Basic Analysis using numpy and pandas

2015 Dataset

To import library

In [1]:

```
import numpy as np
```

In [2]:

```
import pandas as pd
```

To import dataset

In [3]:

```
d=pd.read_csv(r"C:\Users\user\Downloads\2015.csv")
d
```

Out[3]:

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

158 rows × 12 columns

To get Top 10 record

In [4]:

```
d.head(10)
```

Out[4]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	F
0	Switzerland	Western Europe	1	7.587	0.03411	1.39651	1.34951	0.94143	
1	Iceland	Western Europe	2	7.561	0.04884	1.30232	1.40223	0.94784	
2	Denmark	Western Europe	3	7.527	0.03328	1.32548	1.36058	0.87464	
3	Norway	Western Europe	4	7.522	0.03880	1.45900	1.33095	0.88521	
4	Canada	North America	5	7.427	0.03553	1.32629	1.32261	0.90563	
5	Finland	Western Europe	6	7.406	0.03140	1.29025	1.31826	0.88911	
6	Netherlands	Western Europe	7	7.378	0.02799	1.32944	1.28017	0.89284	
7	Sweden	Western Europe	8	7.364	0.03157	1.33171	1.28907	0.91087	
8	New Zealand	Australia and New Zealand	9	7.286	0.03371	1.25018	1.31967	0.90837	
9	Australia	Australia and New Zealand	10	7.284	0.04083	1.33358	1.30923	0.93156	

To get last record

In [5]:

```
d.tail(20)
```

Out[5]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Expectar
138	Congo (Brazzaville)	Sub-Saharan Africa	139	3.989	0.06682	0.67866	0.66290	0.31
139	Comoros	Sub-Saharan Africa	140	3.956	0.04797	0.23906	0.79273	0.36
140	Uganda	Sub-Saharan Africa	141	3.931	0.04317	0.21102	1.13299	0.33
141	Senegal	Sub-Saharan Africa	142	3.904	0.03608	0.36498	0.97619	0.43
142	Gabon	Sub-Saharan Africa	143	3.896	0.04547	1.06024	0.90528	0.43
143	Niger	Sub-Saharan Africa	144	3.845	0.03602	0.06940	0.77265	0.29
144	Cambodia	Southeastern Asia	145	3.819	0.05069	0.46038	0.62736	0.61
145	Tanzania	Sub-Saharan Africa	146	3.781	0.05061	0.28520	1.00268	0.38
146	Madagascar	Sub-Saharan Africa	147	3.681	0.03633	0.20824	0.66801	0.46
147	Central African Republic	Sub-Saharan Africa	148	3.678	0.06112	0.07850	0.00000	0.06
148	Chad	Sub-Saharan Africa	149	3.667	0.03830	0.34193	0.76062	0.15
149	Guinea	Sub-Saharan Africa	150	3.656	0.03590	0.17417	0.46475	0.24
150	Ivory Coast	Sub-Saharan Africa	151	3.655	0.05141	0.46534	0.77115	0.15
151	Burkina Faso	Sub-Saharan Africa	152	3.587	0.04324	0.25812	0.85188	0.27
152	Afghanistan	Southern Asia	153	3.575	0.03084	0.31982	0.30285	0.30
153	Rwanda	Sub-Saharan Africa	154	3.465	0.03464	0.22208	0.77370	0.42
154	Benin	Sub-Saharan Africa	155	3.340	0.03656	0.28665	0.35386	0.31
155	Syria	Middle East and Northern Africa	156	3.006	0.05015	0.66320	0.47489	0.72
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28

Statistics Analysis

In [6]:

```
d.describe()
```

Out[6]:

	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom
count	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
std	45.754363	1.145010	0.017146	0.403121	0.272369	0.247078	0.150693
min	1.000000	2.839000	0.018480	0.000000	0.000000	0.000000	0.000000
25%	40.250000	4.526000	0.037268	0.545808	0.856823	0.439185	0.328330
50%	79.500000	5.232500	0.043940	0.910245	1.029510	0.696705	0.435515
75%	118.750000	6.243750	0.052300	1.158448	1.214405	0.811013	0.549092
max	158.000000	7.587000	0.136930	1.690420	1.402230	1.025250	0.669730

To get row and column

In [7]:

```
np.shape(d)
```

Out[7]:

```
(158, 12)
```

Find Number of Elements

In [8]:

```
np.size(d)
```

Out[8]:

```
1896
```

Find Missing Value

In [9]:

```
d.isna()
```

Out[9]:

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

158 rows × 12 columns

To drop the missing value

In [10]:

```
d.dropna(axis=1,how="any")
```

Out[10]:

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

158 rows × 12 columns

In [11]:

```
d["Country"]
```

Out[11]:

```
0      Switzerland
1          Iceland
2          Denmark
3           Norway
4           Canada
          ...
153         Rwanda
154          Benin
155          Syria
156        Burundi
157           Togo
Name: Country, Length: 158, dtype: object
```

In [12]:

```
data=d[['Happiness Rank','Happiness Score']]
data
```

Out[12]:

	Happiness Rank	Happiness Score
0	1	7.587
1	2	7.561
2	3	7.527
3	4	7.522
4	5	7.427
...	...	...
153	154	3.465
154	155	3.340
155	156	3.006
156	157	2.905
157	158	2.839

158 rows × 2 columns

In [13]:

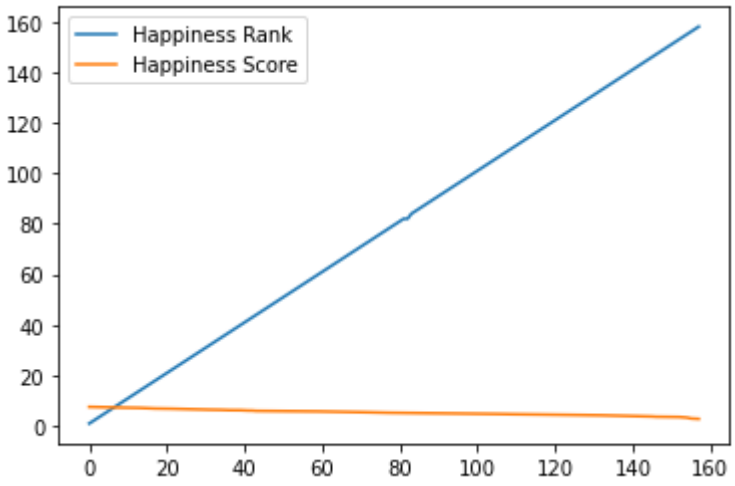
```
import matplotlib.pyplot as pp
```

In [14]:

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

Out[14]:

<AxesSubplot:>

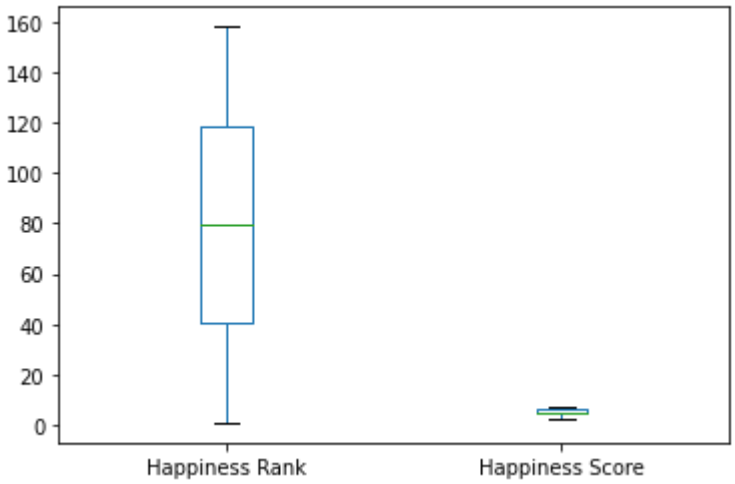


In [15]:

```
data.plot.box()
```

Out[15]:

<AxesSubplot:>

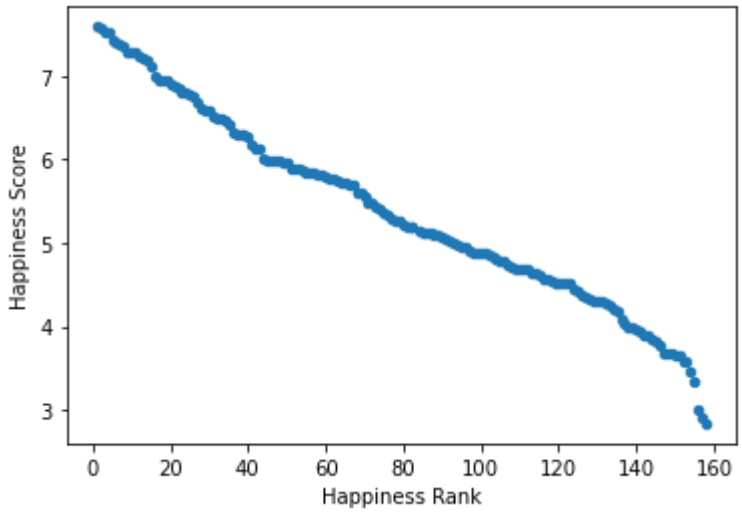


In [16]:

```
data.plot.scatter(x='Happiness Rank',y='Happiness Score')
```

Out[16]:

```
<AxesSubplot:xlabel='Happiness Rank', ylabel='Happiness Score'>
```



In [17]:

```
data.plot.area()
```

Out[17]:

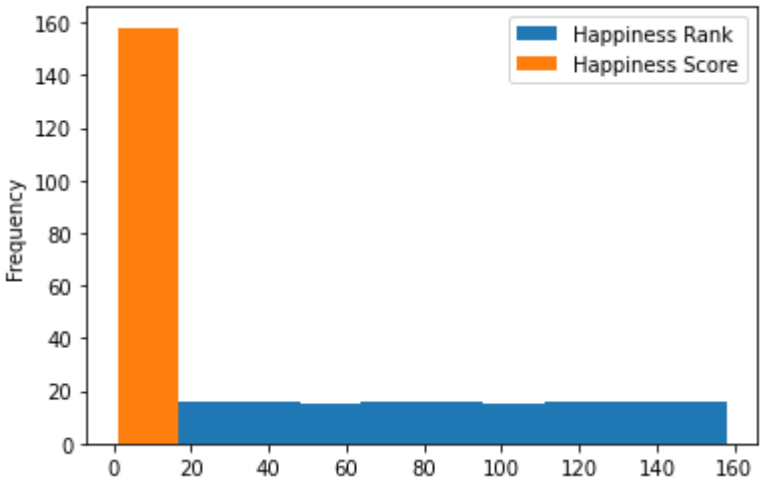
```
<AxesSubplot:>
```

In [18]:

```
data.plot.hist()
```

Out[18]:

```
<AxesSubplot:ylabel='Frequency'>
```



In [ ]: