22/07/23 tony2

In [2]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as pp
```

In [48]:
```
x=pd.read_csv(r"C:\Users\user\Downloads\2_2015.csv")
x
```

Out[48]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Free
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	0.1
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0.1
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0.3

158 rows × 12 columns

In [49]:
```
x. dtypes
```

Out[49]:
```
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 [50]:
```
x. dtypes
```

Out[50]:
```
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 [51]:
```
x.tail()
```

Out[51]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedc
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 [52]:
```
x.columns
```

Out[52]:
```
Index(['Country', 'Region', 'Happiness Rank', 'Happiness Score',
       'Standard Error', 'Economy (GDP per Capita)', 'Family',
       'Health (Life Expectancy)', 'Freedom', 'Trust (Government Corruptio
n)',
       'Generosity', 'Dystopia Residual'],
      dtype='object')
```

In [53]:
```
x. index
```

Out[53]:
```
RangeIndex(start=0, stop=158, step=1)
```

In [54]:
```
x.describe()
```

Out[54]:

	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	(Go C
count	158.000000	158.000000	158.000000	158.000000	158.000000	158.000000	158.000000	1
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	

In [56]:
```
x["Family"]
```

Out[56]:
```
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 [57]:
```
x.iloc[0:2]
```

Out[57]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedo
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 [58]:
```
x.loc[0:3]
```

Out[58]:

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

In [61]:
```
x.loc["Country":"Freedom"]
```

Out[61]:

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

In [62]:
```
x[x["Happiness Rank"]<=20]
```

Out[62]:

	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
5	Finland	Western Europe	6	7.406	0.03140	1.29025	1.31826	0.88911	0
6	Netherlands	Western Europe	7	7.378	0.02799	1.32944	1.28017	0.89284	0
7	Sweden	Western Europe	8	7.364	0.03157	1.33171	1.28907	0.91087	0
8	New Zealand	Australia and New Zealand	9	7.286	0.03371	1.25018	1.31967	0.90837	0
9	Australia	Australia and New Zealand	10	7.284	0.04083	1.33358	1.30923	0.93156	0
10	Israel	Middle East and Northern Africa	11	7.278	0.03470	1.22857	1.22393	0.91387	0
11	Costa Rica	Latin America and Caribbean	12	7.226	0.04454	0.95578	1.23788	0.86027	0
12	Austria	Western Europe	13	7.200	0.03751	1.33723	1.29704	0.89042	0
13	Mexico	Latin America and Caribbean	14	7.187	0.04176	1.02054	0.91451	0.81444	0
14	United States	North America	15	7.119	0.03839	1.39451	1.24711	0.86179	0
15	Brazil	Latin America and Caribbean	16	6.983	0.04076	0.98124	1.23287	0.69702	0
16	Luxembourg	Western Europe	17	6.946	0.03499	1.56391	1.21963	0.91894	0
17	Ireland	Western Europe	18	6.940	0.03676	1.33596	1.36948	0.89533	0
18	Belgium	Western Europe	19	6.937	0.03595	1.30782	1.28566	0.89667	0

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Fr
19	United Arab Emirates	Middle East and Northern Africa	20	6.901	0.03729	1.42727	1.12575	0.80925	0

In [63]:
```
x.fillna(value=5)
```

Out[63]:

	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	0.1
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0.1
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0.3

158 rows × 12 columns

In [64]:
```
x.dropna()
```

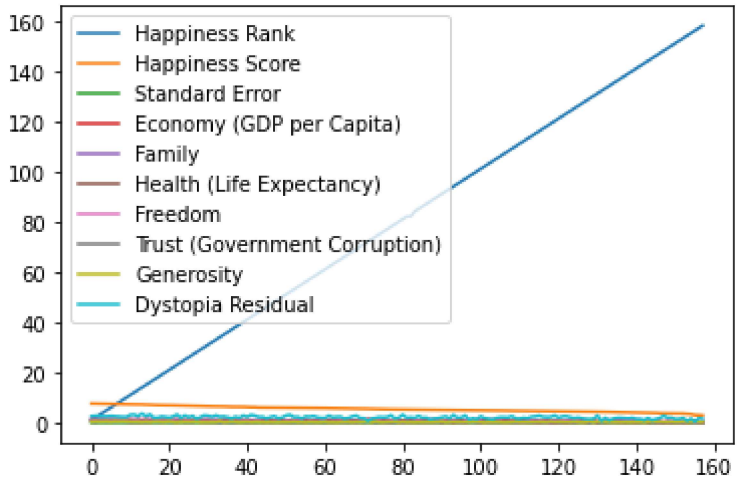
Out[64]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Free
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	0.1
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0.1
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0.3

158 rows × 12 columns

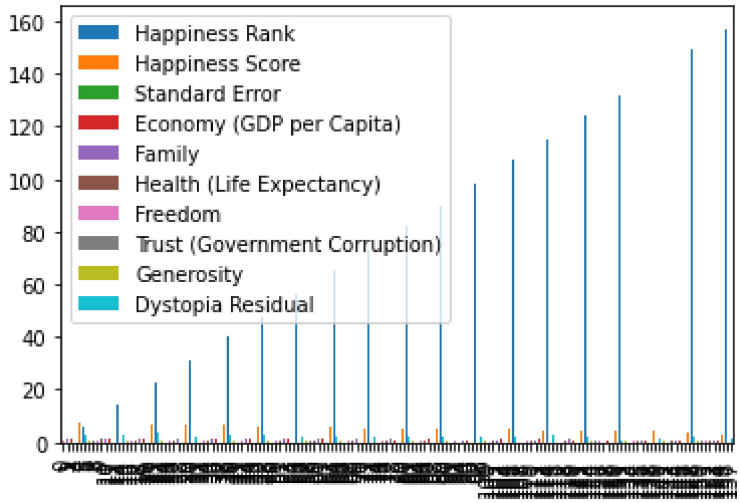
In [65]:
```
x.plot.line()
```

Out[65]: <AxesSubplot:>



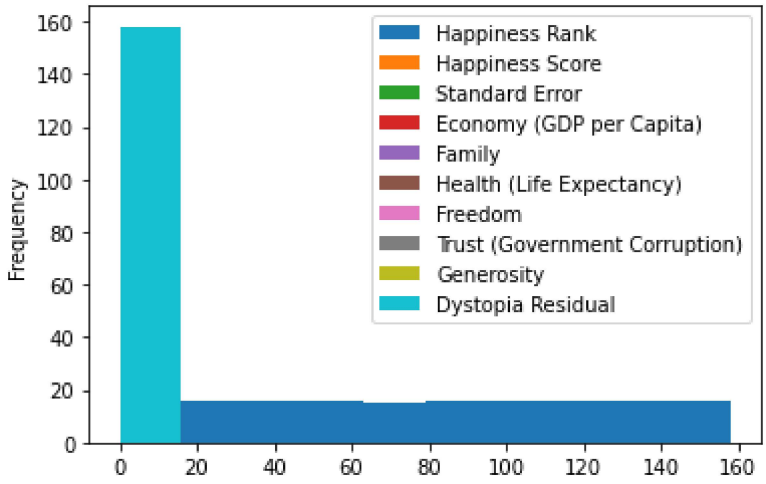
In [66]:
```
x.plot.bar()
```

Out[66]: <AxesSubplot:>



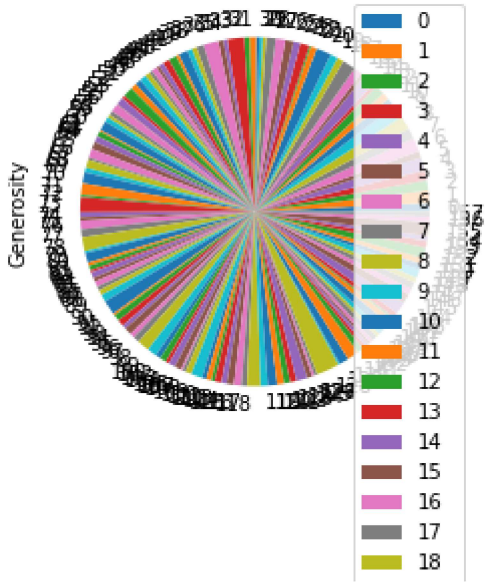
In [67]:
```
x.plot.hist()
```

Out[67]: <AxesSubplot:ylabel='Frequency'>



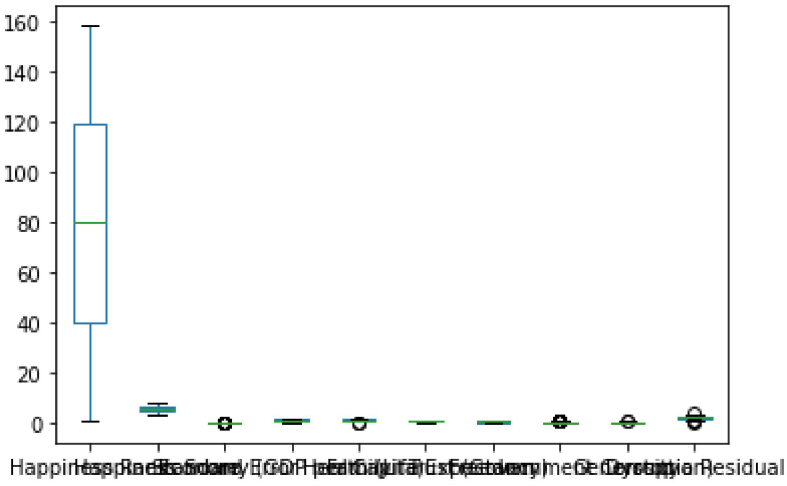
In [70]:
```
x.plot.pie(y='Generosity')
```

Out[70]: <AxesSubplot:ylabel='Generosity'>



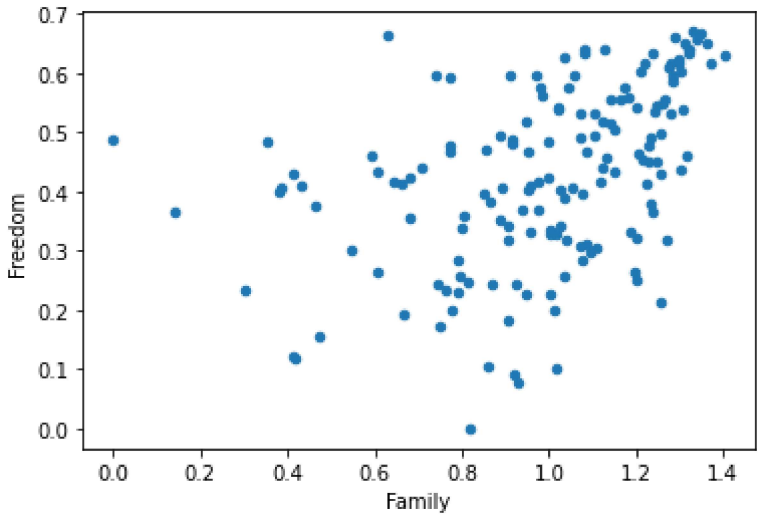
In [71]:
```
x.plot.box()
```

Out[71]: <AxesSubplot:>



In [75]:
```
x.plot.scatter(x='Family',y='Freedom')
```

Out[75]: <AxesSubplot:xlabel='Family', ylabel='Freedom'>



In [ ]:

In [ ]: