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Technical Analysis of Stock Market

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ABSTRACT: Technical analysis is the analyses of the historical values of a stock. Usually, the Fundamental analysis is used till now. The fundamental analysis deals with the prediction of the market data. This type of analysis has proved to be inefficient for short-term trading in the stock market. This is the main reason why the technical analysis is preferred in stock trading. Technical analysis of stock market is important while doing intra-day trading. The intra-day trading is the one that occurs during that respective day only. Intra-day trading is the short term investment. Technical analysis is statistics which is based on technical indicators. Technical indicators are generated by making some mathematical calculations on the dataset[1]. Our system is implementing various indicators. These indicators will display charts, which will give sell signal, buy signal, weak-buy and weak-sell signal. By calculating the probability of all signals given by all indicators and trader can make the decision.

KEYWORDS: intra-day trading, analysis, indicators.

I. INTRODUCTION

In India when we think about trading in stock market most of times people does trading with the help of brokers only. The broker serves a middleman between the customer and trading. To avoid this and to make the trading generalize we have to look forward to apply it generally and can be done by a normal person also. In the field of stock market it is necessary to gain the prior knowledge of the current stock movements which can be done by the technical analysis which is best practice to be done if you are willing to trade for short period like you want to buy stocks and sell them after short period like after 2 or 3 days.

To do potential trading person must perform two types of analysis: Fundamental and Technical analysis. We are focussing on technical analysis in this paper. The technical analysis is basically done for intra-day trading in which we do check and analyse the opening, closing, date, time of stock prices happened during that current day only.

To do intra-day trading we must perform technical analysis which can be done by applying various indicators from which we are focussing one: Pivot points, MACD and Alligator which show graphs of stock movements.

II. RELATED WORK

The large amount of investment happens in share market in single day and there are many potential workers in share market. The BSE (Bombay stock exchange) And NSE (National stock exchange) are the two leading markets in India where trading happens. There are many share-holders who invest their money in many of these companies. But all share-holders are not there to take look at their shares. So we can develop a technical analysis of intraday trading which will give the general information about how the shares of different companies are fluctuating and what type of movements are happening there.

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The technical analysis henceforth will give 3 indicators which are MACD, Alligator and Pivot point. We will first take the dataset of the current stock prices like stock market opening price, close price, date, time, high price, low price, volume from the yahoo finance website. Then we will get that data and apply our indicators on that data. Then we will check - what are the outputs that are given by all the 3 indicators which will be in graphs, giving bearish or bullish signal. We will then calculate the probability of all the 3 indicators and check the final result they are giving. Thus we will get to know that it is buy or sell signal.

The buy and sell signal is determined by the indicators which will be decided after final result of our implementation. The user can then thus observe the different graphs that are generated and can decide it's a good time to start and do trading or not.

III. METHODOLOGY

3.1 Data set

For technical analysis of intraday trading, stock market data is required. For this the system is fetching data from Yahoo Finance which is free of cost . Data is fetched from Yahoo Finance by using Python Pandas Datareader package for a given time period. This data consists of Date, Close Price, High Price, Low Price, Volume, etc. For most of the indicators Date and Close Price is required.

3.2 Apply different Indicators

Technical Analysis is totally statistics. Technical analysis of stock market totally depends upon the technical indicators. Technical Indicator is generated by applying some mathematical calculations on close price, adjusted close, volume of historical data for a specific time window. Only one indicator can't give a 100% accurate result. Different indicators behave differently and give different results. One indicator might show weak-buy signal, another one might show buy signal and so on. It might be confusing for trader to take decision. By analysing the probability among the three indicators, the trader can make decision about buying or selling the stock.

3.3 Plot Technical Charts

The output of the technical indicators is in the form of technical charts. A trader must able to read charts, find trends. By spending some time in studying charts trader will be able to read charts. There are various types of charts like line chart, bar chart, candlestick chart, volume candle, etc. Line chart display only close price, while bar chart display open, close, high, low price by using bars. Candlestick chart uses a rectangular body, while volume charts consists of volume also.

Various time frames can be applied-

- Monthly Charts
- Weekly Charts
- Intraday Charts- 30 min, 12 min, 6 min, etc.

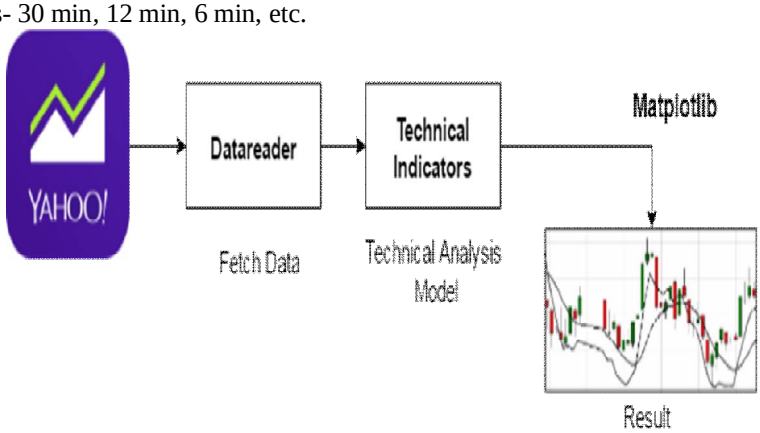

fig: Architecture Diagram

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4. MACD (Moving Average Convergence Divergence)
MACD is based on EMA (Exponential Moving Average). MACD involves various calculations.

Calculate EMA-
Use time window=12

- SMA= 12 day period sum / 12
- Multiplier = 2 / (time window + 1)
- EMA = {Close – (EMA of previous day) * Multiplier} + EMA (Previous Day)

Calculate MACD Line-

- MACD Line = 12 Day EMA – 26 Day EMA
- Signal Line = 9 Day EMA of MACD Line
- Histogram = MACD Line – Signal Line

fig: MACD Indicator Chart

RED Line – Signal Line
Green Line – MACD Line
The graph indicates a situation of the stock price being bullish, when the MACD Line surpasses the Signal Line. The situation where the Signal Line passes the MACD Line is a situation of the stock price being bearish. By analyzing the probability among the three indicators, the trader can make decision about buying or selling the stock.

V. CONCLUSION

In this paper we use the technical analysis of previous stock data to help the trader in taking the buying or selling decision. The resultant value show that predicting the direction of changes of share values in the next day. In this system we use the Moving Average Convergence Divergence (MACD) to indicate the direction of the changes

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correctly. In future works, recently proposed regression method and indicators to propose a solid analysis model in a large scope can be implemented.

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