TEAM NAME : QuadraInnovators

**1. Collect Historical Stock Data**

• Data Sources: Download data from platforms like Yahoo Finance, Google Finance, or APIs like Alpha Vantage or Quandl.

• Essential Fields: Date, Open, High, Low, Close, and Volume.

**2. Calculate Moving Averages**

• Simple Moving Average (SMA):

SMA = \frac{\text{Sum of Closing Prices over n periods}}{n}

• Exponential Moving Average (EMA): Gives more weight to recent prices.

• Choosing Periods:

• Short-term (e.g., 9, 20 days) for quick trends.

• Long-term (e.g., 50, 200 days) for overall trend analysis.

**3. Visualize Trends**

• Candlestick Charts: Show price action and patterns.

• Overlay Moving Averages: Add SMA/EMA lines to charts to identify trend directions.

• Volume Trends: Highlight trading activity, spikes often indicate interest or volatility

**4. Identify Key Metrics**

• Support & Resistance Levels: Historical highs and lows where prices often bounce.

• Trendlines: Connect significant highs or lows to visualize the trend direction.

• Indicators: Use RSI, MACD, Bollinger Bands for deeper analysis.

**5. Perform Comparative Analysis**

• Compare stock performance across sectors or competitors.

• Normalize prices (percentage changes) for comparison.

**Tools for Implementation**

• Python Libraries: Pandas, Matplotlib, Plotly, and TA-Lib for data processing and visualization.

• Platforms: TradingView for interactive charting.