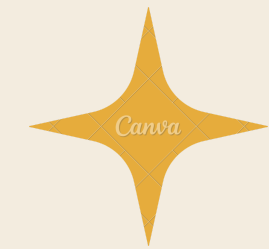


Predicting The Stock Price Trend For Apple



Github: <https://github.com/zzz-new/Erdos-Project-Stock>

Team MAPLE

Ziyuan Zhang

Dec 12th. 2022

Project Overview



Contents

Baseline Model: ARIMA

Data and Features

Improved Models: ARIMA+, LSTM, LSTM+

Future Explorations

This project aims at predicting the Apple Inc. price trend and making improvements on the baseline model with relevant features.

Baseline Model: ARIMA

The basic ARIMA model has a large MSE of 3672.55



Factors that can possibly affect stock price

- Fundamental Factors

Gross profit

ROE

P/E ratio

...

- Macroeconomic Factors

GDP

Fed rate

...

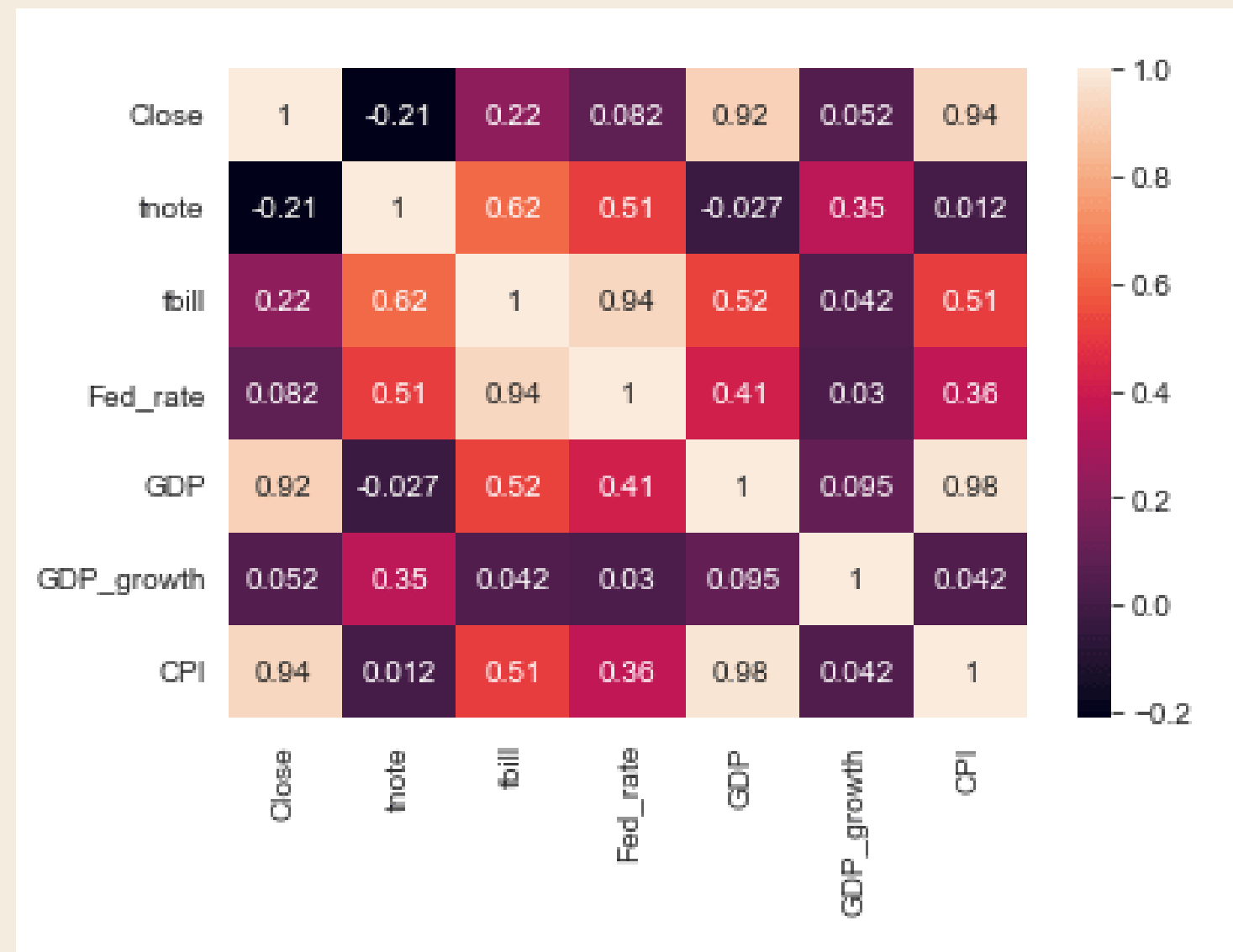
- Market Factors

S&P 500

Volume

...

Correlations



ARIMA+: Dynamical Regression

ARIMA+ with 4 features (MSE 961.65)

ARIMA+ with 8 features (MSE 951.78)



RNN Models: LSTM and LSTM plus

LSTM without features (MSE 384.86)
LSTM+ with 8 features (MSE 468.09)





Future Directions



1. Adding more and constructing more factors
2. Explore different RNN models with different architectures
3. Explore if CNN models can be used to make predictions
4. Explore other models

Thank you!