

Problem 2: Finding Complexity using Counter method

Question:

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

```
void func(int n)
{
    if(n==1)
    {
        printf("*");
    }
    else
    {
        for(int i=1; i<=n; i++)
        {
            for(int j=1; j<=n; j++)
            {
                printf("*");
                printf("*");
                break;
            }
        }
    }
}
```

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

Answer :

```
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     scanf("%d", &n);
6     int count = 0;
7
8     //count++; // if (n == 1) check
9     if (n == 1) {
10         // printf("*"); // not counted
11     } else {
12         int i = 1; count++; // assignment i=1
13         while (1) {
14             count++; // outer condition check
15             if (i > n) break;
16
17             int j = 1; count++; // assignment j=1
18             while (1) {
19                 count++; // inner condition check
20                 if (j > n) break;
21
22                 count++; // break statement
23                 break; // exit inner loop
24             }
25
26             count++; // i++ increment
27             i++;
28         }
29     }
30
31     printf("%d\n", count);
32     return 0;
33 }
34
```

	Input	Expected	Got	
✓	2	12	12	✓
✓	1000	5002	5002	✓
✓	143	717	717	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.