

Installation Guide

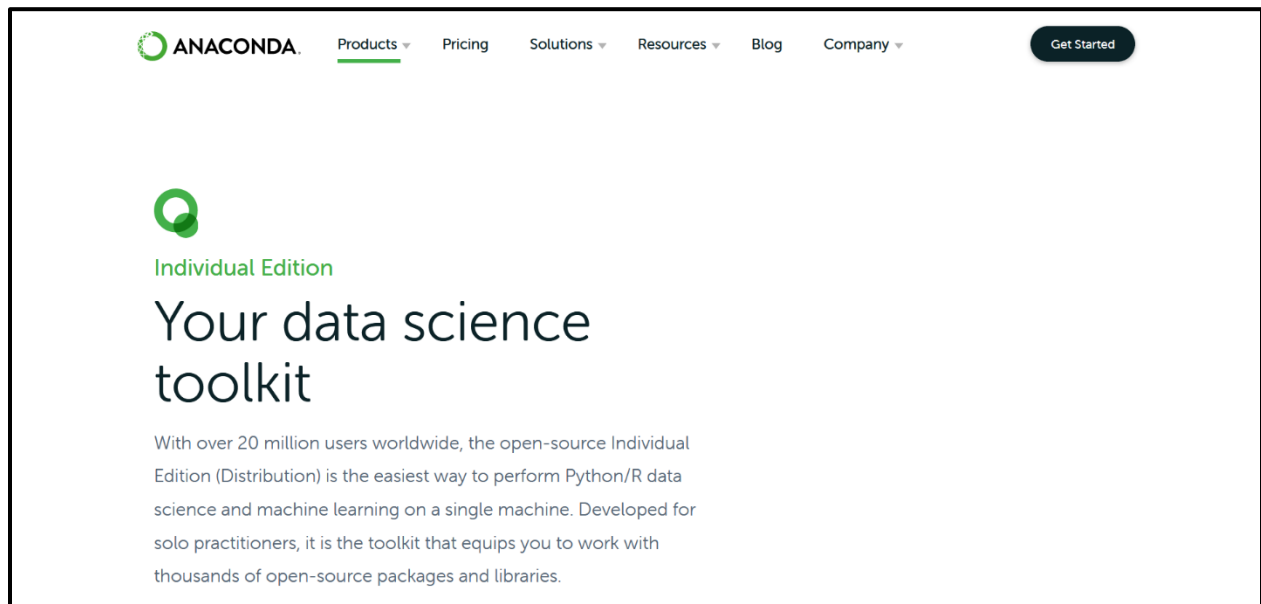
Table of Contents

How to install Anaconda?	2
Jupyter Notebook	6
Introduction	6
What is a Notebook?.....	6
Installing Jupyter Notebook	6
Working with Jupyter Notebook.....	6
Notebook Interface - Explained!	10
Libraries Installation.....	17

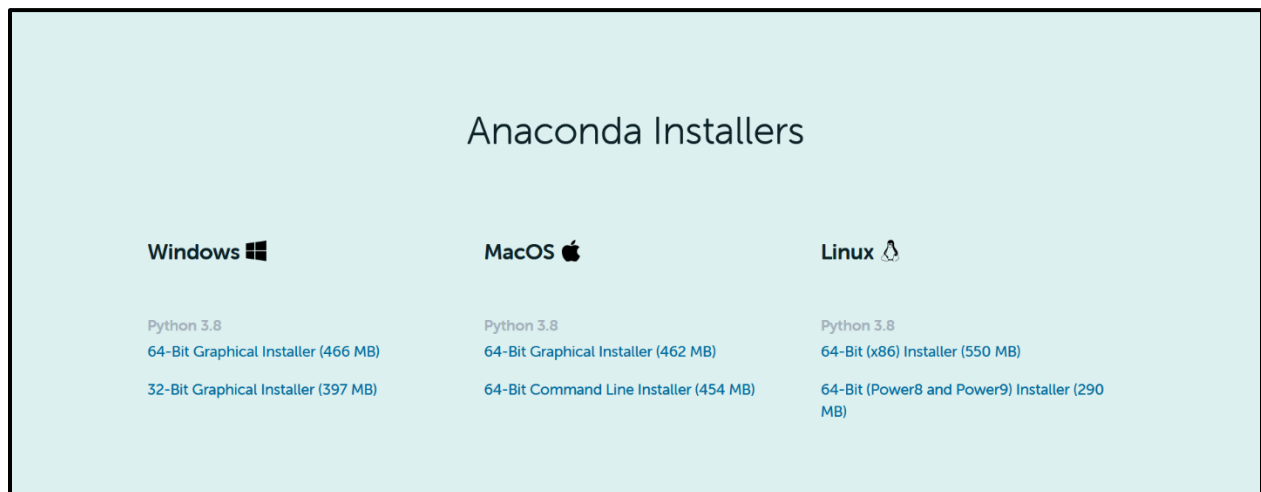
How to install Anaconda?

Anaconda distribution is open source and is available for Windows, Linux and Mac OS. Here are the steps of how to download and install Anaconda for windows.

- 1) Log on to <https://www.anaconda.com/distribution/>



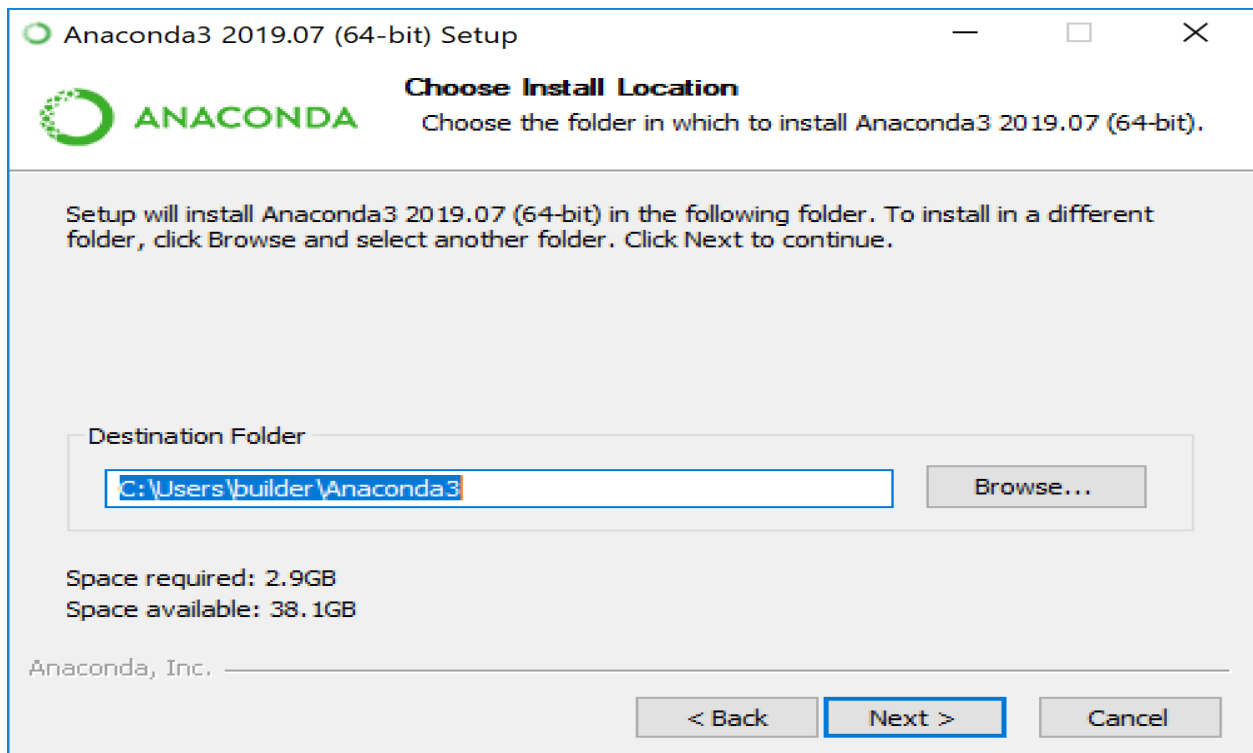
- 2) Scroll down to the bar with operating system options and click on windows.



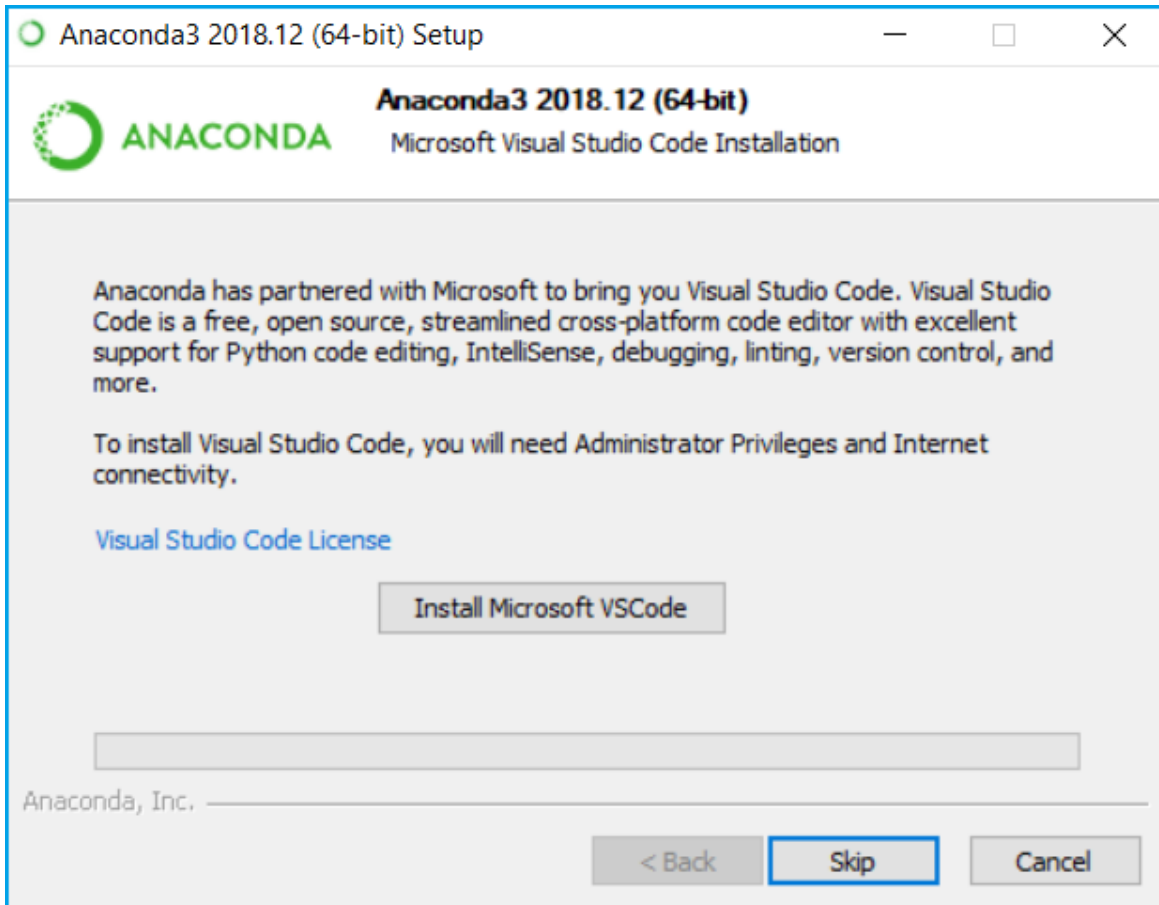
- 3) Select the right option according to the configuration of your pc(32-bit/64-bit). The download will begin.



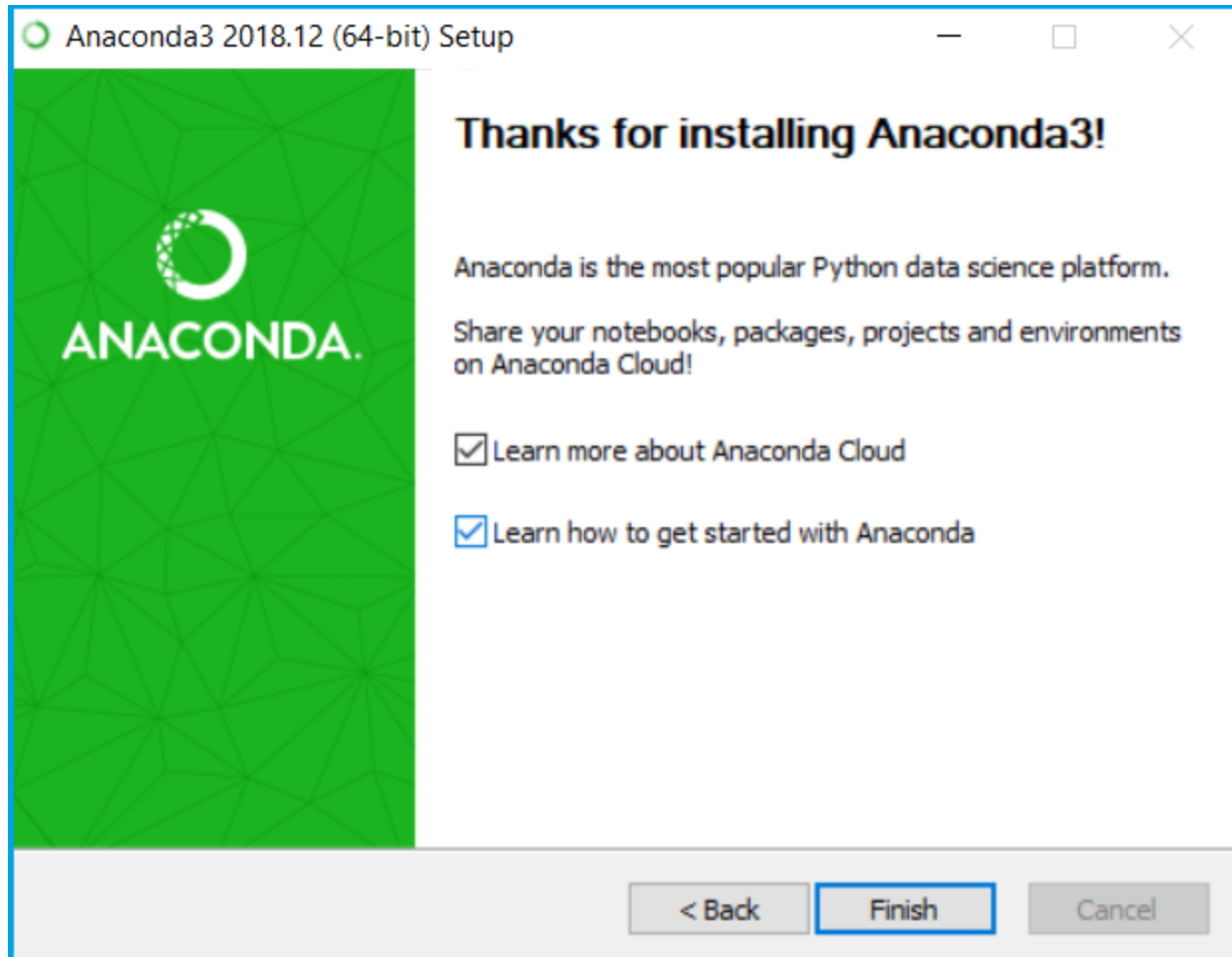
- 4) Double click the installer to launch.
- 5) Click on "Next".
- 6) Read the license agreement and click on "I Agree".
- 7) Select an install for "Just Me" unless you're installing for all users (which requires Windows Administrator privileges) and click "Next".
- 8) Select destination folder and click "Next".



- 9) Do not change anything in PATH Options, click "Next".
- 10) Wait for the installation to complete.
- 11) Click on "Skip" to continue.



12) Click on "Finish". Your Anaconda setup is complete!



Jupyter Notebook

Tutorial Video: youtube.com/watch?v=jZ952vChhul

Introduction

The Jupyter Notebook is an incredibly powerful tool for interactively developing and presenting AI related projects. The Jupyter project is the successor to the earlier IPython Notebook, which was first published as a prototype in 2010. Although it is possible to use many different programming languages within Jupyter Notebooks, Python remains the most commonly used language for it. In other words, we can say that the Jupyter Notebook is an open source web application that you can use to create and share documents that contain live code, equations, visualizations, and text.

What is a Notebook?

Before we dive deep into Jupyter Notebooks, let us first understand what a notebook is. A notebook integrates code and its output into a single document that combines visualizations, narrative text, mathematical equations, and other rich media. This intuitive workflow promotes iterative and rapid development, making notebooks an increasingly popular choice at the heart of contemporary data science, analysis, and increasingly science at large.

Installing Jupyter Notebook

The easiest way to install and start using Jupyter Notebook is through Anaconda. Anaconda is the most widely used Python distribution for data science and comes pre-loaded with all the most popular libraries and tools. With Anaconda, comes the Anaconda Navigator through which we can scroll around all the applications which come along with it.

Working with Jupyter Notebook

To work with Jupyter Notebook, it is necessary to have a kernel on which it operates. A kernel provides programming language support in Jupyter. IPython is the default kernel for Jupyter Notebook. Therefore, whenever we need to work with Jupyter Notebook in a virtual environment, we first need to install a kernel inside the environment in which the Jupyter notebook would run.

To install the kernel, Open Anaconda Prompt:

Anaconda Prompt- Anaconda's Command Line Interface where we can create different virtual environments and install packages into them as per our need.

Anaconda prompt can be opened by writing "Anaconda Prompt" in windows search bar.



written at the beginning of the line, it shows that the active environment is base, as it is the default environment.

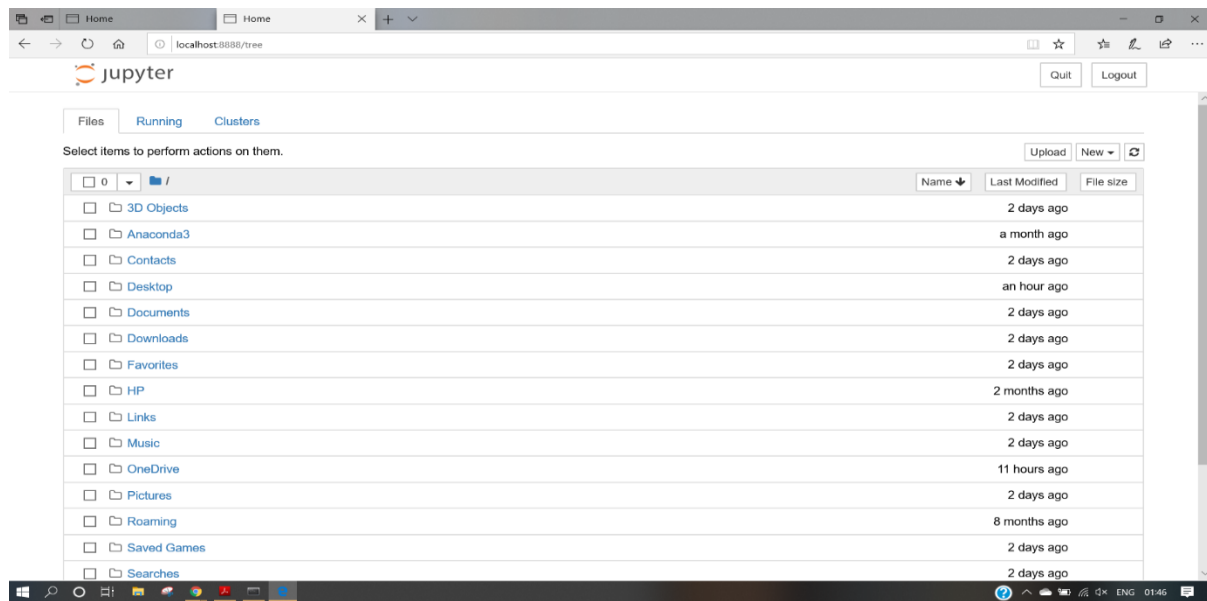
Once opened, run the following command to install prerequisites to run Jupyter Notebook

```
conda install jupyter nb_conda ipykernel
```

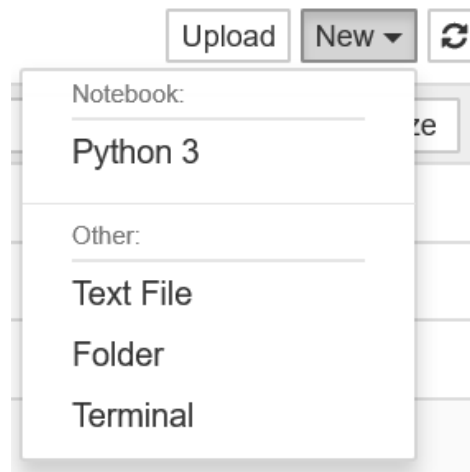
Here, Jupyter is an extension to the Jupyter Notebook which gets installed. Ipykernel is a powerful and interactive Python shell and a jupyter kernel to work with python code in Jupyter Notebooks and nb_conda refers to notebook conda which is an extension to jupyter kernel to set the kernel for a notebook's execution. Once the installation is done, write the following command to open the Jupyter Notebook.

```
jupyter notebook
```

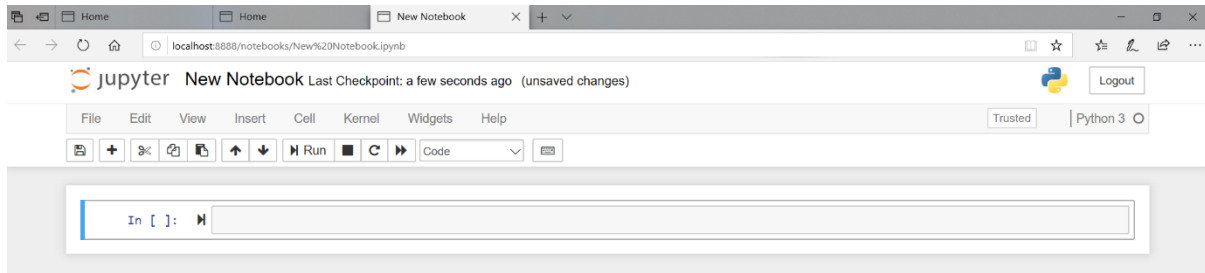
The Jupyter Notebook opens in the default browser with <http://localhost:8888/tree> URL.



In this page, click on New and select Python3 which would open a new Jupyter notebook with Python3 as the default language.



Clicking on Python3 opens a new Jupyter notebook:

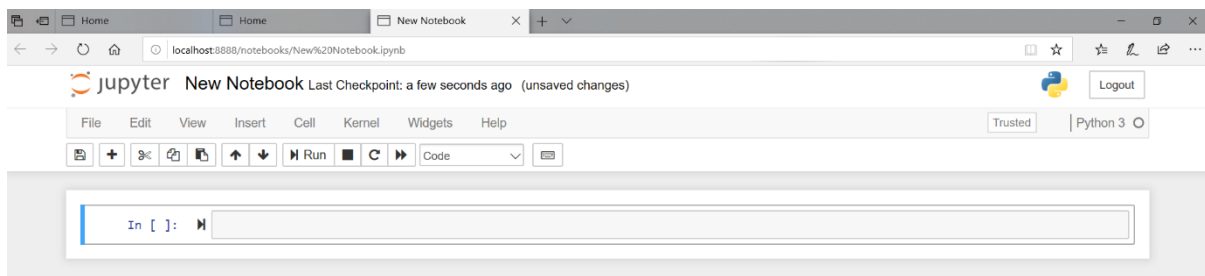


Notebook Interface - Explained!

As we have learnt, Jupyter Notebook is a Graphical User Interface (GUI) which means that the Notebook interface contains a lot of easily-accessible tools for making the work easier as all of them are clicks away.


Let us take a tour around the Notebook and understand its features.

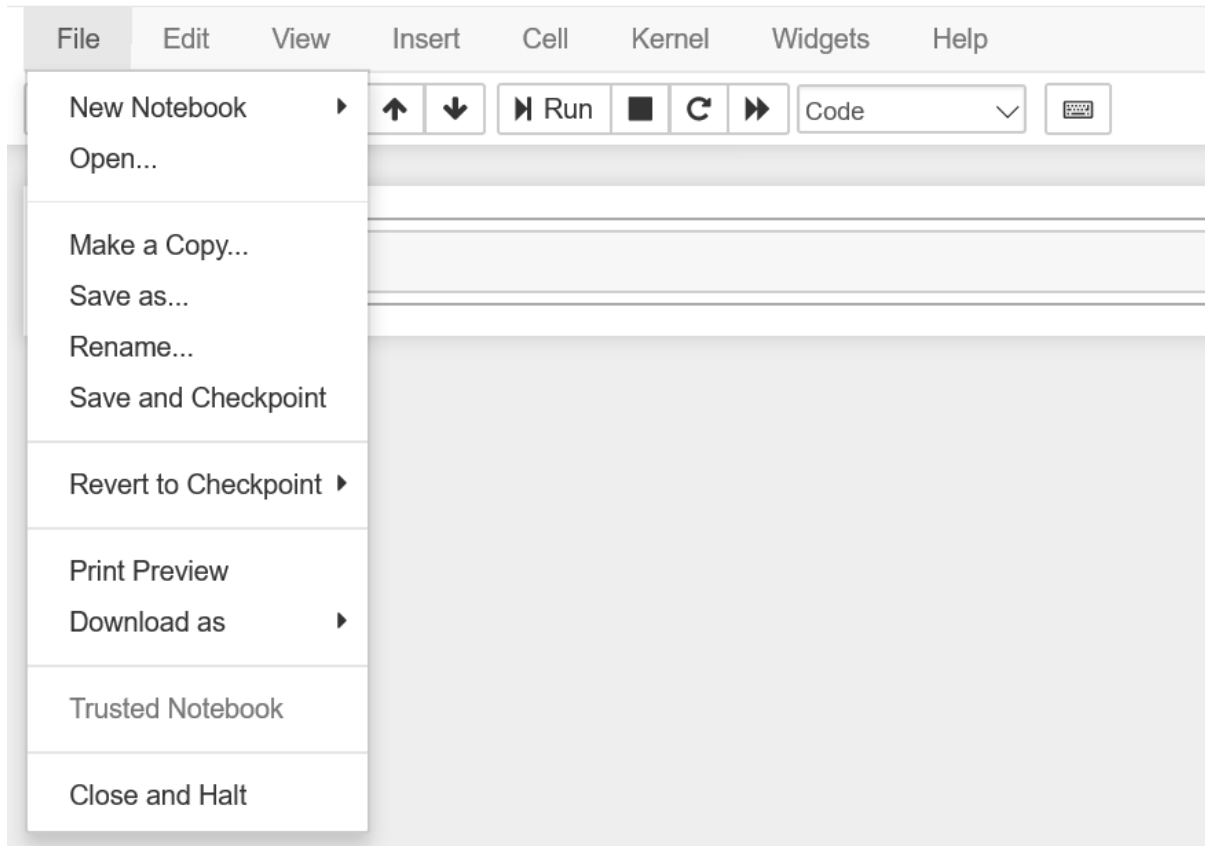
1. Menu Bar




Jupyter Notebook has its own Menu bar which has the following options:

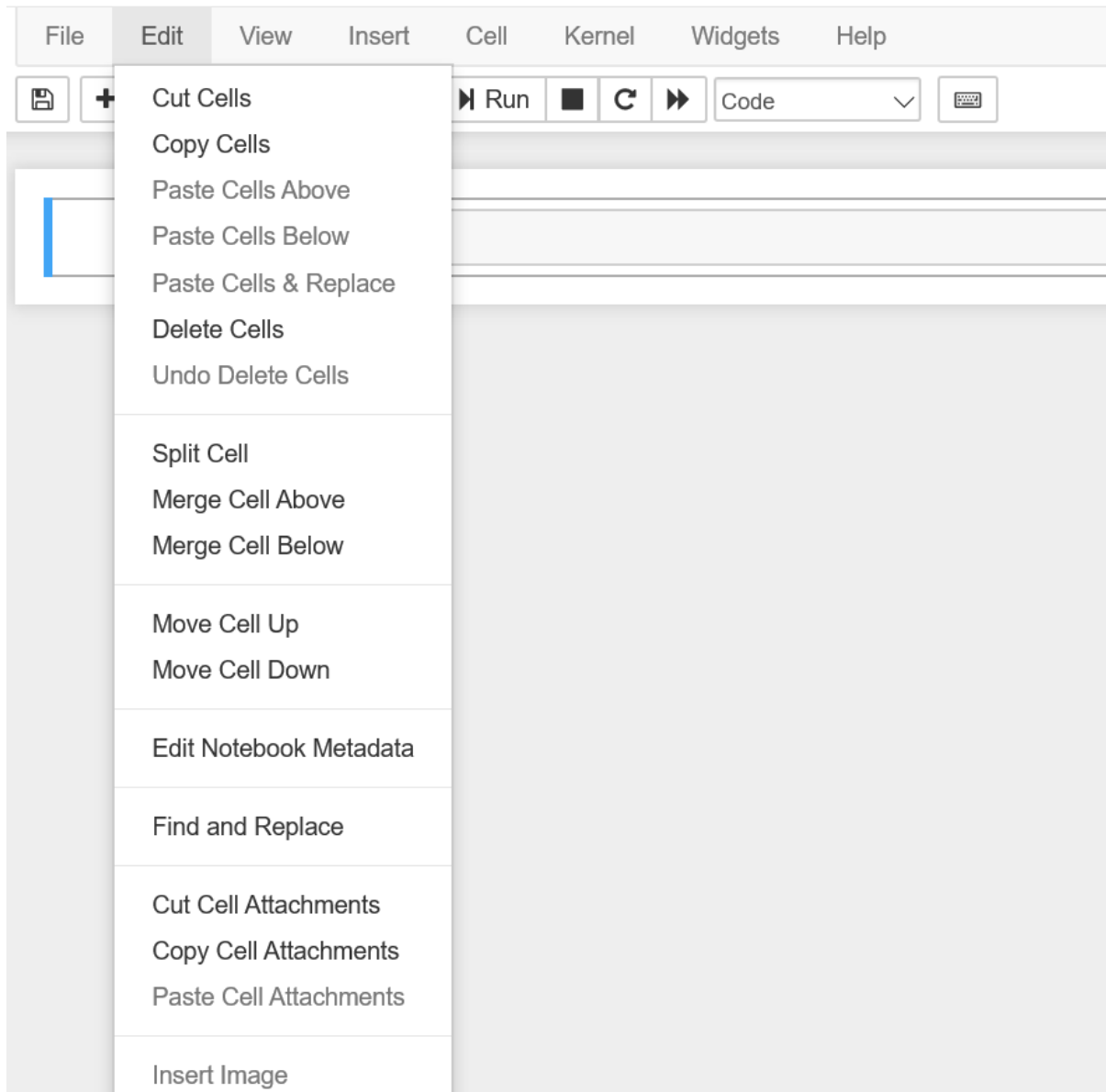
1. File: In the file menu, you can create a new Notebook or open a pre-existing one. This is also where you would go to rename a Notebook. I think the most interesting menu item is the *Save and Checkpoint* option. This allows you to create checkpoints that you can roll back to if you need to.

 **jupyter** New Notebook Last Checkpoint: 20 minutes ago (autosaved)



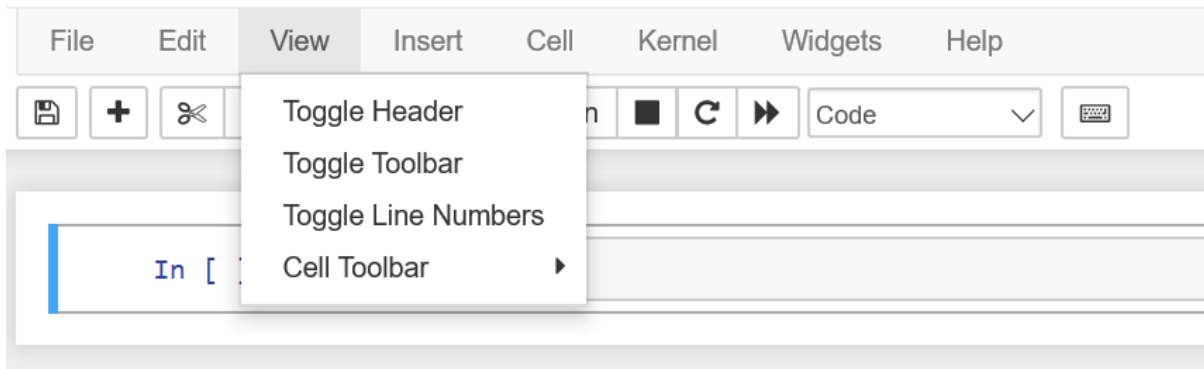
2. This is also where you would go if you wanted to delete, split, or merge a cell. You can reorder cells here too.

 **jupyter** New Notebook Last Checkpoint: 22 minutes ago (autosaved)



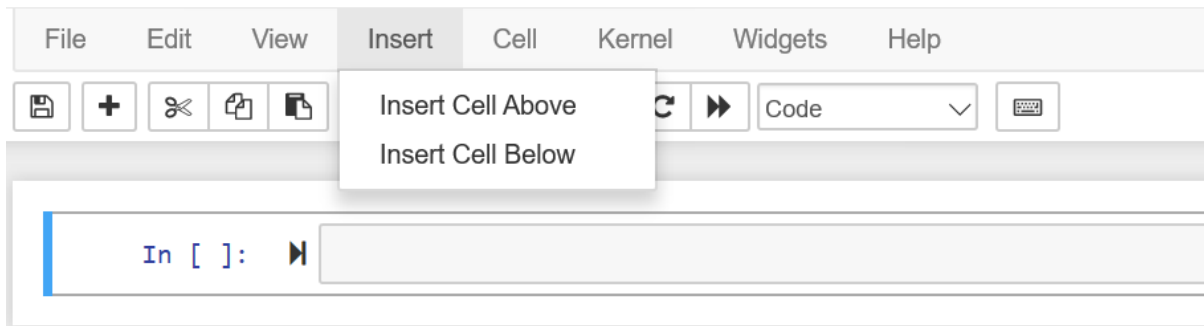
3. View menu: The *View* menu is useful for toggling the visibility of the header and toolbar. You can also toggle *Line Numbers* within cells on or off. This is also where you would go if you want to mess about with the cell's toolbar.

jupyter New Notebook Last Checkpoint: 23 minutes ago (autosaved)




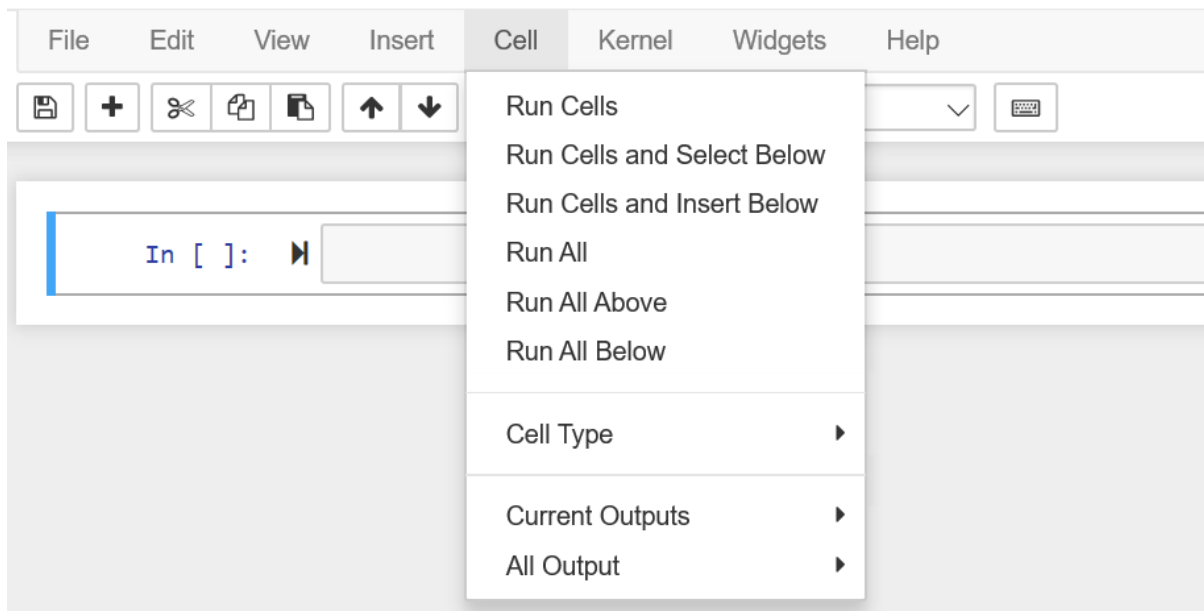
4. Insert menu: The *Insert* menu is just for inserting cells above or below the currently selected cell.

jupyter New Notebook Last Checkpoint: 26 minutes ago (autosaved)




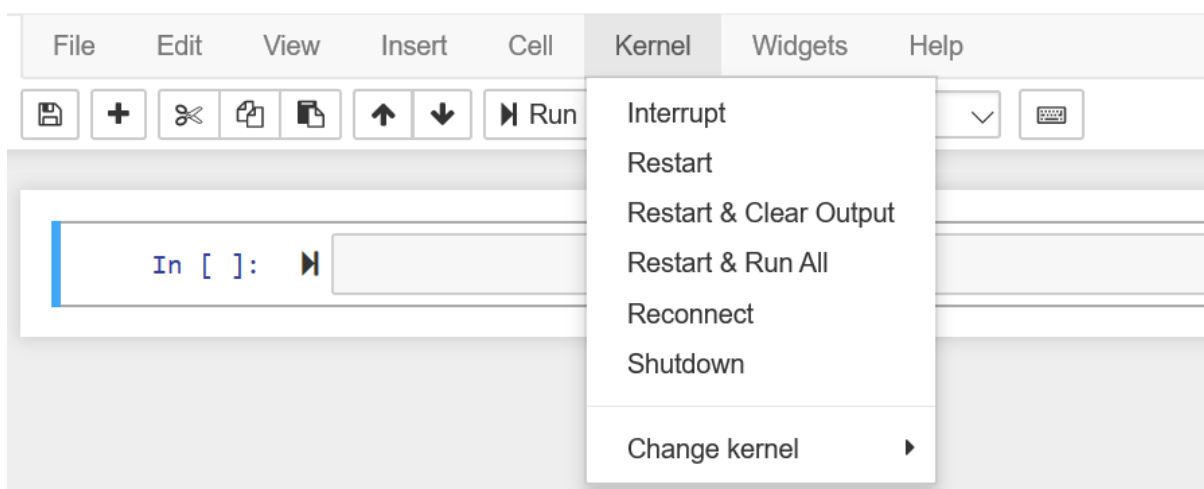
5. Cell menu: The *Cell* menu allows you to run one cell, a group of cells, or all the cells. You can also go here to change a cell's type, although the toolbar is more intuitive for that. The other handy feature in this menu is the ability to clear a cell's output.

 **jupyter** New Notebook Last Checkpoint: 27 minutes ago (autosaved)

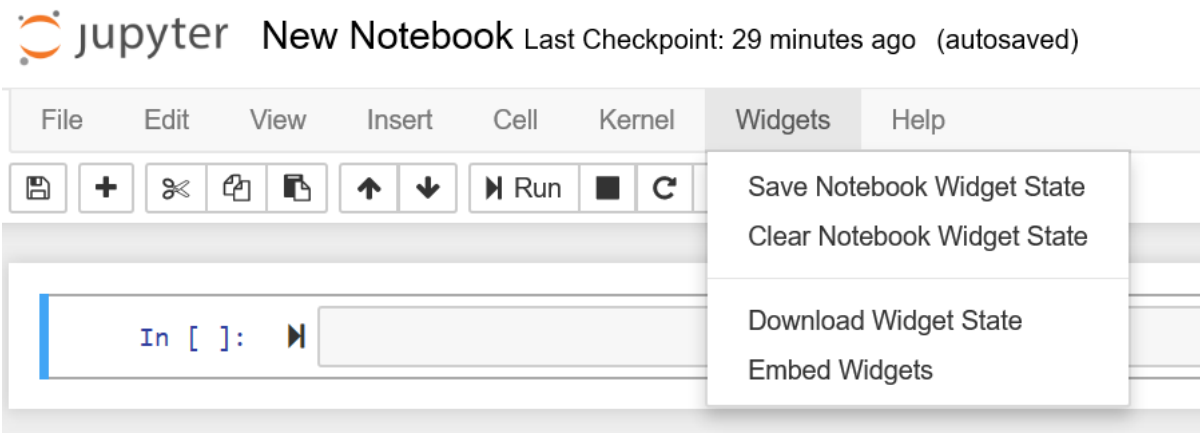


6. Kernel Menu: The *Kernel* cell is for working with the kernel that is running in the background. Here you can restart the kernel, reconnect to it, shut it down, or even change which kernel your Notebook is using.

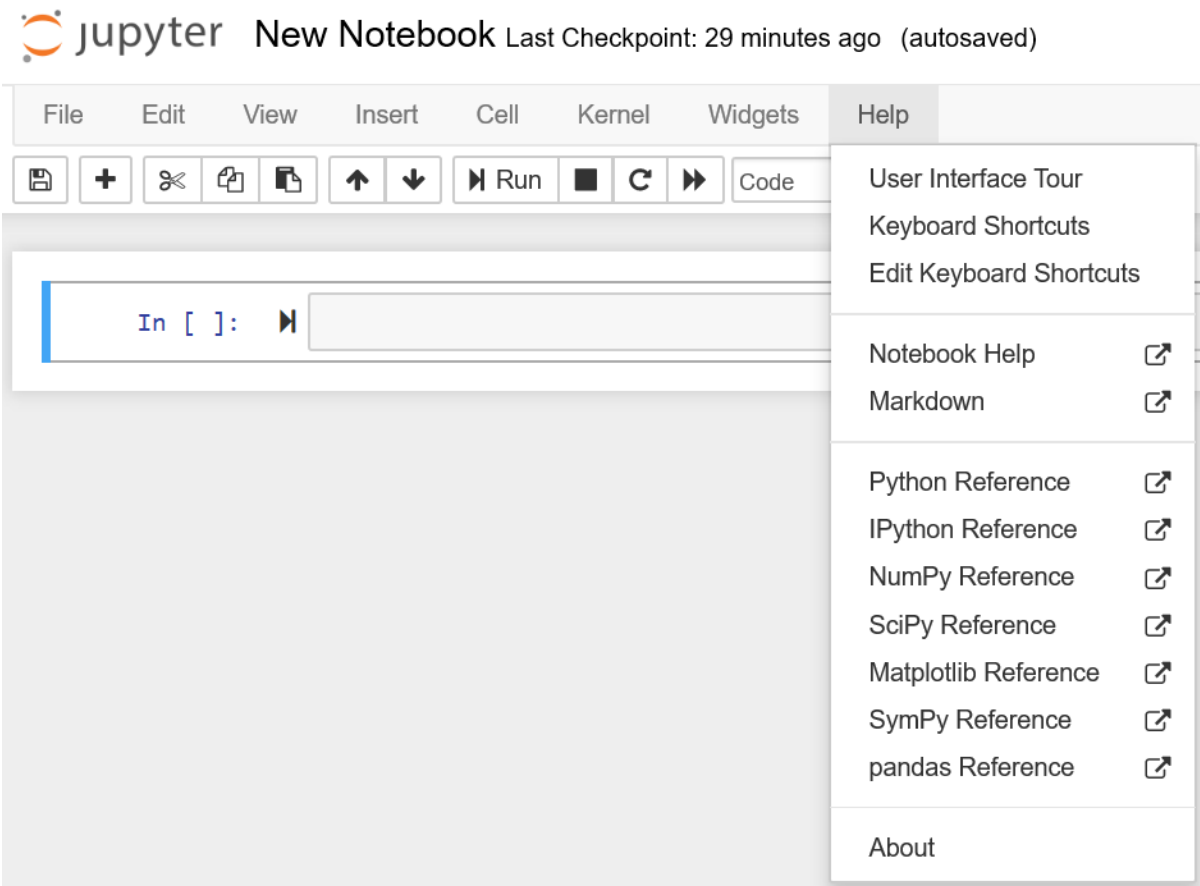
 **jupyter** New Notebook Last Checkpoint: 28 minutes ago (autosaved)















7. Widgets Menu: The *Widgets* menu is for saving and clearing widget state. Widgets are basically JavaScript widgets that you can add to your cells to make dynamic content using Python (or another Kernel).



8. Help Menu: Finally, you have the *Help* menu, which is where you go to learn about the Notebook's keyboard shortcuts, a user interface tour, and lots of reference material.



Other than the Menu Bar, a tool bar is also given for our ease in the Notebook interface. Let us get to know about each of the tools.

	Save	Used to save the progress of Jupyter Notebook.
	Add	Add a cell next to the selected cell in the notebook.
	Cut	Cut/Remove a cell from its location.
	Copy	Copy the contents of a cell.
	Paste	Paste the cut/copied cell below the selected location.
	Shift	Shift selected cells up/down respectively.
	Run	Execute the selected cell.
	Stop	Break execution of the selected cell.
	Restart	Restart the kernel.
	Restart & Run all	Restart the kernel and re-run the whole notebook.
	Command Palette	Open the command palette containing all the features of Jupyter Notebook.
		Cell type selection.

<div><div>Code</div><div>Markdown</div><div>Raw NBConvert</div><div>Heading</div></div>	<p>Code: Executable cell containing python syntax.</p> <p>Markdown: Textual Information</p> <p>Raw NBConvert: Raw text to be kept unmodified in execution.</p> <p>Heading: Add textual headings using #.</p> <p># - Heading level 1</p> <p>## - Heading level 2 and so on.</p>
---	--

Libraries Installation

To install the libraries, open command prompt and run the following commands one by one:

```
conda install numpy pandas matplotlib
```

```
conda install opencv-python
```