

### Problem 3: Divide And Conquer Method

#### Question:

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);  
      }  
    }  
  }  
}
```

#### Input:

A positive Integer n

#### Output:

Print the value of the counter variable

#### Answer:

```
1 #include <stdio.h>  
2  
3 int main() {  
4     int num;  
5     scanf("%d", &num);  
6  
7     int counter = 0;  
8     int factor_count = 0;  
9  
10    for (int i = 1; i <= num; ++i) {  
11        counter++;  
12  
13        counter++;  
14        if (num%i == 0){  
15            factor_count++;  
16        }  
17    }  
18    counter += factor_count;  
19    counter++;  
20  
21    printf("%d\n", counter);  
22    return 0;  
23 }  
24  
25
```

	Input	Expected	Got	
✓	12	31	31	✓
✓	25	54	54	✓
✓	4	12	12	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.