DAA MOODLE PROGRAMS

FIND TIME COMPLEXITY PROGRAMS

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CSE-A

1.

AIM-

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.

CODE-

```c
#include<stdio.h>
void function (int n)
{

    int i= 1;
    int s =1;
    int c=2;
    while(s <= n)
    {
         c++;
         i++;
         c++;
         s += i;
         c++;

     }
     c++;
     printf("%d",c);

}
int main()
{
    int n;
    scanf("%d",&n);
    function(n);
    return 0;
}
```

INPUT-

A positive Integer n

OUTPUT-

Print the value of the counter variable

	Input	Expected	Got	
✔	9	12	12	✔
✔	4	9	9	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

2.

AIM-

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.

CODE-

```
#include<stdio.h>
void func(int n)
{
    int c=0;
    c++;
    if(n==1)
    {
        c++;
        //printf("*");

    }

    else
    {
     for(int i=1; i<=n; i++)
     {
         c++;
         for(int j=1; j<=n; j++)
         {
             c++;
             //printf("*");
             c++;
             //printf("*");
             c++;
             break;

         }
         c++;
     }
     c++;
    }
    printf("%d",c);
}
int main()
{
    int n;
    scanf("%d",&n);
    func(n);
}
```

INPUT-
A positive Integer n

OUTPUT-
Print the value of the counter variable

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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

3.

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.

CODE-

```c
#include<stdio.h>
void Factor(int num)
{
    int c=0;

    for (int i = 1; i <= num;++i)
    {
        c++;
        if (num % i== 0)
        {

            //printf("%d ", i);
            c++;
        }
        c++;

    }
    c++;
    printf("%d",c);

}
int main()
{
    int num;
    scanf("%d",&num);
    Factor(num);
}
```

INPUT-

A positive Integer n

OUTPUT-

Print the value of the counter variable

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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

4.

AIM-

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.

CODE-

```
#include<stdio.h>
void function(int n)
{
    int ct=0;
    int c= 0;
    ct++;
    for(int i=n/2; i<n; i++)
    {
        ct++;
        for(int j=1; j<n; j = 2 * j)
        {
            ct++;
            for(int k=1; k<n; k = k * 2)
            {
                ct++;
                c++;
                ct++;
            }
            ct++;
        }
        ct++;

    }
    ct++;
    printf("%d",ct);

}
int main()
{
    int n;
    scanf("%d",&n);
    function(n);
}
```

INPUT-

A positive Integer n

OUTPUT-

Print the value of the counter variable

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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

5.

AIM-

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.

CODE-

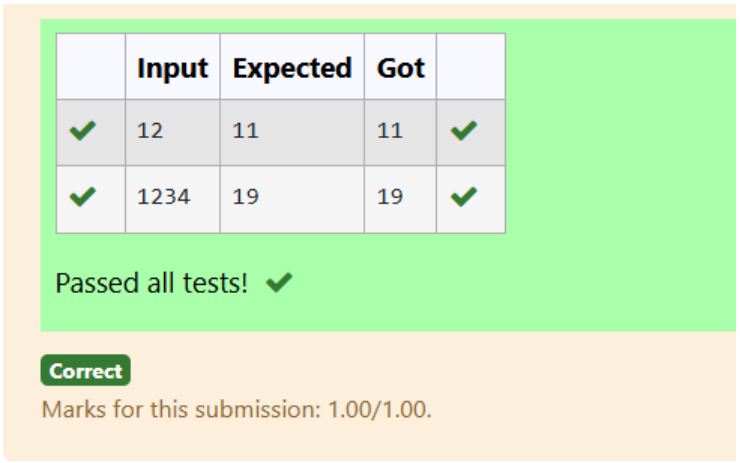
```c
#include<stdio.h>
void reverse(int n)
{
    int c=0;
    int rev = 0, remainder;
    c++;
    while (n != 0)
    {
        c++;
        remainder = n % 10;
        c++;
        rev = rev * 10 + remainder;
        c++;
        n/= 10;
        c++;

    }
    c++;
    c++;
    printf("%d",c);

//printf(rev);
}
int main()
{
    int n;
    scanf("%d",&n);
    reverse(n);
}
```

INPUT-

A positive Integer n

OUTPUT-

Print the value of the counter variable



	Input	Expected	Got	
✔	12	11	11	✔
✔	1234	19	19	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.