RUTGERS
THE STATE UNIVERSITY
OF NEW JERSEY

Web Based Stock Forecaster

Group 2
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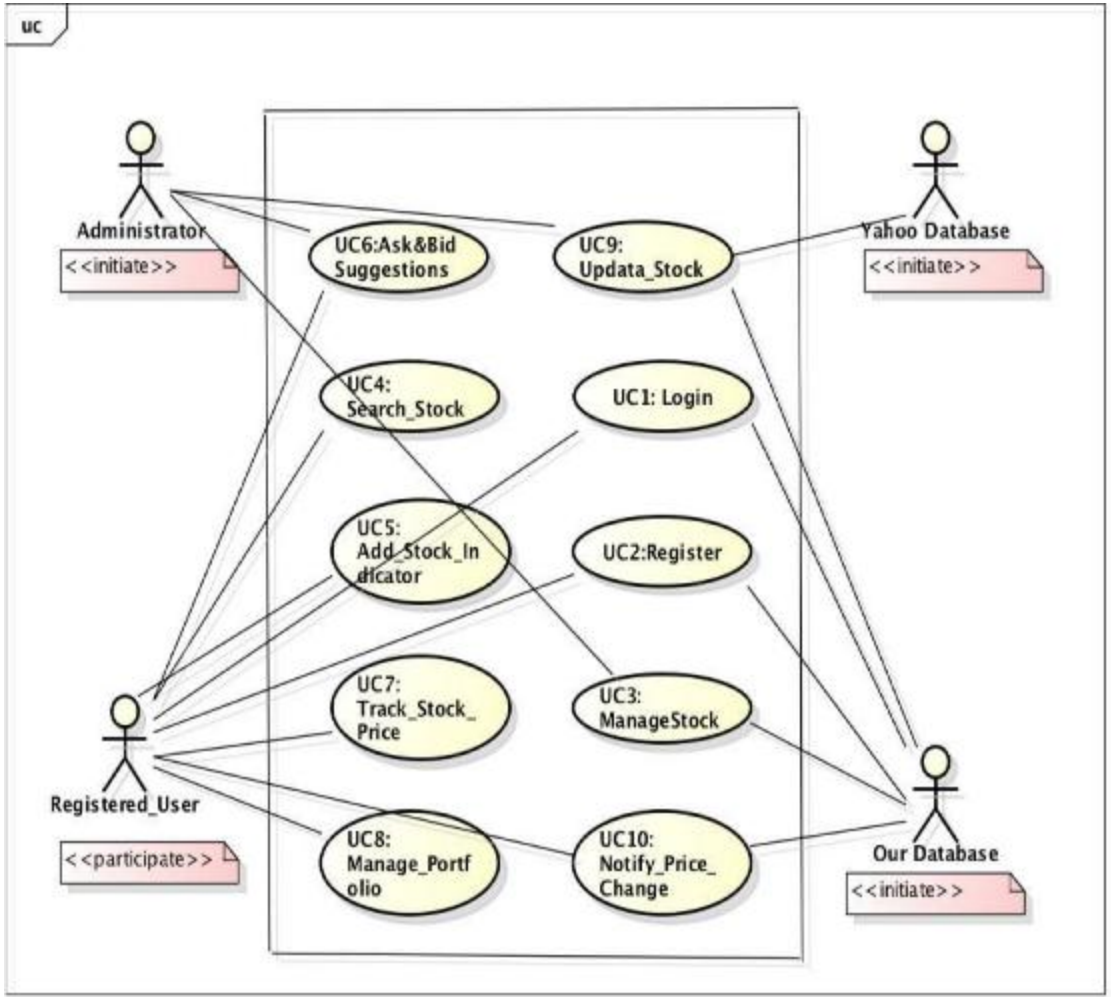
Contribution Breakdown

	Chaoran Fu	Kai Kang	Yu Sun	Yue Wu	Wuyang Zhang
Extract Data	20%	20%	20%	20%	20%
Retrieve Data	20%	20%	20%	20%	20%
Build Database	20%	20%	20%	20%	20%
Short-term Predict	20%	20%	20%	20%	20%
Long-term Predict	20%	20%	20%	20%	20%
Algorithm Implementation	20%	20%	20%	20%	20%
Web Interface	20%	20%	20%	20%	20%

Use Case



UC-1: Login

UC-2: Register

UC-3: Manage Stock

UC-4: Search Stock

UC-5: Add Stock Indicator

UC-6: Suggest Ask or Bid

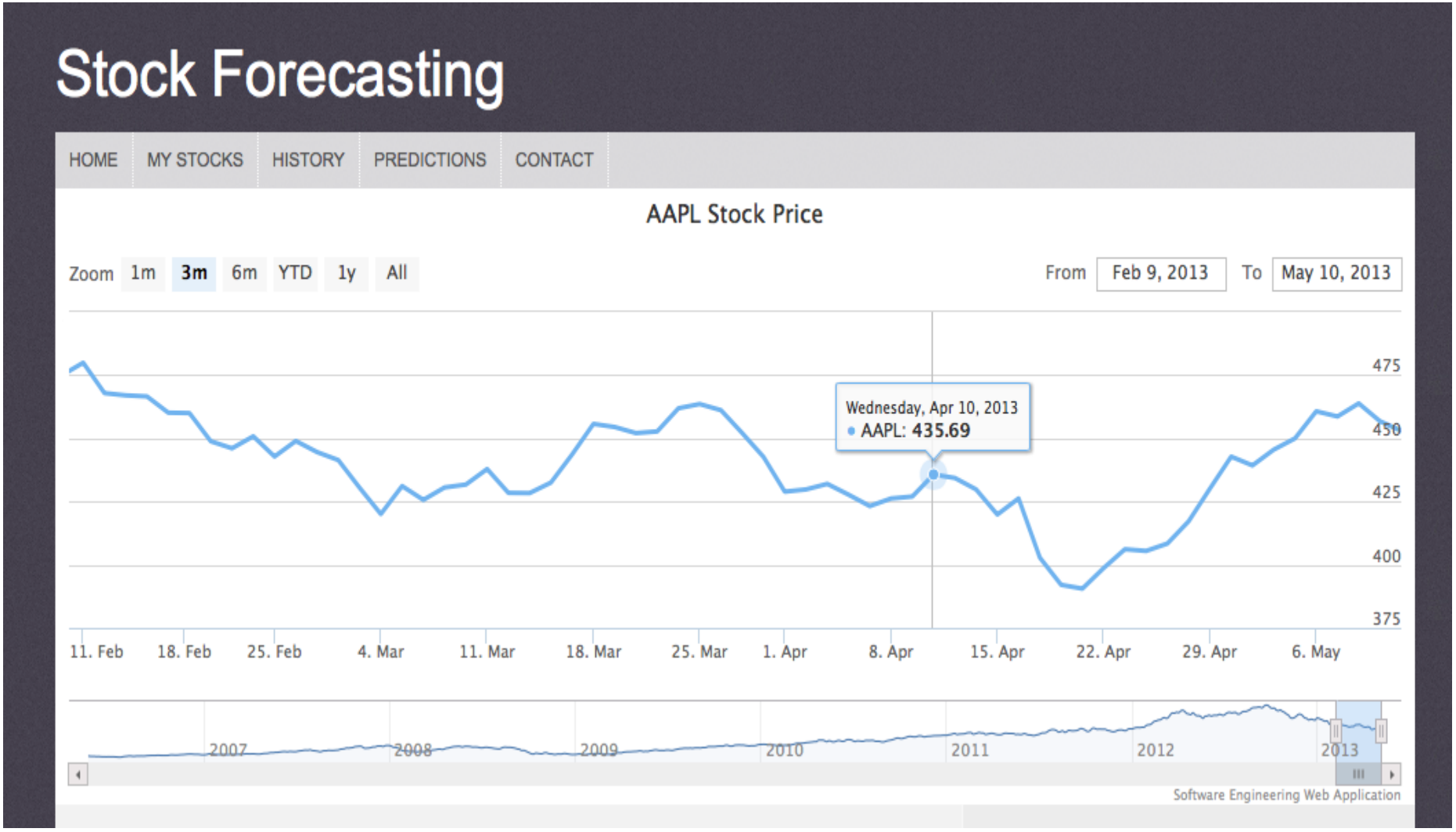
UC-7: Track Stock Price

UC-8: Manage Portfolio

UC-9: Update Stock Price

UC-10: Notify Price Change

Web Service Interface



Prediction Strategy--SVM

1. Scale source data and predict data

amazonData

```
380.66  1:384.31        2:387.12        3:381.32        4:382.65        5:2572000
374.66  1:380.66        2:384.42        3:378.8         4:383.54        5:2388400
376.15  1:374.66        2:381.58        3:374.65        4:381.2         5:2633900
370.1   1:376.15        2:379.31        3:374.03        4:374.41        5:1950200
370.5   1:370.1         2:380.2         3:369.36        4:377.04        5:3043500
372.1   1:370.5         2:373.28        3:369           4:372.25        5:1867100
373.24  1:372.1         2:373.16        3:368.34        4:370.26        5:2451100
371.87  1:373.24        2:377.7         3:371.51        4:372.1         5:2501100
367.11  1:371.87        2:376.12        3:371.55        4:374.59        5:1811800
369.59  1:367.11        2:373.17        3:366.57        4:370.56        5:2603800
375.17  1:369.59        2:371.4         3:365.65        4:367.35        5:2926400
373.99  1:375.17        2:380.5         3:370.29        4:370.96        5:3377200
378.07  1:373.99        2:375.24        3:372.27        4:374.09        5:2224000
376.29  1:378.07        2:381.77        3:374.94        4:375.11        5:2235300
373.87  1:376.29        2:379.37        3:375.92        4:378.49        5:3729900
369.97  1:373.87        2:377.11        3:372.19        4:373.24        5:1911400
371.11  1:369.97        2:375.99        3:366.7         4:375.14        5:2654100
370.38  1:371.11        2:374.5         3:369.64        4:371.92        5:2037000
371.52  1:370.38        2:373.94        3:366.72        4:373.35        5:2354100
368.82  1:371.52        2:373.99        3:366.68        4:370.58        5:2611700
370.61  1:368.82        2:375.5         3:367.52        4:374.24        5:2810000
377.45  1:370.61        2:373.35        3:366.26        4:366.37        5:2495100
378.4   1:377.45        2:377.77        3:369.18        4:369.51        5:3121000
385.52  1:378.4         2:379.33        3:375.28        4:378.56        5:2311400
385.61  1:385.52        2:387           3:378.88        4:380.09        5:2627000
385.71  1:385.61        2:388.42        3:383.89        4:387.83        5:2693500
383.95  1:385.71        2:387.9         3:382.19        4:382.72        5:2259100
380.85  1:383.95        2:386.1         3:381.6         4:384.61        5:1946500
384     1:380.85        2:385.9         3:379.48        4:385.66        5:2139200
384.07  1:384   2:385.99        3:379.79        4:380.16        5:2532300
```

amazon source data

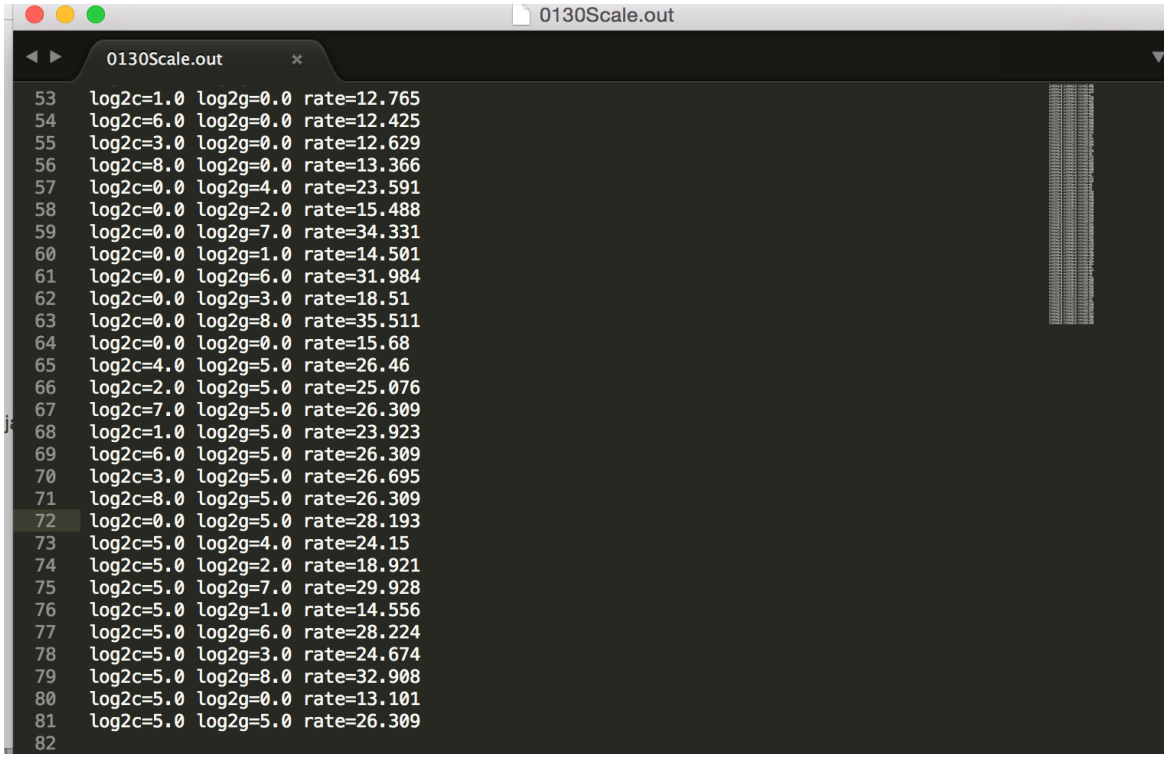
amazonDataScale

```
380.66 1:0.9861810285263056 2:0.9772612430520465 3:0.9742716988687556 4:0.9486518636003172
5:0.04736307363163148
374.66 1:0.9501529957556021 2:0.9499747347145023 3:0.9490439483431777 4:0.9574742268041241
5:0.03914547741279994
376.15 1:0.8909288322969109 2:0.9212733703890852 3:0.90749824807288 4:0.9342783505154639
5:0.05013360307578002
370.1 1:0.9056361662224854 2:0.8983324911571501 3:0.9012914205626187 4:0.866970658207772
5:0.019532456371993932
370.5 1:0.8459184680683056 2:0.9073269327943404 3:0.854539993993393 4:0.8930412371134024
5:0.06846654104546085
372.1 1:0.8498667456322182 2:0.8373926225366344 3:0.850936029632596 4:0.8455590800951627
5:0.015813054161836516
373.24 1:0.8656598558878693 2:0.836179888832744 3:0.8443287616378015 4:0.8258326724821571
5:0.04195181337642051
371.87 1:0.8769124469450206 2:0.8820616472966143 3:0.8760636700370408 4:0.8440721649484539
5:0.04418972084342256
367.11 1:0.8633895962886193 2:0.8660939868620515 3:0.8764641105215739 4:0.8687549563838223
5:0.013337928503332245
369.59 1:0.8164050932780578 2:0.8362809499747348 3:0.826609270197217 4:0.8288065027755751
5:0.04878638278064479
375.17 1:0.8408844141743164 2:0.8183931278423443 3:0.8173991390529581 4:0.7969865186360036
5:0.06322536175774204
373.99 1:0.8959628861908996 2:0.9103587670540677 3:0.863850235258785 4:0.8327716098334654
5:0.08340233548023257
378.07 1:0.8843154673773569 2:0.857200606366852 3:0.8836720392431674 4:0.8637985725614591
5:0.03178723766129718
376.29 1:0.9245878985292667 2:0.9231935320869123 3:0.9104014415857444 4:0.8739095955590804
5:0.03229300474883964
373.87 1:0.9070180633698554 2:0.8989388580090955 3:0.9202122334568028 4:0.9074147501982556
5:0.09918053475246506
```

amazon source scale data

Prediction Strategy--SVM

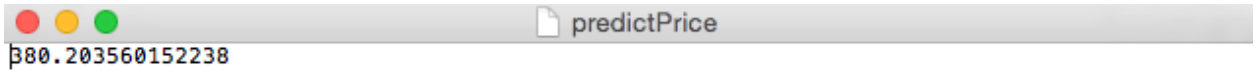
2. Constructing predict model



Find best parameters gama and cost

Prediction Strategy--SVM

3. Predict new prices based on model



Indicator – Accumulation Distribution Line (ADL)

The Accumulation Distribution Line (ADL) is a cumulative measure of each period's volume flow, or money flow.

The basic function is as below:

1. Money Flow Multiplier = [(Close - Low) - (High - Close)] /(High - Low)

2. Money Flow Volume = Money Flow Multiplier x Volume for the Period

3. ADL = Previous ADL + Current Period's Money Flow Volume

Indicator – On Balance Volume(OBV)

On Balance Volume measures buying and selling pressure as a cumulative indicator that adds volume on up days and subtracts volume on down days.

The basic function is as below:

1. If the closing price is above the prior close price then:

   Current OBV = Previous OBV + Current Volume

2. If the closing price is below the prior close price then:

   Current OBV = Previous OBV - Current Volume

3. If the closing prices equals the prior close price then:

   Current OBV = Previous OBV (no change)

Indicator – Bollinger bands

Formula:

Middle Band = 20-day simple moving average (SMA)

Upper Band = 20-day SMA + (20-day standard deviation of price x 2)
Lower Band = 20-day SMA - (20-day standard deviation of price x 2)

Function:

This indicator calculates deviation range. When the markets become more unstable the bands widen (move further away from the average) and during less unstable periods, the bands contract(move closer to the average).

Web Sources

Current Price:
http://download.finance.yahoo.com/d/quotes.csv?s=

History Price:
http://ichart.yahoo.com/table.csv?s=

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Thanks !

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