INTRODUCTION TO PYTHON PROGRAMMING LANGUAGE

WORKSHOP DETAILS

- Instructor: Tanya Khanna
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- Workshop Materials:
    - Github Link: https://github.com/Tanya-Khanna/Data-Science-Workshop---Spring-2025---NBL-

SCHEDULE

Introduction to Python Programming	February 3, 2025; 2 - 3:30 PM
Mastering Data Analysis: Pandas and Numpy	February 10, 2025; 2 - 3:30 PM
Introduction to Tableau: Visualizing Data Made Easy	February 17, 2025; 2 - 3:30 PM
Introduction to Machine Learning: Supervised Learning	February 24, 2025; 2 - 3:30 PM
Introduction to Machine Learning: Unsupervised Learning	March 3, 2025; 2 - 3:30 PM
Data-Driven Decision Making: A/B Testing and Statistical Hypothesis Testing	March 10, 2025; 2 - 3:30 PM
Demystifying Generative AI	March 24, 2025; 2 - 3:30 PM
Large Language Models: From Theory to Implementation	March 31, 2025; 2 - 3:30 PM
Generative AI Applications with AI Agents	April 7, 2025; 2 - 3:30 PM
Building Intelligent Recommendation Systems	April 14, 2025; 2 - 3:30 PM

Spring 2025 workshop calendar

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What is Python?

A programming language that is:

- general purpose [multi-use like a swiss army knife]
- high level [user-friendly]
- structured
- Interpreted [real time translation!]
- object-oriented [building-block style like LEGO]

What can Python do?

A way to enter instructions for the computer to perform.

- Crunch numbers
- Manipulate files
- Analyze data
- Create graphs

"If this condition is true, perform this action; otherwise, do that action."

"Do this action exactly 27 times."

"Keep doing that until this condition is true."

Who uses Python?

- Researchers
- Data Scientists
- Web Developers
- Software Developers
- Mathematicians
- Or **anyone** wanting to automate stuff that they do.

Why learn Python?

- (Relatively) easy to learn / clean syntax
- Versatile: can do lots of stuff!
- It’s extendable
- It’s free

Downsides of Python?

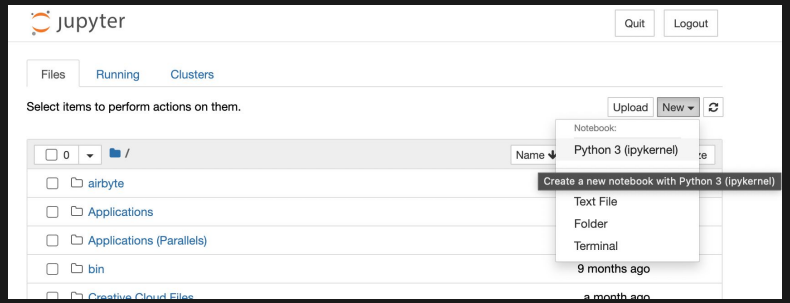
- Can run slower than other languages like C++
- Might require more machine time
- Not the go-to choice for mobile app development

Ways to Run Python: Jupyter Notebooks

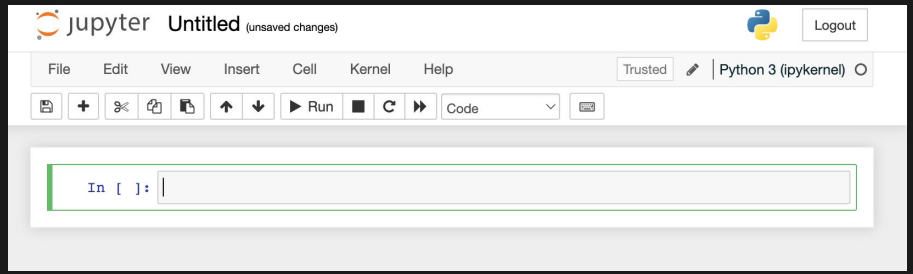
- Open-source web application for live code, equations, visualizations, and narrative text.
- Supports over 40 programming languages, including Python, R, Julia, and Scala.
- Widely used in industry and academia.
- Real-time code execution.

Getting Started With Jupyter Notebook

1. To create a new notebook, click on the “New” button in the top right corner of the Jupyter Notebook interface and select “Python 3” (or the version you have installed) from the drop-down menu.



2. A new notebook will open with an empty code cell. You can start writing your code, markdown text, or equations in the cell. To execute the code in a cell, press Shift + Enter.



3. You can add new cells, delete cells, or change the cell type (code, markdown, or raw) using the toolbar at the top of the notebook. Additionally, you can access various notebook settings, download the notebook in different formats, or save and checkpoint your progress using the “File” and “Kernel” menus.