2.2 Jupyter Notebook Intro

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0.1 Everything about Jupyter Notebook !!

> *"AI is the new electricity. Just as electricity transformed industries 100 years ago, AI will do the same today."*
> — Andrew Ng

0.2 Topic of Content

1. **What are Jupyter Notebooks?**
2. **How do Notebooks Work?**
3. **Kernels – The Magician behind Notebook**
4. **Hands-on Demo – How to Use Jupyter Notebook Effectively?**

0.2.1 1. What are Jupyter Notebooks?

Jupyter Notebooks are an **interactive coding environment** used by data scientists, machine learning engineers, researchers, and educators to:

- **Write and run code** (Python, R, Julia & more)
- **Document insights** with rich text, equations, and images
- **Visualize data** with charts, graphs, and tables
- **Tell compelling data stories** — all in one place!

0.2.2 2 How Do Notebooks Work?

1. **You write code** in a cell (like Python).
2. That code is sent to a **Kernel** — a powerful engine that runs your code.
3. The Kernel **executes the code** and returns the output.
4. The result (text, image, plot, etc.) is **displayed right below the cell**.

0.2.3 3. The Magic Behind the Notebook: Digging Deeper into Kernels

- A **Jupyter Notebook** runs on top of something called a **kernel**.
- What is a Kernel?

1. A **kernel** is the **computational engine** that executes the code you write in your notebook.
2. When you run a cell (like `print("Hello")`), the code is sent to the **kernel**.
3. The kernel runs the code **line by line**, and sends the **output back** to the notebook interface.
4. Each programming language (Python, R, Julia…) has its own kernel.
5. The most common one is the **IPython kernel**, which runs Python code.

- If you're using **Conda**, you can create **isolated environments**, each with its own Python version and packages. You can then **register** each Conda environment as a kernel.
- A kernel is like the brain of your notebook — it thinks, runs, and speaks the language you've chosen (like Python). Conda helps you organize different brains for different jobs!
- In Short
  - Kernel - Executes your code and returns results
  - Conda Env - Manages the libraries and Python version the kernel uses

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0.2.4 4. Jupyter notebook - Demo Time

[6]:
```
print("Hello world ! \n Now I have a good understanding of what is Jupyter␣
↪Notebook and how jupyter notebook works ?")
```

```
Hello world !
 Now I have a good understanding of what is python and how jupyter notebook
works ?
```

0.3 References

Content Curated by Decode AI Team