**2023-24 STOCK PRICE PREDICTION USING LSTM**

**Names of students**

*Giri Kankatharan(*[*gk304@kent.ac.uk*](mailto:gk304@kent.ac.uk)*)*

*Steven Li(*[*sl746@kent.ac.uk*](mailto:sl746@kent.ac.uk)*)*

*Rishabh Soni(*[*rs898@kent.ac.uk*](mailto:rs898@kent.ac.uk)*)*

*Oliver Pulley(*[*ocp3@kent.ac.uk*](mailto:ocp3@kent.ac.uk)*)*

**Supervisor**

*Frank Wang (*[*F.Z.Wang@kent.ac.uk*](mailto:F.Z.Wang@kent.ac.uk)*)*

**Project Description**

A stock price prediction application, created using TensorFlow library, which will allow users to see the performance of various stocks based on historical data comparing the actual and predicted prices of stocks. The project will use three years of historical data from yahoo finance through its attached API along with Long short-term memory(LSTM) network. LSTM network is a type of recurrent neural network that is suitable for learning sequential data whilst making predictions based sequence of the data. The most important part of this project relies on training and testing of data, after which the predictions are made through line graphs. Both training and testing is crucial for our prediction accuracy. We began our project after looking at some similar projects and carrying out some research, to ensure correct results and maximum accuracy.

**Results**

The main purpose of our project is to see how accurate our algorithm can predict the closing prices of stocks compared to the actual data. The stock price prediction depends on the stock symbol such as TSLA or APPL and the period that are provided by the user. As planned, we gathered data from yahoo finance, pre-processed the data to remove inconsistencies, created sequences of training data, built the LSTM model, trained the model and finally made predictions on our test data. We then visualised our predictions against the actual data. Our program also allows users to view/download visualisation of our test and predicted data for various stocks as per the given period and stock symbol by the user along with background of each company.