1. **Trend Analysis**:
   * **Time Series Analysis**: Analyze the **Adj Close** prices over time to identify patterns, trends, and seasonality in the stock's performance.
   * **Volatility Analysis**: Study the fluctuation in **High**, **Low**, **Close**, and **Open** prices to assess the stock's volatility.
2. **Predictive Modeling**:
   * **Stock Price Prediction**: Use historical data to forecast future stock prices. Techniques could include ARIMA, LSTM networks, or other time series forecasting methods focusing on **Adj Close** or **Close** prices.
   * **Volume Prediction**: Predict future trading volume based on past data, potentially identifying when high-volume days are likely to occur.
3. **Technical Analysis**:
   * Develop indicators like Moving Averages, RSI (Relative Strength Index), or MACD (Moving Average Convergence Divergence) based on **Close**, **High**, **Low**, and **Open** prices for trading strategies.
   * Implement candlestick pattern recognition for short-term trading insights.
4. **Market Analysis**:
   * **Correlation Analysis**: Investigate the correlation between different stocks or between a stock’s volume and its price movement.
   * **Sector Performance Analysis**: Group companies by sector using the **Symbol** and analyze sector-wide trends or performance.
5. **Risk Management**:
   * **Value at Risk (VaR)**: Estimate the potential loss in value of a stock portfolio with a given confidence interval.
   * **Portfolio Optimization**: Use historical price data to optimize a portfolio's performance, balancing between risk and return.
6. **Sentiment Analysis** (if combined with external data):
   * Correlate market performance with news sentiment or social media sentiment to gauge the impact of public perception on stock prices.
7. **Machine Learning Models for Prediction and Classification**:
   * **Regression Models**: Linear regression, Random Forest, Gradient Boosting for predicting future prices.
   * **Classification Models**: Predict whether the stock price will increase or decrease the next day based on historical data.
8. **Anomaly Detection**:
   * Identify unusual patterns in trading volume or stock price movements that could indicate market manipulation or significant news events.