Predicting Market Volatility And Building Short Term Trading Strategies Using Data From Redits WallStreetBets

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INTRODUCTION

- In stock market there are lot of risk,we can’t take all risk ,we can take only calculated risk.
- Here in this project we will analysis Redit WallStreetBets (WSB) data and try to building short term trading strategies.
- The main objective is to find the how strongly correlation between stock price and number of comments,total score of post,a time stamp etc.

DATA SET

- We used data set which is present on Kaggle ,that consists scrapped post data from the WSB.
- From Past 5 years worth of stock price data were gathered for different technology companies(Tesla,Gamestop,AMC).

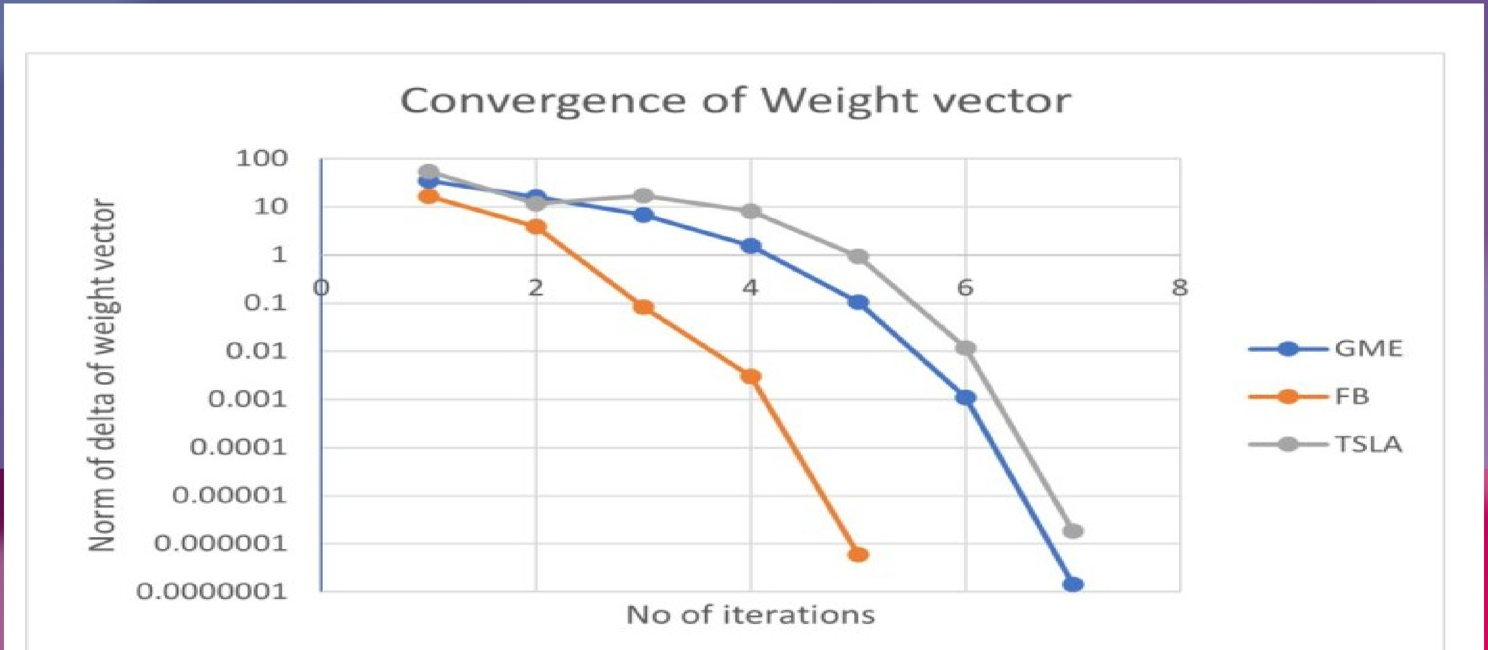
date	open	high	low	close	volume	Name
2013-02-08	15.07	15.12	14.63	14.75	8407500	AAL
2013-02-11	14.89	15.01	14.26	14.46	8882000	AAL
2013-02-12	14.45	14.51	14.1	14.27	8126000	AAL
2013-02-13	14.3	14.94	14.25	14.66	10259500	AAL
2013-02-14	14.94	14.96	13.16	13.99	31879900	AAL
2013-02-15	13.93	14.61	13.93	14.5	15628000	AAL
2013-02-19	14.33	14.56	14.08	14.26	11354400	AAL
2013-02-20	14.17	14.26	13.15	13.33	14725200	AAL

FEATURES

- After the pre processing of WSB data(remove NAN, url, special character,single character).
- Focus on GME(Game shop) ,AMC(AMC Theatres) and tesla.
- Calculate the post score,total comments,length of post,positive sentiment,neutral sentiment,negative sentiment,bias.

MODEL IMPLEMENTATION

- **Linear Regression** → We can apply standard linear regression with the standard least mean square errors.
- **Neural Network** → Three Layers of neural network can be used.



RESULTS

- AS compared to the random baseline a large improvement is clearly visible comparing the logistic regression and neural network test accuracy ,we can see that the logistic representation accuracy for Tesla is high logistic regression for AMC never converged with our criteria.

Stock	NN Test Accuracy	LogReg Test Accuracy	Baseline accuracy
TSLA	0.64	0.740	0.532
AMC	0.819	(N/A)	0.42
GME	0.844	0.719	0.527
FB	0.693	0.68	0.42

CONCLUSION AND FUTURE WORK

- WallStreetBets(WSB) post do have an impact on the actual stock price.
- Neural network was more reliable than a simple logistic regression.
- By parameter tuning or adding some more layer or using efficient activation function we can improve our results.