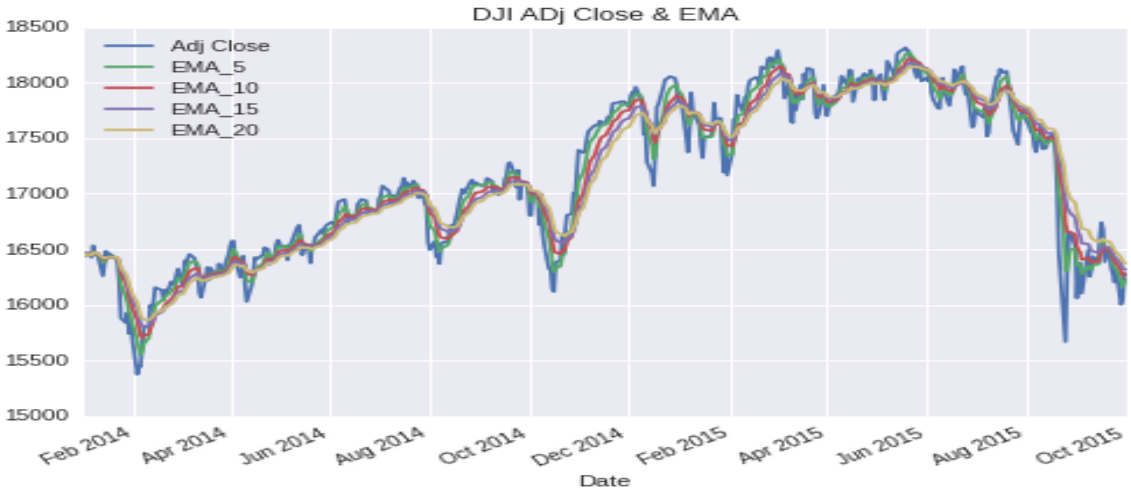

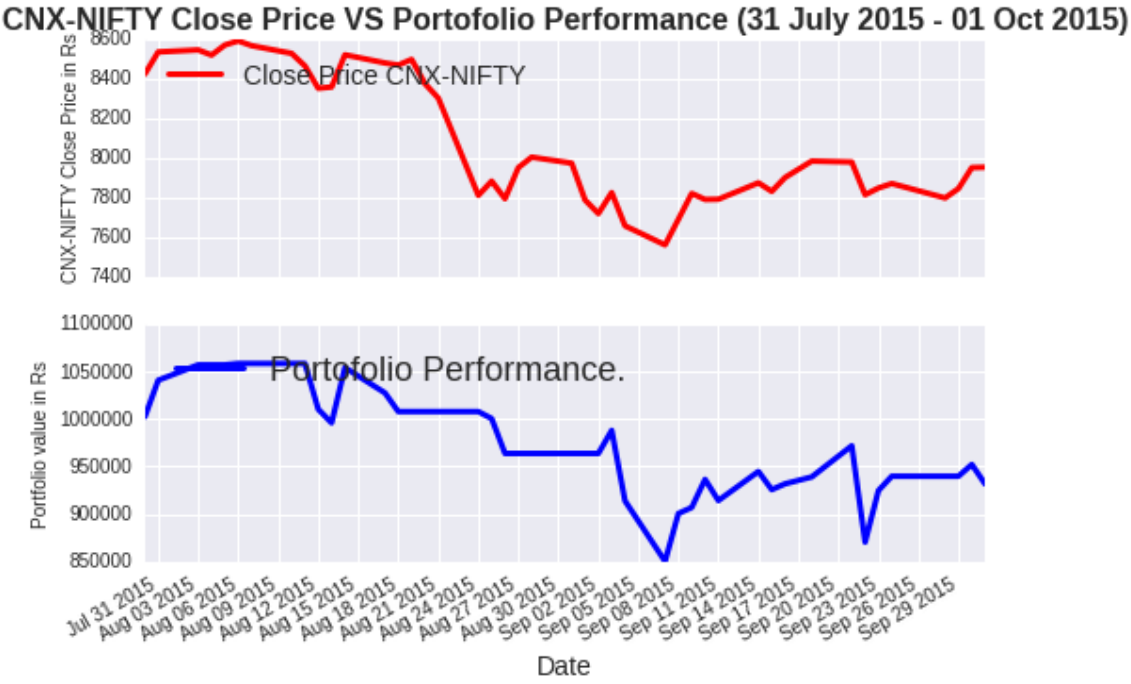

CNX Nifty50 Closing Price Direction Predicition

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Abstract

This project focuses on building a prediction model to predict to direction of next day's closing price of NSE CNX Nifty50. Unlike some other approaches which are concerned with company fundamental analysis (e.g.Financial reports, market performance, sentiment analysis etc.), the feature space is derived from the time series of the stock itself and is concerned with potential movement of past price. Decision process involves NSE CNX Nifty50 daily return over the period of time. Target is to develop the trading strategy based on the predictions and backtest it against the benchmark.

Keywords: stock prediction, feature selection, SVM

1. Introduction

Short-term prediction of stock price trend has potential application for personal investment without high-frequency-trading infrastructure. This project focuses on the short-term(daily) price trend and try to get direction of next day closing price.

2. Fature Space

2.1 Data Collection

The data is pulled from https://www.quandl.com/. I picked 7 indices NASDAQ Composite, Franfurt DAX, London FTSE-100, Tokyo Nikkei-225, Hong Kong Hang Seng and Sanghai Composite Index for various time span 2 Jan 2010 to 1 Aug 2015. The goal is to predict next days closing price based on these 7 indices.

2.2 Features

In the era of globalization each financial exchanges across the world are highly correlated. None of the financial market isolated and intact from another.Movement of one stock market impacts another. Financial decision of one country impacts all other stock exchanges. Recently Chines governments depreciated of its RMB which impacted whole world. It can be considered as the best example of my assumption above. Idea behind this is to use world major stock indices as input features for the machine learning algorithms and try to predict CNX Nifty. Daily return and EMA of all the above exchanges have been used as input paramter.

3. Model Fitting And Results

To validate the prediction accuracy we train the model on different time slots. I fitted model with Logist Regression, SVM, KNN and Random forest classifier.

Code:-
https://github.com/abhipr1/DATA_SCIENCE_INTENSIVE/blob/master/Capstone/DataAnalyzer.ipynb

4. Analysis and Conclusion

Below is the CNX Nifty Close Price between 31 July 2015 and 01 October 2015. First graph shows the actual trend of the market index for above period. In this particular period the market had a return is negative (-4.76%). Portofolio return for the same period. Second graph shows the trend of the Porfolio generated on top of our predictions. Start value is 1M INR which end up at a final value, after 3 months of trading, of about 26%.