EXP:2 Visulalization of dataset

Aim: To visualize the program for time series dataset

Program:

import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns

import plotly.graph\_objects as go

# Load the dataset

file\_path = "/mnt/data/nvidia\_stock\_prices.csv"

df = pd.read\_csv(file\_path)

# Convert 'Date' column to datetime format

df['Date'] = pd.to\_datetime(df['Date'])

# Set the Date column as the index

df.set\_index('Date', inplace=True)

# 1. Line Chart - Closing Price over Time

plt.figure(figsize=(12, 6))

plt.plot(df.index, df['Close'], label='Closing Price', color='blue')

plt.xlabel('Date')

plt.ylabel('Closing Price')

plt.title('NVIDIA Stock Closing Price Over Time')

plt.legend()

plt.grid()

plt.show()

# 2. Candlestick Chart

fig = go.Figure(data=[go.Candlestick(

x=df.index,

open=df['Open'],

high=df['High'],

low=df['Low'],

close=df['Close'],

name='Candlestick'

)])

fig.update\_layout(title='NVIDIA Candlestick Chart', xaxis\_title='Date', yaxis\_title='Price')

fig.show()

# 3. Volume Bar Chart

plt.figure(figsize=(12, 6))

plt.bar(df.index, df['Volume'], color='green', alpha=0.6)

plt.xlabel('Date')

plt.ylabel('Volume')

plt.title('Trading Volume Over Time')

plt.show()

# 4. Moving Averages Plot

df['SMA\_50'] = df['Close'].rolling(window=50).mean()

df['SMA\_200'] = df['Close'].rolling(window=200).mean()

plt.figure(figsize=(12, 6))

plt.plot(df.index, df['Close'], label='Closing Price', color='blue')

plt.plot(df.index, df['SMA\_50'], label='50-day SMA', color='orange')

plt.plot(df.index, df['SMA\_200'], label='200-day SMA', color='red')

plt.xlabel('Date')

plt.ylabel('Price')

plt.title('Moving Averages (50-day & 200-day)')

plt.legend()

plt.grid()

plt.show()

# 5. Correlation Heatmap

plt.figure(figsize=(8, 6))

sns.heatmap(df[['Open', 'High', 'Low', 'Close', 'Volume']].corr(), annot=True, cmap='coolwarm', fmt='.2f')

plt.title('Correlation Heatmap')

plt.show()

Output:

