MINIPROJECT

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By
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CERTIFICATE

This is to certify that the dissertation entitled "Internship Report" submitted by Pulakanti Poorna Chandra bearing Id.No:R170515 and Kalluru Ajay Kumar Reddy bearing Id.No:R170378 in partial fulfillment of the requirements for the award of Bachelor of Technology in Computer Science is a bonafide work carried out by him under my supervision and guidance.

The dissertation has not been submitted previously in part or in full to this or any other University or Institution for the award of any degree or diploma.

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DECLARATION

I P.Poorna Chandra hereby declare that this Dissertation entitled "Mini-project Report" submitted by me under the guidance and supervision of Asst Prof.Ms.Shabana is a bonafide work.I also declare that it has not been submitted previously in part or in full to this university or other university or institution for the award of any degree or diploma.

Date: P.Poorna chandra
                                                                          K.Ajay Kumar

Place:RGUKT,RK VALLEY

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At the very outset of this report.I would like to extend my sincere & heartful obligation towards all the personages who have helped me in this endeavor. Without their active guidance , help, cooperation & encouragement,I wouldn't have made headway in the project.
I would like to thank Ms.Shabana for their valuable suggestions through out the project.

                                                                          With some regards,
                                                                          P.Poorna Chandra
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Abstract

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 intraday trading by the commonly used term "day trading." Interday traders hold securities positions from at least one day to the next and often for several days to weeks or months. LSTMs are very powerful in sequence prediction problems because they're able to store past information. 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.

Machine learning

Machine learning is the science of getting computers to act without being explicitly programmed.

Machine learning is a method of data analysis that automates analytical model building

Machine learning is important because it gives enterprises a view of trends in customer behavior and business operational patterns, as well as supports the development of new products
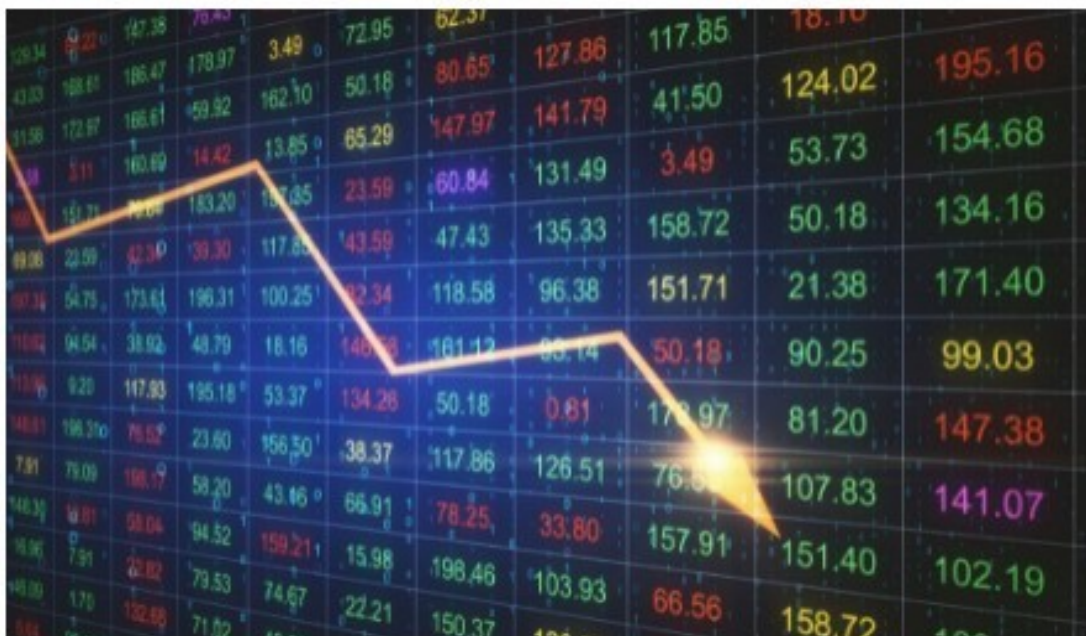
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What is the Stock Market?

A stock market is a public market where you can buy and sell shares for publicly listed companies.

The stocks, also known as equities, represent ownership in the company. The stock exchange is themediator that allows the buying and selling of shares.

Importance of Stock Market

Stock markets help companies to raise capital.
It helps generate personal wealth.
Stock markets serve as an indicator of the state of the economy.
It is a widely used source for people to invest money in companies with high growth
potential.

Stock Price Prediction

Stock Price Prediction using machine learning helps you discover the future value of company stock
and other financial assets traded on an exchange. The entire idea of predicting stock prices is to gain
significant profits. Predicting how the stock market will perform is a hard task to do. There are
other factors involved in the prediction, such as physical and psychological factors, rational and
irrational behavior, and so on. All these factors combine to make share prices dynamic and volatile.
This makes it very difficult to predict stock prices with high accuracy.

Understanding Linear Regression

Technical and quantitative analysts have applied statistical principles to the financial market since its inception. Some attempts have been very successful, while others have been anything but. The key is to find a way

to identify price trends without the fallibility and bias of the human mind. One approach that can be successful for investors and is available in most charting tools is linear [regression](#).

Linear [regression](#) analyzes two separate variables in order to define a single relationship. In [chart analysis](#), this refers to the variables of price and time. Investors and traders who use charts recognize the ups and downs of price printed horizontally from day-to-day, minute-to-minute, or week-to-week, depending on the evaluated time frame. The different [market approaches](#) are what make linear regression analysis so attractive.

Linear regression is the analysis of two separate variables to define a single relationship and is a useful measure for technical and quantitative analysis in financial markets.

●Plotting stock prices along a normal distribution—bell curve—can allow traders to see when a stock is overbought or oversold.

●Using linear regression, a trader can identify key price points—entry price, stop-loss price, and exit prices.

●A stock's price and time period determine the system parameters for linear regression, making the method universally applicable.

Tesla Stock Prediction using Linear Regression

1.Import the Libraries

import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
import chart_studio.plotly as py
import plotly.graph_objs as go
from plotly.offline import plot
from plotly.offline import download_plotlyjs , init_notebook_mode,plot,iplot

init_notebook_mode(connected=True)

2.load the Dataset

The telsa data has information from 3 Jan 2010 to 30 Dec 2019. There are seven columns.The Open column tells the price at which a stock started trading when the market opened on a particular day. The Close column refers to the price of an individual stock when the stock exchange closed the market for the day. The High column depicts the highest price at which a stock traded during a period. The Low column tells the lowest price of the period. Volume is the total amount of trading activity during a period of time

```
tesla=pd.read_csv('teslaa.csv',encoding=("ISO-8859-1"),low_memory=False)
tesla.head()
```

	Date	Open	High	Low	Close	Adj Close	Volume
0	29-06-2010	19.000000	25.00	17.540001	23.889999	23.889999	18766300
1	30-06-2010	25.790001	30.42	23.299999	23.830000	23.830000	17187100
2	01-07-2010	25.000000	25.92	20.270000	21.959999	21.959999	8218800
3	02-07-2010	23.000000	23.10	18.709999	19.200001	19.200001	5139800
4	06-07-2010	20.000000	20.00	15.830000	16.110001	16.110001	6866900

3.Description tesla stock data

It will give details about the complete tesla stock dataset.

```
print(f'dataframe contains stock prices between {tesla.Date.min()}{tesla.Date.max()}')
print(f'Total days ={(tesla.Date.max() - tesla.Date.min()).days}days')
```
```
dataframe contains stock prices between 2010-01-07 00:00:002019-12-03 00:00:00
Total days =3617days
```

```
tesla.describe()
```

	Open	High	Low	Close	Adj Close	Volume
count	2193.000000	2193.000000	2193.000000	2193.000000	2193.000000	2.193000e+03
mean	175.652882	178.710262	172.412075	175.648555	175.648555	5.077449e+06
std	115.580903	117.370092	113.654794	115.580771	115.580771	4.545398e+06
min	16.139999	16.629999	14.980000	15.800000	15.800000	1.185000e+05
25%	33.110001	33.910000	32.459999	33.160000	33.160000	1.577800e+06
50%	204.990005	208.160004	201.669998	204.990005	204.990005	4.171700e+06
75%	262.000000	265.329987	256.209991	261.739990	261.739990	6.885600e+06
max	386.690002	389.609985	379.350006	385.000000	385.000000	3.716390e+07

4.Building the Model by Importing the Crucial Libraries and Adding Different layers sklearn algorithm

```
import sklearn
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import MinMaxScaler
from sklearn.preprocessing import StandardScaler
from sklearn.metrics import mean_squared_error as mse
from sklearn.metrics import r2_score
```

5. Creating X_train and y_train Data Structures.

```
x=np.array(tesla.index).reshape(-1,1)
y=tesla['Close']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3,random_state=101)

scaler=StandardScaler().fit(x_train)
```

6.Implementing the Lineatr Regression

```
lm= LinearRegression()
lm.fit(x_train,y_train)

LinearRegression(fit_intercept=True,n_jobs=None,normalize=False)
```

7.Plotting the Actual and Predicted Prices for Tesla Stocks.

```
trace0=go.Scatter(
     x=x_train.T[0],
     y=y_train,
     mode='markers',
     name='Actual'
)
trace1=go.Scatter(
     x=x_train.T[0],
     y=lm.predict(x_train).T,
     mode='lines',
     name='Predicted'

)
tesla_data=[trace0,trace1]
layout.xaxis.title.text='Day'
plot2=go.Figure(data=tesla_data,layout=layout)

iplot(plot2)
```

Stock Prices Of Tesla
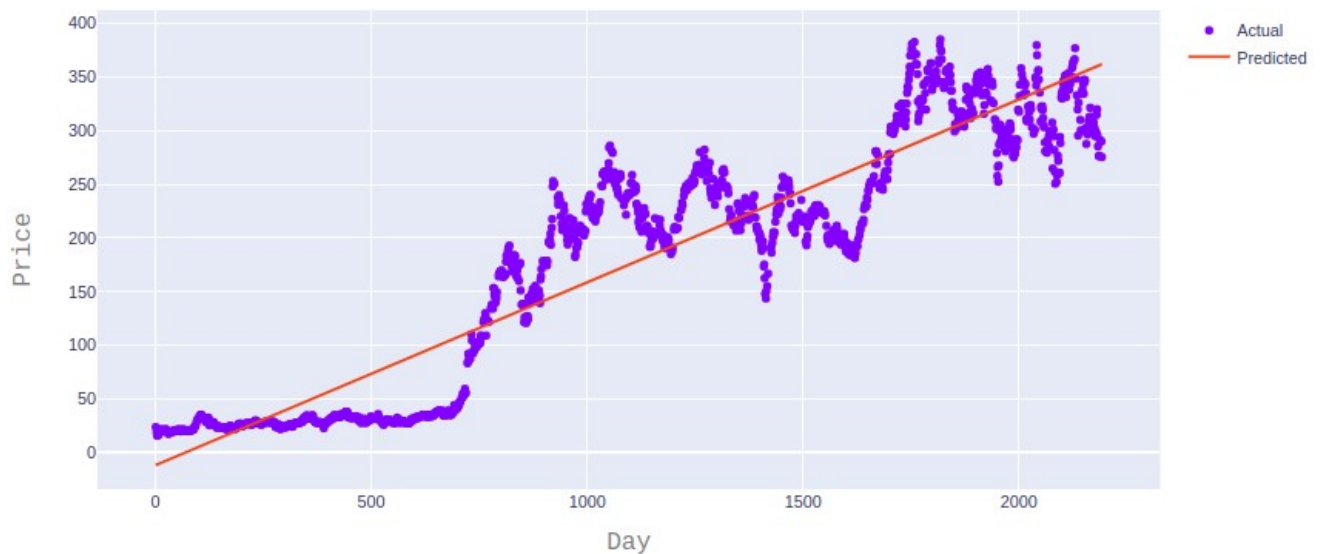
As you can see above, the model can predict the trend of the actual stock prices very closely. The accuracy of the model can be enhanced by training with more data.

Conclusion:
The stock market plays a remarkable role in our daily lives. It is a significant factor in a country's GDP growth.
we are predicting the closing stock price of any given organization, we have developed an application for predicting close stock price using Linear algorithm. We have used datasets belonging to Tesla 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.

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