DAYANANDA SAGAR COLLEGE OF ENGINEERING
COMPUTER SCIENCE & ENGINEERING

Mini Project- Report
March-2022

Course Faculty: Prof. Harish Kumar N
Semester: 6

Course Name & code: 19CS6DCMIP
Date:11/04/2022

TITLE OF THE PROJECT	Stock Price Prediction using Machine Learning			
STUDENT NAME	Abhiram Galla	Adithya N	B Likeith	Datta Shashank C
USN	1DS19CS004	1DS19CS009	1DS19CS035	1DS19CS043
INDIVIDUAL CONTRIBUTION	LSTM model: Data Scraping and Splitting	LSTM model	Streamlit Frontend	Streamlit Frontend and LSTM model: Accuracy
GUIDE	Prof. Harish Kumar N			
PROJECT ABSTRACT:	Time Series forecasting & modelling plays an important role in data analysis. Time series analysis is a specialized branch of statistics used extensively in fields such as Econometrics & Operation Research. Time Series is being widely used in analytics & data science. Stock prices are volatile in nature and price depends on various factors. The main aim of this project is to predict stock prices using Long short-term memory (LSTM) model. In this project our task is to predict stock prices to help investors predict stock prices to aid their investments. We use the open, high, low and close prices from the datasets to predict the price of a stock. The prediction of the stocks can be viewed on the website. Prices and graphs of various stocks can be found on the website. The price from a certain period of time can also be predicted using the model.			

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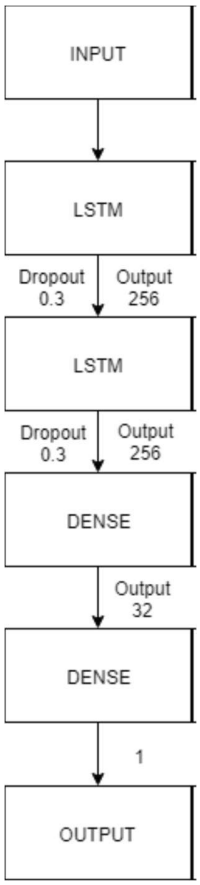
INTRODUCTION	Stock Price Prediction using machine learning helps to predict the future value of stocks and other financial assets of companies traded on exchanges. The overall idea of predicting stock prices is to make some profit. Predicting how the stock market will develop is a difficult task. There are other factors involved in prediction, such as physical and psychological factors, rational and irrational behavior. All of these factors combine to make stock prices dynamic and volatile. Therefore, accurate stock price prediction is extremely challenging because of multiple (macro and micro) factors, such as politics, global economic conditions, unexpected events, a company's financial performance, and so on. All of this also means that there's a lot of data to find patterns in. So, financial analysts, researchers, and data scientists keep exploring analytics techniques to detect stock market trends. This gave rise to the concept of algorithmic trading, which uses automated, pre-programmed trading strategies to execute orders. We use LSTM model to predict the future price of the stocks from the dataset. The dataset contains variables such as open, close, low, high and volume which is used as prediction variables.
DESIGN	 LSTM Model Design

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PLATFORM USED (H/W & S/W TOOLS TO BE USED	Python, Jupyter Notebook, TensorFlow for the Model. Streamlit and CSS for the Web Application
PROJECT SOURCE CODE LINK (GITHUB/ GOOGLE DRIVE)	https://github.com/adithya-n11/Stock-Prediction
CONCLUSION /FUTURE ENHANCEMENT	We propose a LSTM based model for stock price prediction. It is seen that, deep neural network architectures are capable of capturing hidden dynamics and are able to make predictions. We can improve the efficiency of the model by incorporating the loss function for direction accuracy used in the model. Also, new loss function can be designed to achieve better results. We have used stock price data of daily frequency. Higher frequency data of every minute stock price can be obtained to train and test the performance of the models implemented in this project. We have currently designed the website using Streamlit a Python open-source app framework which provides an interactive user experience.

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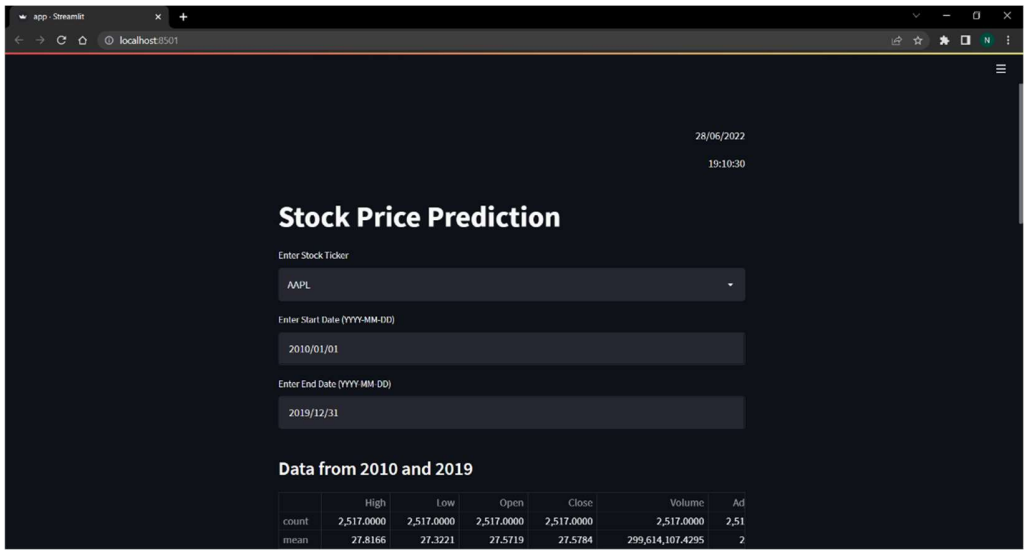
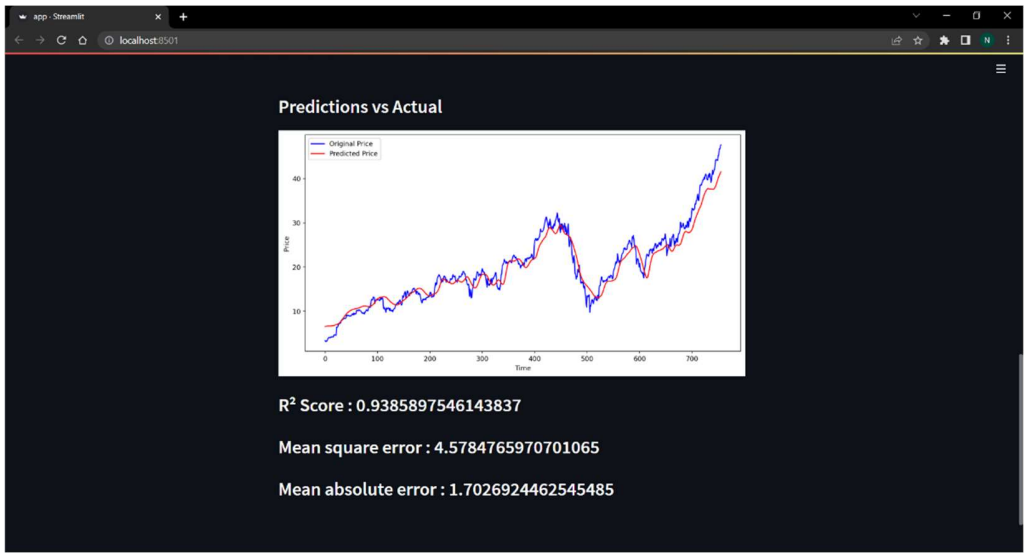
UI SCREENSHOTS



User Input for Stock Ticker and Date

Data Summary and Moving Average graph



Predictions vs Original Price Graph &
Accuracy and Loss values