

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

df=pd.read_excel("C:/Users/hrish/Downloads/Indian stock market final
sheet Part 1.xlsx")
df
```

	Name	Ticker \
0	Reliance Industries Ltd	RELIANCE
1	Tata Consultancy Services Ltd	TCS
2	HDFC Bank Ltd	HDFCBANK
3	Infosys Ltd	INFY
4	ICICI Bank Ltd	ICICIBANK
...
1995	Galaxy Bearings Ltd	GALXBRG
1996	Signet Industries Ltd	SIGIND
1997	Suraj Ltd	SURAJLTD
1998	Polson Ltd	POLSON
1999	LKP Finance Ltd	LKPFIN

Ratio \	Sub-Sector	Market Cap	Close Price	PE
0	Oil & Gas - Refining & Marketing	1.679534e+06	2467.40	
34.186904				
1	IT Services & Consulting	1.358569e+06	3626.70	
41.892356				
2	Private Banks	8.206363e+05	1486.50	
25.779258				
3	IT Services & Consulting	7.775010e+05	1853.05	
40.178853				
4	Private Banks	5.002790e+05	710.75	
27.212283				
...	
...				
1995	Heavy Machinery	1.256577e+02	385.05	
15.986985				
1996	Plastic Products	1.255488e+02	43.00	
8.999914				
1997	Iron & Steel	1.255056e+02	64.95	
91.609935				
1998	Commodity Chemicals	1.253262e+02	10440.00	
14.692403				
1999	Investment Banking & Brokerage	1.249950e+02	100.70	
2.061602				

	Return on Equity	Return on Assets	Net Profit Margin \
0	7.793277	3.957021	9.725370
1	37.740680	25.932382	19.383065

2	16.435200	1.883433	20.420916
3	27.135305	19.417895	18.847214
4	12.382897	1.243333	11.395012
...
1995	18.976340	14.784163	12.419024
1996	7.117710	2.017514	1.679812
1997	1.548810	0.767980	0.712132
1998	8.487562	4.800090	9.212658
1999	30.499522	24.118384	62.350884

	5Y Avg EBITDA Margin	...	Net Income	PBT	Earnings Per Share \
0	17.720494	...	49128.00	55461.00	74.653049
1	29.072528	...	32430.00	43760.00	87.043624
2	28.206116	...	31833.20	42796.14	57.899268
3	28.656802	...	19351.00	26628.00	45.607423
4	11.900543	...	18384.31	26028.33	27.461218
...
...
1995	16.395699	...	7.86	10.54	24.716981
1996	7.751415	...	13.95	11.69	4.738934
1997	9.181438	...	1.37	1.92	0.711167
1998	21.724728	...	8.53	9.14	710.833333
1999	13.740886	...	60.63	69.53	48.239175

	EBITDA	Long Term Investments	Reserves & Surplus \
0	103222.00	212382.00	579376.00
1	48462.00	213.00	86063.00
2	44181.15	438823.11	148746.23
3	30090.00	11863.00	73627.00
4	27368.40	536578.62	107231.52
...
1995	12.27	0.00	42.18
1996	65.98	0.14	144.17
1997	17.65	0.00	47.98
1998	19.62	0.99	103.96
1999	69.56	204.91	236.96

Cash and Equivalent Book Value Free Cash Flow Operating Cash Flow

0	169843.00	799432.00	-79652.00	
26185.00				
1	38489.00	87108.00	35727.00	
38802.00				
2	121272.52	210442.95	40780.31	
42476.46				
3	27056.00	76782.00	21117.00	
23224.00				
4	147570.54	167175.84	136327.09	
138015.30				
...	
...				
1995	7.65	45.36	1.31	
6.76				
1996	20.66	202.67	-8.33	
6.96				
1997	0.42	89.14	30.05	
32.51				
1998	6.63	104.77	13.20	
22.41				
1999	29.74	253.23	-13.07	-
13.03				

[2000 rows x 44 columns]

df.info()

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 2000 entries, 0 to 1999

Data columns (total 44 columns):

#	Column	Non-Null Count	Dtype
0	Name	2000 non-null	object
1	Ticker	2000 non-null	object
2	Sub-Sector	1947 non-null	object
3	Market Cap	2000 non-null	float64
4	Close Price	2000 non-null	float64
5	PE Ratio	1957 non-null	float64
6	Return on Equity	1870 non-null	float64
7	Return on Assets	1952 non-null	float64
8	Net Profit Margin	1953 non-null	float64
9	5Y Avg EBITDA Margin	1880 non-null	float64
10	EBITDA Margin	1953 non-null	float64
11	1Y Return vs Nifty	2000 non-null	float64
12	5Y CAGR	1593 non-null	float64
13	Debt to Equity	1835 non-null	float64
14	Long Term Debt to Equity	1833 non-null	float64
15	Net Income / Liabilities	1557 non-null	float64
16	5Y Historical Revenue Growth	1871 non-null	float64
17	5Y Historical EBITDA Growth	1624 non-null	float64

18	5Y Hist Op. Cash Flow Growth	1273	non-null	float64
19	5Y Historical EPS Growth	1329	non-null	float64
20	Forward PE Ratio	531	non-null	float64
21	Enterprise Value	1999	non-null	float64
22	PB Ratio	1954	non-null	float64
23	Dividend Yield	1098	non-null	float64
24	PE Premium vs Sector	1957	non-null	float64
25	Domestic Institutional Holding	1960	non-null	float64
26	Mutual Fund Holding	1960	non-null	float64
27	Promoter Holding	1960	non-null	float64
28	Foreign Institutional Holding	1960	non-null	float64
29	Retail Investor Holding	1959	non-null	float64
30	Pledged Promoter Holdings	1960	non-null	float64
31	Insurance Firms Holding	1960	non-null	float64
32	No. of Shareholders	1950	non-null	float64
33	Total Revenue	1959	non-null	float64
34	Net Income	1959	non-null	float64
35	PBT	1959	non-null	float64
36	Earnings Per Share	1959	non-null	float64
37	EBITDA	1959	non-null	float64
38	Long Term Investments	1954	non-null	float64
39	Reserves & Surplus	1954	non-null	float64
40	Cash and Equivalent	1954	non-null	float64
41	Book Value	1953	non-null	float64
42	Free Cash Flow	1954	non-null	float64
43	Operating Cash Flow	1954	non-null	float64

dtypes: float64(41), object(3)
memory usage: 687.6+ KB

df.shape

(2000, 44)

df.dtypes

Name	object
Ticker	object
Sub-Sector	object
Market Cap	float64
Close Price	float64
PE Ratio	float64
Return on Equity	float64
Return on Assets	float64
Net Profit Margin	float64
5Y Avg EBITDA Margin	float64
EBITDA Margin	float64
1Y Return vs Nifty	float64
5Y CAGR	float64
Debt to Equity	float64
Long Term Debt to Equity	float64
Net Income / Liabilities	float64

5Y Historical Revenue Growth	float64
5Y Historical EBITDA Growth	float64
5Y Hist Op. Cash Flow Growth	float64
5Y Historical EPS Growth	float64
Forward PE Ratio	float64
Enterprise Value	float64
PB Ratio	float64
Dividend Yield	float64
PE Premium vs Sector	float64
Domestic Institutional Holding	float64
Mutual Fund Holding	float64
Promoter Holding	float64
Foreign Institutional Holding	float64
Retail Investor Holding	float64
Pledged Promoter Holdings	float64
Insurance Firms Holding	float64
No. of Shareholders	float64
Total Revenue	float64
Net Income	float64
PBT	float64
Earnings Per Share	float64
EBITDA	float64
Long Term Investments	float64
Reserves & Surplus	float64
Cash and Equivalent	float64
Book Value	float64
Free Cash Flow	float64
Operating Cash Flow	float64
dtype: object	

```
df["Sub-Sector"].value_counts()
```

Pharmaceuticals	104
Textiles	86
Auto Parts	84
Industrial Machinery	76
Commodity Chemicals	73
...	
Mining - Iron Ore	1
Environmental Services	1
Airports	1
Dredging	1
Soft Drinks	1

Name: Sub-Sector, Length: 137, dtype: int64

```
df['Market Cap'].describe()
```

count	2.000000e+03
mean	1.316900e+04
std	6.659485e+04
min	1.249950e+02

```

25%      3.116762e+02
50%      1.039122e+03
75%      5.041667e+03
max       1.679534e+06
Name: Market Cap, dtype: float64

```

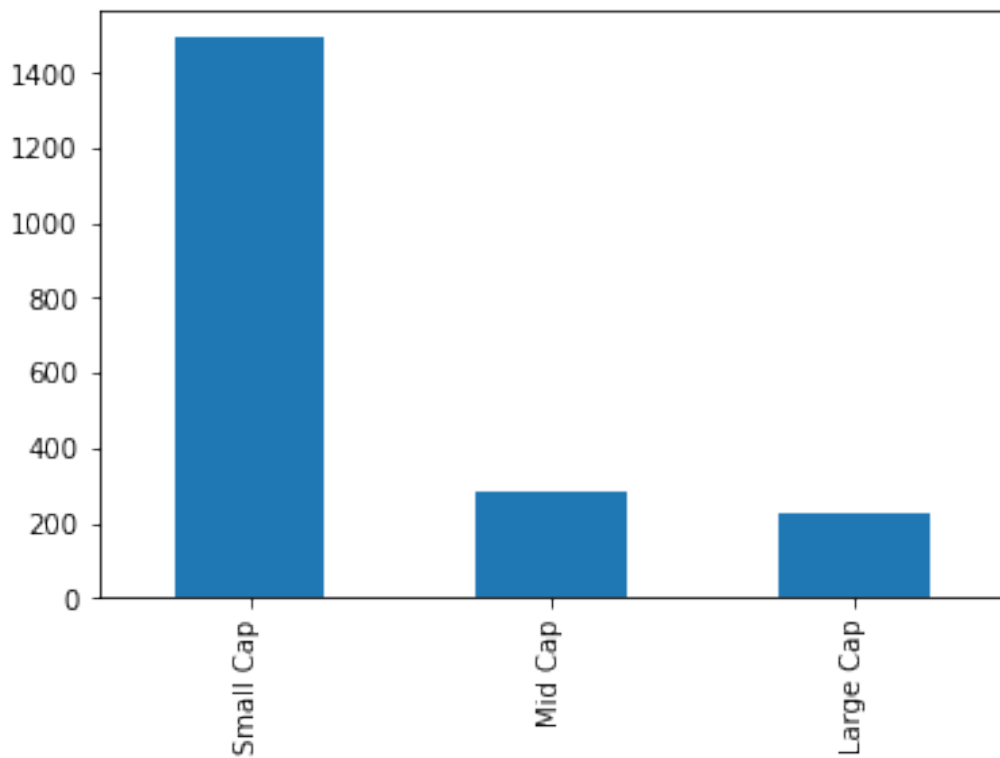
```

labels = ['Small Cap', 'Mid Cap', 'Large Cap']
bins = [0, 5000, 20000, 800000000]
df['Market Cap category'] = pd.cut(df['Market Cap'], bins=bins,
labels=labels)

```

```
df['Market Cap category'].value_counts().plot.bar()
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x23c8dd19880>
```



```
random_company = df.sample(n=10, replace=True)
```

```
random_company
```

	Name	Ticker	\
905	Century Enka Ltd	CENTENKA	
655	JK Tyre & Industries Ltd	JKTYRE	
1346	Om Infra Ltd	OMINFRA	
1257	Tourism Finance Corporation of India Ltd	TFCILTD	
1248	IST Ltd	ISTLTD	
422	Praj Industries Ltd	PRAJIND	
773	Subex Ltd	SUBEXLTD	
431	Astrazeneca Pharma India Ltd	ASTRAZEN	

705	IOL Chemicals and Pharmaceuticals Ltd	IOLCP
251	Timken India Ltd	TIMKEN

	Sub-Sector	Market Cap	Close Price	PE
Ratio \				
905	Textiles	1330.919376	596.00	
18.766489				
655	Tires & Rubber	2759.017010	108.90	
8.639748				
1346	Construction & Engineering	442.034483	44.65	
40.405346				
1257	Specialized Finance	544.042137	58.95	
6.741538				
1248	Industrial Machinery	551.704048	475.00	
5.761320				
422	Construction & Engineering	6853.761279	386.65	
84.562138				
773	Software Services	1964.572738	36.10	
37.984778				
431	Pharmaceuticals	6694.875000	2623.95	
71.756431				
705	Commodity Chemicals	2386.085129	398.40	
5.367296				
251	Industrial Machinery	16538.719138	2224.60	
115.518049				

	Return on Equity	Return on Assets	Net Profit Margin \
905	6.710730	5.448490	5.697209
655	12.270297	2.882952	3.476521
1346	1.765370	0.961070	4.386528
1257	10.445858	3.644451	31.218569
1248	11.090907	10.434328	53.897675
422	10.647452	5.882844	6.092107
773	9.722353	7.368728	13.528289
431	22.739182	12.598999	11.289932
705	42.870437	31.984114	22.325338
251	9.805526	7.400994	10.011048

	5Y Avg EBITDA Margin ...	PBT	Earnings Per Share	
EBITDA \				
905	11.096273 ...	91.75	32.456791	134.18
655	12.511374 ...	534.35	12.969129	1386.89
1346	23.912589 ...	23.83	1.135988	57.38
1257	42.878271 ...	99.81	9.997925	100.96
1248	79.660993 ...	132.79	79.336181	143.96

422	9.487643	...	113.10	4.424260	138.08
773	-0.414656	...	89.37	0.920280	106.69
431	12.953876	...	127.09	37.320000	148.31
705	22.767587	...	571.39	76.918150	616.14
251	18.217321	...	195.05	19.033822	271.37

	Long Term Investments	Reserves & Surplus	Cash and
Equivalent \			
905	13.21	1030.08	348.76
655	147.02	2167.57	173.79
1346	73.53	490.15	48.52
1257	158.72	648.55	18.19
1248	594.58	917.14	20.28
422	39.81	666.95	427.46
773	0.00	114.32	146.73
431	0.00	451.17	352.35
705	0.00	976.00	365.96
251	0.03	733.42	174.21

	Book Value	Free Cash Flow	Operating Cash Flow	Market Cap
category				
905	1088.89	96.09	108.67	Small
Cap				
655	2779.03	1405.35	1598.44	Small
Cap				
1346	623.90	14.01	16.98	Small
Cap				
1257	791.59	-171.52	-171.37	Small
Cap				
1248	923.60	70.89	74.75	Small
Cap				
422	802.51	216.42	225.09	Mid

Cap				
773	548.55	82.33	90.95	Small
Cap				
431	456.17	97.07	104.78	Mid
Cap				
705	1260.43	271.57	379.78	Small
Cap				
251	1343.51	110.43	188.71	Mid
Cap				

[10 rows x 45 columns]

random_company["V(good)"]=(random_company["Earnings Per Share"] * (8.5 + 2*15) * 6) / 7.5

random_company["V(bad)"]=(random_company["Earnings Per Share"] * (8.5 + 2*(-5)) * 6) / 7.5

random_company["V(best)"]=(random_company["Earnings Per Share"] * (8.5 + 2*(25)) * 6) / 7.5

random_company

	Name	Ticker \
905	Century Enka Ltd	CENTENKA
655	JK Tyre & Industries Ltd	JKTYRE
1346	Om Infra Ltd	OMINFRA
1257	Tourism Finance Corporation of India Ltd	TFCILT
1248	IST Ltd	ISTLT
422	Praj Industries Ltd	PRAJIND
773	Subex Ltd	SUBEXLT
431	Astrazeneca Pharma India Ltd	ASTRAZEN
705	IOL Chemicals and Pharmaceuticals Ltd	IOLCP
251	Timken India Ltd	TIMKEN

Ratio \	Sub-Sector	Market Cap	Close Price	PE
905	Textiles	1330.919376	596.00	
18.766489				
655	Tires & Rubber	2759.017010	108.90	
8.639748				
1346	Construction & Engineering	442.034483	44.65	
40.405346				
1257	Specialized Finance	544.042137	58.95	
6.741538				
1248	Industrial Machinery	551.704048	475.00	
5.761320				
422	Construction & Engineering	6853.761279	386.65	
84.562138				
773	Software Services	1964.572738	36.10	
37.984778				
431	Pharmaceuticals	6694.875000	2623.95	
71.756431				

705	Commodity Chemicals	2386.085129	398.40
5.367296			
251	Industrial Machinery	16538.719138	2224.60
115.518049			

	Return on Equity	Return on Assets	Net Profit Margin \
905	6.710730	5.448490	5.697209
655	12.270297	2.882952	3.476521
1346	1.765370	0.961070	4.386528
1257	10.445858	3.644451	31.218569
1248	11.090907	10.434328	53.897675
422	10.647452	5.882844	6.092107
773	9.722353	7.368728	13.528289
431	22.739182	12.598999	11.289932
705	42.870437	31.984114	22.325338
251	9.805526	7.400994	10.011048

	5Y Avg EBITDA Margin \	...	PBT	Earnings Per Share	
905	11.096273	...	91.75	32.456791	134.18
655	12.511374	...	534.35	12.969129	1386.89
1346	23.912589	...	23.83	1.135988	57.38
1257	42.878271	...	99.81	9.997925	100.96
1248	79.660993	...	132.79	79.336181	143.96
422	9.487643	...	113.10	4.424260	138.08
773	-0.414656	...	89.37	0.920280	106.69
431	12.953876	...	127.09	37.320000	148.31
705	22.767587	...	571.39	76.918150	616.14
251	18.217321	...	195.05	19.033822	271.37

	Long Term Investments Equivalent \	Reserves & Surplus	Cash and
905	13.21	1030.08	348.76
655	147.02	2167.57	173.79
1346	73.53	490.15	48.52
1257	158.72	648.55	18.19

1248	594.58	917.14	20.28
422	39.81	666.95	427.46
773	0.00	114.32	146.73
431	0.00	451.17	352.35
705	0.00	976.00	365.96
251	0.03	733.42	174.21

	Book Value	Free Cash Flow	Operating Cash Flow	Market Cap
category				
905	1088.89	96.09	108.67	Small
Cap				
655	2779.03	1405.35	1598.44	Small
Cap				
1346	623.90	14.01	16.98	Small
Cap				
1257	791.59	-171.52	-171.37	Small
Cap				
1248	923.60	70.89	74.75	Small
Cap				
422	802.51	216.42	225.09	Mid
Cap				
773	548.55	82.33	90.95	Small
Cap				
431	456.17	97.07	104.78	Mid
Cap				
705	1260.43	271.57	379.78	Small
Cap				
251	1343.51	110.43	188.71	Mid
Cap				

[10 rows x 45 columns]

```
random_company.plot(x="Name",y=["V(good)","V(bad)","V(best)"],figsize=(16,10))
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x23c8dc13f70>
```

