```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

In [2]: data=pd.read_csv(r"C:\Users\user\Desktop\Vicky\2_2015.csv")

In [3]: data.shape

Out[3]: (158, 12)
```

In [i] . aaca incaa	In	[4]:	data.head
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Out[4]:		und method NDFrame	head of		Country	y			Regi
	on	Happiness Rank \							
	0	Switzerland			stern Eu	-		1	
	1	Iceland		Wes	stern Eu	≏ope		2	
	2	Denmark		Wes	stern Eu	ope		3	
	3	Norway		Wes	stern Eu	rope		4	
	4	Canada		No	orth Amer	rica		5	
		• • •						• •	
	153	Rwanda		Sub-Sal	naran Afı	rica	1	54	
	154	Benin		Sub-Sal	naran Afi	≏ica	1	55	
	155	Syria Mido	dle East a	and Nort	hern Afı	≏ica	1	56	
	156	Burundi		Sub-Sal	naran Afı	rica	1	57	
	157	Togo			naran Afi			58	
		J							
		Happiness Score			Economy	(GDP p	per Capita)	-	\
	0	7.587		03411			1.39651	1.34951	
	1	7.561	0.	04884			1.30232	1.40223	
	2	7.527	0.	.03328			1.32548	1.36058	
	3	7.522	0.	.03880			1.45900	1.33095	
	4	7.427	0.	.03553			1.32629	1.32261	
	153	3.465	0.	03464			0.22208	0.77370	
	154	3.340	0.	03656			0.28665	0.35386	
	155	3.006		05015			0.66320	0.47489	
	156	2.905		08658			0.01530		
	157	2.839		06727			0.20868	0.13995	
		Health (Life Expe	ectancy)	Freedor	n Trust	(Gover	rnment Corru	ption) \	\
	0		0.94143	0.66557	7		0	.41978	
	1		0.94784	0.6287	7		0	.14145	
	2		0.87464	0.64938	3		0	.48357	
	3		0.88521	0.66973	3		0	.36503	
	4		0.90563	0.63297	7			.32957	
			• • •	• • •	•				
	153		0.42864	0.59202	Ĺ		0	.55191	
	154		0.31910					.08010	
	155			0.15684				.18906	
	156			0.11850				.10062	
	157			0.36453				.10731	
	10,		0.20113	0.50-5.	,		O	.10/51	
		Generosity Dysto	opia Resid	dual					
	0	0.29678	2.51						
	1	0.43630	2.76						
	2	0.34139	2.49						
	3	0.34699	2.46						
	4	0.45811	2.45						
			۷.4.						
	 153	0.22628	0.67	7042					
	154	0.18260	1.63						
	155	0.47179	0.32						
	156	0.19727	1.83						
	157	0.16681	1.56	0/26					

[158 rows x 12 columns]>

In [5]: data.tail()

Out[5]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freed
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	0.15(
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
4									•

In [6]: data.describe()

Out[6]:

	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom	(Gı 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	
4								•

In [7]: data.isna()

Out[7]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedor		
0	False	False	False	False	False	False	False	False	Fals		
1	False	False	False	False	False	False	False	False	Fals		
2	False	False	False	False	False	False	False	False	Fals		
3	False	False	False	False	False	False	False	False	Fals		
4	False	False	False	False	False	False	False	False	Fals		
153	False	False	False	False	False	False	False	False	Fals		
154	False	False	False	False	False	False	False	False	Fals		
155	False	False	False	False	False	False	False	False	Fals		
156	False	False	False	False	False	False	False	False	Fals		
157	False	False	False	False	False	False	False	False	Fals		
158 r	158 rows × 12 columns										

In [8]: data.size

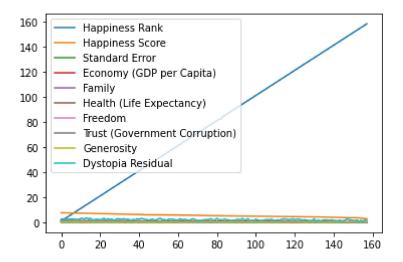
Out[8]: 1896

```
In [9]:
         data.isna
Out[9]: <bound method DataFrame.isna of
                                                      Country
                                                                                            Re
         gion Happiness Rank
              Switzerland
                                                                               1
         0
                                               Western Europe
         1
                   Iceland
                                                                               2
                                               Western Europe
         2
                   Denmark
                                               Western Europe
                                                                               3
                                                                               4
         3
                    Norway
                                               Western Europe
         4
                    Canada
                                                North America
                                                                               5
         . .
                        . . .
                                                                             . . .
                                           Sub-Saharan Africa
         153
                    Rwanda
                                                                             154
                                           Sub-Saharan Africa
                     Benin
         154
                                                                             155
         155
                            Middle East and Northern Africa
                     Syria
                                                                             156
         156
                   Burundi
                                           Sub-Saharan Africa
                                                                             157
                                           Sub-Saharan Africa
         157
                      Togo
                                                                             158
                                                  Economy (GDP per Capita)
              Happiness Score
                                 Standard Error
                                                                                Family
         0
                         7.587
                                         0.03411
                                                                     1.39651
                                                                               1.34951
         1
                         7.561
                                         0.04884
                                                                     1.30232
                                                                               1.40223
         2
                         7.527
                                         0.03328
                                                                     1.32548
                                                                               1.36058
         3
                         7.522
                                         0.03880
                                                                     1.45900
                                                                               1.33095
         4
                         7.427
                                         0.03553
                                                                     1.32629
                                                                               1.32261
                            . . .
                                             . . .
                                                                                    . . .
                         3.465
                                         0.03464
                                                                     0.22208
                                                                               0.77370
         153
         154
                         3.340
                                                                     0.28665
                                                                               0.35386
                                         0.03656
         155
                         3.006
                                         0.05015
                                                                     0.66320
                                                                               0.47489
         156
                         2.905
                                         0.08658
                                                                     0.01530
                                                                               0.41587
         157
                         2.839
                                         0.06727
                                                                     0.20868
                                                                               0.13995
              Health (Life Expectancy)
                                                     Trust (Government Corruption)
                                           Freedom
         0
                                 0.94143
                                           0.66557
                                                                             0.41978
         1
                                 0.94784
                                           0.62877
                                                                             0.14145
         2
                                 0.87464
                                           0.64938
                                                                             0.48357
         3
                                 0.88521
                                           0.66973
                                                                             0.36503
         4
                                 0.90563
                                           0.63297
                                                                             0.32957
         . .
                                      . . .
                                                . . .
                                                                                  . . .
                                                                             0.55191
         153
                                 0.42864
                                           0.59201
         154
                                 0.31910
                                           0.48450
                                                                             0.08010
         155
                                 0.72193
                                           0.15684
                                                                             0.18906
         156
                                 0.22396
                                                                             0.10062
                                           0.11850
         157
                                 0.28443
                                           0.36453
                                                                             0.10731
              Generosity
                            Dystopia Residual
         0
                  0.29678
                                       2.51738
         1
                  0.43630
                                       2.70201
         2
                  0.34139
                                       2.49204
         3
                  0.34699
                                       2.46531
         4
                  0.45811
                                       2.45176
                                           . . .
         153
                  0.22628
                                       0.67042
         154
                  0.18260
                                       1.63328
                  0.47179
         155
                                       0.32858
         156
                  0.19727
                                       1.83302
                  0.16681
         157
                                       1.56726
```

[158 rows x 12 columns]>

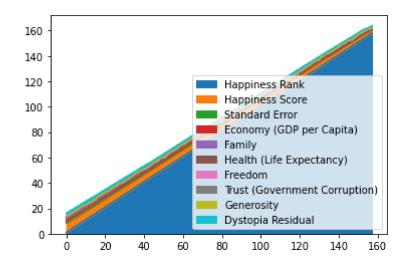
```
In [10]: data.plot.line()
```

Out[10]: <AxesSubplot:>



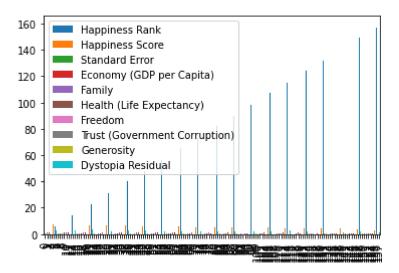
In [11]: data.plot.area()

Out[11]: <AxesSubplot:>



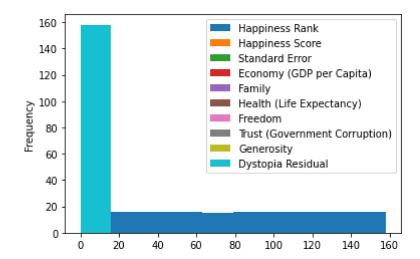
```
In [12]: data.plot.bar()
```

Out[12]: <AxesSubplot:>



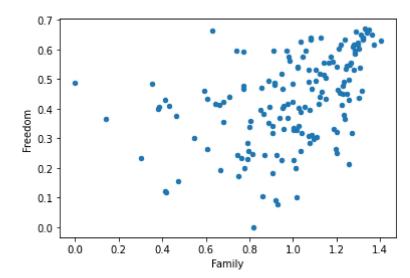
In [13]: data.plot.hist()

Out[13]: <AxesSubplot:ylabel='Frequency'>



In [15]: data.plot.scatter(x="Family",y='Freedom')

Out[15]: <AxesSubplot:xlabel='Family', ylabel='Freedom'>



In [16]: data.fillna(value=5)

Out[16]:

	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.
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 r	ows × 12 co	lumns							
4									•

localhost:8888/notebooks/matplotlib.ipynb#

In [17]: pd.isna(data)

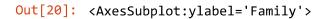
Out[17]:

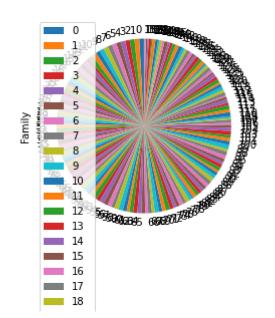
	Country	Region	Happiness Rank	Happiness Score	Standard Error	(GDP per Capita)	Family	Health (Life Expectancy)	Freedon
0	False	False	False	False	False	False	False	False	Fals
1	False	False	False	False	False	False	False	False	Fals
2	False	False	False	False	False	False	False	False	Fals
3	False	False	False	False	False	False	False	False	Fals
4	False	False	False	False	False	False	False	False	Fals

153	False	False	False	False	False	False	False	False	Fals
154	False	False	False	False	False	False	False	False	Fals
155	False	False	False	False	False	False	False	False	Fals
156	False	False	False	False	False	False	False	False	Fals
157	False	False	False	False	False	False	False	False	Fals

158 rows × 12 columns

In [20]: data.plot.pie(y="Family",startangle=90)





In []: