PriceForcastAI

Group 4

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Problem Statement and Analysis

Overview:

The stock market is an essential piece of our economy because it allows companies to raise capital, enables individuals to invest their money, and is an overall indicator of the economy's health.

Problem:

Our problem arises from how challenging to process the information about the stock market can be for individuals and companies who are attempting to make beneficial investing decisions.

Goal:

The goal of this project is to develop a tool that allows for an informed prediction of a company's stock price to be generated. This tool will analyze current and previous market trends, look at current documents and articles relevant to the company to calculate a more human heuristic based on their contents, and hopefully produce an accurate or close to accurate stock price.

Use-Case Scenarios

Individual:

Following and accurately predicting the price of a company's stock price can be almost impossible due to the immense amount of information that must be calculated and processed in minimal time. However, if that individual had access to a tool that allowed for a simple prediction of a stock's future based on previous and current stock market information, they could make an informed decision

Company:

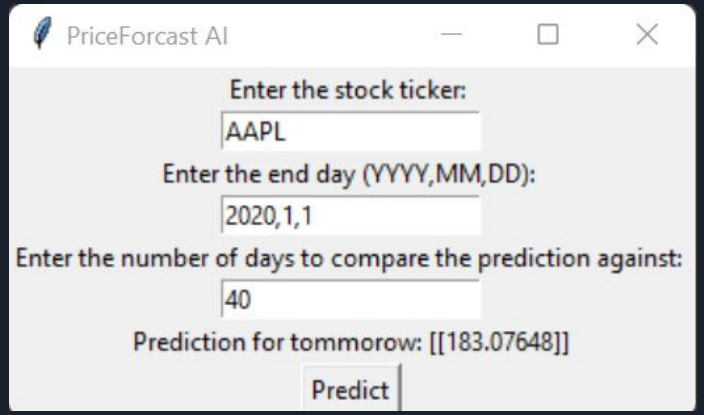
Understand the future stock price to prepare for a potential drop in value and the loss of capital. Access to a tool that analyzes their previous market performance and the current state of the market would become valuable as it allows them to have an idea of where their share value will be in the future.

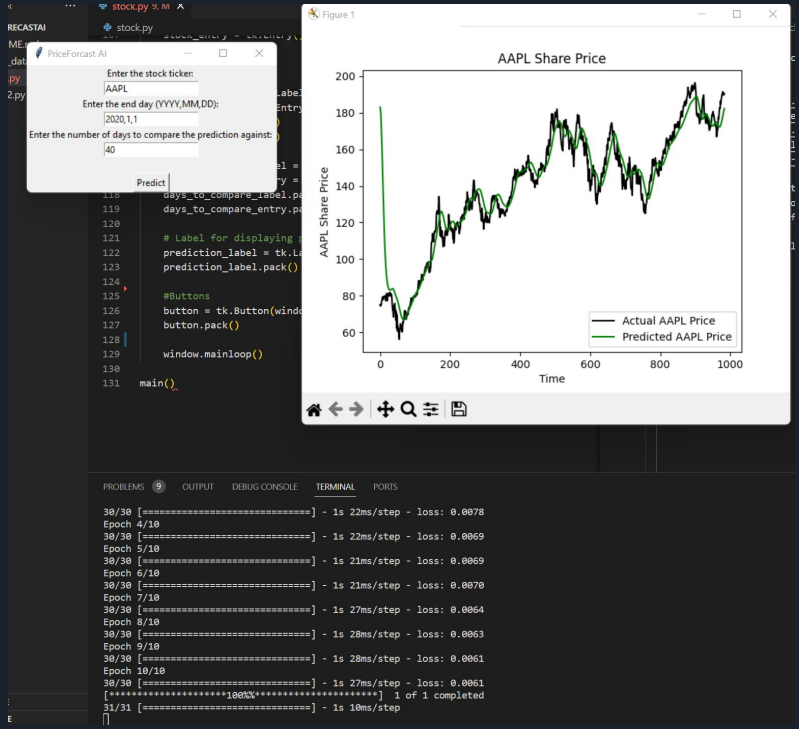
AI Algorithm and Model

We use Long Short-Term Memory (LSTM) neural network in which we:

- Collect the data from a specified time range (using Yahoo Finance API)
- Extract the Closing prices and organize into sequences of inputs for model
- Feed into Sequential model using Tensorflow Keras
- Train model based on input data, makes a prediction
- Compare prediction with actual data shown in graph
- Lastly, output a prediction price for the next day to terminal

Results and Demonstration





Lessons Learned and Future Work

- This code is not meant to be a substitute for a financial advisor but focuses on predicting trends in the stock market.
- The algorithm can be improved by using more advanced machine learning concepts as well as adjusting the data inputs and training sets to tailor stock prediction for long-term and short-term financial goals.
- Analysis of real time events such as articles and company press releases could also be incorporated into the model as a heuristic

Q&A