**Jupyter Notebooks and JupyterLab**

# **Introduction to Jupyter Notebooks**

Simple Explanation:

* **Jupyter Notebooks**: These are special digital notebooks that let you write code, explanations, and create visualizations all in one place. They help data scientists keep track of their experiments and share their findings easily.
* **JupyterLab**: This is an upgraded version of Jupyter Notebooks. It allows you to work with multiple notebooks and files at the same time, making it easier to manage different projects. It’s like having a well-organized workspace.

Summary:

* Jupyter Notebooks started as "iPython" for Python programming and now support many languages.
* They are browser-based applications that combine code, text, and visualizations in one document.
* You can run code in the notebook, see the output immediately, and share the notebook as a PDF or HTML file.
* JupyterLab enhances the functionality of Jupyter Notebooks by allowing access to multiple notebooks and other files in a flexible environment.
* You can use Jupyter Notebooks in the cloud with services like IBM and Google Colab, which don’t require installation on your local machine.
* Installation can also be done via command line or through the Anaconda platform.

# **Jupyter Notebooks on the Cloud**

**Jupyter Notebooks on the Internet**

There are thousands of interesting Jupyter Notebooks available on the internet for you to learn from. One of the best sources is: <https://github.com/jupyter/jupyter/wiki>

It is important to notice that you can download such notebooks to your local computer or import them to a cloud based notebook tool so that you can rerun, modify, and apply what's explained in the notebook.

Very often, Jupyter Notebooks are already shared in a rendered view. This means that you can look at them as if they were running locally on your machine. But sometimes, folks only share a link to the Jupyter file (which you can make out by the \*.ipynb extension). In this case, you can pick the URL to that file and paste it to the NB-Viewer => <https://nbviewer.jupyter.org/>

The list of Jupyter Notebooks provides you with a huge collection of materials to explore. Therefore, it might be useful to give you some pointers to interesting notebooks. You have covered some examples with data in the labs. Let's highlight some useful data that further explores data science. In addition, as we have covered different tasks in data science, we will also provide a sample notebook for each task.

First, you start with exploratory data analysis, for which this notebook is highly recommended: <https://nbviewer.jupyter.org/github/Tanu-N-Prabhu/Python/blob/master/Exploratory_data_Analysis.ipynb>

For data integration/cleansing at a smaller scale, the python library\_pandas\_is often used. For this task, you can have a look at this notebook: <https://towardsdatascience.com/data-cleaning-with-python-using-pandas-library-c6f4a68ea8eb>

If you want to know more about clustering, have a look at this notebook: <https://nbviewer.jupyter.org/github/temporaer/tutorial_ml_gkbionics/blob/master/2%20-%20KMeans.ipynb>

And finally, if you want an in-depth notebook on the\_iris\_dataset, have a look at this: <https://www.kaggle.com/lalitharajesh/iris-dataset-exploratory-data-analysis>

# **Summary**

**Module 4 Summary**

Congratulations! You have completed this module. At this point in the course, you know:

* Jupyter Notebooks are used in Data Science for recording experiments and projects.
* Jupyter Lab is compatible with many files and Data Science languages.
* There are different ways to install and use Jupyter Notebooks.
* How to run, delete, and insert a code cell in Jupyter Notebooks.
* How to run multiple notebooks at the same time.
* How to present a notebook using a combination of Markdown and code cells.
* How to shut down your notebook sessions after you have completed your work on them.
* Jupyter implements a two-process model with a kernel and a client.
* The notebook server is responsible for saving and loading the notebooks.
* The kernel executes the cells of code contained in the Notebook.
* The Jupyter architecture uses the NB convert tool to convert files to other formats.
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* The Anaconda Navigator GUI can launch multiple applications on a local device.
* Jupyter environments in the Anaconda Navigator include JupyterLab and VS Code.
* You can download Jupyter environments separately from the Anaconda Navigator, but they may not be configured properly.
* The Anaconda Navigator GUI can launch multiple applications.
* Additional open-source Jupyter environments include JupyterLab, JupyterLite, VS Code, and Google Colaboratory.
* JupyterLite is a browser-based tool.