

How To Use Jupyter Notebooks

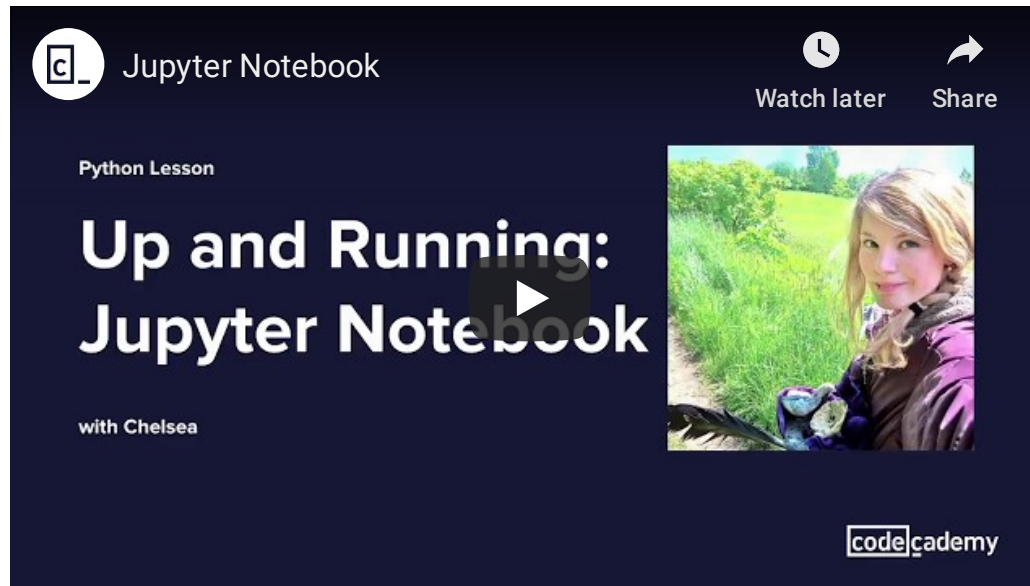
Learn about Jupyter Notebooks and how you can use them to run your code.

INTRODUCTION

Jupyter Notebooks are a powerful way to write and iterate on your Python code for data analysis. Rather than writing and re-writing an entire program, you can write lines of code and run them one at a time. Then, if you need to make a change, you can go back and make your edit and rerun the program again, all in the same window.

Jupyter Notebook is built off of *IPython*, an interactive way of running Python code in the terminal using the *REPL model* (Read-Eval-Print-Loop). The IPython Kernel runs the computations and communicates with the Jupyter Notebook front-end interface. It also allows Jupyter Notebook to support multiple languages. Jupyter Notebooks extend IPython through additional features, like storing your code and output and allowing you to keep markdown notes.

If you'd rather watch a video instead of read an article, please watch the following instructions on how to use a Jupyter Notebook. They cover the same information.



LAUNCH A NOTEBOOK

To launch a Jupyter notebook, open your terminal and navigate to the directory where you would like to save your notebook. Then type the command `jupyter notebook` and the program will instantiate a local server at `localhost:8888` (or another specified port).



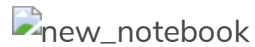
A browser window should immediately pop up with the Jupyter Notebook interface, otherwise, you can use the address it gives you. The notebooks have a unique token since the software uses pre-built Docker containers to put notebooks on their own unique path. To stop the server and shutdown the kernel from the terminal, hit `control-C` twice.

JUPYTER INTERFACE

Now you're in the Jupyter Notebook interface, and you can see all of the files in your current directory. All Jupyter Notebooks are identifiable by the **notebook icon** next to their name. If you already have a Jupyter Notebook in your current directory that you want to view, find it in your files list and click it to open.



To create a new notebook, go to **New** and select **Notebook - Python 2**. If you have other Jupyter Notebooks on your system that you want to use, you can click **Upload** and navigate to that particular file.



Notebooks currently running will have a green icon, while non-running ones will be grey. To find all currently running notebooks, click on the **Running** tab to see a list.



INSIDE THE NOTEBOOK

When you open a new Jupyter notebook, you'll notice that it contains a *cell*.



Cells are how notebooks are structured and are the areas where you write your code. To run a piece of code, click on the cell to select it, then press `SHIFT+ENTER` or press the play button in the toolbar above.

Additionally, the **Cell** dropdown menu has several options to run cells, including running one cell at a time or to run all cells at once.



After you run a cell, the output of the cell's code will appear in the space below. To stop running a piece of code, press the stop button.



To create new cells, use the plus (+) button in the toolbar or hit `SHIFT+ENTER` on the last cell in the Notebook. To cut, copy, delete or just generally edit cells - select the cell you want to modify and go to the **Edit** button in the navigation bar to see your options.



In addition to running lines of code, you can also include **text-only** cells that use Markdown to format and organize your notebooks.



When you create a new cell, it will default to being a **Code** cell. To create a cell that uses markdown, click on the **Cell** menu from the navigation bar, scroll down to **Cell Type** and choose Markdown.



Occasionally, you might need to restart the kernel. Head to the **Kernel** dropdown and hit **Restart**. To shut down a kernel, you can click **Shutdown**, which will have a dialogue process asking if that's what you would like to do. To force an immediate shutdown, go to the **File** dropdown and click **Close and Halt** and the browser window will close

itself. Restarting and shutting down kernels will affect your variables, so be careful.



In the **Help** dropdown, you'll find useful information such as keyboard shortcuts as well as links to different documentation for modules such as Numpy, SciPy, and Matplotlib.



The **toolbar** has several shortcut buttons for popular actions. From left to right: save, add a new cell, cut selected cells, copy selected cells, paste cells below, move selected cells up, move selected cells down, run, interrupt the kernel, restart the kernel, a dropdown that allows you to change the cell type, and a shortcut to open the command palette.



Jupyter Notebook files are saved as you go. They will exist in your directory as a JSON file with the extension `.ipynb`. You can also export Jupyter Notebooks in other formats, such as HTML. To do so, go to the File menu, scroll down to *Download as* and select the type of file you're looking for. A popup will appear asking where you would like this new file to download. Once you've navigated to the appropriate directory, click *Save and Checkpoint*.



SUMMARY

As we've seen, Jupyter Notebook files are very useful. Its interface allows you to navigate using your mouse with dropdown menus and

buttons, or by keyboard shortcuts. They allow you to run small segments of code at a time, save them in their current state, or restart and have them return to their original state. In addition to running code, we can also use markdown to neatly organize our notebooks so they are presentable to others.

If you're interested in learning more about Jupyter Notebooks, [read their documentation](#). To try out a notebook in your browser, go to <https://try.jupyter.org/>.

CODECADEMY

About
For Business
For Schools
Shop
Stories
We're Hiring



CATALOG

SUBJECTS

Full Catalog
Web Development
Data Science
Computer Science
Developer Tools
Machine Learning
Code Foundations

LANGUAGES

HTML & CSS
Python
JavaScript
Java
SQL
Bash/Shell
Ruby
C++
R
C#
PHP
Go
Swift
Kotlin

RESOURCES

Beta Content
Articles
Forums
Help
Blog
Roadmap