

**SUMMER 2011  
KENYA**

**Due: Thursday, June 16 2011**



**PYTHON L01:**

We will learn more about the python language when we meet on Thursday, but we want you to get started with the basics of the Python language.

**Exercise 1.1) Installing Python and Idle**

If you are using a computer in the Kiambere Lab you do not have to do this exercise. We have already installed Python and Idle on Ubuntu.

If you are using Ubuntu, Python is probably already installed. Check if you have Python by typing this command at the terminal.

```
~$ python -V
```

If you get something like “Python 2.5.4”, you have python installed already.

If you do not get a version number you can type this command to download and install Python:

```
~$ sudo apt-get install python
```

Similarly, to install Idle use this command:

```
~$ sudo apt-get install idle
```

Alternatively, if you are using Windows follow the instructions at:

[http://www.annedawson.net/Python\\_Install\\_Run.htm](http://www.annedawson.net/Python_Install_Run.htm) (**please do not install Python 3.x**).

**Exercise 1.2) Getting started with Idle**

IDLE is the standard integrated development environment for Python. Its name is an acronym of "Integrated DeveLopment Environment". IDLE has a Python shell window that provides access to the Python interactive mode. It also has a file editor for creating and editing source files and a basic debugger for debugging your programs.

Type this command at the terminal to start idle:

```
~$ idle
```

You can type Python code directly into the interactive Python shell, at the '>>>' prompt. Whenever you enter a complete code fragment, it will be executed. For instance, typing:

```
>>> print 'Hello, AITI!'
```

and pressing ENTER, will cause the following to be displayed:

```
Hello, AITI!
```

```
Congratulations!!!
```

```
You have just written your first program. :-)
```

### **Exercise 1.3) Using the IDLE file editor**

The interactive python shell is good if you want to try out a few simple commands but if you want to run your program many times, you would want to create a script file. To do that, click on File ⇒ New Window. This will bring up the file editor window. Here you can type each line of the program. The IDLE editor will automatically indent the lines for you. Indentation is very important in Python as you will soon discover.

Type:

```
print 'Hello, AITI!'
```

When you are done typing in your file, type Ctrl-s in the source window (hit the s key while holding down the Ctrl key). The first time you save the file, you will be prompted to enter a filename, e.g. HelloAITI.py. Do NOT skip the '.py' portion of the file name--otherwise, you will lose out on syntax highlighting! Save your file any time you are finished making changes to your code.

To run your program, chose Run Module from the Run menu (or just hit F5 on Windows/Ubuntu or fn-F5 on a Mac)

### **Ex 1.4) Errors in Python:**

Type this onto the interactive shell:

```
a = 95  
print c
```

Save it and run your program. **Always save your last change before you run your program :)**

What do you see? When an error occurs in the course of running your program, the interpreter prints an error message. Try to identify why an error occurred.

Now, type: print a, save it and Run the code. It should work fine.

### **Ex 1.5) The Python Console: Using Python as a Calculator**

The Python interactive shell can be used as a calculator. In this exercise, you will practice using the python shell as a calculator.

For example, if you type

```
>>>4+4
```

and press enter you should see 8

1. What does the Python shell output if you try to compute  $11/2$ ?

What about  $11.0/2$ ?

Interesting? You will find out why this is so on Thursday.

2. Calculate 3 to the power of 27.
3. Calculate  $(134533 + 6889980 - 84849)$  to the power of 3.
4. The distance from the lab to the market is 7.9km and it takes you 45 minutes to walk there. What is your average time per meter? Use the python shell to calculate it. Remember to practice printing your answer out in a very readable manner. E.g. print "The average time per meter is ", your answer
5. A friend of yours travels a distance of 4.7km north and you travel a distance of 9.4km East. What is the shortest distance between you and your friend in miles?  
Hint: 1kilometre = 0.621371miles

**Ex 1.6) Natural Language Processing:**

*Tosin saw Ikenna with the glasses.*

1. Draw a sketch of what is described in the above sentence.
2. Now, make a different sketch that can also mean what is described in the sentence above. What is the difference?
3. What question would you ask your lab instructor to clarify what the statement meant?
4. Programming languages are designed to avoid ambiguities. What do you think of this?  
In future programs, be sure to avoid ambiguity.