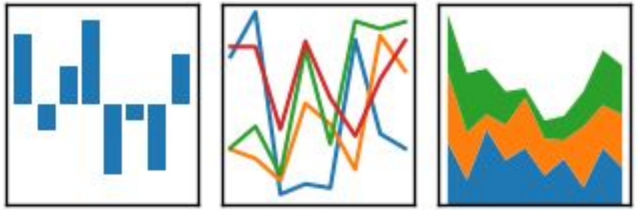
Sessions *a GenTech Initiative*

Coding x Analytics

Pandas

- Series
- Data Frames
- Mutations
  - concat
  - merge
  - join
  - dropna
  - fillna
- Utilities
  - unique
  - columns
  - index
  - describe
  - shape
  - isnull
- Data Loading

Pandas is a library that helps you to visualise and manipulate data for analysis.



Structure

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Learning Outcome

- Familiar with Python
- Able to manipulate common data types
- How to install other libraries
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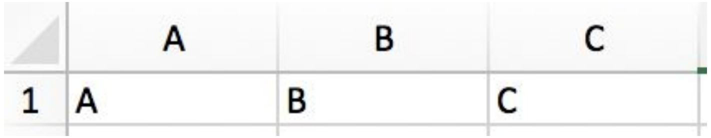
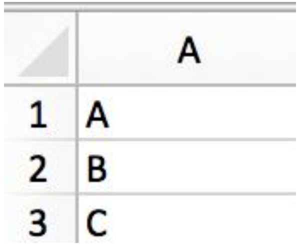
Series is a set of data of 1 column and multiple rows (indexes), **or** multiple columns and 1 row (index).



	A	B	C
1	A	B	C



	A
1	A
2	B
3	C

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Syntax

```
import pandas as pd

columns = [“A”, “B”, “C”]
data = [10, 20, 30]

pd.Series(data = data, index = columns)
```

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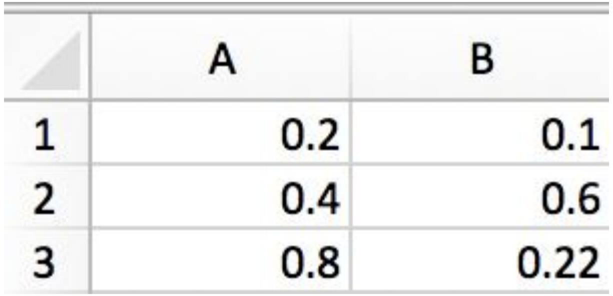
Data Frames is a table of data containing multiple columns **and** multiple rows (indexes).



	A	B
1	0.2	0.1
2	0.4	0.6
3	0.8	0.22

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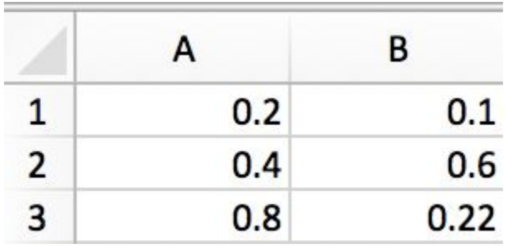
Syntax



	A	B
1	0.2	0.1
2	0.4	0.6
3	0.8	0.22

```
import pandas as pd

columns = [“A”, “B”]
indexes = [“1”, “2”, “3”]
data = [[0.2, 0.1], [0.4, 0.6], [0.8, 0.22]]

pd.DataFrame(data = data, index = indexes, columns = columns)
```

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Description

Adds the list of DataFrames into one DataFrame.

Rules

- Same columns, or
- Same rows

Syntax

```
pd.concat([df1, df2, df3], axis = 0)
```

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Description

Merges two DataFrame into one.

Rules

- Both DataFrames should have one similar column.

Syntax

```
pd.merge(df1, df2, how = “inner”, on = “key”)
```

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Description

Joins two DataFrame into one.

Syntax

```
df1.join(df2, how = “inner”)
```

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Description

Hides all rows/columns that contains ‘**Null**’ or ‘**NaN**’ values.

Syntax

```
df.dropna(axis = 0, thresh = None)
```

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Description

Sets a value to all rows/columns that contains **'Null'** or **'NaN'** values.

Syntax

```
df.fillna(value = value)
```

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Description

Generates a **list** of unique values based on column or index.

Syntax

```
df[“column”].unique()
```

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Description

Returns a **list** of columns in the DataFrame.

Syntax

```
df.columns
```

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Description

Returns the number of rows (indexes) in the DataFrame.

Syntax

```
df.index
```

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Description

Returns a set of mathematical (count, mean, std, min, 25%, 50%, 75%, max) values in the DataFrame.

Syntax

```
series.describe()
df.describe()
```

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Description

Returns the size (indexes, columns) of the DataFrame.

Syntax

```
df.shape()
```

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  - **isnull**
- Data Loading

Description

Returns a same shape DataFrame but the values are ‘True’ if there are no values in that specific column and index.

Syntax

```
df.isnull()
```

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Description

Loads a CSV file into a DataFrame

Syntax

```
pd.read_csv(“path to csv”)
```

Tips

There are many other types that pandas can read (sql, excel, html, json, etc).

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