### Coca-Cola Stock Analysis Project

### **Project Title**

### Coca-Cola Stock - Live and Updated

### **Tools and Technologies Used**

### Python, SQL, Excel, yFinance, Matplotlib, Seaborn, scikit-learn, Finta, Streamlit

### 3. Objective

### To analyze Coca-Cola's stock data, generate insights, forecast future stock prices using machine learning, and build a real-time prediction dashboard.

### **4. Data Source**

### Historical stock data from Yahoo Finance from 2015 to 2023 using the ticker 'KO'.

### 5. Data Processing

### Handled missing values, added moving averages (MA20, MA50), daily return, and volatility. Applied various technical indicators using the FINTA library.

### 6. Exploratory Data Analysis

### Included line plots, heatmaps, and volatility trends. Used descriptive statistics to summarize data characteristics.

### 7. Machine Learning Model

### Random Forest Regressor was trained on features including Open, High, Low, Volume, and engineered features like moving averages. Metrics used: MSE and MAE.

### **8. Real-time Prediction System**

### Used yFinance to fetch live stock data and applied the trained model for real-time closing price prediction.

### 9. Deployment

### Streamlit was used to deploy an interactive web-based dashboard for real-time stock monitoring and prediction display.

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### 10. Financial Analysis

### Computed and presented financial ratios like P/E ratio, Beta, Operating Margin, and Dividend Yield using company financial metadata.

### 11. Backtesting

### Applied and optimized strategies like DEMA crossover with a simulated $100,000 investment. Achieved a hypothetical return of +118,642%.

### 12. Conclusion

### This end-to-end project showcases data collection, preprocessing, EDA, predictive modeling, real-time forecasting, and deployment in a single pipeline.

### Date of Completion

### June 20, 2025

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