Ex. No: 2 **Date: 24.08.24**

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Finding Time Complexity of Algorithms

2.a. Finding Complexity using Counter Method

Aim: Convert the following algorithm into a program and find its time complexity using the counter method.

```
void function (int n)
{
    int i= 1;    int s =1;

    while(s <= n)
    {
         i++;
         s += i;
     }
}
```

Note: No need of counter increment for declarations and scanf() and count variable printf() statements.

Input:
A positive Integer n
Output:
Print the value of the counter variable

Algorithm:

void function(int n){

set count = 0

set i = 1

increment count by 1

```
    set s = 1
    increment count by 1

    while (s <=n){ increment
        count by 1 increment
        i by 1 increment
        count by 1 set s = s + i
        increment count by 1
     }
    increment count by 1
    print count
}
```

Program:

```
#include<stdio.h>

void function(int n){
    int count=0;
    int i=1;
    count++;
    int s=1;
    count++;
    while(s<=n){
        count++;
        i++;
        count++;
        s+=i;
```

```
        count++;
    }
    count++;
    printf("%d",count);
}
int main(){
    int n;
    scanf("%d",&n);
    function(n);
}
```

Output:

	Input	Expected	Got	
✔	9	12	12	✔
✔	4	9	9	✔

Passed all tests! ✔