■■■ Introduction to Jupyter Notebook

Jupyter Notebook is an interactive development environment that allows you to write and execute code, display visualizations, and document your work — all in a single document.

It is widely used for data science, machine learning, and Python programming because it supports live code, output, and narrative text in one place.

■ Key Features

• Run Python code interactively
• Write documentation using Markdown
• Display data visualizations (Matplotlib, Seaborn, Plotly, etc.)
• Export notebooks as PDF, HTML, or slides
• Share notebooks easily via GitHub, email, or JupyterHub

■ 1. Markdown in Jupyter Notebook

Markdown is used to write formatted text inside a Jupyter Notebook. It helps you add headings, bullet points, bold/italic text, images, links, code snippets, formulas, etc.

■ Use case examples:

• Writing explanations or documentation between code cells
• Converting a notebook into a presentation
• Adding section headers or notes in your notebook

■ Example:

`# My Project`
This project analyzes sales data using **Python** and *Pandas*.

`## Steps`
1. Import Libraries
2. Load Dataset
3. Analyze Data

Inline code: `print('Hello')`

■ Output (after running Markdown cell):

My Project
This project analyzes sales data using Python and Pandas.
Steps
1. Import Libraries
2. Load Dataset
3. Analyze Data
Inline code: print('Hello')

■ 2. Code Mode (Code Cells)

Code mode is where you write and execute Python code. Each code cell runs independently and can display output below it.

■ Example:
```
import pandas as pd
```

```
print('Hello, Jupyter!')
```

➡■ Output:
Hello, Jupyter!

■■ 3. Command Mode vs. Edit Mode

Mode	Purpose	Shortcut Indicator
■ Command Mode	Used to control notebook structure (add/delete cells, move cells, etc.)	Blue left border
■ Edit Mode (Code Mode)	Used to edit content inside a cell (write code or Markdown)	Green left border

■ 4. Switching Between Modes (Windows Shortcuts)

Action	Mode	Shortcut	Description
➡■ Enter Edit Mode	Command	Enter	Start typing inside the selected cell
■ Return to Command Mode	Edit	Esc	Exit cell editing to manage notebook
■ Create new Code Cell below	Command	B	Adds a new cell below current
■ Create new Code Cell above	Command	A	Adds a new cell above current
■■ Delete current cell	Command	DD	(Press D twice) deletes selected cell
■ Save notebook	Any	Ctrl + S	Saves your work
■■ Run current cell and move to next	Any	Shift + Enter	Executes current cell and selects next
■■ Run cell and stay	Any	Ctrl + Enter	Runs current cell but doesn't move
➡■ Convert to Edit Mode	Command	Enter	Edit cell contents
■ Convert to Command Mode	Edit	Esc	Go back to notebook structure mode

■ Quick Summary

Feature	Description	Shortcut (Windows)
Command Mode	Controls notebook (add/delete/move cells)	Press Esc
Edit/Code Mode	Write or modify cell content	Press Enter
Markdown Cell	Format text with markdown	Select cell → Press Esc + M
Code Cell	Execute Python code	Select cell → Press Esc + Y