

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

```
In [2]: import pandas as pd
```

Mean,MOde,Median,Describe

```
In [3]: data=pd.read_csv(r"C:\Users\user\Downloads\2015 - 2015.csv")
data
```

Out[3]:

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

158 rows × 12 columns



```
In [4]: print(data.mean())
```

```
Happiness Rank          79.493671
Happiness Score          5.375734
Standard Error          0.047885
Economy (GDP per Capita) 0.846137
Family                  0.991046
Health (Life Expectancy) 0.630259
Freedom                 0.428615
Trust (Government Corruption) 0.143422
Generosity              0.237296
Dystopia Residual        2.098977
dtype: float64
```

```
In [5]: print(data.median())
```

```
Happiness Rank          79.500000
Happiness Score          5.232500
Standard Error          0.043940
Economy (GDP per Capita) 0.910245
Family                  1.029510
Health (Life Expectancy) 0.696705
Freedom                 0.435515
Trust (Government Corruption) 0.107220
Generosity              0.216130
Dystopia Residual        2.095415
dtype: float64
```

```
In [6]: print(data.mode())
```

	Country	Region	Happiness	Rank	Happiness	Score \
0	Afghanistan	Sub-Saharan Africa		82.0		5.192
1	Albania	NaN		NaN		NaN
2	Algeria	NaN		NaN		NaN
3	Angola	NaN		NaN		NaN
4	Argentina	NaN		NaN		NaN
..	...	...		...		...
153	Venezuela	NaN		NaN		NaN
154	Vietnam	NaN		NaN		NaN
155	Yemen	NaN		NaN		NaN
156	Zambia	NaN		NaN		NaN
157	Zimbabwe	NaN		NaN		NaN

	Standard Error	Economy (GDP per Capita)	Family	\
0	0.03751	0.00000	0.00000	
1	0.03780	0.01530	0.13995	
2	0.04394	0.01604	0.30285	
3	0.04934	0.06940	0.35386	
4	0.05051	0.07120	0.38174	
..	...	...	...	
153	NaN	1.45900	1.34043	
154	NaN	1.52186	1.34951	
155	NaN	1.55422	1.36058	
156	NaN	1.56391	1.36948	
157	NaN	1.69042	1.40223	

	Health (Life Expectancy)	Freedom	Trust (Government Corruption)	\
0	0.92356	0.00000		0.32524
1	NaN	0.07699		NaN
2	NaN	0.09245		NaN
3	NaN	0.10081		NaN
4	NaN	0.10384		NaN
..	...	...		...
153	NaN	0.65821		NaN
154	NaN	0.65980		NaN
155	NaN	0.66246		NaN
156	NaN	0.66557		NaN
157	NaN	0.66973		NaN

	Generosity	Dystopia	Residual
0	0.00000		0.32858
1	0.00199		0.65429
2	0.02641		0.67042
3	0.05444		0.67108
4	0.05547		0.89991
..	...		...
153	0.51535		3.10712
154	0.51752		3.17728
155	0.51912		3.19131
156	0.57630		3.26001
157	0.79588		3.60214

[158 rows x 12 columns]

In [29]: `data.describe()`

Out[29]:

	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom (G
<b>count</b>	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
<b>std</b>	45.754363	1.145010	0.017146	0.403121	0.272369	0.247078	0.150693
<b>min</b>	1.000000	2.839000	0.018480	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
<b>50%</b>	79.500000	5.232500	0.043940	0.910245	1.029510	0.696705	0.435515
<b>75%</b>	118.750000	6.243750	0.052300	1.158448	1.214405	0.811013	0.549092
<b>max</b>	158.000000	7.587000	0.136930	1.690420	1.402230	1.025250	0.669730

Sum,cumcum,count,min and max

In [8]: `print(data.sum())`

```

Country                SwitzerlandIcelandDenmarkNorwayCanadaFinland
Ne...
Region                Western EuropeWestern EuropeWestern EuropeWe
st...
Happiness Rank
12560
Happiness Score                84
9.366
Standard Error                7.
56579
Economy (GDP per Capita)                133.
68968
Family                156.
58526
Health (Life Expectancy)                99.
58098
Freedom                67.
72116
Trust (Government Corruption)                22.
66065
Generosity                37.
49269
Dystopia Residual                331.
63833
dtype: object

```

```
In [9]: print(data.cumsum())
```

```

Country \
0 Switzerland
1 SwitzerlandIceland
2 SwitzerlandIcelandDenmark
3 SwitzerlandIcelandDenmarkNorway
4 SwitzerlandIcelandDenmarkNorwayCanada
..
153 SwitzerlandIcelandDenmarkNorwayCanadaFinlandNe...
154 SwitzerlandIcelandDenmarkNorwayCanadaFinlandNe...
155 SwitzerlandIcelandDenmarkNorwayCanadaFinlandNe...
156 SwitzerlandIcelandDenmarkNorwayCanadaFinlandNe...
157 SwitzerlandIcelandDenmarkNorwayCanadaFinlandNe...

```

```

Region Happiness Rank \
0 Western Europe 1
1 Western EuropeWestern Europe 3
2 Western EuropeWestern EuropeWestern Europe 6
3 Western EuropeWestern EuropeWestern EuropeWest... 10
4 Western EuropeWestern EuropeWestern EuropeWest... 15
..
153 Western EuropeWestern EuropeWestern EuropeWest... 11934
154 Western EuropeWestern EuropeWestern EuropeWest... 12089
155 Western EuropeWestern EuropeWestern EuropeWest... 12245
156 Western EuropeWestern EuropeWestern EuropeWest... 12402
157 Western EuropeWestern EuropeWestern EuropeWest... 12560

```

```

Happiness Score Standard Error Economy (GDP per Capita) Family \
0 7.587 0.03411 1.39651 1.34951
1 15.148 0.08295 2.69883 2.75174
2 22.675 0.11623 4.02431 4.11232
3 30.197 0.15503 5.48331 5.44327
4 37.624 0.19056 6.80960 6.76588
..
153 837.276 7.32523 132.51585 155.20069
154 840.616 7.36179 132.80250 155.55455
155 843.622 7.41194 133.46570 156.02944
156 846.527 7.49852 133.48100 156.44531
157 849.366 7.56579 133.68968 156.58526

```

```

Health (Life Expectancy) Freedom Trust (Government Corruption) \
0 0.94143 0.66557 0.41978
1 1.88927 1.29434 0.56123
2 2.76391 1.94372 1.04480
3 3.64912 2.61345 1.40983
4 4.55475 3.24642 1.73940
..
153 98.03156 66.59679 22.18356
154 98.35066 67.08129 22.26366
155 99.07259 67.23813 22.45272
156 99.29655 67.35663 22.55334
157 99.58098 67.72116 22.66065

```

```

Generosity Dystopia Residual
0 0.29678 2.51738
1 0.73308 5.21939
2 1.07447 7.71143
3 1.42146 10.17674

```

```

4          1.87957          12.62850
..          ...          ...
153        36.47422        326.27619
154        36.65682        327.90947
155        37.12861        328.23805
156        37.32588        330.07107
157        37.49269        331.63833

```

[158 rows x 12 columns]

In [10]: `print(data.count())`

```

Country          158
Region           158
Happiness Rank   158
Happiness Score  158
Standard Error   158
Economy (GDP per Capita) 158
Family           158
Health (Life Expectancy) 158
Freedom          158
Trust (Government Corruption) 158
Generosity       158
Dystopia Residual 158
dtype: int64

```

In [11]: `data.min()`

```

Out[11]: Country          Afghanistan
Region          Australia and New Zealand
Happiness Rank          1
Happiness Score          2.839
Standard Error          0.01848
Economy (GDP per Capita)          0.0
Family              0.0
Health (Life Expectancy)          0.0
Freedom              0.0
Trust (Government Corruption)          0.0
Generosity           0.0
Dystopia Residual          0.32858
dtype: object

```

```
In [12]: data.max()
```

```
Out[12]: Country                Zimbabwe
Region                Western Europe
Happiness Rank                158
Happiness Score                7.587
Standard Error                0.13693
Economy (GDP per Capita)      1.69042
Family                    1.40223
Health (Life Expectancy)      1.02525
Freedom                    0.66973
Trust (Government Corruption) 0.55191
Generosity                    0.79588
Dystopia Residual              3.60214
dtype: object
```

Covariance, correlation

```
In [30]: data.cov()
```

```
Out[30]:
```

	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom
<b>Happiness Rank</b>	2093.461743	-51.975613	0.124358	-14.483883	-9.142720	-8.316021	-3.839647
<b>Happiness Score</b>	-51.975613	1.311048	-0.003480	0.360476	0.230969	0.204881	0.098042
<b>Standard Error</b>	0.124358	-0.003480	0.000294	-0.001504	-0.000564	-0.001315	-0.000335
<b>Economy (GDP per Capita)</b>	-14.483883	0.360476	-0.001504	0.162506	0.070852	0.081323	0.022495
<b>Family</b>	-9.142720	0.230969	-0.000564	0.070852	0.074185	0.035741	0.018122
<b>Health (Life Expectancy)</b>	-8.316021	0.204881	-0.001315	0.081323	0.035741	0.061047	0.013422
<b>Freedom</b>	-3.839647	0.098042	-0.000335	0.022495	0.018122	0.013422	0.022708
<b>Trust (Government Corruption)</b>	-2.044785	0.054316	-0.000367	0.014898	0.006722	0.007365	0.008927
<b>Generosity</b>	-0.928243	0.026156	-0.000192	-0.000534	0.003020	0.003391	0.007138
<b>Dystopia Residual</b>	-13.220847	0.336225	0.000797	0.008939	0.022332	0.002596	0.005237



In [31]: data.corr()

Out[31]:

	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	(G C
<b>Happiness Rank</b>	1.000000	-0.992105	0.158516	-0.785267	-0.733644	-0.735613	-0.556886	
<b>Happiness Score</b>	-0.992105	1.000000	-0.177254	0.780966	0.740605	0.724200	0.568211	
<b>Standard Error</b>	0.158516	-0.177254	1.000000	-0.217651	-0.120728	-0.310287	-0.129773	
<b>Economy (GDP per Capita)</b>	-0.785267	0.780966	-0.217651	1.000000	0.645299	0.816478	0.370300	
<b>Family</b>	-0.733644	0.740605	-0.120728	0.645299	1.000000	0.531104	0.441518	
<b>Health (Life Expectancy)</b>	-0.735613	0.724200	-0.310287	0.816478	0.531104	1.000000	0.360477	
<b>Freedom</b>	-0.556886	0.568211	-0.129773	0.370300	0.441518	0.360477	1.000000	
<b>Trust (Government Corruption)</b>	-0.372315	0.395199	-0.178325	0.307885	0.205605	0.248335	0.493524	
<b>Generosity</b>	-0.160142	0.180319	-0.088439	-0.010465	0.087513	0.108335	0.373916	
<b>Dystopia Residual</b>	-0.521999	0.530474	0.083981	0.040059	0.148117	0.018979	0.062783	

In [32]: data.count()

Out[32]:

Country	158
Region	158
Happiness Rank	158
Happiness Score	158
Standard Error	158
Economy (GDP per Capita)	158
Family	158
Health (Life Expectancy)	158
Freedom	158
Trust (Government Corruption)	158
Generosity	158
Dystopia Residual	158
dtype: int64	

In [ ]: