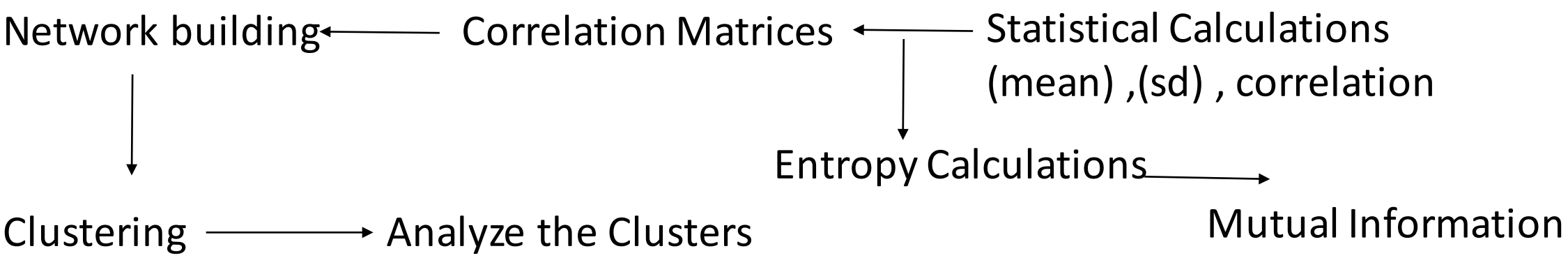
Model Dynamics of Financial Market and Network Analysis of Financial data

- Aim : Project focuses on analyzing inter and Intraday stock trading to understand the correlation motion of stock prices/Volume and better ways to estimates volatilty

- Short term : Estimate the stock movement and how it influences the market
- Broader Impact:

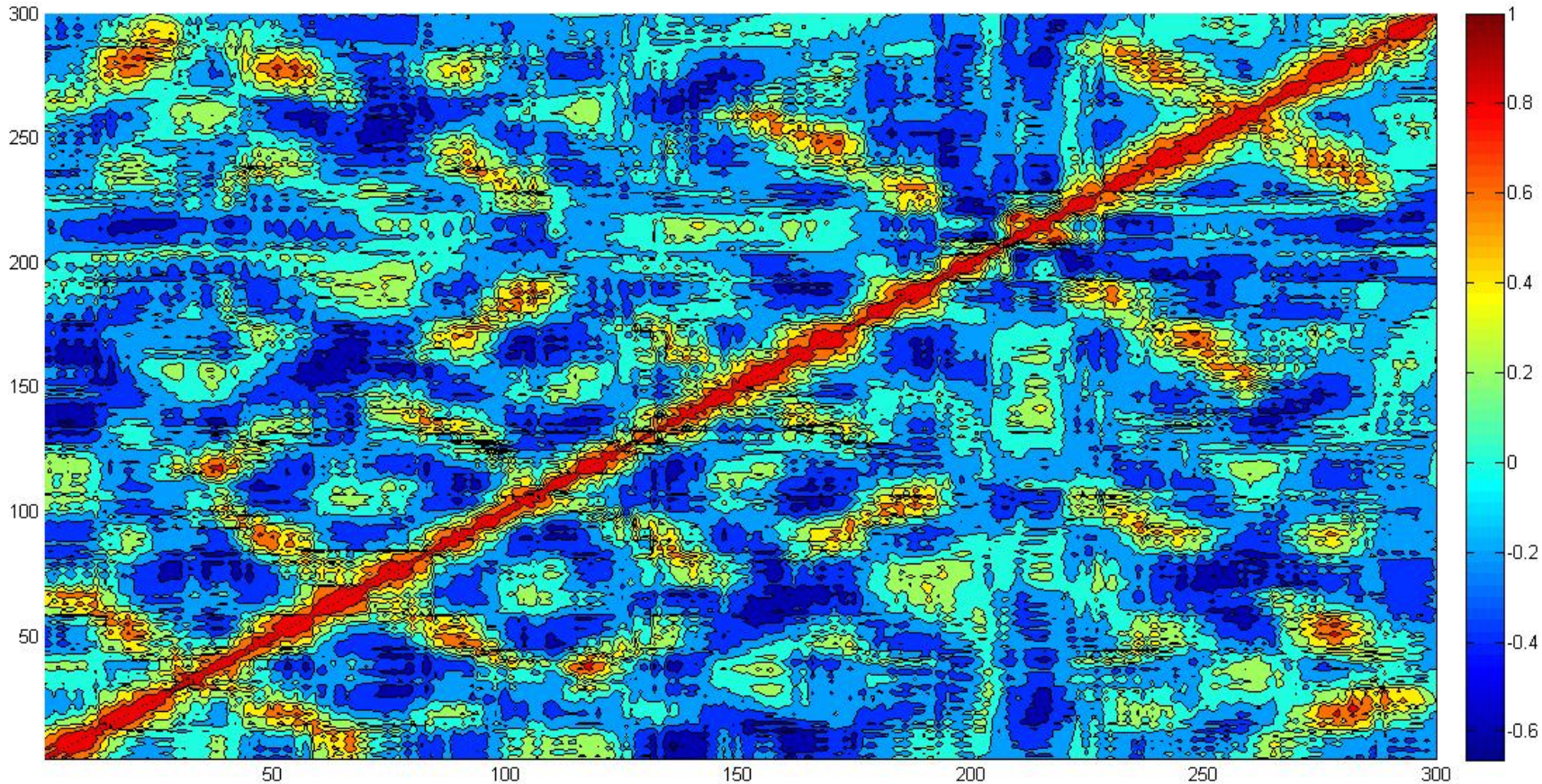
Work-Pipeline

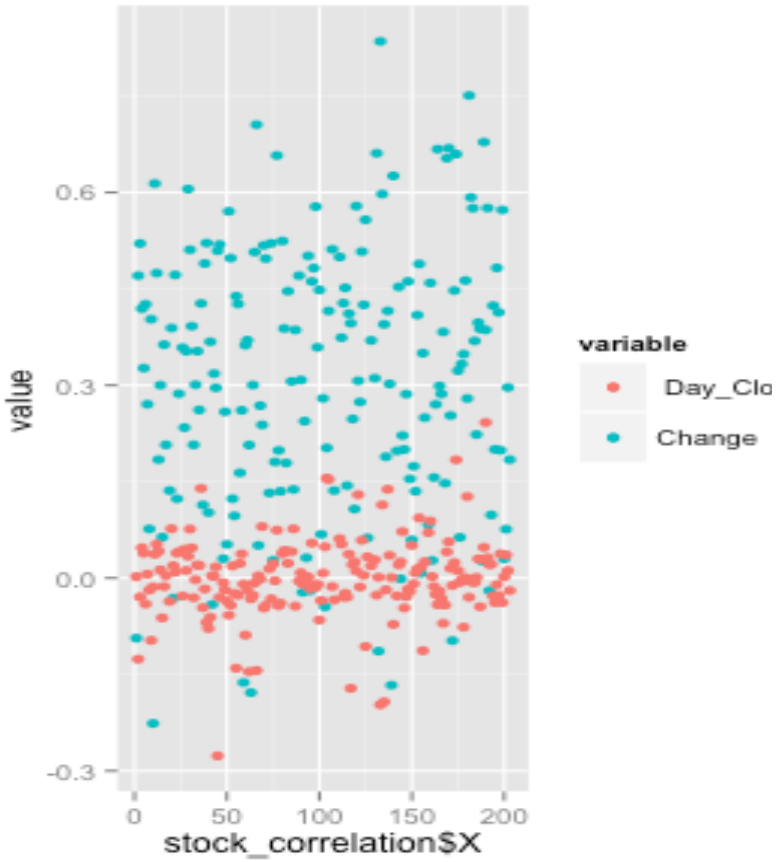
- DATABASE-------Obtain data → Process data → Identify variables to analyze

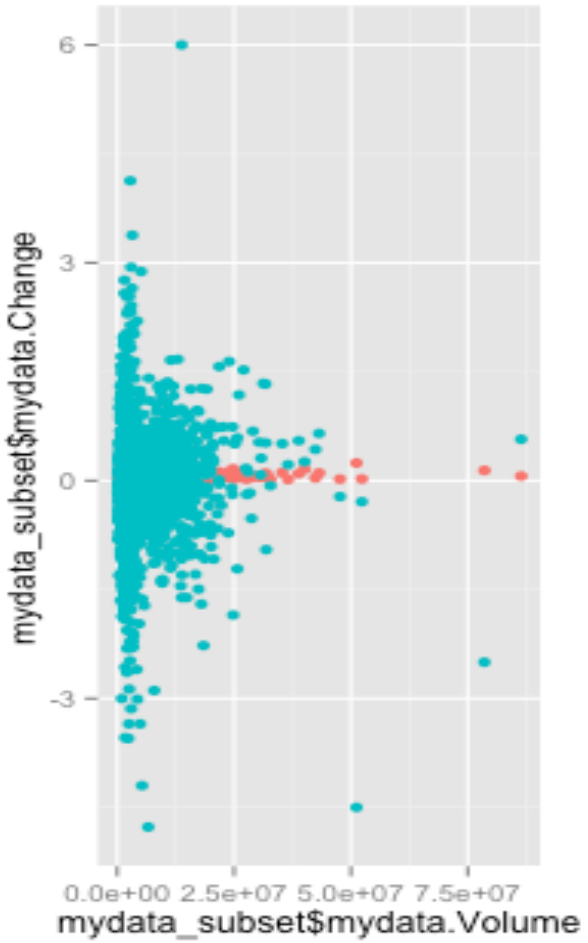


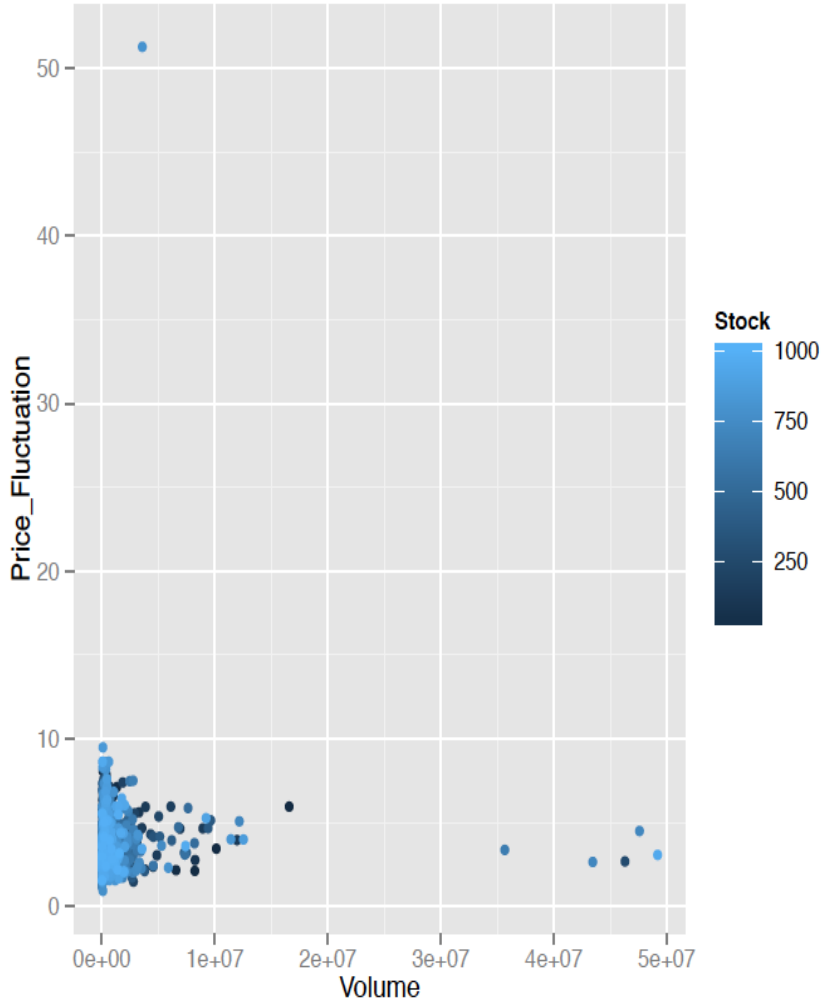
Preliminary-Work

- Initially 200 stocks were downloaded using API in R (Quandl database was used)
- Data was Subset to Get Change in the price ,Date, Change in Closing and Opening price as well as Volume traded
- Correlation plots between the Volume traded and Fluctuations and correlation between
- Entropy Calculation of the Fluctuation were computed using shannon entropy formula and came out to be 5.438636 for (one digit after decimal
-)


300
250
200
150
100
50
50
100
150
200
250
300
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6


value
0.6
0.3
0.0
-0.3
0
50
100
150
200
stock_correlation$X
variable
Day_Clo
Change


mydata_subset$mydata.Change
6
3
0
-3
0.0e+00
2.5e+07
5.0e+07
7.5e+07
mydata_subset$mydata.Volume
variable
Change
DayClosi


Price_Fluctuation
50
40
30
20
10
0
0e+00
1e+07
2e+07
3e+07
4e+07
5e+07
Volume
Stock
1000
750
500
250

Future works

- Construction of network on Correlation data
- Clustering Girvan–Newman algorithm ,k-mean clustering
- Compute multivariate entropy.
- Sector based approach to link Twitter Fianncial Sentimentadata and clustering of Fluctuations