**Homework 2**

The assignment will study if a stock/mutual fund can outperform the market, i.e. do financial assets earn significant positive Jensen’s alpha? Each group collects 20 stocks/mutual funds price data (weekly/monthly/daily) over 3-5 years. Make sure the equity selection is well diversified

Including different types of financial assets. Download the market index data over the same time periods. Download the Fama-French 5 factor monthly data from

<https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html>. Merge it with the Fund data to conduct the following analysis.

1. Use the Data Exploratory Analysis to explore the equity returns including descriptive statistics, histogram, distribution curves, boxplot, and correlation analysis and so on.
2. Based on returns for equity and market index. Use two factor models (time series regression) to compute the alpha estimation of all equities. The two factor models are the market model (CAPM model) and Fama-French 5 factor separately.
3. Create frequency distribution of t-ratios of the alphas (intercepts in each model) following the analysis on lecture notes of chapter 3&4 (page 31: An Example of the Use of a Simple t-test to Test a Theory in Finance)
4. From the step 3, identify how many assets outperform significantly at 5% of alpha level.

Please organize the R code in R script file and name the file by your group name. Include the group members’ name at the beginning of the file. Your homework will graded by the following criteria:

1. Program runs correctly.
2. Program specification is complete and correct.
3. The code is well-formatted and understandable.
4. The comments and notes are concise and necessary to understand the program
5. The objects are named appropriately.
6. The program is well written and algorithm is sufficient.