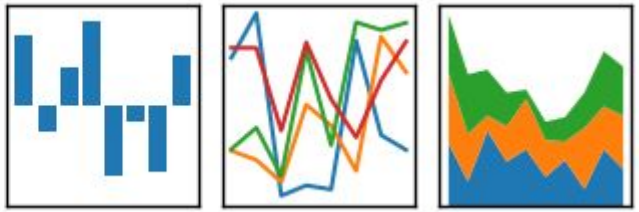
A Closer Look at *pandas* Classes

pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



Anatomy of a *pandas* DataFrame

***pandas* Series:** one-dimensional array with an index

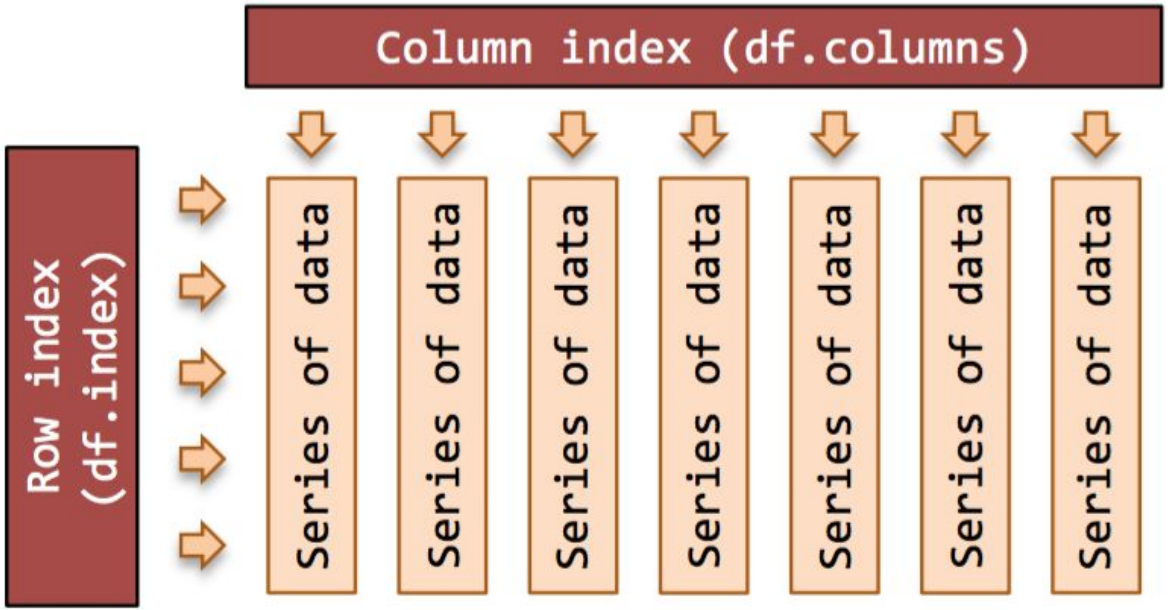
***pandas* DataFrame:**

- two-dimensional array with a row index and a column index
- Each column is a *pandas* Series
- Each row is also a *pandas* Series

***pandas* Index:**

- ordered, slicable array
- Can be used to slice a DataFrame or Series

Anatomy of a *pandas* DataFrame



https://bookdata.readthedocs.io/en/latest/base/01_pandas.html

DataFrame

```
platonic_solids
```

	Polyhedron	Vertices	Edges	Faces	Schläfli symbol	Vertex configuration
0	tetrahedron	4	6	4	{3, 3}	3.3.3
1	cube	8	12	6	{4, 3}	4.4.4
2	octahedron	6	12	8	{3, 4}	3.3.3.3
3	dodecahedron	20	30	12	{5, 3}	5.5.5
4	icosahedron	12	30	20	{3, 5}	3.3.3.3.3

Index

```
platonic_solids.index
```

```
RangeIndex(start=0, stop=5, step=1)
```

```
platonic_solids.columns
```

```
Index(['Polyhedron', 'Vertices', 'Edges', 'Faces', 'Schläfli symbol',
       'Vertex configuration'],
      dtype='object')
```

Series

Selecting a single column creates a Series.

```
platonic_solids['Polyhedron']
```

```
0     tetrahedron
1            cube
2      octahedron
3    dodecahedron
4     icosahedron
Name: Polyhedron, dtype: object
```

Series

Selecting a single column creates a Series.

The index of this Series is the same as the row index of the full DataFrame.

```
platonic_solids['Polyhedron']
```

```
0       tetrahedron
1              cube
2        octahedron
3      dodecahedron
4        icosahedron
Name: Polyhedron, dtype: object
```

Series

Selecting a single column creates a Series.

The index of this Series is the same as the row index of the full DataFrame.

```
platonic_solids['Polyhedron']
```

```
0       tetrahedron
1              cube
2        octahedron
3       dodecahedron
4        icosahedron
Name: Polyhedron, dtype: object
```

Note that Series have a Name attribute (which can be empty)

Using .loc to access a single row also returns a Series.

Series

```
platonic_solids.loc[2]
```

```
Polyhedron                 octahedron
Vertices                            6
Edges                              12
Faces                               8
Schläfli symbol                {3, 4}
Vertex configuration          3.3.3.3
Name: 2, dtype: object
```

Using .loc to access a single row also returns a Series.

This time, the index of the Series is the same as the *column* index of the full DataFrame.

Series

```
platonic_solids.loc[2]
```

```
Polyhedron              octahedron
Vertices                         6
Edges                           12
Faces                            8
Schläfli symbol             {3, 4}
Vertex configuration       3.3.3.3
Name: 2, dtype: object
```

Series to DataFrame

A Series can be converted to a DataFrame having row index the same as the Index of the series and column name equal to the name of the Series.

```
platonic_solids['Polyhedron'].to_frame()
```

	Polyhedron
0	tetrahedron
1	cube
2	octahedron
3	dodecahedron
4	icosahedron