Capstone Proposal: Machine Learning Engineer Nanodegree Stock Price Indicator

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Domain Background

Investment firms, hedge funds and even individuals have been using financial models to better understand market behavior and make profitable investments and trades. A wealth of information is available in the form of historical stock prices and company performance data, suitable for machine learning algorithms to process.

In this project, we will build stock price indicator which will take input of last 3 years and try to predict stock price for Next day, after 7 days and after 14 days.

Problem Statement

The primary goal of this project is to take last 3 years of Open, High, Low, Close, etc. data for specific stock and try to predict following:

a) Stock price for next day
b) Stock price for 7 days from today
c) Stock price for 14 days from today

Datasets and Inputs

We will use data from [Yahoo! Finance](#) by directly downloading a dump of .csv files.

Solution Statement

For this problem, we will try multiple methods like Linear regression, XGBoost, etc. and we will do Hyperparameter tuning for best result and accordingly select best model.

Benchmark model

We will use +/- 5% from actual stock price will 70% accuracy as benchmark.

Evaluation Metrics

We will use the root mean square error (RMSE) as evaluation metrics.

Project Design

We will be using the following step as project design:

1. Import necessary libraries and datasets
2. Explore and pre-process the data
3. Split data into Train, validate and test (60-20-20)
4. Select and build predictor model
5. Evaluate model on validation set
6. Do hyperparameter tuning for the model

(Repeat step 4-6) until we are satisfied with results

7. Test the model on testing set

References

Original repo for Project - GitHub:
https://docs.google.com/document/d/1ycGeb1QYKATG6jvz74SAMqxrlek9Ed4RYrzWNhWS-0Q/pub