Question36:

36. Scenario: You are a data analyst working for a finance company. Your team is interested in

analyzing the variability of stock prices for a particular company over a certain period. The

company's stock data includes the closing prices for each trading day of the specified period.

Question: Your task is to build a Python program that reads the stock data from a CSV file,

calculates the variability of stock prices, and provides insights into the stock's price movements.

Answer:

import pandas as pd

import numpy as np

import matplotlib.pyplot as plt

# Load the stock data from the CSV file

file\_path =r"C:\Users\jampa\Downloads\stock\_price\_data.csv"

df = pd.read\_csv(file\_path, parse\_dates=['Date'])

def analyze\_stock\_variability(df):

# Calculate daily returns (percent change)

df['Daily Return (%)'] = df['Adj Close'].pct\_change() \* 100

# Calculate basic statistics

avg\_price = df['Adj Close'].mean()

max\_price = df['Adj Close'].max()

min\_price = df['Adj Close'].min()

volatility = df['Daily Return (%)'].std()

print(f"Average Adjusted Close Price: ${avg\_price:.2f}")

print(f"Maximum Adjusted Close Price: ${max\_price:.2f}")

print(f"Minimum Adjusted Close Price: ${min\_price:.2f}")

print(f"Price Volatility (Std Dev of Daily Returns): {volatility:.2f}%")

# Plot the adjusted close prices

plt.figure(figsize=(9,3))

plt.plot(df['Date'], df['Adj Close'], marker='o', color='blue', linewidth=2)

plt.title('Stock Price Movement')

plt.xlabel('Date')

plt.ylabel('Adjusted Close Price ($)')

plt.xticks(rotation=45)

plt.grid(True, linestyle='--', alpha=0.6)

plt.show()

# Run the analysis

analyze\_stock\_variability(df)

Output:

