TIP Research : Binary Forecasting on Indian Stocks

A stock is a security that represents the ownership of a fraction of a corporation. Stocks movement are extremely random. Therefore it is extremely difficult to predict the stock price of the next day or even the next week. Though predicting the exact price of a stock in difficult, we can still find out in what direction will it go, up or down. For determining this people use technical indicators. These are mathematical tools which tell us the direction a stock using previous stock price data. Each indicator signals us the moment we need to buy the stock or sell the stock. But as the stocks are random in nature there is no surety whether the signal will make us profit or loss. So to minimize the wrong signal, people make combination of these technical indicators and make a strategy for a buy or sell signal. These strategies are further backtested with historical data.

In our project instead of making a strategy we used machine learning algorithm to find out the buy and sell signals. First we binarized all the indicator data. For example we take Relative Strength Index (RSI), if the value of RSI is more than 70 we make the binarized data as 1 else 0. And like that we binarized different indicators like when the stock price is more than Bollinger Bands upper band the indicator value is 1 else 0 and for Average Directional Index more than 25 then indicator value is 1 else 0. The stock price data was also binarized by having 1 when the change percent was more than 5% else 0.

Now we had the binarized data of the technical indicators and stock price. We used this data to fit different binary classification model like logistic regression, Decision tree, SVM and Random forest.