

Basic Analysis using Numpy and Pandas

import libraries

In [1]:

```
import pandas as pd
import numpy as np
import matplotlib as pp
```

import dataset

In [2]:

```
data=pd.read_csv(r"E:\154\2015 - 2015.csv")
```

In [3]:

```
display(data)
```

	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	0.66557
1	Iceland	Western Europe	2	7.561	0.04884	1.30232	1.40223	0.94784	0.62877
2	Denmark	Western Europe	3	7.527	0.03328	1.32548	1.36058	0.87464	0.64938
3	Norway	Western Europe	4	7.522	0.03880	1.45900	1.33095	0.88521	0.66973
4	Canada	North America	5	7.427	0.03553	1.32629	1.32261	0.90563	0.63297
...
153	Rwanda	Sub-Saharan Africa	154	3.465	0.03464	0.22208	0.77370	0.42864	0.59201
154	Benin	Sub-Saharan Africa	155	3.340	0.03656	0.28665	0.35386	0.31910	0.48450
155	Syria	Middle East and Northern Africa	156	3.006	0.05015	0.66320	0.47489	0.72193	0.15684
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0.11850
157	Togo	Sub-Saharan	158	2.839	0.06727	0.20868	0.13995	0.28443	0.36453

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

158 rows × 12 columns

To display top 10 rows

In [4]: `data.head()`

Out[4]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	(Go C
0	Switzerland	Western Europe	1	7.587	0.03411	1.39651	1.34951	0.94143	0.66557	
1	Iceland	Western Europe	2	7.561	0.04884	1.30232	1.40223	0.94784	0.62877	
2	Denmark	Western Europe	3	7.527	0.03328	1.32548	1.36058	0.87464	0.64938	
3	Norway	Western Europe	4	7.522	0.03880	1.45900	1.33095	0.88521	0.66973	
4	Canada	North America	5	7.427	0.03553	1.32629	1.32261	0.90563	0.63297	

To display last 5 rows

In [5]: `data.tail()`

Out[5]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	(Go C
153	Rwanda	Sub-Saharan Africa	154	3.465	0.03464	0.22208	0.77370	0.42864	0.59201	
154	Benin	Sub-Saharan Africa	155	3.340	0.03656	0.28665	0.35386	0.31910	0.48450	
155	Syria	Middle East and Northern Africa	156	3.006	0.05015	0.66320	0.47489	0.72193	0.15684	
156	Burundi	Sub-Saharan	157	2.905	0.08658	0.01530	0.41587	0.22396	0.11850	

Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom (Government Corruption)	
Africa									
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0.36453

In [6]:

data.dtypes

Out[6]:

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

To view statistical summary

In [7]:

data.describe()

Out[7]:

	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	Trust (Government Corruption)
count	158.000000	158.000000	158.000000	158.000000	158.000000	158.000000	158.000000	158.000000
mean	79.493671	5.375734	0.047885	0.846137	0.991046	0.630259	0.428615	0.14342
std	45.754363	1.145010	0.017146	0.403121	0.272369	0.247078	0.150693	0.12003
min	1.000000	2.839000	0.018480	0.000000	0.000000	0.000000	0.000000	0.000000
25%	40.250000	4.526000	0.037268	0.545808	0.856823	0.439185	0.328330	0.06167
50%	79.500000	5.232500	0.043940	0.910245	1.029510	0.696705	0.435515	0.10722
75%	118.750000	6.243750	0.052300	1.158448	1.214405	0.811013	0.549092	0.18025
max	158.000000	7.587000	0.136930	1.690420	1.402230	1.025250	0.669730	0.55191

To Print no of elements

In [8]:

data.size

```
Out[8]: 1896
```

```
In [9]: data.ndim
```

```
Out[9]: 2
```

To print no of rows and columns

```
In [10]: data.shape
```

```
Out[10]: (158, 12)
```

To find missing values

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

```
Out[11]:
```

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	(Govt Cor
0	False	False	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False	False
...
153	False	False	False	False	False	False	False	False	False	False
154	False	False	False	False	False	False	False	False	False	False
155	False	False	False	False	False	False	False	False	False	False
156	False	False	False	False	False	False	False	False	False	False
157	False	False	False	False	False	False	False	False	False	False

158 rows × 12 columns



To drop null values with constatns

```
In [12]: data.fillna(5)
```

Out[12] :

	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	0.66557
1	Iceland	Western Europe	2	7.561	0.04884	1.30232	1.40223	0.94784	0.62877
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155	Syria	Middle East and Northern Africa	156	3.006	0.05015	0.66320	0.47489	0.72193	0.15684
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0.11850
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0.36453

158 rows × 12 columns



In [13] :

data.dropna()

Out[13] :

	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	0.66557
1	Iceland	Western Europe	2	7.561	0.04884	1.30232	1.40223	0.94784	0.62877
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	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom
3	Norway	Western Europe	4	7.522	0.03880	1.45900	1.33095	0.88521	0.66973
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...
153	Rwanda	Sub-Saharan Africa	154	3.465	0.03464	0.22208	0.77370	0.42864	0.59201
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155	Syria	Middle East and Northern Africa	156	3.006	0.05015	0.66320	0.47489	0.72193	0.15684
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0.11850
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0.36453

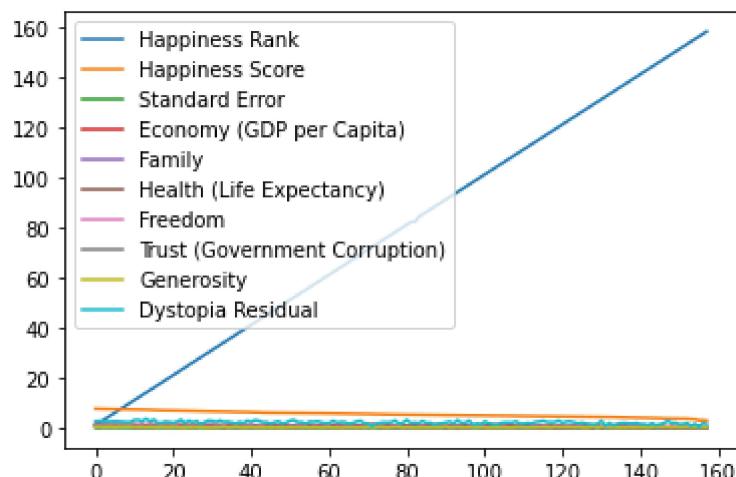
158 rows × 12 columns

Line Plot

In [14]:

```
data.plot.line()
```

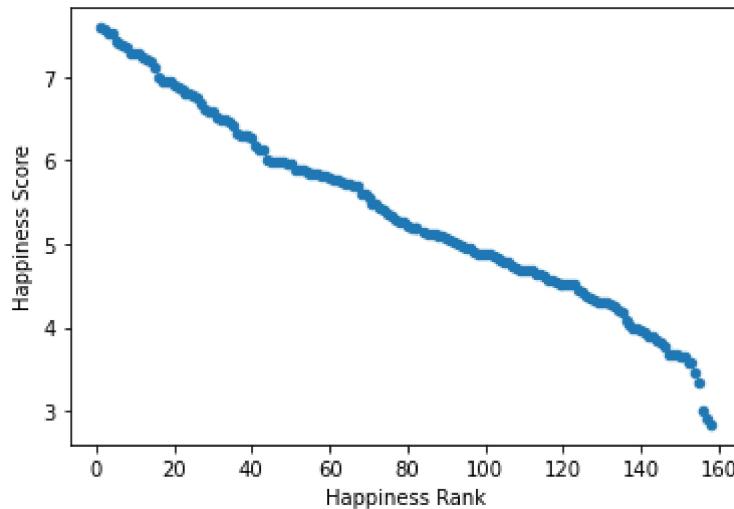
Out[14]: <AxesSubplot:



Scatter Plot

```
In [15]: data.plot.scatter(x='Happiness Rank',y='Happiness Score')
```

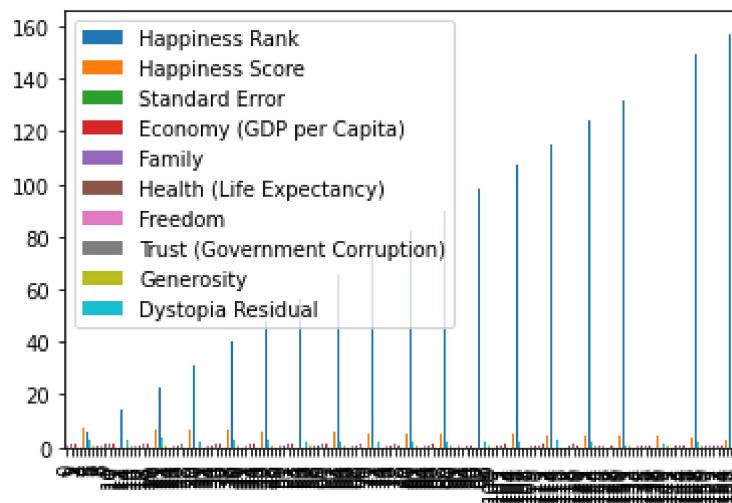
```
Out[15]: <AxesSubplot:xlabel='Happiness Rank', ylabel='Happiness Score'>
```



Bar Chart

```
In [16]: data.plot.bar()
```

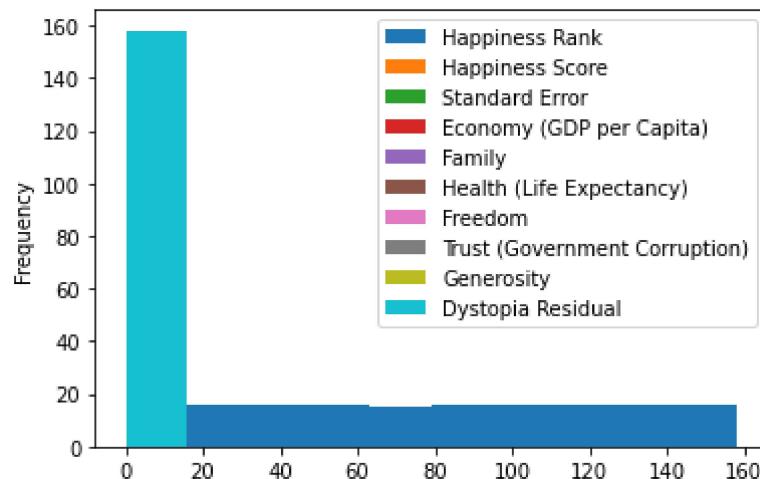
```
Out[16]: <AxesSubplot:>
```



Histogram

```
In [21]: data.plot.hist()
```

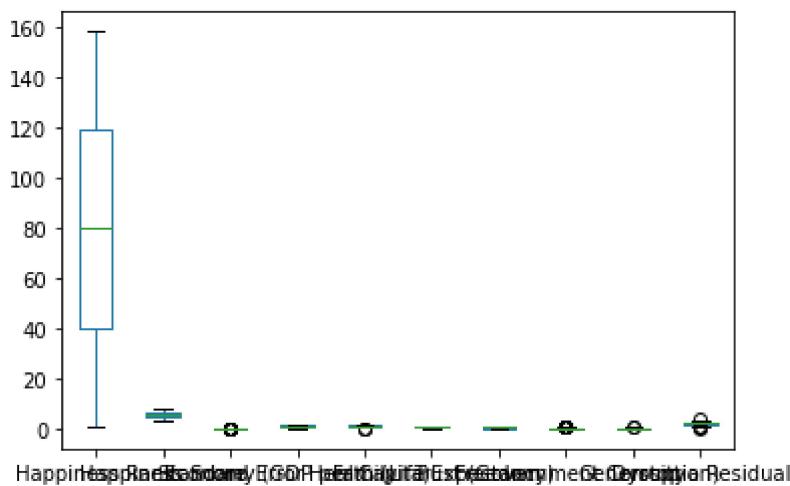
```
Out[21]: <AxesSubplot:ylabel='Frequency'>
```



Box Plot

```
In [22]: data.plot.box()
```

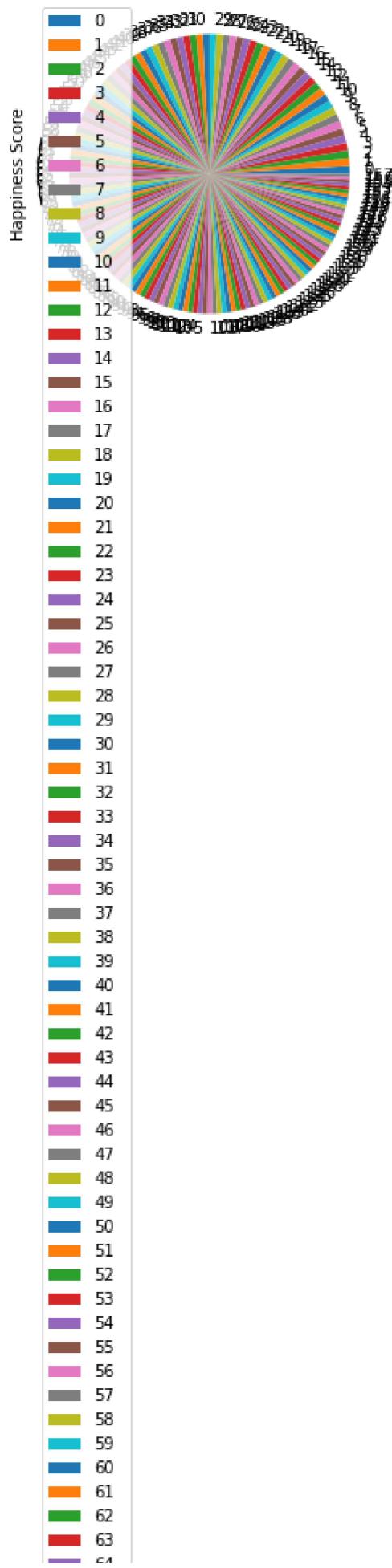
```
Out[22]: <AxesSubplot:>
```



Pie Chart

```
In [25]: data.plot.pie(y="Happiness Score")
```

```
Out[25]: <AxesSubplot:ylabel='Happiness Score'>
```



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