ML04

Team S-A-M

January 30, 2022

Abstract

A web application to predict the closing value of IBM stocks on that given day.

1 Problem Statement

Forecasting stock market prices have always been a challenging task for many business analyst and researchers. Your friend, who is interested in investing in the stock market shares of the well-known company IBM is unable to predict the company's stock market. The rate of his investment and his business opportunities in IBM's Stockmarket can increase if an efficient algorithm could be devised to predict the short term price of an individual stock.

2 Objective

Our task is to devise a model to predict the 'close' value of the next day given the stocks of all days until the current day, and developer a front-end UI (either Web app or Mobile app) that can help your friend invest the right amount of money.

3 Technologies used

1. Python
2. Streamlit

4 Models used

1. Auto Regression(AR)
2. Moving Average(MA)
3. Auto Regression moving average
4. Xg boost
5. Vector Auto Regression(VAR)
6. Simple exponential smoothing

From the above models, we choose VAR based on the metrics mean square error and absolute error. We have divided the given data into train and validation sets(4:1) to compute errors and decide the best model.

5 Features

1. User can input the model parameters of their choice. Training is performed after that.
2. App gives the predicted 'close' value of IBM of the current day along with a visual graph trend.
3. IBM stock trend is shown to the user along with the predicted values.
4. Zoom-able stock comparison graph, stocks of IBM are compared to various other companies.
5. All the graphs are expandable, user can expand them for a clear view.
6. App also suggests the better investment options for that particular day basing on higher close value. Higher the close value, better the investment.

6 To run the code

streamlit run app.py