CS-114 – Fundamental of Programing

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LAB MANUAL #5

HOME TASK

ME 15 Section B

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Date of submission : 1-11-2023.

Task 1:

Code:

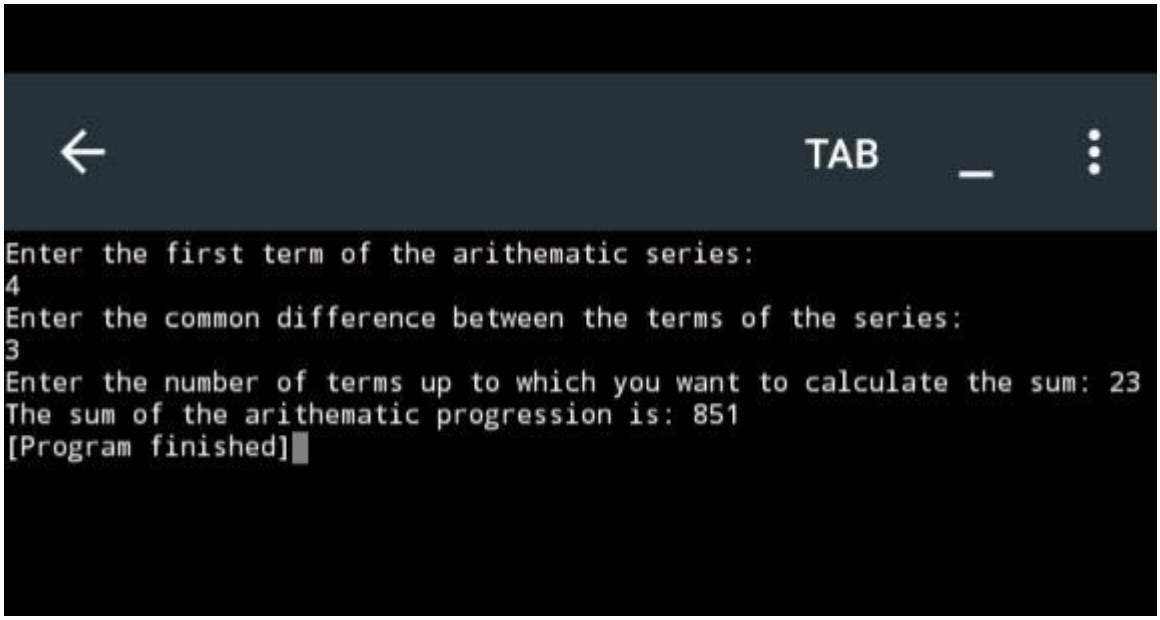
```
#include<iostream>
using namespace std;
int main()
{
	int n1, n2, hcf, lcm, r1, r2, d;
	cout<<"Enter two numbers: "<<endl;
	cin>>n1>>n2;
 /*using if statement to find the smaller of the two numbers and assigning its value to the divisor d. Because the hcf cannot be grater than the smaller number.*/
	if(n1<n2)
	d=n1;
	else
	d=n2;
	/*To find the hcf we will divide both the numbers by the divisor and decrement the divisor until both numbers are divisible i.e. leave zero remainder.*/
	while(r1!=0 || r2!=0)
	{
		r1=n1%d;
		r2=n2%d;
		d--;
	}
	d++; /*In the final iteration the value of d will be decremented before the loop terminates. Hence we add one to its value to make it equal to the value by which both n1 and n2 were divisible before assigning its value to hcf*/
	hcf=d;
	lcm=n1*n2/hcf; /* using the relation lcm*hcf=n1*n2 to find lcm*/
	cout<<"The LCM of "<<n1<<" and "<<n2<<" is "<<lcm;
	return 0;

}
```

Output screen:

Task 2:
Code:

```
#include<iostream>
using namespace std;
int main()
{
	int a, d, n, sum=0, t, i;
	cout<<"Enter the first term of the arithematic series: "<<endl;
	cin>>a;
	sum+=a;
	cout<<"Enter the common difference between the terms of the series: "<<endl;
	cin>>d;
	cout<<"Enter the number of terms up to which you want to calculate the sum: ";
	cin>>n;
	/*To calculate the sum we will calculate each term one by one and add it to th sum. The loop will run until n number of terms have been added. We have used the condition i<=n-1 because 1 term 'a' has already been added*/
	for(i=1; i<=n-1; i++)
	{
		t=a+i*d;
		sum+=t;
	}
	cout<<"The sum of the arithematic progression is: "<<sum;
	return 0;
}
```

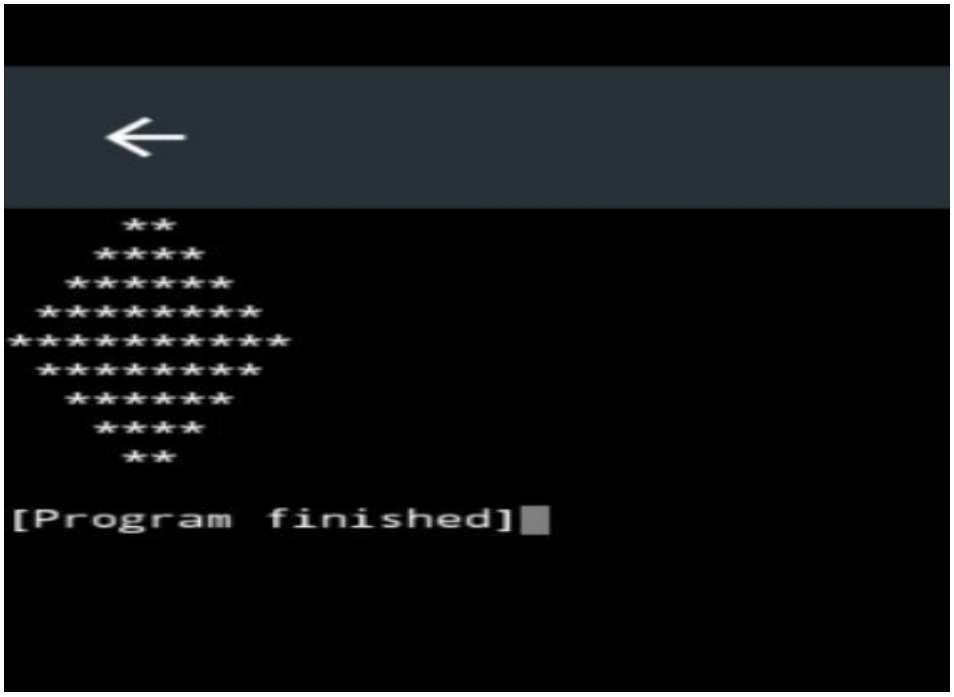
Output Screen:



Task 3:
Code:

```
#include<iostream>
using namespace std;
int main()
{
	int i, j, k;
	for(i=1; i<=4; i++)
	{
		for(j=1; j<=5-i; j++)
		cout<<" ";
		for(k=1; k<=i; k++)
		cout<<"**";
		cout<<endl;
		}
	for(i=5 ;i>=1 ;i--)
	{
		for(j=1; j<=5-i; j++)
		cout<<" ";
		for(k=1; k<=i; k++)
		cout<<"**";
		cout<<endl;
	}
	return 0;
}
```

Output Screen :



Task 4:
Code:

```
#include<iostream>
using namespace std;
int main()
{
	int n, x, r;
	cout<<"Enter the number you want to convert to binary: "<<endl;
	cin>>n;
	cout<<"The number in binary is: (read from bottom to top)"<<endl<<endl;

	while(n!=0)
	{
		r=n%2;
		n/=2;
		cout<<r<<endl;
	}

}
```

Output Screen: