Dear candidate,

Thanks for your interest in RMI-CRI.

Before you start, keep three things in mind:

*1. Do as much as possible* ***within one hour*** *to show your expertise whatever in programming or financial knowledge.*

*2. It is fine you ask help from Google but do test on your own.*

*3. Do remember to* ***save your answers*** *with required title in this folder.*

Wish you all the best in next one-hour challenge. Good luck☺

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Q1: Please state a recent event of a company and tell us how this event could impact the firm’s financial creditworthiness. Save your answer in this folder and name it as “Q1Answer”.

Q2: Please write down your **Matlab scripts** for fulfilling requirements below and do remember to save it with the results.

(a) Load pfInfo.mat

(b) The first column of pfInfo.firmList contains the list of companies of the portfolio. Extract the first column and save as”companylist.csv”.

(c) The 7th column of pfInfo.firmList contains industry codes as follows:

{Financial=10008, Basic\_Material=10002,

Communications=10003, Consumer\_cyclical=10004,

Consumer\_noncyclical=10005, Diversified=10006,

Energy=10007, Industrial=10011,

Technology= 10013, Utilities=10014}

Extract the list of companies of each industry and save as

{“Companylist\_Financial.csv”,

“Companylist\_Basic\_Material.csv”,

“Companylist\_Communications.csv”,

“Companylist\_Consumer\_cyclical.csv”,

“Companylist\_noncyclical.csv”,

“Companylist\_Diversified.csv”,

“Companylist\_Energy.csv”,

“Companylist\_Industrial.csv”,

“Companylist\_Technology.csv”,

“Companylist\_Utilities.csv”}

Q3: Please load “dtd\_mle\_2000.mat” and a daily basis table for company number 2000 is provided. (1st: company number. 2nd: data date. 3rd: DTD value).

**Requirement:**

Now the data is organized daily, but we want to keep the month-end data. Please write down your **matlab function named “ExtractMthEnd.m”** to extract **month end data** and name it as “dtd\_mle\_2000\_monthly.mat”.

If the DTD value of final trading date in one month is NaN, it cannot be set as the month-end data and the value from the previous trading date should be used instead.

If all the DTD value in a single month are NaN, we should set the last trading date value as the month-end value.

Q4:

“firmSpecific.mat” is a (365\*12\*35) 3D matrix for country A which containing the values of 12 variables for each 35 companies on 365 observation date points. The **sixth** variable is “Distance to default” (DTD). FYI, you may see “varCol” structure for more details related to 12 variables.

**Requirement:** Now we want to add another **TWO** variables on this table named **“DTD\_median\_Fin”** and **“DTD\_median\_nonFin”** which means the DTD median of all finance or non-finance firms in this country. So in other words, all financial (non-financial) firms in country A will share the same DTD\_median\_Fin (DTD\_median\_nonFin) value and NaN will be assigned to DTD\_mediain\_nonFin (DTD\_median\_Fin).

Another table named “firmList.mat” is also provided for your reference. The first column is the company number in country A and the second column are their corresponding industry ID. The **financial industry** ID is 10008;

Please write down your Matlab code named “computeDTDMedian.m” for fulfilling the requirement above.

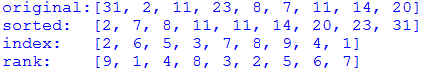
Q5:

Given an array: myArray = [31, 2, 11, 23, 8, 7, 11, 14, 20]

Write a python script to sort the array using the method of bubble sort.

The program should print: the original array, the sorted array, the index of elements in the sorted array, the ranks of elements in the original array.

Output example:



Notice:

1. Use as less variables as you could
2. Do not worry about the efficiency
3. Do not use any python package
4. Try not use any method of list in python that contains iteration like “index”