Stock Options Prediction with Advanced Deep Learning

Project by-
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In the investment terms options is a derivative which is derived from the price of another security. Another security can be a stock, a currency, rate or a commodity. This means that the price of options moves if the price of another security would move. Understanding how options are priced is important because there are a lot of variables that determine its value.

In this project we are creating a Deep Learning model for the prediction of the price of an option. Options prediction can help in determining the investment better and understanding the stock marketing better. In our model, we pick specific options of the stock. We need to consider the five important characteristics of the option stock-Underlying asset, Call vs. put, Strike price, Expiration date, and American vs. European. These five features are the input to our model and output of the model will be the price. As we know there are many different strategies for options trading depending on what we want to get and how much risk we are willing to expound, we will limit the features for the scope of this project.

We are using the open source dataset such as Robinhood API and Yahoo Financial API to get options data for training our model. For our model, we are using 'tsai' which is a deep learning package built on top of fastAI for state-of-the-art time-series classification and regression.

Team and Implementation Plan

<table>
<tr><th>Task</th><th>Member</th><th>Expected/Date of completion</th><th>Status</th></tr>
<tr><td>Research and Literature Review</td><td>Jacky, Jerry, Jumana</td><td>Sep 2020</td><td>Completed</td></tr>
<tr><td rowspan="2">Setting up programming environment + Datasets</td><td rowspan="2">Jerry</td><td>Sep 2020</td><td>Completed</td></tr>
<tr><td>Sep 2020</td><td>Completed</td></tr>
<tr><td>Model + Evaluation</td><td>Jacky, Jerry, Jumana</td><td>Nov 2020</td><td>In Progress</td></tr>
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