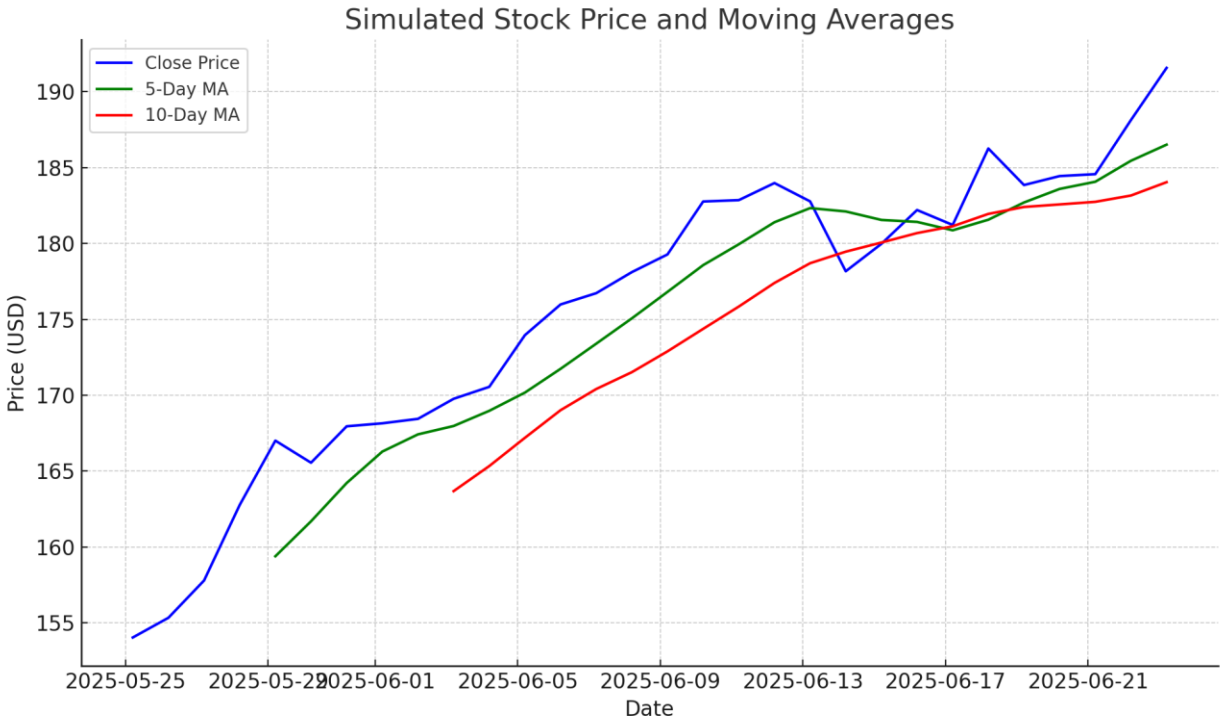
Simulated Stock Market Data Analysis using Python

This Python application analyzes simulated stock market data. It calculates 5-day and 10-day moving averages and visualizes the trends using matplotlib. This approach is used in the absence of real-time data.

Python Code

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from datetime import datetime

# Generate simulated stock prices for 30 days
dates = pd.date_range(end=datetime.today(), periods=30)
np.random.seed(0)
prices = np.cumsum(np.random.normal(0.5, 2, 30)) + 150

data = pd.DataFrame({'Date': dates, 'Close': prices})
data.set_index('Date', inplace=True)

# Calculate moving averages
data['MA5'] = data['Close'].rolling(window=5).mean()
data['MA10'] = data['Close'].rolling(window=10).mean()

# Plotting
plt.plot(data.index, data['Close'], label='Close Price')
plt.plot(data.index, data['MA5'], label='5-Day MA')
plt.plot(data.index, data['MA10'], label='10-Day MA')
plt.title('Simulated Stock Price and Moving Averages')
plt.xlabel('Date')
plt.ylabel('Price (USD)')
plt.legend()
plt.grid(True)
plt.show()
```

Output Plot


Simulated Stock Price and Moving Averages
Close Price
5-Day MA
10-Day MA
Price (USD)
190
185
180
175
170
165
160
155
2025-05-25
2025-05-29
2025-06-01
2025-06-05
2025-06-09
2025-06-13
2025-06-17
2025-06-21
Date