Unit 2: Case Study: Portfolio Combination

In this unit you learned about probability, mathematical rules and counting techniques.

1. Download data for last 1 years for a set of the any five stock tickers belonging to the same industry segment (example – MSFT, YHOO, ORCL, EBAY, CSCO etc). Download data from an appropriate financial website such as Google Finance, Yahoo Finance, Quandl, CityFALCON, or another similar source.
2. Calculate Monthly returns of downloaded stock over the period under study
3. Using a combination function, calculate the monthly returns of an equally weighted portfolio consisting of any 3 of the five stocks in question
4. Graphically represent the cumulative monthly returns of each of the possible portfolios through line plots
5. Calculate mean, median and standard deviation of monthly values for each of the portfolios in question and plot them on the same graph mentioned in step 4.
6. Calculate the overall variance of all portfolio returns

Project Guidelines

The assignment below aims to expose students to applications of the theory learned in this Unit through hands on involvement in a case study. As such, the focus is on the correct application of the theory, and not on rigorous implementation of coding logic. We would prefer that this mini project be executed in R as it would enable the most graceful implementation of the said logic. Students are however free to execute the project in Microsoft Excel (or a corresponding free open-source spreadsheet tool) also. There are no technical limitations in either R or Excel that would force the students to choose one platform over another.
The submitted R code/Excel worksheet should constitute a fully workable version. Students are encouraged to avoid usage of any special R/Excel packages for the assignment and stick to using standard R/Excel libraries. In case such a nonstandard package is anyway used, students should provide clear directions as to how to access and install the same.

Based on your project analysis, answer the following questions:

1. How are the monthly returns of possible portfolios distributed?

2. Do you see a wide variance in the possible portfolio returns and its cumulative outcome?

3. Given that you chose similar stocks from the same industry, what accounts for the variance of returns among different portfolios (if any)?

If you have multiple documents, create a ZIP file with all of them and upload that as your assignment.

Make sure to use the following naming convention: Your_Name-Assignment_Name-Date

Example: Instructor-Final_Project-May_12_2016