Explain Your Project

**Data Collection**- I wrote a script in Python and used yahoo API to get the level order end of the day data of stocks(Microsoft Nvidia Google ,Southwest Airlines, American Airlines, Alaska Air group ,Delta Airlines and China eastern Airlines Corporation) which includes Open ,High ,Low Close, Volume as features , which is quite scalable.

**Data Cleaning-** Although the datawas clean but still made some changes like removing Nan values and formatting the datawherever necessary.

**Data Visualization**-Having the clean data from some of the major tech companies, I analyzed them to plot daily returns, risk return graphs, compute moving averages

**Master Order Book**- Created an orderbook which processes the tick orders from different Exchanges for different stocks and sort the orders by bid and ask to return the top of the book, or volume between the given set of prices, best monthly returns and all.

**Southwest Vs Rest of Airlines**- analyzing, plotting and finding the correlations among different stocks of airlines, I found that there was a lag in the returns of Southwest airlines compared to the rest of the industry. I used this information in the crossover strategy. Optimizing by taking into account different moving averages I found the days when there was a crossover in the Southwest airlines , then I would check if there was a similar crossover in the industry within the last 10 days, and if I get the confirmation, I would mark the signal as buy or sell respectively. With the buy being generated when short term avg crosses long term mov avg from below.

**Goal**- Make a system takes the tick data, preprocesses it, takes trading strategy, generates trades based on the strategy, back test the trade list against the data and give profit loss and trading statistics.

Data (yahoo finance)-2014-06-02 to 2016-06-10

Moving Averages-short term-7 days, Long term-15 days

Simple Crossover- mean return= 0.17219 volatility= 0.3118 Sharpe-Ratio= 0.55218 TotalReturn-6.026798

Lag Crossover – mean return= 1.46005739 volatility= 0.32804894 Sharpe Ratio= 4.450730307 Total Return-21.9008609

Q. Why such a high Sharpe Ratio?

Sol- Since I am considering only 1 unit of stock for a single industry making only 10 trades in a span of 2 years that is almost one trade per month and not considering any liquidity costs, brokerage fee and slippages it is possible to get a high Sharpe ratio.

Q. Why such a poor strategy?

Sol- The goal and concept behind doing this project was to understand how a trading system works and not creating alpha strategies. It is a trading model which uses signals from alpha strategies to generate orders.

Q. What is trading System?

Sol. It takes the data, preprocesses it, takes trading strategy, generates trades based on the strategy, back test the trade list against the data and give profit loss and trading statistics.