Basic Python

Lab Exercise 1

1. Calculate the Volume of a sphere

A. Write a small program that will calculate the volume of a sphere. Use floating point values rather than integer values for the calculations.

Recall that the equation needed to calculate the volume of a sphere is:

$4/3 \Pi r^3$

You will need to create a constant variable called *PI*. Use the following value for this constant.

3.1415926535897931

Set the radius of the sphere equal to the value of 3.

B. Modify the program. Allow the user to input the value of the radius rather than setting it manually.

C. Modify the program again. Add two functions to calculate the circumference and the area of the sphere. The formulas for those are:

Area:

$4 \Pi r^2$

Circumference:

$2 \Pi \% r$

1a. Changing shapes

A. Modify the program yet again. Allow the user to choose one of the following shapes:

1. Sphere
2. Circle
3. Rectangle
4. Square
5. Triangle

This table will the formulas to calculate for each type of shape.

Shape	**Formulas**
Sphere	Volume Area Circumference
Circle	Area Circumference
Rectangle	Area
Square	Area
Triangle	Area

Again, as before, allow the user to choose the basic measurements of each shape, i.e. radius for circles and spheres, width and height for rectangles, length for squares and width and height for triangles.