

**1. What is Pandas?**

* **Definition**: Pandas is a Python library used for data extraction, transformation and analysis. It provides powerful data structures like Series and Data Frame.
* Pandas is called **Pandas** as a short form of "**Panel Data**," which is an econometrics term referring to multidimensional structured datasets.
* The name reflects its primary purpose of handling and analyzing structured data, such as tables (rows and columns), with ease.
* Pandas (the library) makes data manipulation effortless, saving users time and energy—like how pandas (the animal) seem to conserve energy!
* Its user-friendly, high-level interface makes it feel “lazy” for the user, as complex tasks like filtering, grouping, or joining data can be done with minimal effort.
* **Why Pandas?** 
  + Simplifies data analysis tasks.
  + Handles missing data gracefully.
  + Integrates with other Python libraries like NumPy and Matplotlib.
* **Real-life Use Cases**:
  + Data cleaning and preprocessing.
  + Analysing sales or financial data.
  + Working with large datasets for machine learning.

**2. Installing Pandas**

* Command to install Pandas:

**pip install pandas**

* Importing Pandas:

**import pandas as pd**

**Pandas Series and DataFrame**

**1. Series**

A Pandas Series is a one-dimensional labeled array capable of holding any data type (e.g., integers, strings, floats). It is similar to a column in a spreadsheet or a list in Python but with labels (indexes).

Key Features of Series

* One-dimensional.
* Labeled (each value has an associated index).
* Homogeneous (all elements are of the same type).