

Stock Market Prediction Web Application

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Introduction

- Motivation:
 - Investors would like to know whether selling or buying stocks tomorrow can make profits.
- Goals of the web app:
 - Characterization of the trends of the stock market.
 - Predicting the chances that the stock price will go up or down tomorrow.

RandomForestClassifier modeling of the stock price

Close prices go up (1) or down (0) in the next day **Features** (engineered close prices)

	name	Close	Target		Ratio_5D	Trend_5D	
Date							
2001-05-03	AMZN	0.8375	1		1.0	3.0	
2001-05-04	AMZN	0.8780	0		1.0	4.0	
2001-05-07	AMZN	0.8460	0	0.83	1.0	3.0	Ratio_2D Trend_2D
2001-05-08	AMZN	0.8090	0		1.0	2.0	
2001-05-09	AMZN	0.7505	0		0.9	1.0	Ratio_60D Trend_60D
2001-05-10	AMZN	0.7310	1	0.73	0.9	1.0	
2001-05-11	AMZN	0.7340	0		0.9	1.0	Ratio_250D Trend_250D
2001-05-14	AMZN	0.6665	1		0.9	1.0	
2001-05-15	AMZN	0.6770	1		1.0	2.0	Ratio_1000D Trend_1000D
2001-05-16	AMZN	0.7065	1		1.0	3.0	

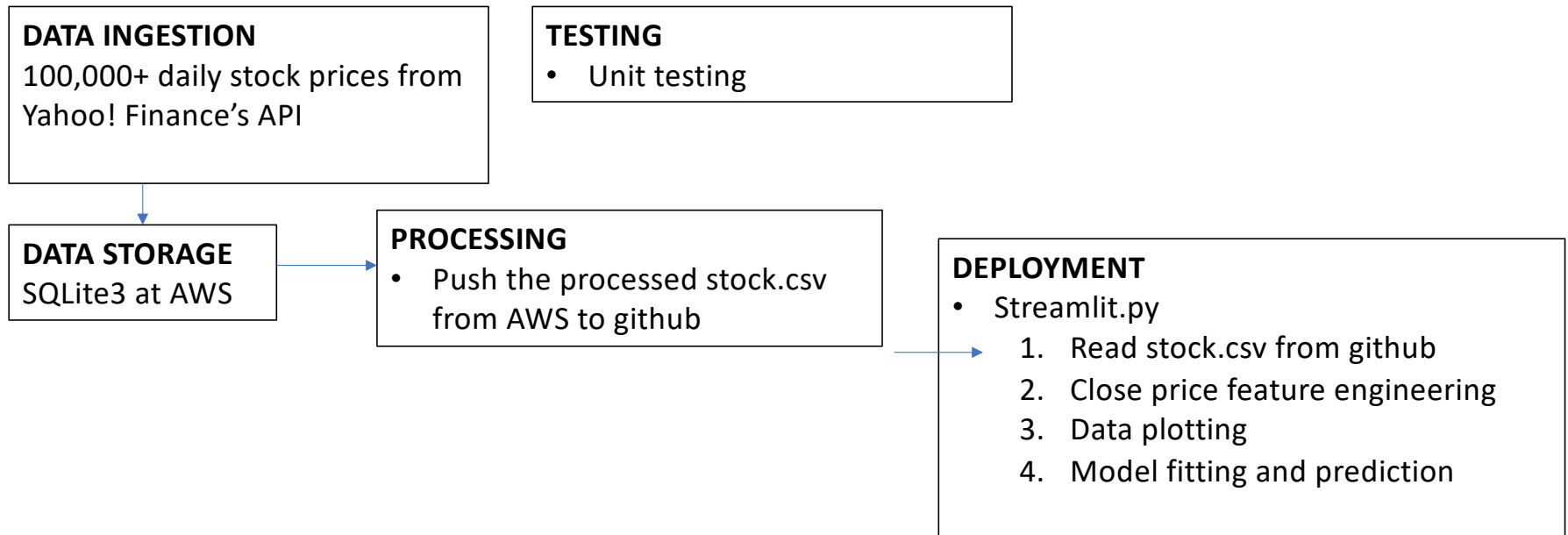
Ratio_5D: Ratio of today's close and the averaged close in the past 5 days

Trend_5D: Number of days that have increased close in the past 5 days

$0.73/0.83$

(10 features are use for modeling)

Data pipeline



- <https://share.streamlit.io/chiont/engineering/main>

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Select from the menus below:

Select Dataset

Google_Common Stock

Select Predictor Name

Ratio_5D

Close

Ratio_2D

Ratio_5D

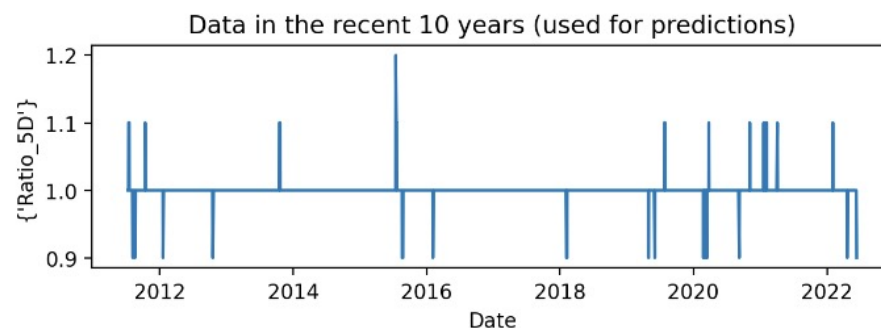
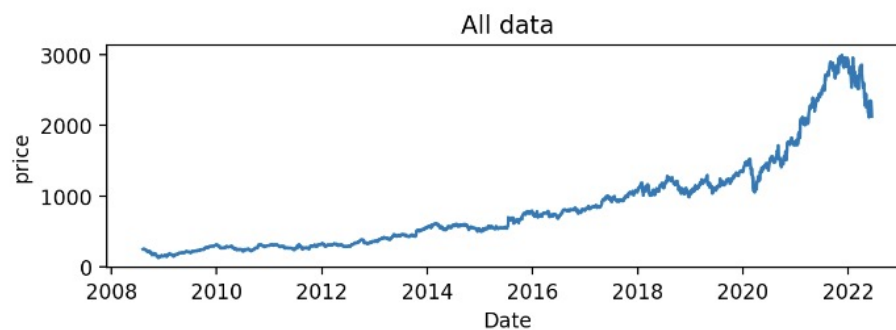
Ratio_60D

Ratio_250D

Ratio_1000D

Trend_2D

Trend_5D



RandomForestClassifier model with all 10 features

precision_scores: 52.94%

Probability that the price will increase in the day next to 06/13/2022 is 55.61%

Future works

- Engineer different features, such as hourly close price, to see whether the precision scores can be increased.
- Move the steps of feature engineering and modeling fitting to AWS so that the saved model can be loaded directly during the deployment to increase the speed of prediction.