Stock Price Analysis: Exploratory Data Analysis of Stock Market Trends

Project Name: Stock Price Analysis

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1. Introduction

Stock price analysis is vital for investors to understand the behavior of financial markets and make data-driven decisions. This project performs exploratory data analysis on historical stock market data.

Objective:

- Understand stock market trends.

- Visualize patterns in stock price movements.

- Analyze trading volume and correlation among features.

2. Methodology

To analyze stock price trends, the following steps were undertaken:

2.1 Data Collection

Stock data was sourced from a CSV dataset containing Open, High, Low, Close, and Volume.

2.2 Data Cleaning

- Converted date format for analysis.

- Checked for missing values and data integrity.

2.3 Data Visualization

- Stock Price Trend Plots: Line plots for OHLC prices.

- Volume Trend: Bar chart of trading volume.

- Feature Correlation: Heatmap to assess relationships among features.

3. Code Implementation

```
import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns


df = pd.read_csv('stock_data.csv')

df['Date'] = pd.to_datetime(df['Date'])


plt.plot(df['Date'], df['Open'], label='Open')

plt.plot(df['Date'], df['High'], label='High')

plt.plot(df['Date'], df['Low'], label='Low')

plt.plot(df['Date'], df['Close'], label='Close')

plt.legend()

plt.title("Stock Price Trends")
```

4. Output/Results

- Visualized daily stock price trends using line plots.

- Trading volume trends shown with bar charts.

- Feature correlation represented via heatmap.

Model/Analysis Performance Highlights:

- Clear pattern in stock price movement.

- Strong correlation observed between Open and Close prices.

5. References & Credits

- Dataset: Provided by course faculty

- Libraries Used: Pandas, Matplotlib, Seaborn

- Tools: Python, Google Colab