ECMM455 Python Worksheet 18: Jupyter Notebooks

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1 Aims

- Become familiar with the creation and use of Jupyter notebooks in Python

2 Background

Notebooks are a nice way to mix code, text and program outputs in the same document. Notebooks are interactive documents - you can execute code and see the results appear in the same document. Together with the ability to write text (e.g. as HTML or markup), this makes notebooks a convenient way to develop scientific programming projects.

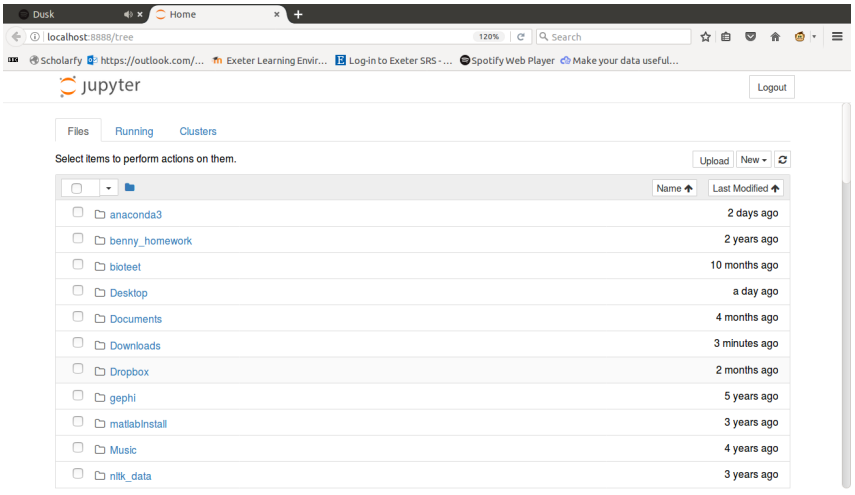
Notebooks for Python are now produced by the Jupyter project (http://jupyter.org/). Jupyter Notebooks can also be used with various other languages. The Jupyter website has various resources you might find useful, including Documentation (https://jupyter.readthedocs.io/en/latest/index.html) and a helpful QuickStart guide (https://jupyter.readthedocs.io/en/latest/content-quickstart.html). There are also numerous tutorials and other resources on the web, which can be uncovered with a Google search.

For this course we will use the Jupyter Notebooks that are included with Anaconda.

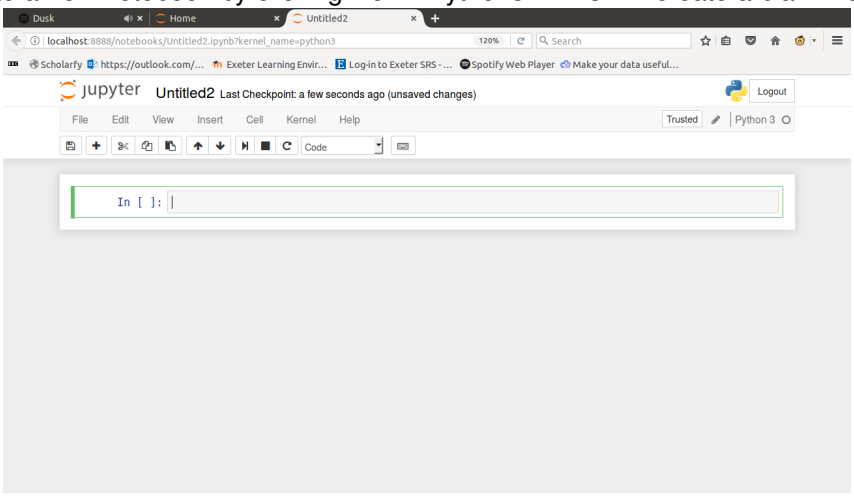
3 Exercises

1. Launch the Jupyter Notebook server (either using Anaconda Navigator or from a terminal by typing jupyter-notebook).

2. You should now see the navigation screen in a web browser window, looking something like this:



3. Create a new notebook by clicking New->Python3 . This will create a blank notebook looking like this:



4. Write some simple code in the notebook “cell”, e.g. a print statement Then click the run cell button (looks like “>|”). The output of the code will appear below the cell.

5. A new cell will have appeared. Change the cell type to “Markdown” from the drop down menu. Then write some text and click the “run cell” button. The text will be displayed.

6. By default, graphical output will be displayed outside the notebook, but this is not what we normally want. To get graphics to display inside the notebook, run the code “%pylab inline” in a cell. After this has been done, running code that creates graphical output will cause the output to display inside the notebook.

7. Enter your code for plotting the epidemic data from Worksheet 17 into a cell in your notebook. Run the cell. You should see the output appear inside your notebook.

8. Now go to the ELE page and download the notebook tutorial file (*WS18_notebook_tutorial.ipynb*).

9. Go back to your notebook navigation window and navigate to the folder where you saved the file (by clicking the links).

10. Read through the tutorial and understand what all the different sections are doing.