A Project Report Titled

“STOCK PRICE PREDICTION”

Submitted By

Pranav Kathar

Harshwardhan khotkar

In partial fulfillment of the award of

Bachelor of Technology (Artificial Intelligence and Data Science)

Under The Guidance of

Prof. A.S. Gavali

Department of Artificial Intelligence and Data Science

CSMSS Chh. Shahu College Of Engineering,

Aurangabad (Maharashtra)

(AY 2021-22)

CERTIFICATE

This is to certify that the Mini Project report entitled **"Stock price prediction "**, submitted by **Pranav kathar(AI3060),Harshwardhan Khotkar(AI3072)** are the bonafied work completed under my supervision and guidance in partial fulfillment for the fulfilment of TY subject 'Mini Project', of Bachelor of Technology (**Artificial Intelligence and Data Science**) of Dr. Babasaheb Ambedkar Technological University, Lonere (M.S.).

Place: Aurangabad

Date:

Prof. A.S. Gavali
Guide
Department of Artificial Intelligence and Data Science

Dr. S.R. Zanwar
Head of Department
Department of Artificial Intelligence and Data Science

Dr. U. B. Shinde
Principal
Chh. Shahu College of Engineering
Aurangabad (M.S.) – 431 002

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List of Abbreviations

SN	Symbol	Illustrations
1	ATS	Automated trading system
2	LRA	Linear Regression Algorithm
3	DTM	Decision Tree Model
4	SVM	Support Vector Machine
5	ML	Machine Learning

ABSTRACT

Accurate prediction of stock prices plays an increasingly prominent role stockiness market where returns and risks fluctuate wildly, and both financial institution sand regulatory authorities have paid sufficient attention to it. As a method of asset allocation, stocks have always been favored by investors because of their high returns. The research on stock price prediction has never stopped. In the early days, many economists tried to predict stock prices.

Later, with the in-depth research of mathematical theory and the vigorous development of computer technology, people have found that the establishment of mathematical models can be very good, such as time series model, because its model is relatively simple and the forecasting effect is better

Time series model is applied in a period of time The scope gradually expanded. However, due to the non-linearity of stock data, some machine learning methods, such as support vector machines. Later, with the development of deep learning, some such but also retain memory for the sequence and retain useful information, which is positive. It is required for stock data forecasting. and select real stocks in the stock market, perform modeling analysis and predict stock prices, and then use the root mean square error to compare the prediction results of several models.

This is important in our case because the previous price of a stock is crucial in predicting its future price. While predicting the actual price of a stock is an uphill climb, we can build a model that will predict whether the price will go up or down.

Keywords: LRA, DTM, ML, Trade Open, Trade Close, Trade Low, Trade High

1. INTRODUCTION

1.1 Introduction

The financial market is a dynamic and composite system where people can buy and sell currencies, stocks, equities and derivatives over virtual platforms supported by brokers. The stock market allows investors to own shares of public companies through trading either by exchange or over the counter markets. This market has given investors the chance of gaining money and having a prosperous life through investing small initial amounts of money, low risk compared to the risk of opening new business or the need of high salary career. Stock markets are affected by many factors causing the uncertainty and high volatility in the market.

Although humans can take orders and submit them to the market, automated trading systems (ATS) that are operated by the implementation of computer programs can perform better and with higher momentum in submitting orders than any human. However, to evaluate and control the performance of ATSs, the implementation of risk strategies and safety measures applied based on human judgments are required.

Many factors are incorporated and considered when developing an ATS, for instance, trading strategy to be adopted, complex mathematical functions that reflect the state of a specific stock, machine learning algorithms that enable the prediction of the future stock value, and specific news related to the stock being analyzed.
methods and technologies which purportedly allow them to gain future price information.[1]

In this project we attempt to implement machine learning approach to predict stock prices. Machine learning is effectively implemented in forecasting stock prices. The objective is to predict the stock prices in order to make more informed and accurate investment decisions.We propose a stock price prediction system that integrates mathematical functions, machine learning, and other external factors for the purpose of achieving better stock prediction accuracy and issuing profitable trades.

There are two types of stocks. You may know of intranet trading by the commonly used term "day trading." Inter day traders hold securities positions from at least one day to the next and often for several days to weeks or months. Decision tree are very powerful in sequence prediction problems because they’re able to store past information. In stock market prediction, the aim is the future value of the financial stocks of a company. The recent trend in stock market prediction technologies is the machine learning to predict stock values. Factors considered are open, close, low, high,volume.

The financial data: Open, High, Low and Close prices of stock are used for creating new variables which are used as inputs to the model. The models are evaluated using standard strategic indicators: RMSE and MAPE. The low values of these two indicators show that the models are efficient in predicting stock closing price.

This is important in our case because the previous price of a stock is crucial in predicting its future price. While predicting the actual price of a stock is an uphill-climb, we can build a model that will predict whether the price will go up or down. [2]

EDA is an approach to analyzing the data using visual techniques. It is used to discover trends, and patterns, or to check assumptions with the help of statistical summaries and graphical representations.

While performing the EDA of the Tesla Stock Price data we will analyze how prices of the stock have moved over the period of time and how the end of the quarters affects the prices of the stock.

1.2 Features of Stock Market:

1. **A market for securities-** It is a wholesome market where securities of government, corporate companies, semi-government companies are bought and sold.
2. **Second-hand securities-** It associates with bonds, shares that have already been announced by the company once previously.
3. **Regulate trade in securities-** The exchange does not sell and buy bonds and shares on its own account. The broker or exchange members do the trade on the company's behalf.
4. **Dealings only in registered securities-** Only listed securities recorded in the exchange office can be traded.
5. **Transaction-** Only through authorized brokers and members the transaction for securities can be made.
6. **Recognition-** It requires to be recognized by the central government.
7. **Measuring device-** It develops and indicates the growth and security of a business in the index of a stock exchange.
8. **Operates as per rules**– All the security dealings at the stock exchange are controlled by exchange rules and regulations and SEBI guidelines.

2. LITERATURE SURVEY

2.1 Stock Market Overview

Stock market price prediction has always been an important piece of information for most of us during the decision-making process. The Internet and the Web have now (among other things) made it possible to find out about the opinions and experiences of those in the vast pool of people that are neither our personal acquaintances nor well-known professional critics — that is, people we have never heard of. And conversely, more and more people are making their opinions available to strangers via the Internet. The interest that individual users show in online opinions about products and services, and the potential influence such opinions wield, is something that is driving force for this area of interest. And there are many challenges involved in this process which needs to be walked all over in order to attain proper outcomes out of them. In this survey we analyzed basic methodology that usually happens in this process and measures that are to be taken to overcome the challenges being faced.

2.1.1 Stock market price prediction system overview

Stock market prediction is an act of trying to determine the future value of a stock other financial instrument traded on a financial exchange. This paper explains the prediction of a stock using Machine Learning. The technical and fundamental or the time series analysis is used by the most of the stockbrokers while making the stock predictions. The programming language is used to predict the stock market using machine learning is Python. In this paper we propose a Machine Learning (ML) approach that will be trained from the available stocks data and gain intelligence and then uses the acquired knowledge for an accurate prediction. In this context this study uses a machine learning technique called Support Vector Machine (SVM) to predict stock prices for the large and small capitalization and in the three different markets, employing prices with both daily and up-to-the-minute frequencies.

2.1.2 Automated Stock Price Prediction Using Machine Learning.

Traditionally and in order to predict market movement, investors used to analyse the stock prices and stock indicators in addition to the news related to these stocks. Hence, theimportance of news on the stock price movement.

Most of the previous work in this industry focused on either classifying the released market news as (positive, negative, neutral) and demonstrating their effect on the stock price or focused on the historical price movement and predicted their future movement.

In this work, we propose an automated trading system that integrates mathematical functions, machine learning, and other external factors such as news' sentiments for the purpose of achieving better stock prediction accuracy and issuing profitable trades.

Particularly, we aim to determine the price or the trend of a certain stock for the coming end-of-day considering the first several trading hours of the day. To achieve this goal, we trained traditional machine learning algorithms and created/trained multiple deep learning models taking into consideration the importance of the relevant news.

Various experiments were conducted, the highest accuracy (82.91%) of which was achieved using LR and Decision tree for Tesla Inc. stock.

2.1.3 Data Set

The term data set refers to a file that contains one or more records. The record is the basic unit of information used by a program running on z/OS. Any named group of records is called a data set.

A Date set is a set or collection of data. This set is normally presented in a tabular pattern. Every column describes a particular variable. And each row corresponds to a given member of the data set, as per the given question. This is a part of data management

Tesla Stock Date set from 2010 to 2021

Represents the opening price of the stock at a particular date. It is the price at which a stock started trading when the opening bell rang. Close: Represents the closing price of the stock at a particular date.[6]

3. SYSTEM MODELLING

3.1 Model Development

1) Linear regression:

Linear regression is one of the easiest and most popular Machine Learning algorithms. It is a statistical method that is used for predictive analysis. Linear regression makes predictions for continuous/real or numeric variables such as sales, salary, age, product price, etc.

Linear regression algorithm shows a linear relationship between a dependent (y) and one or more independent (y) variables, hence called as linear regression. Since linear regression shows the linear relationship, which means it finds how the value of the dependent variable is changing according to the value of the independent variable.

The linear regression model provides a sloped straight line representing the relationship between the variables. Consider the below image:

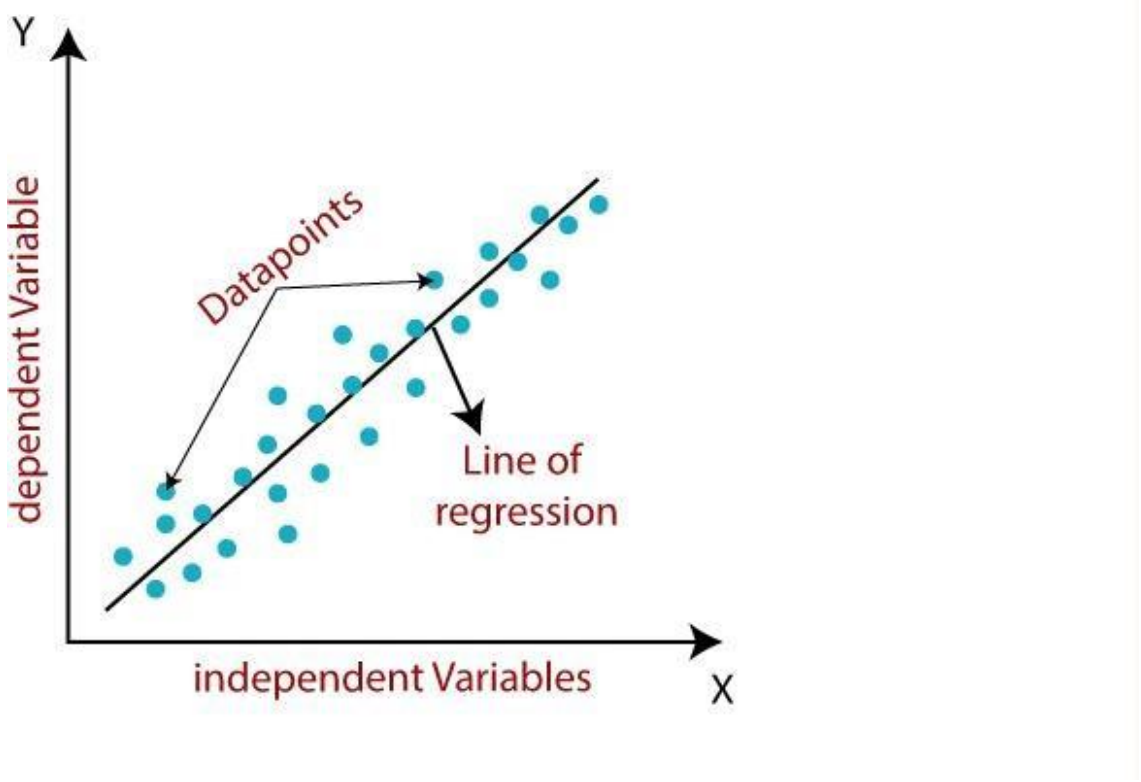

Fig. 1.1 Linear Regression Algorithm

2) Decision Tree regression

Decision Tree is a Supervised learning technique that can be used for both classification and Regression problems, but mostly it is preferred for solving Classification problems. It is a tree-structured classifier, where internal nodes represent the features of a datasets, branches represent the decision rules and each leaf node represents the outcome.

In a Decision tree, there are two nodes, which are the Decision Node and Leaf Node. Decision nodes are used to make any decision and have multiple branches, whereas Leaf nodes are the output of those decisions and do not contain any further branches.

- The decisions or the test are performed on the basis of features of the given datasets.
- It is a graphical representation for getting all the possible solutions to a problem/decision based on given conditions.
- It is called a decision tree because, similar to a tree, it starts with the root node, which expands on further branches and constructs a tree-like structure.
- In order to build a tree, we use the CART algorithm, which stands for Classification and Regression Tree algorithm.
- A decision tree simply asks a question, and based on the answer (Yes/No), it further split the tree into sub-trees.

Below diagram explains the general structure of a decision tree:

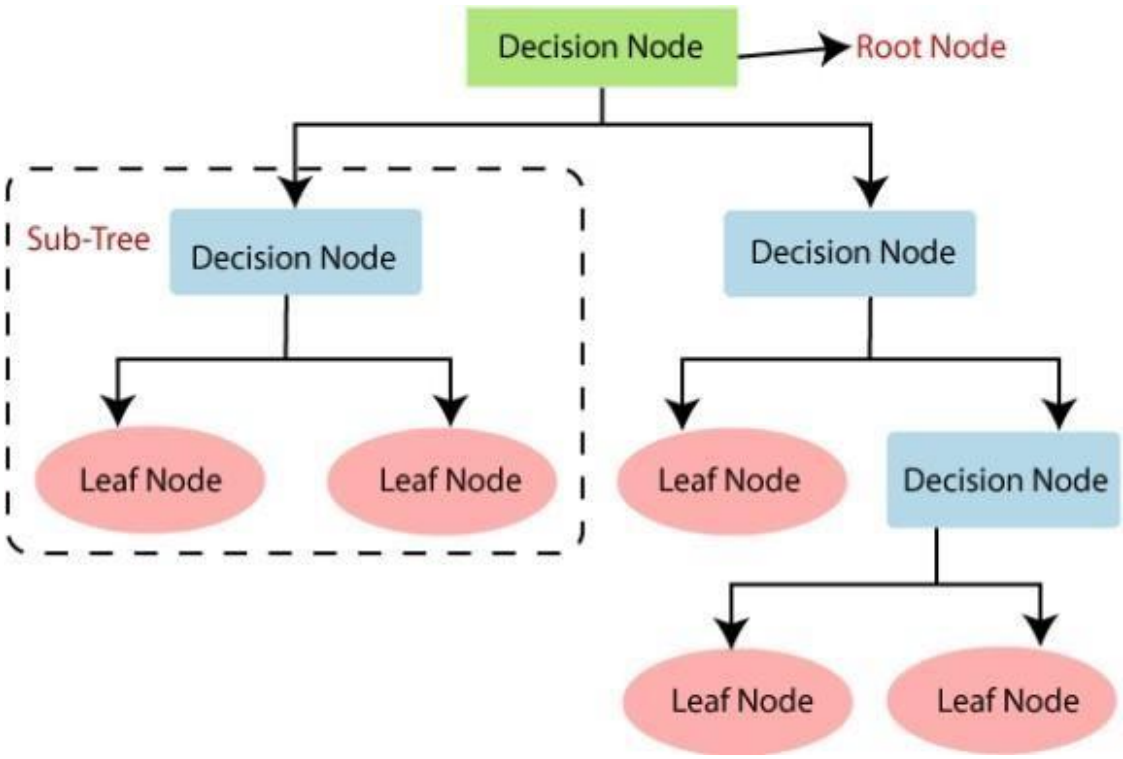

Fig 1.2 Decision Tree Algorithms

3.1.2 Program

```
#STOCK PRICE PREDICTION USING MACHINE LEARNING LINEAR REGRESSION AND DECISION TREE MODEL

# import libraries
import numpy as np
import pandas as pd
from sklearn.tree import DecisionTreeRegressor
from sklearn.linear_model import LinearRegression
from sklearn.model_selection import train_test_split
import matplotlib.pyplot as plt
plt.style.use('bmh')

from google.colab import files
uploaded = files.upload()
```

```
Choose Files  No file chosen
rerun this cell to enable.
Saving tesla.csv to tesla.csv
```

Upload widget is only available when the cell has been executed in the current browser session. Pl

```
df= pd.read_csv('tesla.csv')
df.head()
```

	Date	Open	High	Low	Close	Adj Close	Volume
0	6/29/2010	19.000000	25.00	17.540001	23.889999	23.889999	18766300
1	6/30/2010	25.790001	30.42	23.299999	23.830000	23.830000	17187100
2	7/1/2010	25.000000	25.92	20.270000	21.959999	21.959999	8218800
3	7/2/2010	23.000000	23.10	18.709999	19.200001	19.200001	5139800
4	7/6/2010	20.000000	20.00	15.830000	16.110001	16.110001	6866900

```
#set the data in proper format
df['date']= pd.to_datetime(df.Date)

df.shape
```

```
(2416, 7)
```

```
# Visual the dataset
plt.figure(figsize=(16,8))
plt.title('Tesla')
plt.xlabel('Days')
plt.ylabel('Close USD ($)')
plt.plot(df['Close'])
plt.show()
```

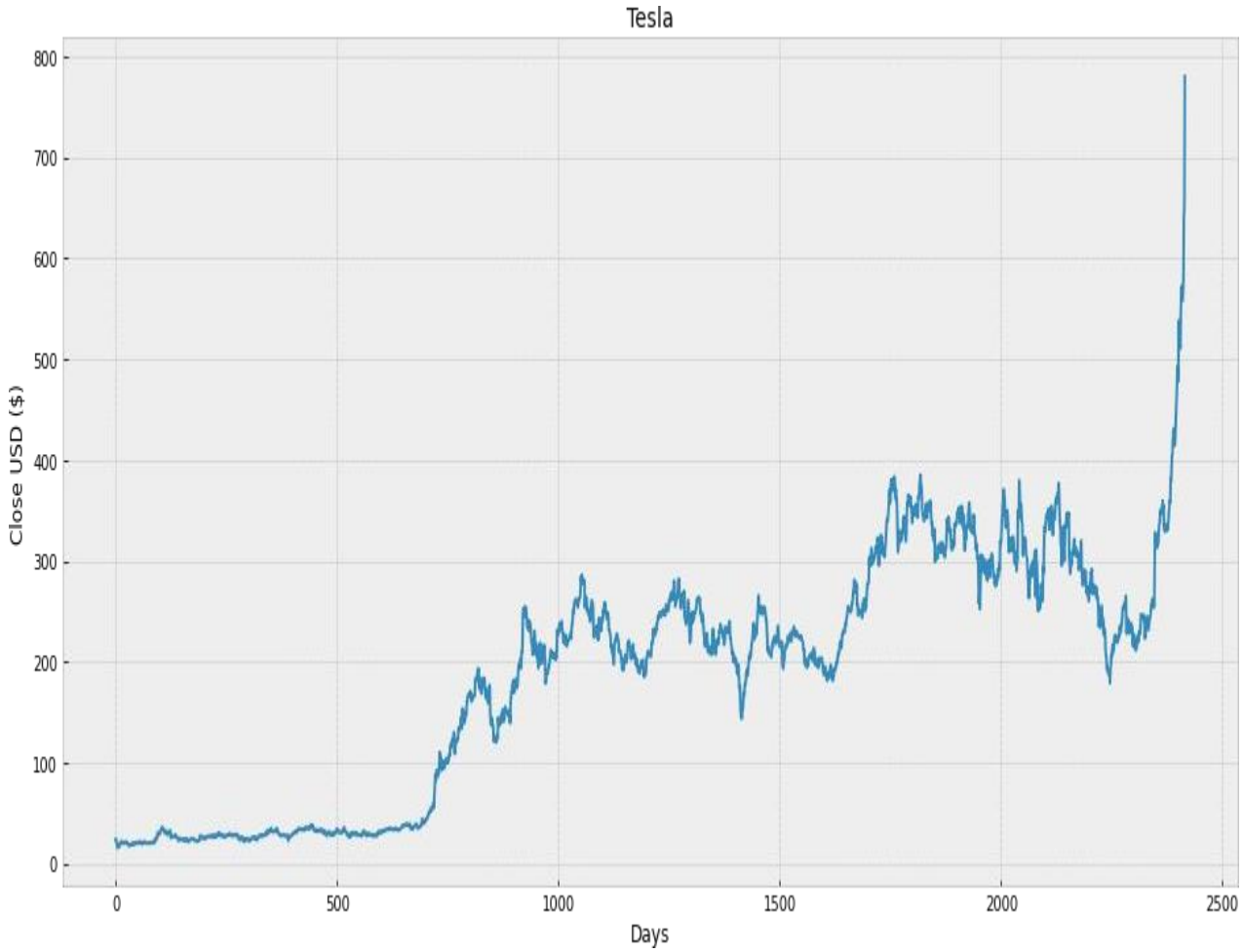

Fig2.1 Data set Tesla Graph

```
df=df[['Close']]
df.head(4)
```

	Close
0	23.889999
1	23.830000
2	21.959999
3	19.200001

```
future_days =25
df['Prediction']= df[['Close']].shift(-future_days)
df.tail(4)
```

	Close	Prediction
2412	580.989990	NaN
2413	640.809998	NaN
2414	650.570007	NaN
2415	780.000000	NaN

```
X=np.array(df.drop(['Prediction'],1))[:-future_days]
print(X)
```

```
[[ 23.889999]
 [ 23.83    ]
 [ 21.959999]
 ...
 [419.220001]
 [425.25    ]
 [430.940002]]
<ipython-input-21-6d809a07fb98>:1: Future Warning: In a future version of pandas all arguments of DataFrame.drop except for the argument 'labels' will be keyword-only
X=np.array(df.drop(['Prediction'],1))[:-future_days]
```

```
y=np.array(df['Prediction'])[:-future_days]
print(y)
```

```
[ 21.26 20.450001 19.59 ... 640.809998 650.570007 780. ]
```

```
# split the data in train and test
x_train, x_test, y_train, y_test = train_test_split(X,y,random_state=0)
```

```
x_train.shape
```

```
(1793, 1)
```

```
x_test.shape
```

```
(598, 1)
```

```
#Get the last
x_future =df.drop(['Prediction'],1)[:-future_days]
```

```
x_future = x_future.tail(future_days)
x_future = np.array(x_future)
x_future
```

```
<ipython-input-24-b5e1c927204a>:2: Future Warning: In a future version of pandas all arguments
of Data Frame.drop except for the argument 'labels' will be keyword-only
  x_future =df.drop(['Prediction'],1)[:-future_days]
array([[352.220001],
       [354.829987],
       [333.040009],
       [336.339996],
       [328.920013],
       [331.290009],
       [329.940002],
       [334.869995],
       [336.200012],
       [333.029999],
       [330.369995],
       [335.890015],
       [339.529999],
       [348.839996],
       [352.700012],
       [359.679993],
       [358.390015],
```

[381.5],

```
       [378.98999 ],
       [393.149994],
       [404.040009],
       [405.589996],
       [419.220001],
       [425.25    ],
       [430.940002]])
```

```
#Create the models
# Create the decision tree regressor model
tree = DecisionTreeRegressor().fit(x_train,y_train)
#Create the linear regression model
lr = LinearRegression().fit(x_train,y_train)

# show the model tree prediction
tree_prediction= tree.predict(x_future)
print(tree_prediction)
print()
# show the model linear regression prediction
lr_prediction = lr.predict(x_future)
print(lr_prediction)
```

```
[419.220001 414.700012 418.329987 430.26001  443.01001  451.540009
 352.929993 492.140015 481.339996 478.149994 524.859985 481.339996
 316.049988 513.48999  510.5      347.26001 569.559998 329.920013
 564.820007 337.019989 566.900024 566.900024 640.809998 650.570007
 780.      ]

[357.60611415 360.213183  338.44755939 341.74385803 334.33216825
 336.69951534 335.35101722 340.27550003 341.60403049 338.43756057
 335.78052963 341.29437997 344.93029561 354.22988694 358.08558865
 365.05776821 363.76923201 386.85338727 384.34618268 398.49036022
 409.36820359 410.91645819 424.5312291  430.55448845 436.23813081]
```

```
#visual the data
predictions = tree_prediction

valid= df[X.shape[0]:]
valid['Predictions'] = predictions
plt.figure(figsize=(16,8))
plt.title('Model')
plt.xlabel('Days')
plt.ylabel('Close USA($)')
plt.plot(df['Close'])
plt.plot(valid[['Close','Predictions']])
plt.legend(['Orig','Val','Pred'])
```

```
plt.show()
```

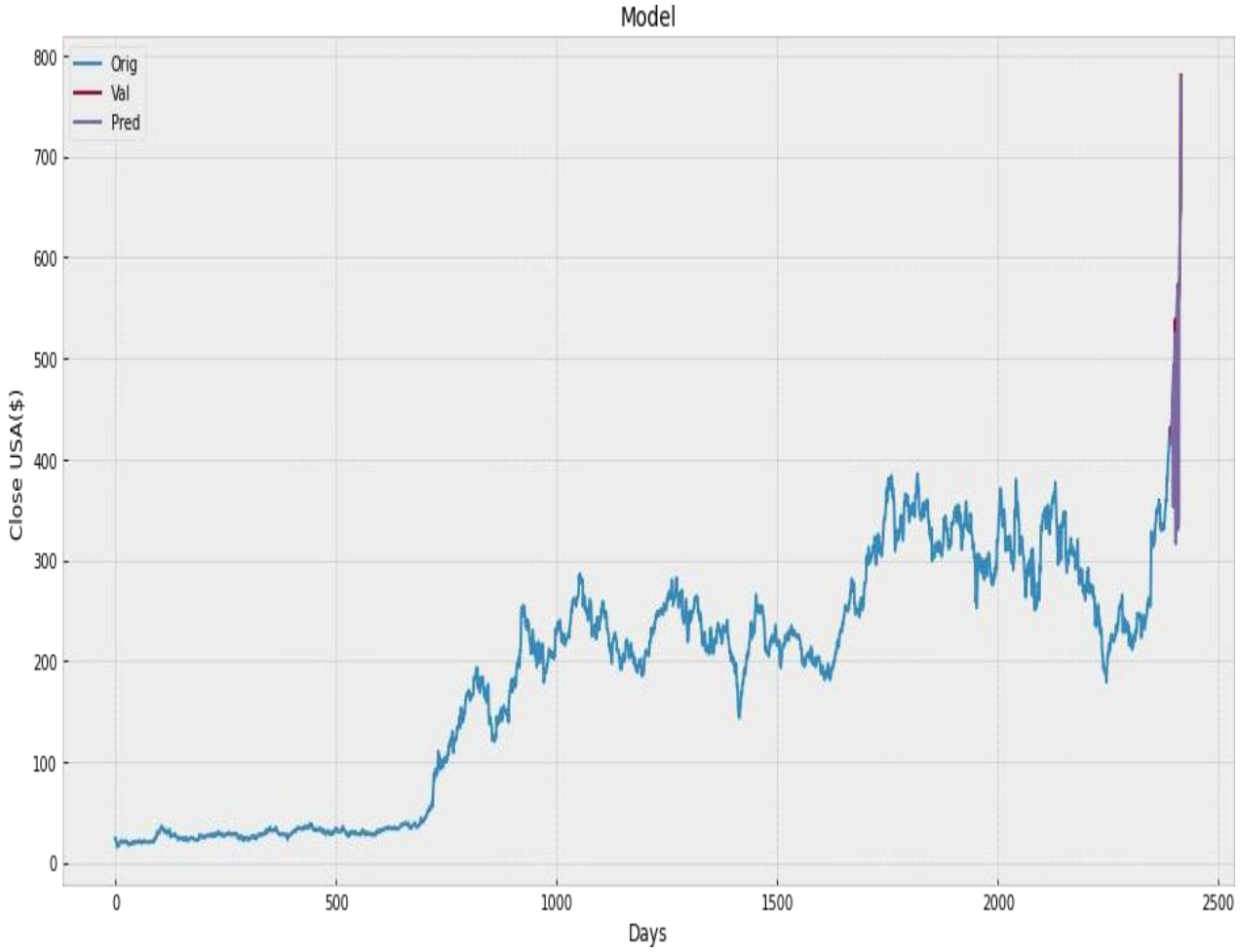

Fig.2.2 Decision Tree Graph

```
#visual the data for linear regression
predictions = lr_prediction

valid= df[X.shape[0]:]
valid['Predictions'] = predictions
plt.figure(figsize=(16,8))
plt.title('Model')
plt.xlabel('Days')
plt.ylabel('Close USA($)')
plt.plot(df['Close'])
plt.plot(valid[['Close','Predictions']])
plt.legend(['Orig','Val','Pred'])
plt.show()
```

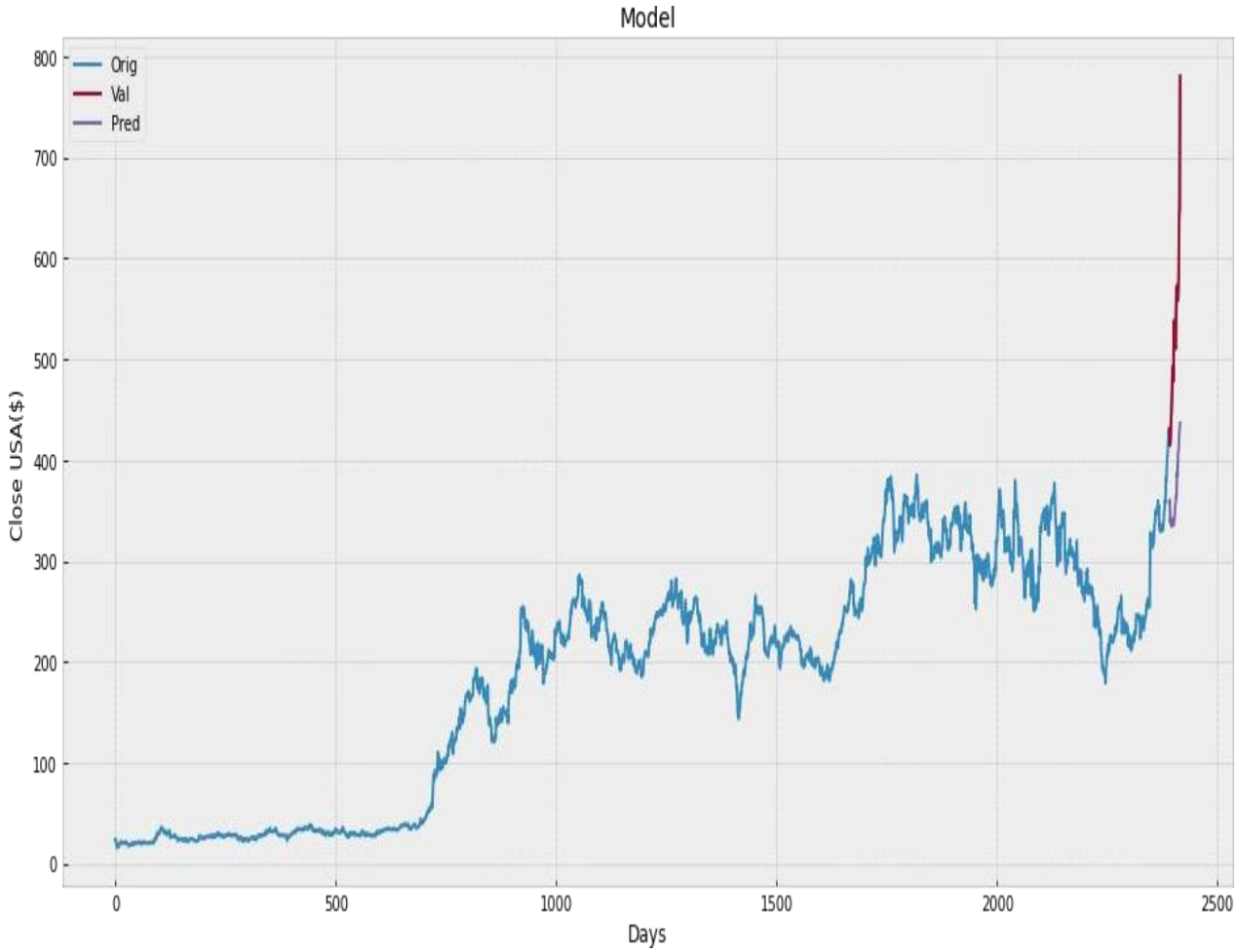

Fig.2.3 Linear Regression Graph

```
# import library form sklearm to find best accuracy

from sklearn.metrics import confusion_matrix, accuracy_score

# Accuracy score of linear regression model

lr.score(x_train,y_train)
```

```
0.9231588723179124
```

```
# Accuracy score of Decision tree
tree.score(x_train,y_train)
```

```
0.9984202270453749
```

3.1.4 Result

Parameter	Result
1. Model	1. Linear Regression 2.Decision tree
2.Dateset Name	Tesla
3.No. column	7
4.No.rows	2416
5. Train Data	1793(80%)
6. Test Data	598(20%)
7. random state	0

3.1.5 Accuracy

Model	Accuracy_Score = (no.CorrectPrediction) / Total No. Prediction
Linear Regression	0.9231588723179124
Decision Tree	0.9984202270453749

4. ADVANTAGES, DISADVANTAGES AND APPLICATION

4.1 Advantages

1) **Takes advantage of a growing economy**: As the economy grows, so do corporate earnings. That's because economic growth creates jobs, which creates income, which creates sales. The fatter the paycheck, the greater the boost to consumer demand, which drives more revenues into companies' cash registers.It helps to understand the phases of the business cycleexpansion, peak, contraction, and trough.

2) **Best way to stay ahead of inflation**: Historically, over the long term stocks have yielded a generous annualized return. For example, as of January 31, 2022, the 10-year annualized return for the S&P 500 was 15.43%.That's better than the average annualized inflation rate. It does mean you must have a longer time horizon, however. That way, you can buy and hold even if the value temporarily drops.

3) **Easy to buy**: The stock market makes it easy to buy shares of companies. You can purchase them through a broker or a financial planner, or online. Once you've set up an account, you can buy stocks in minutes. If you're a small business owner, you may even be able to invest in stocks through your business.

4) **Don't need a lot of money to start stock investing**: Most retail brokers such as Charles Schwas, let you buy and sell stocks commission-free. Some brokers such as Fidelity also don't require account minimums. If the stock you want to buy is too expensive, you can also buy fractional shares if your broker allows for such investment.

5) **Make money in two ways**: Most investors intend to buy low then sell high. They invest in fast-growing companies that appreciate in value. That's attractive to both day traders and buy-and-hold investors. The first group hopes to take advantage of short-term trends, while the latter expect to see the company's earnings and stock price grow over time. They both believe their stock-picking skills allow them to outperform the market. Other investors prefer a regular stream of cash. They purchase stocks of companies that pay dividends. Those companies grow at a moderate rate.

6) Liquidity: The stock market allows you to sell your stock at any time. Economists use the term "liquid" to mean that you can turn your shares into cash quickly and with low transaction costs. That's important if you suddenly need your money. Since prices are volatile, you run the risk of being forced to take a loss.

4.2 Disadvantages

1) **Risk**: You could lose your entire investment. If a company does poorly, investors will sell, sending the stock price plummeting. When you sell, you will lose your initial investment. If you can't afford to lose your initial investment, then you should buy bonds.

2) **Common stockholders paid last**: Preferred stockholders and bondholders or creditors get paid first if a company goes broke. But that happens only if a company goes bankrupt. A well-diversified portfolio should keep you safe if any company goes under.

3) **Time**: If you are buying stocks on your own, you must research each company to determine how profitable you think it will be before you buy its stock. You must learn how to read financial statements and annual reports and follow your company's developments in the news. You also have to monitor the stock market itself, as even the best company's price will fall in a market correction, a market crash, or bear market.

4) **Taxes**: If you sell your stock for a loss, you may be able to get a tax break. However, if you sell your stock for a profit, you'd be liable to to pay capital gains taxes.

5) **Emotional roller coaster**: Stock prices rise and fall second by second. Individuals tend to buy high out of greed, and sell low out of fear. The best thing to do is not constantly look at the price fluctuations of stocks, and just check in on a regularbasis.

6) **Professional competition**: Institutional investors and professional traders have more time and knowledge to invest. They also have sophisticated trading tools, financial models, and computer systems at their disposal.

4.3 Applications

1. **A stock trading app :-** A stock trading app is designed to handle and update investment portfolios along with easy selling and buying on trading platforms. Typically, the main monetization strategy here is the commission. This kind of commission system charges interests on user transactions, deposits, and stock transactions

2. **Stock Exchange** :- It is necessary for a public company to list their shares in the stock exchange therefore the promoters apply in a stock exchange to list company shares. Allotment of Shares : Allotment of shares means acceptance of share applied. Allotment letters are issued to the shareholders.

3. **Index in stock market:-** Indexes are used as benchmarks to gauge the movement and performance of market segments. Investors use indexes as a basis for portfolio or passive index investing.

4. **I.P.O:-** When a private company first sells shares of stock to the public, this process is known as an initial public offering (IPO). In essence, an IPO means that a company's ownership is transitioning from private ownership to public ownership. For that reason, the IPO process is sometimes referred to as "going public."

5. CONCLUSION

5.1 Conclusion:

We are predicting the closing stock price of any given organization, we have developed an application for predicting close stock price using LR and Decision tree algorithm. We have used datasets belonging to Google, Nifty50, TCS, Infosys and Reliance Stocks and achieved above 93% accuracy for these datasets. In the future, we can extend this application for predicting cryptocurrency trading and also, we can add sentiment analysis for better predictions.

Stock means ownership. As an owner, you have a claim on the assets and earnings of a company as well as voting rights with your shares.

Stock is equity, bonds are debt. Bondholders are guaranteed a return on their investment and have a higher claim than shareholders. This is generally why stocks are considered riskier investments and require a higher rate of return.

Stock means ownership. As an owner, you have a claim on the assets and earnings of a company as well as voting rights with your shares. Stock is equity, bonds are debt. Bondholders are guaranteed a return on their investment and have a higher claim than shareholders.

In this project, we are predicting closing stock price of any given organization, we developed a web application for predicting close stock price using Linear regression and Decision tree algorithms for prediction. We have applied datasets belonging to Google, Nifty50, TCS, Infosys and Reliance Stocks and achieved above 95% accuracy for these datasets.

5.2 Future Scope:

We want to extend this application for predicting cryptocurrency trading.

We want to add sentiment analysis for better analysis.

1. Increase/Decrease in Mutual Fund Holding:

The trading activity of mutual funds is inherently linked to the price of the stocks in which they invest. When mutual funds buy and sell stocks, the prices of those stocks are automatically affected.

2. Influence of FPI & FII on Stock Price Movement:

Stock markets are primarily driven by institutional money. FIIs and DIIs account for the bulk of the liquidity in the market. Tracking their inflows and outflows can help predict broader trends in the market.
As FPI/FII activity hogs the limelight, it makes sense to keep tabs on their activity. As retail investors, we do not have enough financial muscle to influence stock prices.Instead, we can earn above-average returns just by following in the footsteps of FPI/FII.

3. Delivery Percentage in Stock Trading Volume:

Many investors tend to check volumes in stock and are rather happy if they have bought a stock and see the volumes going up significantly.
However, more important than studying the volume of a stock or shares is to study the percentage of deliverable quantity to total traded quantity.

4. Increase/Decrease in Promoter Holding

A rise in promoter holding is read positively by investors. For them, this increase is akin to putting money where one's mouth is. All prominent shareholders, including promoters, have a vested interest in speaking well about their company and its future prospects.
In this manner, they can influence prospective investors to invest in the shares of their company, thus increasing its price, and consequently their wealth. It is just vice versa in case of a decrease in promoter holding.

5. Change in Business model/Promoters/Venturing into New Business

Inefficient promoters being outset from the company or a change in management will be a major positive signal for the investing community at large. Hence any such news should also be tracked carefully to predict any stock price movement.

6. Consistent Growth in Profit in Several Quarters

When looking at a company's quarterly or annual financial, it is not enough to just look at the revenue for the current period. When investing in a company, an investor wants to see it grow or improve over time. Comparing a company's financial from one period to another gives a clear picture of its revenue growth rate and can help investors identify the catalyst for such growth.

While strong quarterly revenue growth is one metric for success, it's important to look at several quarters and the consistency of growth over time. If growth is simply a two- or three-quarter phenomenon, it does not necessarily bode well for a longer-term investment.

References

[1] Stock Price Prediction Using LSTM on Indian Share Market by Achyut Ghosh, Soumik Bose1,GiridharMaji, Narayan C. Debnath, Soumya Sen

[2] S. Selvin, R. Vinayakumar, E. A. Gopalkrishnan, V. K. Menon and K. P. Soman - Stock price predictionusing LSTM, RNN and CNN-sliding window model - 2017.

[3] Murtaza Roondiwala, Harshal Patel, Shraddha Varma, "Predicting Stock Prices Using LSTM" in Undergraduate Engineering Students, Department of Information Technology, Mumbai University,2015.

[4] www.geeksforgeeks.org

[5]Ishita Parmar, Navanshu Agarwal, Sheirsh Saxena, Ridam Arora, Shikhin Gupta, Himanshu Dhiman, Lokesh Chouhan Department of Computer Science and Engineering National Institute of Technology,Hamirpur – 177005, INDIA - Stock Market Prediction Using Machine Learning.

[6] www.kaggle.com

Acknowledgement

It gives us a great pleasure to submit this Project. This is the only page where we have the opportunity to express our emotions and gratitude from the bottom of our heart.

We express our sincere thanks to our guide **Prof. A.S. Gavali** for guiding us at every step in making of this Project. She motivated us and boosted our confidence, and we must admit that the work would not have been accomplished without her guidance and encouragement.

We are also thankful to project coordinator **Prof. A.S. Gavali** for guiding and encouraging us as and when requirement.

We would like to extend my special thanks to Head of Department **Dr. S.R. Zanwar** and Principal **Dr. U. B. Shinde** for spending their valuable time to go through my report and providing many helpful suggestions. Lastly we would like to thank all the staff member of Artificial Intelligence and Data Science Engineering department without whom the project report would not have been completed.

Panav Kathar(AI3060)

Harshwardhan Khotkar(AI3072)

S.E.(Artificial Intelligence and Data Science)