

# Tasks for lab1

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## Task 1

The file *MonthlyData.csv* contains monthly historical price of three stocks AAPL (Apple), TSLA (Tesla) and FB (Facebook). Load data in the file into R and do following tasks:

- (1) How many rows does the data have?
- (2) What is the range time of the data?
- (3) What is the type (mode or atom class) of each column (character, numeric, date, etc)?
- (4) Create a new data frame that contains only AAPL.
- (5) Calculate monthly return of the three stocks (both discrete  $ret = P_{t+1}/P_t - 1$  and continuous  $ret = \ln(P_{t+1}/P_t)$ ) for adjusted price.

## Task 2

The excel file *lab1.csv* contains end of the month closing prices and market values for 5 companies listed in London Stock Exchange (Barclays, BP, Next, Anite, and Alliance). It also contains the monthly closing prices for market index (FTSE All Share Index), and the UK Treasury Bill which is the Risk-free rate. The period covered is between 1979:12 and 2008:12 (349 observations). Using this set of data and the R software, conduct the following:

- (1) Import the data into R, change the name of columns and their types if needed and save it in as *.Rdata* format, say *lab1.Rdata*.
- (2) Generate the logarithmic returns for these sequences.
- (3) Plot the price and the returns of these sequences (both in a single graph and in multiple graphs) use different types of graphs including the Kernel Density.
- (4) Calculate the mean, median, skewness and kurtosis of the returns you have generated previously.
- (5) Describe the distribution of the returns sequence using your findings above and confirm this via the return's histograms.

## Task 3

Retrieve data from yahoo finance.

Try to get data for some other stocks, with daily price data for instance.

Calculate your own return and compare with the one you downloaded.

(Here we need to use package *BatchGetSymbols*, for more information about this package , click [BatchGetSymbols](#))