Trade For Me

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Supervisors

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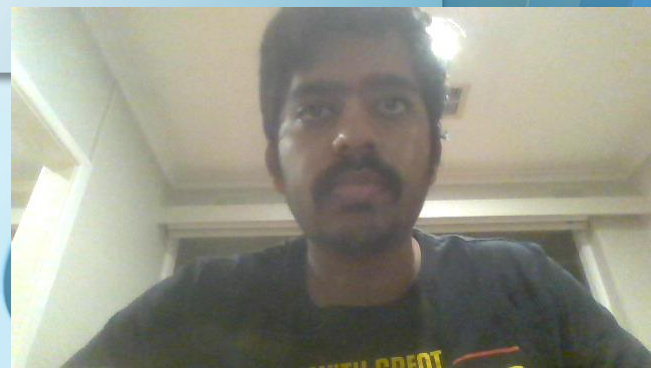
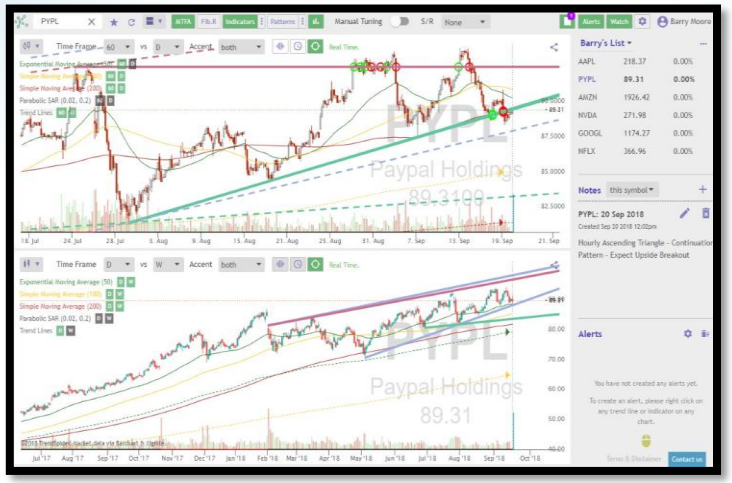
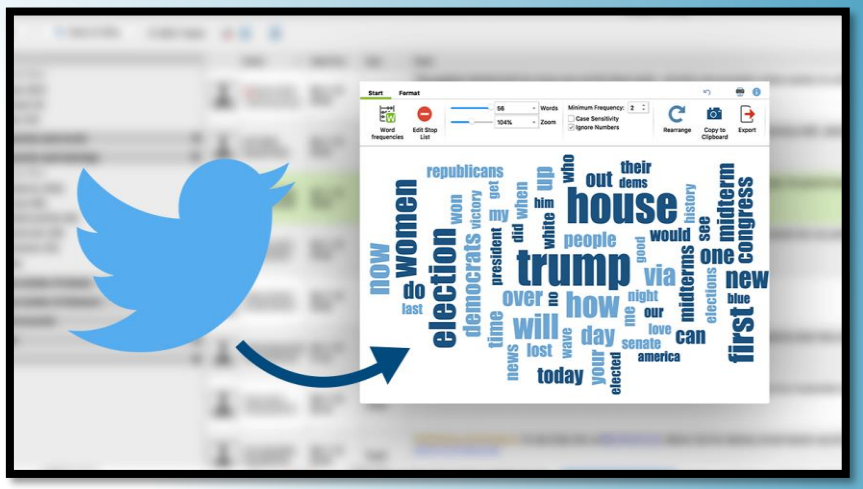
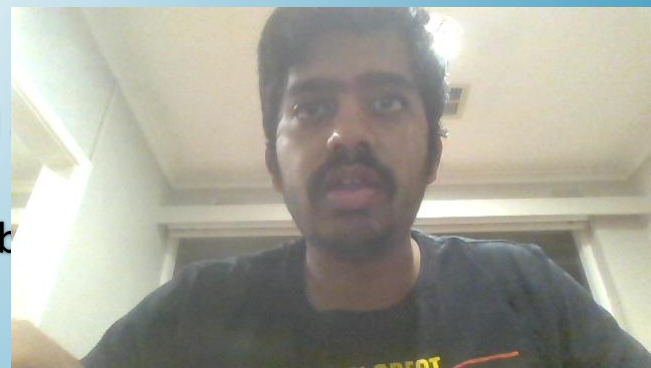


Overview



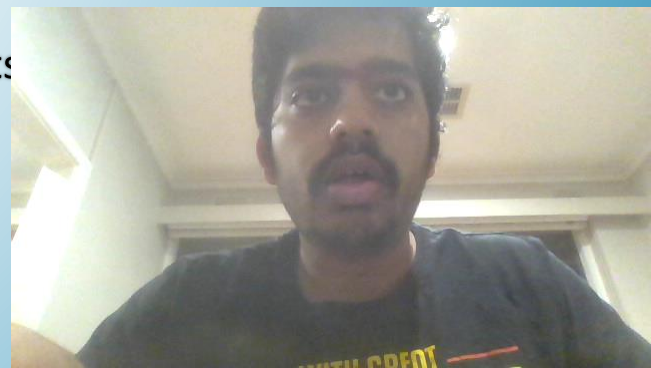


- Often it is very confusing to take a decision on how and when to trade shares
- Trading consultants use human expertise and ML based algorithms for decision making
- Twitter sentiment analysis allows us to predict possible trade options
- This project TFM (Trade For Me)
  - Calculates the reliability of twitteratis based on correlation between their tweets and share prices
  - Suggests investors in trading decisions by considering the latest tweets from the reliab



TFM overall design

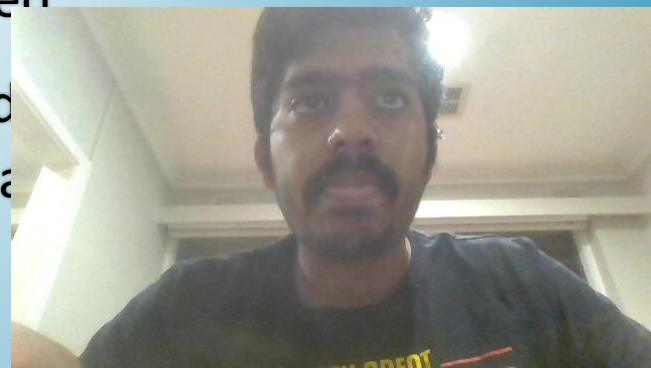
- The TFM GUI maintains two level of users (Admin, customer)
- **Admin** type user can
  - Create / Delete / Modify users
  - Create / Delete / Modify sectors and companies
  - Do sentiment analysis and identifies reliable twitteratis
- **Customer** type user can
  - specify the investment amount and request for trading suggestions
  - Display the companies on which the investment can be made based on recent tweets
  - Place the order for the trading



TFM critical operations …1/2

When Admin requests to **Get Reliable Twitteratis** (Ref 3.3) for a given sector, program will

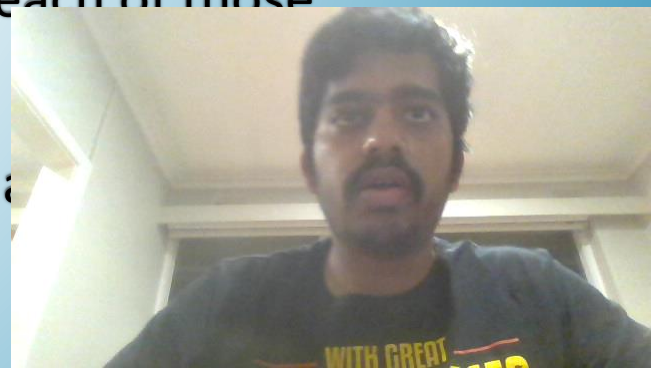
1. Fetch all the company names for specified sector and display
2. Fetch all the tweets for specified duration
3. Filter the tweets relevant for specified company or for companies of specified sector
4. Fetch the stock price historical data for associated companies of given sector
5. For each of the day within specified duration, correlation factor between tweets from a given twitterati and share price variation shall be calculated
6. The average of correlation factors for all the days within specified
stored in Correlation table for each Twitterati and for each compa



TFM critical operations …2/2

When Customer requests to **Get Trading Suggestions** (Ref 3.4) for a given sector, program will

1. Get the investment (USD) available from the customer.
2. Fetch the Correlation entries from Correlation table for specified sector.
3. If a company has more than one reliable Twitterati, the entry corresponding to Maximum Correlation_Factor shall be chosen.
4. Depending on the investment limit and current share price of the chosen companies, displays the companies for trading
5. Customer can specify the number of shares to be purchased for each of those companies and submit the form.
6. TFM system shall submit the purchase request if the investment a sufficient



Architecture Diagram

Intraday, Short Term, Delivery

Company Name (CN), Investment Duration (ID)

Twitter DB

Get Tweeter names, Follower count, Tweets, Time of tweet related to CN for last 1 year

1(lowest), … 5(highest)

Rank the Tweeters based on Follower count (RNK)

Get CN's stock performance for last 1 year

Stock Exch DB

Calculate the Prediction Efficiency (PE) of each tweeter

Filter out the tweeters, whose Prediction Efficiency (PE) > 50%

Get the Suggestion (SGN) from each tweeter (t=1,N) in last x days

N = Count of selected tweeters

-1(SELL), 0(None), 1(BUY)

Calculate the Suggestion Index (SI) = $(\sum_{t=1}^{N} SGN_t * RNK_t)$ / N

If SI > Threshold

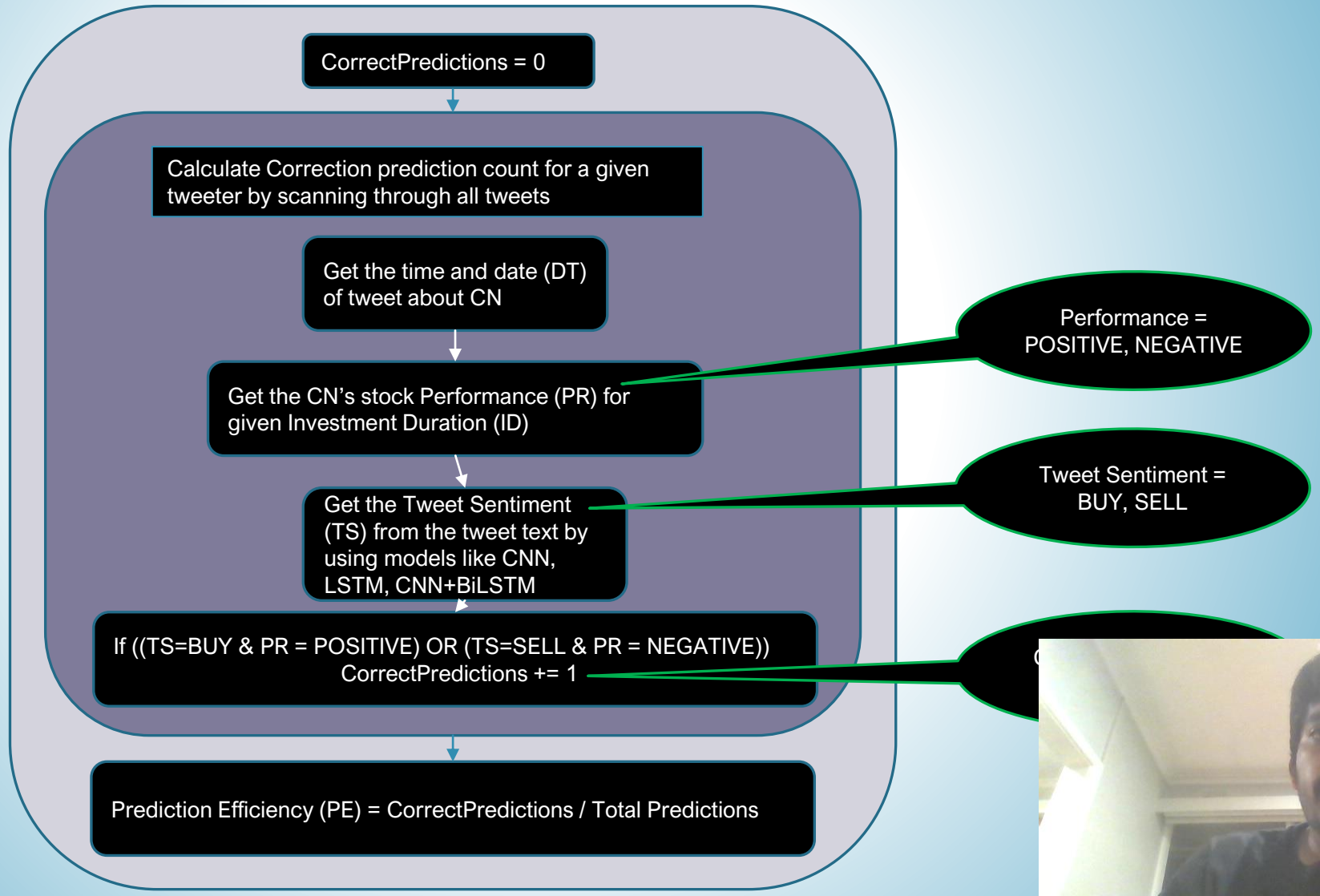
YES

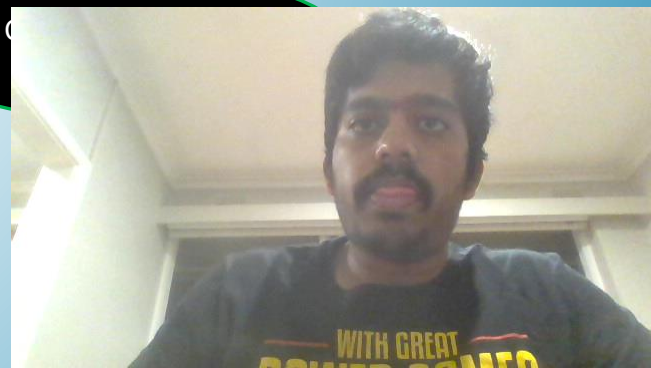
BUY

NO

NO

Prediction Efficiency Calculation

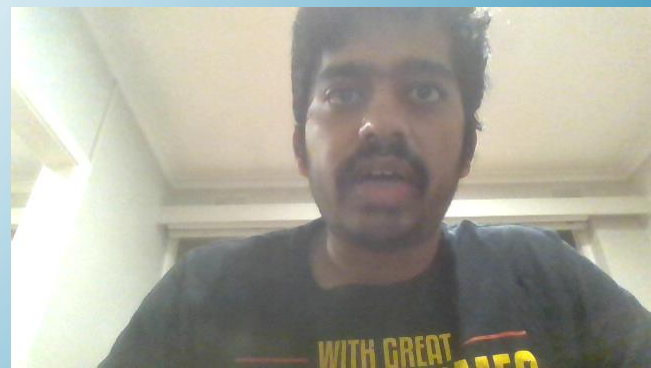




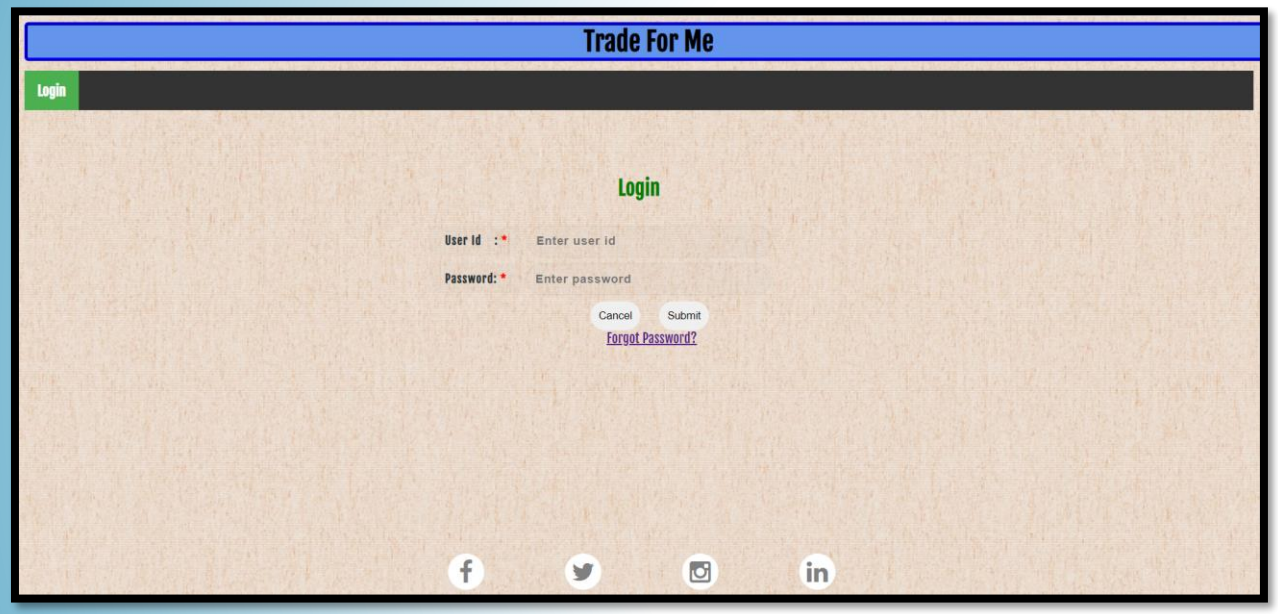
Database design

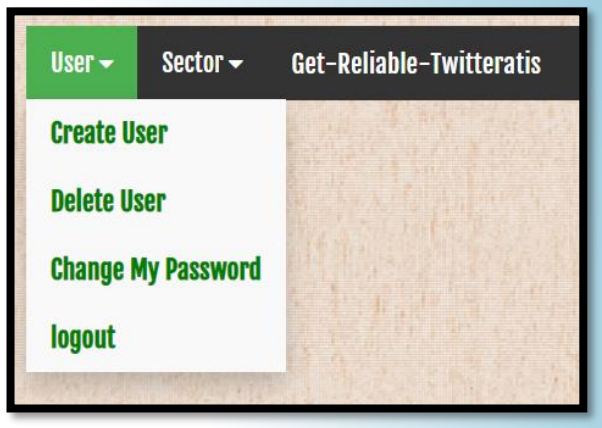
Database Tables

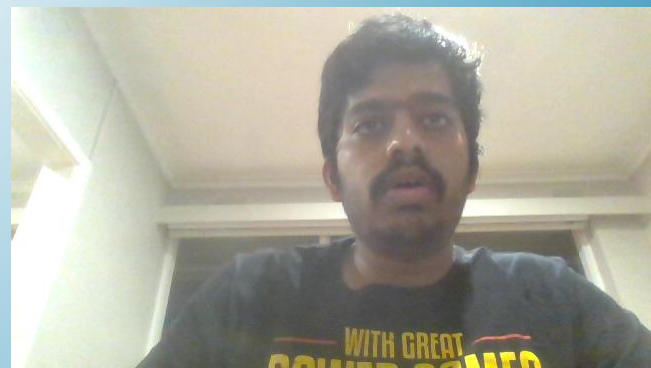
- Twitterati Info
- Twitter data Info
- Sector Info
- Company Info
- Stock Data
- Correlation Data



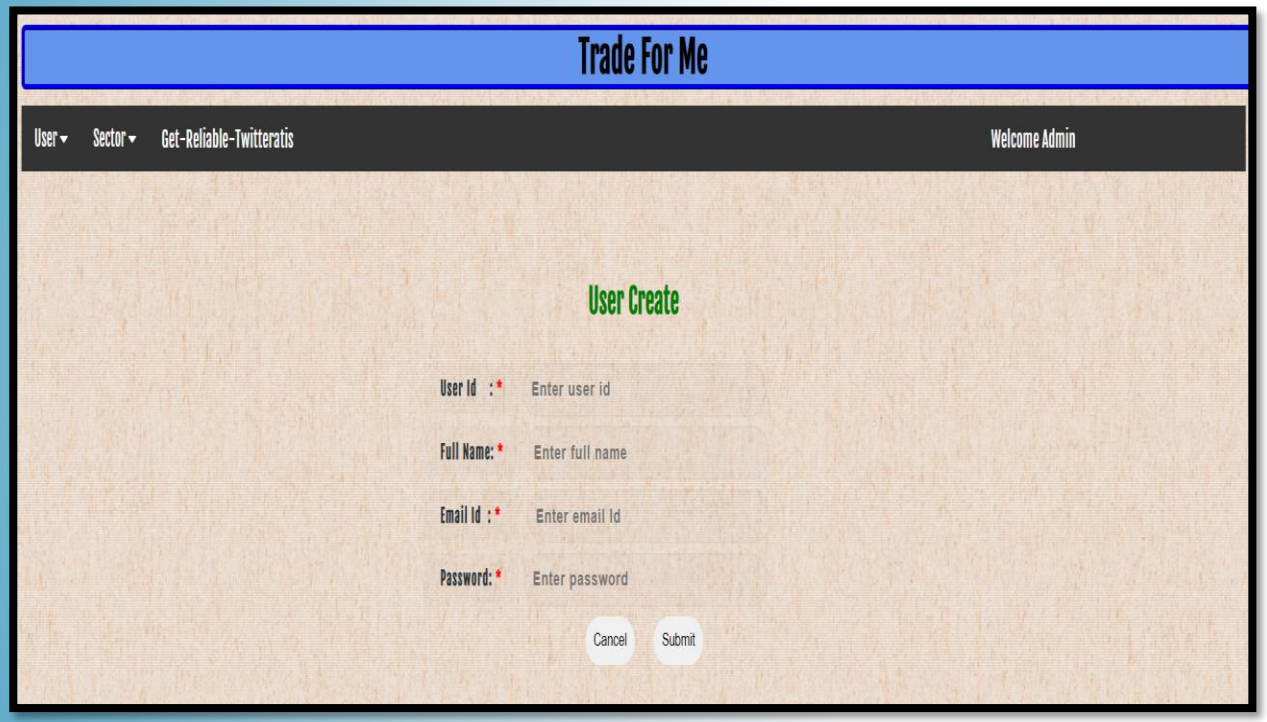
User interface: Login

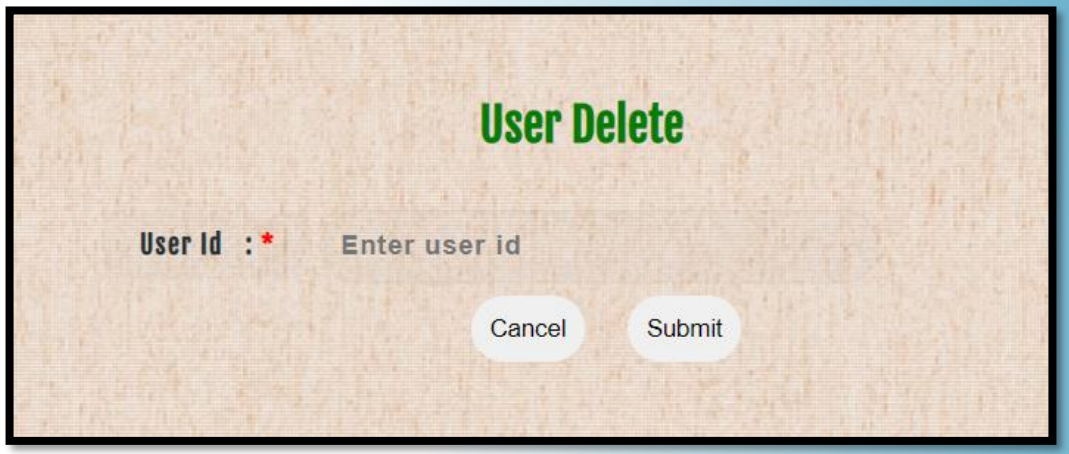


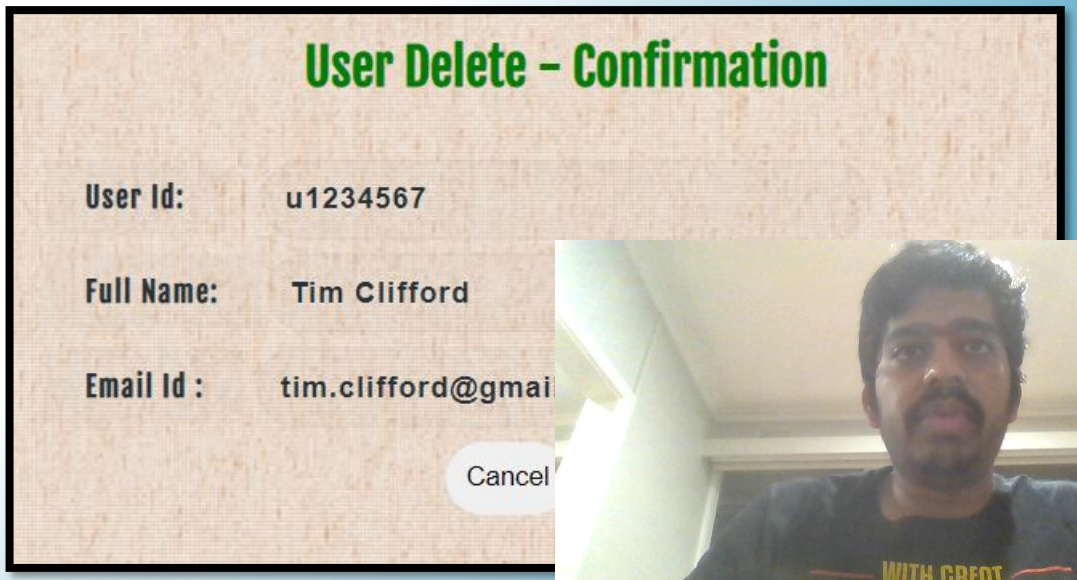




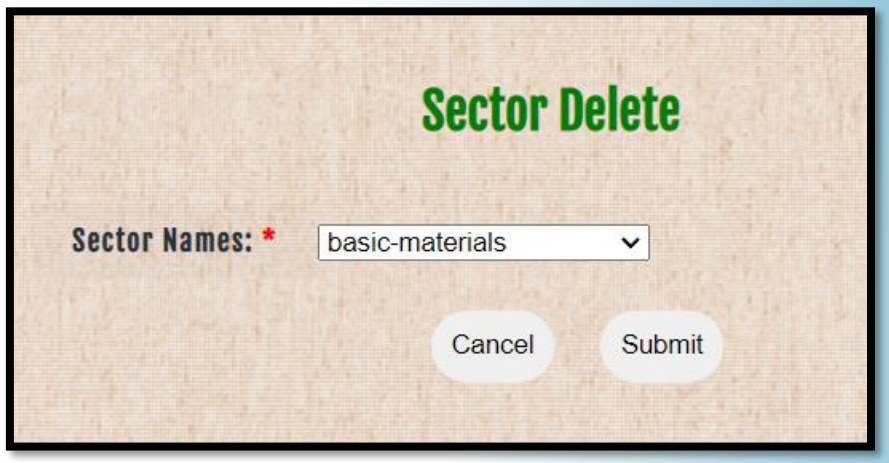
User interface: User management



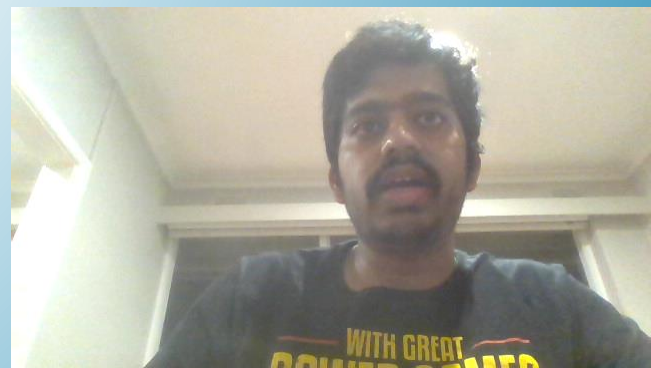




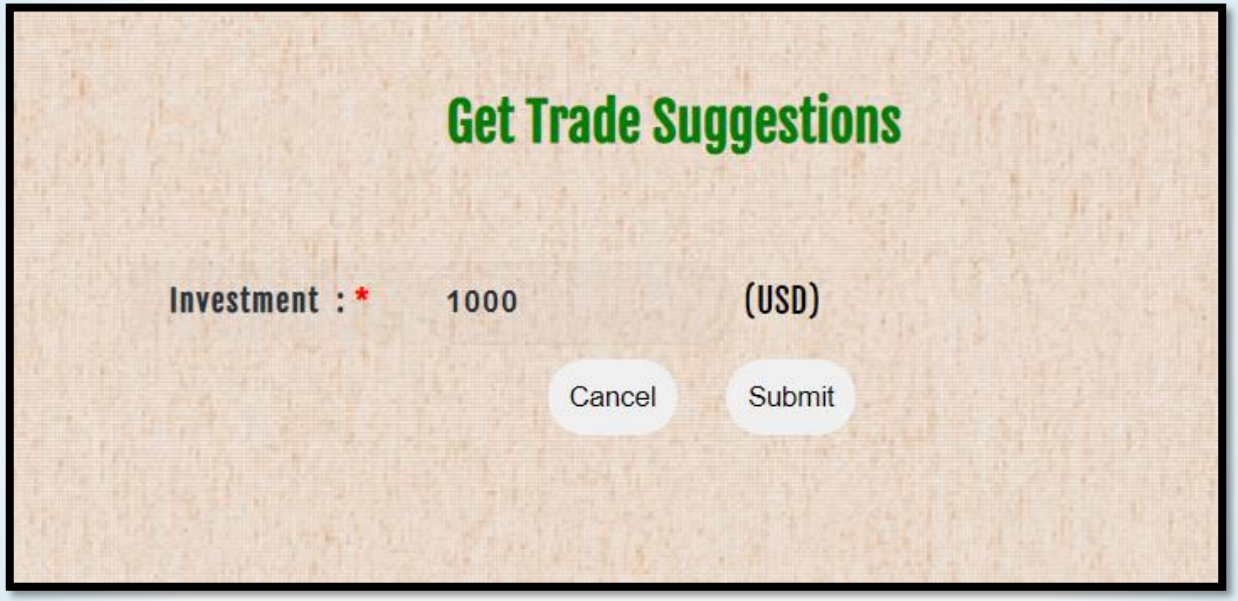
User interface: Sector management

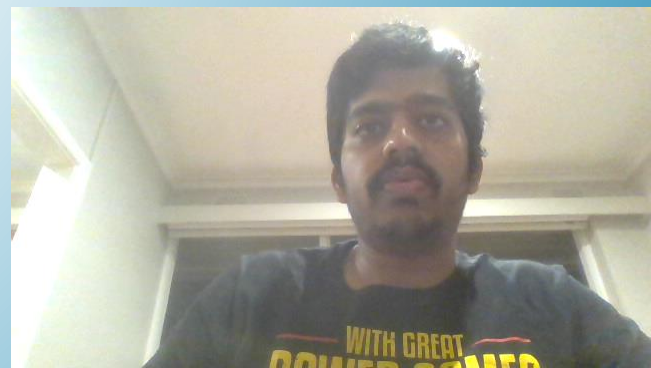


User interface: Get reliable twitteratis



User interface – Investment specification



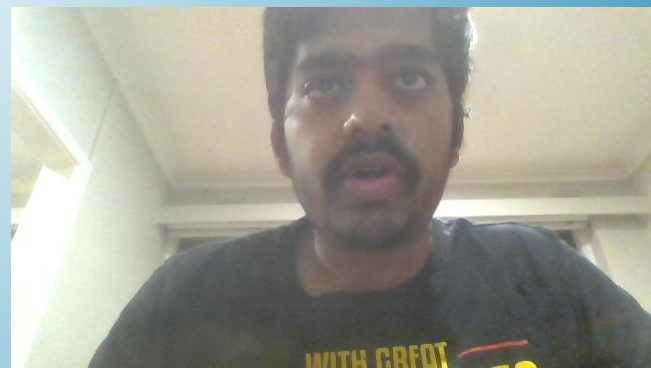


User interface: Trade suggestions

Get Trade Suggestions

Sector Name	Company Name	Number of shares	Current market price	Highest Correlation factor
technology	Apple Inc	5	134.76	100

Cancel Submit

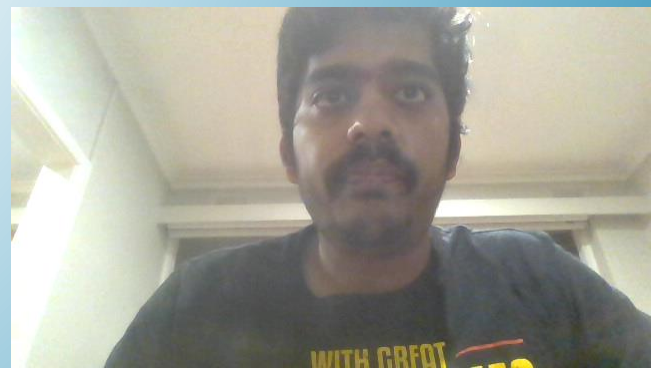


User interface: Trade confirmation

Buy Shares

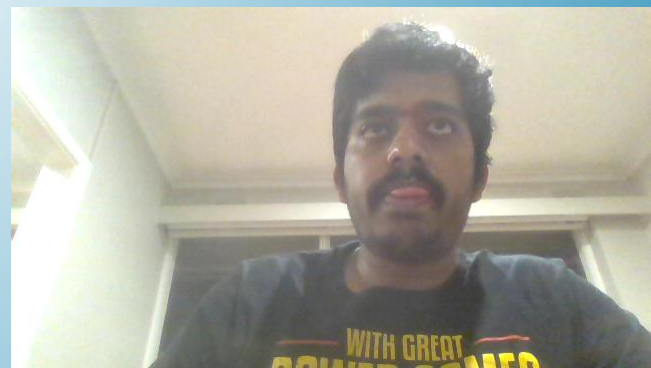
Total cost = 673.8 USD

Good news!
System had sent the BUY request for selected shares.



Future extensions

- To improve the precision of the strategy, more complex algorithms such as Restnet and VGG16 can be employed. Text classification is a possible area for improvement. Here, the strategy may result in the temporary loss of a user. Hence, there is need for improvement.
- When there are no tweets about a company from users with high score in recent times, the previous prices of shares of that company are used to make predictions about the future share prices. Various models like LSTM, RNN, CNN, BiLSTM, Arima are used for time series forecasting. A bar plot comparing the root mean squared error of those models is as follows.



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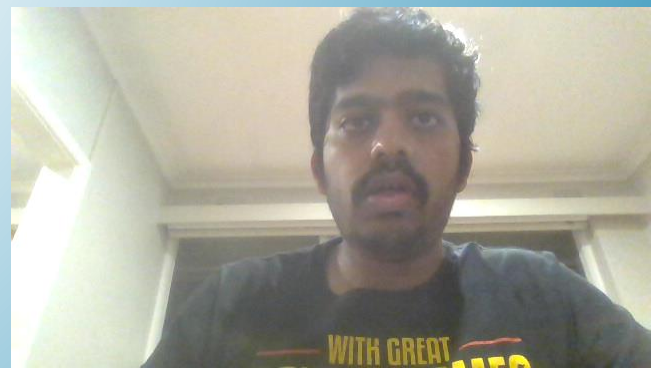

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Thank you