Lab 1

CSE101 : Introduction to Programming

(Monsoon 2019)

August 7, 2019

Name :

Roll Number :

1. **Installing Python 3.x :** https://realpython.com/installing-python/
   In this course, we'll be using python 3.x version to run our programs. If you haven't installed python 3.x in your computer, then open the link and learn how to install python 3.x on Windows/Linux/MacOS.
   Carefully read each and every instruction on how to install python in your particular operating system.

2. Interactive Mode vs Script Mode :

a. Interactive Mode :

- Open Terminal in Linux/MacOS or Command Prompt in Windows.
- Type **python** and hit enter. What do you see? (Type **exit()** to exit)
- Type **python3** and hit enter. What do you see? (Type **exit()** to exit)
- Do you see any difference in the above two outputs? If yes, write in one or two lines, what do you understand of it.
- What you just experienced was the interactive mode of python, in which you write one line of code at a time.
- For eg : type **(4 + 3)** after >>> and hit enter. What happened and what do you see? (write one or two lines)

b. Script Mode :

- We write python code (one or more lines) in a file and save it with a **.py** extension.
- To run the file, open a Terminal or Command Prompt (make sure you are in the working directory of the file).
- Type `python3 (or python) filename.py` and hit enter.
- For eg :
  - Open any text editor like Sublime Text, Notepad, etc. and create a file with name **Lab1.py**
  - Type (do not copy) `print("Welcome to CSE101")`
  - Save the file and run it as mentioned above.
  - What happened and what do you see? (write one or two lines)

3. Expressions

The following pages contain lists of expressions. **Proceed row-wise (fill in the second and third column of a row before moving on to the next row)**. You want to learn from earlier examples before moving on to the next one. **For each expression,**

(1) Evaluate the expression to get its value in your head, without Python. Write down what you think the value is in the second column of the table. If you have no idea, write "?".

(2) Next, use Python to evaluate the same expression, by entering it in at the Python prompt, >>>, and then hitting the "enter" key. (Alternately, copy-and-paste it from the online version of these instructions.) Write down Python's result in the third column.

If the values in column two and three differ, spend a few seconds trying to figure out why Python gave the answer that it did, and put the reason in the final column. Don't waste too much time trying to figure things out yourself. If you do not understand something, ask the Teaching Assistant **politely by raising your hand** and **be patient till the TA comes at your desk.**

a. Types and Casting

Expression	**Expected Value**	**Calculated Value**	**If different, why?**

float(4)			
int(7.2)			
int(8)			
float(int(7.3))			
int(-2.3)			
int(-3.7)			
float(9) / 5			
float (9/5)			

b. Int and Float Expressions

Expression	**Expected Value**	**Calculated Value**	**If different, why?**
3 * 6			
2 ** 4			
5 + 7 * 5			
(5 + 2) * 6			
-5 - -4 - -5			
7 ** 2 ** 0			
(6 ** 2) ** 0			
6 / 3			
7 / 4			
7.0 / 4			
7 / 4.0			
16.0 * 0.5			
16.0 ** 0.5			
16 % 2			
17 % 2			
6.2 % 4			

9.0 % 3			

c. Comparison and Boolean Expressions

Expression	**Expected Value**	**Calculated Value**	**If different, why?**
6 < 8			
4 < 5 and 5 < 4			
True			
true			
True and False			
True and True			
True or False			
False or False			
not True			
not (False or True)			
True and False and True			
True or (False and True)			
(3 / 0 == 1) and False			
False and (3 / 0 == 1)			

Why does the last expression in the table above “work” but the one above it doesn’t? (write one or two lines)
