EX:No.2 DATE:1/02/25	**Implement programs for visualizing time series data.**

AIM:

To Implement programs for visualizing time series data.

OBJECTIVE:

To analyze and visualize Netflix trends using multiple time-series plots.

BACKGROUND:

- Captures Netflix's historical stock prices and trading volume.
- Reflects market trends, investor sentiment, and company performance.
- Helps analyze stock behavior over time.

SCOPE OF THE PROGRAM:

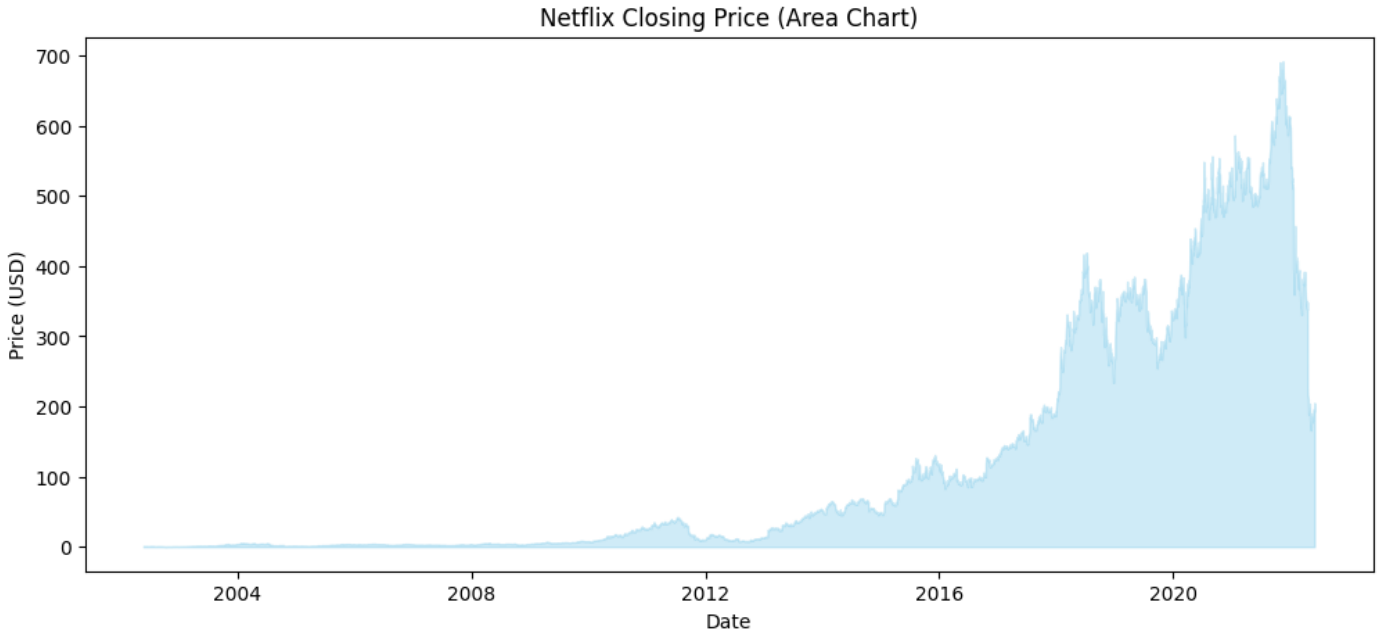
- Visualizes stock trends using different time series charts.
- Helps investors and analysts identify patterns.
- Supports informed decision-making in stock trading.
- Can be expanded for predictive modeling and deeper analysis.

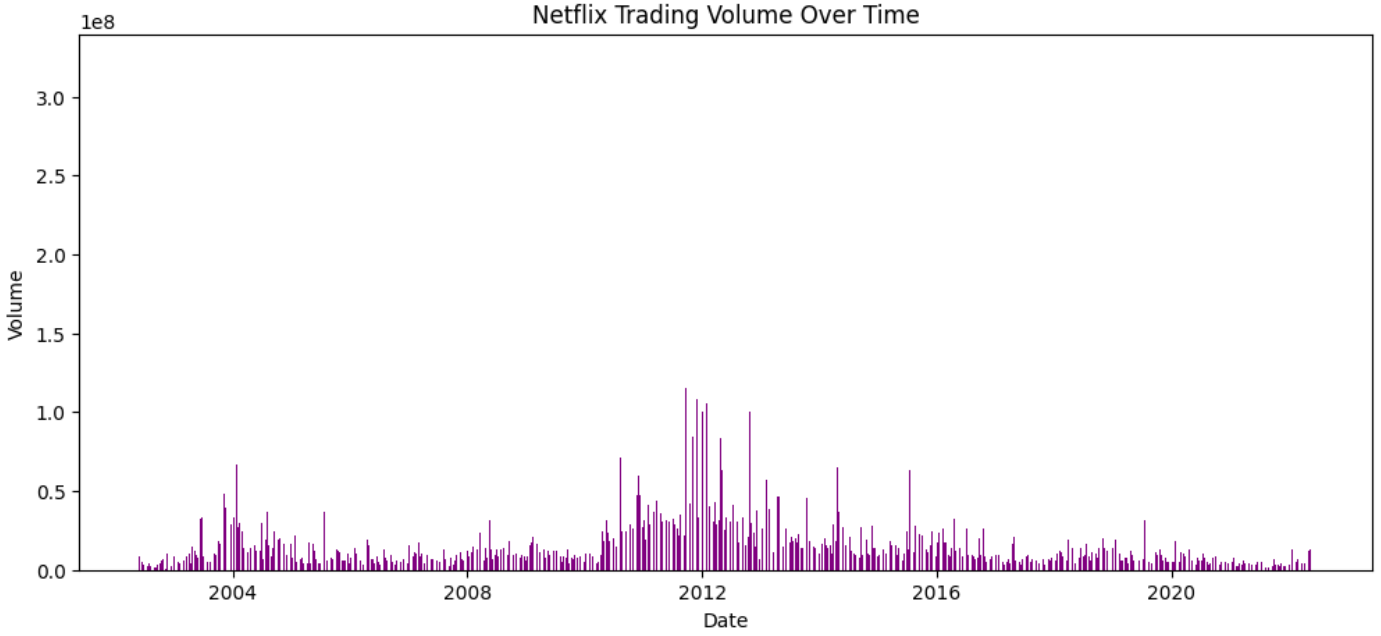
CODE:

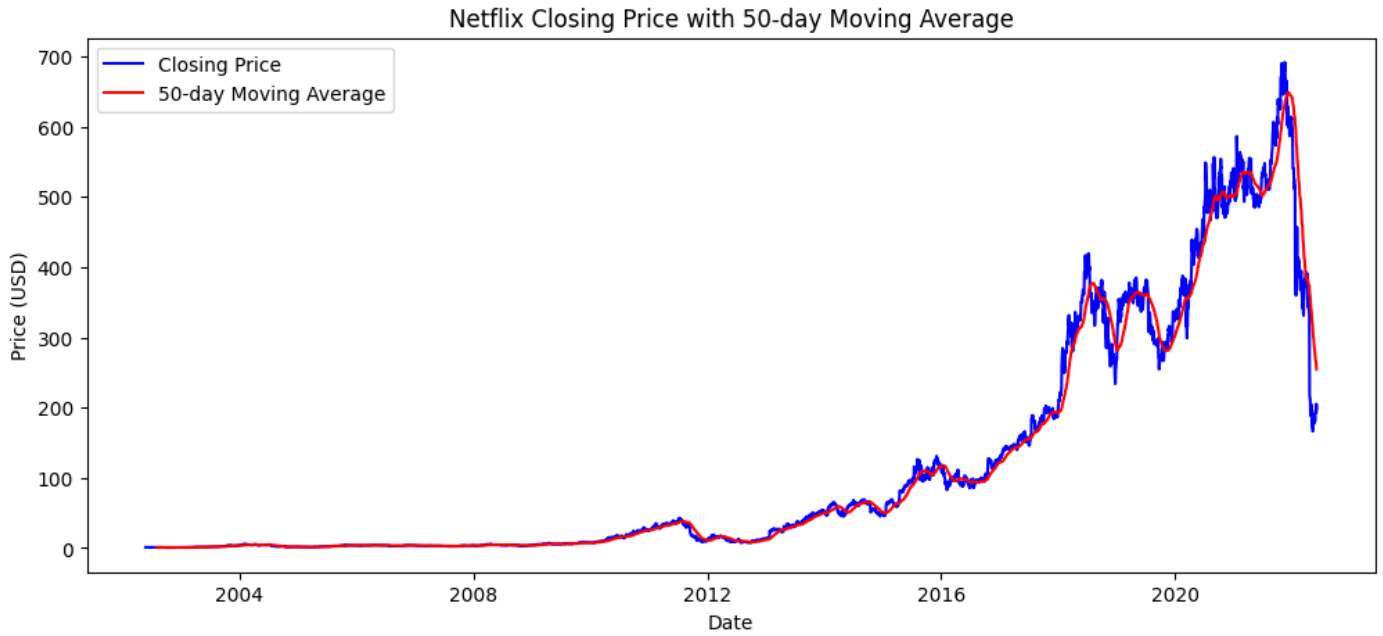
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.graph_objects as go
from plotly.subplots import make_subplots

# Load dataset
df = pd.read_csv("/content/NFLX.csv", parse_dates=["Date"])
df.set_index("Date", inplace=True)

# Line Chart
plt.figure(figsize=(12, 5))
plt.plot(df.index, df["Close"], label="Closing Price", color="blue")
plt.title("Netflix Closing Price Over Time")
plt.xlabel("Date")
plt.ylabel("Price (USD)")
plt.legend()
plt.show()
```

```
# Candlestick Chart
fig = go.Figure(data=[go.Candlestick(x=df.index,
                                     open=df['Open'],
                                     high=df['High'],
                                     low=df['Low'],
                                     close=df['Close'])])
fig.update_layout(title="Netflix Stock Candlestick Chart")
fig.show()

# Moving Average Chart
df['MA50'] = df['Close'].rolling(window=50).mean()
plt.figure(figsize=(12, 5))
plt.plot(df.index, df['Close'], label='Closing Price', color='blue')
plt.plot(df.index, df['MA50'], label='50-day Moving Average', color='red')
plt.title("Netflix Closing Price with 50-day Moving Average")
plt.xlabel("Date")
plt.ylabel("Price (USD)")
plt.legend()
plt.show()

# Volume Chart
plt.figure(figsize=(12, 5))
plt.bar(df.index, df['Volume'], color='purple')
plt.title("Netflix Trading Volume Over Time")
plt.xlabel("Date")
plt.ylabel("Volume")
plt.show()

# Area Chart
plt.figure(figsize=(12, 5))
plt.fill_between(df.index, df["Close"], color="skyblue", alpha=0.4)
plt.title("Netflix Closing Price (Area Chart)")
plt.xlabel("Date")
plt.ylabel("Price (USD)")
plt.show()
```

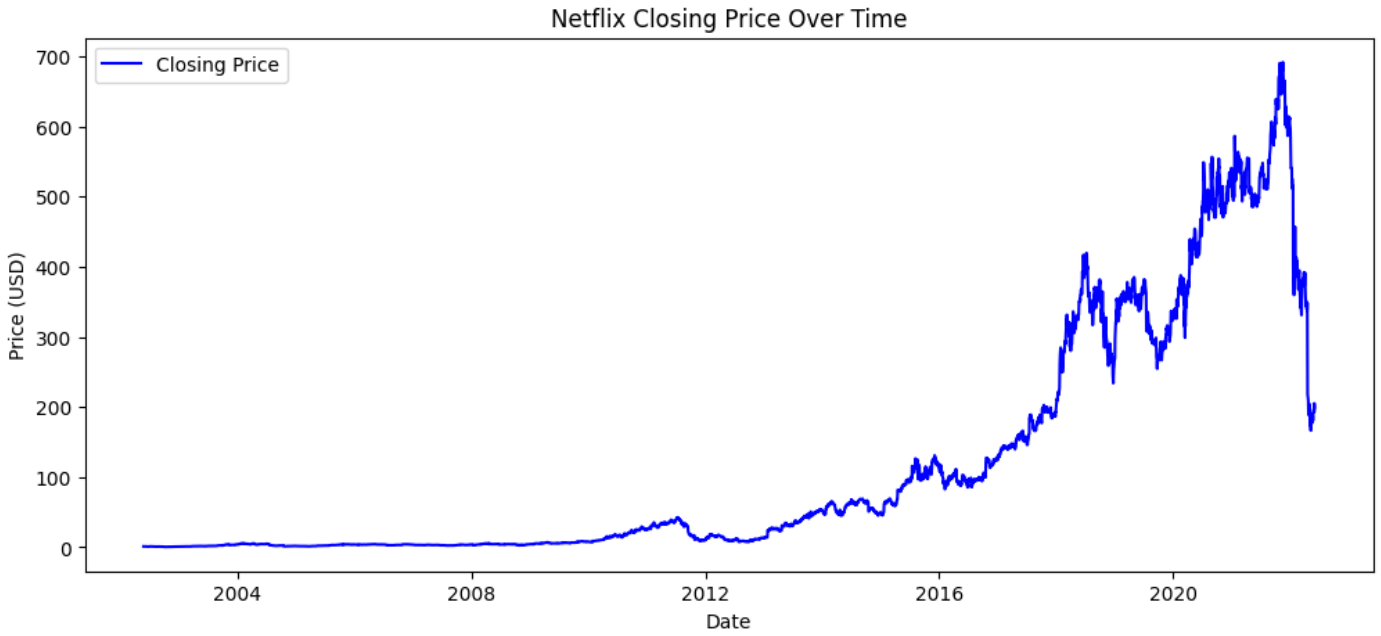
OUTPUT:


Netflix Closing Price (Area Chart)
Price (USD)
700
600
500
400
300
200
100
0
2004
2008
2012
2016
2020
Date


Netflix Trading Volume Over Time
1e8
Volume
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2004
2008
2012
2016
2020
Date



Netflix Stock Candlestick Chart



RESULT:

Thus, the program using the time series data implementation has been done successfully.