



## PLATFORM TO LIST BEST STOCKS IN THE MARKET USING RULE-BASED SCORING ALGORITHM

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**Abstract**—There are thousands of stocks are listed under every stock exchange, each stock exhibit different performance in market, based on technical trends, fundamental strength of the stock, national and international affairs, financial decisions by government and trader’s mindset. Picking right stock to invest for short term or long term with such fluctuating influences on market and huge data set is more challenging. Successful traders are use their own analysis to pick the right stock from market. This processed approach is to solve this use case by providing platform to user that uses customized Scoring Model Based Algorithm with providing user to customize their rule set.

**Keywords**— Stock market, platform, rule-based algorithm, scoring model, predict.

### I. INTRODUCTION

Every successful stock trader uses their own analysis to pick the right stock from market, the analysis is different for type of trade i.e. intraday trading, short term trading and long-term trading. Every stock trader use set of valuation criteria to pick the stock, that is nothing but set of rules. Idea behind this platform solution is to provide the option for user to provide their own rules(single or multiple rule sets) for type of trade and run the scoring model to generate the score of each stock with reference of rules set and store the score value back in database for future comparison.

### II. BRIEF ABOUT SCORING MODEL

Rule based engine used for the scoring model, it will take user input i.e. set of rules and summation will be calculated by the model to generate the score. For each stock. In the rule set user must define the priority, weightage of the specific parameter example P/E ratio is the parameter than

P/E < 10 weight 75%

P/E >10 weight 50%

Weight must not cross 100% and weight must be tuned to get better prediction. user can set all parameters in rule set, there is no limits in rules input i.e. more rules with more tuned weights will give the better prediction.

Few parameters to list out:

Fair value, P/E, P/BV, EV/Sales, EV/EBITDA, Profit, PEG, Sales, EBITDA, EBIT, ROE, ROA, ROCE, EBITDA Margin, Current liabilities, Debt to Equity Ratio, Operating Cash Flow, interest Covered Ratio, bankruptcy

Risk, Dividend held, Divided Payout Ratio, Free Cash Flow payout, Divided Amount and so on.

When stock fundamental values will be fetched and ran scoring model will look for the specific parameter to evaluate and garnered the score, the score value will be store in different table with Rule set reference and stock reference.

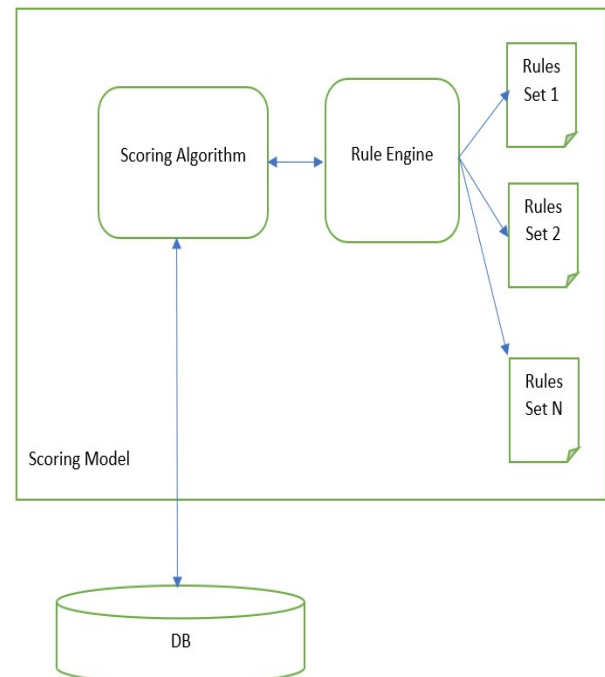


Fig 1: Scoring Model.

### III. DIFFERENT SET OS DATA FR ANALYSIS

#### A. History data

Historical data provides up to 10 years of daily historical stock prices and volumes for each stock. Historical price trends can indicate the future direction of a stock. History data will give the stock performance over the time period, this data will be pulled from BSE/NSE as csv file, csv must load into the DB table through python script.

#### B. Fundamental data

For stocks, fundamental analysis uses revenues, earnings, future growth, return on equity, profit margins, and other data to determine a company's underlying value and potential for future growth. All this data is available in a company's financial statements Fundamental data will give the stock strength based on very basic parameter, this data will very timely basis, to get the better insight need to load the data once a month and this is manual.

#### C. Rule set data

Rule set data will be given by the user, user must convert their analysis approach into rules by giving the proper weight and priority to it. To get the better accuracy in the prediction user must set more rules with appropriate tuned weights, user must tune it by monitoring the stock price for some time and adjusting the weights.

### IV. RIGHT WEIGHT FOR FLUCTUATING INFLUENCE

when we investigate the major market crash, that happened because of the influential factors such as political changes, natural calamities, state or nation tax reform, these events play major role for stock picking. User must consider these event and proper weightage while setting the rules.

Example if user setting the rule for automobile sector than user must set rules like bellow

Increase in road tax → weight 50%

Decrease in road tax → weight 75%

This is common rule that where there more tax companies can sell less vice versa.

Processed method is that user must have rule set as sector vice/ industry wise for better manage.

Proposed system is more focused on the fundamental analysis, it involves using quantitative and qualitative factors to

answer questions such as:

- Are the company's revenues really growing?
- Is the company making any profit?
- Can the company successfully beat its competitors in the future?
- Can the company repay its debts if such a condition arose in near future?
- And ultimately: Will this company's stock be a good investment?

to answer these questions user must set below minimum parameters in the rule: Fair value, P/E, P/BV, EV/Sales, EV/EBITDA, Profit, PEG, Sales, EBITDA, EBIT, ROE, ROA, ROCE, EBITDA Margin, Current liabilities, Debt to Equity Ratio,

Operating Cash Flow, interest Covered Ratio, bankruptcy Risk, Dividend held, Divided Payout Ratio, Free Cash Flow payout, Divided Amount and so.

### V. PROPOSED SYSTEM

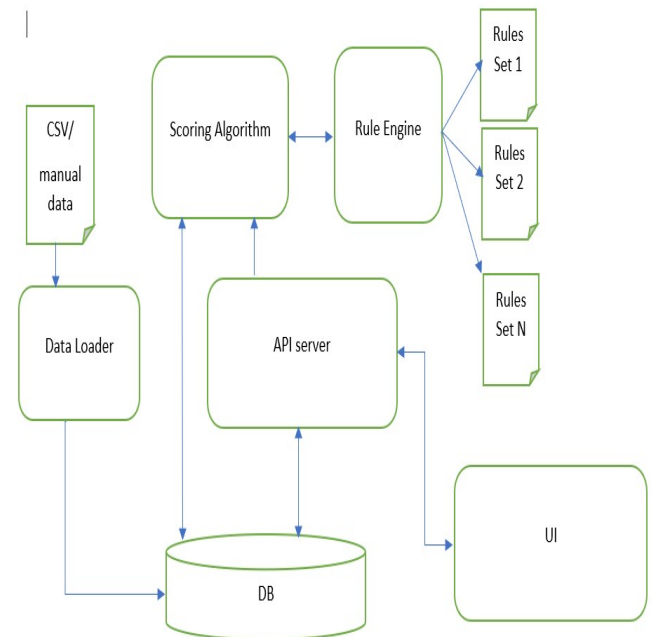


Fig 2: Architecture of proposed system

This proposed system has three parts,

- Data loader

Data loader is used to load the historical data, fundamental data and update influential factor, data will be in csv format downloaded from BSE/NSE, historic data is holding the daily data of the stock price, and fundamental data is holding the base information the stock.

- Scoring model

Scoring model layer used to evaluate the score of the stock based on the input rule set given by the user, this model will evaluate each rule and evaluate the final score in percentage. Higher percentage is the better one to invest.

- Visualization

Visualization is used for representing the evaluated score of the stock. This is simple visualization, has simple table of information that holding to set of data, one all list of stocks with there scores and second individual stock with score in different timeline(history)..

## VI. CONCLUSION

This approach based on personal experience on trading and it must need be tuned to get better accuracy. The prediction plays an important role in stock market business which is complicated and challenging process due to the dynamic nature of the stock market.

## VII. REFERENCES

- [1] The Art of Value Investing: Essential Strategies for Market-Beating Returns, John Heins, Whitney Tilson, 2013.
- [2] Indian Economy for Civil Services, Universities and other examinations, Ramesh Singh, 2018.
- [3] How to Make Money in Intraday Trading: A master class by one of India's most famous traders, Ashwani Gujral, Rachana A. Vaidya, 2018.
- [4] Drools JBoss Rules 5.X Developer's, Michal Bali, 2013.
- [5] Mastering Apache Cassandra 3.x: An expert guide to improving database scalability and availability without compromising performance, Aaron Ploetz, Tejaswi Malepati, 2018.
- [6] Designing Applications with Spring Boot 2.2 and React JS, Dinesh Rajput, 2019.
- [7] Introduction to Algorithms, 3Ed, Cormen, C Leiserson, 2009.
- [8] Economics: Explained Economics Guidebook for Basic Understanding of Economics, With Ideas You Have to Know, John Roth, Sahar Avr, 2015.