BEES1041 Exploring the Natural World

Computing Exercises: Coding with Jupyter notebooks on Cloudstor SWAN

Each week in BEES1041 there a computing exercise, designed to get you thinking about how data can be used to explore the natural world. Some of the exercises require you to use software installed on your computers, such as Microsoft Excel or Quantum GIS (QGIS). Most of the exercises will also have a coding component, which will require you to learn some R and Python. These coding exercises will use Jupyter notebooks, which are a user-friendly way to run code. Jupyter notebooks are organised into cells, which contain either text or code. Text cells are formatted using *Markdown* which create nice looking documents with images and links. Code cells are written in the chosen programming language, and can be run to create outputs like graphs, which display in the notebook. You will use Jupyter notebooks through the Cloudstor Service for Web-based Analysis (SWAN), which is online, and doesn't require you to install any software. This document contains instructions for how to get the Jupyter notebooks, and how to use them on SWAN.

1. Login into Moodle, go to the BEES1041 page, the relevant week, and click on the computer exercise link (or click the link in the timetable). Carefully read the exercise, do the activities, and answer the quiz questions. When there is a coding activity there will be a link to download a Jupyter notebook, which you should save on your computer. These will be files with an ipynb extension. Some exercises will have data files to download as well.

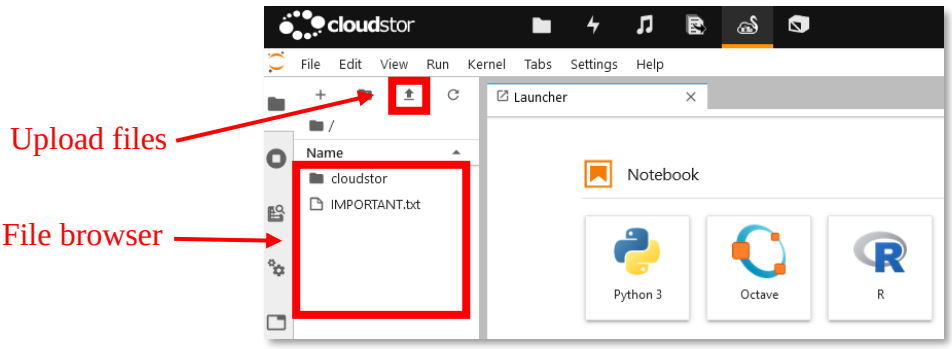
2. Login to Cloudstor using your UNSW zID and zPass at https://cloudstor.aarnet.edu.au. You need to use one of the following three browsers, which are compatible with SWAN:

Chrome 70.0.3538.110+	Firefox 62+	Vivaldi

3. Start SWAN by clicking the following link at the top of the webpage: 

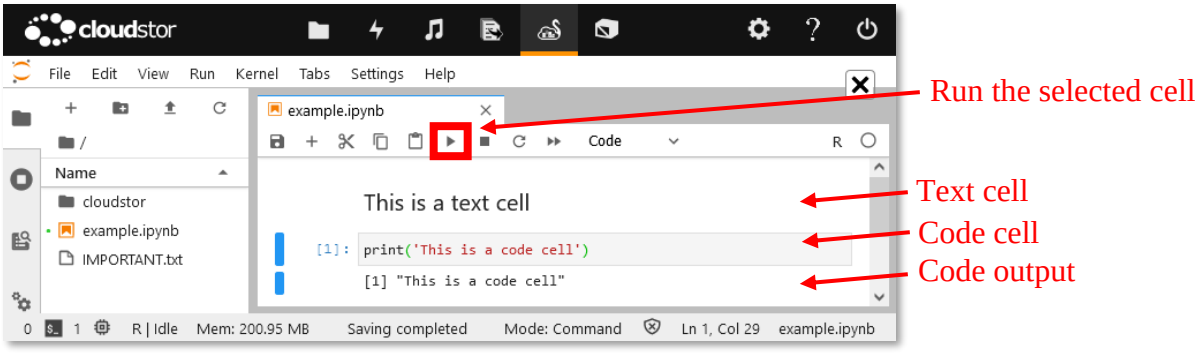
4. If the service hangs on a loading screen, try refreshing the browser. If that doesn't work, close and try again. If it keeps hanging, you can email the Coudstor help desk from the contact page.

5. The SWAN file browser lets you see the files that are in your working or scratch directory.



6. Drag the files you downloaded to your computer to the SWAN file browser. Alternatively, you can do the same thing by clicking the upload files button at the top and selecting the files.

7. Open the notebook that you just uploaded, either by double clicking, or right clicking and selecting "Open". You should now see the notebook on the right.



8. The notebooks you download from Moodle will have instructions for you to follow, and code for you to run. Read carefully, as they might ask you to edit some of the code. You will need to run the code cells to see the output. Remember to stay logged into Moodle, as there will be some Moodle quiz questions to answer about what you learn from the notebook.

9. When you are finished working on SWAN you need to download the notebooks and any files, as SWAN scratch directories get emptied. Or you can move the files into your Cloustor directory.