

HW12

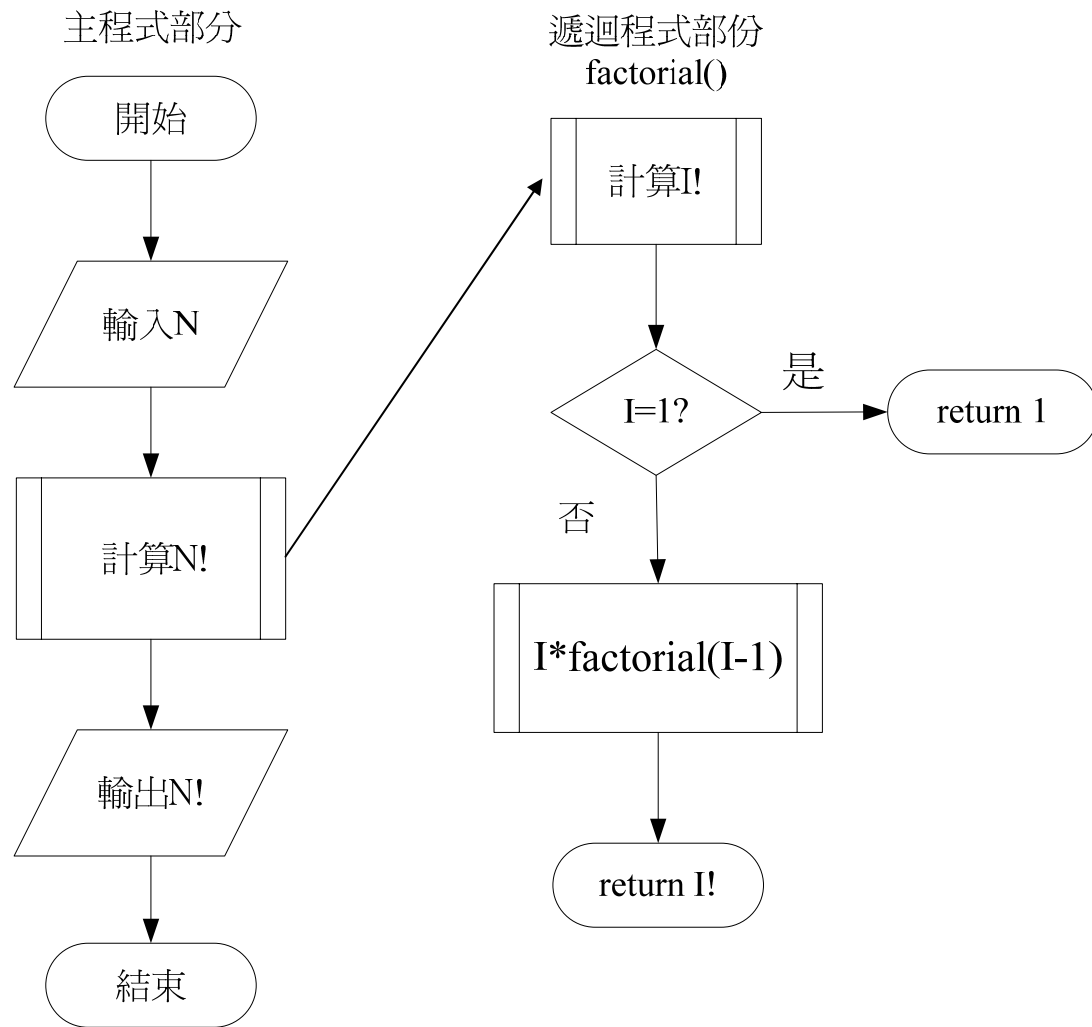
Speaker : Po-Chou Chen


Date : 2007.12.21



HW12_1

- (From: Exercise 1 on P.269)
- The **factorial** of 4 (written as $4!$) is $4*3*2*1 = 24$, and $3!$ is $3*2*1 = 6$, so it follows that $4! = 4*3!$, or more generally:
- $\text{fact}(n) = n*\text{fact}(n-1)$.
- The limiting case is when n is 1, $1! = 1$.
Write a **recursive** function which calculates factorials, and test it.





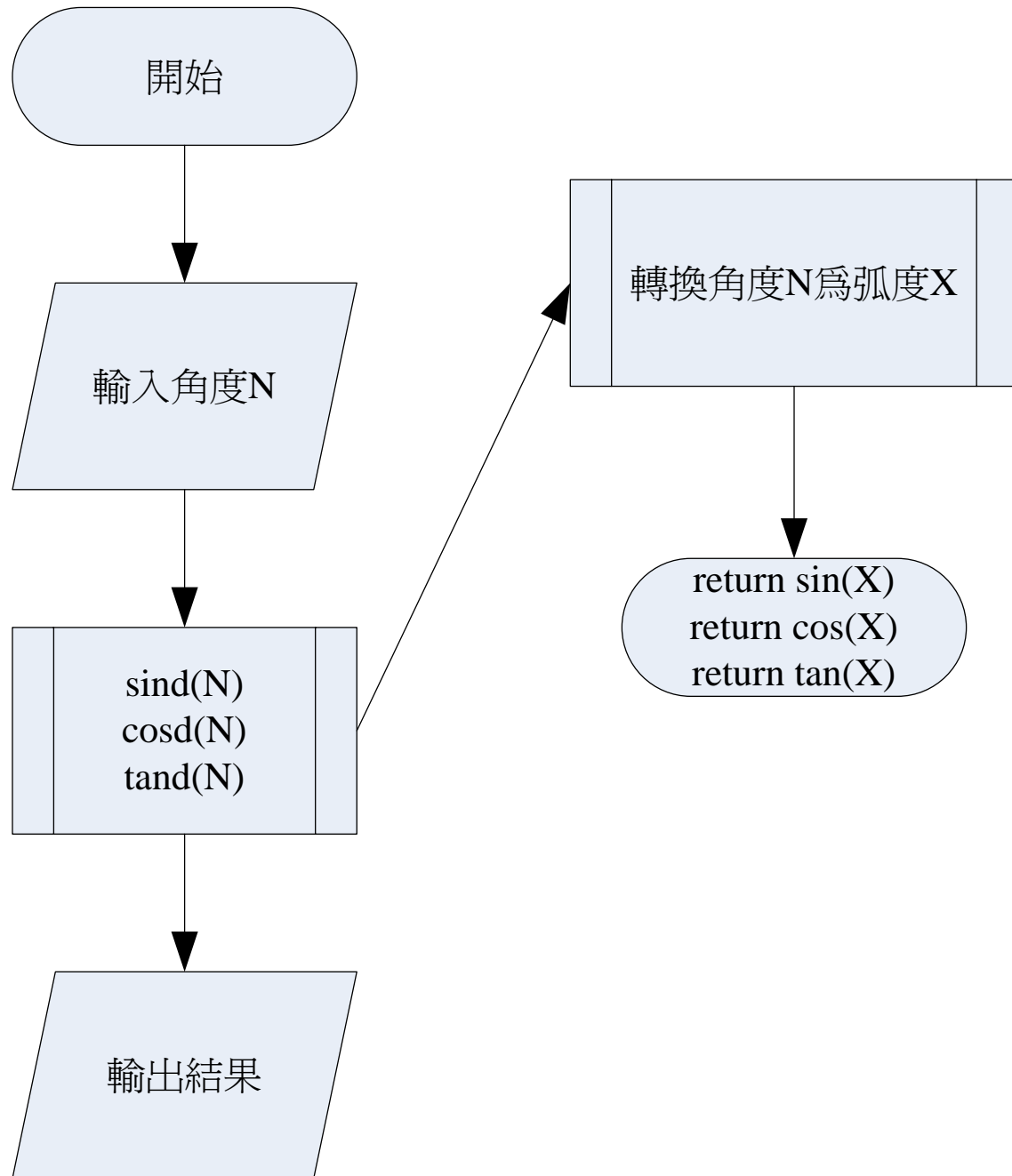
```
C:\WINDOWS\system32\cmd.exe
Calculates N!? 5
5! =120
請按任意鍵繼續 . . .
```

- 使用大數乘法技巧,加分



HW12_2

- (From: Exercise 3 on P.269)
- The trigonometry functions (sin(), cos(), and tan()) in the standard math library take arguments in radians.
- Write three equivalent functions, called sind(), cosd(), and tand(), which takes arguments in degrees.
- All arguments and return values should be type double. (You may need to include <math.h> if necessary.)
- 弧度=角度 $\times\frac{\pi}{180}$
- 角度=弧度 $\times\frac{180}{\pi}$





```
C:\WINDOWS\system32\cmd.exe
input degrees: 45
sin(45)= 0.707107
cos(45)= 0.707107
tan(45)= 1
請按任意鍵繼續 . . . █

C:\WINDOWS\system32\cmd.exe
input degrees: 30
sin(30)= 0.5
cos(30)= 0.866025
tan(30)= 0.57735
請按任意鍵繼續 . . . █
```