

```
In [1]: import numpy as np
import pandas as pd
```

```
In [4]: x=pd.read_csv(r"C:\Users\user\Downloads\2015 - 2015.csv")
x
```

Out[4]:

|     | Country     | Region                          | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family  | Health (Life Expectancy) | Fre |
|-----|-------------|---------------------------------|----------------|-----------------|----------------|--------------------------|---------|--------------------------|-----|
| 0   | Switzerland | Western Europe                  | 1              | 7.587           | 0.03411        | 1.39651                  | 1.34951 | 0.94143                  | 0.6 |
| 1   | Iceland     | Western Europe                  | 2              | 7.561           | 0.04884        | 1.30232                  | 1.40223 | 0.94784                  | 0.6 |
| 2   | Denmark     | Western Europe                  | 3              | 7.527           | 0.03328        | 1.32548                  | 1.36058 | 0.87464                  | 0.6 |
| 3   | Norway      | Western Europe                  | 4              | 7.522           | 0.03880        | 1.45900                  | 1.33095 | 0.88521                  | 0.6 |
| 4   | Canada      | North America                   | 5              | 7.427           | 0.03553        | 1.32629                  | 1.32261 | 0.90563                  | 0.6 |
| ... | ...         | ...                             | ...            | ...             | ...            | ...                      | ...     | ...                      | ... |
| 153 | Rwanda      | Sub-Saharan Africa              | 154            | 3.465           | 0.03464        | 0.22208                  | 0.77370 | 0.42864                  | 0.5 |
| 154 | Benin       | Sub-Saharan Africa              | 155            | 3.340           | 0.03656        | 0.28665                  | 0.35386 | 0.31910                  | 0.4 |
| 155 | Syria       | Middle East and Northern Africa | 156            | 3.006           | 0.05015        | 0.66320                  | 0.47489 | 0.72193                  | 0.7 |
| 156 | Burundi     | Sub-Saharan Africa              | 157            | 2.905           | 0.08658        | 0.01530                  | 0.41587 | 0.22396                  | 0.7 |
| 157 | Togo        | Sub-Saharan Africa              | 158            | 2.839           | 0.06727        | 0.20868                  | 0.13995 | 0.28443                  | 0.3 |

158 rows × 12 columns



In [8]: `x.dtypes`

```
Out[8]: Country          object
Region          object
Happiness Rank    int64
Happiness Score   float64
Standard Error    float64
Economy (GDP per Capita) float64
Family            float64
Health (Life Expectancy) float64
Freedom           float64
Trust (Government Corruption) float64
Generosity        float64
Dystopia Residual  float64
dtype: object
```

In [9]: `x.head()`

Out[9]:

|   | Country     | Region         | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family  | Health (Life Expectancy) | Freedom |
|---|-------------|----------------|----------------|-----------------|----------------|--------------------------|---------|--------------------------|---------|
| 0 | Switzerland | Western Europe | 1              | 7.587           | 0.03411        | 1.39651                  | 1.34951 | 0.94143                  | 0.665   |
| 1 | Iceland     | Western Europe | 2              | 7.561           | 0.04884        | 1.30232                  | 1.40223 | 0.94784                  | 0.628   |
| 2 | Denmark     | Western Europe | 3              | 7.527           | 0.03328        | 1.32548                  | 1.36058 | 0.87464                  | 0.649   |
| 3 | Norway      | Western Europe | 4              | 7.522           | 0.03880        | 1.45900                  | 1.33095 | 0.88521                  | 0.669   |
| 4 | Canada      | North America  | 5              | 7.427           | 0.03553        | 1.32629                  | 1.32261 | 0.90563                  | 0.632   |

In [10]: `x.tail()`

Out[10]:

|     | Country | Region                          | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family  | Health (Life Expectancy) | Freedom |
|-----|---------|---------------------------------|----------------|-----------------|----------------|--------------------------|---------|--------------------------|---------|
| 153 | Rwanda  | Sub-Saharan Africa              | 154            | 3.465           | 0.03464        | 0.22208                  | 0.77370 | 0.42864                  | 0.592   |
| 154 | Benin   | Sub-Saharan Africa              | 155            | 3.340           | 0.03656        | 0.28665                  | 0.35386 | 0.31910                  | 0.484   |
| 155 | Syria   | Middle East and Northern Africa | 156            | 3.006           | 0.05015        | 0.66320                  | 0.47489 | 0.72193                  | 0.156   |
| 156 | Burundi | Sub-Saharan Africa              | 157            | 2.905           | 0.08658        | 0.01530                  | 0.41587 | 0.22396                  | 0.118   |
| 157 | Togo    | Sub-Saharan Africa              | 158            | 2.839           | 0.06727        | 0.20868                  | 0.13995 | 0.28443                  | 0.364   |



In [11]: `x.columns`

Out[11]: Index(['Country', 'Region', 'Happiness Rank', 'Happiness Score', 'Standard Error', 'Economy (GDP per Capita)', 'Family', 'Health (Life Expectancy)', 'Freedom', 'Trust (Government Corruption)', 'Generosity', 'Dystopia Residual'], dtype='object')

In [12]: `x.index`

Out[12]: RangeIndex(start=0, stop=158, step=1)

In [13]: `x.describe()`

Out[13]:

|              | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family     | Health (Life Expectancy) | Freedom    | (Go Ci     |
|--------------|----------------|-----------------|----------------|--------------------------|------------|--------------------------|------------|------------|
| <b>count</b> | 158.000000     | 158.000000      | 158.000000     | 158.000000               | 158.000000 | 158.000000               | 158.000000 | 158.000000 |
| <b>mean</b>  | 79.493671      | 5.375734        | 0.047885       | 0.846137                 | 0.991046   | 0.630259                 | 0.428615   | 0.428615   |
| <b>std</b>   | 45.754363      | 1.145010        | 0.017146       | 0.403121                 | 0.272369   | 0.247078                 | 0.150693   | 0.150693   |
| <b>min</b>   | 1.000000       | 2.839000        | 0.018480       | 0.000000                 | 0.000000   | 0.000000                 | 0.000000   | 0.000000   |
| <b>25%</b>   | 40.250000      | 4.526000        | 0.037268       | 0.545808                 | 0.856823   | 0.439185                 | 0.328330   | 0.328330   |
| <b>50%</b>   | 79.500000      | 5.232500        | 0.043940       | 0.910245                 | 1.029510   | 0.696705                 | 0.435515   | 0.435515   |
| <b>75%</b>   | 118.750000     | 6.243750        | 0.052300       | 1.158448                 | 1.214405   | 0.811013                 | 0.549092   | 0.549092   |
| <b>max</b>   | 158.000000     | 7.587000        | 0.136930       | 1.690420                 | 1.402230   | 1.025250                 | 0.669730   | 0.669730   |

In [15]: `x["Family"]`

Out[15]:

```

0      1.34951
1      1.40223
2      1.36058
3      1.33095
4      1.32261
...
153    0.77370
154    0.35386
155    0.47489
156    0.41587
157    0.13995
Name: Family, Length: 158, dtype: float64

```

In [16]: `x[0:2]`

Out[16]:

|          | Country     | Region         | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family  | Health (Life Expectancy) | Freedom |
|----------|-------------|----------------|----------------|-----------------|----------------|--------------------------|---------|--------------------------|---------|
| <b>0</b> | Switzerland | Western Europe | 1              | 7.587           | 0.03411        | 1.39651                  | 1.34951 | 0.94143                  | 0.665   |
| <b>1</b> | Iceland     | Western Europe | 2              | 7.561           | 0.04884        | 1.30232                  | 1.40223 | 0.94784                  | 0.628   |

In [17]: `x.loc[0:2]`

Out[17]:

|   | Country     | Region         | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family  | Health (Life Expectancy) | Freedom |
|---|-------------|----------------|----------------|-----------------|----------------|--------------------------|---------|--------------------------|---------|
| 0 | Switzerland | Western Europe | 1              | 7.587           | 0.03411        | 1.39651                  | 1.34951 | 0.94143                  | 0.665   |
| 1 | Iceland     | Western Europe | 2              | 7.561           | 0.04884        | 1.30232                  | 1.40223 | 0.94784                  | 0.628   |
| 2 | Denmark     | Western Europe | 3              | 7.527           | 0.03328        | 1.32548                  | 1.36058 | 0.87464                  | 0.649   |

In [18]: `x.iloc[0:2]`

Out[18]:

|   | Country     | Region         | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family  | Health (Life Expectancy) | Freedom |
|---|-------------|----------------|----------------|-----------------|----------------|--------------------------|---------|--------------------------|---------|
| 0 | Switzerland | Western Europe | 1              | 7.587           | 0.03411        | 1.39651                  | 1.34951 | 0.94143                  | 0.665   |
| 1 | Iceland     | Western Europe | 2              | 7.561           | 0.04884        | 1.30232                  | 1.40223 | 0.94784                  | 0.628   |

In [19]: `x.loc["Family":"Freedom"]`

Out[19]:

|  | Country | Region | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family | Health (Life Expectancy) | Freedom (Index) |
|--|---------|--------|----------------|-----------------|----------------|--------------------------|--------|--------------------------|-----------------|
|--|---------|--------|----------------|-----------------|----------------|--------------------------|--------|--------------------------|-----------------|

```
In [21]: x[x["Family"]<=2]
```

```
Out[21]:
```

|     | Country     | Region                          | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family  | Health (Life Expectancy) | Fre |
|-----|-------------|---------------------------------|----------------|-----------------|----------------|--------------------------|---------|--------------------------|-----|
| 0   | Switzerland | Western Europe                  | 1              | 7.587           | 0.03411        | 1.39651                  | 1.34951 | 0.94143                  | 0.6 |
| 1   | Iceland     | Western Europe                  | 2              | 7.561           | 0.04884        | 1.30232                  | 1.40223 | 0.94784                  | 0.6 |
| 2   | Denmark     | Western Europe                  | 3              | 7.527           | 0.03328        | 1.32548                  | 1.36058 | 0.87464                  | 0.6 |
| 3   | Norway      | Western Europe                  | 4              | 7.522           | 0.03880        | 1.45900                  | 1.33095 | 0.88521                  | 0.6 |
| 4   | Canada      | North America                   | 5              | 7.427           | 0.03553        | 1.32629                  | 1.32261 | 0.90563                  | 0.6 |
| ... | ...         | ...                             | ...            | ...             | ...            | ...                      | ...     | ...                      | ... |
| 153 | Rwanda      | Sub-Saharan Africa              | 154            | 3.465           | 0.03464        | 0.22208                  | 0.77370 | 0.42864                  | 0.5 |
| 154 | Benin       | Sub-Saharan Africa              | 155            | 3.340           | 0.03656        | 0.28665                  | 0.35386 | 0.31910                  | 0.4 |
| 155 | Syria       | Middle East and Northern Africa | 156            | 3.006           | 0.05015        | 0.66320                  | 0.47489 | 0.72193                  | 0.7 |
| 156 | Burundi     | Sub-Saharan Africa              | 157            | 2.905           | 0.08658        | 0.01530                  | 0.41587 | 0.22396                  | 0.7 |
| 157 | Togo        | Sub-Saharan Africa              | 158            | 2.839           | 0.06727        | 0.20868                  | 0.13995 | 0.28443                  | 0.3 |

158 rows × 12 columns



In [23]: `x.fillna(value=5)`

Out[23]:

|     | Country     | Region                          | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family  | Health (Life Expectancy) | Fre |
|-----|-------------|---------------------------------|----------------|-----------------|----------------|--------------------------|---------|--------------------------|-----|
| 0   | Switzerland | Western Europe                  | 1              | 7.587           | 0.03411        | 1.39651                  | 1.34951 | 0.94143                  | 0.6 |
| 1   | Iceland     | Western Europe                  | 2              | 7.561           | 0.04884        | 1.30232                  | 1.40223 | 0.94784                  | 0.6 |
| 2   | Denmark     | Western Europe                  | 3              | 7.527           | 0.03328        | 1.32548                  | 1.36058 | 0.87464                  | 0.6 |
| 3   | Norway      | Western Europe                  | 4              | 7.522           | 0.03880        | 1.45900                  | 1.33095 | 0.88521                  | 0.6 |
| 4   | Canada      | North America                   | 5              | 7.427           | 0.03553        | 1.32629                  | 1.32261 | 0.90563                  | 0.6 |
| ... | ...         | ...                             | ...            | ...             | ...            | ...                      | ...     | ...                      | ... |
| 153 | Rwanda      | Sub-Saharan Africa              | 154            | 3.465           | 0.03464        | 0.22208                  | 0.77370 | 0.42864                  | 0.5 |
| 154 | Benin       | Sub-Saharan Africa              | 155            | 3.340           | 0.03656        | 0.28665                  | 0.35386 | 0.31910                  | 0.4 |
| 155 | Syria       | Middle East and Northern Africa | 156            | 3.006           | 0.05015        | 0.66320                  | 0.47489 | 0.72193                  | 0.7 |
| 156 | Burundi     | Sub-Saharan Africa              | 157            | 2.905           | 0.08658        | 0.01530                  | 0.41587 | 0.22396                  | 0.7 |
| 157 | Togo        | Sub-Saharan Africa              | 158            | 2.839           | 0.06727        | 0.20868                  | 0.13995 | 0.28443                  | 0.3 |

158 rows × 12 columns



```
In [24]: x.dropna()
```

Out[24]:

|     | Country     | Region                          | Happiness Rank | Happiness Score | Standard Error | Economy (GDP per Capita) | Family  | Health (Life Expectancy) | Frei |
|-----|-------------|---------------------------------|----------------|-----------------|----------------|--------------------------|---------|--------------------------|------|
| 0   | Switzerland | Western Europe                  | 1              | 7.587           | 0.03411        | 1.39651                  | 1.34951 | 0.94143                  | 0.6  |
| 1   | Iceland     | Western Europe                  | 2              | 7.561           | 0.04884        | 1.30232                  | 1.40223 | 0.94784                  | 0.6  |
| 2   | Denmark     | Western Europe                  | 3              | 7.527           | 0.03328        | 1.32548                  | 1.36058 | 0.87464                  | 0.6  |
| 3   | Norway      | Western Europe                  | 4              | 7.522           | 0.03880        | 1.45900                  | 1.33095 | 0.88521                  | 0.6  |
| 4   | Canada      | North America                   | 5              | 7.427           | 0.03553        | 1.32629                  | 1.32261 | 0.90563                  | 0.6  |
| ... | ...         | ...                             | ...            | ...             | ...            | ...                      | ...     | ...                      | ...  |
| 153 | Rwanda      | Sub-Saharan Africa              | 154            | 3.465           | 0.03464        | 0.22208                  | 0.77370 | 0.42864                  | 0.5  |
| 154 | Benin       | Sub-Saharan Africa              | 155            | 3.340           | 0.03656        | 0.28665                  | 0.35386 | 0.31910                  | 0.4  |
| 155 | Syria       | Middle East and Northern Africa | 156            | 3.006           | 0.05015        | 0.66320                  | 0.47489 | 0.72193                  | 0.7  |
| 156 | Burundi     | Sub-Saharan Africa              | 157            | 2.905           | 0.08658        | 0.01530                  | 0.41587 | 0.22396                  | 0.7  |
| 157 | Togo        | Sub-Saharan Africa              | 158            | 2.839           | 0.06727        | 0.20868                  | 0.13995 | 0.28443                  | 0.3  |

158 rows × 12 columns



```
In [ ]:
```