

Project 20_DAE

Exploratory Data Analysis (EDA)

1. Trends Over Time

- How has Intel's stock price (open, high, low, and close) evolved from 1980 to 2024?
- Are there discernible trends or cycles in the stock prices?

2. Volume Analysis

- What were the periods of highest and lowest trading volumes? What events correlate with these periods?
- How does trading volume correlate with stock price movements?

3. Dividends and Stock Splits

- How frequently has Intel issued dividends, and what patterns exist in dividend payouts?
- What are the key periods of stock splits, and how did they affect the stock prices?

Statistical Analysis

4. Descriptive Statistics

- What are the mean, median, and standard deviations for the opening, closing, highest, and lowest stock prices?
- What are the statistical characteristics of the trading volume?

5. Correlation Analysis

- What is the correlation between opening price, closing price, high, and low prices?
- Is there a relationship between trading volume and the magnitude of daily price changes?

6. Volatility

- Which periods exhibited the most volatility in stock prices?
- How has price volatility changed over the decades?

Predictive Modeling

7. Trend Forecasting

- Can machine learning models forecast future closing prices based on historical data?
- What are the best-performing algorithms for this dataset?

8. Event Prediction

- Can historical patterns in the dataset predict significant stock events like splits or spikes in trading volume?

Comparative Analysis

9. Relative Performance

- How does Intel's stock performance compare to the S&P 500 index or other major technology stocks during the same time periods?
- What role do broader economic cycles (e.g., recessions, tech booms) play in Intel's stock price?

10. Dividends vs. Non-Dividends

- How do stock returns compare between periods when dividends were issued versus when they were not?

Visualizations

11. Historical Charts

- What do visualizations of historical high, low, and closing prices reveal about Intel's stock trends?
- How does trading volume vary by decade?

12. Heatmaps

- Can a heatmap highlight days or periods with unusual activity (high trading volume, large price gaps)?

Advanced Insights

13. Seasonal Analysis

- Are there seasonal patterns (e.g., monthly or quarterly trends) in Intel's stock performance?
- Does the stock tend to rise or fall at specific times of the year?

14. Impact of Events

- How did major events (e.g., economic downturns, product launches, or changes in leadership) impact stock prices and volumes?

15. Anomaly Detection

- Are there any outlier days or periods in the dataset where the stock behaved unusually?

16. Dividend Influence

- How have dividend payouts influenced stockholder returns over the years?

Insights for Investors

17. Risk vs. Return

- What is the risk-to-reward ratio for Intel's stock over the long term?
- How does Intel compare in terms of stability versus growth potential?

18. Portfolio Optimization

- How can Intel's stock be incorporated into a diversified portfolio for optimal risk-adjusted returns?