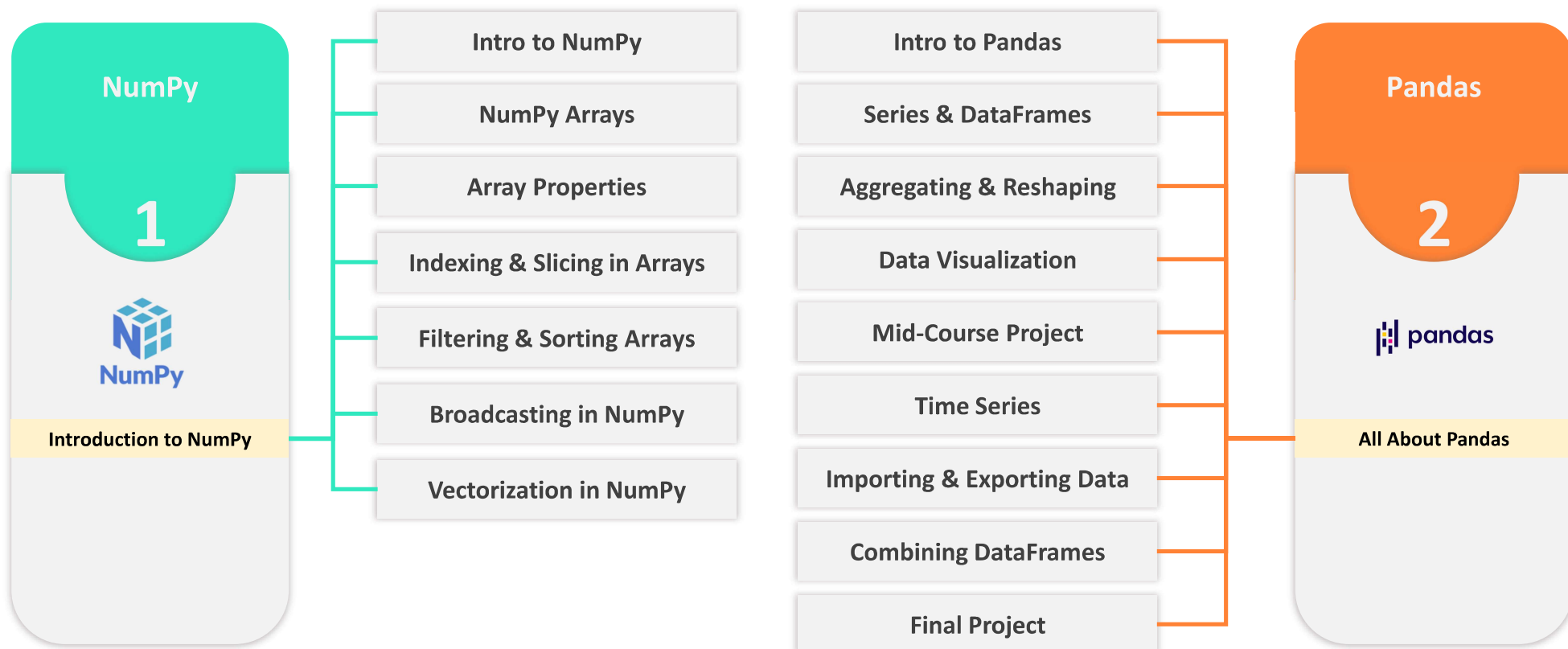
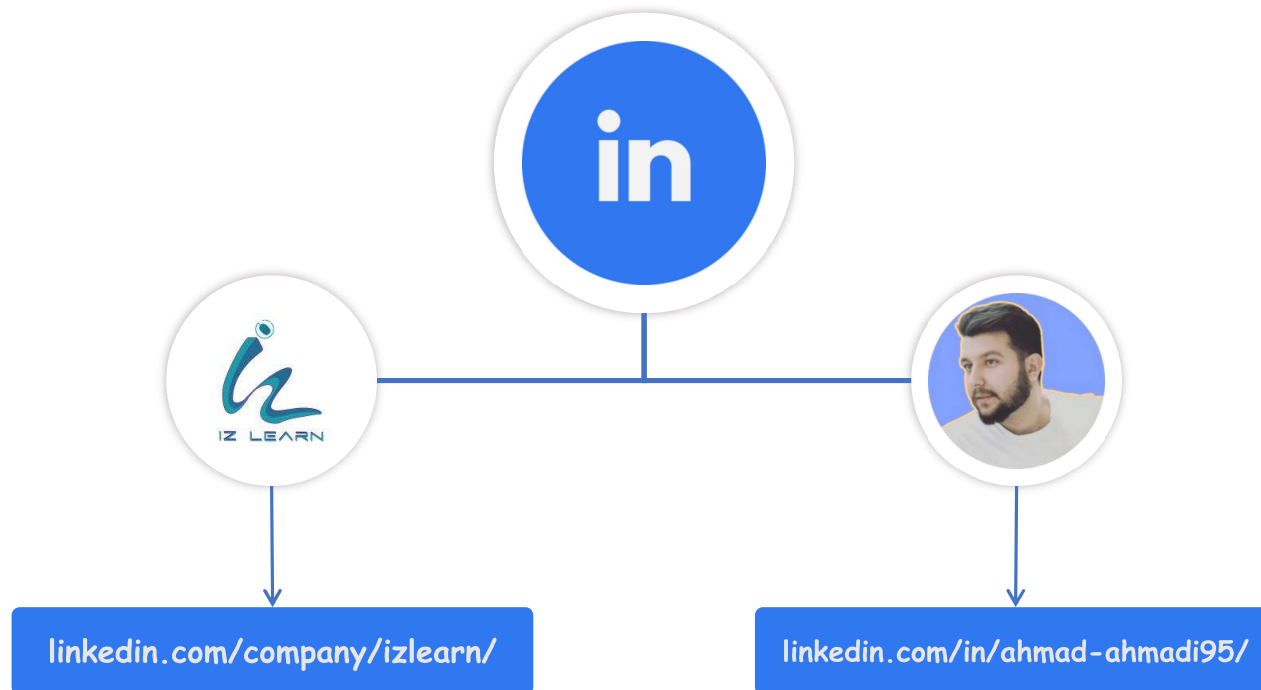




# What Will I Gain From This Course?



# How to Reach Me?





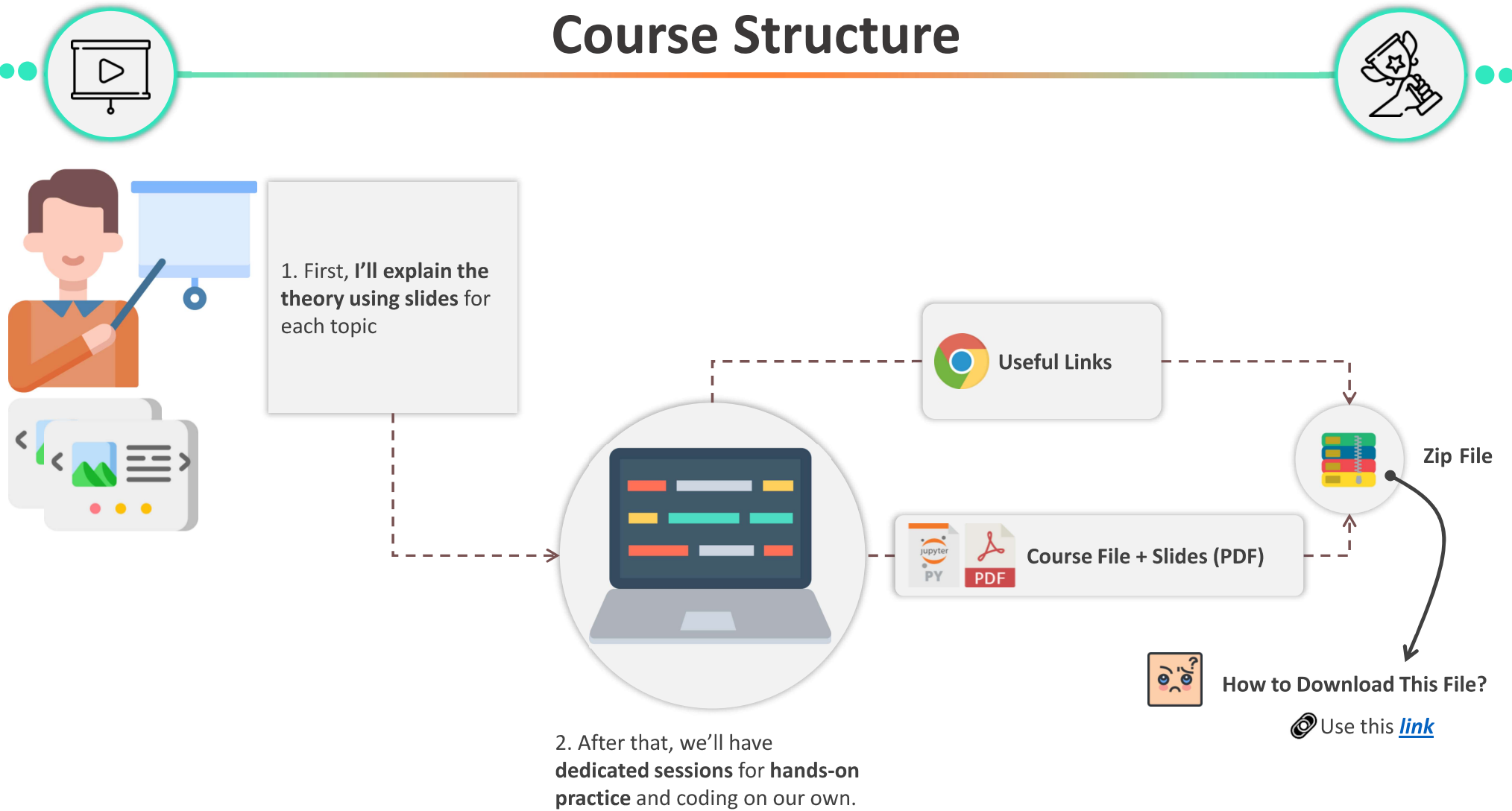
# NumPy & Pandas

## (ZERO TO HERO)

- Your Instructor : Ahmad Ahmadi
- Website: [izlearn.ir](http://izlearn.ir)



# Course Structure



# 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 **best 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?

YES NO

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 ...

miniCONDA

jupyter

NumPy

pandas



# Downloading Miniconda



1 Go To: [anaconda.com/download/](https://anaconda.com/download/)

2 Select: Skip registration

3 Download the proper file

## Provide email to download Distribution

Email Address:

☐ Agree to receive communication from Anaconda regarding relevant content, products, and services. I understand that I can revoke this consent [here](#) at any time.

By continuing, I agree to Anaconda's [Privacy Policy](#) and [Terms of Service](#).

Submit >

Skip registration

## Miniconda Installers



Windows

Python 3.12

64-Bit Graphical Installer



Mac

Python 3.12

64-Bit (x86) Installer  
64-Bit (ARM) Installer  
64-Bit (Apple Silicon) Command Line Installer  
64-Bit (Intel chip) Graphical Installer  
64-Bit (Intel chip) Command Line Installer



Linux

Python 3.12

64-Bit (x86) Installer  
64-Bit (AWS Graviton2 / ARM64) Installer  
64-bit (Linux on IBM Z & LinuxONE) Installer

## Miniconda Installers

Download

For installation assistance, refer to [troubleshooting](#).



Windows



Mac



Linux



Windows

Python 3.12

64-Bit Graphical Installer

old

# Installing Miniconda

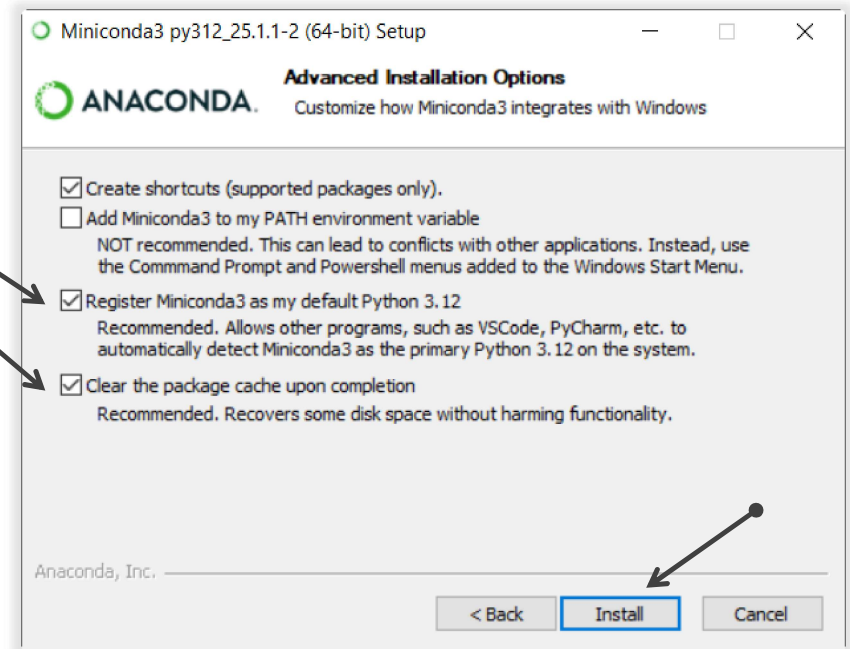


1 Go To: *This PC/Downloads/Programs*

Miniconda3-latest-Windows-x86\_64.exe

2 Open *Miniconda3.exe* file by double clicking

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

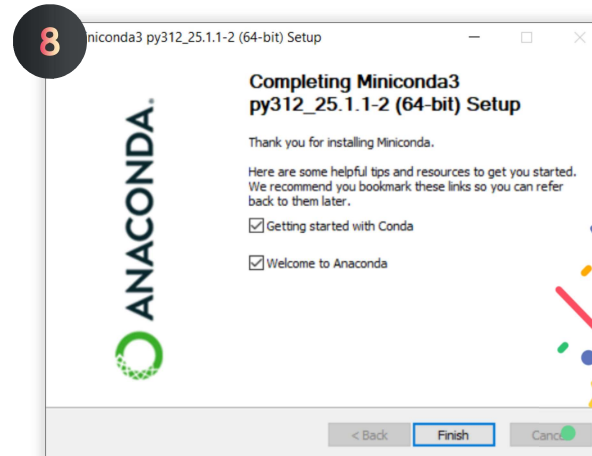
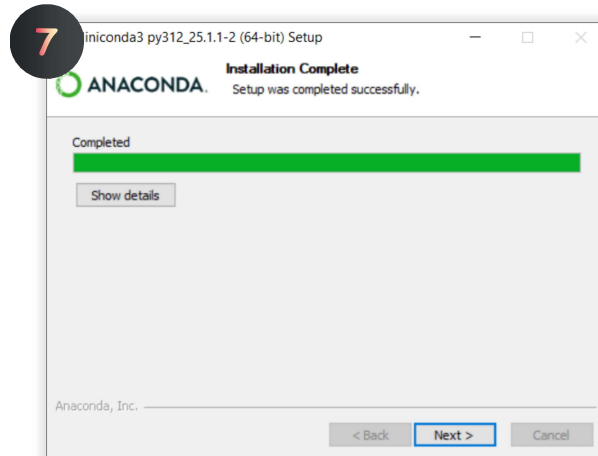
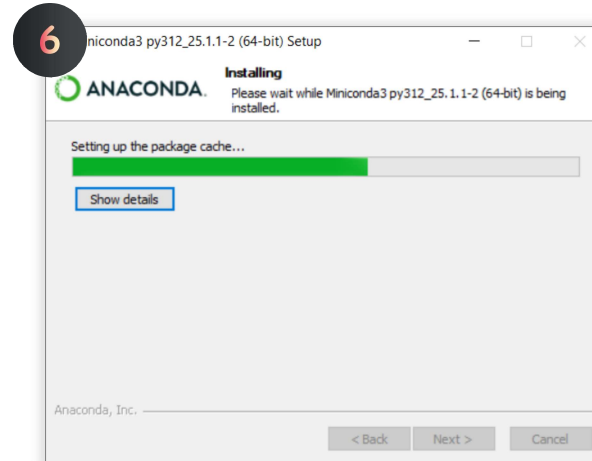
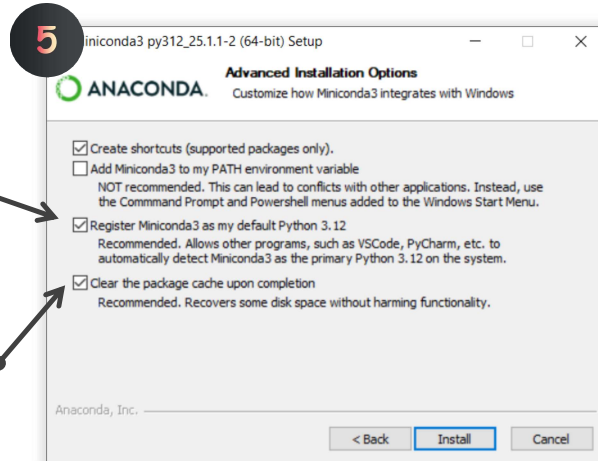


# All Installation Steps!



- 1** **Miniconda3 py312\_25.1.1-2 (64-bit) Setup**  
**Welcome to Miniconda3 py312\_25.1.1-2 (64-bit) Setup**  
Setup will guide you through the installation of Miniconda3 py312\_25.1.1-2 (64-bit).  
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.  
Click Next to continue.  
**Next >** **Cancel**
- 2** **Miniconda3 py312\_25.1.1-2 (64-bit) Setup**  
**Select Installation Type**  
Please select the type of installation you would like to perform for Miniconda3 py312\_25.1.1-2 (64-bit).  
**Install for:**  
☒ Just Me (recommended)  
☐ All Users (requires admin privileges)  
Anaconda, Inc. **< Back** **Next >** **Cancel**
- 3** **Miniconda3 py312\_25.1.1-2 (64-bit) Setup**  
**License Agreement**  
Please review the license terms before installing Miniconda3 py312\_25.1.1-2 (64-bit).  
Press Page Down to see the rest of the agreement.  
modification, are permitted provided that the following conditions are met: (1) Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer; (2) Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.  
7. Intellectual Property Notice. You acknowledge that, as between You and Anaconda, Anaconda owns all right, title, and interest, including all intellectual property rights, in and to Miniconda(R) and, with respect to third-party products distributed with or through Miniconda(R), the applicable third-party licensors own all right, title and interest, including all intellectual property rights, in and to such products.  
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Miniconda3 py312\_25.1.1-2 (64-bit).  
Anaconda, Inc. **< Back** **I Agree** **Cancel**
- 4** **Miniconda3 py312\_25.1.1-2 (64-bit) Setup**  
**Choose Install Location**  
Choose the folder in which to install Miniconda3 py312\_25.1.1-2 (64-bit).  
Setup will install Miniconda3 py312\_25.1.1-2 (64-bit) in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.  
**Destination Folder**  
 **Browse...**  
**Space required: 460.4 MB**  
**Space available: 58.2 GB**  
Anaconda, Inc. **< Back** **Next >** **Cancel**

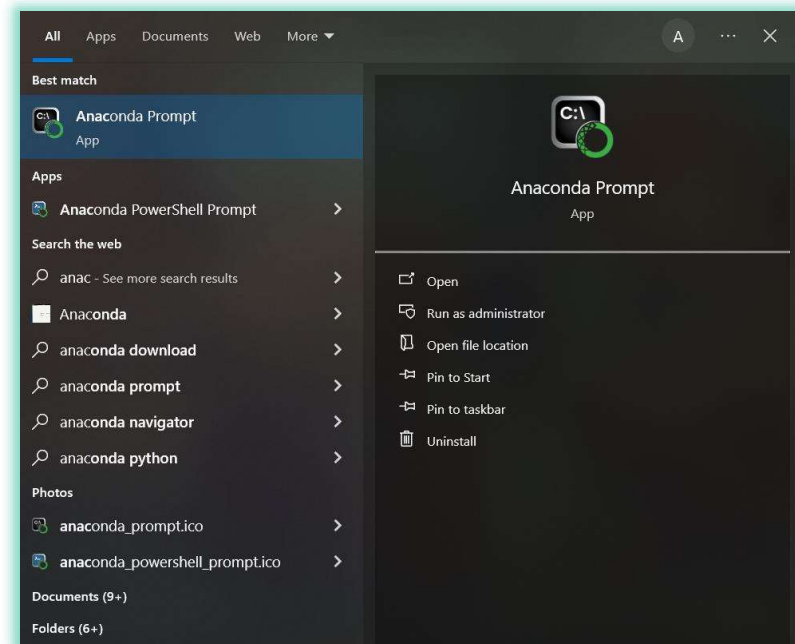
# All Installing Steps!



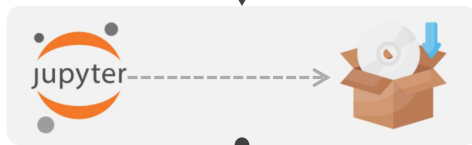
# Launching Anaconda Prompt



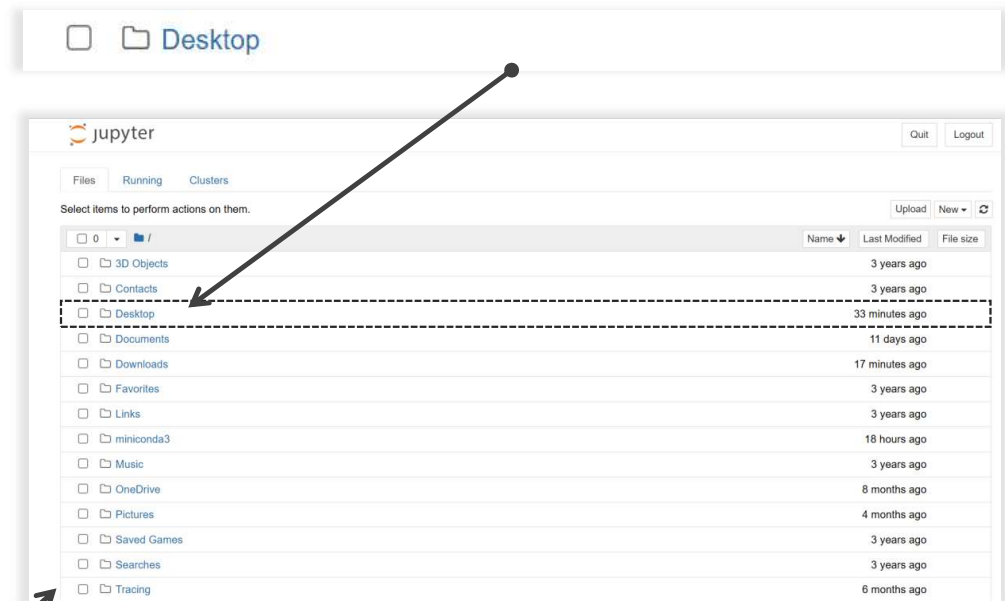
Anaconda Prompt



# Launching Jupyter Notebook

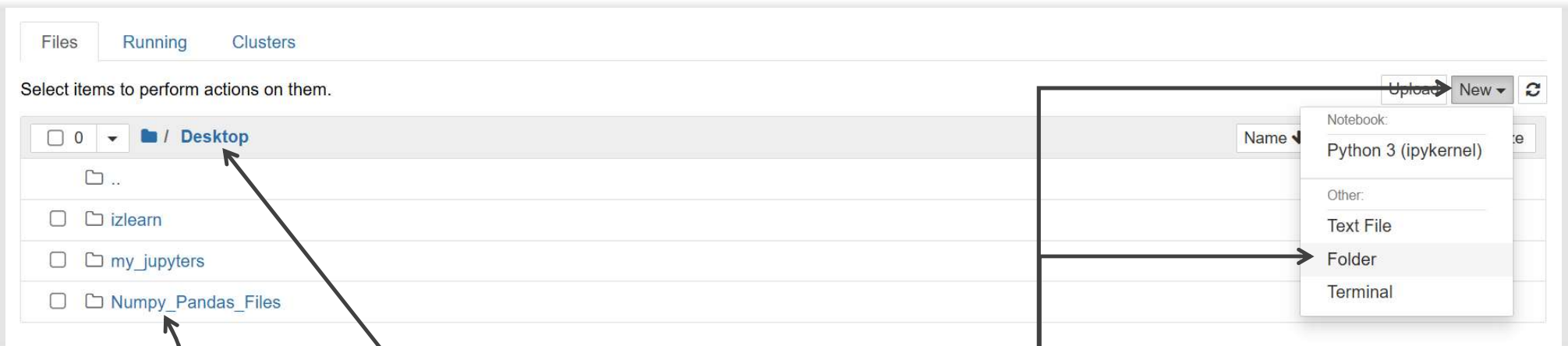


```
(base) C:\Users\Ahmad> jupyter notebook
```





# Creating a Folder Using Jupyter

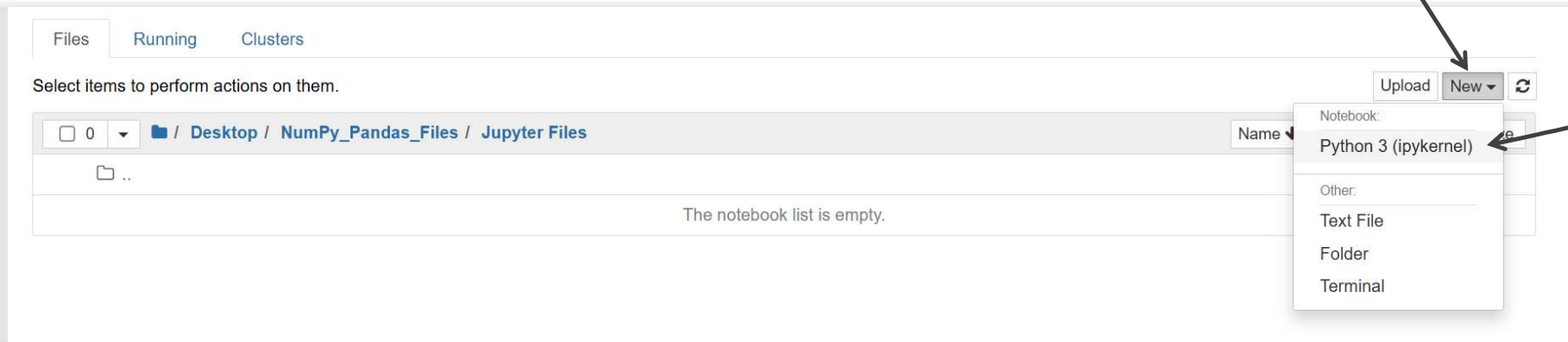


1. Click on **Desktop** in the main window (to enter desktop location)
2. Select **New** button to create a **New Folder**
3. Name the folder **Numpy\_Pandas\_Files**
4. Click on **Numpy\_Pandas\_Files** to enter it

# 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
```

