University of Aberdeen, Department of Computing Science

CS1028 Practical 2

Programming for Science and Engineering

23 September, 2019

1 Some Python Questions

You do not need a running Python environment to be able to answer the following questions. You should be able to do this from looking at the previous week's lecture slides. For programming answers, you can either write a Python program, or you can write pseudocode.

1.1 Questions:

1. Compose a program that writes the Hello, World message five times
2. Tell us what happens if you miss the following in **helloworld.py**:
   a) import
   b) stdio
   c) import stdio
3. Tell us what happens if you misspell these:
   a) iport
   b) sdio
   c) wite
   d) witeln
4. Tell us what happens if you miss these from **helloworld.py**:
   a) the first ‘

b) the second ‘

c) the **stdio.writeln()** statement

5. Describe what happens if you try to execute **useargument.py** with each of the following:
   a) python useargument.py python
   b) python useargument.py 1234
   c) python useargument.py Bob
   d) useargument.py Bob

6. Suppose that **a** and **b** are integers. What does the following sequence of statements do? Draw an object level trace of this computation.
   t = a
   b = t
   a = b

7. Suppose that **a** and **b** are booleans. Show that the expression:
   (not (a and b) and (a or b)) or ((a and b) or not (a or b))
   evaluates to **True**

8. Simplify the following expression:
   (not (a < b) and not (a > b))

9. What does **stdio.writeln((1.0 + 2 + 3 + 4) / 4)** write?

10. Suppose that **a** is 3.14159. What do each of these statements write?
    stdio.writeln(a)
    stdio.writeln(a + 1.0)
    stdio.writeln(8 // int(a))
    stdio.writeln(8.0 / a)
    stdio.writeln(int(8.0 / a))
    Explain each outcome

2 Your Python Programming Environment

Once you have completed Section 1, you should now be getting familiar with the basic concepts, and you will now be ready to create your Python programming environment. You will need this to be able to work on all the subsequent course materials.

The first thing you will need to do is to get yourself a proper text editor, so that you can work on more than one file quickly, and in bulk, as required. The standard text editor is not up to this task. You cannot use a program like Word either.

For Windows machines, a program such as Notepad ++, or Edit Pad Lite will allow you to

open multiple web page files simultaneously in order to edit several at the same time. A program such as Gedit or Geany for Linux based systems would be ideal for this task.

2.1 Some useful free links

Windows 10:
`https://filehippo.com/download_notepad_64/download/6e67857674ec5ce17dad5a20fab1c15a/`
`https://www.editpadlite.com/`

Linux:
Gedit may already be installed on your version. Both may be installed from your software repository if not.

Mac OS X:
`http://macappstore.org/gedit/`
`http://macappstore.org/geany/`

For those of you who will use a lab computer, if you have access to a Windows 10 computer, you could install these text editors on a fast USB stick from off campus. You may possibly then be able to run the software from your USB stick on campus. Failing that, you will be stuck with using Notepad — one program at a time. You can also use the USB stick to create your Python programming environment which you can transport with you. This is likely to be easier than trying to remember to save your work to your H: drive.

2.2 Creating your Python programming environment

1. Create a working folder on your laptop, or your USB drive, or both
2. You will need to copy in the .py program files, the .py I/O libraries and the data sets. These will be made available to you by the demonstrator
3. For a portable environment, you should add the Windows text editor software, which you will have to install on your USB disk off campus
4. Now you need to check whether you have Python loaded on your laptop
   a) Open a Command Prompt (Win/Linux/Mac
   b) Type the command **python**
   c) Your system will tell you which version you have loaded if it is installed, otherwise the command will fail
5. If you need to install Python, then use these links:

a) Windows 10 https://introcs.cs.princeton.edu/python/windows3/

b) Linux https://introcs.cs.princeton.edu/python/linux3/

c) Mac OS Xhttps://introcs.cs.princeton.edu/python/mac3/

6. Once that is done - you are ready for action!