# MFE5310 Assignment 1

**Deadline:**
- Submit to bb before **23:59:59, Mar.20, 2020**
- Late submission of an assignment would result in a reduced grade for the assignment, unless an extension has been granted by the instructor. A late submission receives an additional 20 points penalty for every 24 hours delay.

**Evaluation**
- -20 if your program cannot be executed without any running error
  - write a running guideline if you have multiple files
- all the print messages will be counted to the assignment scores

**Submission:**

Please hand out a zip file named with **your name and Student No.** which includes your source files of your program executions.

For example,
You should hand out .py and compress the them all in a zip file ▪ 张三216010000.zip .

**Refer to the lr.ipynb in our course (in bb/assignment),** write a program in python. The requirements are shown below
1. **Task: predict any financial assets movement direction (up/down) (classification) or return (regression).** No need to be organized as a trading strategy
2. prepare the dataset for any financial assets in China, Hong Kong or US market. **Print** what kind of dataset you are using
   a. Should check if your dataset has class imbalance issue, and **print** the result in your program
3. Implement the machine learning algorithms (hints: try to use sklearn package)
   a. Linear regression
   b. Lasso
   c. Ridge
   d. Logistic regression
   e. SVM
4. Find features by yourself. **Print** what kind of features you are using.
   a. Hints: OHLCV
5. Compare the binary classification performance for all the machine learning models you have implemented. Evaluate your results by the metrics below, and **print** it as a pandas data frame
   a. Accuracy
   b. Precision, recall, f1
   c. ROC/AUC
6. **Print** your conclusion
   a. e.g. "SVM performs the best for my dataset (daily, CSI300 constituents, from 20160801 to 20180901) with the accuracy 75%, precision **, recall **, f1**, auc **"