

# MSC IN FINANCE

## PRE-TERM COURSE WEEK4:

### Exercises

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## 1 Exercises-Week4

### 1.1 Question-1

Assuming that  $A = \begin{bmatrix} 2 & 5 & 5 \\ 1 & 7 & 5 \\ 2 & -7 & 2 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & 2 & -5 \\ 3 & 4 & 3 \end{bmatrix}$ ,  $y = \begin{bmatrix} 5 \\ 2 \\ 8 \end{bmatrix}$ ,  $z = \begin{bmatrix} -15 \\ 7 \\ -11 \end{bmatrix}$

calculate each of the following:

(1)  $BA$

In [ ]:

▼ # Write down your code here.

(2)  $AB^T$

In [ ]:

▼ # Write down your code here.

(3)  $Ay$

In [ ]:

▼ # Write down your code here.

(4)  $y^T z$

In [ ]:

▼ # Write down your code here.

## 1.2 Question-2

Suppose we have the following system of equations and we'd like to solve for the values of x, y, and z:

$$6x + 2y + 3z = 31$$

$$3x + 5y - 2z = 20$$

$$8x + y - 4z = 30$$

In [ ]:

▼ # Write down your code here.

## 1.3 Question-3

We will model the linear relationship between the stock excess returns and the market excess returns.

First, you need to load the data from the csv file ('data\_exercises\_week4.csv').

Secondly, model the linear relationship between 'Exret' and 'mktfr'.

$$y = \beta x + \alpha$$

In this context, the dependent variable y is 'Exret' and the independent variable x is 'mktfr'.

Please follow what we've learned in class to figure out the coefficient estimates and plot them.

In [ ]:

▼ *# Write down your code here.*

## 2 Submission

- Please submit your exercises via the link: <https://forms.gle/xGBvaiBYDNot8GAcA>  
(<https://forms.gle/xGBvaiBYDNot8GAcA>)
  - When uploading exercises, you need to sign in to Google.
  - Put the exercise questions(.ipynb, .py, .markdown, .html, or .pdf) into one file named with StudentID\_FullName\_Week4.
  - The submission deadline is Saturday, Aug 12, at 24:00. Early submission will be regarded as an advantage.
  - Only for students who cannot access Google Drive, please submit your exercises via Baidu Netdisk.  
<https://pan.baidu.com/disk/main#/transfer/send?url=ACQAAAAAABEBNQ>  
(<https://pan.baidu.com/disk/main#/transfer/send?url=ACQAAAAAABEBNQ>)