

# Python libraries

المكتبات البايثونية

## Pandas

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# Pandas

- ▶ Python Data Analysis library
- ▶ Data manipulating, exploring, analyzing and cleaning
- ▶ NumPy arrays integration
- ▶ Tabular data representation
- ▶ Popular in data science



pandas

# Pandas DataFrame

## ► Pandas main data type

Column names

Header

Index label

Index axis=0

Columns axis=1

Missing value

Data

	Name	Team	Number	Position	Age	Height	Weight	College	Salary
0	Avery Bradley	Boston Celtics	0.0	PG	25.0	6-2	180.0	Texas	7730337.0
1	John Holland	Boston Celtics	30.0	SG	27.0	6-5	205.0	Boston University	NaN
2	Jonas Jerebko	Boston Celtics	8.0	PF	29.0	6-10	231.0	NaN	5000000.0
3	Jordan Mickey	Boston Celtics	NaN	PF	21.0	6-8	235.0	LSU	1170960.0
4	Terry Rozier	Boston Celtics	12.0	PG	22.0	6-2	190.0	Louisville	1824360.0
5	Jared Sullinger	Boston Celtics	7.0	C	NaN	6-9	260.0	Ohio State	2569260.0
6	Evan Turner	Boston Celtics	11.0	SG	27.0	6-7	220.0	Ohio State	3425510.0

# Pandas DataFrame

The diagram illustrates how to create Pandas Series from a DataFrame. A DataFrame with three columns (Name, Team, Number) is shown on the left. Three arrows point from each column to a corresponding Pandas Series creation code snippet on the right:

- Blue arrow from 'Name' column to `ser = pd.Series(df['Name'])`
- Green arrow from 'Team' column to `ser = pd.Series(df['Team'])`
- Purple arrow from 'Number' column to `ser = pd.Series(df['Number'])`

	<i>Name</i>	<i>Team</i>	<i>Number</i>
0	Avery Bradley	Boston Celtics	0.0
1	John Holland	Boston Celtics	30.0
2	Jonas Jerebko	Boston Celtics	8.0
3	Jordan Mickey	Boston Celtics	NaN
4	Terry Rozier	Boston Celtics	12.0
5	Jared Sullinger	Boston Celtics	7.0
6	Evan Turner	Boston Celtics	11.0

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# Examples

- ▶ Can be instantiated from array, dictionary, csv file, excel, SQL, ...
- ▶ Reshaping and pivoting of data sets
- ▶ Various libraries uses Pandas DataFrame as data set (bokeh, matplotlib, machine learning algos ...)
- ▶ Data set merging and joining
- ▶ Group by engine allowing split-apply-combine operations on data sets.

Lets write some examples together 😊

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Thank you 😊!

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Stay tuned for more!