NUST

NATIONAL UNIVERSITY
OF SCIENCES & TECHNOLOGY

Computer Programming Lab

Manuel5 Home tasks

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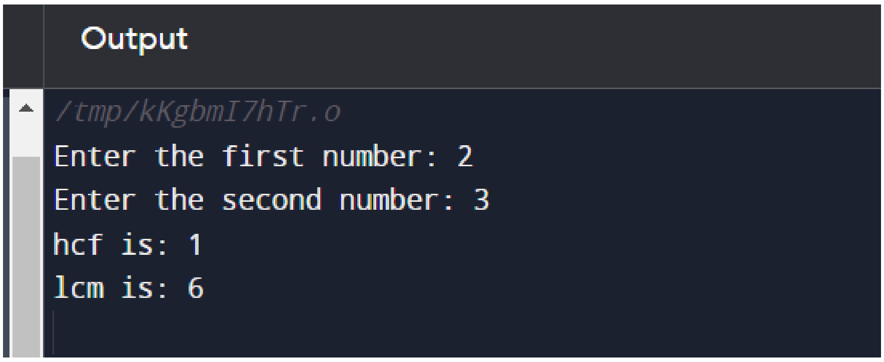
1. Write a program in C++ to find LCM of any two numbers using HCF.

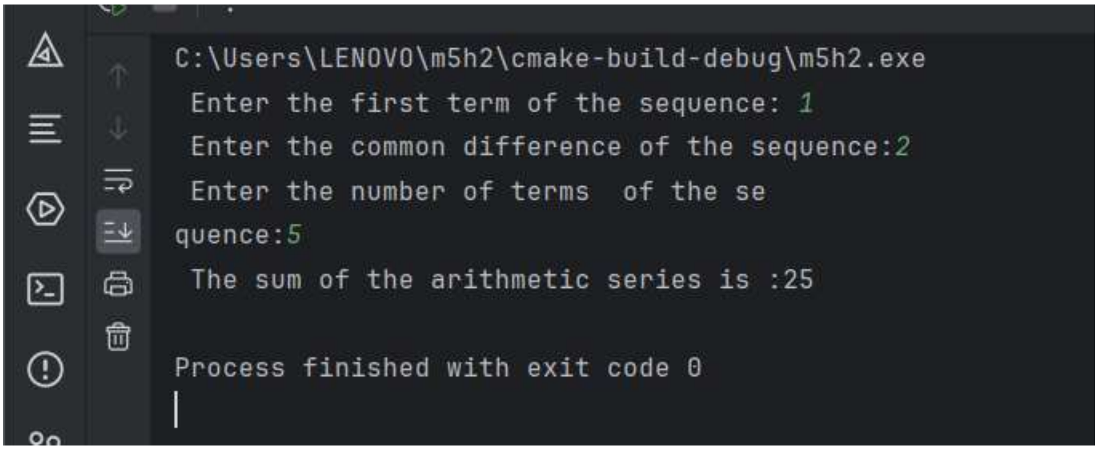
```
using namespace std;
int main(){
  int num1,num2,temp;
  int hcf;
  cout<<" Enter the first number: ";
  cin>>num1;
  cout<<" Enter the second number: ";
  cin>>num2;
   if(num2>num1){
        temp=num2;
        num2=num1;
        num1=temp;
        }
        for(int i=1; i<=num2 ; i++){
            if(num1%i==0 && num2%i==0){
             hcf=i;
           }
             }
        int lcm= (num1*num2)/hcf;
        cout<<"hcf is: "<<hcf<<endl;
        cout<<"lcm is: "<<lcm<<endl;
        return 0;
      }
```



```
/tmp/kKgbmI7hTr.o
Enter the first number: 2
Enter the second number: 3
hcf is: 1
lcm is: 6
```

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

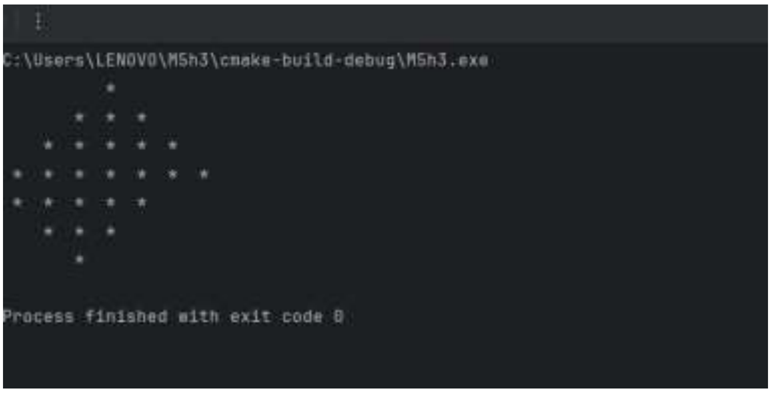
```
#include <iostream>
using namespace std;
int main() {
   int a , d , n ;
   cout<<" Enter the first term of the sequence:";
   cin>>a;
   cout<<" Enter the common difference of the sequence:";
   cin>>d;
   cout<<" Enter the number of terms  of the sequence:";
   cin>>n;
   int sum=0;
   for(int i=0; i<n; i++) {
      int term ;
      term = a+i*d;
      sum+= term;

   }
   cout<< " The sum of the arithmetic series is :" <<sum<<endl;

   return 0;
}
```



```
C:\Users\LENOVO\m5h2\cmake-build-debug\m5h2.exe
 Enter the first term of the sequence: 1
 Enter the common difference of the sequence:2
 Enter the number of terms  of the se
quence:5
 The sum of the arithmetic series is :25

Process finished with exit code 0
```

3. Write a program in C++ to create a diamond.

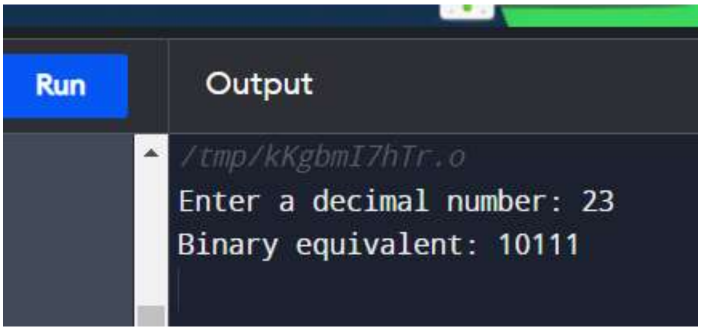
```
#include<iostream>
using namespace std;
int main(){
  int row , col, spa;

  for(row= 1; row<= 4 ; row++) {
    for (spa = 1; spa <= 4 - row; spa++) {
      cout << "   ";
    }
    for (col = 1; col <= row * 2 - 1; col++) {
      cout << " * ";
    }
    cout<<endl;
  }

  for(row=3; row>=1 ; row--){
    for(spa=1 ; spa<=3-row ; spa++) {
      cout << "   ";
    }
    for(col=1 ; col<=2*row-1 ; col++){
      cout<< " * ";
    }
   cout<<endl;
  }
 return 0;
}
```



```
C:\Users\LENOVO\M5h3\cmake-build-debug\M5h3.exe
          *
       *  *  *
    *  *  *  *  *
 *  *  *  *  *  *  *
 *  *  *  *  *
    *  *  *
       *

Process finished with exit code 0
```

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

```
#include <iostream>
using namespace std;

int main() {
   int decimalNumber;
   cout << "Enter a decimal number: ";
   cin >> decimalNumber;

   int binaryNumber[32];       // Assuming 32-bit binary representation

   if (decimalNumber == 0) {
      cout << "Binary equivalent: 0" << endl;
      return 0;
   }

   int i = 0;
   while (decimalNumber > 0) {
      binaryNumber[i] = decimalNumber % 2;
      decimalNumber /= 2;
      i++;
   }

   cout << "Binary equivalent: ";
   for (int j = i - 1; j >= 0; j--) {
      cout << binaryNumber [j];
   }
   cout << endl;

   return 0;
}
```



```
/tmp/kKgbmI7hTr.o
Enter a decimal number: 23
Binary equivalent: 10111
```