

Lab manual 5

Submitted to: M. Affan

Name: Muhammad Bin Ahmad

ME-15(A)

Roll No: 480779

- Task 1: Write a program in C++ to find LCM of any two numbers using HCF.

```
int num1,num2,remainder,quotient,LCM,num1copy,num2copy;
```

```
cout<<"Enter two numbers.\n";
```

```
cin>>num1>>num2;
```

```
num1copy=num1;
```

```
num2copy=num2;
```

```
remainder=num1%num2;
```

```
quotient=num1/num2;
```

```
if(remainder!=0){
```

```
    while(remainder !=0){
```

```
        num1=num2;
```

```
        num2=remainder;
```

```
        remainder=num1%num2;
```

```
    }
```

```
    cout<<"The HCF is "<<num2<<endl;
```

```
}
```

```
else{
```

```
    cout<<"The HCF is "<<num2<<endl;
```

```
}
```

```
LCM=(num1copy*num2copy)/num2;
```

```
cout<<"The LCM is "<<LCM<<endl;
```

```
C:\C++\Home task 5.exe
Enter two numbers.
8
12
The HCF is 4
The LCM is 24

-----
Process exited after 3.464 seconds with return value 0
Press any key to continue . . .
```

- Task 2: Write a program in C++ to find out the sum of an Arithmetic progression series.

```
float difference,term1,n,sum,last_term;

char known;

cout<<"To find the sum of an arithmetic series, provide the following information.\n";

cout<<"Is the last term of the sequence known?\n";

cout<<"Press y for yes, press any other key for no.\n";

cin>>known;

if(known=='y' || known=='Y'){

    cout<<"First number of the series: ";

    cin>>term1;

    cout<<"Last term of the series: ";

    cin>>last_term;

    cout<<"The number of terms for which the sum is required: ";

    cin>>n;

    sum= (n/2)*(term1+last_term);

    cout<<sum;

}

else{

    cout<<"First number of the series: ";

    cin>>term1;

    cout<<"Common difference between the terms: ";

    cin>>difference;

    cout<<"The number of terms for which the sum is required: ";

    cin>>n;

    sum= (n/2)*((2*term1)+ difference*n - difference);

    cout<<sum;

}
```

```
C:\C++\Home task 5.exe
To find the sum of an arithmetic series, provide the following information.
Is the last term of the sequence known?
Press y for yes, press any other key for no.
y
First number of the series: 10
Last term of the series: 40
The number of terms for which the sum is required: 10
250
-----
Process exited after 8.585 seconds with return value 0
Press any key to continue . . .
```

```
C:\C++\Home task 5.exe
To find the sum of an arithmetic series, provide the following information.
Is the last term of the sequence known?
Press y for yes, press any other key for no.
n
First number of the series: 5
Common difference between the terms: 10
The number of terms for which the sum is required: 6
180
-----
Process exited after 11.22 seconds with return value 0
Press any key to continue . . .
```

- Task 3: Write a program in C++ to create a diamond.

```
int rows=5;

int spaces=4;

int stars=1;

for(int i=1;i<=rows;i++){

    for(int j=0;j<spaces;j++){

        cout<<" ";

    }

    for(int k=0;k<stars;k++){

        cout<<"*";

    }

    cout<<endl;

    spaces--;

    stars+=2;

}

spaces=1;

stars=7;

for(int i=1;i<rows;i++){

    for(int j=0;j<spaces;j++){

        cout<<" ";

    }

    for(int k=0;k<stars;k++){

        cout<<"*";

    }

    cout<<endl;

    spaces++;

    stars-=2;

}
```

```
C:\C++\Home task 5.exe

*
***
*****
*****
*****
*****
*****
***
*

-----
Process exited after 0.3518 seconds with return value 0
Press any key to continue . . .
```

- Task 4: Write a program in C++ to convert a decimal number to binary number.

```
int num,b1,b2,b3,b4,b5,b6,b7,b8;

cout<<"Enter a number between 0 and 255.\n";

cin>>num;

if(num%2==0){

    b1=0;

}

else{

    b1=1;

}

num=num/2;

if(num%2==0){

    b2=0;

}

else{

    b2=1;

}

num=num/2;

if(num%2==0){

    b3=0;

}

else{

    b3=1;

}

num=num/2;

if(num%2==0){

    b4=0;

}

else{
```

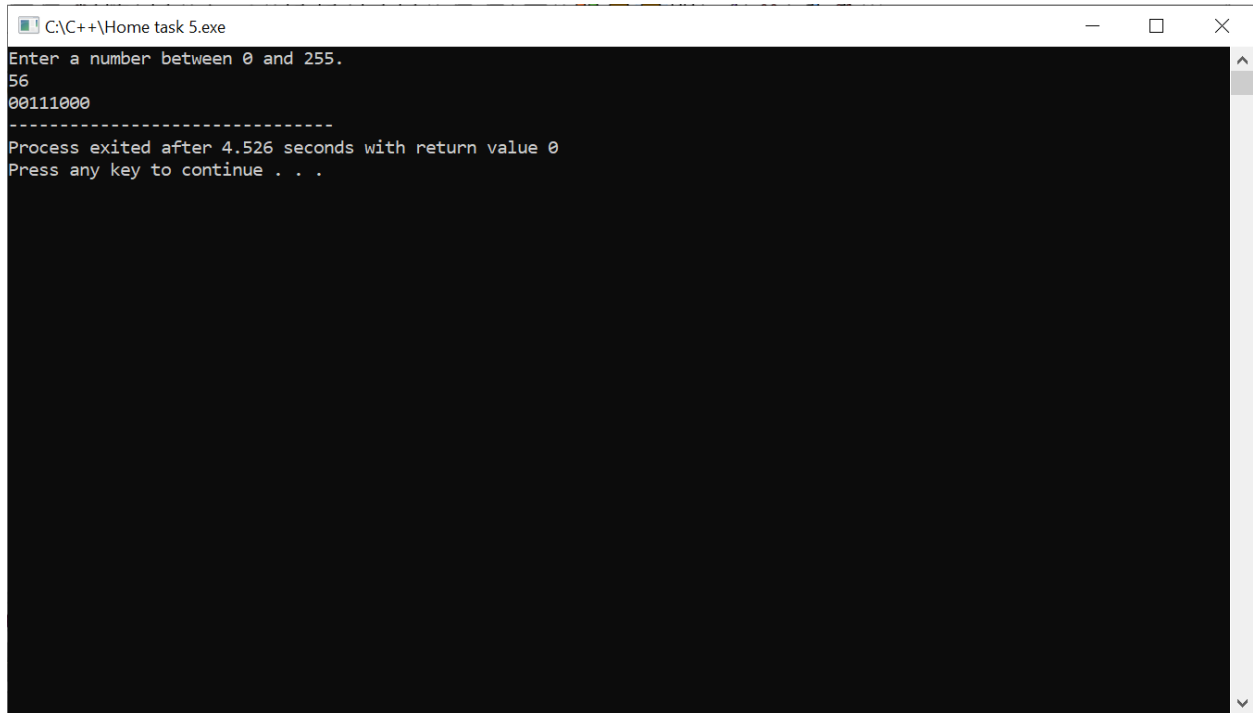


```
        b4=1;
    }
    num=num/2;
    if(num%2==0){
        b5=0;
    }
    else{
        b5=1;
    }
    num=num/2;
    if(num%2==0){
        b6=0;
    }
    else{
        b6=1;
    }
    num=num/2;
    if(num%2==0){
        b7=0;
    }
    else{
        b7=1;
    }
    num=num/2;
    if(num%2==0){
        b8=0;
    }
    else{
        b8=1;
```

```
}
```

```
num=num/2;
```

```
cout<<b8<<b7<<b6<<b5<<b4<<b3<<b2<<b1;
```



```
C:\C++\Home task 5.exe
Enter a number between 0 and 255.
56
00111000
-----
Process exited after 4.526 seconds with return value 0
Press any key to continue . . .
```