APSU Coding Camp #B : Assignment 2

When you see "Richard Ricardo" in the example screen captures, change it to **<your name>**.
When you see "Richard" in the example screen captures, change it to **<your first name>**.

Question 1 – Variable, Arithmetic
Save your file as **q01.py.**
Write a Python program which accepts the radius of a circle from the user and compute the area.
- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q1
Input the radius of the circle : 10
area of circle = r^2 * pi
10.0^2 * 3.141592653589793 = 314.1592653589793
The area of the circle with radius 10.0 is: 314.1592653589793
```

Example 2
```
Welcome to Richard Ricardo's Python Q1
Input the radius of the circle : 5
area of circle = r^2 * pi
5.0^2 * 3.141592653589793 = 78.53981633974483
The area of the circle with radius 5.0 is: 78.53981633974483
```

Question 2 – Variable, Arithmetic
Save your file as **q02.py.**
Write a Python program that accepts an integer (n) and output the value of n, n^2, and n^3.
- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q2
Input an integer : 10
10 100 1000
```

Example 2
```
Welcome to Richard Ricardo's Python Q2
Input an integer : 5
5 25 125
```

Question 3 – import calendar module, research by google search
Save your file as **q03.py.**
Write a Python program to print the calendar of a given month and year. Note : Use 'calendar' module.
- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q3
Input the year : 2018
Input the month : 6
     June 2018
Mo Tu We Th Fr Sa Su
             1  2  3
 4  5  6  7  8  9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30
```

Example 2
```
Welcome to Richard Ricardo's Python Q3
Input the year : 2059
Input the month : 7
     July 2059
Mo Tu We Th Fr Sa Su
    1  2  3  4  5  6
 7  8  9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31
```

Question 4 – Variable, Arithmetic
Save your file as **q04.py.**
Write a Python program to find whether a given number (accept from the user) is even or odd. Also check if
the number is divisible by 3 or divisible by 4.
- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q4
Enter a number: 16
16 is an even number.
16 is NOT divisible by 3.
16 is divisible by 4.
```

Example 2
```
Welcome to Richard Ricardo's Python Q4
Enter a number: 9
9 is an odd number.
9 is divisible by 3.
9 is NOT divisible by 4.
```

Question 5 – Conditional, Iteration
Save your file as **q05.py.**
Write a Python program to ask user to input a list of integers. Hence calculate the average of this list of integers, and create a histogram from this list of integers.
- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q5
Please enter an integer (or 'done' to exit): 3
Please enter an integer (or 'done' to exit): 5
Please enter an integer (or 'done' to exit): 6
Please enter an integer (or 'done' to exit): done
Average = 4.666666666666667
Histogram of the entered integers:
***
*****
******
```

Example 2
```
Welcome to Richard Ricardo's Python Q5
Please enter an integer (or 'done' to exit): 1
Please enter an integer (or 'done' to exit): 2
Please enter an integer (or 'done' to exit): 3
Please enter an integer (or 'done' to exit): 4
Please enter an integer (or 'done' to exit): done
Average = 2.5
Histogram of the entered integers:
*
**
***
****
```

Question 6 – import multiprocessing, getpass modules, research by google
Save your file as **q06.py.**
Write a Python program to find out the number of CPUs, and to find out the current username.
- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q6
Number of CPUs = 8
Current User = Leong Lee
```

Question 7 – Conditional, Iteration
Save your file as **q07.py.**
Write a Python program to test whether all numbers of a user-input list is greater than a certain user-input number.

- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q7
Please enter a number (or 'done' to exit): 2.1
Please enter a number (or 'done' to exit): 3.5
Please enter a number (or 'done' to exit): 4
Please enter a number (or 'done' to exit): done
Enter a number to compare: 1.5

2.1 3.5 4.0
are all bigger than 1.5
```

Example 2
```
Welcome to Richard Ricardo's Python Q7
Please enter a number (or 'done' to exit): 2.5
Please enter a number (or 'done' to exit): 3.1
Please enter a number (or 'done' to exit): 4.2
Please enter a number (or 'done' to exit): done
Enter a number to compare: 5

2.5 3.1 4.2
are NOT all bigger than 5.0
```

Example 3
```
Welcome to Richard Ricardo's Python Q7
Please enter a number (or 'done' to exit): 2.3
Please enter a number (or 'done' to exit): 4
Please enter a number (or 'done' to exit): 3.5
Please enter a number (or 'done' to exit): done
Enter a number to compare: 3.6

2.3 4.0 3.5
are NOT all bigger than 3.6
```

Question 8 – Conditional, Iteration, Lists
Save your file as **q08.py.**
Write a Python program to filter the positive numbers from a user-input list, also filter the negative numbers.
- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q8
Please enter a number (or 'done' to exit): 3
Please enter a number (or 'done' to exit): 4
Please enter a number (or 'done' to exit): -2.1
Please enter a number (or 'done' to exit): -4.5
Please enter a number (or 'done' to exit): 0
Please enter a number (or 'done' to exit): 10
Please enter a number (or 'done' to exit): done
Original numbers in the list:  [3.0, 4.0, -2.1, -4.5, 0.0, 10.0]
Positive numbers in the list:  [3.0, 4.0, 10.0]
Positive numbers in the list:  [-2.1, -4.5]
```

Example 2
```
Welcome to Richard Ricardo's Python Q8
Please enter a number (or 'done' to exit): -1.5
Please enter a number (or 'done' to exit): 2.3
Please enter a number (or 'done' to exit): 3.1
Please enter a number (or 'done' to exit): done
Original numbers in the list:  [-1.5, 2.3, 3.1]
Positive numbers in the list:  [2.3, 3.1]
Positive numbers in the list:  [-1.5]
```

Question 9 – Conditional, Iteration
Save your file as **q09.py.**
Write a Python program to ask user to input a number, if it is not a number generate an error message. The program will loop until a number is entered.
- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q9
Input a number: number
number is not a number. Try again...
Input a number: this is not fun
this is not fun is not a number. Try again...
Input a number: 11.5
```

Example 2
```
Welcome to Richard Ricardo's Python Q9
Input a number: 14
```

Question 10 – Arithmetic Conditional, Iteration, List
Save your file as **q10.py.**
Write a Python program to
1. Use a function to sum all the items in a user-input list
2. Use a function to multiplies all the items in a user-input list
3. Use a function to get the largest number from a user-input list
4. Use a function to get the smallest number from a user-input list

- Your instructor will run a sample program on the screen, without showing you the answer.
- Your sample input and output should look like this:

Example 1:
```
Welcome to Richard Ricardo's Python Q10
Please enter a number (or 'done' to exit): 2
Please enter a number (or 'done' to exit): 3
Please enter a number (or 'done' to exit): 5
Please enter a number (or 'done' to exit): done
Original numbers in the list:  [2.0, 3.0, 5.0]
Sum of this list = 10.0
Product of this list = 30.0
The largest number in this list = 5.0
The smallest number in this list = 2.0
```

Example 2
```
Welcome to Richard Ricardo's Python Q10
Please enter a number (or 'done' to exit): 1.1
Please enter a number (or 'done' to exit): 2.5
Please enter a number (or 'done' to exit): 3.1
Please enter a number (or 'done' to exit): -4.2
Please enter a number (or 'done' to exit): done
Original numbers in the list:  [1.1, 2.5, 3.1, -4.2]
Sum of this list = 2.5
Product of this list = -35.805
The largest number in this list = 3.1
The smallest number in this list = -4.2
```

Submission Instruction
Please show all files to your camp instructor.