Stock Market Intelligence Suite

Project Goal

The goal of this project was to create a smart system to help users understand how different stocks are performing. It allows users to track important financial data, analyze company performance, and make better investment decisions.

Tools like Excel, Power BI, and Tableau were used to build the platform. These tools help turn complex data into clear charts and graphs, making it easier to visualize stock performance, calculate return on investment (ROI), and identify buy or sell signals.

Tools Used & Their Role

- **Excel:** Used to clean up raw stock data and do basic calculations like daily returns, moving averages, and how much a stock's price goes up and down (volatility). It also helped organize the data using pivot tables to analyze each company in more detail.

- **Power BI:** Used to build an interactive dashboard for decision-makers. It showed key numbers (KPIs), how different sectors were performing, price trends over time, and even future predictions to help with investment choices.

- **Tableau**: Used to create a visual story of how stocks are performing. It showed stock trends, used color-coded heatmaps to display volatility, and pointed out possible buy or sell opportunities using RSI (Relative Strength Index).

Workflow

Excel – Financial Modeling & Technical Indicators

Data Cleaning:

- Formatted inconsistent date values
- Handled missing entries in price and volume columns
- Corrected datatypes for columns

Technical Indicators:

- Daily Return:

  Formula = `(Close - Open) / Open`

- Moving Averages:

  7-day, 14-day, and 30-day MA using Adjusted Close (`Adj Close`)

- Volatility:

  Formula = `(High - Low) / Open`

Daily return	Moving avg 7 days	Moving avg 14 dsys	Moving avg 30 days	Volatility
-0.00096554	686.93875	681.2673333	682.4835484	0.046187546
-0.00438994	684.4075	680.4926667	682.3258065	0.033934268
0.007574109	683.55625	681.86	682.3935484	0.03743525
0.010179465	681.035	682.074	682.4209677	0.04367461
-0.0005594	679.95	682.1086667	682.6454839	0.021522155
-0.00064639	680.7825	682.438	683.03	0.037964865
0.016184049	677.48625	681.9953333	682.9890323	0.034583069
-0.00649503	675.44	681.8086667	682.723871	0.049297835
-0.00915835	675.6025	682.76	681.9403226	0.031147227
-0.00344735	678.91375	681.4846667	682.3912903	0.04286903
0.003811699	682.24375	681.4906667	682.6064516	0.023374466
-0.0094149	683.6	682.0086667	682.7209677	0.043648237
-0.0013397	684.31625	681.926	682.5829032	0.025920317
-0.01444405	684.9375	681.2933333	682.2996774	0.034444641
0.009698841	687.12375	683.0526667	683.4009677	0.039904661
0.010085177	689.7375	683.7953333	683.6516129	0.030137229
0.007462365	686.2675	683.7773333	683.4990323	0.027290112
0.010719	682.86375	683.0353333	682.8958065	0.018072901
-0.00161878	680.9125	681.8533333	682.1325806	0.048432259
0.015138408	679.6075	682.5313333	682.0174194	0.044848467
-0.00131507	678.63625	683.192	682.3154839	0.024061389
-0.0031037	679.46875	683.2113333	682.4122581	0.037534445
0.002117484	679.165	683.7186667	682.1951613	0.040851603
-0.02352959	677.51	682.868	682.0364516	0.036453659
-0.01396529	681.82125	683.0126667	682.65	0.046663439

Fig 1: Excel Daily Return and Moving Averages

Pivot table & Drawdown Analysis:

- The data was sorted by **Company** and **Date** to keep things organized.
- A Running Maximum column was created to track the highest stock price seen so far for each company.
- A Drawdown column was added to show how much the stock has dropped from its highest point.
- Pivot tables were then used to calculate the monthly returns and the largest drop (drawdown) for each company.

Sum of Daily return		
Company ▼	**month** ▼	**Total**
⊟ HDFC	2025-03	0.01996462
	2025-04	-0.01393082
	2025-05	0.0370586
HDFC Total		**0.04309241**
⊟ INFY	2025-03	0.00716644
	2025-04	0.02466905
	2025-05	-0.01102966
INFY Total		**0.02080583**
⊟ RELIANCE	2025-03	0.00628332
	2025-04	0.02331351
	2025-05	0.00686672
RELIANCE Total		**0.03646354**
⊟ TCS	2025-03	0.00277115
	2025-04	0.00344466
	2025-05	0.01663783
TCS Total		**0.02285363**
⊟ WIPRO	2025-03	-0.00717549
	2025-04	-0.01400157
	2025-05	-0.01753606
WIPRO Total		**-0.03871313**
Grand Total		**0.08450228**

Sum of Dropdown	
Company ▼	**Total**
HDFC	-1.504009755
INFY	-1.444456137
RELIANCE	-0.489105934
TCS	-0.625225484
WIPRO	-0.794391796
Grand Total	**-4.857189105**

Fig 2: Company-wise Monthly Return and Max Drawdown

Visualizations

- Line Chart: Close price with moving average overlays
- Area Chart: Cumulative volume over time
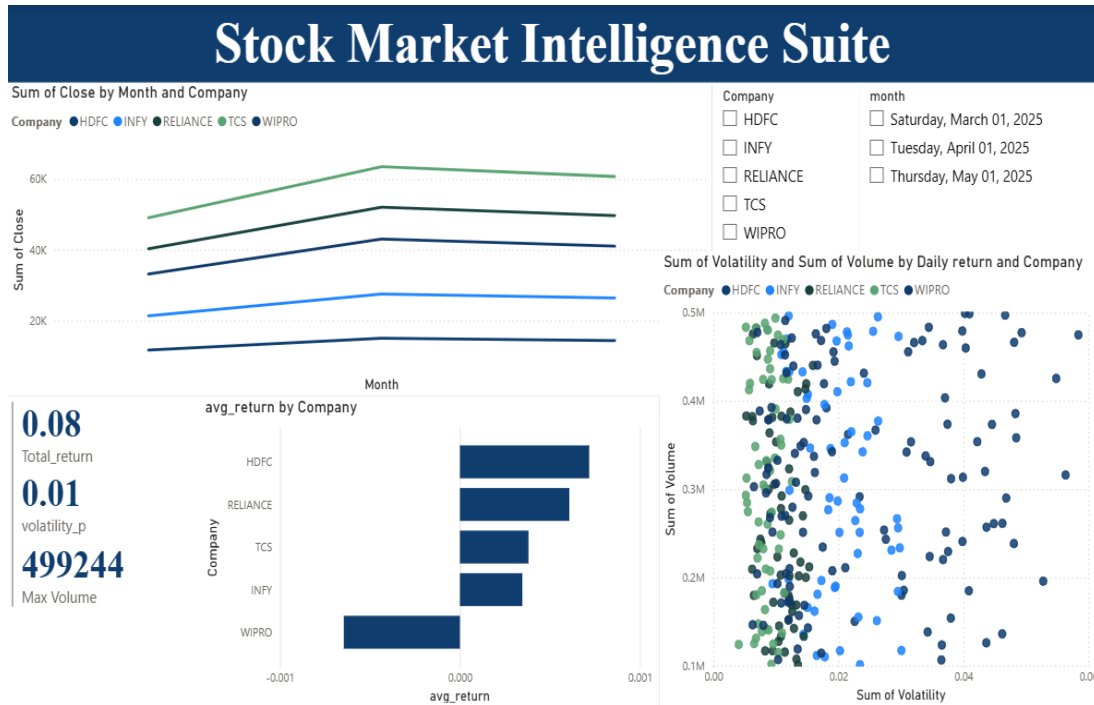- Heatmap: Conditional formatting on Daily Returns to highlight performance

Power BI – Executive Dashboard & Sector Analytics

Data Connection:

- Imported cleaned Excel data via Power Query

Dashboard Components

- KPI Cards: Total Return %, Max Daily Volume, Avg Volatility
- Line Chart: Stock price trends over time across companies
- Bar Chart: Sector-wise average returns & Scatter Plot: Volume vs Volatility

Fig 3: Power BI dashboard

Tableau – Strategy Report & Visualization Story

Data Import:

- Imported cleaned Excel data into Tableau

Dashboards:

- Stock Performance Story: Daily price trends + ROI per company
- Volatility Heatmap: Colored matrix (Company vs Date)
- Profit Opportunity Dashboard: Filtered for stocks with RSI < 30 (oversold zone)
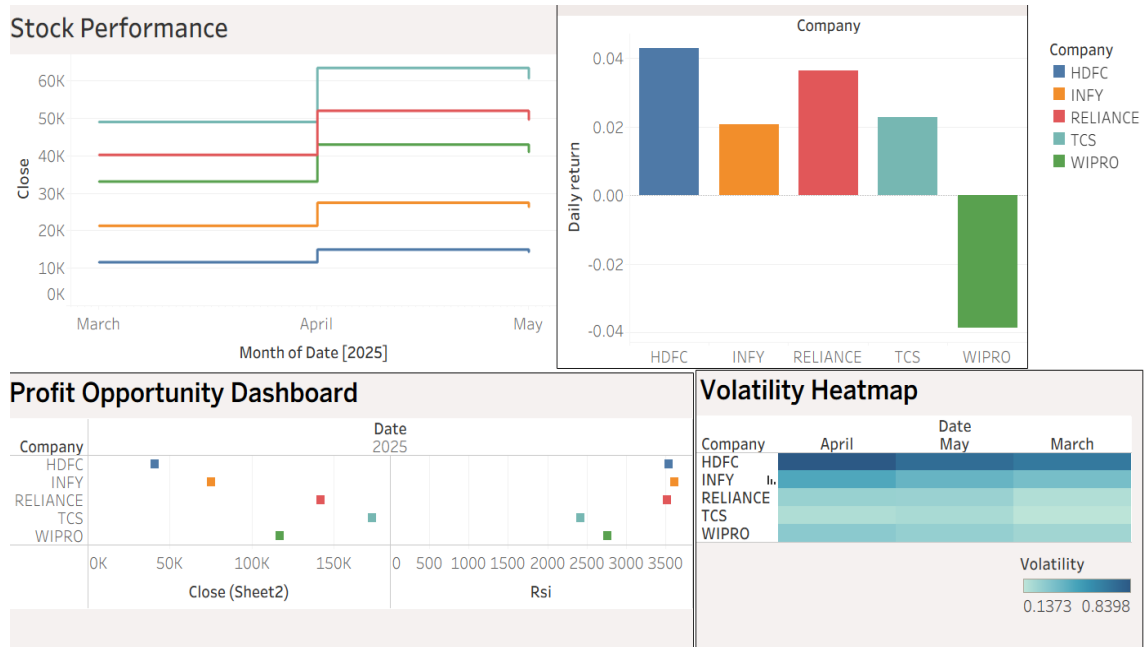
Fig 4: Tableau dashboard

Key Findings

From March to May 2025, stock prices generally showed steady growth, with HDFC and Reliance leading in closing prices. HDFC had the highest daily return of around 4%, making it the top performer, followed by Reliance with about 3.5%. Wipro was the only company with negative daily returns, indicating weaker performance compared to others. TCS showed stable performance with moderate returns.

The Volatility Heatmap shows that April and May had higher price fluctuations than March, with HDFC and Reliance experiencing more volatility—offering higher profit potential but also more risk. Wipro had lower volatility but was still risky due to its consistent losses. According to the Profit Opportunity Dashboard, HDFC and Reliance are in the high closing price and high RSI zone, meaning they are performing strongly but might be overbought and due for a correction. Infosys and TCS, with moderate returns and balanced RSI levels, appear to be safer investment options.