

Investment Advisor

Python Project

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Introductio n

- Project Overview
- Data Gathering
 - BSE500 5th Sept 2022 Data
 - Income / Expenses Data of a Person
- Data Analysis with **Python and SQL**
- Analysis Results to help the Person for invest in the Good Sector
- Preparation of BSE500 data KPI by using **Tableau** Dashboard

Calculation of Investment Amount of a Person



Analysis of Income / Expense

- Connection of Spreadsheet with G-Spread library to Python
- Calculation of net income / expense
- Updating Values to Spreadsheet using Gspread python

```
Income_Ex1 =Income_Expense[Income_Expense['Income/Expense']=='Income']  
Income_Ex1['INR'].sum()
```

63854.0

```
Income_Ex2 =Income_Expense[Income_Expense['Income/Expense']=='Expense']  
Income_Ex2['INR'].sum()
```

59024.0

Net Income	63854
Net Expense	59024

Analysis Miscellaneous Expenses

- Calculate and update expenses of different Categories to spreadsheet.

```
Income_Ex4 =Income_Expense[Income_Expense['Category']=='Food']  
Income_Ex4['INR'].sum()
```

24502.48

Food	24502.48
Other	46968
Transportation	9203.8
Social Life	2513.72
Household	12188
Apparel	3388
Education	1400
Salary	8000
Allowance	14000
Beauty	196
Gift	115
Petty cash	3

Analyse Available fund for Investment

- Available for investment = Net Income - Net Expense

Net Income	63854
Net Expense	59024

Available for investment	4830
--------------------------	------

```
Final_Report['B'][0]-Final_Report['B'][1]
```

4830

Analysis of BSE500 Data to choose best Stock for Investment



Categorizing Risk-Factors for Investment

```
## Categories into High, Low, Moderate, Risk
```

```
A = BSE['Market Cap(Cr)']
```

```
B = BSE['10-Year Return(%)']
```

```
Risk_Taking=[]
```

```
for i in range(0,501):
```

```
    if A[i]<2000 and B[i]<=8:
```

```
        Risk_Taking.append("High Risk Taking")
```

```
    elif 2000<=A[i]<5000 and 8<B[i]<=15:
```

```
        Risk_Taking.append("Risk Taking")
```

```
    elif 5000<=A[i]<15000 and 15<B[i]<=20:
```

```
        Risk_Taking.append("Moderate Risk Taking")
```

```
    elif A[i]>=18000 and B[i]>20:
```

```
        Risk_Taking.append("Low Risk Taking")
```

```
    else:
```

```
        Risk_Taking.append(" - ")
```

```
## Convert to Array
```

```
l = [str(i) for i in Risk_Taking]
```

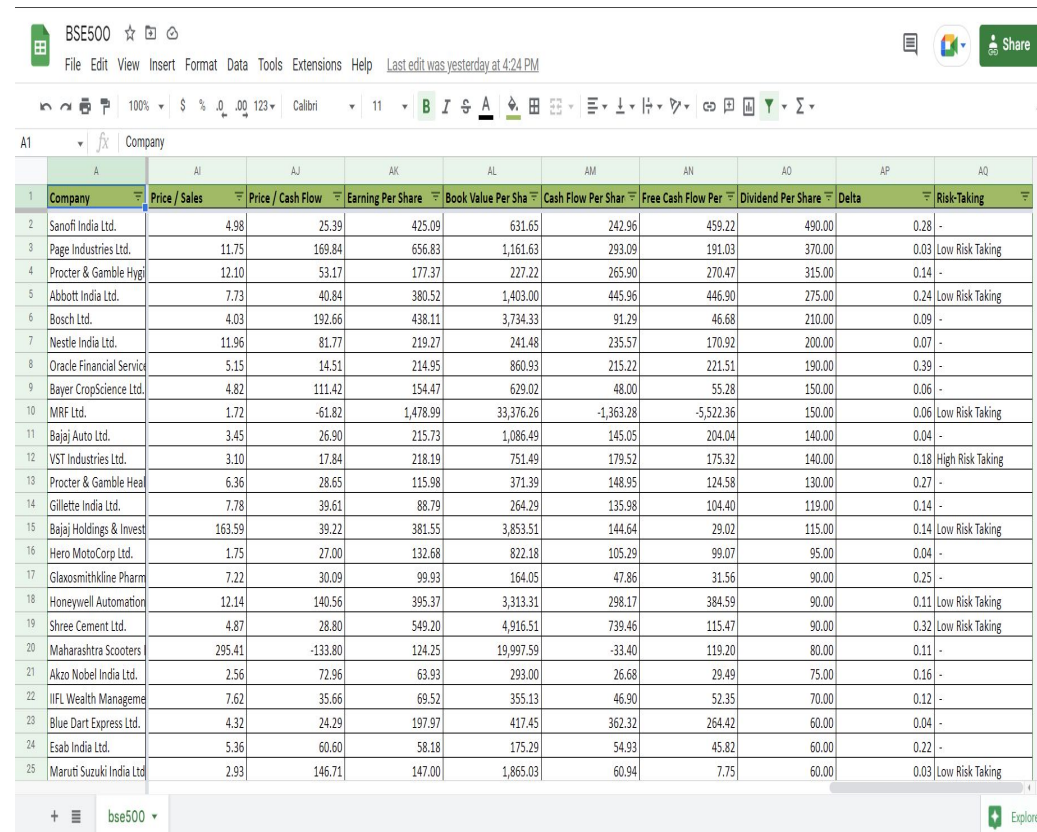
```
l = l[0:501]
```

```
val1 = [[i] for i in l]
```

```
val1
```

```
## Update the worksheet
```

```
worksheet.batch_update({'range':'AQ2:AQ502', 'values' : val1 })
```



Company	Price / Sales	Price / Cash Flow	Earning Per Share	Book Value Per Share	Cash Flow Per Share	Free Cash Flow Per Share	Dividend Per Share	Delta	Risk-Taking
Sanofi India Ltd.	4.98	25.39	425.09	631.65	242.96	459.22	490.00	0.28	-
Page Industries Ltd.	11.75	169.84	656.83	1,161.63	293.09	191.03	370.00	0.03	Low Risk Taking
Procter & Gamble Hygi	12.10	53.17	177.37	227.22	265.90	270.47	315.00	0.14	-
Abbott India Ltd.	7.73	40.84	380.52	1,403.00	445.96	446.90	275.00	0.24	Low Risk Taking
Bosch Ltd.	4.03	192.66	438.11	3,734.33	91.29	46.68	210.00	0.09	-
Nestle India Ltd.	11.96	81.77	219.27	241.48	235.57	170.92	200.00	0.07	-
Oracle Financial Service	5.15	14.51	214.95	860.93	215.22	221.51	190.00	0.39	-
Bayer CropScience Ltd.	4.82	111.42	154.47	629.02	48.00	55.28	150.00	0.06	-
MRF Ltd.	1.72	-61.82	1,478.99	33,376.26	-1,363.28	-5,522.36	150.00	0.06	Low Risk Taking
Bajaj Auto Ltd.	3.45	26.90	215.73	1,086.49	145.05	204.04	140.00	0.04	-
VST Industries Ltd.	3.10	17.84	218.19	751.49	179.52	175.32	140.00	0.18	High Risk Taking
Procter & Gamble Heal	6.36	28.65	115.98	371.39	148.95	124.58	130.00	0.27	-
Gillette India Ltd.	7.78	39.61	88.79	284.29	135.98	104.40	119.00	0.14	-
Bajaj Holdings & Invest	163.59	39.22	381.55	3,853.51	144.64	29.02	115.00	0.14	Low Risk Taking
Hero MotoCorp Ltd.	1.75	27.00	132.68	822.18	105.29	99.07	95.00	0.04	-
Glaxosmithkline Pharm	7.22	30.09	99.93	164.05	47.86	31.56	90.00	0.25	-
Honeywell Automaton	12.14	140.56	395.37	3,313.31	298.17	384.59	90.00	0.11	Low Risk Taking
Shree Cement Ltd.	4.87	28.80	549.20	4,916.51	739.46	115.47	90.00	0.32	Low Risk Taking
Maharashtra Scooters	295.41	-133.80	124.25	19,997.59	-33.40	119.20	80.00	0.11	-
Akzo Nobel India Ltd.	2.56	72.96	63.93	293.00	26.68	29.49	75.00	0.16	-
IIFL Wealth Manageme	7.62	35.66	69.52	355.13	46.90	52.35	70.00	0.12	-
Blue Dart Express Ltd.	4.32	24.29	197.97	417.45	362.32	264.42	60.00	0.04	-
Esab India Ltd.	5.36	60.60	58.18	175.29	54.93	45.82	60.00	0.22	-
Maruti Suzuki India Ltd	2.93	146.71	147.00	1,865.03	60.94	7.75	60.00	0.03	Low Risk Taking

Analyse Top 5 Companies for different Risk-factors

Low Risk Taking

```
Low = BSE[BSE['Risk-Taking']=='Low Risk Taking']['Company'].head()
Low
```

```
## for Low Risk
L = [str(i) for i in Low]
L = L[0:6]
valL = [[i] for i in L]
valL
```

Moderate Risk Taking

```
Moderate = BSE[BSE['Risk-Taking']=='Moderate Risk Taking']['Company'].head()
Moderate
```

```
## for Moderate Risk
m = [str(i) for i in Moderate]
m = m[0:6]
valm = [[i] for i in m]
valm
```

High Risk Taking

```
High = BSE[BSE['Risk-Taking']=='High Risk Taking']['Company'].head()
High
```

```
## for High Risk
h = [str(i) for i in High]
h = h[0:6]
valh = [[i] for i in h]
valh
```

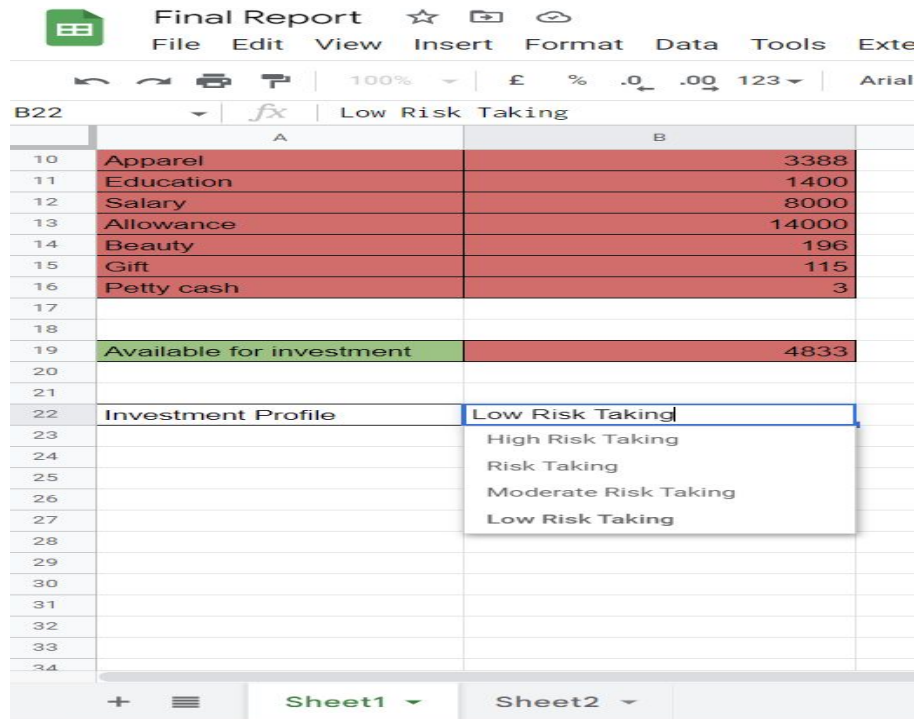
Risk Taking

```
Risk = BSE[BSE['Risk-Taking']=='Risk Taking']['Company'].head()
Risk
```

```
## for Risk only
r = [str(i) for i in Risk]
r = r[0:6]
valr = [[i] for i in r]
valr
```

Update Spreadsheet Based on Selected Metrix

- Calculate and update top 5 companies with investment amount where the money need to be invested as per the Investment Profile.



The screenshot shows a spreadsheet application with a menu bar (File, Edit, View, Insert, Format, Data, Tools, Extensions) and a toolbar. The active sheet is 'Sheet1'. The table has two columns, A and B. Column A lists various expenses, and column B shows their amounts. The 'Investment Profile' dropdown is currently set to 'Low Risk Taking'.

	A	B
10	Apparel	3388
11	Education	1400
12	Salary	8000
13	Allowance	14000
14	Beauty	196
15	Gift	115
16	Petty cash	3
17		
18		
19	Available for investment	4833
20		
21		
22	Investment Profile	Low Risk Taking
23		High Risk Taking
24		Risk Taking
25		Moderate Risk Taking
26		Low Risk Taking
27		
28		
29		
30		
31		
32		
33		
34		

Update the worksheet with Selected Dropdown List

```
if (worksheet3.cell(22,2).value == 'Low Risk Taking'):
    worksheet4.batch_update([{'range':'B2:B6', 'values' : valL }])
elif (worksheet3.cell(22,2).value == 'High Risk Taking'):
    worksheet4.batch_update([{'range':'B2:B6',
                              'values' : valh }])
elif (worksheet3.cell(22,2).value == 'Moderate Risk Taking'):
    worksheet4.batch_update([{'range':'B2:B6',
                              'values' : valm }])
elif (worksheet3.cell(22,2).value == 'Risk Taking'):
    worksheet4.batch_update([{'range':'B2:B6',
                              'values' : valr }])
```

Calculation of Investment Amount

```
## Checking the count of element for each criteria w.r.t top 5
if 0<l1<=5:
    X = Final_Report_sheet1['B'][(17)/11]
elif l1>5:
    X = Final_Report_sheet1['B'][(17)/5]
else:
    X=0
```

```
## Replace value coloumn to NA if no is listed in the selected criteria
p=['NA','NA','NA','NA','NA']
u = [i for i in p]
u=u[0:6]
valu = [i for i in u]
valu
```

```
## Checking equal amount to invest coloumn w.r.t no.of.companies
if 0<l1<=5:
    Available = np.ones(11,dtype=int)*int(X)
elif l1>5:
    Available = np.ones(5,dtype=int)*int(X)
else:
    Available=valu
```

```
## disteibute equal amount to invest coloumn w.r.t no.of.companies
Z = [str(i) for i in Available]
Z = Z[0:6]
valZ = [[i] for i in Z]
valZ
```

```
## update worksheet with invest amount
worksheet4.batch_update(['range':'C2:C6','values':valZ])
```

Final Report ☆ Saving...

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100% £ % .0 .00 123 Default (Ari... 18 B I S A

	A	B	C
1	S.No.	Investment Company	Amount to be invested
2	1	Page Industries Ltd.	966
3	2	Abbott India Ltd.	966
4	3	MRF Ltd.	966
5	4	Bajaj Holdings & Investment Ltd.	966
6	5	Honeywell Automation India Ltd.	966
7			
8			
9			
10			
11			
12			
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20			
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22			
23			

+ ≡ Sheet1 Sheet2



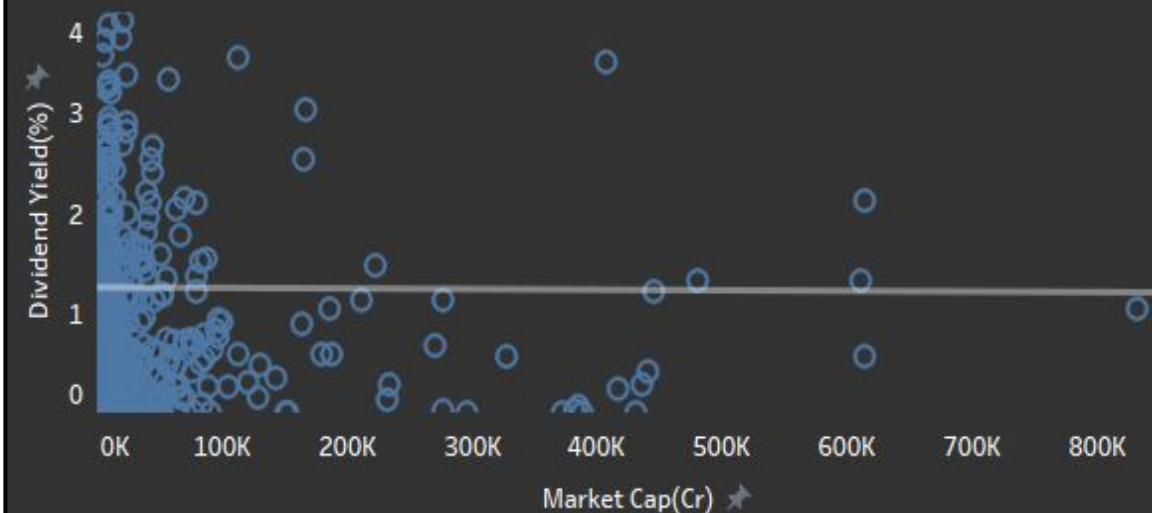
BSE500 STOCKS PERFORMANCE DASHBOARD 5 SEPT



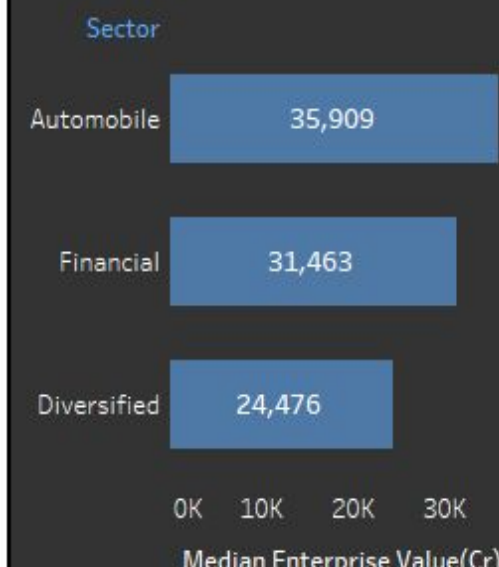
Top-5 Gainers & Top-5 Loser



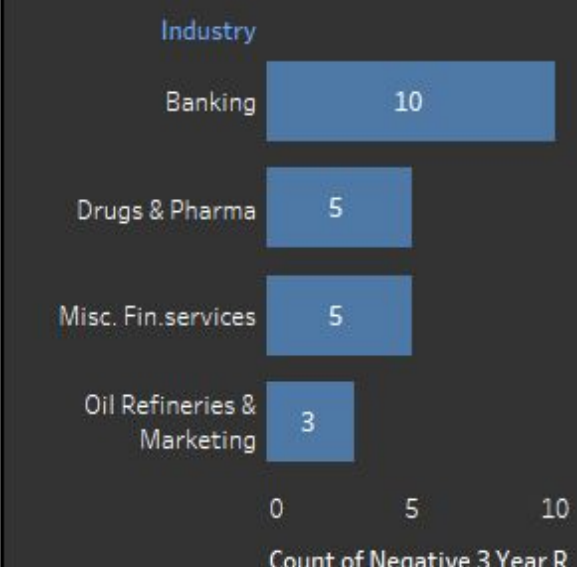
Correlation Between Dividend and Market Cap



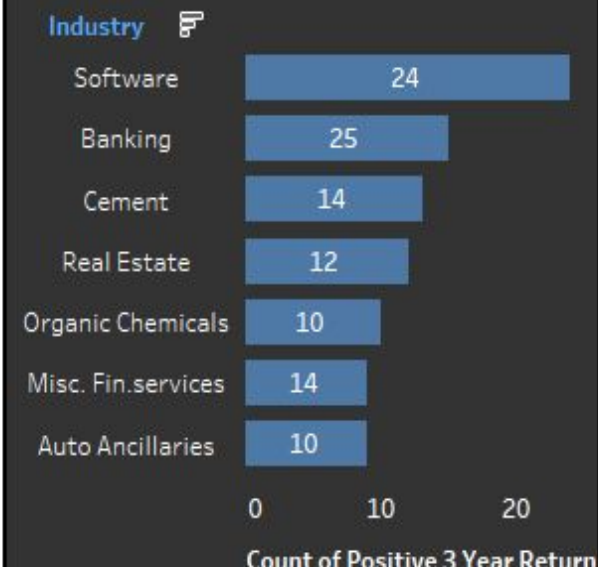
Median Enterprise Value



Negative 3 year Return



Positive 3 year Return

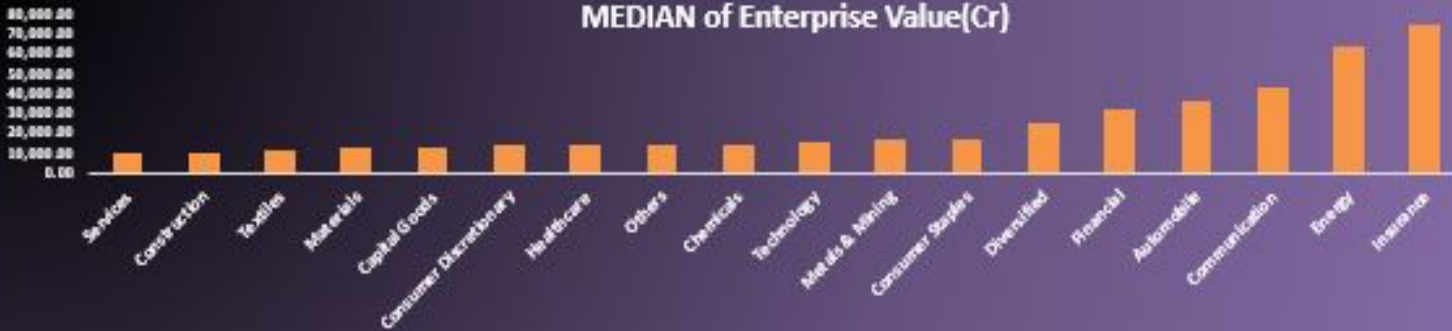


Sectorwise Companies with Maximum 1 Year Return

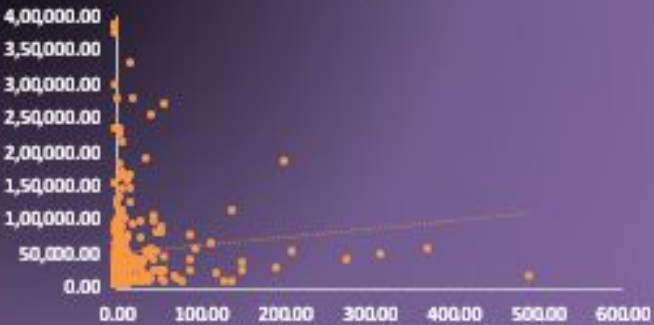
Sector	Company	Maximum 1 Year Return
Diversified	SRF Ltd.	25.8%
Consumer Discretionary	Blue Star Ltd.	41.5%
Chemicals	Gujarat Narmada Valley Fertilizers & Chemicals Ltd.	121.2%
Others	Bharat Dynamics Ltd.	110.1%
Metals & Mining	Welspun Corp Ltd.	116.8%
Automobile	TVS Motor Company Ltd.	92.1%
Financial	Bank Of Baroda	69.0%
Construction	Mahindra Lifespace Developers Ltd.	95.2%
Insurance	SBI Life Insurance Company Ltd.	4.0%
Capital Goods	Elgi Equipments Ltd.	170.1%
Healthcare	Narayana Hrudayalaya Ltd.	37.3%
Services	The Indian Hotels Company Ltd.	117.4%
Textiles	Trident Ltd.	72.8%
Technology	Brightcom Group Ltd.	99.5%
Energy	Adani Power Ltd.	277.9%
Materials	Borosil Renewables Ltd.	86.5%
Consumer Staples	Shree Renuka Sugars Ltd.	88.8%
Communication	Tata Teleservices (Maharashtra) Ltd.	270.8%

BSE500 Stocks Performance Dashboard

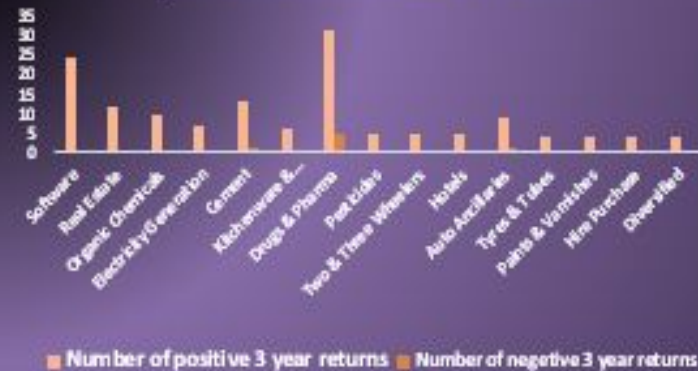
MEDIAN of Enterprise Value(Cr)



Correlation Between Divident And Market Cap



Negative and Positive three Year Return



Top 5 Gainers & Top 5 Losers



Final KPI vs Company

Ruchi Soya Industries...	2.173923
Tata Teleservices...	2.170068039
Adani Power Ltd.	1.840429553
Adani Enterprises Ltd.	1.533732349
Adani Transmission Ltd.	1.499257646
Sanofi India Ltd.	1.497655641
Brightcom Group Ltd.	1.474757863
Power Finance...	1.287419961
Elgi Equipments Ltd.	1.234266329
Adani Green Energy Ltd.	1.208748357
Deepak Fertilisers &...	1.118174713
Gujarat Narmada Vall...	1.083884677
Tanla Platforms Ltd.	1.061109465
Adani Total Gas Ltd.	1.04404104
Tata Elsi Ltd.	1.043496504
Info Edge (India) Ltd.	1.033067909
Saregama India Ltd.	1.0280434
Bajaj Holdings &...	0.999271236
KEI Industries Ltd.	0.998756995
Trident Ltd.	0.995610221
Schaeffler India Ltd.	0.993363869
Capri Global Capital Ltd.	0.986275695
Varun Beverages Ltd.	0.981538493
Shree Renuka Sugars...	0.977967059
Mahindra Lifespace...	0.973880089
Timken India Ltd.	0.967865389
JK Paper Ltd.	0.962144157
The Indian Hotels...	0.961259828
Tata Power Company...	0.956843576
SRF Ltd.	0.945736623
Procter & Gamble...	0.934369306
APL Apollo Tubes Ltd.	0.926426285
Unde India Ltd.	0.92485918
Indian Railway Financ...	0.921672165

Sector



Automobile

Capital Goods

Chemicals

Communication

Construction

Consumer Dis...

Consumer Sta...

Diversified

Energy

Financial

Healthcare

Insurance

Materials

Metals & Mining

Others

Services

Technology

Textiles

Conclusion and Insights

Sectorwise Companies with Maximum 1 Year Return

Sector	Company	Maximum_1 _Year_Retur
Diversified	SRF Ltd.	25.8%
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Metals & Mining	Welspun Corp Ltd.	116.8%
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Financial	Bank Of Baroda	69.0%
Construction	Mahindra Lifespace Developers Ltd.	95.2%
Insurance	SBI Life Insurance Company Ltd.	4.0%
Capital Goods	Elgi Equipments Ltd.	170.1%
Healthcare	Narayana Hrudayalaya Ltd.	37.3%
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Communication	Tata Teleservices (Maharashtra) Ltd.	270.8%

Conclusion and Insights

- 1). Suzlon Energy Ltd company having highest return on 5th Sept I.e. 19.89%.
- 2). The Great Eastern Shipping Company Ltd having lowest return on 5th Sept.
- 3). Energy Sector is giving more Dividend in BSE500.
- 4). Adani Group of Companies is having more Price to Earning.
- 5). MRF Ltd share price 84,254 is Highest share price.
- 6). If considered one year return Adani Power is giving 277.9% return.
- 7). MMTC Ltd. Company is under performance from last 10 year.
- 8). Reliance Industries Ltd. has the largest market capitalization, which aids investors in selecting the company that can match their risk and diversification requirements.

Reference

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- [Python Ipython file link](#)
- [Tableau Dashboard Link](#)
- [SQL Analysis Link](#)
- [Income / Expenses Data file link](#)
- [Fine Report Data File link](#)
- [BSE500 Data File Link](#)
- [Excel Analysis](#)