**Liquid Futures Capital**

Q1. Describe the results of your solution

I started with a simple strategy, simple moving average crossover strategy, just to get a feel of how it will perform when used on this data. The returns and the sortino ratio were in negative. But this gave me a good insight about the volatility of the market.

The second strategy I used was Turtle trading strategy. It is again a simple strategy which did no better than the previous strategy.

I moved to Machine Learning, where I used Support Vector Machines. I used this strategy since it had been dominating the finance industry especially in late 2000’s. I achieved the best results from this strategy. Returns were 0.03, Max Drawdown 0.2212, Sortino Ratio 0.5269.

After SVM I jumped to Deep Learning (LSTM) as it has proved to capture patterns in temporal data. I used 4 LSTM units and the results were as follows: Returns 0.0284, Max Drawdown 0.1220, Sortino Ratio 0.4137.

There are couple of strategies that I wanted to try. One of them is using Denoising AutoEncoders which recreates the representation of training data set and then can be effectively used to predict the future prices. The other one is Reinforcement Learning which constantly optimizes itself. These weren’t tried because of computation limitations.

I used the Quantiacs toolbox which can be installed on any local machine. It helps visualize the results of strategies and very easy to use interface.

Q.2 What are the difficulties in completing this type of project, what did you struggle with, what was easy, and why?

The easy part was procuring data. I struggled with building strategies that achieved good results based on the metrics as I did not have access to the fundamental data, nor any sentiment data. I believe that these would be impacted the strategy that I created and would have achieved better results. Also, before starting this project I did not have much idea on futures trading. This project has been a learning experience and I gained insight on how the strategies that work on stock may completely bomb on futures. Here I could not migrate any strategy made for stocks to the futures. I thoroughly enjoyed the whole process and I’m eager and passionate to continue the learning experience.