STOCK MARKET ANALYSIS USING TABLEAU

Project Report

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Project Title: Stock Market Analysis Dashboard
Tool Used: Tableau Desktop
Dataset: stocks.csv

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1. Executive Summary

This project presents an interactive **Stock Market Analysis Dashboard** built using Tableau to analyze historical stock data. The dashboard provides insights into stock price trends, trading volume behavior, volatility patterns, and daily returns for multiple companies.

The objective of this project is to transform raw stock market data into meaningful visual insights using key performance indicators (KPIs) and interactive charts, enabling better understanding of stock performance over time.

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2. Introduction

The stock market plays a crucial role in global financial systems. Investors rely on historical price data, trading volume, and volatility measures to make informed decisions.

This project focuses on analyzing stock data for selected companies using Tableau. By applying data visualization techniques, the project highlights performance trends, risk indicators, and comparative analysis across different stocks.

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3. Problem Statement

Investors and analysts require clear visualization of stock market performance to:

- Identify price trends over time
- Understand volatility and risk levels
- Analyze daily returns
- Compare performance across different stocks
- Monitor trading activity

Raw data alone does not provide actionable insights. Therefore, this project aims to design a comprehensive dashboard to make stock market data easy to interpret and analyze.

4. Project Objectives

The key objectives of this project are:

- To analyze historical stock prices using time-series visualization
- To calculate and display key performance indicators (KPIs)
- To evaluate stock volatility using price range
- To analyze daily return percentages
- To study the relationship between trading volume and stock prices
- To build an interactive Tableau dashboard for dynamic analysis

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5. Dataset Description

The dataset (`stocks.csv`) contains historical daily stock data with the following fields:

- **Ticker** – Stock symbol (AAPL, GOOG, MSFT, NFLX)
- **Date** – Trading date
- **Open** – Opening price
- **High** – Highest price of the day
- **Low** – Lowest price of the day
- **Close** – Closing price
- **Adj Close** – Adjusted closing price
- **Volume** – Number of shares traded

The dataset enables time-series analysis and performance comparison across multiple companies.

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6. Data Preparation

The following steps were performed in Tableau:

- Imported CSV dataset
- Converted Date field to proper Date format
- Ensured numeric formatting for price and volume fields
- Created calculated fields:

Calculated Fields:

1. Daily Return (%)

$$(Close - Open)/Open * 100$$

2. Price Range (Volatility)

High - Low

These calculations enabled advanced analysis of stock performance and risk measurement.

7. Key Performance Indicators (KPIs)

The dashboard highlights three major KPIs:

1. Average Closing Price

Represents the overall average stock price during the selected period.

2. Total Trading Volume

Indicates total number of shares traded, reflecting market activity.

3. Highest Stock Price

Shows the maximum price achieved within the selected date range.
These KPIs dynamically update based on stock and date filters.

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8. Dashboard Overview

The dashboard is structured into multiple analytical sections:

A. Stock Price Trend

A time-series line chart displaying stock price movements over time.
It helps identify upward or downward trends and compare multiple stocks simultaneously.

B. Daily Return Analysis

Displays percentage change in stock price on a daily basis.

- Positive returns indicate gains
- Negative returns indicate losses
- A reference line shows average return (1.06%)

This chart helps evaluate short-term performance fluctuations.

C. Volatility Analysis

Volatility is calculated using the price range (High - Low).

Higher volatility indicates:

- Higher risk
- Larger price fluctuations

Lower volatility indicates:

- Stable stock behavior

D. Trading Volume Trend

This chart shows daily trading volume trends across stocks.

High trading volume often corresponds to:

- Major price movements
- Increased investor interest

E. Average Closing Price by Stock

This bar chart compares average closing prices across different stocks, enabling performance comparison.

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9. Key Insights & Findings

- NFLX shows the highest average closing price among the analyzed stocks.
- Certain days exhibit high volatility, indicating increased market uncertainty.
- Volume spikes align with significant price movements.
- Daily returns fluctuate between positive and negative values, reflecting short-term market dynamics.
- Some stocks maintain relatively stable performance compared to others.

10. Business Implications

- Investors can use volatility analysis to assess risk.
- Volume trends help identify high-activity trading periods.
- Return analysis assists in short-term trading decisions.
- Comparative analysis helps in portfolio diversification strategies.

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11. Tools & Technologies Used

- Tableau Desktop
- CSV Dataset
- Data Visualization Techniques
- KPI and Calculated Field Creation
- Interactive Dashboard Design

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12. Conclusion

The Stock Market Analysis Dashboard successfully transforms raw stock market data into meaningful insights using Tableau. By combining KPIs, time-series analysis, volatility metrics, and return calculations, the dashboard provides a comprehensive overview of stock performance.

This project demonstrates strong capabilities in:

- Data analysis
- Business intelligence
- Visualization design
- Analytical thinking

The interactive nature of the dashboard allows users to dynamically explore stock performance based on stock name and date range.

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13. Future Enhancements

Future improvements could include:

- Adding moving average indicators
- Incorporating technical indicators (RSI, MACD)
- Expanding dataset with longer historical data
- Integrating predictive analytics models
- Adding sector-wise comparison