**PROGRAMMING ASSIGNMENT 3**

Write your responses to parts 2 and 4 in the ‘Programming Assignment Documentation Template’ found in ManageBac. Make sure to include your name and the programming assignment number. Your code can be uploaded alongside the accompanying word document.

PART 1: PROBLEM STATEMENT

I do a lot of calculations, so a program that could help me do them more quickly would be a lifesaver. I’ve heard tell of something called a ‘calculator’ and it would be great if you could build me one of those. I know that I could just go to the dollar store and grab one, but truly I don’t really feel like it.

I work with a lot of geometry, so I’d like to have functions that calculate the volume of lots of three-dimensional objects. I’d like the program to have functions that take input and calculate the volume of:

* Cylinder
* Cone
* Sphere
* One of your choosing!

PART 2: BRAINSTORMING THE ALGORITHM

Before you jump into writing any code, jot down your thought process. Then, for each procedure you’ll need to create, write out what input values you’ll need to obtain from the user.

A big part of this program, and the reason we’re doing it, is to create a program that continually loops, and does not need to be restarted to be used again, so consider how you may be able to design your program to fulfill this goal.

Do this step in the ‘Programming Assignment Documentation Template’ found in ManageBac.

PART 3: WRITE THE PROGRAM

Write your code in a replit project, or VS Code .py file, whichever is easiest.

You will write four procedures total, one for the volume of each of the shapes.

The program will include a menu that gives instructions on which inputs to give the program to access which parts of the program. A stripped-down version of the menu is provided below, including an example of the output for a cylinder’s volume.

A screenshot of a computer program

Description automatically generated

PART 4: REFLECTION

Answer the following questions in the ‘Programming Assignment Documentation Template’ found in ManageBac.

1. Were there any non-standard math functions (square root, for example) you needed to use in your calculations? If so, where did you find out how to use them?
2. How did you accomplish the program loop? Making the program continually ask the user for input?
3. What were some considerations in designing the procedures? Do the procedures ask for input? The main program loop?