

物件導向程式設計 第二次小考

Object-Oriented Programming Quiz 2

在本次的小考當中，規定只能使用 Java 來撰寫程式。

You are required to use only Java for this quiz.

1.
請寫出一個程式讓使用者可以輸入兩個數字 N 、 M ，印出矩陣大小為 $N*N$ ，且方向為 M 的旋轉矩陣。 $(M=0$ ：順時針， $M=1$ ：逆時針)

Your program is required to take as input two numbers N and M . Please print a matrix of the size of $N*N$ with the circular arrangement of numbers from 1 to $N*N$. The notation M determines the direction of circular arrangement. ($M=0$: clockwise, $M=1$: counter clockwise)

以下是範例

Two examples are shown below.

| Input | Output |
|------------|---|
| $N=3, M=0$ | 1 2 3 8 9 4 7 6 5 |
| $N=4, M=1$ | 1 12 11 10 2 13 16 9 3 14 15 8 4 5 6 7 |

2.
請使用遞迴的方式寫出本程式。使用者能夠輸入兩個數字，此程式可輸出此兩個數字的最大公因數。若輸入為 0 則輸出為 Error。

Your program is required to take as input two numbers and to output the greatest common divisor (GCD). You are required to use recursion for the code implementation. If one of the numbers is zero, it will output "Error".

3.
請寫出程式讓使用者能夠輸入一段文字與要刪除的字元，此程式可以輸出反向字串並且不會顯示要刪除的字元。(大小寫視為同一種)

Please write a program that allows the user to input a paragraph of text and to delete characters. Your program is required to output a paragraph of text in a reverse direction, where the characters being deleted are replaced by empty characters. (The lower and upper cases are treated as the same.)

```

C:\Windows\System32\cmd.exe
Microsoft Windows [版本 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\User\Desktop>java hw1_1
Please input a paragraph of text:
The US President is facing a swarm of investigations that threaten his presidency. But the fight back has begun.
Input deleted characters:
its
result:
.nugeb ah kcab hgf eh uB .ycnederp h neaerh ah noagevn fo mraw a gncaf nederP U
eh
C:\Users\User\Desktop>

```

| Input (paragraph of text) | Input (deleted characters) | Output |
|-----------------------------|----------------------------|-------------------|
| TTttasdtT | t | dsa |
| Qq. Ww. Ee. Rr. Tt. Yy. Uu. | E.r | uU yY tT wW qQ |
| 1 2 3 4 5 6 7 8 9 | 4 6 | 9875321 |