# S&P
## Stock Exchange Predictor

## SYSTEM DIAGRAM

News Sites :

- News Extraction
- News Categorization
- Sentimental Analysis
- Prediction
- Naive - Bayes Algorithm
- Decision Tree Algorithm
- Check the accuracy in both algorithm prediction Result
- Display the Most Accurate Prediction Result to Investor

{json:api}

C|S|E COLOMBO STOCK EXCHANGE
Creating Wealth and Value

canvasJS

BeautifulSoup

Database

User Dashboard

python
MySQL
php

## BACKGROUND

Stock market is an important part of the economy of a country. Stock market is widely used investment scheme. Movement of the stock exchange is unexpectable. It always tends to change with internal and external factors. Stock price movements are driven daily by politics, weather and other news. An intelligent stock market prediction model is necessary. Existing research paper titles related shown in below.

* Stock markets price movement prediction with LSTM neural networks
* Predicting Stock Price Movements Based on Different Categories of News Articles
* Forecasting daily stock market return using dimensionality reduction
* Extracting important sentences for public health surveillance information from Indonesian medical articles
* Stock market prediction using an improved training algorithm of neural network
* Using Natural Language Processing to Extract Health-Related Causality from Twitter Messages
* Stock market prediction using neural network through news on online social networks
* Sentiment-aware stock market prediction: A deep learning method

## RESEARCH PROBLEM

Stock exchange is sensitive to the point that it rapidly reacts to changes in economy. Prediction plays a very important role in stock market business which is very complicated and challenging process. Employing traditional methods like fundamental and technical analysis may not ensure the reliability of the prediction. Economy of the nation may changes with several factors. (Stock price movements are driven daily by politics, weather and other news.) There is no exact professional system to predict the stock market in Sri Lanka.

## OBJECTIVES

**Main Objective**
To support to investor who looking top trending company which is growing in future, by prediction of stock exchange market after analyzing of situation of the country.

Making All the right moves with the Right stock market software for trading.

**Functional Objectives**
Web scraping automatically extracts data and presents it in a format you can easily make sense of.

To categorize news articles to predict the stock market behavior whether it is falling or rising and classify news to be either Positive, Negative or Neutral sentiments.

Naive-Bayes algorithm and Decision Tree algorithm is giving prediction for CSE sector price movements in the next day by considering current situation in country.

Comparison between the both previous algorithms results with actual movement values in the CSE to get the most accurate prediction.

## METHODOLOGY

**NEWS SCRAPING**
Unstructured information extraction by using Natural Language Processing

**CATEGORIZATION**
Data categorization by using Natural Language Processing

**DECISION TREE PREDICTION AND SECTOR VALUE SUMMARIZING**
Decison Tree Classifier Algorithm for Data Prediction by using Machine Learning. Sector value summarizing by using Machine Learning.

**NAIVE BAYES PREDICTION AND ACCURACY CHECKING**
Naive Bayes Algorithm for data Prediction by using Machine Learning. Results from Both algorithms are compared.

## REFERENCES

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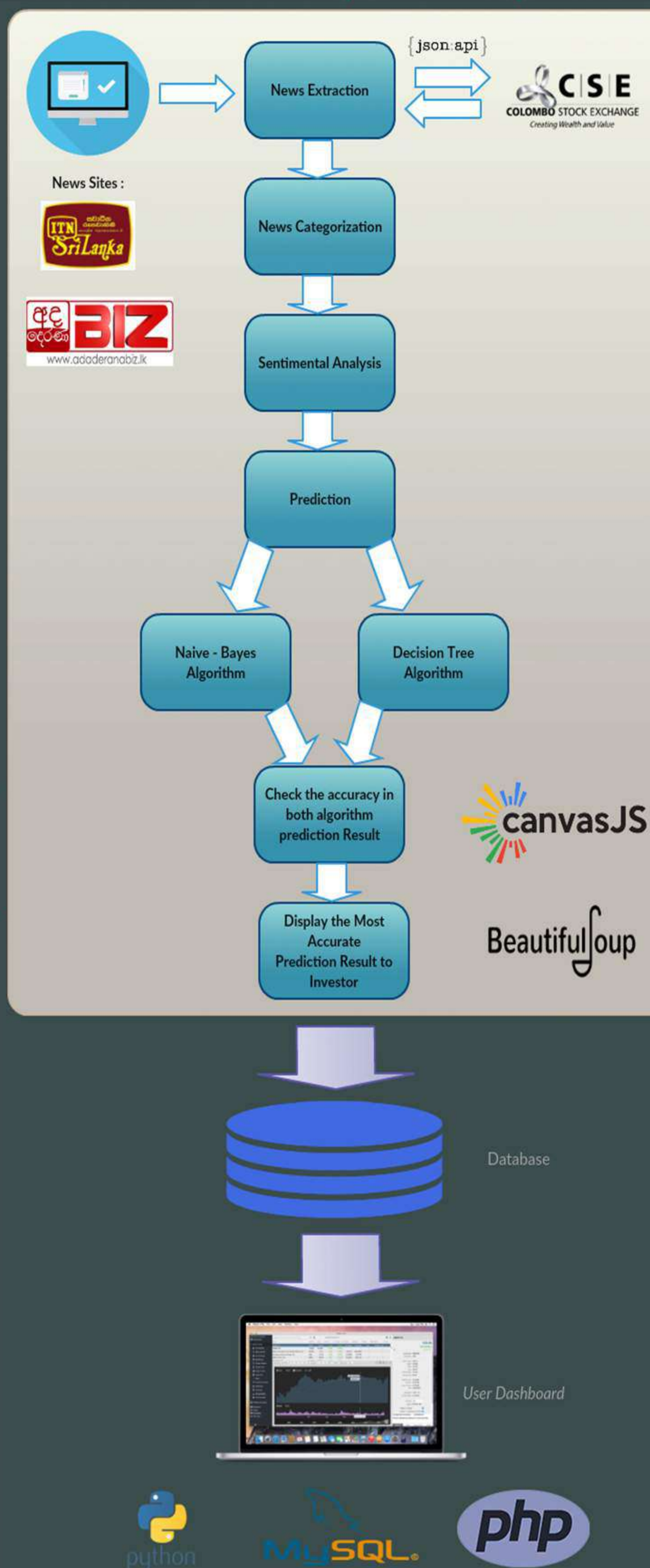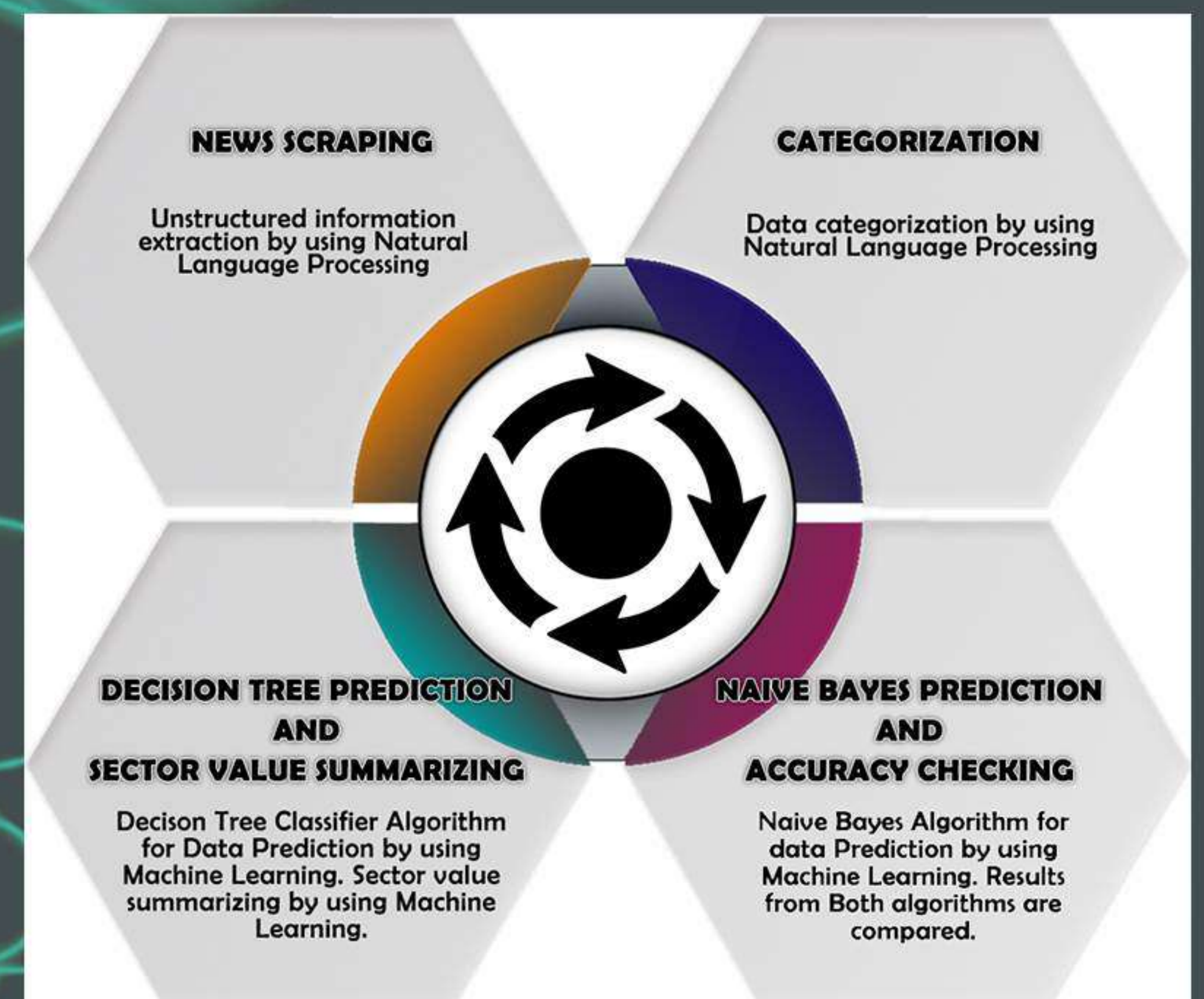
## CONCLUSION

All researches on Stock Exchange prediction was totally based on a random walk and numerical prediction but with the introduction of real-time behavioral finance, get the sentimental score of the abstract extraction of news article will consider while predicting the stock movement. Making it more efficient it uses the idea of sentimental analysis of the factor wise summary of the article through machine learning models.
Research gives idea by scrape data and classified factor related sentiment data analysis, build the Naïve Bayes and decision tree algorithm model to calculate the sentimental value, and forecast Stock exchange movement trend with more accuracy. End of this research, best algorithm for financial prediction had identified. Naïve Bayes algorithm is better than decision tree algorithm. Increasing the size of the data set will give more accuracy. This research can be adapted for a particular sector or company with minor customizations.

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