NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

CS-114- FUNDAMENTAL OF PROGRAMMING

LAB MANUAL 5

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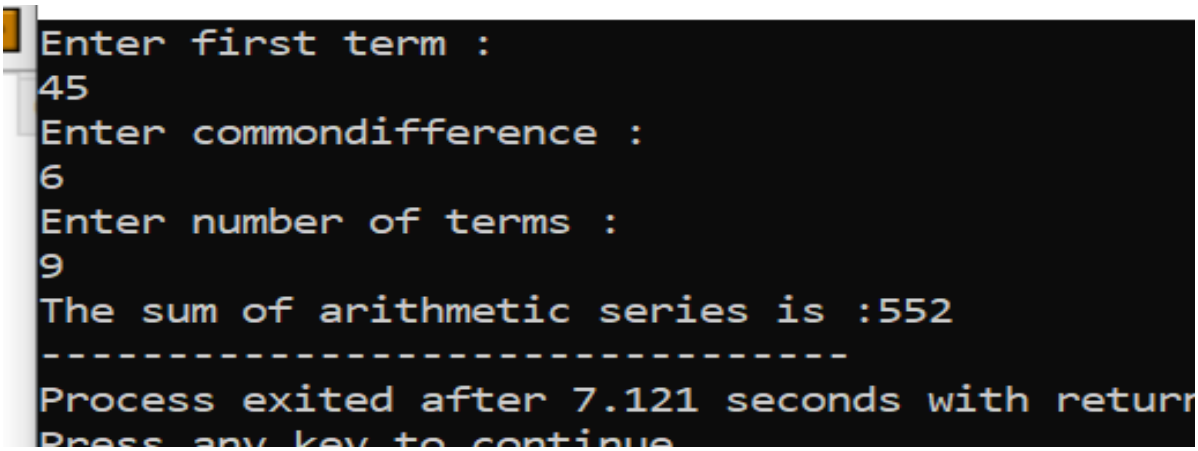
TASK 1:

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

CODE:

```
#include <iostream>
using namespace std;
int main ()
{
//for calculating sum of any arithmatic series
int sum = 0;
int a,d,n;//declare variables a is first term,d is common difference,n is no of terms
cout <<"Enter first term :"<<endl;
cin>>a;
cout <<"Enter commondifference :"<<endl;
cin>>d;
cout <<"Enter number of terms :"<<endl;
cin>>n;
int i=0;
while (i<=n){
sum = n/2*(2*a +(n-1)*d);//formula for calculating sum
i++;
}
cout <<"The sum of arithmetic series is :"<<sum; //result
return 0;
}
```

RESULT:



TASK 2:

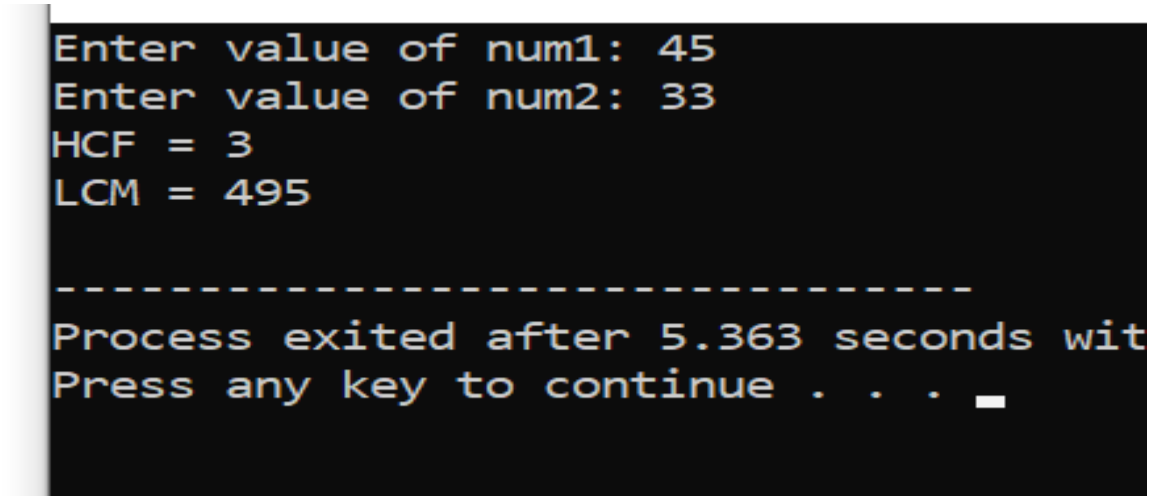
Write a program in C++ to find LCM of any two numbers using HCF

CODE:

```
#include <iostream>

using namespace std;


int main() {

int y; //y used for temporary variables

 int num1, num2;

 int hcf;

 cout << "Enter value of num1: ";

 cin >> num1;

 cout <<"Enter value of num2: ";

 cin>>num2;


 for (int i = 1; i <=  num2; i++) {

  if (num1 % i == 0 && num2 % i ==0) {

    hcf = i;

  }

 }

int lcm =(num1*num2)/hcf;
```

```
 cout << "HCF = " << hcf<<endl;
cout <<"LCM = " <<lcm<<endl;
 return 0;
}
```

RESULT:



TASK 3:

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

CODE :

```
#include <iostream>
using namespace std;
int main ()
{
int n;//n donates the size of diamond
cout <<"Enter value of n :"<<endl;
cin >>n;
//i used for row,j is for spacing,k denotes star
for (int i = 1;i<=n;i++){
for (int j = 1;j<=n-i;j++){
cout <<" ";}
```

```
for (int k = 1;k<=2*i-1;k++){
cout <<"*";
}
cout <<endl;
}
//lower part
for (int i=1;I<=n-1;i++){
for (int j=1;j<=n-i;j++){
cout <<" ";}
for (int k =1;k<=2*i-1;k++){
cout <<"*";
}
cout <<endl;
}
return 0;
}
```

RESULT:

TASK 4:

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

CODE:

// convert decimal to binary

```
#include <iostream>
using namespace std;
int main()
{
  int n, bin;
  cout << "Enter a decimal number: ";
  cin >> n;
cout <<"In binary = "<<endl;
  int rem;
```

```
  while (n>0) {
    rem = n % 2;
    n =n/ 2;
cout <<rem<<endl;
  }
  return 0;
}
```