Lab2 Recursion Test

1) Lab2-1: Binary Search (이진 탐색)

(다음 2가지 조건으로 구하시오)

조건: 1) Iterative version 2) Recursive version

- 10개 데이터는 프로그램에서 다음과 같이 설정
  ex) int list[] = **{10,20,30,40,50,60,70,80,90,100 };**

- Search Number: 키보드 입력
- 알고리즘: 강의노트

출력 예):

. Enter an integer to search: 30
. Enter method of search: (1. Binary Search 2. Recursive binary search): 1
. 30 is at position 2.

. Enter an integer to search: 30
. Enter method of search: (1. Binary Search 2. Recursive binary search): 2
. 30 is at position 2.

. Enter an integer to search: 33
. Enter method of search: (1. Binary Search 2. Recursive binary search): 2
. 33 is NOT FOUND

2) Lab2-2: (Recursive 알고리즘으로만 구현할 것)

Recursive Addition, Difference, & Sum of a number 구하기

- Addition: N+M = (N-1) + (M+1) :
  At each step, subtract 1 from N
  And Add 1 to M, until N is 0, then return M

예) **입력: 임의의 두 숫자 3, 4**
add(3, 4)→ add(2, 5)→ add(1, 6)→ add(0, 7) **Result= 7**

- Difference: N – M = (N-1), (M-1)
  At each step, subtract 1 from both N & M
  until N is 0, then return M

예) **입력: 임의의 두 숫자 3, 4**
Diff(3, 4)→ Diff (2, 3)→ Diff (1, 2)→ Diff (0, 1) **Result= 1**

- **Sum of a number**

Hint: Factorial의 순환 알고리즘을 덧셈으로 변환.

예) 입력: 임의의 숫자 3 → 출력: 3+2+1 = 6

출력 예):

```
Enter number 1:  3
Enter number 2:  4
   Addition Result is:  7
   Difference Result:  1

Enter a number:  3
   Result is:  3+2+1 = 6
```