# **Using VS Code to Run Jupyter Notebooks and Python**

**Pre-requisites**: Please make sure that you have **both** *VS Code and Anaconda* installed, as per the documentation available, before going forward.

**Stage 1**: *Make sure Python & Jupyter are installed*.

1. Open up VS Code, where you will see the “Get Started” page.

A screenshot of a computer

Description automatically generated

1. First thing we need to do is check that both Python and Jupyter are installed (we will discuss in a minute why we need both).

To check if Jupiter and Python are installed on VS code, click Extensions (the four blocks on the left-hand side of the screen). It is likely that both will be under the popular extensions tab. If not, type “Python” into the search bar.

Graphical user interface, application

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

1. If Python is not installed, click install. Check the same for Jupyter (Note: Python typically automates the installation of Jupyter)

A screenshot of a computer

Description automatically generated with medium confidence

1. Return to the explore page (click the icon with the two pages on the left-hand toolbar).

**A screenshot of a computer

Description automatically generated with medium confidence**

**Stage 2**: Create your workspace folder for the workshops.

A good practice in Data Science to have a clear structured folder system for managing your files; it is important that you place all your files that you will download and/or create in this course in a logical place, where you will be able to easily find it. Here are some instructions on how to do this:

1. On the explore page, click the button labelled “Open Folder”.

Graphical user interface

Description automatically generated

1. In a location that you will remember (e.g., Your Desktop), create a folder for these workshops. For example, you could label your folder something like “Python\_Data\_Science”. [[1]](#footnote-1)

Graphical user interface

Description automatically generated

1. Click “Select Folder” for Python Data Science Club to enter into it.
2. Within this folder, create three folders (right click and select New -> Folder) labelled “src”, “data”, and “output”. Do not worry for now about what those terms mean.

Graphical user interface, application

Description automatically generated

1. Click the “src” folder and click “Select Folder” in the bottom right-hand corner. Your computer should return you to VS Code. You should see on the left-hand side, “SRC” under explorer.

A screenshot of a computer

Description automatically generated with medium confidence

**Now you are ready to get started with VS code proper.**

**Stage 3**: Create your first Jupyter file.

1. Within the src folder in VS code, we are going to create a file called “my\_first\_python\_steps.ipynb”.

Hover over SRC and click the icon with the page and the plus arrow (it should say “Create new file”)

A screenshot of a computer

Description automatically generated with medium confidence

Otherwise, click “File” at the top left corner of the screen and then click New File.

A screenshot of a computer

Description automatically generated with medium confidence

1. Make sure to save the file exactly under the name:

“my\_first\_python\_steps.ipynb”. The extension, ***.ipynb***, tells VS code, that this file is in the form of a Jupyter notebook. Similar to how your Microsoft Word documents are saved as “BlaBla.docx” The .docx tells the computer what type of file it is.

1. Once you have created it, then the file should open automatically. There are a few things to note here. You should see a block and, in the corner, the word Python or text. Click that word, and from drop down options select “Markdown”.

Text

Description automatically generated

A screenshot of a computer

Description automatically generated

1. We are ready to start with our first Jupyter Notebook. Jupyter notebooks are sort of a halfway house between a textbook and an interactive blog post. Like textbooks, they are used to explain programming concepts, and they can often come from people in the field who are experts. Like an interactive blog post, they can be updated frequently, and the person can dynamic engage with the material within the Notebook and tinker with it.
2. There are two essential elements that make up a Jupyter Notebook: Markdown Cells and Code Cells.
3. In Markdown Cells, Jupyter functions as a text document. These cells contain text that can provide introduction, context, instruction, hints, and further information to the reader about programming concepts.

We already have created a Markdown Cell. I am going to write into “Welcome to Jupyter Notebook” within the cell

A screenshot of a computer

Description automatically generated with medium confidence

Once I have finished typing, I will press escape to display the markdown.

Text

Description automatically generated

To enter back into the cell and edit, click anywhere and press enter, or double click.

1. Now let’s create a Code Cell. In Code Cells, Jupyter enables us to create, edit, and execute code. This is where we will interact with Python code for these workshops. With your cursor, however underneath the markdown cell until you see “+Markdown Cell | +Code Cell”. Click “+Code Cell” to create a Code Cell.

A screenshot of a computer

Description automatically generated with medium confidence

Graphical user interface, text

Description automatically generated

1. Before we enter any code, we need to tell Jupyter what Kernel we are using. Kernel, in this context, just means what language we using to run code. Because Jupyter is compatible with many different types of languages, we need to tell Jupyter which programming language we want. Click “select kernel” and a drop-down menu will appear. Select the Python-based Kernel that has “Anaconda3” in its path.

Graphical user interface, text, application, website

Description automatically generated

Once you have selected it, you should see something like “base(Python 3.9.7)”[[2]](#footnote-2). Make sure that the Anaconda kernel is selected for each notebook that you work with during this course.

Graphical user interface, text

Description automatically generated

1. Before we write our first piece of code. It is important to remember that Python is a programming ***language***. Like all languages, it will have rules that need to be followed for the person speaking the language to be understandable. In this case, we are speaking Python in order to speak directly to our computer, and with computers we have to exact with what we mean in a way that we do not have to be when we speak with each other (typically). When we use Python, we are speaking with a computer, so we must be precise with what we mean
2. With that in mind, let’s write our first piece of code. In the code cell, I am going to type the following: print(“Hello World!”).
3. Press the arrow button to execute the code. If we have not made any errors, it will run the code and output the result. You should see **Hello World!** printed below the Code cell. Congratulations you are now officially a Python programmer!

Graphical user interface, text, application

Description automatically generated

Graphical user interface, application

Description automatically generated

**Stage 4**: Let’s get coding!.

You have now created your first VS Code workspace. Feel free to use this notebook as something to play around with the concepts that you are learning. For example, see what happens if you change the text within the “ “ marks.

For the rest of this workshop, we are going to open our first file, **week 1 - Hello World.ipynb,** and get our hands dirty with some code.

To download the file, click the green Code button, then click “Download Zip”

<https://github.com/spider-z3r0/ULpsych_programing_club>

A screenshot of a computer

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Once that is downloaded then:

* Open the folder “ULpsych\_programing\_club-main”
* Open the folder “src”
* Copy the file “Week 1 – Hello World”
* Paste that file into your “src” folder you made in created in Stage 2.
* Go back to VS Code and open that file within your “src” folder.
* You should see the following.

Read through the notebook to get started on this weeks workshop!

1. The naming conventions used here are recommended, but the conventions that you adopt for Data Science are completely at your discretion. Just make sure to keep your filing system consistent to avoid headaches for future you. [↑](#footnote-ref-1)
2. Your version might be slightly different. The main thing is that it is a Python version greater than 2 and it should say base before the parentheses. [↑](#footnote-ref-2)