Lab2-1: Simple Recursion Test - Compare numbers & reverse string

문제) 1) 두수의 합을 구하시오 : Add(N1, N2)
Ex) N1=10, N2=20 **Add(10, 20)= 30**

2) 두수의 차이를 구하시오 : Diffs(N1, N2)
Ex) N1 = 4, N2= 3 **Diffs(4, 3) = 1**

3) Sum of number를 구하시오: Sum(Number)
Ex) 입력된 number가 5이면,(1+2+3+4+5) => **Sum(5) = 15**

4) 입력string의 reverse string을 구하시오
Ex) 입력string이 "hello"라면 -> 출력string은 "olleh"

- **Add (N1, N2)**

```
function add (int i, int j) {
  if (i == 0)      return j;
  else
  return add(--i, ++j);
}
//2,3 ->1,4->0.5
```

- **Diffs (N1, N2)**

```
Function diffs(int i, int j) {
  if    (i == 0) return j;
  else    (j==0) return i;
  else    return diffs(--i, --j);
}//4,5->3,4->2,3->1,2->0,1
```

```
Enter number1 : 2
Enter number2 : 3
Sum is : 5

Enter number1 : 4
Enter number2 : 5
Difference is : 1

Enter any positive integer: 5
Sum of numbers :15

Enter String : hello
Reverse of the string is:   olleh
```

- Sum of Number

```
function sum(int num) {
  if (num != 0)
       return num + sum(num - 1);
  else
       return num;
}//5+4+3+2+1 =>15
```

```
char s1[80];
cin >> s1;
int size = strlen(s1);
reverse(s1, size );
```

```
Function Reverse (S, size)    {
    if (size ==0) return;
    else {
      print (S[size-1]);
      Reverse (S, size-1);
    } } // h e l l o -> o l l e h
```

Lab2-2: Basic Algorithm: Finding Prime Numbers

문제: 소수(Prime Number)찾기

1) 입력된 숫자가 prime인지 테스트 하기 (Test whether a positive integer is Prime)
2) 입력된 숫자보다 큰 소수 찾기(Find a prime larger than a given integer)

```
*** Main program

Program Finding_primes() {
  while (true) {
    print "Enter Any number : ";          Input n;      // 숫자 n 입력 받음
    if (Is_prime(n)) print    " n is prime number ";
    else   print    " n is not prime number";
    Large = large_prime(n);      // find larger than input n
    print "Larger Prime number is ", Large      // prime number > n 출력
  }
}
```

```
procedure Is_prime(n) {
  for I = 2 to n-1    {
       if (m MOD i) =0 then false;
  }
  return true
}
```

```
procedure Large_prime (n) {
  m = n+1
  while not(is_prime(m) {
          m = m+1;
  }
  return m;
}
```

```
Enter any number: 5
5 is prime number
prime number larger than given number : 7

Enter any number: 6
6is not a prime number
prime number larger than given number : 7

Enter any number:
```