Project Introduction

Hi, this is a brief introduction of my machine learning project which implements quantitative financial analysis using relevant python toolkits, such as SK-Learn and Tensorflow.

The first technique I use is linear regression. It is used to visualize the linear pattern of the price data. It is derived by calculating the line which gives least square errors. In other word, it looks for the best line to represent the linear growing trend and to minimize the information loss.

Another two techniques are called moving average and exponential smoothing. These can be used to approximate the non-linear growing trend while ignoring a certain degree of short term fluctuations. The moving average are derived by taking the average within a previous timeframe, such as 100 days in the graph. The value of alpha for exponential smoothing can be interpreted as the degree it resembles the original data.

Lastly, the prediction model using Tensorflow is the most time-consuming section to run this program, and the most complicated one as well. Firstly, the model takes the previous data set as input. It will then iterate through each layer in the model, where the model will learn the underlying pattern within the given data set. After going through several layers, it will generate a model which is able to make a reasonable forecast of the future trend.

(Project Details)

https://github.com/JacobCong001/My-Projects