NETFLIX STOCK PRICE PREDICTION

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ABSTRACT

Forecasting stock prices has long been a challenging task for researchers and analysts. The ability to accurately predict stock prices is crucial for investors, as it plays a key role in making successful investment decisions. Investors are particularly interested in understanding future stock market trends, as this information is invaluable for minimizing risks and maximizing returns.

This project focuses on developing a machine learning-based model to predict the stock prices of Netflix. By analyzing historical stock data, the goal is to provide a reliable prediction system that can help traders, investors, and analysts gain insights into the future direction of Netflix's stock.

INTRODUCTION

Netflix is a major player in the entertainment industry, and its stock price is highly influenced by market trends and company performance. Predicting stock prices can offer valuable insights into market behaviour and investment opportunities.“

Stock price prediction is a significant area of interest for investors and analysts, as it helps them make informed decisions regarding buying or selling shares.

DATA COLLECTION

- This dataset is sourced from the Kaggle platform and contains historical stock data of Netflix.
- The objective of the dataset is to predict the closing price of Netflix stock based on various financial indicators.
- The dataset includes several independent variables (such as opening price, high price, low price, volume, and adjusted close price), which serve as predictors. The dependent variable or target for this project is the closing price (Close).
- The data offers valuable insights for forecasting stock prices and aiding investment decisions.

DATA SET

	Date	Open	High	Low	Close	Adj Close	Volume
0	2018-02-05	262.000000	267.899994	250.029999	254.259995	254.259995	11896100
1	2018-02-06	247.699997	266.700012	245.000000	265.720001	265.720001	12595800
2	2018-02-07	266.579987	272.450012	264.329987	264.559998	264.559998	8981500
3	2018-02-08	267.079987	267.619995	250.000000	250.100006	250.100006	9306700
4	2018-02-09	253.850006	255.800003	236.110001	249.470001	249.470001	16906900
...	...	...	...	...	...	...	...
1004	2022-01-31	401.970001	427.700012	398.200012	427.140015	427.140015	20047500
1005	2022-02-01	432.959991	458.480011	425.540009	457.130005	457.130005	22542300
1006	2022-02-02	448.250000	451.980011	426.480011	429.480011	429.480011	14346000
1007	2022-02-03	421.440002	429.260010	404.279999	405.600006	405.600006	9905200
1008	2022-02-04	407.309998	412.769989	396.640015	410.170013	410.170013	7782400

1009 rows × 7 columns

FEATURES

- **Date** :The specific day when the stock data was recorded (e.g., 2023-01-01)
- **Open** :when the market opened on that particular day.
- **High** :The highest price Netflix stock reached during that day.
- **Low** :The lowest price Netflix stock dropped to during that day.
- **Close** :The final price of Netflix stock when the market closed for the day
- **Adj Close** :The adjusted closing price, accounting for factors like stock splits and dividends
- **Volume** :The total number of Netflix shares that were traded during the day. Higher volume can indicate strong interest in the stock.

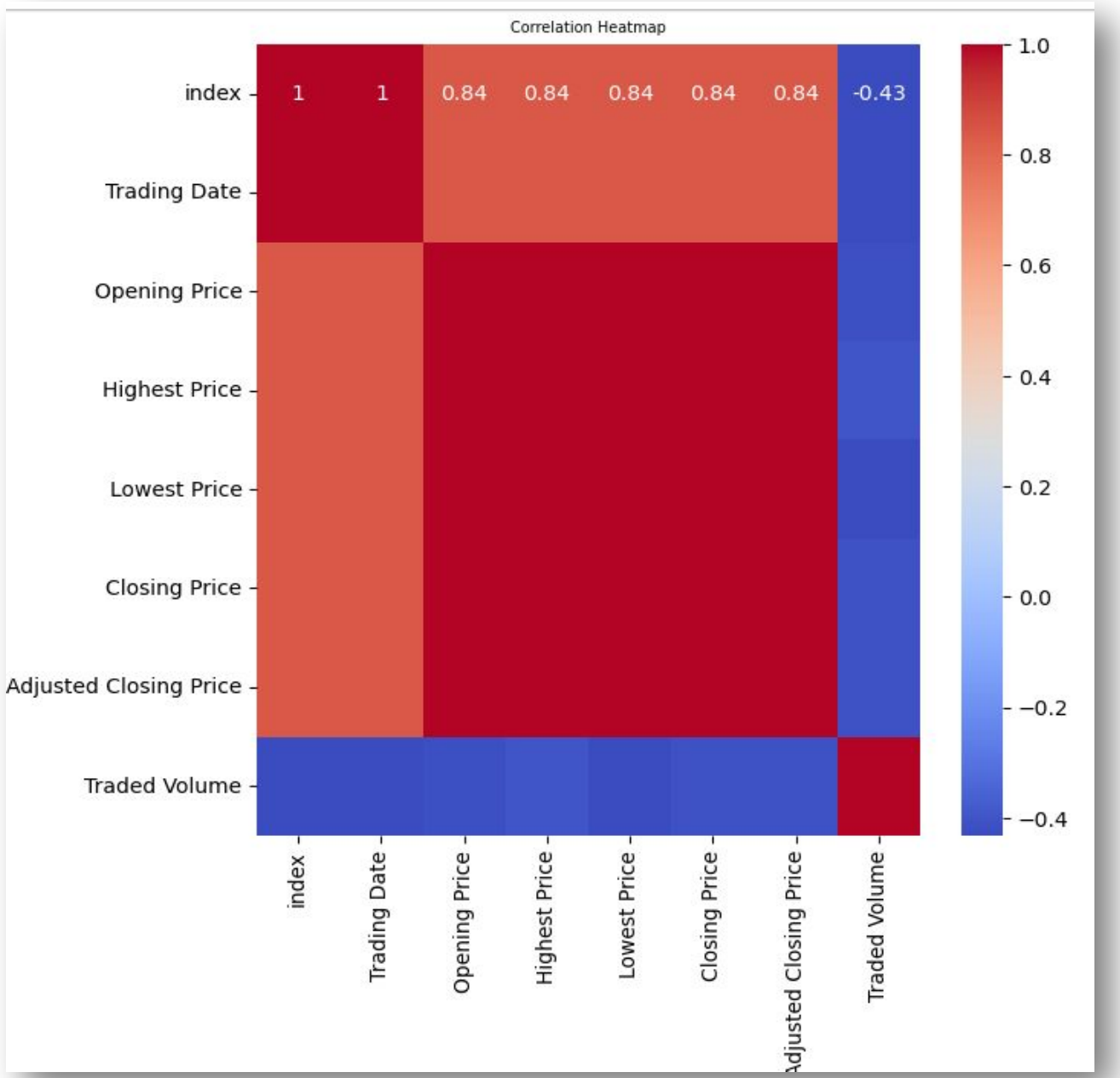
DATA PREPROCESSING

```
data.isnull().sum()
```

```
Date          0
Open          0
High          0
Low           0
Close         0
Adj Close     0
Volume        0
dtype: int64
```

```
data['Trading Date'] = pd.to_datetime(data['Trading Date'])
```

FEATURE SELECTION



ALGORITHMS

R² Score: LinearRegression() = 99.86297713881387

R² Score: SVR() = 29.730302589612702

R² Score: KNeighborsRegressor() = 21.58170387812113

R² Score: DecisionTreeRegressor() = 99.59097745573862

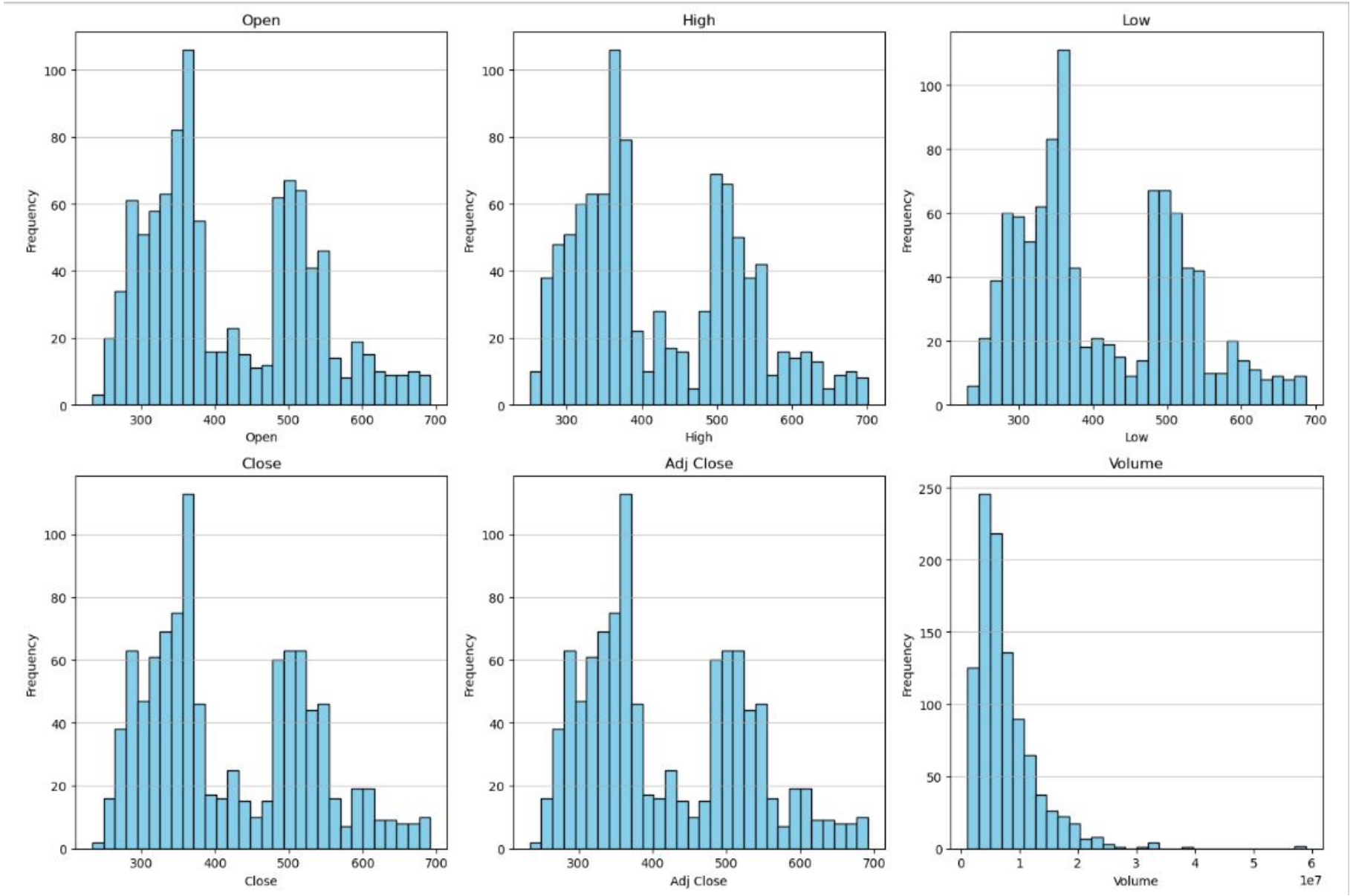
R² Score: RandomForestRegressor(random_state=42) = 99.7623286481

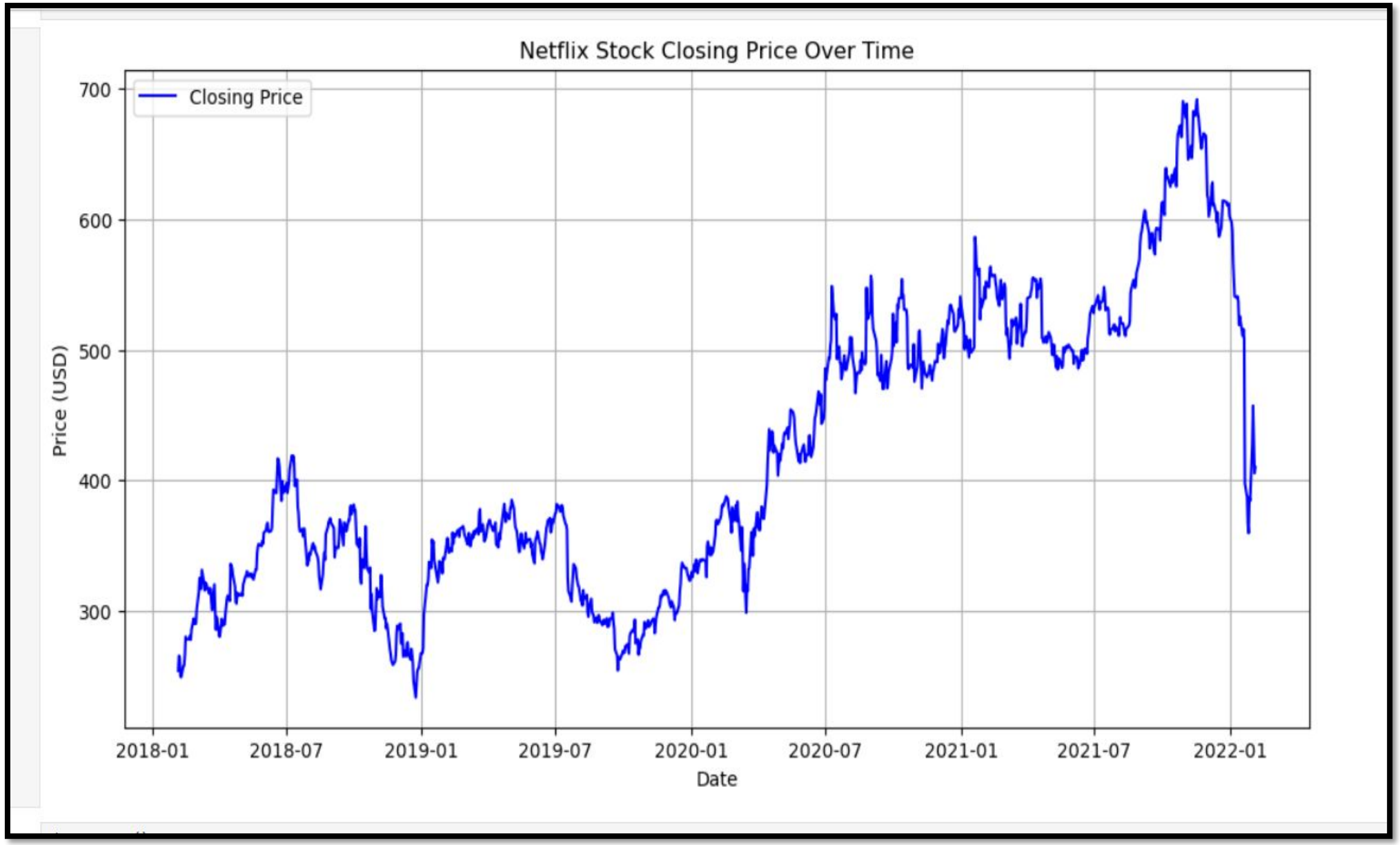
1463

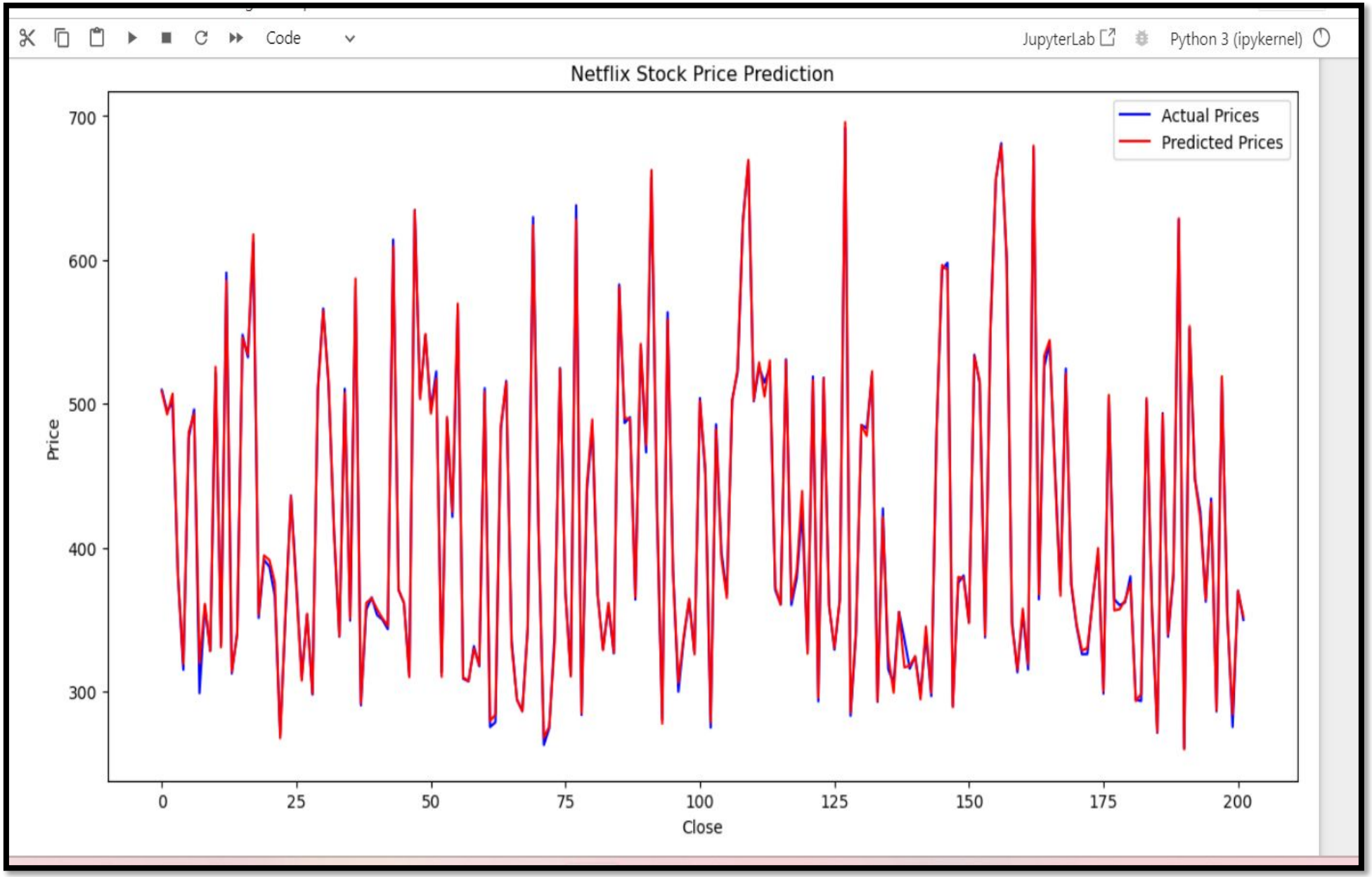
LIBRARIES USED

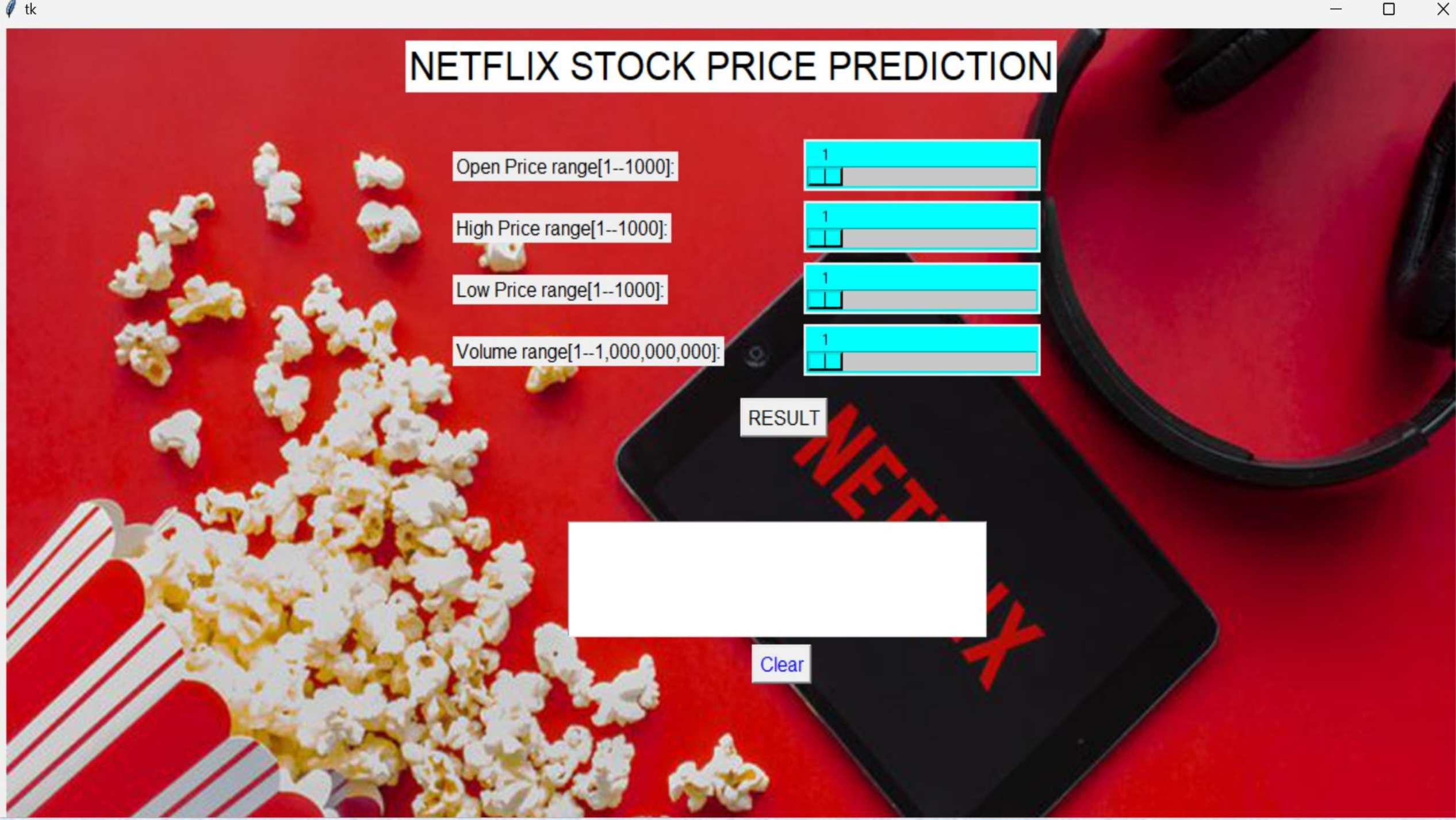
- **PANDAS** (manipulation and analysis)
- **NUMPY** (working with arrays)
- **TKINTER** (standard GUI library for python)
- **PICKLE** (serializing and deserializing a Python object structure)
- **MATPLOTLIB** (plotting library for the python)

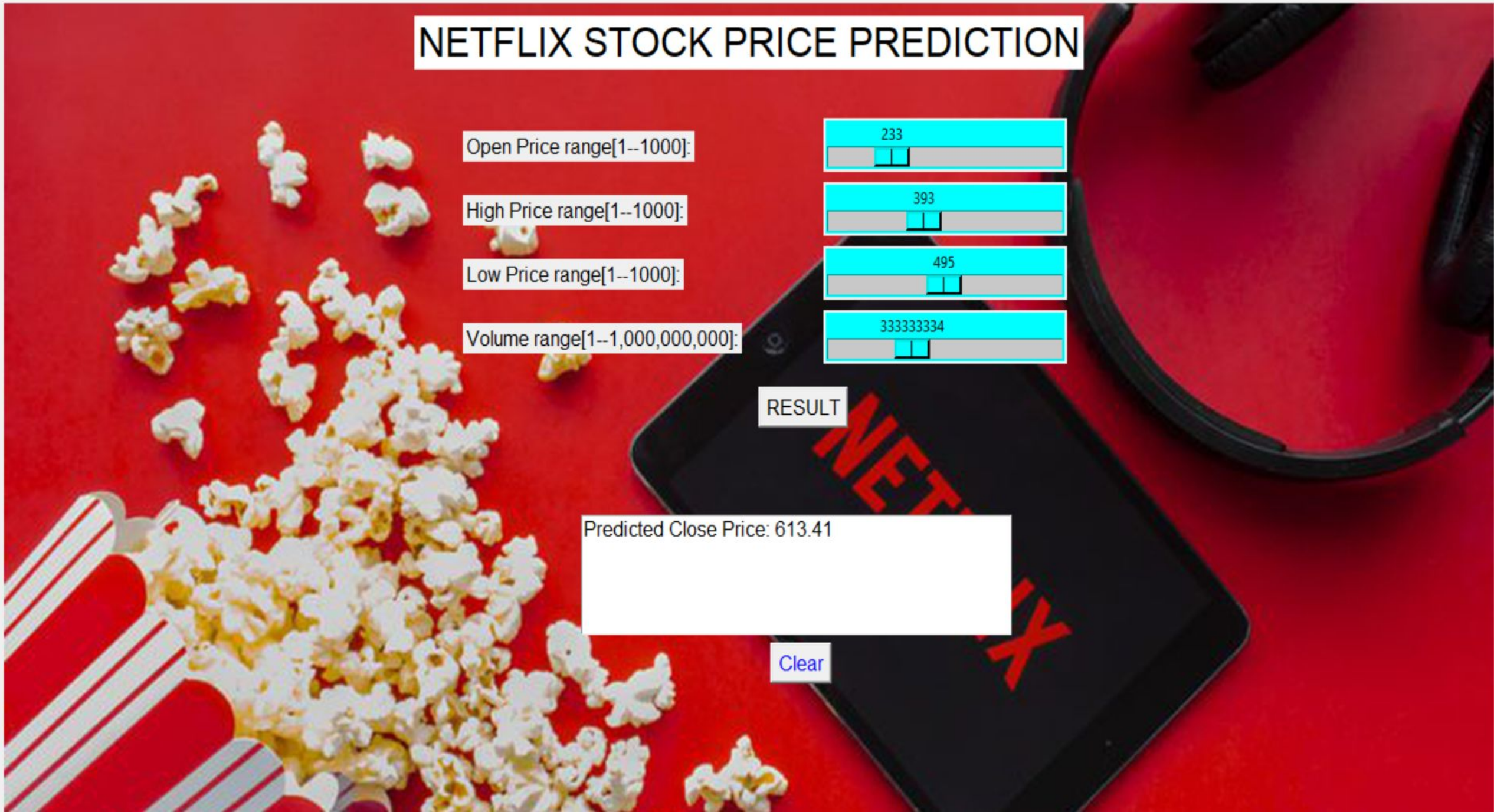
EDA


Open
High
Low
Close
Adj Close
Volume
Frequency
Open
High
Low
Close
Adj Close
Volume
1e7


Netflix Stock Closing Price Over Time
Closing Price
700
600
500
400
300
Price (USD)
2018-01
2018-07
2019-01
2019-07
2020-01
2020-07
2021-01
2021-07
2022-01
Date


Code
JupyterLab
Python 3 (ipykernel)
Netflix Stock Price Prediction
Actual Prices
Predicted Prices
Price
Close
700
600
500
400
300
0
25
50
75
100
125
150
175
200


tk
NETFLIX STOCK PRICE PREDICTION
Open Price range[1--1000]:
1
High Price range[1--1000]:
1
Low Price range[1--1000]:
1
Volume range[1--1,000,000,000]:
1
RESULT
Clear


tk
NETFLIX STOCK PRICE PREDICTION
Open Price range[1--1000]:
233
High Price range[1--1000]:
393
Low Price range[1--1000]:
495
Volume range[1--1,000,000,000]:
333333334
RESULT
Predicted Close Price: 613.41
Clear

CONCLUSION

- After analyzing the Netflix stock price dataset, we have successfully built a regression model (Random Forest) to accurately predict the closing price of Netflix stock.
- improve how accurately it predicts prices and how easy it is to use, helping investors analyze stock prices and make better investment choices.
- Therefore, additional data sources like news sentiment and earnings reports could further enhance the accuracy of future predictions.

FUTURE SCOPE

- Assessing risk factors to help investors manage their risks better.
- Expanding the analysis to include multiple stocks to see trends and connections in the entertainment and tech sectors.
- Implementing automated trading strategies to help investors make better trades based on predictions.


THANK
YOU