RMSC 4002 Guidelines for course group project 2017/18 Term 1

The purpose of this group project is to provide a hand-on experience for students to try the techniques learned from this course on real dataset. Students are required to choose exactly **two** of the following topics:

1. Monte Carlo Simulation method on multivariate data.
2. Estimating volatilities and correlation using GARCH(1,1) or EWMA model.
3. VaR modeling.
4. Principal Component Analysis.
5. Logistic Regression / Multinomial Logit.
6. Classification Tree
7. Artificial Neural Network.
8. Cluster Analysis.

There are several remarks on this project:

- Students need to demonstrate how the selected techniques are used to solve a real-life problem. The data has to be a real dataset of at least 1000 records. You may use any dataset download from the internet. (See e.g. http://finance.yahoo.com/, http://archive.ics.uci.edu/ml/datasets.html or http://mlearn.ics.uci.edu/MLOther.html).
- You may use the same dataset or two separate datasets to demonstrate the selected techniques.
- The final report contains introduction to your problem of interest and description of your dataset; methods to use; findings and conclusion.
- Students may use R, SAS (optional) and/or EXCEL in their analysis.
- Students are expected to hand in their group report. The report should **not** be more than **10** pages of A4 size (tables and figures are exempted from this 10-page limit). Please also indicate the work (in %) involved by each member in the group; otherwise we assume the evenly spread of efforts among members.
- Students can form their own group but the group size cannot be more than **4** students.
- Choose **one** member in your group to submit a soft copy of your report, dataset and related R or SAS programs and/or EXCEL files and also hand in a **hard copy** of your group report.

This project consists of **25%** of your total mark in this course and to be submitted on or before **December 1, 2017** and hand in a hard copy of your report on or before **December 2, 2017**.

The University places very high importance on honesty in academic work submitted by students, and adopts a policy of zero tolerance on cheating and plagiarism. See the following link for details: **http://www.cuhk.edu.hk/policy/academichonesty/**