Computer Science I Bill Griffith PhD
HW1 8 pts

Due Thursday, September 5, 11:59 PM

General Instructions

Create a folder named ***HW1_LASTNAME_FIRSTNAME***. You will populate the folder with **ALL** of the .py files you write for this homework. To submit the homework, verify the folder includes all your .py files, compress (zip) the folder then upload to Canvas. Remember to include the following comments at the **top of each** of your .py files:

```
# description:
# author:
# date:
```

Before you start

If you have not already installed Python on your computer, then follow the instructions given in the Lecture 1 Power Point (PPt) posted in Canvas to download and use Python.

Instructions

(Part 1 → 2 points) – HelloWorld Program

Create a new file and save it as ***helloworld.py*** in the folder you just created.
Add the following comments to your file. Do not create any functions.

NOTE Every ***.py*** file that you create in this course should start with these three lines.

```
# description: This is my first program
# author : LASTNAME, FIRSTNAME
# date: Month.Day.2019
```

Next, write a Python program that has a print statement that displays the string “Hello World”.

Once you have written the code, save it to the file then ship your program definition to the Python Shell by hitting the F5 key. Run and debug it.

(Part 2 → 3 points) – Conversion of a decimal number to binary and hexadecimal.

Create a new Python program and save it as ***BinHex.py*** in the folder you created.

The output must look like:
(Actually use these numbers in your submission but please experiment with other inputs)

```
Enter an integer: 344

The decimal value of 344 is:

0b101011000 in binary.
0x158 in hexadecimal.
```

In this program, you will have to use built-in functions `bin()` and `hex()` to convert the given decimal number into respective number systems. These functions take an integer (in decimal) and return a string. They are built in functions. You do NOT need to import the **math** functions at the head of your program.

Once you have written the code, save it to the file then ship your function definition to the Python Shell by hitting the F5 key. Run and debug.

(Part 3 → 3 points) – Hypotenuse

Create a file called hypotenuse.py. Write a Python program called **hypotenuse** that accepts two floating point numbers, which are the base and height of a right-triangle, and uses the Pythagorean Theorem to return the length of the hypotenuse. **Do not create any functions in this program. We will discuss user-created functions in class.**

$$c = \sqrt{(a^2 + b^2)}$$

If you use the math function **math.sqrt**, you will need to import the math library at the head of your program, for example:

```
import math
```

You want to prompt the user to enter the base and height into your program. So, prompt the user to enter values for the base and height of the triangle:

Getting input from user is done by using input(). Example:

```
base = float (input("Enter the base of the triangle: "))
height = ….
```

Then, once you have the user input stored in those variables, compute the hypotenuse using those user-supplied number.

Sample program output:

>>> Enter the base of the triangle: 6
>>> Enter the height of the triangle: 3

The result is 6.7082039325

What to turn in?

Make sure all your files are saved in the folder HW1_LASTNAME_FIRSTNAME, then compress (zip) the folder and upload to Canvas.

If you encounter any problems in completing the assignment or in the submission process, please don't hesitate to ask for help.