Certainly! I'd be happy to explain each attribute of the dataset used in the stock price prediction model, as outlined in the paper. The dataset consists of features categorized into four main groups:

1. **Fundamental Data**
2. **Macroeconomic Data**
3. **Technical Indicators**
4. **Financial News Sentiment**

Below is a detailed explanation of each attribute within these categories:

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1. Fundamental Data

Fundamental data refers to the basic financial information about the stock market index, which is crucial for understanding the market's performance on a day-to-day basis. These are daily data points that provide insight into the market's trading activity.

- **Open Price**:
  - **Description**: The price at which the stock market index (NEPSE) opens on a given trading day.
  - **Significance**: It reflects the initial market sentiment and can indicate whether the market is likely to trend upward or downward during the day.
- **High Price**:
  - **Description**: The highest price reached by the stock market index during a trading day.
  - **Significance**: It shows the maximum value investors were willing to pay, indicating bullish sentiments during the day.
- **Low Price**:
  - **Description**: The lowest price recorded by the stock market index during a trading day.
  - **Significance**: It reflects the lowest point of market valuation for the day, indicating bearish sentiments.
- **Close Price**:
  - **Description**: The final price at which the stock market index closes at the end of a trading day.
  - **Significance**: It's a critical data point used in technical analysis and is often compared with the open price to determine the day's market movement.
- **Volume**:
  - **Description**: The total number of shares or contracts traded during the trading day.
  - **Significance**: High trading volume indicates strong investor interest and liquidity in the market, which can lead to more stable price movements.

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2. Macroeconomic Data

Macroeconomic data encompasses economic indicators that reflect the overall economic health of the country and can significantly influence the stock market's performance. These are generally monthly data.

- **Remittance (RMT)**:
    - **Description**: The total amount of money transferred into the country by expatriates and migrant workers.
    - **Significance**: In Nepal, remittances constitute a significant portion of GDP and can influence consumer spending and investment in the stock market.
- **Inflation Rate (IR)**:
    - **Description**: The rate at which the general level of prices for goods and services is rising, eroding purchasing power.
    - **Significance**: High inflation can reduce consumer spending and corporate profits, negatively affecting stock prices.
- **Commercial Bank Interest Rate (CBIR)**:
    - **Description**: The interest rate set by commercial banks for loans and deposits.
    - **Significance**: Higher interest rates can discourage borrowing and spending, leading to reduced corporate earnings and lower stock prices.
- **Treasury Bill Rate (TRB)**:
    - **Description**: The yield on government-issued treasury bills, which are short-term debt obligations.
    - **Significance**: It's a benchmark for risk-free returns. Changes in the treasury bill rate can influence investor preference between stocks and government securities.
- **Consumer Price Index (CPI)**:
    - **Description**: An index measuring the average change over time in the prices paid by consumers for a market basket of goods and services.
    - **Significance**: CPI is a primary indicator of inflation and cost of living, affecting consumer spending and investment decisions.
- **Exchange Rate to US Dollar (ER)**:
    - **Description**: The value of the Nepalese currency relative to the US dollar.
    - **Significance**: A weaker domestic currency can make exports cheaper and imports more expensive, influencing corporate earnings and stock prices.

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3. Technical Indicators

Technical indicators are mathematical calculations based on historical price and volume data that traders use to predict future market movements.

- **Moving Average Convergence Divergence (MACD)**:
    - **Description**: A trend-following momentum indicator that shows the relationship between two moving averages of prices (typically the 12-day and 26-day exponential moving averages).

    - **Significance**: Used to identify potential buy and sell signals, indicating bullish or bearish momentum.
- **Average True Range (ATR)**:
    - **Description**: A volatility indicator that measures the degree of price variation in the market.
    - **Significance**: Higher ATR values indicate higher market volatility, which can be important for setting stop-loss levels and understanding market risk.
- **Relative Strength Index (RSI)**:
    - **Description**: A momentum oscillator that measures the speed and change of price movements, oscillating between zero and 100.
    - **Significance**: RSI values above 70 typically indicate overbought conditions, while values below 30 indicate oversold conditions, helping traders identify potential reversal points.
- **Money Flow Index (MFI)**:
    - **Description**: A momentum indicator that uses both price and volume data to measure buying and selling pressure.
    - **Significance**: Similar to RSI but includes volume, making it a more comprehensive indicator of market strength.

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4. Financial News Sentiment

Financial news sentiment involves analyzing textual news data to gauge the market's mood, which can influence investor behavior and stock prices.

- **Sentiment Score (Score)**:
    - **Description**: A numerical score representing the sentiment extracted from financial news articles using natural language processing and sentiment analysis techniques (e.g., VADER).
    - **Significance**: Positive sentiment scores indicate optimistic market news, potentially leading to higher stock prices, while negative scores suggest pessimism and may predict price declines.