

# CSC1015F Assignment 2A (Lab Question)

Console Input/Output and Control (if)

## Assignment Instructions

THIS QUESTION TO BE COMPLETED DURING YOUR LABORATORY SESSION

This assignment involves constructing Python programs that use input and output statements, 'if' and 'if-else' control flow statements, and statements that perform numerical manipulation.

You may need to use additional attributes of the print statement that control what is printed at the end of each print statement (`end="\n"`) and separating each value in a list of values (`sep=" "`). For example:

```
print ("a", "b", "c")
```

displays "a b c"

```
print ("a", "b", "c", sep="|")
```

displays "a|b|c"

You will also want to be able to print decimal numbers to two decimal places. Here are a couple of examples:

```
from math import pi
print ("The value of PI is %.2f." % pi)
```

displays "The value of PI is 3.14."

```
print ("My height is %.2f!" % 1.98120)
```

displays "My height is 1.98!"

**NOTE** Your solutions to this assignment will be evaluated for correctness. *Assignments that follow will also be evaluated for the following qualities:*

- Documentation
  - Use of comments at the top of your code to identify program purpose, author and date.
  - Use of comments within your code to explain each non-obvious functional unit of code.
- General style/readability
  - The use of meaningful names for variables and functions.
- Algorithmic qualities
  - Efficiency, simplicity

These criteria will be manually assessed by a tutor and commented upon. In future assignments, up to 10 marks will be deducted for deficiencies.

## Question 1 [30 marks]

The volume of a cone of height  $h$  and radius  $r$  is calculated using the following equation:

$$\frac{h}{3}\pi r^2$$

Write a program called `'cone.py'` that asks the user to enter the height of a cone and the radius of its base, and that calculates and prints the volume.

Sample I/O:

```
Enter the height of the cone:
```

**6.6**

```
Enter the radius of the base:
```

**3**

```
The volume is 62.20.
```

(User input is shown in **bold**.)

The value for the volume should be printed to 2 decimal places.

The program will only compute the volume if the values for  $h$  and  $r$  are greater than zero.

Sample I/O:

```
Enter the height of the cone:
```

**-2**

```
Enter the radius of the base:
```

**3**

```
The height and radius must be greater than zero.
```

(User input is shown in **bold**.)

Sample I/O:

```
Enter the height of the cone:
```

**2**

```
Enter the radius of the base:
```

**0**

```
The height and radius must be greater than zero.
```

(User input is shown in **bold**.)

## Submission

Create and submit to the automatic marker a Zip file called `ABCXYZ123.zip` (where `ABCXYZ123` is YOUR student number) containing `cone.py`.

### NOTES:

1. FOLDERS ARE NOT ALLOWED IN THE ZIP FILE.
2. As you will submit your assignment to the Automarker, the Assignment tab will still say "Not Complete" or "In Progress" or something similar. THIS IS COMPLETELY NORMAL. IGNORE IT.