Scientific Programming in Python
Worksheet 1
21 September 2009

Task 1: Run gedit

We will be using gedit to view, modify and create Python programs. You can start gedit by

- selecting Applications – Accessories – Text Editor from the Ubuntu menu; or
- opening a terminal, typing `gedit`, and pressing Enter.

You should now see the main editing area and the imbedded terminal at the bottom of the screen.

Task 2: Make a directory

Use the imbedded terminal[1] to make a directory for your course work—you should use the `mkdir` command in the terminal. Call the directory something like `python_course`. You will be saving your work here today and in the future. Remember to give your files and directories sensible names—it will help a lot when you want to find your work some day.

Task 3: Copy and open a file

Copy the file from my home directory to your Python directory. You should use the `cp` command in the terminal. The file is located at

```
/home/carl/public_html/code/plot.py
```

Now that you have a copy of the file, you should open it in gedit. You can use either the `File | Open...` command from the gedit menu, or you can use the terminal. Now that the file is open, read through the code. You might not understand all of it immediately, but do you notice how helpful the comments are? It is a very good idea to write comments in your code—these make the code more readable for other people, and also for yourself.

Task 4: Run the code

We are going to execute the code from inside IPython. Start IPython by typing `ipython` in the terminal. Run the code using the command

```
%run plot.py
```

Task 5: Modify the code

You should be able to see that the file contains a very simple plotting program. Try to modify the code to plot

- a different function (choose your favourite); and
- more than one function on the same figure.

Don't worry if it is not obvious how to do this. Think about it and try out some different ideas. If you *really* feel stuck, ask a friend, a tutor, or a teacher.

Task 6: Reading and understanding code

There is another program that you should copy to your directory. It is located at

```
/home/carl/public_html/code/what_does_it_do.py
```

This file contains code the computes an output value, y, based on an input value, x. You should read through the code and you can execute it as often as you like, using different values for x. Try to work out what the program does—what function, $y(x)$, does it compute?

[1] If you prefer to have a separate terminal window, you can start a terminal by selecting Applications – Accessories – Terminal from the menu.