Stock Analysis - Project 2

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MATH 567 - Winter 2016

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One of the foremost important application of Data Analytics is its application on financial data modeling. This project requires the two groups to analyze two different stocks over an extended period of time.

1 Groups

There are two groups of four students each as given in Table 1 (student ID numbers). **Group 1** has to analyze the IBM (IBM) and Google (GOOG) stocks while **Group 2** has to analyze the Apple (AAPL) and Microsoft (MSFT) stocks. You can obtain the stock data using any of the financial services.

Table 1: Project groups

Group 1	Group 2
30873093	30926042
33588083	10522788
30791024	30851864
24457873	30742742
Stocks	
IBM	AAPL
GOOG	MSFT

2 R Package

There are a number of different packages available for stock analysis, and the groups are **allowed** to use any of the different packages. One of these packages is the `Quantmod` `http://www.quantmod.com/`. The quantmod package for `R` is designed to assist the quantitative trader in the development, testing, and deployment of statistically based trading models. Install the package using the command:

```
> install.packages("quantmod")
```

Load the package using the following command:

```
> library(quantmod)
```

There are many attributes to the package, whose description is given in (`https://cran.r-project.org/web/packages/quantmod/index.html`).

3 Assignment

Using an appropriate financial package, each group has to do the following analyses.

Data Plot - Generate extensive data plots using scatterplots/graphs displaying each stock uniquely and both stocks superimposed.

Time Series Analysis - Generate and analyze each stock over two quarter intervals (sampling period) for the past 5 years. Eg: Jan-Jun, July-Dec for the past 5 years.

Correlation - Generate correlation between the two stocks for each sampling period.

Regression - Create a linear regression model for each of the two stocks.

Analysis - Using the different attributes and models, write a half page report on the stock performance over the next 6 month period.

4 Submission

The submission is an extensive report including an introduction of the stocks, the R script file, all sampling plots with full description and separate analyses, correlation analysis, regression analysis and the stock forecasting analysis.

The deadline for submission is March 10, 2016 during class (12PM). The student is allowed to use any (online) materials, however, they should make proper citation in the report to their sources. Any submission found to be (even partially) **plagiarized** will receive a 0.