STOCK PRICE PREDICTION

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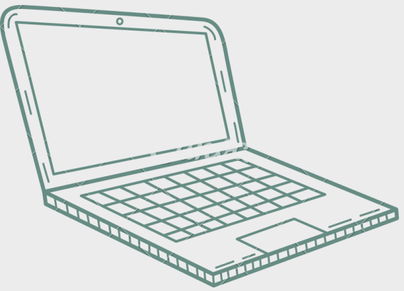
INTRODUCTION:

Stock Price Prediction using machine learning helps you discover the future value of company stock and other financial assetstraded 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 text

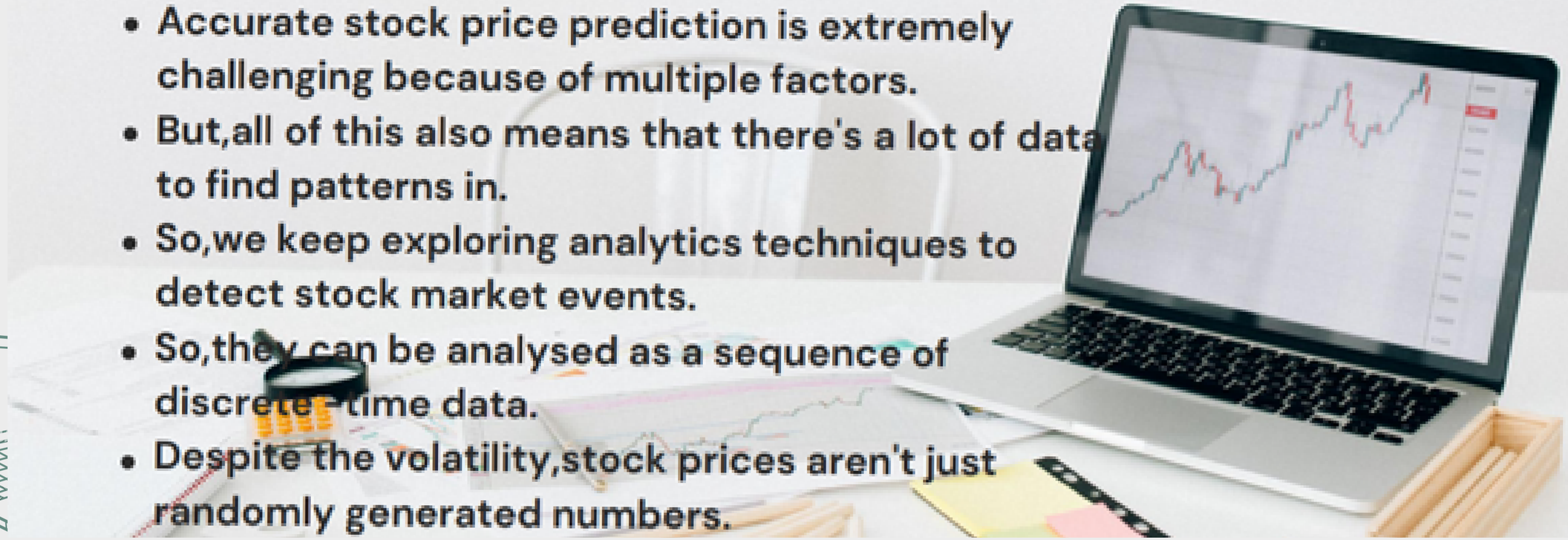
ABSTRACT

- **In Stock Market Prediction, the aim is to predict the future value of the financial stocks of a company. The recent trend in stock market prediction technologies is the use of machine learning which makes predictions based on the values of current stock market indices by training on their previous values.**



Need of Project

- The stock is known for being volatile,dynamic and nonlinear.
- Accurate stock price prediction is extremely challenging because of multiple factors.
- But,all of this also means that there's a lot of data to find patterns in.
- So,we keep exploring analytics techniques to detect stock market events.
- So,they can be analysed as a sequence of discrete -time data.
- Despite the volatility,stock prices aren't just randomly generated numbers.



EXPLORATORY ALALYSIS

- **To begin this exploratory analysis, first import libraries and define functions for plotting the data using matplotlib. Depending on the data, not all plots will be made.**

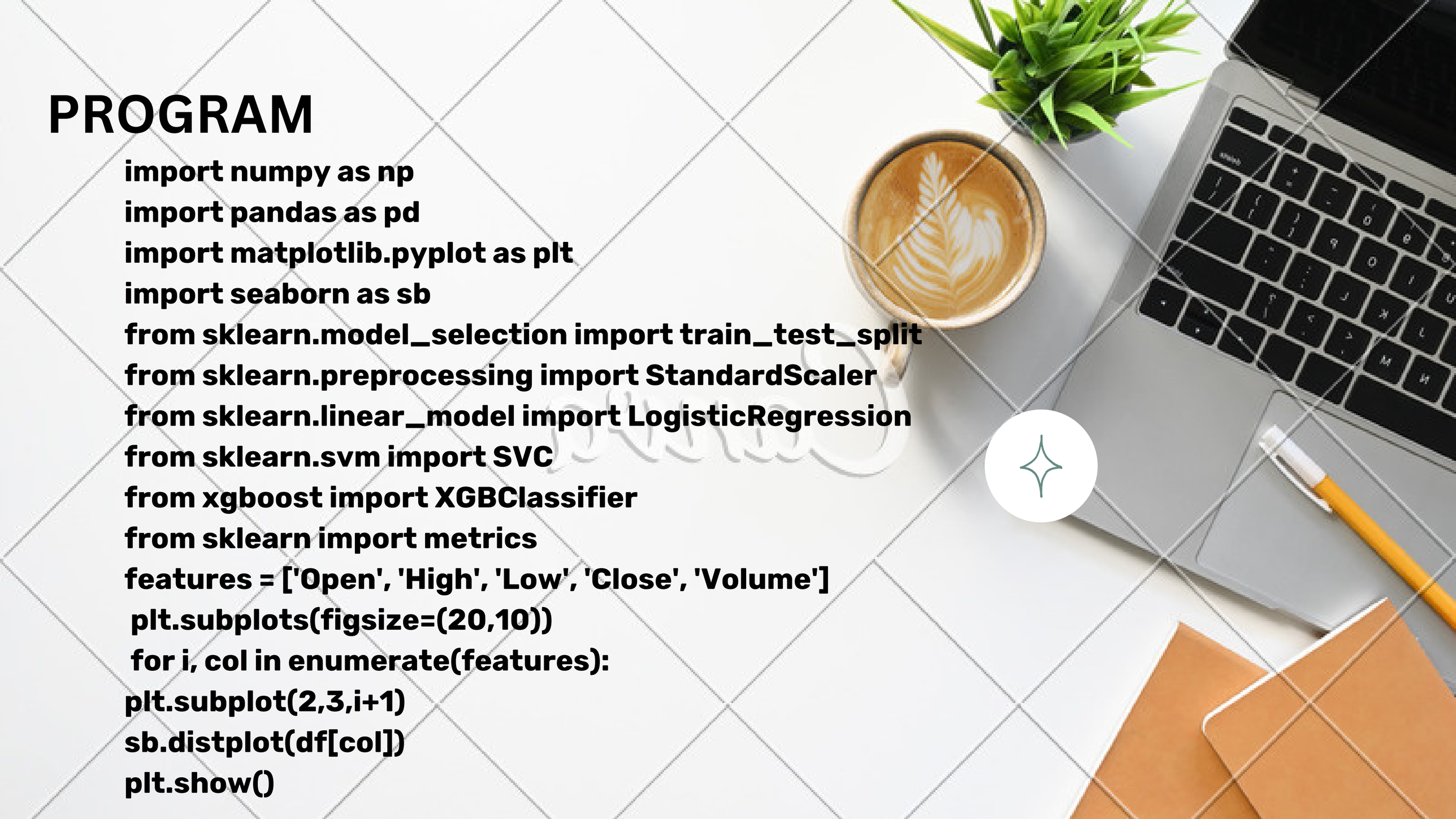
IMPORT DATASET

The dataset we will use here to perform the analysis and build a predictive model is Tesla Stock Price data. We will use OHLC('Open', 'High', 'Low', 'Close') data from 1st January 2010 to 31st December 2017 which is for 8 years for the Tesla stocks.

```
df = pd.read_csv('/content/Tesla.csv')
df.head()
```

PROGRAM

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sb
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.linear_model import LogisticRegression
from sklearn.svm import SVC
from xgboost import XGBClassifier
from sklearn import metrics
features = ['Open', 'High', 'Low', 'Close', 'Volume']
 plt.subplots(figsize=(20,10))
 for i, col in enumerate(features):
plt.subplot(2,3,i+1)
sb.distplot(df[col])
plt.show()
```



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from sklearn.svm import SVC
from xgboost import XGBClassifier
from sklearn import metrics

import warnings
warnings.filterwarnings('ignore')
```

Output for program

Date	Open	High	Low	Close	Volume	Adj Clo
6/29/2010	19.000000	25.00	17.540001	23.889999	18766300	23.8899
6/30/2010	25.790001	30.42	23.299999	23.830000	17187100	23.8300
7/1/2010	25.000000	25.92	20.270000	21.959999	8218800	21.9599
7/2/2010	23.000000	23.10	18.709999	19.200001	5139800	19.2000
7/6/2010	20.000000	20.00	15.830000	16.110001	6866900	16.1100

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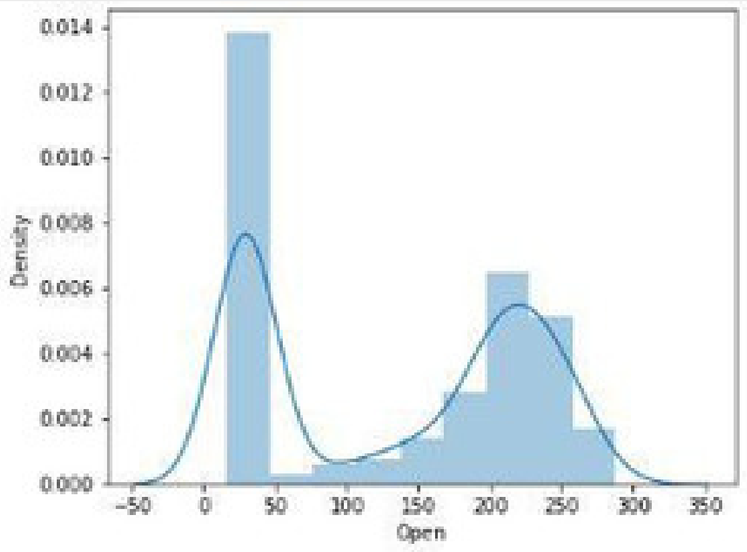
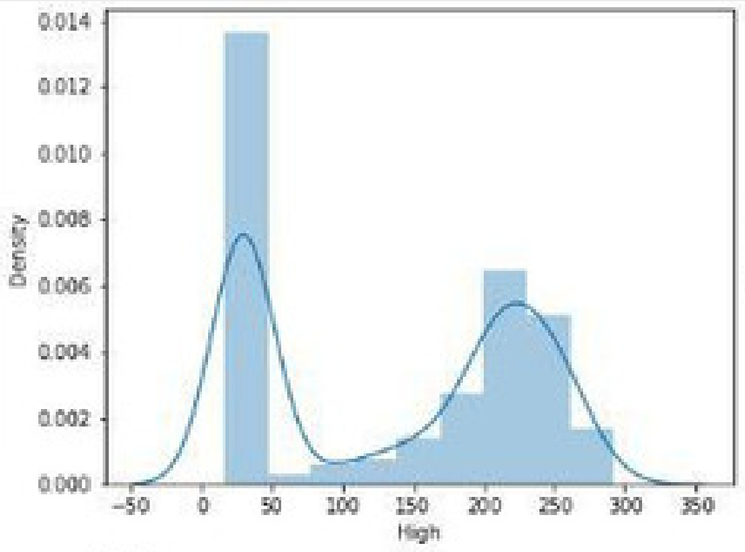
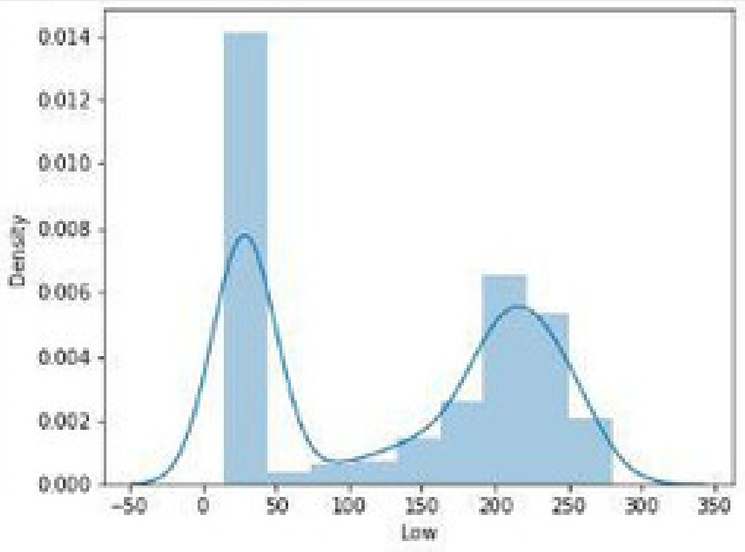
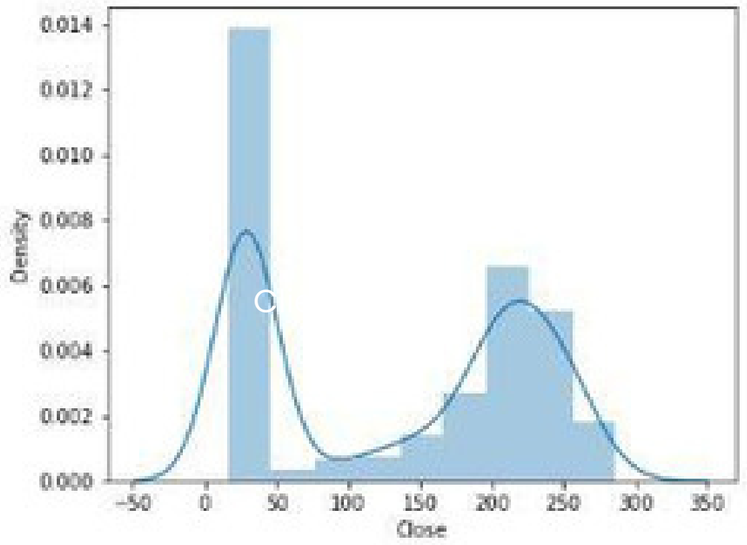
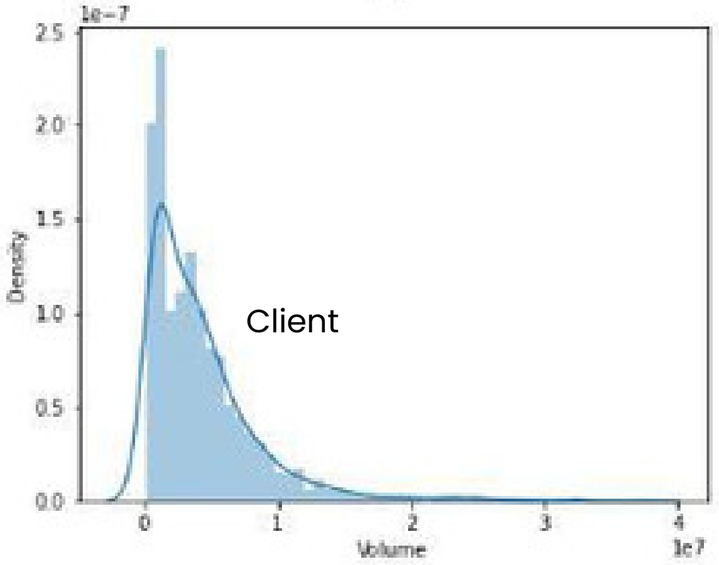










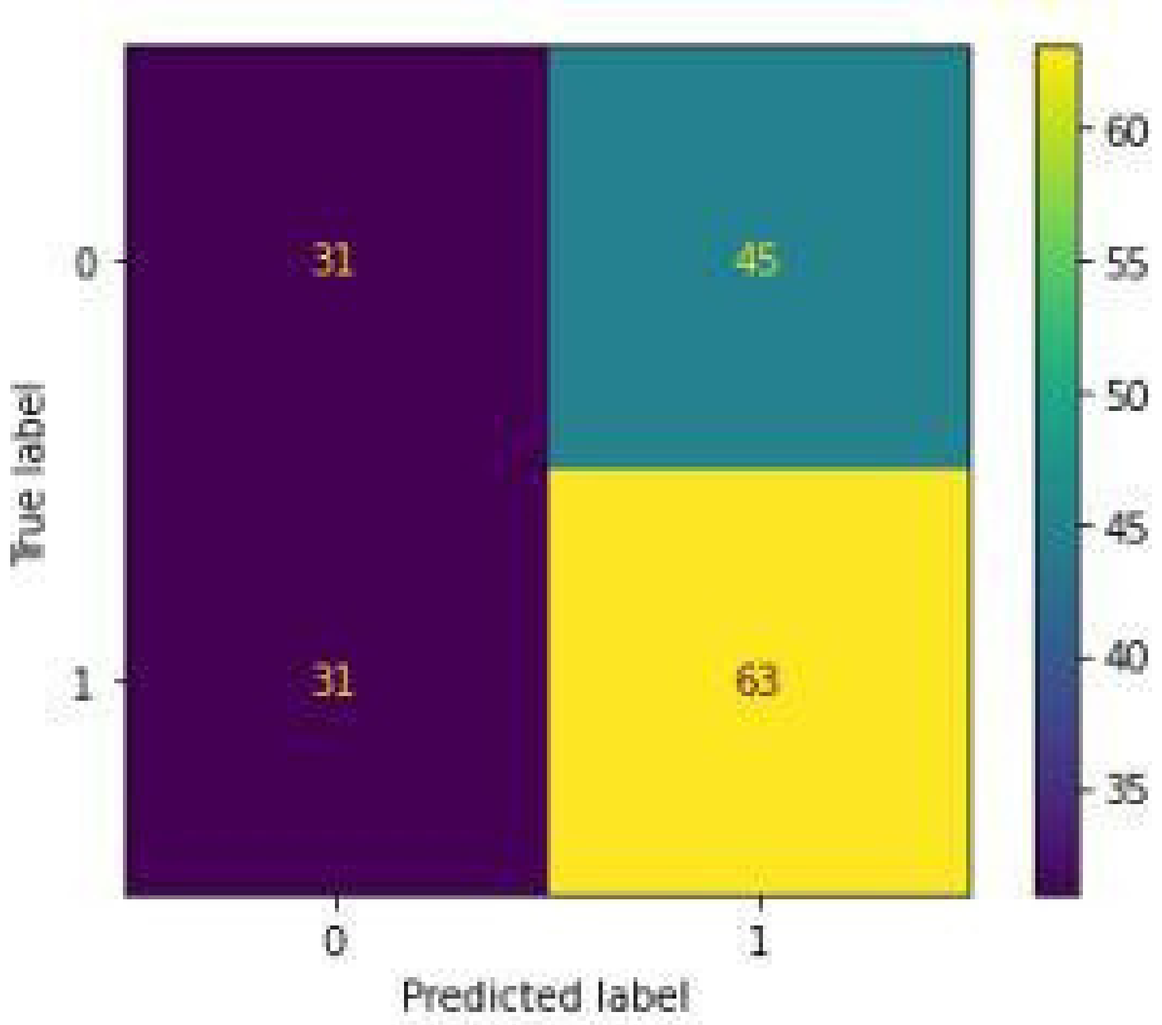
Client

Client

we have trained XGBClassifier has the highest performance but it is pruned to overfitting as the difference between the training and the validation accuracy is too high. But in the case of the Logistic Regression, this is not the case.
Now let’s plot a confusion matrix for the validation data.

```
metrics.plot_confusion_matrix(models[0],
X_valid, Y_valid)
plt.show()
```

OUTPUT



IMPORTANC OF STOCK MARKET

It provides a source of capital for companies to raise funds for growth and expansion.

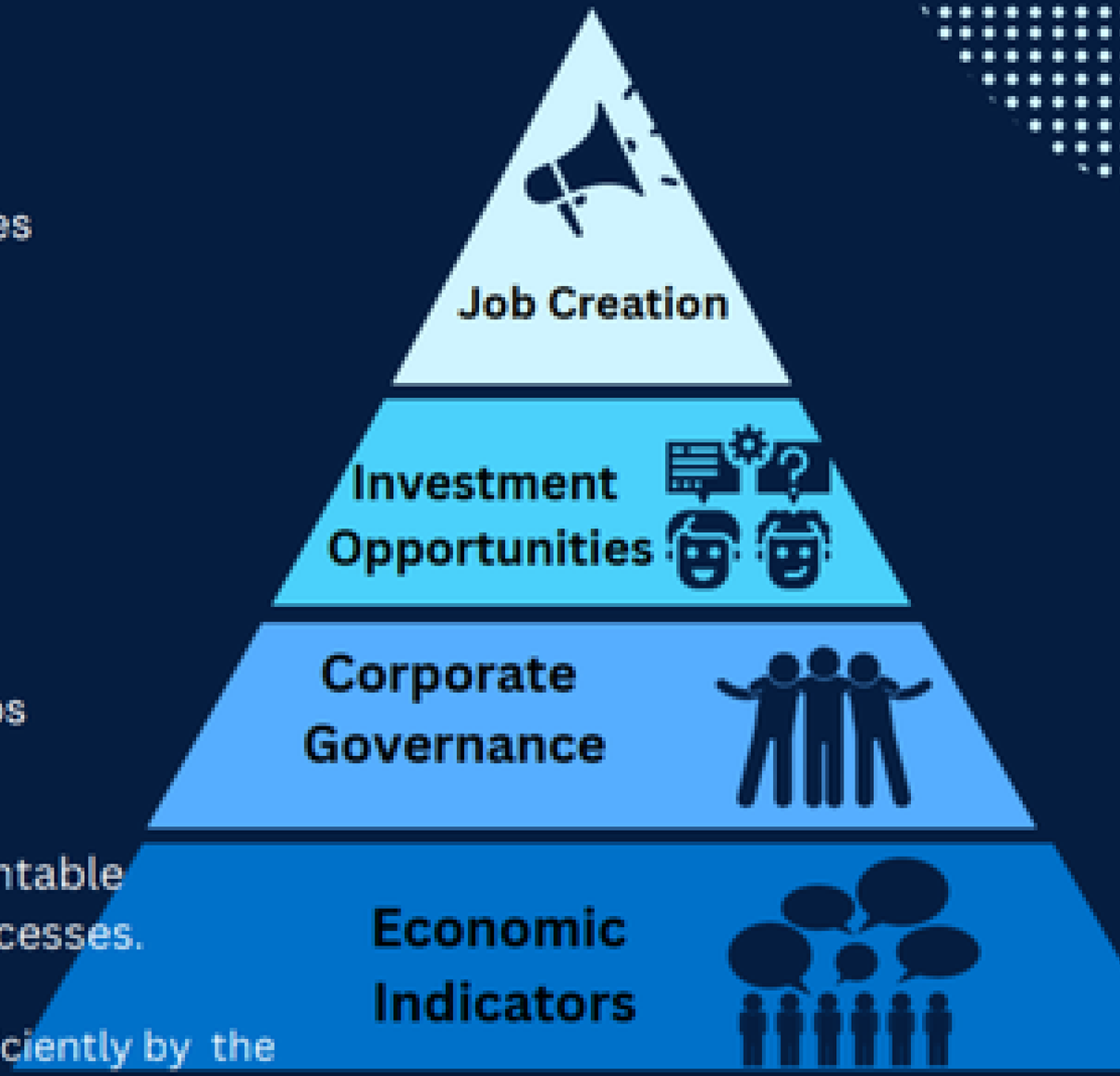
Investors can potentially grow their wealth over time by investing in the stock market.

The stock market can indicate the overall health of the economy

Publicly traded companies often create jobs and contribute to the economy's growth

Shareholders can hold companies accountable for their actions and decision-making processes.

The stock market helps allocate resources efficiently by the directing investments to companies with promising prospects.



CONCLUSION

A stock price is a given for every share issued by a publicly-traded company. The price is a reflection of the company's value – what the public is willing to pay for a piece of the company.