

COSC 1306 Programming Assignment 2: Rock, Paper, Scissors Game

Due: Wednesday, October 16th, 2019 at 11:59 PM

Objective:

The goal of this assignment is for you to become more proficient with using functions and conditional statements.

Problem:

You will be given PA2.py which is a python file that contains starting code for a rock, paper, and scissors game. You will need to fill in the missing code blocks identified by the comment lines. In this game the program will take input from the user and be matched against the computer's input that will be randomly generated using the import random module. **(Tutorial on this library: <http://bit.ly/2oTjX1u>)** You will compare these inputs to determine who is the winner of the game and print this out to the console. Your program will stop when either the user or the computer wins 2 out of 3 games.

Function 1: Implement the numberToName function.

Purpose: This function will be used to convert an integer choice into the corresponding string.

Parameter: 1 Integer

Output Return: 1 String

Example:

If the value of this variable is equal to 1 then you will return "rock".

If the value of this variable is equal to 2 then you will return "paper".

If the value of this variable is equal to 3 then you will return "scissors".

(Note: Inside this function you will not print any output but rather return one of the above values)

Function 2: Implement the rockPaperScissors() Function

Purpose: This function will be used to determine the winner of the match.

In here you will need to take the users input and then randomly generate a number using the "random" library **(Tutorial on this library: <http://bit.ly/2oTjX1u>)**. Now that we have both numerical inputs stored, we can call the numberToName function to convert these numerical inputs into their corresponding string and print.

For example:

```
1
Player 1 Chooses rock
Player 2 Chooses scissor
Player 1 wins
```

In this case Player 1 (the user) inputs 1 and player 2 (the Computer) inputs 3. numberToName() converts the input and displays the corresponding string. The function will then determine the winner is player 1 and returns a "W", if Player 1 were to lose then the function returns an "L" and then if there is a tie the function returns "T".

Parameters: Optional

Return: "W", "L" or "T"

You will need to store the output of this function into a string or optionally a list. In the main of your program your while loop needs to stop when your string stores 2 W's or 2 L's and will announce the winner.

Function 3: Implement countLetters function

Purpose: This function will allow us to keep track of how many wins or loses we have. Since this game is best 2 out of 3 wins, we will need this function to stop our while loop when we reach 2 “W”s in our string or 2 “L”s

Parameters: String, Char

Return: Integer

Example Game:

```
Please select one of the menu options
 1. Start game of rock, paper, scissors
-1. to exit the program.
1

Starting Game... Input 1 for rock, 2 for paper or 3 for scissor.

2
Player 1 Chooses paper
Player 2 Chooses paper
Player 1 and Player 2 Tie
3
Player 1 Chooses scissor
Player 2 Chooses scissor
Player 1 and Player 2 Tie
1
Player 1 Chooses rock
Player 2 Chooses scissor
Player 1 wins
2
Player 1 Chooses paper
Player 2 Chooses scissor
Player 2 wins
1
Player 1 Chooses rock
Player 2 Chooses paper
Player 2 wins
Player 2 wins the best 2 out of 3

Please select one of the menu options
 1. Start game of rock, paper, scissors
-1. to exit the program.
```

Example Game:

```
Please select one of the menu options
1. Start game of rock, paper, scissors
-1. to exit the program.
1

Starting Game... Input 1 for rock, 2 for paper or 3 for scissor.

1
Player 1 Chooses rock
Player 2 Chooses rock
Player 1 and Player 2 Tie
2
Player 1 Chooses paper
Player 2 Chooses rock
Player 1 wins
3
Player 1 Chooses scissor
Player 2 Chooses paper
Player 1 wins
Player 1 wins the best 2 out of 3

Please select one of the menu options
1. Start game of rock, paper, scissors
-1. to exit the program.
```

Submission Instructions

This assignment is due on **Wednesday, October 16th, 2019 at 11:59 PM**

Turn in your LastName_FirstName_PeopleSoftID_PA2.py file through the assignment link on Blackboard.

No other files are needed. Points will be deducted if your file does not follow this convention. Example:
Smith_Will_1234567_PA2.py

Additional Requirements

Your **source code must run without errors in order to receive credit for this assignment**. Make sure you run and test your code carefully before submitting. Add comments throughout your code that describe what each section of the program is supposed to do.

Questions:

If you have any questions, please ask on Piazza or visit a member of the COSC1306 team during office hours.

Grading Rubric:

Task	Function implementation	Grading
Task #1	numberToName	25
Task #2	countLetters	25
Task #3	rockPaperScissors	25
Task #4	while loop in main code	25