Tutorial 1: Get started with Python (Jupyter Notebook)

Tutorial Objectives

By the end of this tutorial, you should accomplish the following:

1) Know how to start working in a Jupyter Notebook environment. For this, you need to either install a number of applications on your laptop or work “in the cloud”;
2) Create a Jupyter Notebook;
3) Know how to add comments/descriptions in a notebook;
4) Know how to write code in a notebook;
5) Know how to run code in a notebook;
6) Know how to execute (upload) existing code from a Jupyter notebook.
7) Understand the basic terminology such that we can communicate effectively: Python is the language; Jupyter notebook is the environment that allows us to create and share the document called the Notebook, containing live codes, documentation, graphs, plots, and visualizations.

The Python Jupyter Notebook Environment

The fastest way to get started is to start by using a cloud environment, such as https://jupyter.org/ or https://colab.research.google.com/. You will depend on an internet connection to get work done this way, plus you may risk service interruptions if their servers go down (unlikely, but always possible). For these reasons, we recommend you install the environment on your laptop after you use the cloud to get started with Python quickly.

In the Cloud

Jupyter notebook, try it online!

https://jupyter.org/

Google Colab, try it online!

https://colab.research.google.com/3

On Your Laptop

Install Python on Windows

1. Open the Microsoft Store by selecting *Start*, and then typing *start Microsoft Store*.
2. Once open, search for **Python**.
3. Select the most recent version of Python.
4. On the Home tab, select Install.
5. After Python installs, return to the command prompt.
6. Enter the command python --version and then select Enter to see the version of Python.

Install Visual Studio Code on Windows

In this section, you'll learn how to download the VS Code installer from the Visual Studio Code website.

1. In your browser, navigate to the Visual Studio Code download page.
   The web page displays logos for Windows, Linux, and Mac.
2. Select and download the Windows installer. Most browsers give you the option to either save the file to your local computer (usually in your Downloads folder) or immediately run the installer file.
   Note
   After downloading the installer, you may need to open File Explorer and navigate to the location your web browser installed it. The most common location is the *Downloads* folder.
3. Double-click the installer file to start the installation process.
   After the installation is complete, Visual Studio Code launches automatically.

Install Python on macOS

Follow these steps to download the Python installer from the Python website.
Note

1. Download the installer from Python download page.
   The website should automatically direct you to a page specifically for macOS. Select the latest release.
   You may see a dialog box prompting you to allow downloads from python.org. Select Allow.
   After a moment, a file named *python-3.9.0-mascosx10.9.pkg* (or similar) should download to the Downloads stack in your Dock.

2. To start the installer, double-click the *.pkg* file that you downloaded. The Python installer prompts you to install, verify, and accept various options and license agreements. Take the time to read through these prompts to understand what the installer will do to your computer.
   When the installation process finishes, a Finder window showing the contents of the Python folder and a congratulations screen appears. Select Close to close these windows.
   If you're prompted to move the Python installer to the trash, you can do so.
3. Verify installation by running `python3 --version` in a terminal window. The output includes the word `Python` with a set of numbers separated by `.` characters, for example `Python 3.9.7`

Install Visual Studio Code on macOS

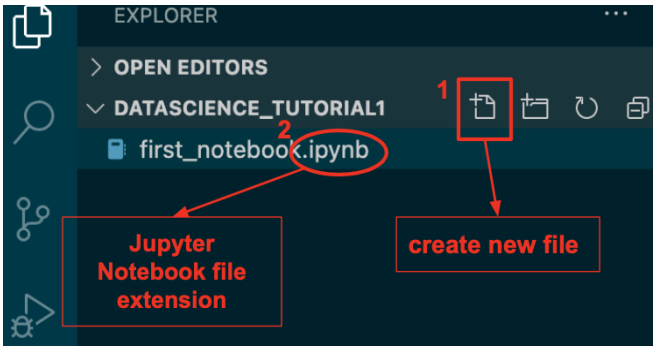
This section walks you through downloading and installing Visual Studio Code.

1. In your browser, navigate to the Visual Studio Code download page.
   The web page displays logos for Windows, Linux, and Mac.
2. Download the Mac version. Most browsers give you the option to save the file to your local computer (usually in your Downloads folder), or immediately run the file.
   You should move the file to the Applications folder before you open it, as described in the next step.
3. Open Finder. Drag the Visual Studio Code file from the Downloads stack on the Dock to the Applications folder in Finder.
4. Double-click the Visual Studio Code app from the Applications folder.

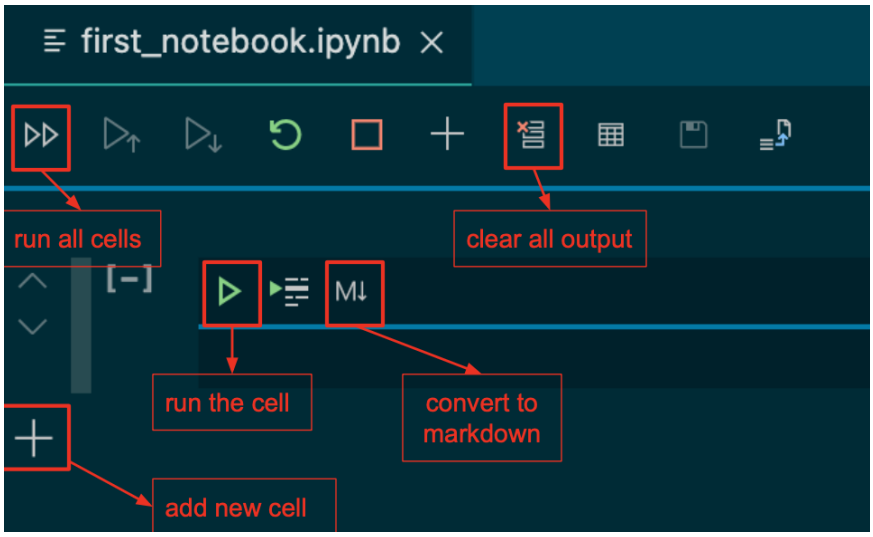
Introduction of Jupyter Notebook

Visual Studio Code

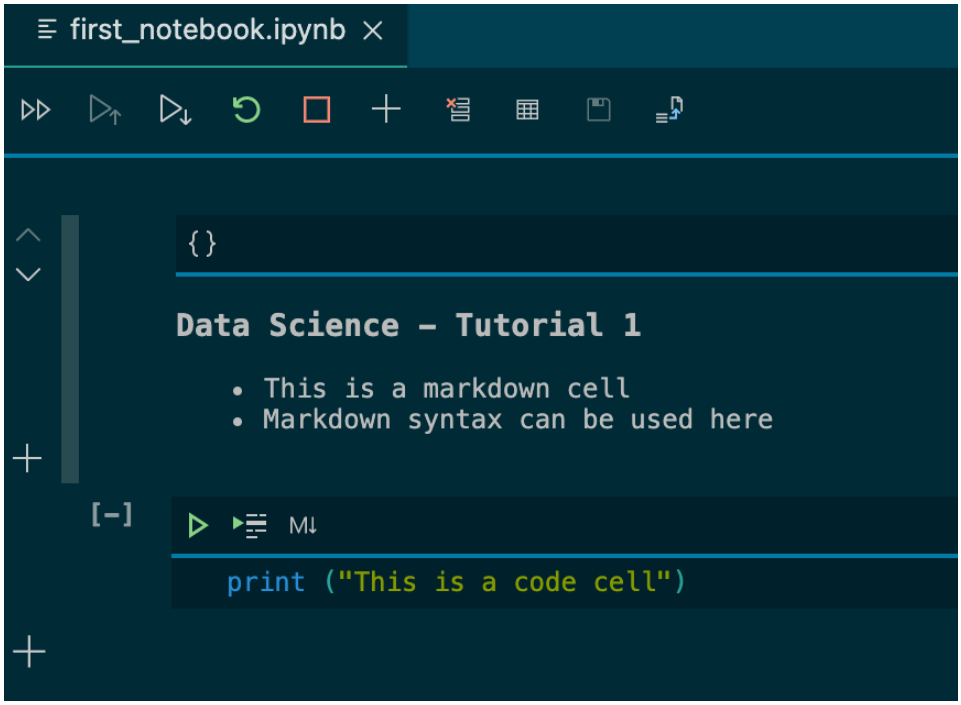
From Explorer, first open a folder, then create a Jupyter Notebook.



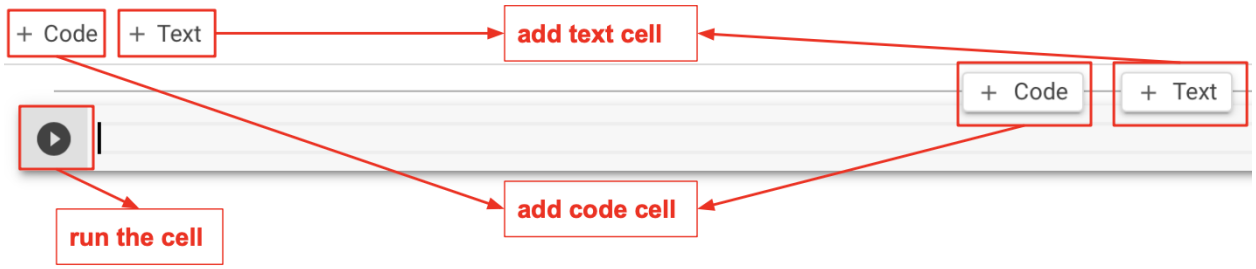
On the Jupyter Notebook, each code or markdown area is called “cell”.



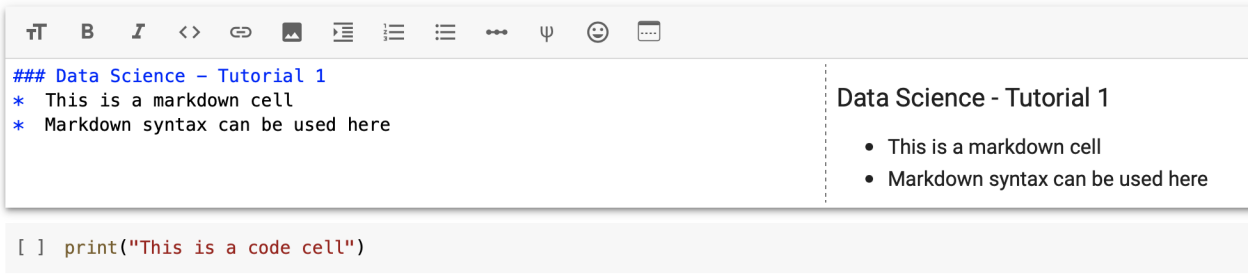
Markdown cells allow basic markup syntax for adding headings, bullet points, tables, inserting images and so on.



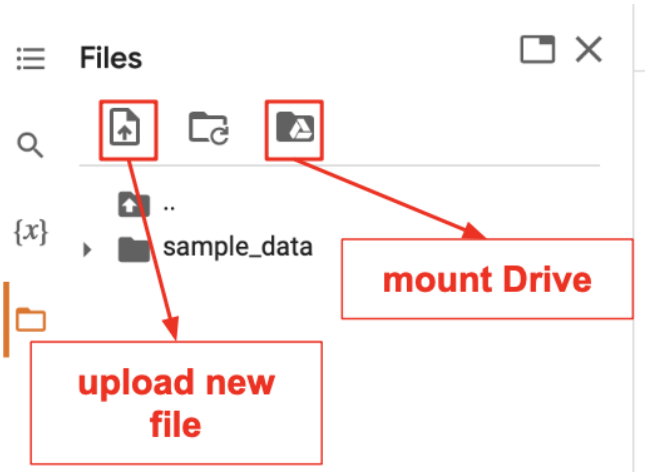
Google Colab



Google Colab facilitates markdown usage with its markdown user panel.



You can upload files for your notebook on Google Colab by opening Files from the left panel. Uploaded files are deleted when Google Colab disconnects. You can solve repetitive uploads after each disconnect by mounting your Google Drive to your Notebook. You can create a folder on Google Drive and upload your required files once.



Get Started

Have a look at this first Python lesson on Kaggle:
https://www.kaggle.com/code/colinmorris/hello-python/tutorial

and attempt the following on a new notebook in your chosen environment.

1) Create a new notebook;
2) First, write an explanation as a text cell;
3) Write code that prints a statement that combines some text and some number that results from an arithmetic operation (such as, “the result is “ and the calculation of 15/2 as worked out by the computer, not by you).
4) Write code that converts your height in cm into your height in inches. Even better: the function can report your height in feet and inches. (e.g., 5ft 8in).