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- > BASIC C PROGRAMMING
- ▼ Finding Time Complexity of ...
  - Problem 1: Finding Complexit...
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- > Divide and Conquer
- > Greedy Algorithms
- > Dynamic Programming
- > Competitive Programming



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CS23331-DAA-2024-CSE / Problem 1: Finding Complexity using Counter Method

## Problem 1: Finding Complexity using Counter Method

Started on	Sunday, 17 August 2025, 2:04 PM
State	Finished
Completed on	Monday, 18 August 2025, 9:35 AM
Time taken	19 hours 31 mins
Marks	1.00/1.00
Grade	10.00 out of 10.00 (100%)

Question 1 | Correct Mark 1.00 out of 1.00 ⚡ Flag question

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

**For example:**

Input	Result
9	12

**Answer:** (penalty regime: 0 %)

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

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Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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CS23331-DAA-2024-CSE / Problem 2: Finding Complexity using Counter method



## Problem 2: Finding Complexity using Counter method

Started on Tuesday, 19 August 2025, 12:51 PM

State Finished

Completed on Tuesday, 19 August 2025, 11:12 PM

Time taken 10 hours 21 mins

Marks 1.00/1.00

Grade 10.00 out of 10.00 (100%)

Question 1 | Correct Mark 1.00 out of 1.00 ⚡ Flag 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: (penalty regime: 0 %)

```
1 #include <stdio.h>
2
3 v void func(int n) {
4     int count = 0; // Counter variable
5
6 v     if (n == 1) {
7         printf("*");
8         count++; // Count for one printf
9 v     } else {
10 v         for (int i = 1; i <= n; i++) {
11             count++; // Outer loop iteration
12 v                 for (int j = 1; j <= n; j++) {
13                     count++; // Inner loop iteration
14                     count++; // First printf
15                     count++; // Second printf
16                     break; // Exit inner loop
17                 }
18             count++;
19         }
20     count++;
21 }
22 count++;
23
24 printf("%d", count);
25 }
26
27 v int main() {
28     int n;
29     scanf("%d", &n);
30     func(n);
31 }
```

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```
31     return 0;  
32 }  
33 }
```

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

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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CS23331-DAA-2024-CSE / Problem 3: Finding Complexity using Counter Method

## Problem 3: Finding Complexity using Counter Method

Started on	Tuesday, 19 August 2025, 1:02 PM
State	Finished
Completed on	Tuesday, 19 August 2025, 11:12 PM
Time taken	10 hours 9 mins
Marks	1.00/1.00
Grade	10.00 out of 10.00 (100%)

Question 1 | Correct Mark 1.00 out of 1.00 ⚡ Flag 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);
        }
    }
}
```

**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

**Answer:**

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

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

Passed all tests! ✓

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**Correct**

Marks for this submission: 1.00/1.00.

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CS23331-DAA-2024-CSE / Problem 4: Finding Complexity using Counter Method

## Problem 4: Finding Complexity using Counter Method

Started on	Tuesday, 19 August 2025, 1:12 PM
State	Finished
Completed on	Tuesday, 19 August 2025, 11:11 PM
Time taken	9 hours 59 mins
Marks	1.00/1.00
Grade	10.00 out of 10.00 (100%)

**Question 1** | Correct Mark 1.00 out of 1.00 

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

```
void function(int n)
{
    int c = 0;
    for(int i=n/2; i<n; i++)
        for(int j=1; j<n; j = 2 * j)
            for(int k=1; k<n; k = k * 2)
                c++;
}
```

**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, count = 0;
5     scanf("%d", &n);
6     int c=0;
7     count++;
8
9     for (int i = n / 2; i < n; i++) {
10         count++; // Outer loop iteration
11         for (int j = 1; j < n; j = 2 * j) {
12             count++; // Middle loop iteration
13             for (int k = 1; k < n; k = k * 2) {
14                 count++;
15                 c++;
16                 count++; // Innermost operation (c++)
17             }
18             count++;
19         }
20         count++;
21     }
22     count++;
23
24     printf("%d", count);
25     return 0;
26 }
27
```

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	Input	Expected	Got	
✓	4	30	30	✓
✓	10	212	212	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

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CS23331-DAA-2024-CSE / Problem 5: Finding Complexity using counter method

## Problem 5: Finding Complexity using counter method

Started on	Tuesday, 19 August 2025, 1:15 PM
State	Finished
Completed on	Tuesday, 19 August 2025, 11:13 PM
Time taken	9 hours 57 mins
Marks	1.00/1.00
Grade	10.00 out of 10.00 (100%)

Question 1 | Correct Mark 1.00 out of 1.00 ⚡ Flag question

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

```
void reverse(int n)
{
    int rev = 0, remainder;
    while (n != 0)
    {
        remainder = n % 10;
        rev = rev * 10 + remainder;
        n /= 10;

    }
    print(rev);
}
```

**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, rev = 0, remainder, count = 0;
5     count++;
6     count++;
7     scanf("%d", &n);
8
9     while (n != 0) {
10         count++; // while condition check
11         remainder = n % 10;
12         count++; // modulus operation
13         rev = rev * 10 + remainder;
14         count++; // reverse update
15         n /= 10;
16         count++; // division operation
17     }
18     count++;
19
20     printf("%d", count);
21     return 0;
22 }
```

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	Input	Expected	Got	
✓	12	11	11	✓
✓	1234	19	19	✓

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

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