DAY 6

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importing libraries

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

importing dataset

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

Out[3]:

Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	Trust (Government Corruption)	Generosity	Dystopia Residual
7.587	0.03411	1.39651	1.34951	0.94143	0.66557	0.41978	0.29678	2.51738
7.561	0.04884	1.30232	1.40223	0.94784	0.62877	0.14145	0.43630	2.70201
7.527	0.03328	1.32548	1.36058	0.87464	0.64938	0.48357	0.34139	2.49204
7.522	0.03880	1.45900	1.33095	0.88521	0.66973	0.36503	0.34699	2.46531
7.427	0.03553	1.32629	1.32261	0.90563	0.63297	0.32957	0.45811	2.45176
...	...	...	...	...	...	...	...	...
3.465	0.03464	0.22208	0.77370	0.42864	0.59201	0.55191	0.22628	0.67042
3.340	0.03656	0.28665	0.35386	0.31910	0.48450	0.08010	0.18260	1.63328
3.006	0.05015	0.66320	0.47489	0.72193	0.15684	0.18906	0.47179	0.32858
2.905	0.08658	0.01530	0.41587	0.22396	0.11850	0.10062	0.19727	1.83302
2.839	0.06727	0.20868	0.13995	0.28443	0.36453	0.10731	0.16681	1.56726

importing numeric values from data set

In [4]:
```
df=data[["Happiness Rank","Happiness Score","Standard Error","Economy (GDP per Ca
df
```

Out[4]:

	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	Trust (Government Corruption)	Ge
0	1	7.587	0.03411	1.39651	1.34951	0.94143	0.66557	0.41978	
1	2	7.561	0.04884	1.30232	1.40223	0.94784	0.62877	0.14145	
2	3	7.527	0.03328	1.32548	1.36058	0.87464	0.64938	0.48357	
3	4	7.522	0.03880	1.45900	1.33095	0.88521	0.66973	0.36503	
4	5	7.427	0.03553	1.32629	1.32261	0.90563	0.63297	0.32957	
...	...	...	...	...	...	...	...	...	
153	154	3.465	0.03464	0.22208	0.77370	0.42864	0.59201	0.55191	
154	155	3.340	0.03656	0.28665	0.35386	0.31910	0.48450	0.08010	
155	156	3.006	0.05015	0.66320	0.47489	0.72193	0.15684	0.18906	
156	157	2.905	0.08658	0.01530	0.41587	0.22396	0.11850	0.10062	
157	158	2.839	0.06727	0.20868	0.13995	0.28443	0.36453	0.10731	

158 rows × 10 columns

a. Find mean,median,mode and describe

In [5]:
```
print(df.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 [6]:
```
print(df.mode())
```

```
     Happiness Rank  Happiness Score  Standard Error  \
0              82.0            5.192         0.03751
1               NaN              NaN         0.03780
2               NaN              NaN         0.04394
3               NaN              NaN         0.04934
4               NaN              NaN         0.05051
..              ...              ...             ...
153             NaN              NaN             NaN
154             NaN              NaN             NaN
155             NaN              NaN             NaN
156             NaN              NaN             NaN
157             NaN              NaN             NaN

     Economy (GDP per Capita)   Family  Health (Life Expectancy)  Freedom  \
0                     0.00000  0.00000                   0.92356  0.00000
1                     0.01530  0.13995                       NaN  0.07699
2                     0.01604  0.30285                       NaN  0.09245
3                     0.06940  0.35386                       NaN  0.10081
4                     0.07120  0.38174                       NaN  0.10384
..                        ...      ...                       ...      ...
153                   1.45900  1.34043                       NaN  0.65821
154                   1.52186  1.34951                       NaN  0.65980
155                   1.55422  1.36058                       NaN  0.66246
156                   1.56391  1.36948                       NaN  0.66557
157                   1.69042  1.40223                       NaN  0.66973

     Trust (Government Corruption)  Generosity  Dystopia Residual
0                          0.32524     0.00000            0.32858
1                              NaN     0.00199            0.65429
2                              NaN     0.02641            0.67042
3                              NaN     0.05444            0.67108
4                              NaN     0.05547            0.89991
..                             ...         ...                ...
153                            NaN     0.51535            3.10712
154                            NaN     0.51752            3.17728
155                            NaN     0.51912            3.19131
156                            NaN     0.57630            3.26001
157                            NaN     0.79588            3.60214

[158 rows x 10 columns]
```

In [7]:
```
print(df.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 [8]:
```
print(df.describe())
```

```
       Happiness Rank  Happiness Score  Standard Error  \
count      158.000000       158.000000      158.000000
mean        79.493671         5.375734        0.047885
std         45.754363         1.145010        0.017146
min          1.000000         2.839000        0.018480
25%         40.250000         4.526000        0.037268
50%         79.500000         5.232500        0.043940
75%        118.750000         6.243750        0.052300
max        158.000000         7.587000        0.136930

       Economy (GDP per Capita)      Family  Health (Life Expectancy)  \
count                158.000000  158.000000                158.000000
mean                   0.846137    0.991046                  0.630259
std                    0.403121    0.272369                  0.247078
min                    0.000000    0.000000                  0.000000
25%                    0.545808    0.856823                  0.439185
50%                    0.910245    1.029510                  0.696705
75%                    1.158448    1.214405                  0.811013
max                    1.690420    1.402230                  1.025250

          Freedom  Trust (Government Corruption)  Generosity  \
count  158.000000                     158.000000  158.000000
mean     0.428615                       0.143422    0.237296
std      0.150693                       0.120034    0.126685
min      0.000000                       0.000000    0.000000
25%      0.328330                       0.061675    0.150553
50%      0.435515                       0.107220    0.216130
75%      0.549092                       0.180255    0.309883
max      0.669730                       0.551910    0.795880

       Dystopia Residual
count         158.000000
mean            2.098977
std             0.553550
min             0.328580
25%             1.759410
50%             2.095415
75%             2.462415
max             3.602140
```

b.) Find sum,cumsum,count,min and max values

In [9]:
```
print(df.sum())
```

```
Happiness Rank                   12560.00000
Happiness Score                    849.36600
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: float64
```

In [10]:
```
print(df.cumsum())
```

```
     Happiness Rank  Happiness Score  Standard Error  \
0                 1            7.587         0.03411
1                 3           15.148         0.08295
2                 6           22.675         0.11623
3                10           30.197         0.15503
4                15           37.624         0.19056
..              ...              ...             ...
153           11934          837.276         7.32523
154           12089          840.616         7.36179
155           12245          843.622         7.41194
156           12402          846.527         7.49852
157           12560          849.366         7.56579

     Economy (GDP per Capita)     Family  Health (Life Expectancy)   Freedom  \
0                     1.39651    1.34951                   0.94143   0.66557
1                     2.69883    2.75174                   1.88927   1.29434
2                     4.02431    4.11232                   2.76391   1.94372
3                     5.48331    5.44327                   3.64912   2.61345
4                     6.80960    6.76588                   4.55475   3.24642
..                        ...        ...                       ...       ...
153                132.51585  155.20069                  98.03156  66.59679
154                132.80250  155.55455                  98.35066  67.08129
155                133.46570  156.02944                  99.07259  67.23813
156                133.48100  156.44531                  99.29655  67.35663
157                133.68968  156.58526                  99.58098  67.72116

     Trust (Government Corruption)  Generosity  Dystopia Residual
0                          0.41978     0.29678            2.51738
1                          0.56123     0.73308            5.21939
2                          1.04480     1.07447            7.71143
3                          1.40983     1.42146           10.17674
4                          1.73940     1.87957           12.62850
..                             ...         ...                ...
153                       22.18356    36.47422          326.27619
154                       22.26366    36.65682          327.90947
155                       22.45272    37.12861          328.23805
156                       22.55334    37.32588          330.07107
157                       22.66065    37.49269          331.63833

[158 rows x 10 columns]
```

In [11]:
```
print(df.count())
```

```
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 [12]:
```
print(df.min())
```

```
Happiness Rank                   1.00000
Happiness Score                  2.83900
Standard Error                   0.01848
Economy (GDP per Capita)         0.00000
Family                           0.00000
Health (Life Expectancy)         0.00000
Freedom                          0.00000
Trust (Government Corruption)    0.00000
Generosity                       0.00000
Dystopia Residual                0.32858
dtype: float64
```

In [13]:
```
print(df.max())
```

```
Happiness Rank                   158.00000
Happiness Score                    7.58700
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: float64
```

c.) Find covarience and correlation

In [14]:
```
df.cov()
```

Out[14]:

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

In [15]:
```
df.corr()
```

Out[15]:

	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	(Gove Cor
Happiness Rank	1.000000	-0.992105	0.158516	-0.785267	-0.733644	-0.735613	-0.556886	-0
Happiness Score	-0.992105	1.000000	-0.177254	0.780966	0.740605	0.724200	0.568211	0
Standard Error	0.158516	-0.177254	1.000000	-0.217651	-0.120728	-0.310287	-0.129773	-0
Economy (GDP per Capita)	-0.785267	0.780966	-0.217651	1.000000	0.645299	0.816478	0.370300	0
Family	-0.733644	0.740605	-0.120728	0.645299	1.000000	0.531104	0.441518	0
Health (Life Expectancy)	-0.735613	0.724200	-0.310287	0.816478	0.531104	1.000000	0.360477	0
Freedom	-0.556886	0.568211	-0.129773	0.370300	0.441518	0.360477	1.000000	0
Trust (Government Corruption)	-0.372315	0.395199	-0.178325	0.307885	0.205605	0.248335	0.493524	1
Generosity	-0.160142	0.180319	-0.088439	-0.010465	0.087513	0.108335	0.373916	0
Dystopia Residual	-0.521999	0.530474	0.083981	0.040059	0.148117	0.018979	0.062783	-0

In [ ]:
```
```