Lab 9-1 – Coin Flipping

Goals

- Familiarity with random module
- Familiarity with if and if/else statements
- Familiarity with loops (while/for)
- Learn how to write and use functions

Setup

- In PyCharm, create a new project or open an existing one (such as Labs)
- Create a new Python file using the following naming convention:
  `ITP115_L9_1_`*`LastName_FirstName`*
  (replace *LastName* with your last/family name and *FirstName* with your first name)
- Your new file must begin with comments in the following format (replace the name and email with your actual information):

```
# Name, USC email
# ITP 115, Spring 2020
# Lab 9-1
```

Requirements

Your program must perform the following:

- You will write a program that will run an experiment with tossing a coin.
- Write the three functions in the order they appear here: **`coin`**, **`experiment`**, **`main`**. Each function does a simple operation, but the complexity comes because **`main`** calls the **`experiment`** function, and **`experiment`** calls the **`coin`** function.
- Write a function called **`coin`** that simulates the flip of a coin returning "**`heads`**" or "**`tails`**".
  - Parameters: none
  - Returns: a string - either "heads" or "tails"
  - Use random to generate a random number to determine "heads" or "tails"
- Write a function called **`experiment`** that simulates the process of flipping coins by calling the **`coin`** function
  - Parameters: none
  - Returns: int that equals the number of flips it took to get three "heads"
  - Create a loop that calls the **`coin`** function repeatedly until you get "**`heads`**" three times in a row

    - Hint: Before the loop, create two variables to keep track of the number of flips and the number of heads
    - Return the number of flips it took to get three "**heads**" in a row
    - Examples
        - HHH 3 flips
        - THHH 4 flips
        - HHTHHH 6 flips
- Write a function called **main** that runs the **experiment** function
    - Parameters: none
    - Returns: none
    - Run the experiment 10 times
    - Display the average number of flips it takes to get 3 "**heads**" in a row

Sample Output (You will get different output)

```
The average for 3 heads in a row is: 17.7

The average for 3 heads in a row is: 3.3
```

Deliverables and Submission Instructions

- Create a zip file containing your Python code. This cannot be done within PyCharm. Find the file or 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 Labs item in the course menu on the left.
    2. Click on the specific item for this assignment (starts with L and a number).
    3. Click on the Browse My Computer button and select your zip file.
    4. Click the Submit button.