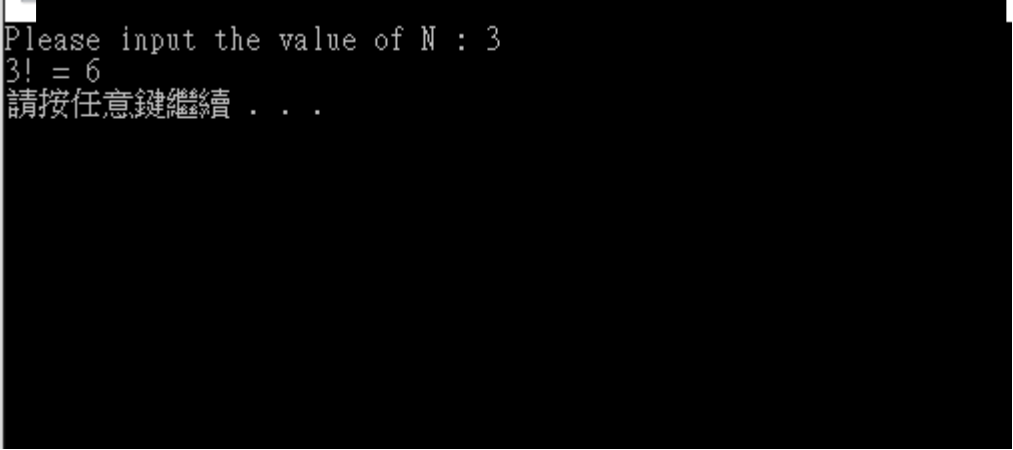


9/16 練習一：N!

題意說明：利用遞迴方式/非遞迴方式，撰寫 N 階層。

輸出說明：輸入數字 n，並且輸出 n! 後結果。

程式畫面：

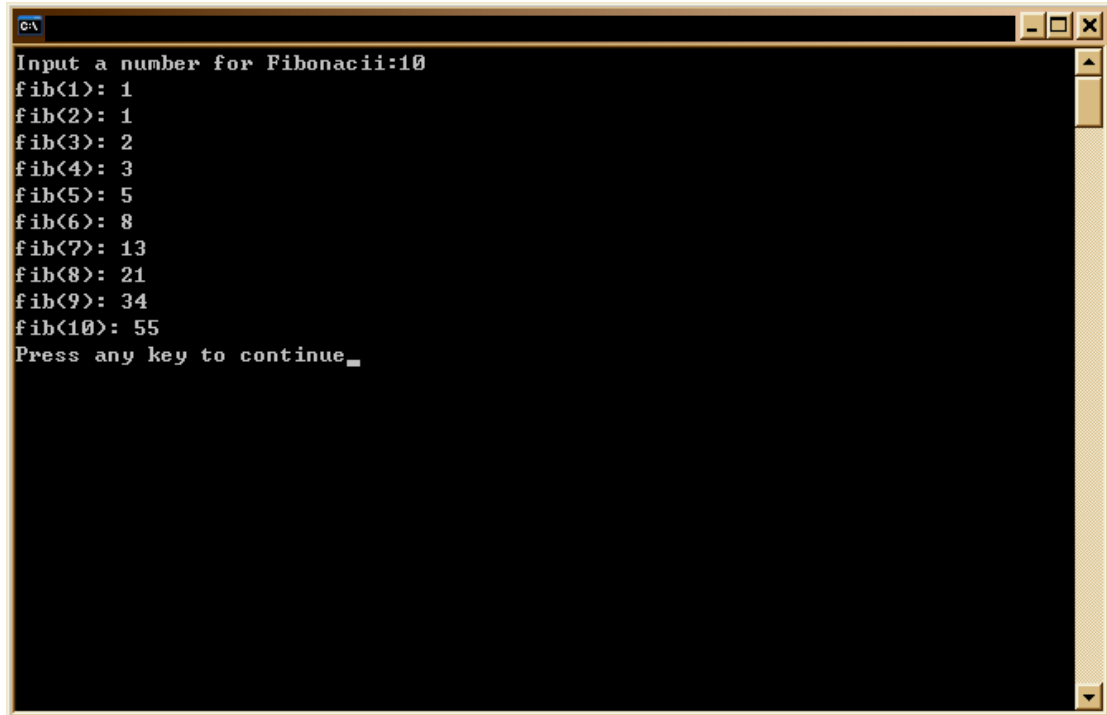
A screenshot of a terminal window with a black background and white text. The text shows the program's execution: it prompts the user to input the value of N, the user enters 3, the program outputs 3! = 6, and then prompts the user to press any key to continue.

```
Please input the value of N : 3
3! = 6
請按任意鍵繼續 . . .
```

9/16 練習二：費伯納(費氏)數列 (Fibonacci)

題意說明：撰寫一費伯納數列的程式，在使用遞迴/非遞迴的情況下完成。

程式畫面：

A screenshot of a Windows command prompt window with a black background and white text. The window title bar shows the path 'C:\'. The text inside the window displays the output of a Fibonacci sequence program for the first 10 terms. The prompt 'Input a number for Fibonacci:' is followed by the number '10'. The output lists 'fib(1): 1' through 'fib(10): 55'. At the bottom, it says 'Press any key to continue_'.

```
C:\
Input a number for Fibonacci:10
fib(1): 1
fib(2): 1
fib(3): 2
fib(4): 3
fib(5): 5
fib(6): 8
fib(7): 13
fib(8): 21
fib(9): 34
fib(10): 55
Press any key to continue_
```

9/16 練習題三：求數學式代入數值後之和

題意說明：利用遞迴方式/非遞迴方式，撰寫下列方程式。

$$F(n) = 1 \times 2 + 2 \times 3 + 3 \times 4 + \dots + (n-1) \times n$$

程式說明：輸入一個數字n，輸出 $1 \times 2 + 2 \times 3 + 3 \times 4 + \dots + (n-1) \times n$ 之和。

程式畫面：



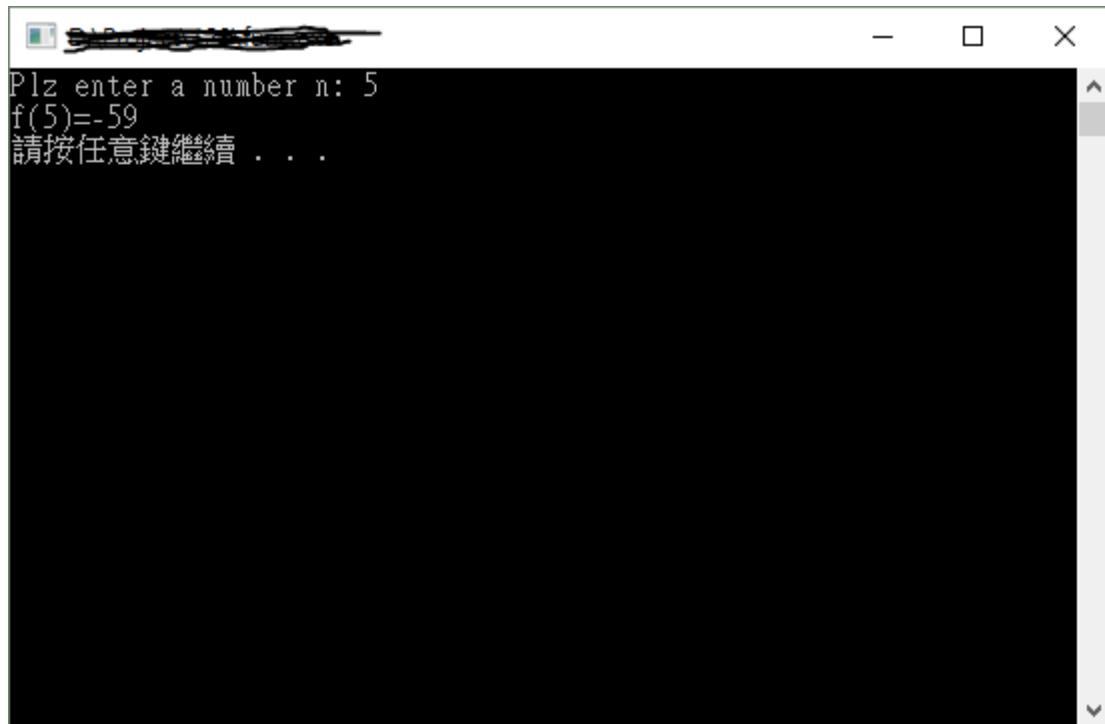
The screenshot shows a Windows-style application window with a title bar that has been redacted. The window contains a black console area with white text. The text in the console reads: "Plz enter a number n: 10", "Result=330", and "請按任意鍵繼續 . . .". The window has standard minimize, maximize, and close buttons in the top right corner.

```
Plz enter a number n: 10
Result=330
請按任意鍵繼續 . . .
```

9/16 練習題四：求方程式代入數字後的值

題意說明：若 $f(n) = 2f(n-1) - 5$ ； $f(0) = 3$ ，試求解 $f(5)$ 的值。

程式畫面：



```
Plz enter a number n: 5
f(5)=-59
請按任意鍵繼續 . . .
```

9/16 練習題五：輸出abcd的排列組合

題意說明：撰寫一程式，輸出英文字母的所有排列變化。

程式說明：輸入一個數字x，輸出x個bits的英文字母變化。

程式畫面：輸入4



```
C:\n
a b c d
a b d c
a c b d
a c d b
a d b c
a d c b
b a c d
b a d c
b c a d
b c d a
b d a c
b d c a
c a b d
c a d b
c b a d
c b d a
c d a b
c d b a
d a b c
d a c b
d b a c
d b c a
d c a b
d c b a
Press any key to continue_
```