Problem 4: Finding Complexity using Counter Method

Started on	Monday, 18 August 2025, 10:51 PM
State	Finished
Completed on	Monday, 18 August 2025, 10:57 PM
Time taken	5 mins 39 secs
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 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:

```
#include <stdio.h>

int main(void) {
```

```cpp
    long long n, cnt = 0;
    if (scanf("%lld", &n) != 1) return 0;

    cnt++;

    for (long long i = n / 2; ; ++i) {
        cnt++;
        if (!(i < n)) break;

        for (long long j = 1; ; j *= 2) {
            cnt++;
            if (!(j < n)) break;

            for (long long k = 1; ; k *= 2) {
                cnt++;
                if (!(k < n)) break;

                cnt++;
            }
        }
    }

    printf("%lld", cnt);
    return 0;
}
```

	Input	Expected	Got	
✔	4	30	30	✔
✔	10	212	212	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Finish review

Back to Course