Fundamentals of Programming
ME-15
Section B
1st Semester
Date of Submission: 01/11/2023
Haniyyah Abbas 481755

```cpp
int main(){

int num, num1, quotient, remainder;

cout<<"Enter a number:"<<endl;

cin>>num;

        if(num == 0){

        quotient = num / 2;

        remainder = num % 2;

        cout<<num<<"/2="<<quotient<<" Remainder:"<<remainder<<endl;

        }

while(num>0){

        quotient = num / 2;

        remainder = num % 2;

        cout<<num<<"/2="<<quotient<<" Remainder:"<<remainder<<endl;

        num = quotient; //num gets overwritten every time by the quotient

        /*order really matters apparently. i had intially put'num=quotient' before the cout
statement. this kept printing the incorrect output (it would not show the original number being
divided by 2)

        placing 'num=quotient' after the cout statement actually fixed the code. The reason was
since the original number still hadn't been overwritten by the quotient, it actually showed the

        original number being divided by 2 first. Once that is done, it starts to get overwritten by its
quotient.*/

        }


        return 0;

}
```
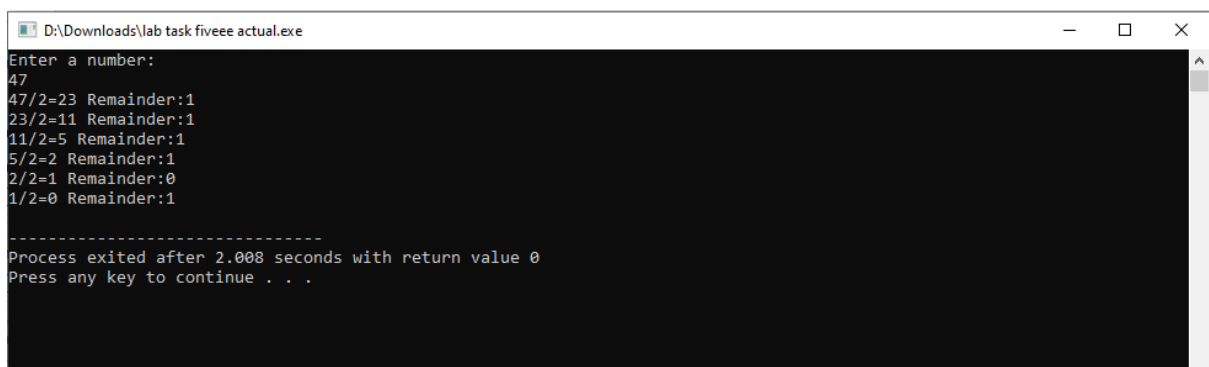
```
D:\Downloads\lab task fiveee actual.exe                                        —   □   ×

Enter a number:
47
47/2=23 Remainder:1
23/2=11 Remainder:1
11/2=5 Remainder:1
5/2=2 Remainder:1
2/2=1 Remainder:0
1/2=0 Remainder:1

-----------------------------
Process exited after 2.008 seconds with return value 0
Press any key to continue . . .
```

```cpp
int main(){
```

```cpp
    int x, y, high, low;

    cout<<"Enter a number:"<<endl;

    cin>>x;

    cout<<"Enter another number:"<<endl;

    cin>>y;

    if(y!=0){      //if y equals to zero then the hcf cannot be found

    high=x%y;

    }


    low=(x*y)/high;

    cout<<"LCM of numbers = "<<low<<endl;


    return 0;

}
```
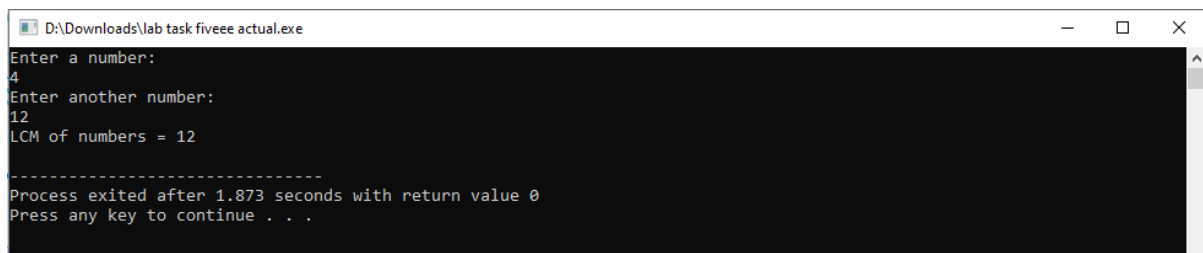


```
Enter a number:
4
Enter another number:
12
LCM of numbers = 12

-------------------------------
Process exited after 1.873 seconds with return value 0
Press any key to continue . . .
```

```cpp
int main(){

    int a1, al, ter, sum;

    cout<<"Enter first term:"<<endl;

    cin>>a1;

    cout<<"Enter number of terms:"<<endl;

    cin>>ter;

    cout<<"Enter last term:"<<endl;

    cin>>al;


    sum=ter*((a1*al)/2);  //formula for sum of arithmetic progression
```
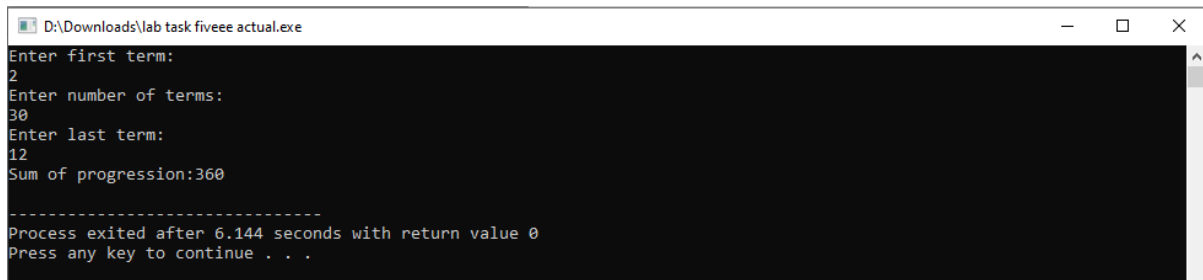
```
        cout<<"Sum of progression:"<<sum<<endl;


        return 0;

    }
```

```cpp
int main() {

    int rows;

    cout << "Enter the rows of the top and bottom side of the diamond: ";

    cin >> rows;


    for(int x = 1; x <= rows; x++) {      //top side of diamond

        for(int y = 1; y <= rows-x; y++) {

            cout<<" ";}                          /*its important to give spaces, and place for statements in
other for statements because otherwise the shape of the diamond will be distorted*/

            for(int y=1;y<=2*x-1;y++){

                cout << "*";

            }

        cout <<endl;

    }

    for(int x=rows-1;x>=1;x--){   //bottom side of diamond

        for(int y=1;y<=rows-x;y++){

        cout<<" ";}

        for(int y=1;y<=2*x-1;y++){

            cout<<"*";

        }
```
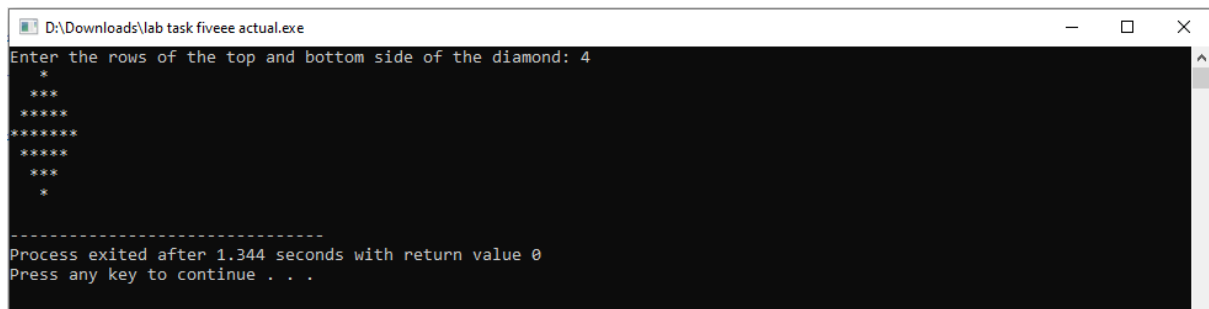
```
        cout <<endl;

    }


    return 0;

}
```

```
D:\Downloads\lab task fiveee actual.exe                                    —    □    ×

Enter the rows of the top and bottom side of the diamond: 4
   *
  ***
 *****
*******
 *****
  ***
   *


-------------------------------
Process exited after 1.344 seconds with return value 0
Press any key to continue . . .
```