Multi-Stock Monday Analysis & Automation Dashboard

1. Project Overview

This project automates the process of collecting, analyzing, and reporting weekly stock performance data using Python. It downloads real stock data from Yahoo Finance via the yfinance library, identifies all Mondays within the past 3 months, and calculates how each stock performed 20 minutes after market open (9:50 AM) and by market close.

The script produces a multi-sheet Excel report — each sheet represents one stock with detailed metrics, formatting, and automatic styling. A summary sheet compares all stocks' average Monday performances and includes a bar chart for quick visual comparison.

2. Objectives

- Automate Data Collection: Automatically retrieve real-time financial data from Yahoo Finance.
- Monday-Specific Analysis: Focus on stock behavior specifically on Mondays over the past quarter.
- Early Market Insight: Track performance 20 minutes after market open (9:50 AM) and at close.
- Multi-Stock Comparison: Compare several tickers side-by-side across consistent metrics.
- Professional Reporting: Generate a well-formatted Excel file with tables, colors, borders, and auto-sizing columns.
- Automation: Schedule the script to run automatically every Monday, updating the report without user input.

3. Tools & Libraries

yfinance — Download stock data from Yahoo Finance

pandas — Data manipulation, analysis, and Excel export

openpyxl — Excel styling, formatting, and chart generation

datetime — Date and time manipulation

os — File handling and desktop automation

Windows Task Scheduler — Automate weekly script execution

4. Methodology (Step-by-Step)

1. Define stock tickers and time window (last 90 days).
2. Download daily and intraday data using yfinance.
3. Filter Monday data only.

4. Calculate open, 9:50 AM, and close prices with % changes.
5. Generate one Excel sheet per stock with color-coded results.
6. Create a summary sheet with average Monday results.
7. Add a bar chart comparing all tickers' Monday performances.
8. Save to Desktop and schedule weekly automation via Windows Task Scheduler.

5. Output Example

Each sheet shows the last 4 Mondays of a stock with Open, 9:50 Price, % Change, and Close. A summary sheet compares all tickers with a grouped bar chart showing average % changes at 9:50 AM and Close.

6. Key Features

- Automated stock data extraction
- Monday-specific analysis with 9:50 AM and close tracking
- Multi-ticker comparison with formatted Excel outputs
- Color-coded cells for Rise/Drop performance
- Automatic summary chart and column adjustments
- Weekly scheduling for hands-free updates

7. Potential Enhancements

- Add volatility and correlation metrics for deeper insight.
- Use Polygon.io or Alpha Vantage APIs for extended intraday data.
- Include candlestick or line charts per ticker.
- Enable dynamic 9:50 AM adjustment to any minute interval.
- Deploy on cloud (AWS Lambda or Google Cloud Scheduler) for 24/7 operation.

8. Conclusion

This project demonstrates how Python can automate financial data collection, analysis, and reporting. By combining data science tools (Pandas, yfinance) with reporting tools (OpenPyXL, Excel charts) and scheduling (Windows Task Scheduler), it delivers a repeatable and scalable stock performance dashboard. It transforms raw stock data into a professional, interactive report ready for weekly insights and portfolio monitoring.