TITLE

Name - Divyanshi Verma

Branch - CSE(AIML)

Roll no. – 202401100400088

Instructor’s name – Mr. Abhishek Shukla

Institution name – KIET group of institutions

INTRODUCTION

Problem statement:

Investors, traders, and analysts often struggle to identify short-term stock market trends due to rapid price fluctuations. To make informed trading decisions, they need a clear visualization of stock price movements and trend patterns. By plotting stock prices along with key technical indicators, such as Simple Moving Averages (SMA), we can highlight trends and potential turning points in the market.

informed decisions. By visualizing stock price fluctuations and applying simple moving averages (SMA), we can gain insights into market trends, helping to determine potential buy or sell opportunities. The goal is to fetch real-time stock data, plot its movement over time, and overlay trend indicators to simplify trend analysis for better decision-making.

Solution Approach:

To help traders analyse short-term trends, we will:

1. **Fetch stock price data** using Yahoo Finance.
2. **Calculate moving averages** to smooth out price fluctuations.

3. **Plot the stock price along with trend indicators** to highlight patterns.
4. **Provide insights** into potential buy/sell signals.

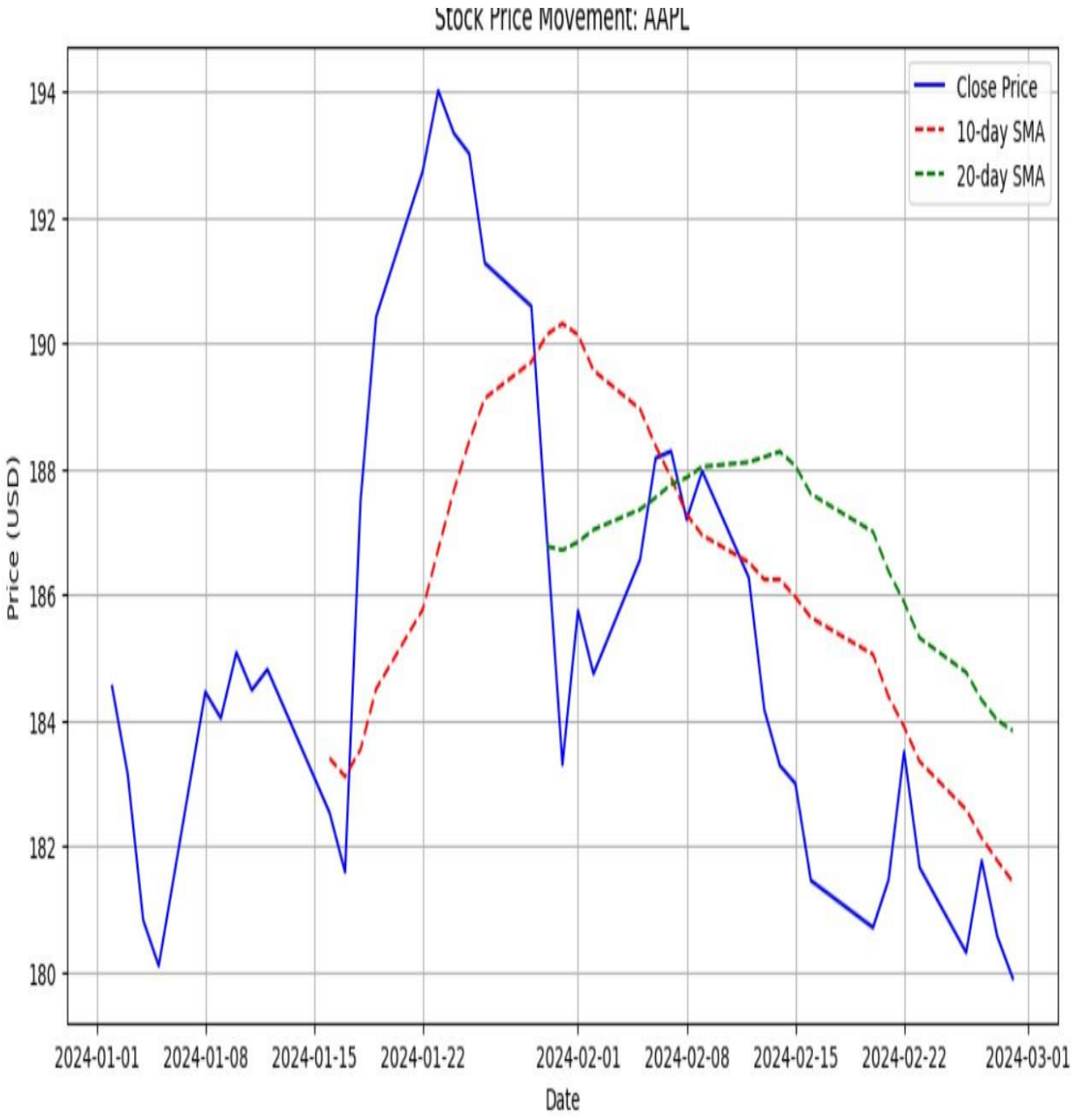
CODE:

Solution Approach:

```
import yfinance as yf
import matplotlib.pyplot as plt
import pandas as pd

def plot_stock_movement(ticker, start_date, end_date):
    # Fetch stock data
    stock = yf.download(ticker, start=start_date, end=end_date)

    if stock.empty:
        print("No data found for the given stock ticker.")
        return

    # Calculate moving averages
    stock['SMA_10'] = stock['Close'].rolling(window=10).mean()
    stock['SMA_20'] = stock['Close'].rolling(window=20).mean()

    # Plot stock price and moving averages
```

```
    plt.figure(figsize=(12,6))
    plt.plot(stock.index, stock['Close'], label='Close Price', color='blue')
    plt.plot(stock.index, stock['SMA_10'], label='10-day SMA',
color='red', linestyle='dashed')
    plt.plot(stock.index, stock['SMA_20'], label='20-day SMA',
color='green', linestyle='dashed')

    plt.title(f"Stock Price Movement: {ticker}")
    plt.xlabel("Date")
    plt.ylabel("Price (USD)")
    plt.legend()
    plt.grid()
    plt.show()

# Example usage:
ticker_symbol = "AAPL"  # Apple Inc.
start = "2024-01-01"
end = "2024-03-01"
plot_stock_movement(ticker_symbol, start, end)
```

OUTPUT:



Reference: chatgpt , google