



Python

Lab 1

Python

Python is a programming language that can be downloaded and installed from the Python Software Foundation website. It will work on any up to date computer system (Windows, Mac OS X or Linux) and there is no need to install any other software to enable it; it comes complete with a simple development environment called IDLE that is enough for small Python projects, or you can use your own choice of code editor with it (for example, Notepad++ on Windows or TextWrangler on a Mac). Simple Python programs are run at the command line - a command window in Windows, or a Terminal window in Mac OS-X or Linux.

However, for bigger projects, it is more useful to install an **Integrated Development Environment** (IDE), and the one that we are going to use is **PyCharm** from **Jetbrains**. IDEs make it easier to work with multiple files and complex projects, make it possible to test and debug your programs and to package projects for distribution (or for submission as coursework).

PyCharm

All of the UWS computing lab machines have the professional edition of PyCharm installed, so if you will only ever do the practical work on this module in the labs, you can just get on with it in the labs. However, most students find that learning a programming language is easier if they can work on problems in their own time, and so having Python and PyCharm installed on a home machine is beneficial. When it comes to project work (at the end of each semester in the academic session, you will be required to work on programming tasks and submit your work for assessment), having access to a Python development system whenever you need it will be very useful.

While PyCharm is a commercial programming environment that costs a lot of cash, Jetbrains is a particularly enlightened company that provides learners with software tools for free. There are three versions of PyCharm that you can use on your own machine at no cost. You can download and install the PyCharm Community Edition - a free, open source version of the development system that will be more



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than enough for all of the material we will cover in this module. This version does not include all of the tools supplied with the professional edition (no web development tools, no database development tools and fewer of the code measurement tools that tend to be only used by professional developers). You can install the same version of PyCharm that is in the UWS labs, but to do this you will need to get a JetBrains Student account first (<https://www.jetbrains.com/student/>).

Finally, there is PyCharm Edu, a version created specially for education purposes. This has the advantage of including a built-in version of the Python language so that you don't need to install it separately. You will find these PyCharm versions at <https://www.jetbrains.com/pycharm/download/>. There is no problem in installing all three versions on the same machine.

Installing and using PyCharm Edu (skip this if you are working in the labs)

Using a Web Browser, navigate to <https://www.jetbrains.com/pycharm-edu/> and click on the "Download Free" button in the middle of the browser window. The version appropriate to your operating system will be selected so that pressing the "Download" button will start the process. On a Windows machine, a file called **pycharm-edu-2019.2.exe** (or similar) will be downloaded, and you can simply double click on this file to install the product. On a Mac, a DMG file will be downloaded and you can open this to install the product.

Once PyCharm Edu is installed, open the program: on a Windows machine, press the Start button and scroll through the list of programs to find **PyCharm Edu** (it will probably be in a folder called **JetBrains**). On a Mac, press Command+Space, type **PyCharm Edu** and press Enter. The PyCharm Welcome screen will open:





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Creating a New PyCharm project

In this section we will create a simple Python project and set through a number of simple tasks.

On the Welcome screen click on **Create New Project** and this window will appear:

Choose:

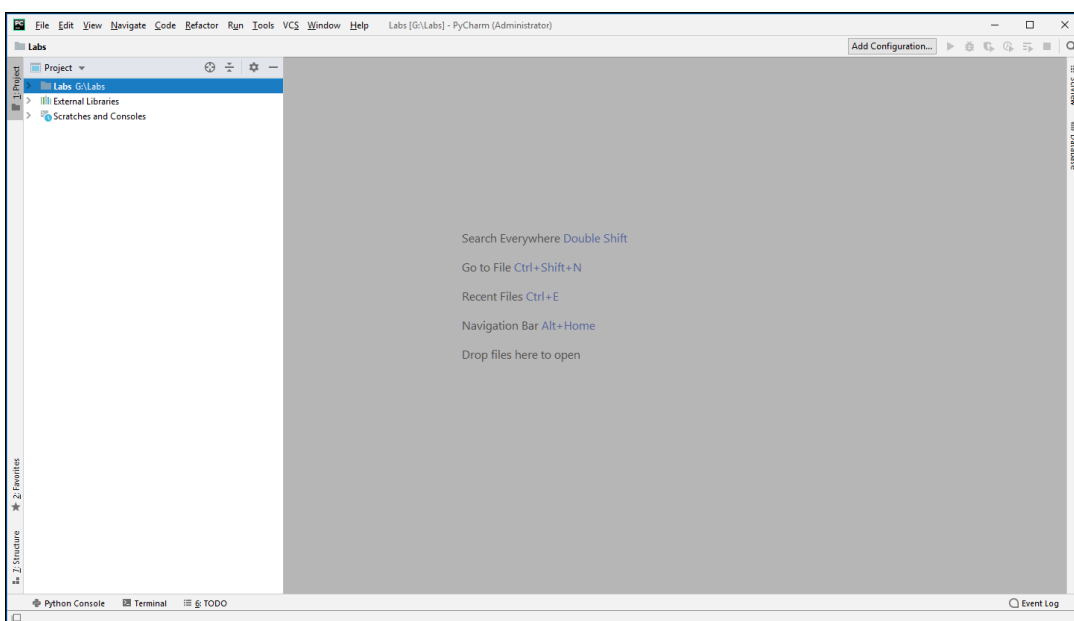
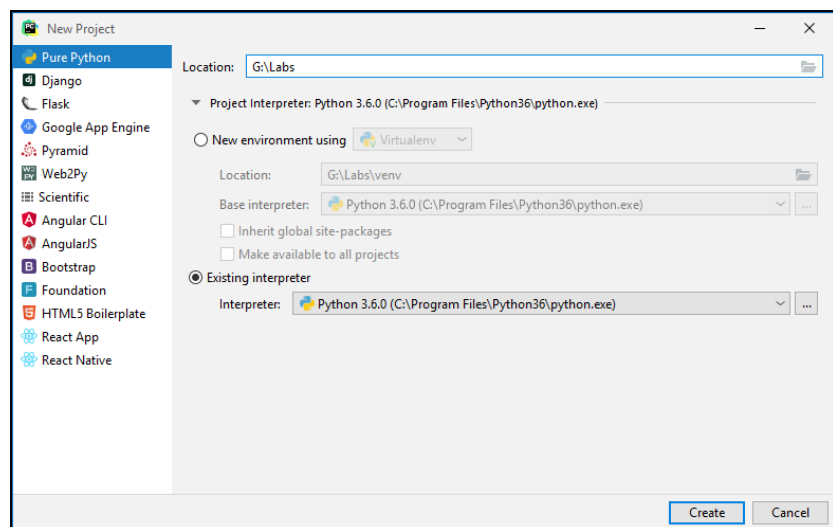
Pure Python

Location

For now choose either your H:\ drive or memory stick and type in “Labs” to create a project

Interpreter

Python 3.6



Click

File

New

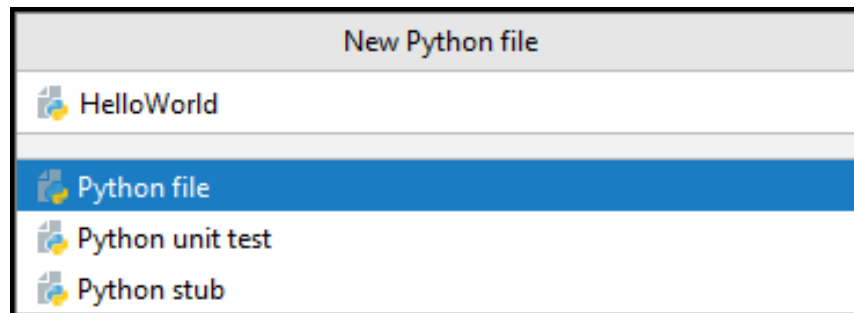
Python File



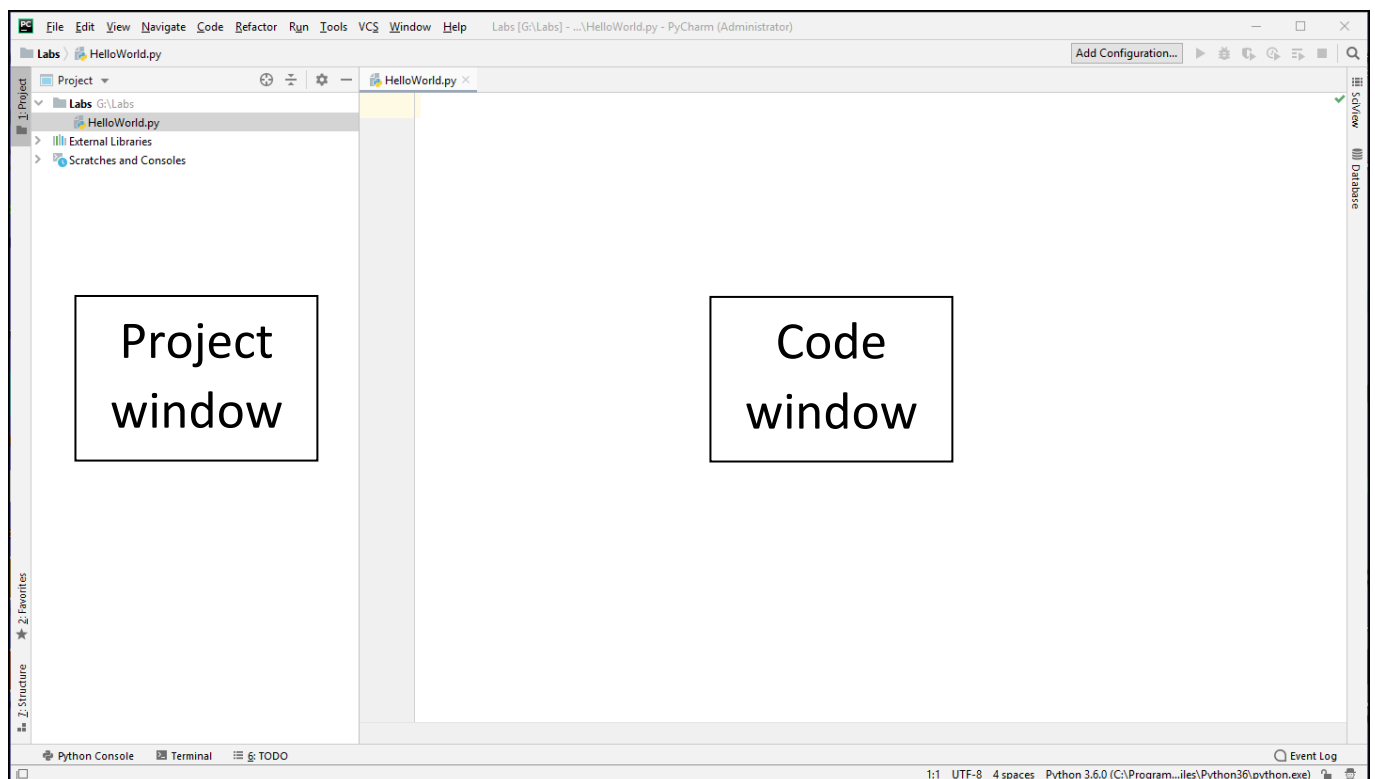
Python

Give the file a
descriptive name

HelloWorld



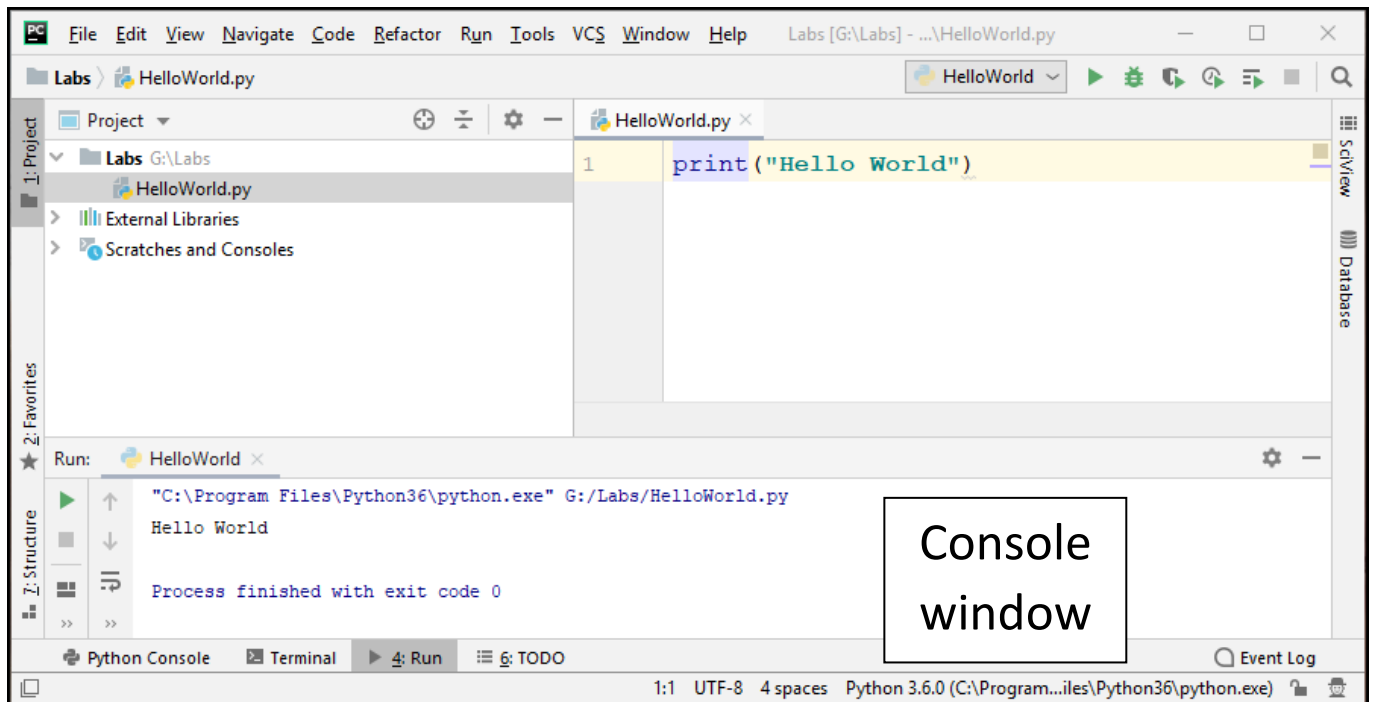
You will now see the main PyCharm window.





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Type your code in the code window and run the program.



The Console window will open up and display the output from your program.

Follow the instructions in the lecture slides to create Python programs in your project.

Exercises

Within the Labs project create and appropriately name separate programs to:

1. Display the message "Your mother was a hamster and your father smelt of elderberries"
2. Display the above message on two lines
3. Calculate the total cost of buying five tins of Spam at £2 each plus post and package of £3