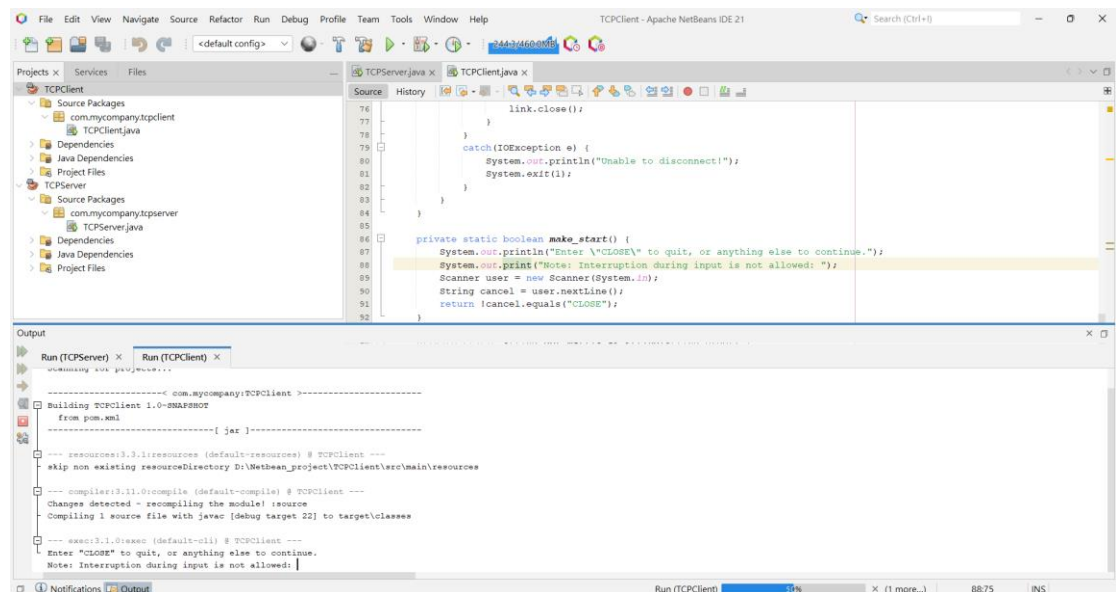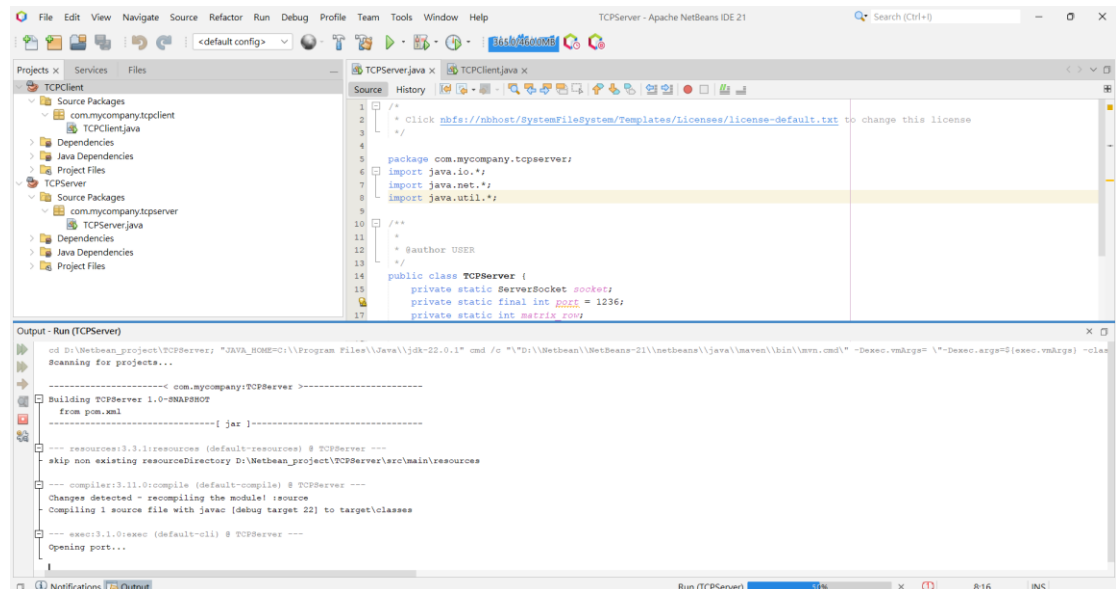國立臺南大學

資訊工程學系

網路程式設計

作業七

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1. 開啟程式初始畫面，分別為 Server 和 Client(必須先開

Server，否則 Client 會報錯)。

2. 以下操作皆在 Client 的 output 視窗中。在視窗輸入任意

字(包含數字、字串、空格等)以開始執行操作，或者輸入

CLOSE(必須是大寫)來關閉 Client 連線。

3. 選擇開始執行，依序輸入矩陣 row(有幾列，橫)、矩陣 column(有幾行，豎)、矩陣內容，其中矩陣內容會依序要求輸入兩次，分別對應兩個不同內容，相同大小的矩陣，每次輸入前都會提示以行輸入內容的格式，輸入時也會提示目前是第幾個元素。

(1) 輸入 row、column

```
Enter the matrix row size(from 0 to n): 2
Enter the matrix column size(from 0 to m): 3
```

(2) 輸入內容提示

```
Here is the example for the method to enter 2x2 matrix content one by one:
This is 1/4 matrix content: 1
This is 2/4 matrix content: 2
This is 3/4 matrix content: 3
This is 4/4 matrix content: 4
first row: 1 2
second row: 3 4
```

(3) 第一個矩陣內容輸入

```
This is the first matrix input.
This is 1/6 matrix content: 1
This is 2/6 matrix content: 2
This is 3/6 matrix content: 3
This is 4/6 matrix content: 4
This is 5/6 matrix content: 5
This is 6/6 matrix content: 6
```

(4) 第二個矩陣內容輸入

```
This is the second matrix input.
This is 1/6 matrix content: 100
This is 2/6 matrix content: -3
This is 3/6 matrix content: -1000
This is 4/6 matrix content: 45
This is 5/6 matrix content: 50
This is 6/6 matrix content: 77
```

4. 將輸入送至 Server 運算，傳遞格式為：

(1) 選擇是否開始執行，類別：boolean

```
Enter "CLOSE" to quit, or anything else to continue.
Note: Interruption during input is not allowed: !@# 123
```

(2) Row、column，類別：int

```
Enter the matrix row size(from 0 to n): 2
Enter the matrix column size(from 0 to m): 3
```
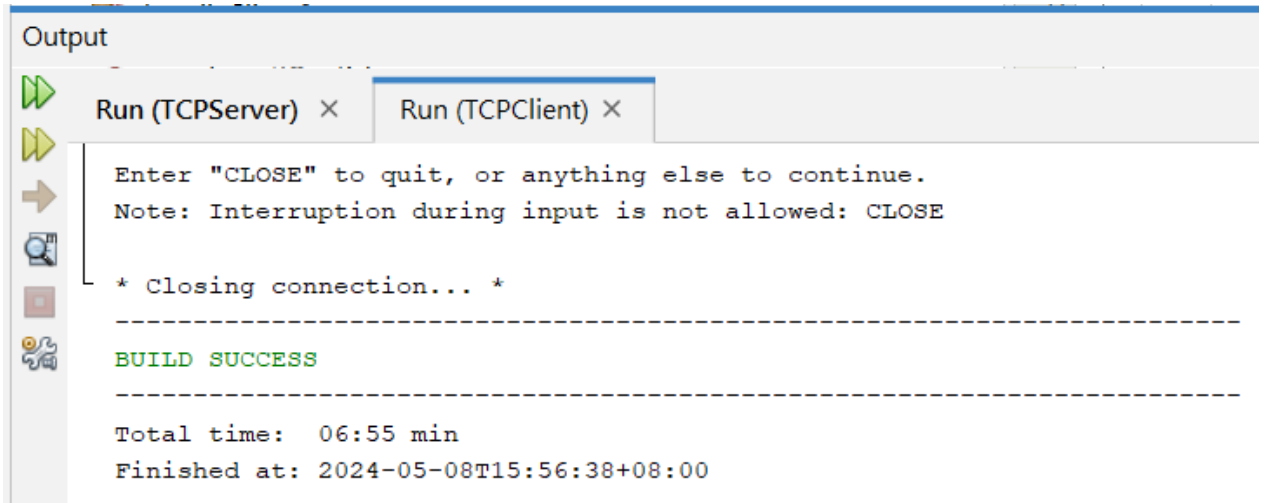
(3) 矩陣內容，類別：String -> [1, 2, 3, 4, 5, 6]

```
This is the first matrix input.
This is 1/6 matrix content: 1
This is 2/6 matrix content: 2
This is 3/6 matrix content: 3
This is 4/6 matrix content: 4
This is 5/6 matrix content: 5
This is 6/6 matrix content: 6
```

送至後，將兩個矩陣相加，再將相加的矩陣以 String 傳回 Client，最後將此矩陣顯示於螢幕上。可執行下一輪矩陣相加，上一輪資料不共用。

```
The sum result is:
The 0th row: 101, -1, -997
The 1th row: 49, 55, 83
```

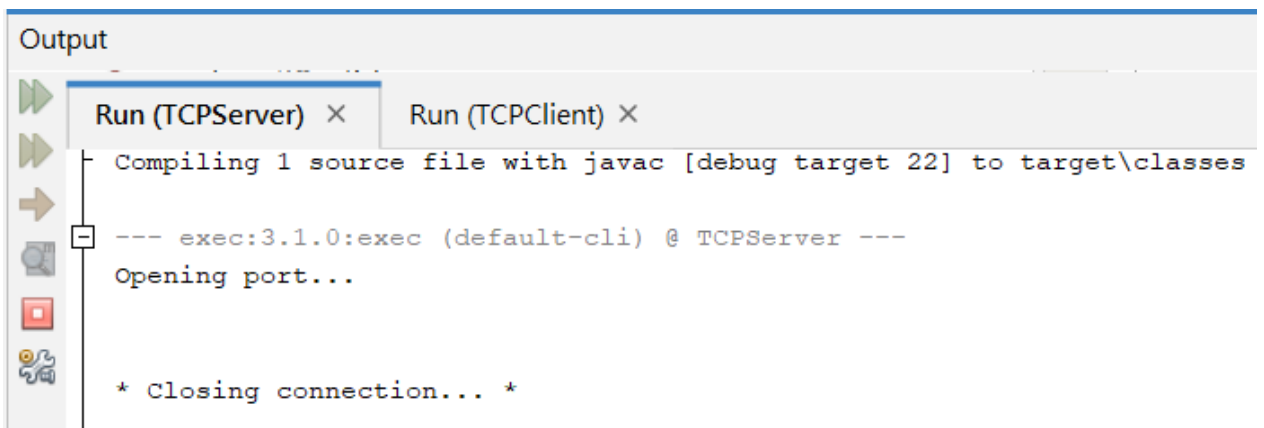**5.** 輸入 CLOSE 以關閉 Client 的連線，而 Server 顯示訊息，
但不會受影響，再次執行 Client 可以接著執行。Server 只
能以 NetBean 內建停止按鈕來關閉。

6. 注意事項：

(1) 輸入檢測，任一數字輸入都會有檢測，只接受整數輸入，若是矩陣內容，會提示錯誤的位置。若輸入空格會等待下一個非空格輸入。若在同一行輸入多個數字，只會讀取第一個數字。

```
Enter the matrix row size(from 0 to n): 2
Enter the matrix column size(from 0 to m): 545/
Matrix column is invalid! Need to be an integer!
Enter the matrix column size(from 0 to m): qwr
Matrix column is invalid! Need to be an integer!
Enter the matrix column size(from 0 to m): @
Matrix column is invalid! Need to be an integer!
Enter the matrix column size(from 0 to m): 5
```

```
Enter the matrix row size(from 0 to n): 3 561 -1
Enter the matrix column size(from 0 to m): 2
Here is the example for the method to enter 2x2 matrix content one by one:
This is 1/4 matrix content: 1
This is 2/4 matrix content: 2
This is 3/4 matrix content: 3
This is 4/4 matrix content: 4
first row: 1 2
second row: 3 4                                              3x2 = 6

This is the first matrix input.
This is 1/6 matrix content:
```

(2) 在 Server 第 55 行，Server 在收到 4(1)、4(2)後，多接收一個空字串，所以要先將它去除才能接收矩陣內容。

```
input.nextLine();     //clean the return key from getting a Boolean
```

(3) 如果開啟 Client 時收到以下錯誤，代表你的 Server 沒

有在運作，需要重開 Server。

```
--------------------------------------------------------------------
Failed to execute goal org.codehaus.mojo:exec-maven-plugin:3.1.0:exec
(default-cli) on project TCPServer: Command execution failed.: Process
exited with an error: 1 (Exit value: 1) -> [Help 1]

To see the full stack trace of the errors, re-run Maven with the -e switch.
Re-run Maven using the -X switch to enable full debug logging.

For more information about the errors and possible solutions, please read the
following articles:
[Help 1]
http://cwiki.apache.org/confluence/display/MAVEN/MojoExecutionException
```

7. 電腦環境

(1) CPU：11th Gen Intel(R) Core(TM) i7-11800H @
2.30GHz

(2) 記憶體：16GB(15.7GB 可用)

(3) 顯示卡 1：Intel(R) UHD Graphics

(4) 顯示卡 2：NVIDIA GeForce RTX 3050 Ti Laptop GPU

(5) 作業系統：Microsoft Windows 11 家用版，版本 23H2

8. 實作軟體環境

(1) JDK 22.0.1

https://www.oracle.com/middleeast/java/technologies/downloads/

Product/file description	File size	Download
x64 Compressed Archive	184.14 MB	https://download.oracle.com/java/22/latest/jdk-22_windows-x64_bin.zip (sha256)

(2) NetBean -> Help -> About，NetBean 21