Assignment - #3:

All the codes need to have proper comments and explanation. Please show the screen shots for the output.

1. From the provided input text file *"File_to_be_read.txt"* please perform the following mentioned tasks.

A. Read the data from the input file using a **try** and **catch** block and using **with** keyword, scan through the entire file and count the number of occurrences of each word and write the data into a new file with name as *"output1.txt".*

Below is sample output file:

He:8
pointed:1
his:8
finger:1
in:5
friendly:1
jest:1
and:10
went:2
over:5
to:11
the:17

B. Read the data from the input file using a **try** and **catch** block and using **with** keyword, scan through each line of the file and count the length of each word and write the data into a new text file *"output2.txt"*.

Below is sample output file:

He,2
pointed,7
his,3
finger,6
in,2
friendly,8
jest,4
and,3
went,4
over,4
to,2

Please close the main file and make sure you code for error handling.

2. Introduction

Peter, the postman, became bored one night and, to break the monotony of the night shift, he carried out the following experiment with a row of mailboxes in the post office. These mailboxes were numbered 1 through 150, and beginning with mailbox 2, he opened the doors of all the even-numbered mailboxes, leaving the others closed. Next, beginning with mailbox 3, he went to every third mailbox, opening their doors if they were closed, and closing them if they were open. Then he repeated this procedure with every fourth mailbox, then every fifth mailbox, and so on. When he finished, he was surprised at the distribution of the closed mailboxes.

Specific Instructions

Write a program to determine which mailboxes did Peter; the postman found closed. Moreover, your program should work for any number of mailboxes that would be specified at run time rather being confined to the 150 mailboxes stated in the problem above. Also, your program should support multiple runs and terminate based on user input. Additionally, your program should save the configuration of the mailboxes at every step, e.g., for 5 mailboxes; the program should display the given sample output. Note the use of uppercase letters to signify the action at the given level of the solution.

Sample Output 1:

```
Enter number of rows: 10
Enter number of cols: 10
c  c  c  c  c  c  c  c  c  c
c  O  c  O  c  O  c  O  c  O
c  o  O  o  c  C  c  o  O  o
c  o  o  C  c  c  c  C  o  o
c  o  o  c  O  c  c  c  o  C
c  o  o  c  o  O  c  c  o  c
c  o  o  c  o  o  O  c  o  c
c  o  o  c  o  o  o  O  o  c
c  o  o  c  o  o  o  o  C  c
c  o  o  c  o  o  o  o  c  O
```

Sample Output 2:

```
Enter number of rows: 5
Enter number of cols: 5
c  c  c  c  c
c  O  c  O  c
c  o  O  o  c
c  o  o  C  c
c  o  o  c  O
```

Since the problem requires a solution for varying number of values and storing the configuration at every level of the solution, you would want to use ***multidimensional lists***.