Assignment 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 Python file. It must begin with comments in the following format (replace the name and email with your actual information and write text for the description):

```
# Name, USC email
# ITP 115, Spring 2020
# Assignment 7
# Description:
# Describe what this program does.
```

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 (y or n)? 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 (y or n)? 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_A7_*LastName_FirstName*** (replace *LastName* with your last/family name and FirstName with your first name).
- Inside the folder, put your python source code.
- Compress the folder (make a zip file). This cannot be done within PyCharm. Find the folder on your computer and compress it.
  a. Windows:
     1. Using File Explorer, select your lab file
     2. Right click
     3. Send to ->
     4. Compressed (zipped) folder
  b. Mac OSX:
     1. Using Finder, select your lab file
     2. Right click
     3. Compress "*FileName*"
- Upload the zip file to your Blackboard section:
  1. On Blackboard, click on the Assignments item in the course menu on the left.
  2. Click on the specific item for this assignment (starts with A and a number).
  3. Click on the Browse My Computer button and select your zip file.
  4. Click the Submit button.

Grading

Item	Points
main()	10
displayMenu()	2
getComputerChoice()	3
getPlayerChoice()	5
playRound()	10
continueGame()	5
Total*	**35**

** Points will be deducted for poor code style, lack of error checking, improper submission.*