Problem 3: Finding Complexity using Counter Method

Aim:

Convert the following algorithm into a program and find its time complexity using counter method.  
 Factor(num) {  
 {  
    for (i = 1; i <= num;++i)  
    {  
     if (num % i== 0)  
        {  
          printf("%d ", i);  
        }          
    }   
 }  
**Note:** No need of counter increment for declarations and scanf() and counter variable printf() statement.  
  
**Input:** A positive Integer n  
**Output:**Print the value of the counter variable

Algorithm:

1. Read the integer num and initialize count to 0.
2. Iterate through numbers from 1 to num, incrementing count for each iteration, and additionally increment count when a divisor of num is found.
3. Print the final value of count.

Code:

#include <stdio.h>

int main()

{

int num,count=0;

scanf("%d",&num);

for (int i = 1; i <= num;++i)

{

count++;

if (num % i== 0)

{

count++;

//printf("%d ", i);

}

count++;

}

count++;

printf("%d",count);

}

Output:

|  | **Input** | **Expected** | **Got** |  |
| --- | --- | --- | --- | --- |
|  | 12 | 31 | 31 |  |
|  | 25 | 54 | 54 |  |
|  | 4 | 12 | 12 |  |

Passed all tests!

**Correct**

**Marks for this submission: 1.00/1.00.**

**Result:**

**The expected output was obtained**