

The top left corner features a large, light orange circle partially overlapping a dark grey circle. The top right corner features a dark grey circle partially overlapping a red circle, which in turn overlaps a light orange circle.

Stock Price Forecasting

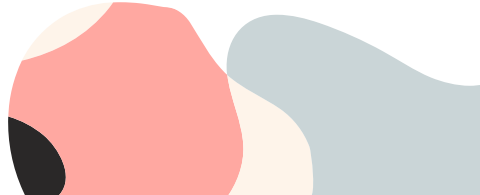
By Nelson Genao

Overview

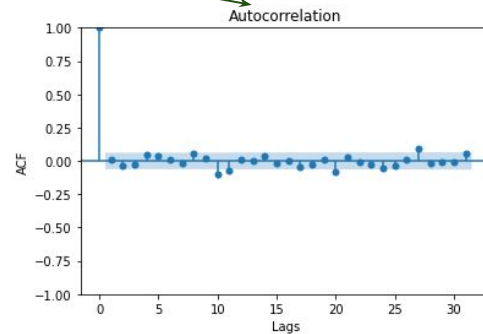
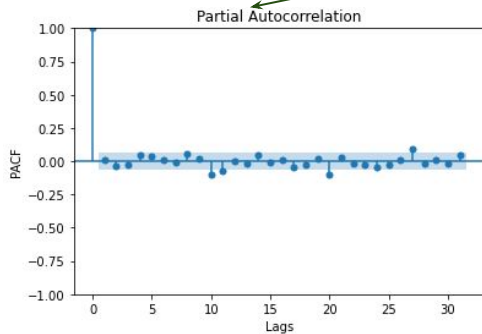
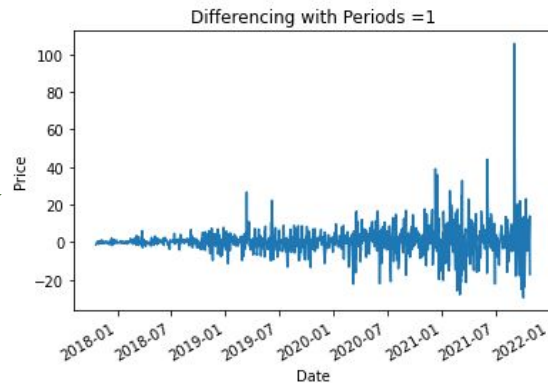
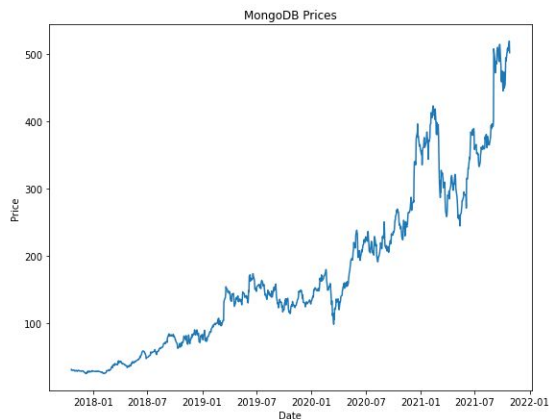
- Use time series forecasting to predict stock price growth rate after 60 days.
- Performing in-depth analysis on MongoDB using custom built preprocessing and modeling functions.
- The overall process is semi automated to find best model by lowest RMSE for stock price data provided.



Data

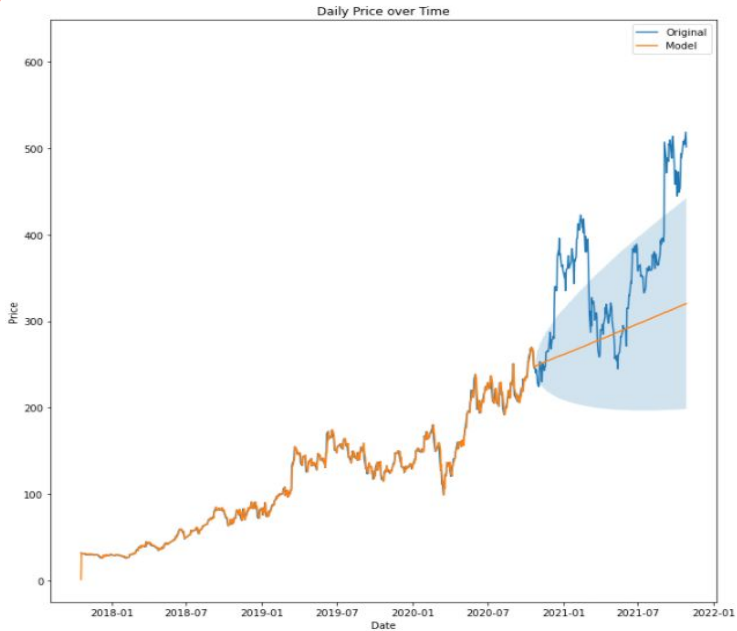
- Stock prices downloaded from Yahoo! Finance
 - Obtained the past 5 years of prices for the following stocks:
 - American Airlines
 - Amazon
 - General Electric
 - Intel
 - Tesla
- 

EDA (Order)



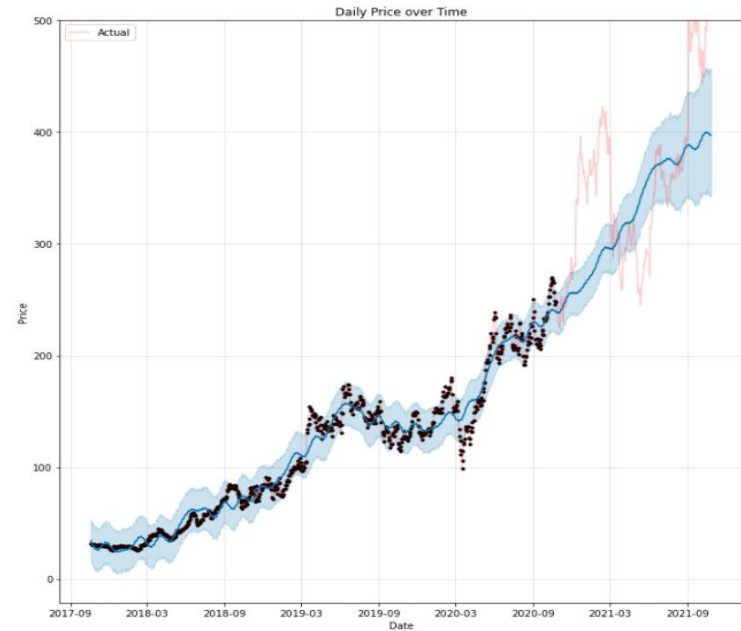
Modeling

ARIMA



RMSE: \$92.11

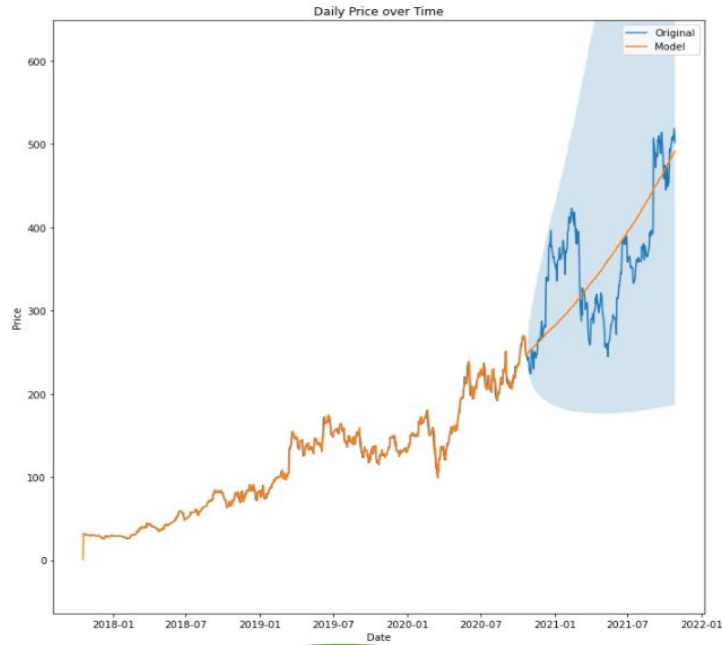
Facebook Prophet



RMSE: \$65.79

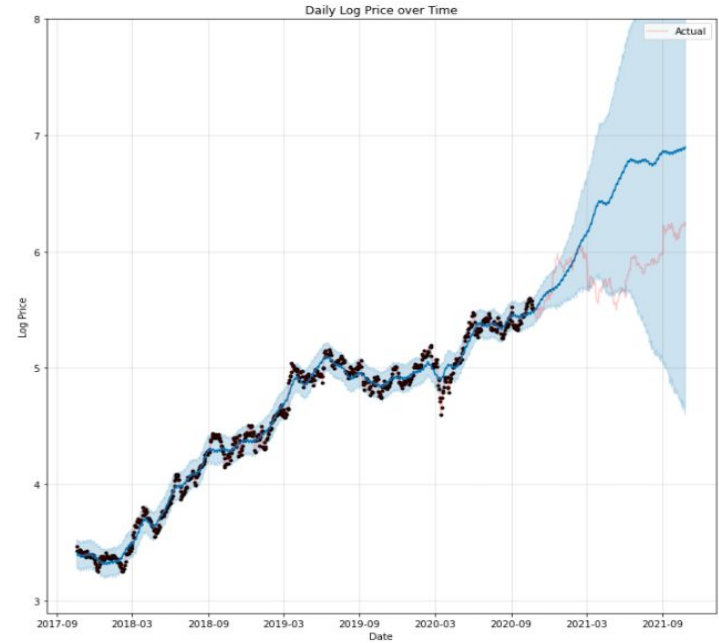
Modeling P2

Logged ARIMA



RMSE: \$58.08

Logged
Facebook Prophet



RMSE: \$369.84

Results

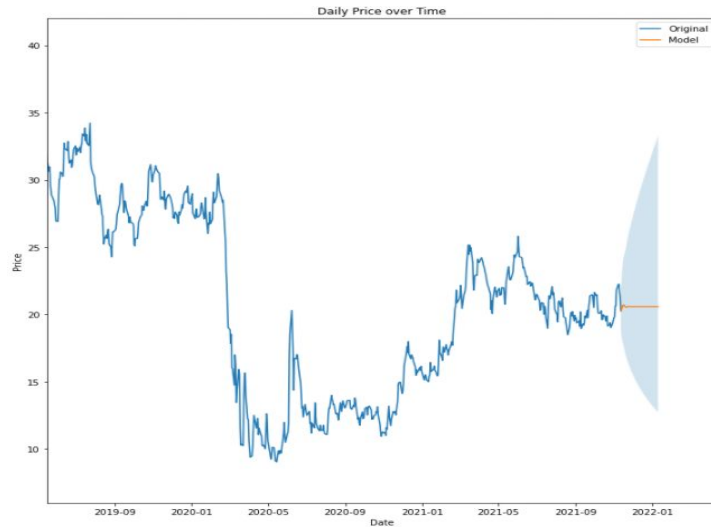


17.41%
Forecasted
growth after
60 days

Additional Results

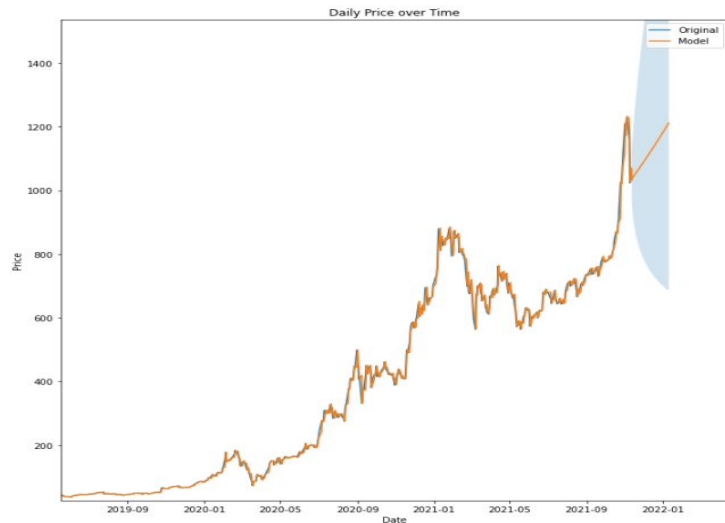
**1.68%
Growth**

American Airlines



**17.01%
Growth**

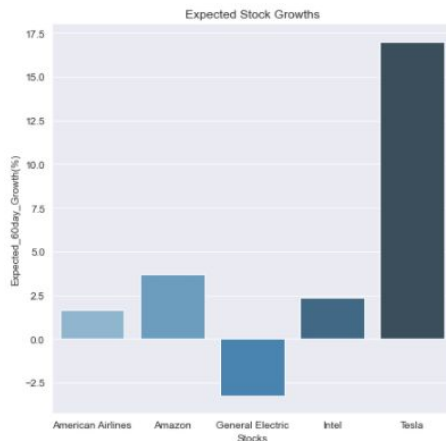
Tesla



Additional Results P2

Table of RMSE's By Model and Transformation

	ARIMA	Logged_ARIMA	Auto_ARIMA	Logged_Auto_ARIMA	Prophet	Logged_Prophet	Best_Model	Best_RMSE	Expected_60day_Growth(%)
Stocks									
American Airlines	11.37	8.92	6.49	6.09	28.2	14.75	Logged_Auto_ARIMA	6.09	1.68
Amazon	335.37	936.79	333.23	933.73	746.38	1918.65	Auto_ARIMA	333.23	3.73
General Electric	74.05	55.02	74.04	55.07	97.25	59.03	Logged_ARIMA	55.02	-3.23
Intel	6.49	5.79	7.98	7.99	6.44	6.26	Logged_ARIMA	5.79	2.33
Tesla	319.78	210.92	138.17	225.76	254.49	1098.83	Auto_ARIMA	138.17	17.01



Conclusions

17.41%

MongoDB

17.01%

Tesla

- Out of all the stocks, MongoDB and Tesla have the highest growth rates over 60 days.
- Caution is advised since the price of stocks can be shocked by financials, news/current events or even social media posts.

Next Steps

- Train neural network models to improve forecast accuracy
- Introduce other variables and data to the models
 - Stock sentiment analysis
 - Company financials
- Automate



THANK YOU

github.com/NelGen/NG-Stock-Forecasting-Project

finance.yahoo.com