

# Generating Profitable Trade Signals for Financial Markets using Different Machine Learning Algorithms

*Machine Learning Project | Group 39 | Akshat, Anurag Gulati, Ayush Madan, Kabir Baghel*

## **Motivation:**

People have been trying to predict the movement of prices in financial markets for a long time. Manual analysis techniques are very tedious for this task, and a small error can result in a significant loss of capital. Previous studies have generated profitable trade signals using some ML techniques but have used few technical indicators. Our study aims to check if we can use multiple ML techniques to generate profitable trading signals for an asset class using historical data and numerous other technical indicators.

## **Related Work:**

Some past work in this field has proven effective in different market situations. We are currently referring to 3 such research works, which are as follows:

1. <https://rb.gy/zqzvjh>: A hybrid stock trading framework integrating technical analysis with machine learning techniques; proposes using CEFLANN (an efficient ANN) for trading signal generation and compares existing models.
2. <https://rb.gy/yts1h4>: Neural Network based Trading Signal Generation in Crypto-Currency Markets; analyses existing methods and develops different artificial neural network architectures, treating the problem as a combination of regression and classification tasks.
3. <https://arxiv.org/pdf/1605.00003.pdf>: Predicting the direction of stock market prices using random forest.

## **Tentative Timeline:**

20/09 - Naïve Bayes Implementation  
03/10 - Decision trees Implementation  
15/10 - Random Forests Implementation  
31/10 - Project Mid Sem Presentation

05/11 - K Nearest Neighbors Algorithm Implementation  
15/11 - Support Vector Machine Algorithm Implementation  
20/11 - Artificial Neural Network Implementation  
05/12 - Project End Sem Presentation

## **Individual Tasks:**

Akshat	Naïve Bayes, Support Vector Machine Algorithm
Anurag Gulati	Decision trees, Support Vector Machine Algorithm
Ayush Madan	Naïve Bayes, Artificial Neural Network
Kabir Baghel	Random Forests, K Nearest Neighbors Algorithm

## **Final Outcome:**

We expect to narrow down to a trade model (consisting of a set of technical indicators and an appropriate learning algorithm) which accurately and consistently generates trading signals (buy/sell) for an asset class, contributing to better trading decisions and generating profits.