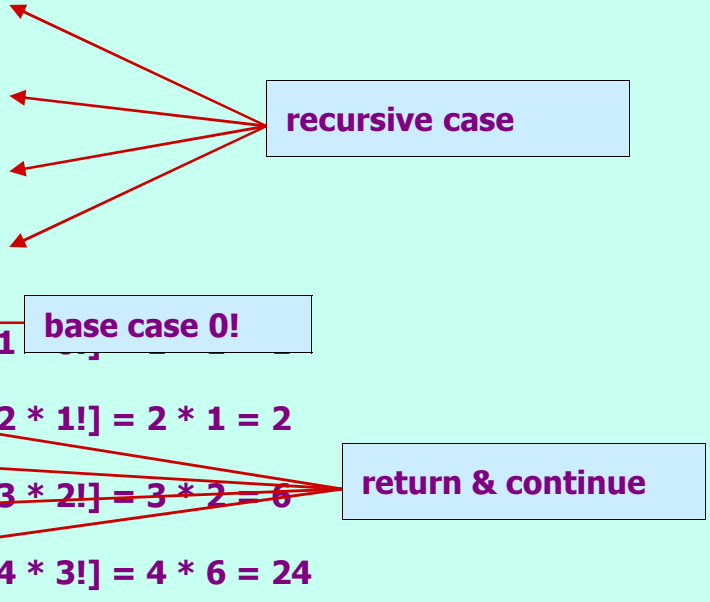
Assignment 1 Recursion

- **Topics** เรียนรู้การทำงานของฟังก์ชันที่มีการเรียกซ้ำ
- **Learning Outcomes** นศ.สามารถสร้างฟังก์ชันที่มีการเรียกซ้ำแทนการใช้คำสั่งวนรอบ
- **โจทย์** สร้างฟังก์ชัน **factorial** แบบ **recursion** แล้วแทรกคำสั่งให้แสดงผลลัพธ์ ตามที่กำหนด (ไม่ให้มีการใช้คำสั่งวนรอบ) **Test case : x, 3x, -1, 20 , 0, 1, 4**

```
My Recursion Programs.
Program calculate n! by recursion (n<=15)
Enter n = 4
4! is recursive case. Answer = 4 * recursion of 3!
      Recursion to calculate 3!
3! is recursive case. Answer = 3 * recursion of 2!
      Recursion to calculate 2!
2! is recursive case. Answer = 2 * recursion of 1!
      Recursion to calculate 1!
1! is recursive case. Answer = 1 * recursion of 0!
      Recursion to calculate 0!
0! is base case  return answer of 0! = 1
Calculate 0! complete.
      Return answer from 0! = 1 to calculate 1! = [1
Calculate 1! complete.
      Return answer from 1! = 1 to calculate 2! = [2 * 1!] = 2 * 1 = 2
Calculate 2! complete.
      Return answer from 2! = 2 to calculate 3! = [3 * 2!] = 3 * 2 = 6
Calculate 3! complete.
      Return answer from 3! = 6 to calculate 4! = [4 * 3!] = 4 * 6 = 24
Complete calculation of 4! , answer = 24
press [y] to continue,  others to exit. y
```



Assignment 1 (Test Case)

```
Enter n = x
Input error, please enter number between 0-15
Enter n = 3x
Input error, please enter number between 0-15
Enter n = -1
Input error, please enter number between 0-15
Enter n = 20
Input error, please enter number between 0-15
Enter n = 0
0! is base case  return answer of 0! = 1
Calculate 0! complete.
Complete calculation of 0! , answer = 1
press [y] to continue,  others to exit. y
Enter n = 1
1! is recursive case. Answer = 1 * recursion of 0!
      Recursion to calculate 0!
0! is base case  return answer of 0! = 1
Calculate 0! complete.
      Return answer from 0! = 1 to calculate 1! = [1 * 0!] = 1 * 1 = 1
Complete calculation of 1! , answer = 1
press [y] to continue,  others to exit. n
End Program.
Program writen by 600705010xx  XXXXXXXXXXXX  XXXXXXXXXXXX
```

- งานที่ต้องส่ง
  - ไฟล์ pdf ซึ่งประกอบด้วย source code และหน้าจอผลการรันที่เหมือนกับ Test Case