Lab 7 – Rock, Paper, Scissors

Goals

- Write a program that utilizes functions to simulate a game of rock-paper-scissors
- Continue practicing with loops
- Continue practicing with variable declaration and assignment

Setup

- Create a new .py file in your desired directory, and rename the file
- When you name the code, use the following naming convention

  `ITP115_l#_lastname_firstname`

  (replace # with this lab number)
- Your new file must begin with comments in the following format *(replace the name and email with your actual information):*

```
# Name
# ITP 115, Spring 2017
# Lab practical L^ (replace ^ with this lab number)
# USC email
```

Description/Rules of Program

- Write a program that allows the user to play Rock, Paper, Scissors against the computer.
- When the program begins, you randomly choose a number from 0 to 2, which will represent the computer's choice with 0 for rock, 1 for paper, or 2 for scissors.
- The user then enters his/her choice of 0 for rock, 1 for paper, or 2 for scissors.
- A winner is selected based on the following rules:
  - Rock smashes scissors (If one player chooses rock and the other chooses scissors, then the player who chooses rock wins).
  - Scissors cut paper (If one player chooses scissors and the other chooses paper, then the player who chooses scissors wins).
  - Paper covers rock (If one player chooses paper and the other chooses rock, then the player who chooses paper wins).
  - If both players make the same choice, then it is a tie.

- The game continues as long as the player wants to continue.
- When the player decides to exit the program, display the score results (how many times the player won and how many times the computer won).

Requirements

- **`main()`**
  - Input: none
  - Output: none
  - Create a while loop that runs as long as the user wants to continue the game
  - In the loop, you should display the menu, get the computer's choice, get the player's choice, and play a round (see who won)
  - Since **`playRound`** will return the result of who won the game, you will also need to keep track of the score
    - This means keeping a counter for how many times the computer won, a counter for how many times the player won, and a counter for how many times they tied
    - These counters should be local variables to **main** and should be changed based on the return value (output) of **`playRound`**
  - Call **`continueGame`** to ask the user if they want to continue, and use their response to control the while loop
  - When the user exits, display all the final results (i.e. number of ties, number of player wins, and number of computer wins)
- In addition to **main,** your program should have the following functions
  - **`displayMenu()`**
    - Input: none
    - Output: **none**
    - displays the game rules to the user
  - **`getComputerChoice()`**
    - Input: none
    - Output: **integer** that is randomly chosen, a number between 0 to 2
  - **`getPlayerChoice()`**
    - Input: none
    - Output: **integer** represents the choice
    - Asks the user for their choice: 0 for rock, 1 for paper, or 2 for scissors.
  - **`playRound(computerChoice, playerChoice)`**

- Input: two **integers—**one representing the computer's choice **(0, 1, or 2)** and the other representing the player's choice **(0, 1, or 2)**
- Output: **integer**
  - return **-1** if the computer won the round
  - return **1** if the player won the round
  - return **0** if there was a tie
- This method contains the game logic so it simulates the game and determines a winner. Use the logic described above to see who should win a round

- **`continueGame()`**
  - Input: none
  - Output: **boolean**
  - Ask the user if they want to continue **(Y/N)**, and then return **True** or **False** accordingly
  - Note: This function must return **`True/False`** as a boolean, not as a string

Sample Output

```
Welcome! Let's play rock, paper, scissors.
The rules of the game are:
   Rock smashes scissors
   Scissors cut paper
   Paper covers rock
   If both the choices are the same, it's a tie
Please choose (0) for rock, (1) for paper or (2) for scissors
0
You chose Rock.
The computer chose Paper.
Paper covers rock. Computer wins!
Do you want to continue playing? Enter (y) for yes or (n) for no.
y

Welcome! Let's play rock, paper, scissors.
The rules of the game are:
   Rock smashes scissors
   Scissors cut paper
   Paper covers rock
```

```
   If both the choices are the same, it's a tie
Please choose (0) for rock, (1) for paper or (2) for scissors
1
You chose Paper.
The computer chose Scissors.
Scissors cut paper. Computer wins!
Do you want to continue playing? Enter (y) for yes or (n) for no.
n

You won 0 game(s).
The computer won 2 game(s).
You tied with the computer 0 time(s).

Thanks for playing!
```

Deliverables and Submission Instructions

- Create a folder on your computer called
  ITP115_a#_lastname_firstname
  (replace # with this lab number)
- Inside the folder, include your python source code
- Compress the folder (make a zip file) called
  ITP115_a#_lastname_firstname.zip
  (replace # with this assignment number)
- Upload zip file to Blackboard site for our course