

**Assignment 1**  
**FI 8090**  
**Group Assignment**

1. Perform the following tasks (40 points)
  - a. Download daily prices data of Netflix stock from Yahoo for the period January 2, 2004 till December 31, 2019. (5 points)
  - b. See the size and type of the downloaded data ( 2points)
  - c. Observe the first 5 rows of the data (2 points)
  - d. Plot the daily prices (3 points)
  - e. Compute log returns using closing price (5 points)
  - f. Construct time plot of daily log returns of Netflix stock for the sample data (3 points)
  - g. Compute the sample mean, standard deviation, minimum, and maximum of the log return series (3 points).
  - h. Construct a histogram of the return series. (3 points)
  - i. Test whether the mean of daily log return is different from zero. (4 points)
  - j. Provide a summary of the analysis. (10 points)
  
2. Perform the following tasks (60 points)
  - a. Download monthly prices data of three stocks (of your choice) from Yahoo for the period January 2, 2005 till December 31, 2019. (or any 15 years of your choice: only condition is that all three stocks should be available for the entire 15 years period that you choose) (5 points)
  - b. Choose the adjusted closing price of the three stocks. Format the price series in a single Data Series. (5 points)
  - c. See the dimension and type of the downloaded data ( 2 points)
  - d. Observe the first 5 rows of the data (2 points)
  - e. Plot the monthly prices of three of the stocks. Display the price series together in one plot (showing the trend together) and also separately. Label the plots correctly (6 points)
  - f. Compute log returns using adjusted closing price. Write the program efficiently so you can compute all the three stocks returns using functions, loops etc. (8 points)
  - g. Construct time plot of monthly log returns of the three stock for the sample data. Display the return series together in one plot and also separately. Label the plots correctly (6 points)
  - h. Compute the sample mean, standard deviation, minimum, and maximum of the log return series (4 points).
  - i. Construct histograms of the three return series (3 points).
  - j. Test whether the mean of monthly log return is different from zero. (3 points)
  - k. Compute the total HPR (report log returns) for the entire duration of the data (15 years period) for the three stocks. Compute the average annual HPR returns (report log returns) for the sample for all the three stocks. Report values in percentage (%) (6 points)
  - l. Provide a summary of the analysis. (10 points)

**(Note: your ability to write an efficient program will be important. If you write a very long code that is not efficient, you will not get the full credit, even if the tasks are completed).**

**Deliverables:**

1. Submit Python code for each sections of the assignment. Python code should provide comments on sections of the assignment the code is intended for. Submit electronically. Note that this is a group submission.
2. Provide an evaluation of your group members (including yourself), indicating the extent of contribution in completing the assignment. Please fill out the evaluation form provided by the professor. This is individual submission. (Available in iCollege)
3. Note that your Python code should provide description of what the program is doing. You should also include summary of your analysis at the end of each part. Your grade will be based not only on the correctness of the program but also how efficiently the program executes the tasks and how clearly the tasks are presented in the program.
4. **Provide the summary of the analysis at the end of each section in the python code. Comment appropriately so that it is indicated as summary.**