**Stock-Stalkers Web Page Development Report**  
The **Stock-Stalkers** web application is a comprehensive stock analysis platform designed to empower users with data-driven insights. Built using **HTML, CSS, and JavaScript**, the platform provides a user-friendly interface for visualizing stock data, performing technical analysis, making machine learning-based predictions, and extracting sentiment from financial articles and news.

1. **Web Page Design and Menu Structure**

The web page design follows a clean, intuitive layout to ensure seamless navigation and accessibility. The platform consists of the following menu options:

* **Home:** The landing page, featuring a brief introduction to the platform and quick access to key features along with user-registration and login.
* **Chart Patterns:** Displays common stock chart patterns (e.g., candlestick) for visual reference.
* **Technical Analysis:** Includes essential indicators like:
  + **Exponential Moving Average (EMA)**
  + **Simple Moving Average (SMA)**
  + **Relative Strength Index (RSI)**
  + **Moving Average Convergence Divergence (MACD)**
* **Stock Prediction:** Utilizes a machine learning model to forecast stock price movements based on historical data.
* **Sentiment Analysis:** Extracts and displays the sentiment (positive, negative, or neutral) of stock-related articles and news.
* **Chat Assistant:** An interactive assistant to answer queries and assist with navigation.

1. **Charting and Technical Indicators with Alpha Vantage API**

**2.1 Integration with Alpha Vantage API**

The platform uses the **Alpha Vantage API** to fetch real-time and historical stock data. By calling the /query endpoint, it retrieves time-series data, including open, high, low, close, and volume values. The data is then visualized using **JavaScript charting libraries** like Chart.js.

**2.2 Visualization of Technical Indicators**

The platform displays key technical indicators:

* **EMA:** Tracks recent price changes, making it responsive to new data.
* **SMA:** Shows average closing prices over a set period, helping identify trends.
* **RSI:** Measures stock momentum on a 0–100 scale, indicating overbought or oversold conditions.
* **MACD:** Analyzes trend direction and momentum with a line crossover and histogram.

**2.3 Chart Rendering and User Interaction**

The charts offer **dynamic interactivity**, allowing users to zoom, pan, and toggle indicators. Tooltips display precise data points, while users can select custom timeframes for detailed analysis.

**2.4 Error Handling and Data Accuracy**

To ensure reliability, the platform manages **API rate limits** and handles errors gracefully. Invalid stock symbols trigger appropriate error messages, ensuring smooth user experience and data accuracy.

**2.5 Timeframe: Daily Advantage**

The **daily timeframe** provides consistent and reliable data, reducing intraday noise. It enhances the accuracy of technical indicators, making the platform ideal for **swing traders and long-term investors**.