

PANDAS

Presented by

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pandas

Pandas is an open-source Python library designed for fast, flexible and expressive data manipulation and analysis.

What is Pandas Used For ?

- Data Loading and Storing
- Data cleaning
- Data Exploration and Analysis
- Data Transformation

Why Use Pandas ?

- Performance
- Rich Functionality
- Powerful Data Structures



Series and Dataframe

- Series – a one-dimensional labeled array capable of holding any data type.
- DataFrame – a two-dimensional, tabular, size-mutable, heterogeneous data

Series 1		Series 2		Series 3		Dataframe			
INDEX	DATA	INDEX	DATA	INDEX	DATA	INDEX	SERIES 1	SERIES 2	SERIES 3
0	A	0	1	0	[1, 2]	0	A	1	[1, 2]
1	B	1	2	1	A	1	B	2	A
2	C	2	3	2	1	2	C	3	1
3	D	3	4	3	(4, 5)	3	D	4	(4, 5)
4	E	4	5	4	{"a": 1}	4	E	5	{"a": 1}
5	F	5	6	5	6	5	F	6	6

& & =

How to install pandas

```
(ml_env) elshawaf@elshawaf-Aspire-V3-471:~$ pip install pandas
Requirement already satisfied: pandas in ./miniconda3/envs/ml_env/lib/python3.11/site-packages (2.3.3)
)
Requirement already satisfied: numpy>=1.23.2 in ./miniconda3/envs/ml_env/lib/python3.11/site-packages
  (from pandas) (1.26.4)
Requirement already satisfied: python-dateutil>=2.8.2 in ./miniconda3/envs/ml_env/lib/python3.11/site-packages
  (from pandas) (2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in ./miniconda3/envs/ml_env/lib/python3.11/site-packages
  (from pandas) (2025.2)
Requirement already satisfied: tzdata>=2022.7 in ./miniconda3/envs/ml_env/lib/python3.11/site-packages
  (from pandas) (2025.2)
Requirement already satisfied: six>=1.5 in ./miniconda3/envs/ml_env/lib/python3.11/site-packages
  (from python-dateutil>=2.8.2->pandas) (1.17.0)
```

```
(ml_env) elshawaf@elshawaf-Aspire-V3-471:~$ pip list
Package           Version
-----
aiofiles          24.1.0
aiohappyeyeballs 2.6.1
```

```
openpyxl                3.1.0
orjson                 3.11.3
ormsgpack              1.11.0
packaging               24.2
pandas                2.3.3
parse                  1.20.2
parso                  0.8.5
pathable               0.4.4
pathspec               0.12.1
pendulum               3.1.0
```