What Will I Gain From This Course?

NumPy

1

Introduction to NumPy

- Intro to NumPy
- NumPy Arrays
- Array Properties
- Indexing & Slicing in Arrays
- Filtering & Sorting Arrays
- Broadcasting in NumPy
- Vectorization in NumPy

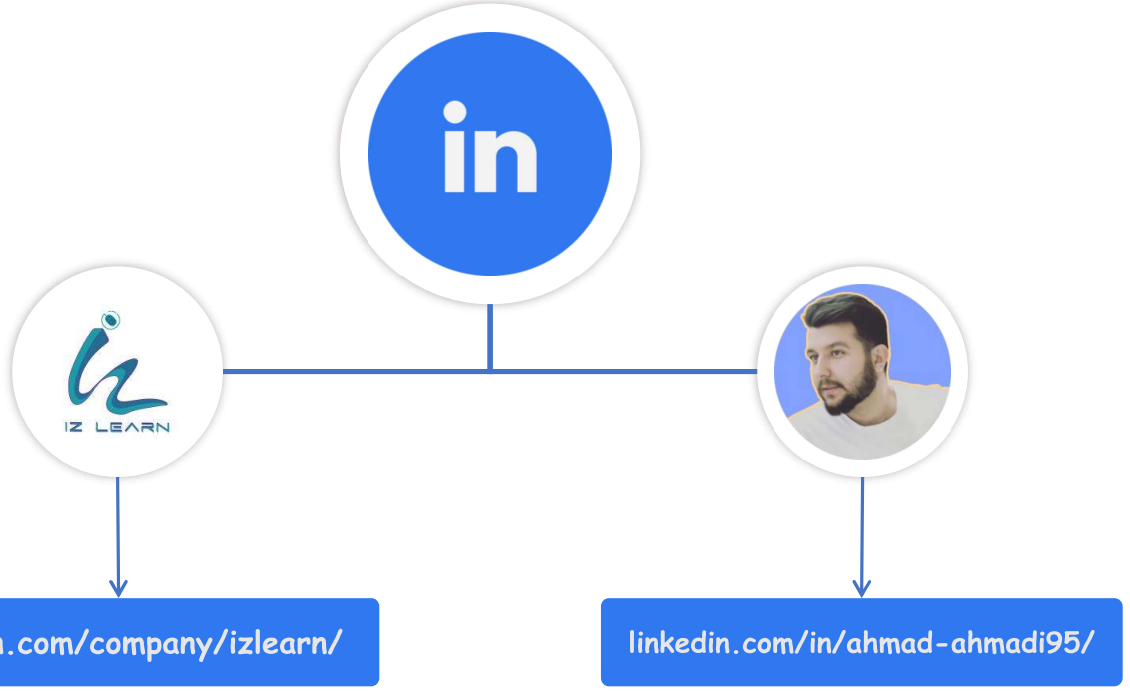
Pandas

2

All About Pandas

- Intro to Pandas
- Series & DataFrames
- Aggregating & Reshaping
- Data Visualization
- Mid-Course Project
- Time Series
- Importing & Exporting Data
- Combining DataFrames
- Final Project

How to Reach Me?



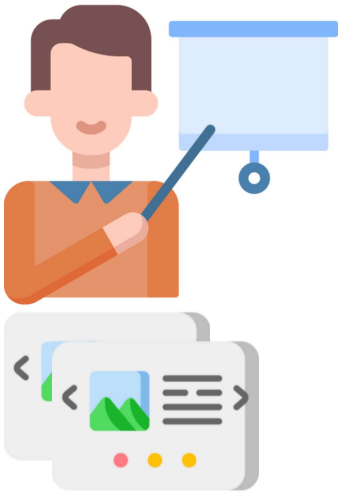
IZ LEARN

NumPy & Pandas

(ZERO TO HERO)

- Your Instructor : Ahmad Ahmadi
- Website: izlearn.ir

Course Structure



1. First, **I'll explain the theory using slides** for each topic

Useful Links

Zip File

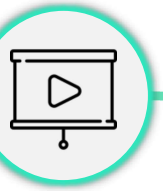
Course File + Slides (PDF)

How to Download This File?

Use this ***link***

2. After that, we'll have **dedicated sessions** for **hands-on practice** and coding on our own.

Course Outline



1. Intro to Pandas & NumPy
2. Pandas Series
3. DataFrames
4. Aggregating & Reshaping
5. Data Visualization
6. Mid-Course Project
7. Time Series
8. Importing & Exporting Data
9. Combining DataFrames
10. Final Project

Introducing the Course Project

The Situation

You've just been hired as a **Data Analyst Intern** for izshop **(retail & grocery)**. The main programming language for analyzing data in the company is **Python**. So, the team needs your help to speed up the process.

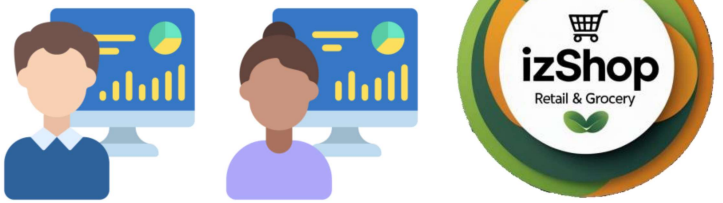
The Assignment

Your task is **to analyze over 2 million transactions** by product, household and store to get a better understanding of izshop strength.

The Objectives

Use **Python** to :

- Read in multiple files correctly
- Join tables to provide a single source of information
- Shape & aggregate sales data to calculate KPIs
- Visualize the data to communicate your findings



Setting Up Expectations

✔ This course covers the **core Pandas functionality**

- We'll cover critical **functions**, **methods** and **bets practices** for manipulating and analyzing data using Pandas DataFrames
- But **won't dive into advanced statistical analysis or data prep for machine learning**

✔ We will only cover **basic data visualization** in Python

- We'll use **Matplotlib** to create and customize **common charts** like histograms, scatterplots, bar and line charts
- **But we'll cover data visualization in depth in a separate course**

✔ We'll use **Jupyter Notebooks** as our primary coding environment

- **Jupyter Notebooks are free to use**, and it's a standard coding environment **for data analysis with Python**

✔ You do **NOT** need to be a **Python expert** to take this course

- It's recommended that you complete our **Python Zero to Hero (Part 1)** to have a good understanding of **data types**, **variables**, **conditional** and …

Have You Seen Python ZTH?

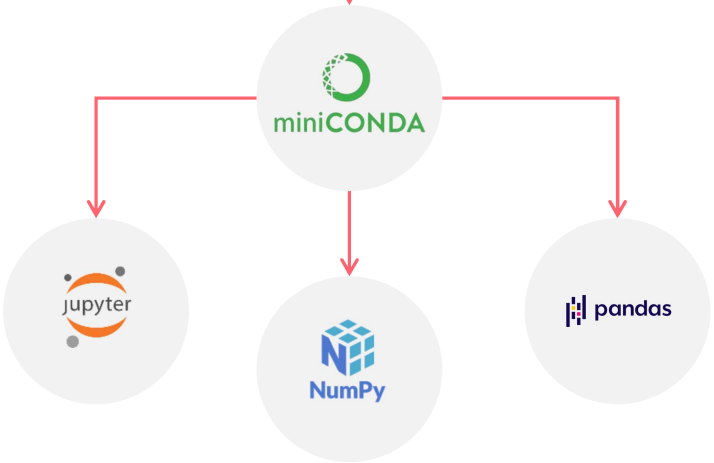
Have You Seen **Python Zero to Hero?**

We Used **PIP** to Install *Jupyter* and *libraries*

You Can **Skip** This & Upcoming Sessions

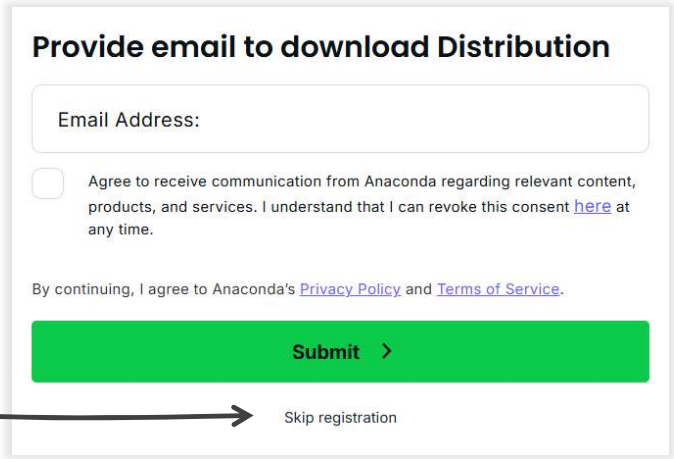
But I recommend you to stay with me! 😬

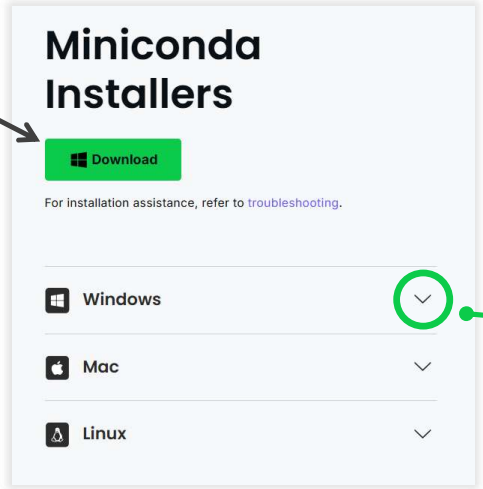
In **This Course** We're Going to Use ...

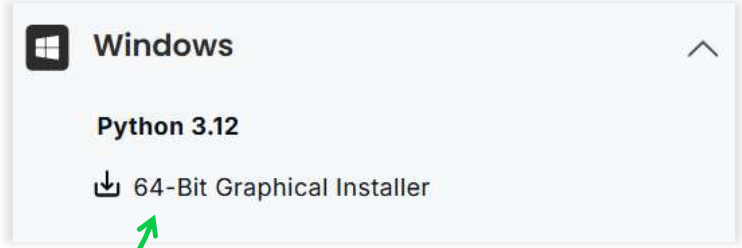


Downloading Miniconda

1. **Go To:** *anaconda.com/download/*
2. **Select:** Skip registration
3. **Download** the proper file





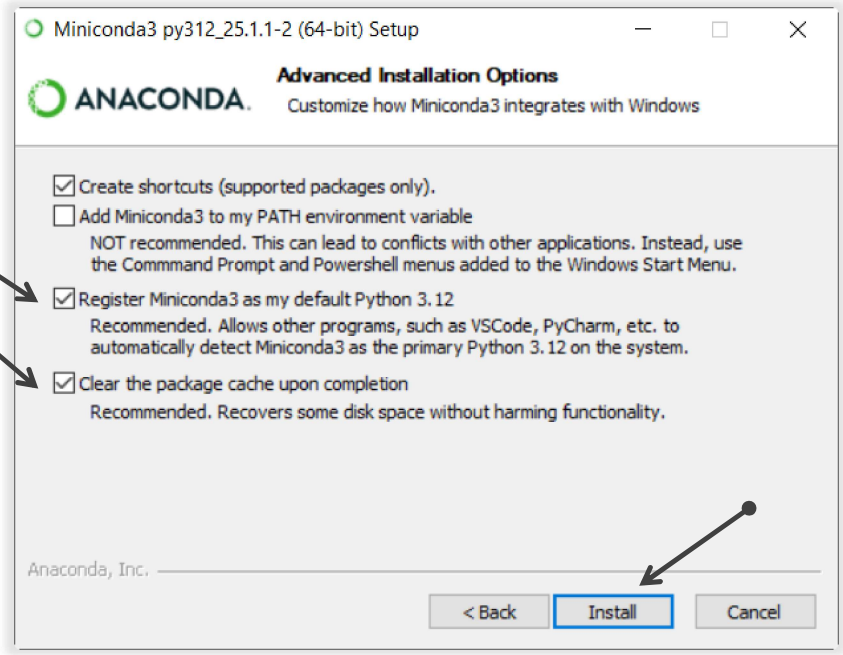


Installing Miniconda

1. **Go To:** ***This PC/Downloads/Programs***

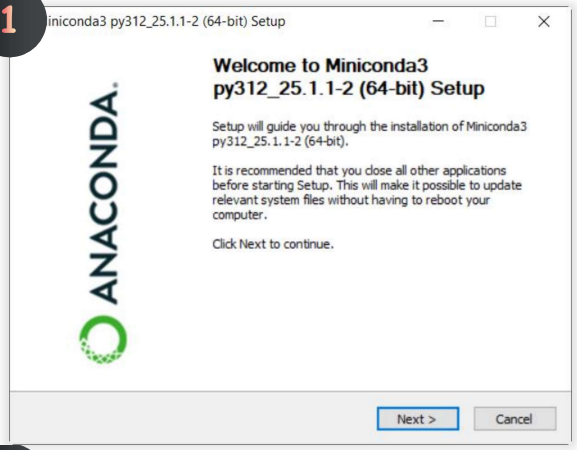
2. **Open** ***Minconda3.exe*** file by **<u>double clicking</u>**

3. **Click** on **Next** button without modifying anything **except for this window!** (recommended)



All Installation Steps!

1



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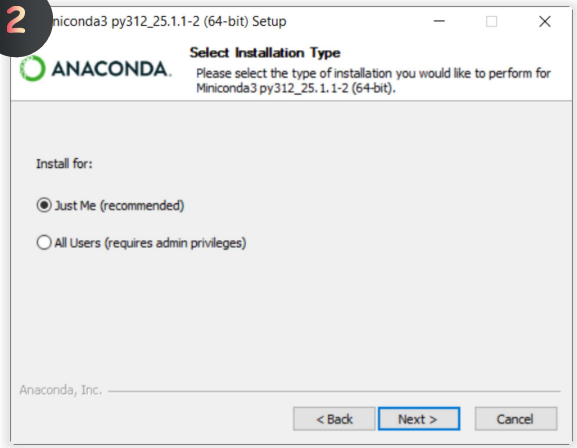

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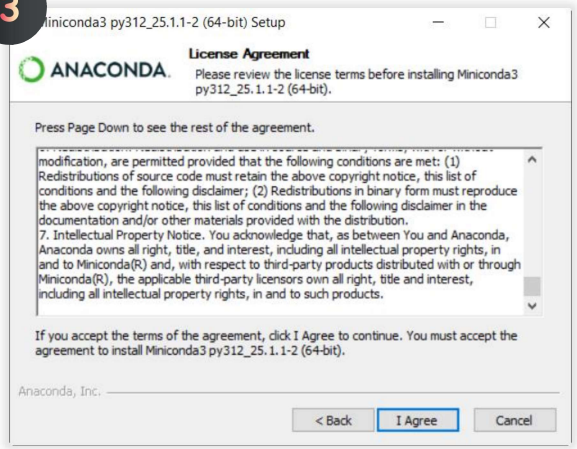

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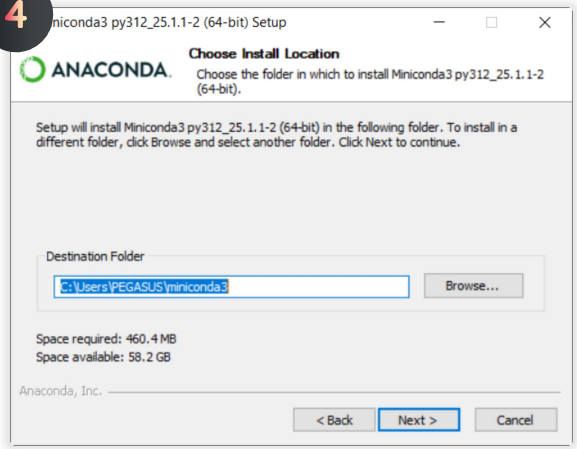
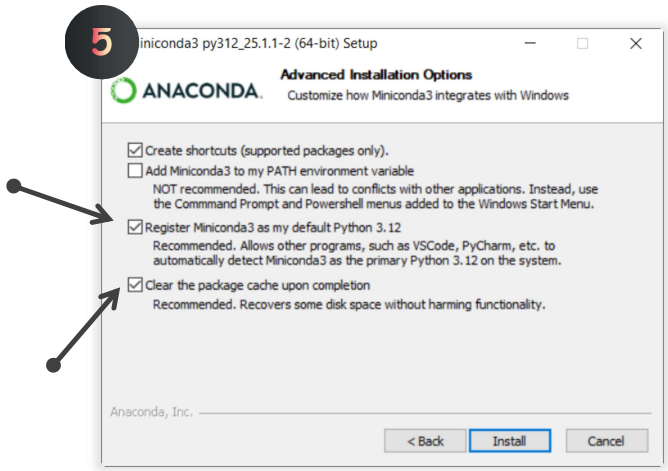
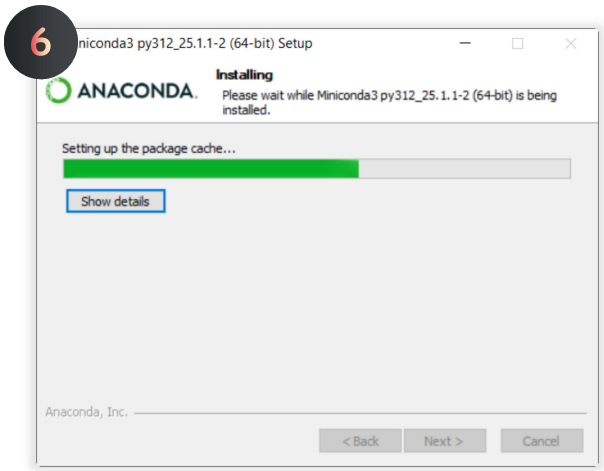
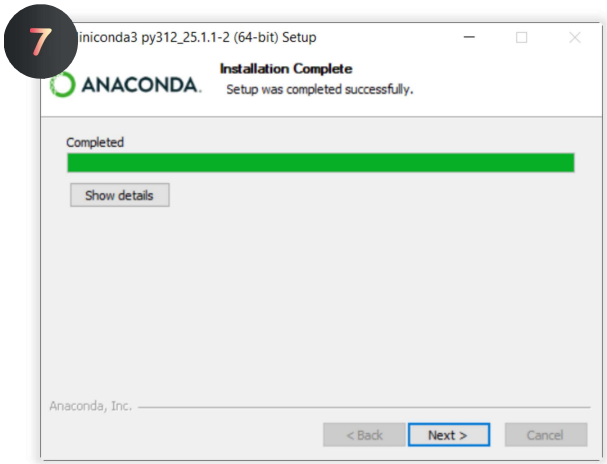
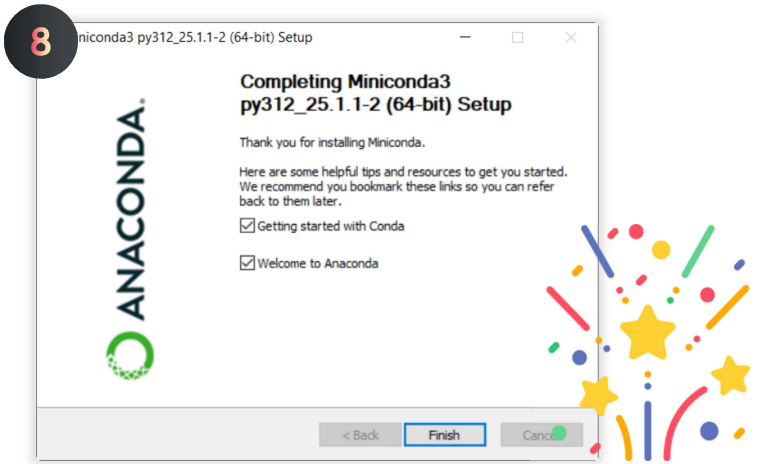


All Installing Steps!

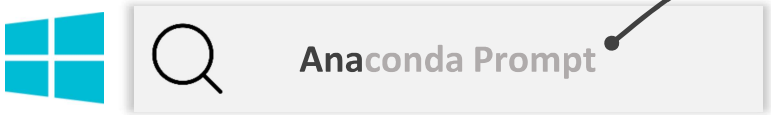


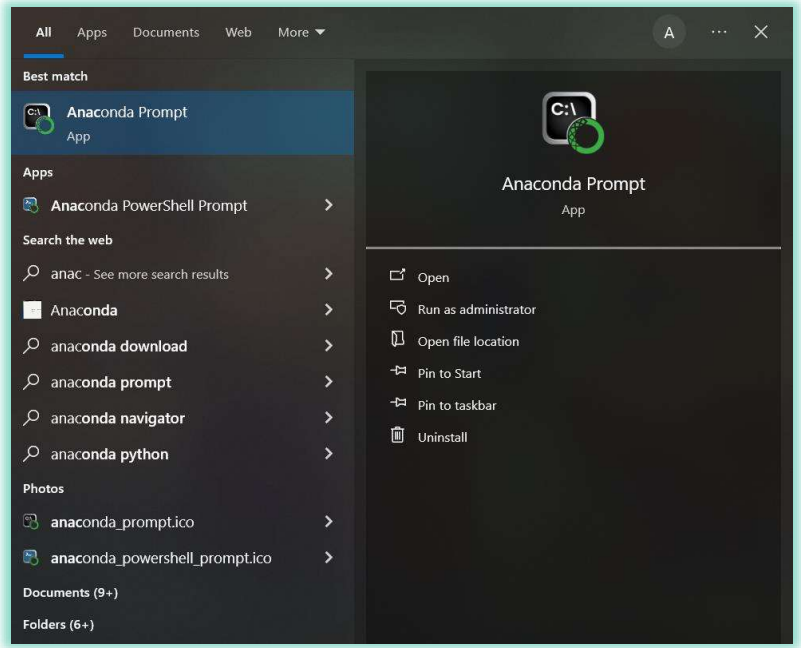


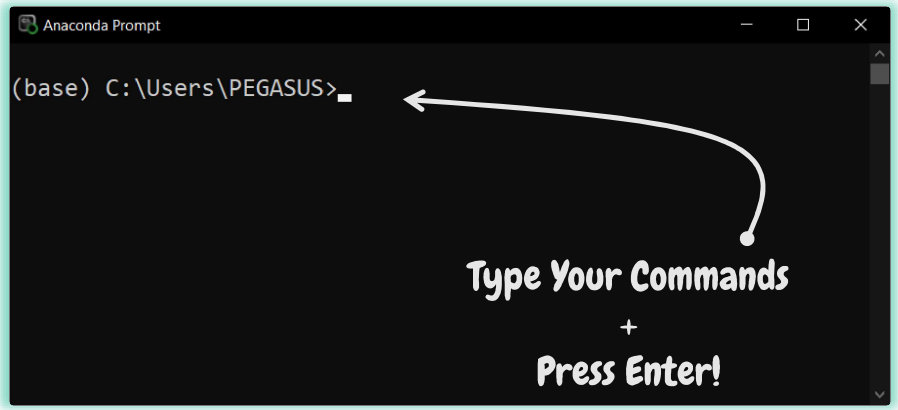




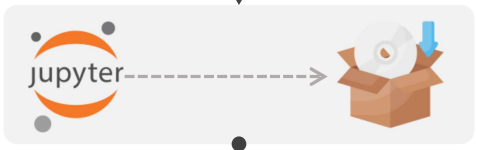
Launching Anaconda Prompt



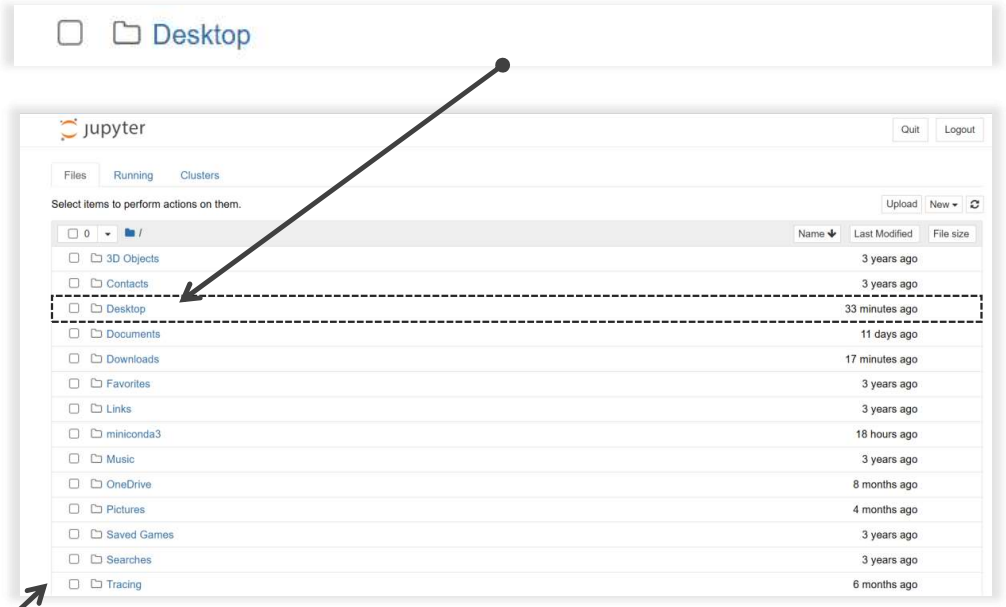




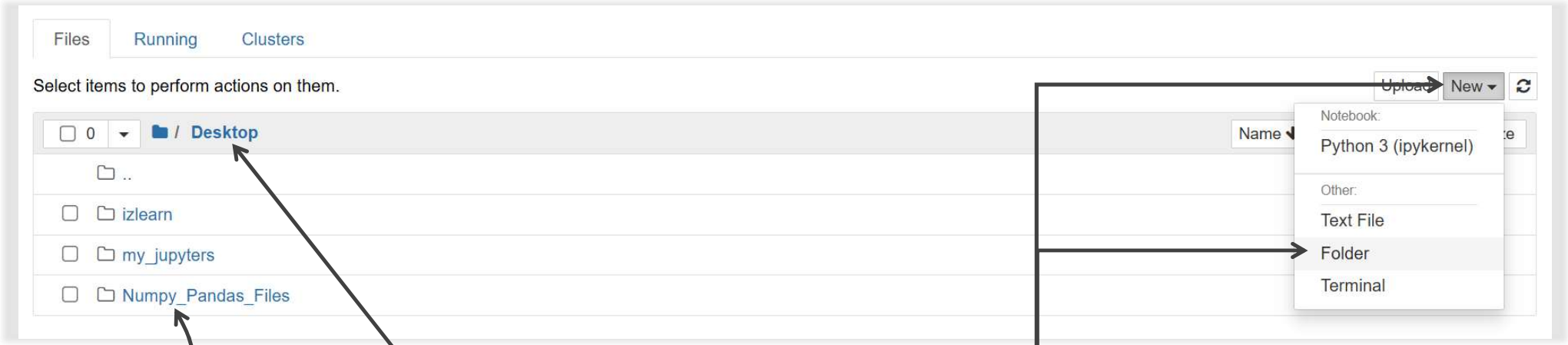
Launching Jupyter Notebook




```
(base) C:\Users\Ahmad> jupyter notebook
```



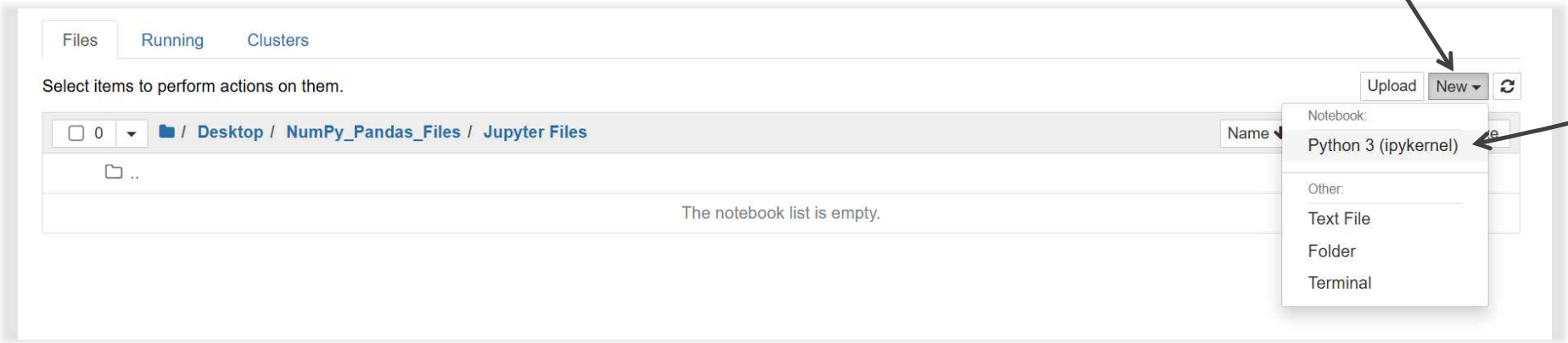
Creating a Folder Using Jupyter



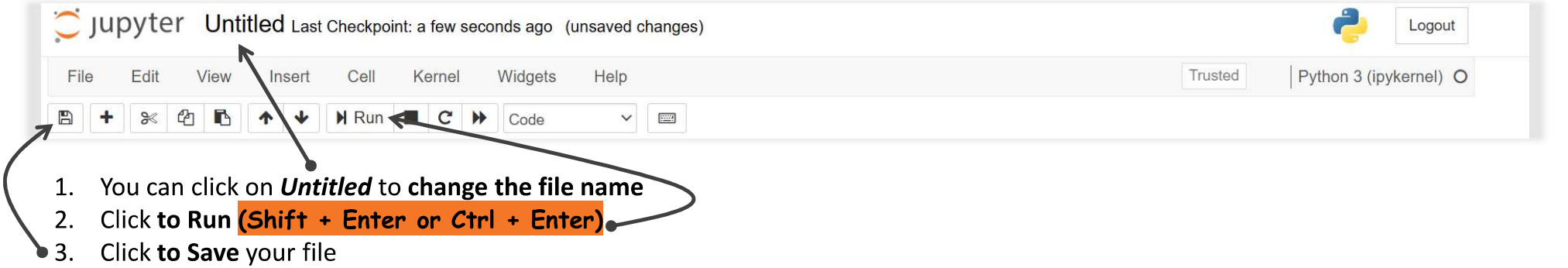
1. Click on ***Desktop*** in the main window (to enter desktop location)
2. Select ***New*** button to create a ***New Folder***
3. Name the folder ***Numpy_Pandas_Files***
4. Click on ***Numpy_Pandas_Files*** to enter it

Creating Your First Jupyter File

1. Click on ***Jupyter Files*** to enter it
2. Click on ***New*** button
3. Create Jupyter File Using ***Python3*** option



Creating Your First Jupyter File



1. You can click on ***Untitled*** to **change the file name**
2. Click **to Run (Shift + Enter or Ctrl + Enter)**
3. Click **to Save** your file

```
In [1]: print("Hello Jupyter!")
        Hello Jupyter!
```

1. You can **write your code** in **code cell**
2. Press ***Run*** button or ***Shift + Enter***
3. Result will be produced

The Jupyter's Server Window

🔰 **PLEASE NOTE:** When you launch your Jupyter Notebook, a window called ***terminal window*** would pop up as well; this is called ***Jupyter Server***, and it help your code run in Jupyter's interface

Jupyter's Server

Anaconda Prompt - jupyter notebook

```
(base) C:\Users\PEGASUS>jupyter notebook
[I 19:24:54.058 NotebookApp] Serving notebooks from local directory: C:\Users\PEGASUS
[I 19:24:54.059 NotebookApp] The Jupyter Notebook is running at:
[I 19:24:54.059 NotebookApp] http://localhost:8888/?token=4ae23912106904ab6c9012e6ba7d9c921d8be54681a350c7
[I 19:24:54.059 NotebookApp]  or http://127.0.0.1:8888/?token=4ae23912106904ab6c9012e6ba7d9c921d8be54681a350c7
[I 19:24:54.059 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 19:24:54.079 NotebookApp]

    To access the notebook, open this file in a browser:
        file:///C:/Users/PEGASUS/AppData/Roaming/jupyter/runtime/nbserver-13528-open.html
    Or copy and paste one of these URLs:
        http://localhost:8888/?token=4ae23912106904ab6c9012e6ba7d9c921d8be54681a350c7
     or http://127.0.0.1:8888/?token=4ae23912106904ab6c9012e6ba7d9c921d8be54681a350c7
[E 19:24:55.351 NotebookApp] Could not open static file ''
[W 19:24:55.376 NotebookApp] 404 GET /static/components/react/react-dom.production.min.js (::1) 4.02ms referer=http://lo
calhost:8888/tree?token=4ae23912106904ab6c9012e6ba7d9c921d8be54681a350c7
c:\users\pegasus\appdata\local\programs\python\python39\lib\json\encoder.py:257: UserWarning: date_default is deprecated
 since jupyter_client 7.0.0. Use jupyter_client.jsonutil.json_default.
  return _iterencode(o, 0)
```

If you close the terminal window;

Your Notebook will Not Be Working!

Hands-on Practice Time!

- Working with Jupyter
- Creating the First Jupyter File

Creating_Your_First_Jupyter.ipynb

How to Open Any Jupyter File Now?

1. **Paste** your jupyter file **on your Desktop**
2. Repeat **the process** of **launching** your installed jupyter notebook
3. Select **Desktop** folder
4. **Click** on your **Jupyter File** to open (Now **you can open** your files ✌🔥)

```
(base) C:\Users\Ahmad> jupyter notebook
```