

# Franklin

The MBG jupyter exercise tool



# Table of contents

I	Jupyter	3
2	Jupyter	5
II	Docker	7
3	Jupyter	9








# **Part I**

## **Jupyter**





## 2 Jupyter

 This pages are under construction

Jupyter Notebooks are an interactive computing environment that allow users to create and share documents containing live code, equations, visualizations, and narrative text. Originally developed as part of the IPython project, Jupyter (short for Julia, Python, R) now supports over 100 programming languages and has become a standard tool in data science, scientific computing, and education.

At the core of a Jupyter Notebook is a web-based interface that organizes content into “cells.” These cells can contain code (typically in Python, but also in other languages via kernels), formatted text using Markdown, LaTeX for equations, and embedded multimedia elements. Users execute code in-place, and outputs such as plots or tables appear directly below the corresponding cells. This structure enables exploratory data analysis and facilitates reproducibility by interleaving code and its results with documentation.

Notebooks are stored in .ipynb files (JSON format), which preserve the code, outputs, and formatting. They can be run locally using the Jupyter server or hosted in cloud environments such as Google Colab or Binder. For scientific workflows, notebooks can integrate with tools for version control, containerization, and workflow management, making them a flexible instrument for open and reproducible research.

Despite their strengths, Jupyter Notebooks are not without limitations. Version control can be challenging due to the JSON-based format, and improper use (e.g., out-of-order execution) can compromise reproducibility. Nevertheless, their advantages in accessibility, interactivity, and communication have made them central to modern computational work.




# **Part II**

## **Docker**



### 3 Jupyter

 This pages are under construction

Jupyter Notebooks are an interactive computing environment that allow users to create and share documents containing live code, equations, visualizations, and narrative text. Originally developed as part of the IPython project, Jupyter (short for Julia, Python, R) now supports over 100 programming languages and has become a standard tool in data science, scientific computing, and education.

At the core of a Jupyter Notebook is a web-based interface that organizes content into “cells.” These cells can contain code (typically in Python, but also in other languages via kernels), formatted text using Markdown, LaTeX for equations, and embedded multimedia elements. Users execute code in-place, and outputs such as plots or tables appear directly below the corresponding cells. This structure enables exploratory data analysis and facilitates reproducibility by interleaving code and its results with documentation.

Notebooks are stored in .ipynb files (JSON format), which preserve the code, outputs, and formatting. They can be run locally using the Jupyter server or hosted in cloud environments such as Google Colab or Binder. For scientific workflows, notebooks can integrate with tools for version control, containerization, and workflow management, making them a flexible instrument for open and reproducible research.

Despite their strengths, Jupyter Notebooks are not without limitations. Version control can be challenging due to the JSON-based format, and improper use (e.g., out-of-order execution) can compromise reproducibility. Nevertheless, their advantages in accessibility, interactivity, and communication have made them central to modern computational work.

