

(ITEC-532) DATA SCIENCE
Mini-Project Assignment
Information Technology (Evening)

Group Namely:

Malik Muhammad Huzaifa (2K20/ITE/65)

Hamza Maqsood (2K20/ITE/47)

Mubashir Ali (2K20/ITE/73)

Muhammad Mujeeb (2K20/ITE/87)

Sohail Baloch (2K20/ITE/130)

Topic: Stock Price Prediction

What is Stock Market?

A securities exchange is a public market where you can trade shares for freely recorded organizations. The ownership stake in the business is represented by stocks, also known as equities. The intermediary that facilitates the purchase and sale of shares is the stock exchange.



Its Importance:

Stock markets assist businesses in raising capital. It aids in personal wealth creation. The state of the economy can be gauged by looking at stock markets. People frequently use it to invest in businesses with high growth potential.

Stock Price Prediction:

Predicting time series is just one of many uses for machine learning. Stock prices are, without a doubt, one of the most intriguing and profitable time series to predict. The process of attempting to predict a stock's future price using data from the past and other factors that could affect the price of the stock is known as stock prediction. Because stock prices can be influenced by a wide range of things, including economic conditions, company performance, industry trends, and market sentiment, this is a common task in the field of data science.

Fundamental analysis, statistical modeling, and machine learning algorithms are just a few of the methods that data scientists can use to make stock price predictions. Using these methods, models that look at historical data and try to find patterns or trends that could be used to predict stock prices in the future can be built.

It is essential to note that stock prediction is a challenging endeavor, and it is typically challenging to accurately predict the stock's exact future price. Despite this, data scientists can still build models using a variety of methods that can provide useful insights and reasonably accurate predictions about stock prices in the future, which can be beneficial to investors and other stakeholders.

Exemplary Code to Understand Price Prediction:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression
# Load the stock price data into a Pandas dataframe
```

```
df = pd.read_csv('stock_data.csv')
# Select the 'Close' column as the target variable
y = df['Close']
# Select the 'Date' and 'Volume' columns as the input features
X = df[['Date', 'Volume']]
# Convert the 'Date' column to datetime format
X['Date'] = pd.to_datetime(X['Date'])
# Extract the year and month from the 'Date' column and add them as new columns
X['Year'] = X['Date'].dt.year
X['Month'] = X['Date'].dt.month
# Drop the 'Date' column
X = X.drop(columns=['Date'])
# Split the data into training and test sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
# Fit a linear regression model to the training data
model = LinearRegression()
model.fit(X_train, y_train)
# Use the model to make predictions on the test data
predictions = model.predict(X_test)
# Calculate the mean squared error between the predicted and actual values
mse = mean_squared_error(y_test, predictions)
# Print the mean squared error
print(f'Mean Squared Error: {mse}')
```

<https://github.com/MalikMuhammadHuzaifa/Data-Science-Project>

This illustration demonstrates how stock prices can be predicted based on the date and volume of the stock using a straightforward linear regression model. The code initial loads the stock information into a Pandas information outline, changes the 'Date' section over completely to a Date Time configuration, and concentrates the year and month as independent elements. The data are then divided into training and test sets, and the training data are used to fit a linear regression model. The mean squared error between the predicted and actual values is then calculated using the model on the test data.

Conclusion:

In conclusion, stock price prediction is the process of using data science techniques to try to forecast the future price of a stock based on past data and other factors that may influence the stock's price. This is a common task in the field of data science, as stock prices can be influenced by a wide range of factors such as economic conditions, company performance, industry trends, and market sentiment.

There are many approaches that data scientists can use to predict stock prices, including statistical modeling, machine learning algorithms, and fundamental analysis. These approaches can be used to build models that analyze historical data and try to identify patterns or trends that may be used to predict future stock prices.

THE END!