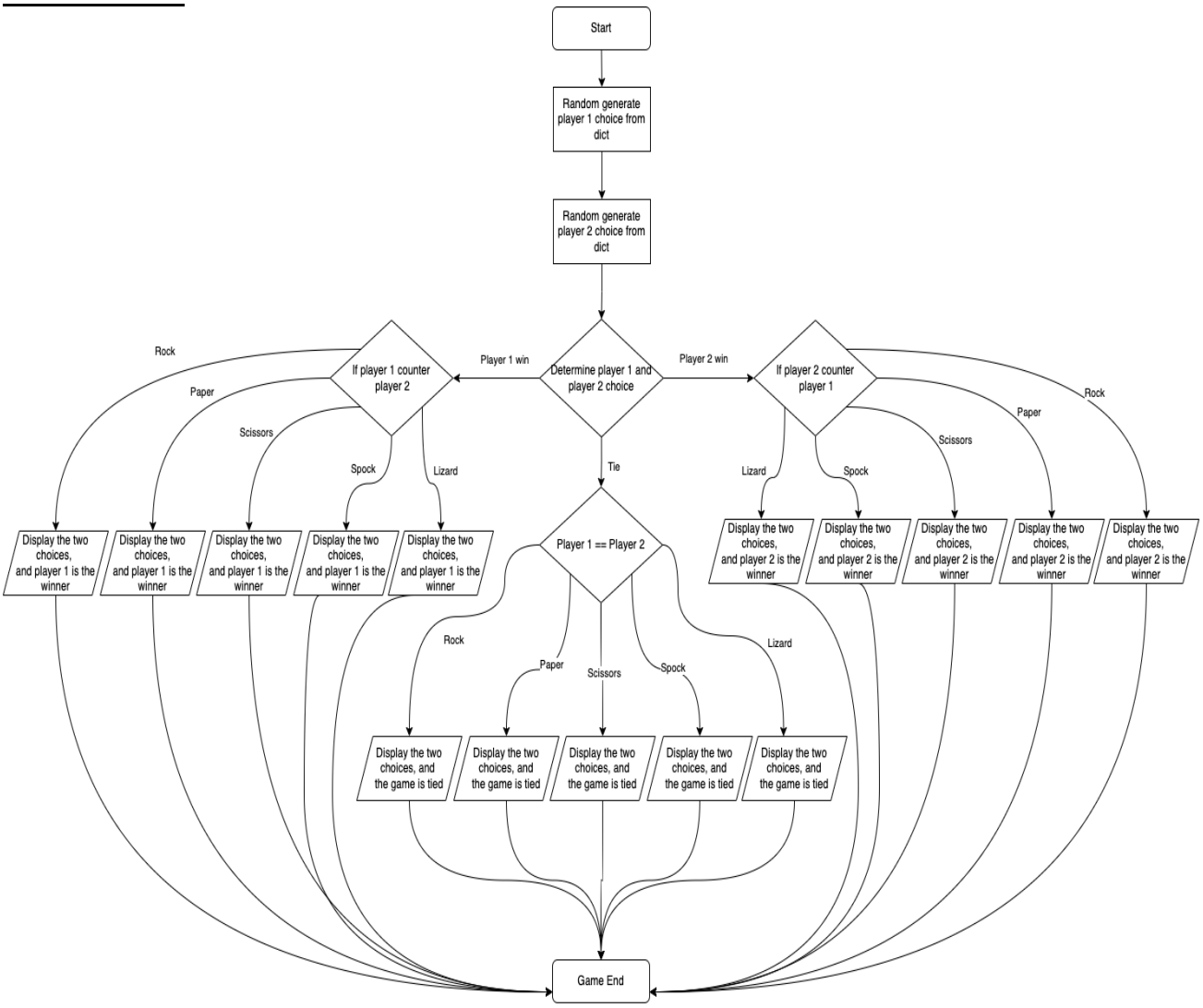
What are the shapes of Rock, Paper, Scissors, Spock, and Lizard?

Shapes of Rock Paper Scissors Spock Lizard				
				
Rock	Paper	Scissors	Spock	Lizard

Output Specification (Expected)

	Player 1	Player 2	Result (Output)
1	Rock	Rock	Tie
2	Rock	Paper	Player 2 Wins
3	Rock	Scissors	Player 1 Wins
4	Rock	Spock	Player 2 Wins
5	Rock	Lizard	Player 1 Wins
6	Paper	Rock	Player 1 Wins
7	Paper	Paper	Tie
8	Paper	Scissors	Player 2 Wins
9	Paper	Spock	Player 1 Wins
10	Paper	Lizard	Player 2 Wins
11	Scissors	Rock	Player 2 Wins
12	Scissors	Paper	Player 1 Wins
13	Scissors	Scissors	Tie
14	Scissors	Spock	Player 2 Wins
15	Scissors	Lizard	Player 1 Wins
16	Spock	Rock	Player 1 Wins
17	Spock	Paper	Player 2 Wins
18	Spock	Scissors	Player 1 Wins
19	Spock	Spock	Tie
20	Spock	Lizard	Player 2 Wins
21	Lizard	Rock	Player 2 Wins
22	Lizard	Paper	Player 1 Wins
23	Lizard	Scissors	Player 2 Wins
24	Lizard	Spock	Player 1 Wins
25	Lizard	Lizard	Tie

Flow Chart


Start
Random generate player 1 choice from dict
Random generate player 2 choice from dict
Determine player 1 and player 2 choice
Player 1 win
Player 2 win
Tie
If player 1 counter player 2
If player 2 counter player 1
Player 1 == Player 2
Rock
Paper
Scissors
Spock
Lizard
Display the two choices, and player 1 is the winner
Display the two choices, and player 2 is the winner
Display the two choices, and the game is tied
Game End

Source Code

```
# Student name: Dojae Kim
# Student number: 400420323
# Student email: kim408@mcmaster.ca
# Lecture: SFWRTECH 3PR3
# Assignment1

"""
Rock Paper Scissors Spock Lizard game. The program will have two players and
each of them produce a random outcome,
i.e., Rock, paper, scissor, spock, or lizard. Based on each player's outcome,
determine the winner.
The rules of the game are:
    Spock beats scissors and rock, but loses to paper and lizard.
    Lizard beats Spock and paper, but loses to rock and scissors.
    Rock beats scissors and lizard, but loses to paper and Spock.
    Paper beats rock and Spock, but loses to scissors and lizard.
    Scissors beats paper and lizard, but loses to rock and Spock.
"""

import random

hand_shapes = {1: "Rock", 2: "Paper", 3: "Scissors", 4: "Spock", 5: "Lizard"}

# The hand shapes will be randomly generated
player_1 = random.randint(1, 5)
player_2 = random.randint(1, 5)

# If both players choose the same hand shape, the game is tied
if player_1 == player_2:
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> The game is tied!')

elif (player_1 == 1 and player_2 == 3) or (player_1 == 1 and player_2 == 5):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> Player 1 win!')

elif (player_1 == 3 and player_2 == 1) or (player_1 == 5 and player_2 == 1):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> Player 2 win!')

elif (player_1 == 2 and player_2 == 1) or (player_1 == 2 and player_2 == 4):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> Player 1 win!')

elif (player_1 == 1 and player_2 == 2) or (player_1 == 4 and player_2 == 2):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> Player 2 win!')

elif (player_1 == 3 and player_2 == 2) or (player_1 == 3 and player_2 == 5):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> Player 1 win!')

elif (player_1 == 2 and player_2 == 3) or (player_1 == 5 and player_2 == 3):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
```

```
"{hand_shapes[player_2]}" -> Player 2 win!')

elif (player_1 == 4 and player_2 == 3) or (player_1 == 4 and player_2 == 1):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> Player 1 win!')

elif (player_1 == 3 and player_2 == 4) or (player_1 == 1 and player_2 == 4):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> Player 2 win!')

elif (player_1 == 5 and player_2 == 4) or (player_1 == 5 and player_2 == 2):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> Player 1 win!')

elif (player_1 == 4 and player_2 == 5) or (player_1 == 2 and player_2 == 5):
    print(f'Player 1 chose "{hand_shapes[player_1]}" ---- Player 2 chose
"{hand_shapes[player_2]}" -> Player 2 win!')
```

Sample Output

```
Terminal:  Local  Local (2)  +
~/Desktop/Mcmaster/2022/Winter/OOP/Assignment/1 python3 test.py
Player 1 chose "Spock" ---- Player 2 chose "Paper" -> Player 2 win!
~/Desktop/Mcmaster/2022/Winter/OOP/Assignment/1 python3 test.py
Player 1 chose "Lizard" ---- Player 2 chose "Scissors" -> Player 2 win!
~/Desktop/Mcmaster/2022/Winter/OOP/Assignment/1 python3 test.py
Player 1 chose "Paper" ---- Player 2 chose "Spock" -> Player 1 win!
~/Desktop/Mcmaster/2022/Winter/OOP/Assignment/1 python3 test.py
Player 1 chose "Lizard" ---- Player 2 chose "Lizard" -> The game is tied!
~/Desktop/Mcmaster/2022/Winter/OOP/Assignment/1 python3 test.py
Player 1 chose "Scissors" ---- Player 2 chose "Paper" -> Player 1 win!
~/Desktop/Mcmaster/2022/Winter/OOP/Assignment/1 python3 test.py
Player 1 chose "Paper" ---- Player 2 chose "Spock" -> Player 1 win!
~/Desktop/Mcmaster/2022/Winter/OOP/Assignment/1 python3 test.py
Player 1 chose "Paper" ---- Player 2 chose "Lizard" -> Player 2 win!
~/Desktop/Mcmaster/2022/Winter/OOP/Assignment/1 python3 test.py
Player 1 chose "Scissors" ---- Player 2 chose "Spock" -> Player 2 win!
```

Conclusion

Through this assignment1, I learned that there are many types of python operators and conditional statements. I was also able to learn how to import random module to generate random choices from dictionary. As a tool, it is extremely important to have that knowledge and understanding how to build up the case statement for every programmer.