PREDICTING STOCK

IS IT POSSIBLE TO PREDICT A STOCK'S PRICE?

Introduction

- I wanted to experiment with data science/machine learning and see if it is possible to predict a company's stock price.

- I used Python to create an Artificial Neural Network and fed it NASDAQ stock data from the past 10 years.

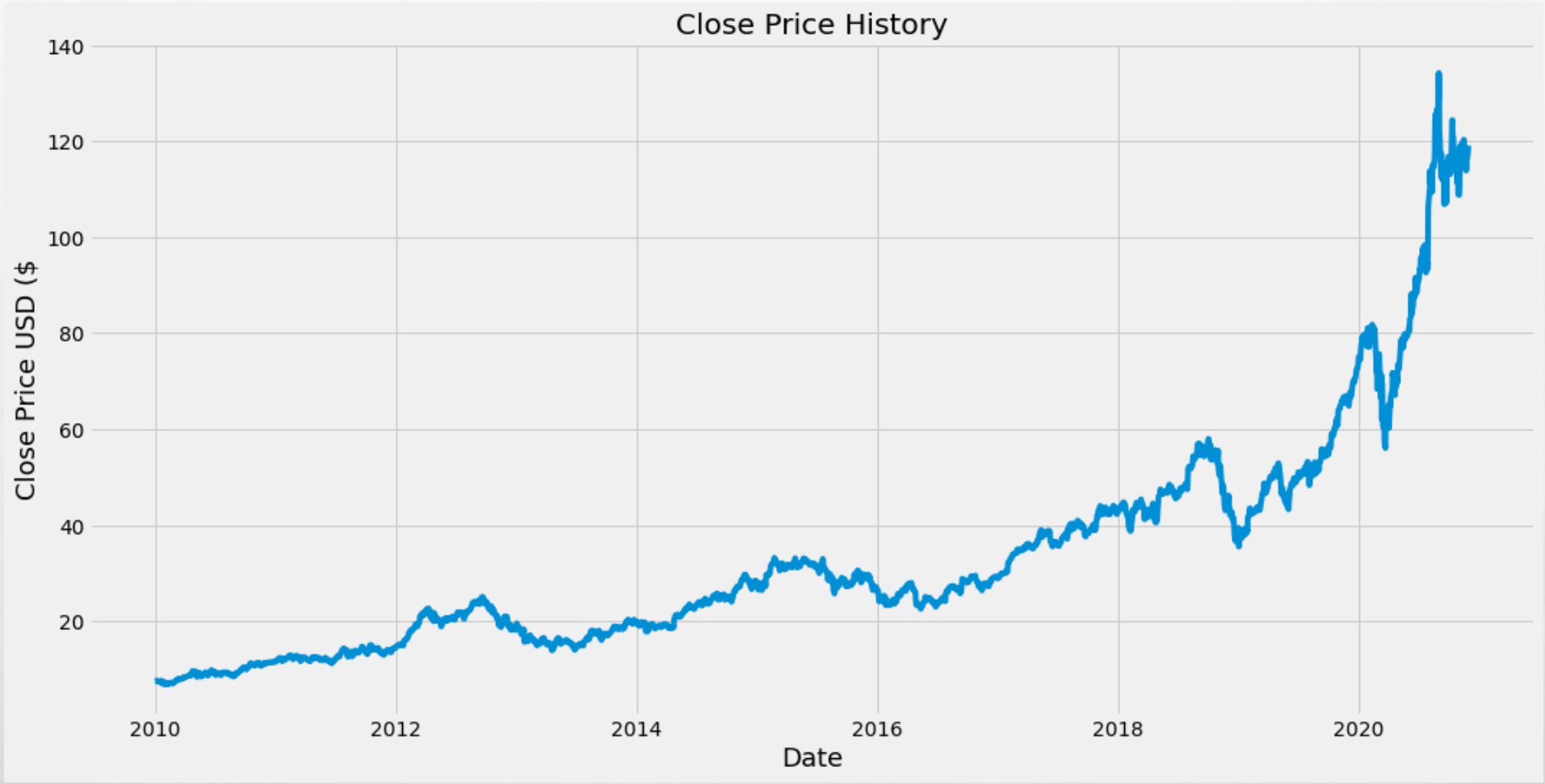
- I selected Apple as the company to analyze. (Data was fetched from Yahoo's finance API)

APPLE STOCK DATA

I ANALYZED THE “CLOSE” COLUMN

AS THE DETERMINANT OF APPLE’S DAILY STOCK PRICE

Date	High	Low	Open	Close	Volume	Adj Close
2009-12-31 00:00:00	7.61964	7.52	7.61179	7.52607	3.52411e+08	6.43965
2010-01-04 00:00:00	7.66071	7.585	7.6225	7.64321	4.9373e+08	6.53988
2010-01-05 00:00:00	7.69964	7.61607	7.66429	7.65643	6.01905e+08	6.55119
2010-01-06 00:00:00	7.68679	7.52679	7.65643	7.53464	5.5216e+08	6.44698
2010-01-07 00:00:00	7.57143	7.46607	7.5625	7.52071	4.77131e+08	6.43507
2010-01-08 00:00:00	7.57143	7.46643	7.51071	7.57071	4.47611e+08	6.47785
2010-01-11 00:00:00	7.60714	7.44464	7.6	7.50393	4.6223e+08	6.4207
2010-01-12 00:00:00	7.49179	7.37214	7.47107	7.41857	5.9446e+08	6.34767
2010-01-13 00:00:00	7.53321	7.28929	7.42393	7.52321	6.05892e+08	6.4372
2010-01-14 00:00:00	7.51643	7.465	7.50393	7.47964	4.32894e+08	6.39992
2010-01-15 00:00:00	7.55714	7.3525	7.53321	7.35464	5.94068e+08	6.29297
2010-01-19 00:00:00	7.68536	7.40143	7.44036	7.68	7.30008e+08	6.57136
2010-01-20 00:00:00	7.69821	7.48214	7.67536	7.56179	6.12153e+08	6.47021
2010-01-21 00:00:00	7.61821	7.40036	7.57429	7.43107	6.08154e+08	6.35836
2010-01-22 00:00:00	7.41071	7.04143	7.385	7.0625	8.81768e+08	6.04299
2010-01-25 00:00:00	7.31071	7.14964	7.2325	7.2525	1.0657e+09	6.20557
2010-01-26 00:00:00	7.6325	7.235	7.35536	7.355	1.86711e+09	6.29327
2010-01-27 00:00:00	7.52071	7.12607	7.3875	7.42429	1.72257e+09	6.35256
2010-01-28 00:00:00	7.33929	7.09643	7.31893	7.1175	1.1735e+09	6.09006
2010-01-29 00:00:00	7.22143	6.79464	7.18143	6.85929	1.24595e+09	5.86912
2010-02-01 00:00:00	7	6.83214	6.87036	6.95464	7.49876e+08	5.95071
2010-02-02 00:00:00	7.01143	6.90643	6.99679	6.995	6.98342e+08	5.98524
2010-02-03 00:00:00	7.15	6.94357	6.97036	7.11536	6.15328e+08	6.08822
2010-02-04 00:00:00	7.08464	6.84179	7.02607	6.85893	7.57652e+08	5.86881
2010-02-05 00:00:00	7	6.81607	6.87964	6.98071	8.50307e+08	5.97302
2010-02-08 00:00:00	7.06714	6.92857	6.98893	6.93286	4.78271e+08	5.93207
2010-02-09 00:00:00	7.05357	6.95536	7.015	7.00679	6.32887e+08	5.99533



- Graph of Apple's stock price history from 2010 to 2020 derived from the previous data.
- It can be observed that the prices started to spike recently. (Quite possibly because of Apple's recent release of the new iPhone)-

Next I created a LSTM(Long Term Short Memory) model to utilize for the prediction of prices.

I used 80% of the price data to train the model

Then attempted to predict the prices for the remaining 20%

3 PREDICTION RESULTS

RMSE = 2.4

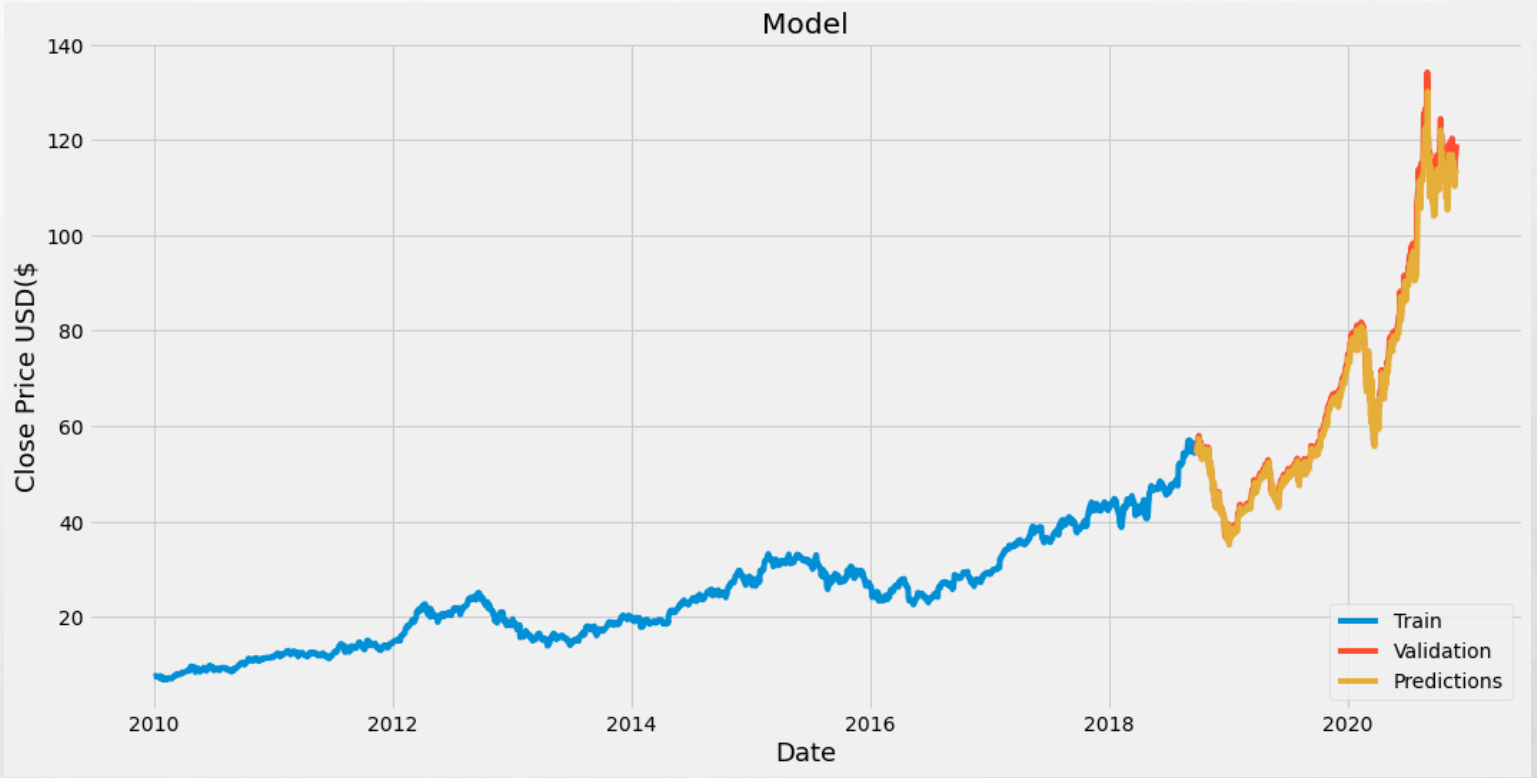
RMSE = 1.4

RMSE = 1.2

RMSE (ROOT MEAN SQUARED ERROR)
CLOSER TO 0 IS MORE ACCURATE

BEST RESULT

RSME = 1.2



NOTICE THAT THE YELLOW AND ORANGE PARTS ARE NEARLY THE SAME
=> THE MODEL PREDICTED THE STOCK PRICES VERY ACCURATELY

CONCLUSION

- UNTIL NOW, IT WAS WIDELY AGREED THAT NOBODY CAN PREDICT IF THE STOCK WILL GO UP OR DOWN THE NEXT DAY.
- BUT !!
- BIG DATA + AI (ARTIFICIAL INTELLIGENCE)
- = POTENTIAL TO PREDICT STOCK PRICES ACCURATELY