Lab2 Recursion Test (Algorithm: 강의 note 참조)

1) Binary Search(이진탐색)

```
binsearch( list,  number,  left,  right)
{
  if (left <= right)  {
    middle = (left + right) / 2;
    switch (COMPARE(list[middle],  number)) {
      case  -1: return          binsearch(list, number, middle+1, right);
      case   0: return middle;
      case   1: return          binsearch(list, number, left, middle-1);
    } }
  return -1
}
```

* 조건: 1) 입력 데이터: **int data[] = {10, 20, 30, 40, 50, 60, 70, 80, 90, 100};**

2) search number: 키보드입력

3) 출력: return it's "position" if found, otherwise return "not found".

예) Find 30 → position 3. Find 35 → not found

Lab2-1) FIBONACCI 수열을 출력하시오.

- 피보나치 알고리즘:

```
Fibo( n ) {
    If n=0, return 0
    Else if n = 1, return 1
    Else   return (fibo (n-1) + fibo(n-2))
  }
```

- 조건: 1) 피보나치 수열값 n 은 keyboard 에서 입력 받음
  2) 출력 예) Fibonacci(10)= 0 1 1 2 3 5 8 13 21 34

3) Tower of Hanoi (extra)

Hanoi Tower: disk -> 3개

Main: hanoi(‘A’, ‘B’, ‘C’, n);

```
Function hanoi(from, to, aux, n)
{
 If n=1  print(move disk 1 from peg”from” to peg”to”)
 Else
      Hanoi (from, aux, to, n-1)
      Print (move disk “n” from peg”from” to “to”)
      Hanoi (aux, to, from, n-1);
 }
```

==> Output:

```
move disk 1 from Peg A to Peg C
move disk 2 from Peg A to Peg B
move disk 1 from Peg C to Peg B
move disk 3 from Peg A to Peg C
move disk 1 from Peg B to Peg A
move disk 2 from Peg B to Peg C
move disk 1 from Peg A to Peg C
```