

Shambhunath Institute of Engineering and Technology

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STOCK PRICE PREDICTION SYSTEM

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OBJECTIVE

- The main objective of this study is to study about different methodology's and get a stock market prediction tool to obtain more accurate stock prediction price and to evaluate them with some performance measures.

INTRODUCTION

- Demand of Stock have become huge with Increased in popularity of Stock in Digital world.
- Prediction and Analysing stock can benefit People to think before buying or selling stocks.
- Through this System we can predict of any Company stock in the world.
- Python is the programming language used to forecast the stock market.

MOTIVATION

- Lots of prediction system are present but they are not user friendly so we will make effort to make it user friendly.
- It will show the Accurate prediction.

LITERATURE SURVEY

Sr. no.	Author	Methods	Results
1.	Orlunwa Placida Orochi, and Ledesi Kabari, Predicting Stock Price in Python using TensorFlow and Keras (June 2021), International Journal of Research and Scientific Innovation (IJRSI), ISSN 2321-2705	TensorFlow and Keras	81%
2.	Decision Forest, Stock Price Prediction using Deep Learning (July 2020)	Keras	78%

METHODOLOGY

➤ The processes which are involved in this project are:-

1. Import Required Libraries
2. Load the Data
3. Data Preprocessing
4. Splitting the Data into Training and Testing Sets
5. Building the Model
6. Training the Model
7. Evaluating the Model
8. Making Predictions
9. Visualize the Predictions

Importing Required Libraries:-

```
import yfinance as yf
import pandas as pd
from sklearn.preprocessing import MinMaxScaler
import numpy as np
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense, LSTM, Dropout
import matplotlib.pyplot as plt
```

Loading the Data:-

```
# Data Collection
data = yf.download('NFLX', start='2019-05-10', end='2023-05-10')
# save data to csv file
data.to_csv('NETFLIX.csv')
```


Data Preprocessing:-

```
# Data Preprocessing
data = data.reset_index()['Close']
scaler=MinMaxScaler()
data=scaler.fit_transform(np.array(data).reshape(-1,1))
```

Splitting the Data into Training and Testing Sets:-

```
#splitting the data into x and y sets
train_data = data[:int(0.8 * len(data))]
test_data = data[int(0.8 * len(data)):]

def create_sequences(data, sequence_length):
    x = []
    y = []
    for i in range(sequence_length, len(data)):
        x.append(data[i-sequence_length:i])
        y.append(data[i])
    x = np.array(x)
    y = np.array(y)
    return x, y

sequence_length = 60
X_train, y_train = create_sequences(train_data, sequence_length)
X_test, y_test = create_sequences(test_data, sequence_length)
```

Building the Model:-

```
# Model Building
model = Sequential()

model.add(LSTM(units=50, return_sequences=True, input_shape=(X_train.shape[1], 1)))
model.add(Dropout(0.2))

model.add(LSTM(units=50, return_sequences=True))
model.add(Dropout(0.2))

model.add(LSTM(units=50))
model.add(Dropout(0.2))

model.add(Dense(units=1))
```

Training the Model:-

```
# Model Training
model.compile(optimizer='adam', loss='mean_squared_error')
model.fit(X_train, y_train, epochs=100, batch_size=32)
```

Evaluating the Model:-

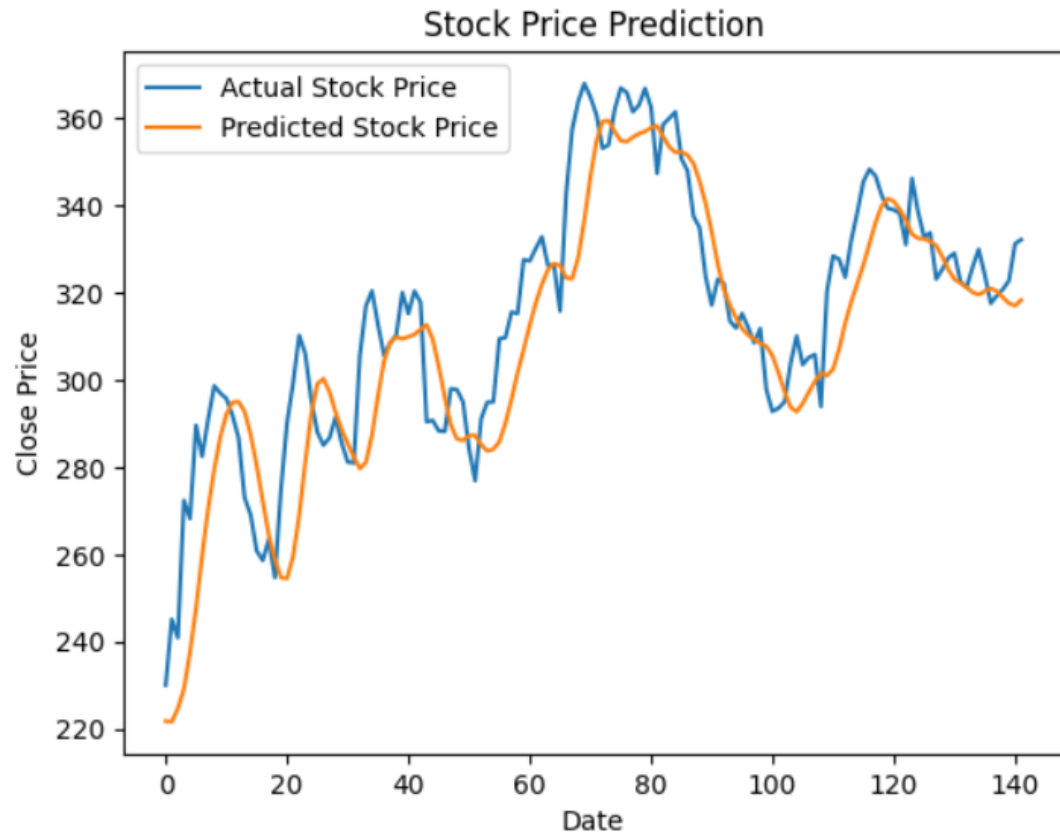
```
# Model Evaluation  
model.evaluate(X_test, y_test)
```

Making Predictions:-

```
# Predictions  
predictions = model.predict(X_test)  
predictions = scaler.inverse_transform(predictions)  
  
actuals = scaler.inverse_transform(y_test)
```

Visualizing the Predictions:-

```
#visualizing the predictions
plt.plot(actuals, label='Actual Stock Price')
plt.plot(predictions, label='Predicted Stock Price')
plt.title('Stock Price Prediction')
plt.xlabel('Date')
plt.ylabel('Close Price')
plt.legend()
plt.show()
```



TOOLS AND TECHNOLOGIES

- Google Colab
- Python 3.11
- Python Libraries
 - NumPy
 - Pandas
 - Matplotlib
 - SkLearn
 - TensorFlow
 - Keras

CONCLUSION

- In recent years, it has been noted that most people are investing in the stock market in order to make fast money. At the same time, an investor stands a good risk of losing all his or her money. As a result, for the consumer to understand future market trends, an effective predictive model is needed.
- There are several predictive models that tell whether the economy is going up or down, but they do not always produce reliable results. An attempt has been made to develop an effective stock market predictive model that forecasts the next day's trend using TensorFlow and Keras.

REFERENCES

1. Orlunwa Placida Orochi, and Ledesi Kabari, Predicting Stock Price in Python using TensorFlow and Keras (June 2021), International Journal of Research and Scientific Innovation (IJRSI), ISSN 2321-2705
2. Decision Forest, Stock Price Prediction using Deep Learning (July 2020)

THANK YOU

