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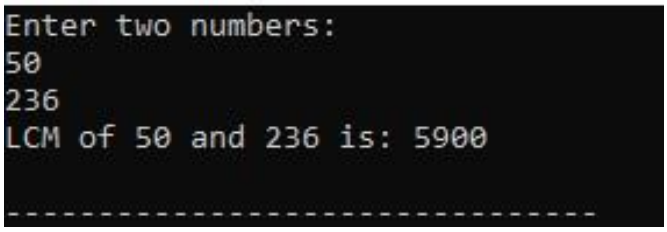
Fundamentals of Programming

Home task 5

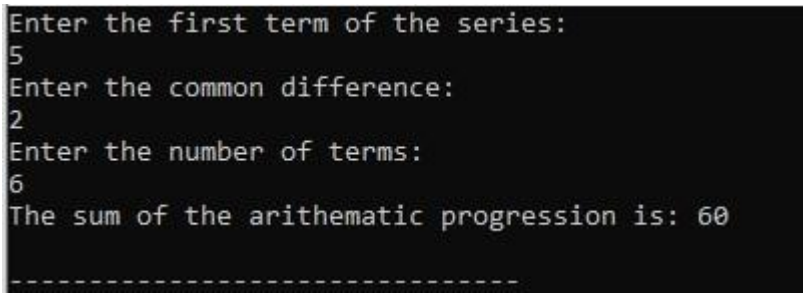
TASK 1

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

int main () {



int num1,num2;
int a,b,value;
cout<<"Enter two numbers: "<<endl; cin>>num1>>num2;
a=num1;
b=num2;

while (b!=0) {
        value =b;
        b=a%b;
        a=value;
}
int HCF,LCM;
HCF=a;
LCM= (num1*num2)/HCF;
cout<<"LCM of "<<num1<<" and "<<num2<<" is: "<<LCM<<endl;

return 0;
}
```



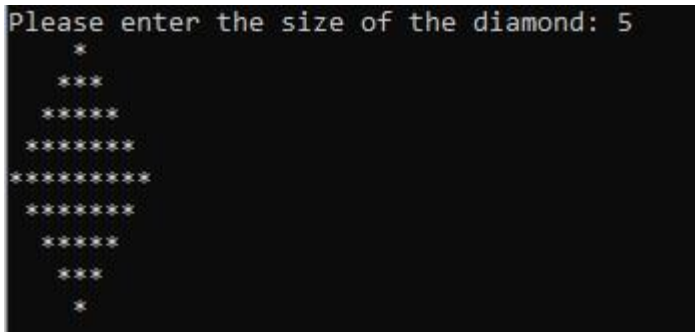
TASK 2

```
int main () {


int term1,term,diff,n;


cout<<"Enter the first term of the series: "<<endl; cin>>term1;

cout<<"Enter the common difference: "<<endl; cin>>diff;

cout<<"Enter the number of terms: "<<endl; cin>>n;

term=term1;

int sum=0;

for (int i=0; i<n; i++) {

        sum+=term;

   term+=diff;

}

cout<<"The sum of the
arithematic progression is: "<<sum<<endl;


return 0;

}
```



TASK 3

```
int main() {
    int size;

                                    // Get the size of the diamond from the user.
    cout << "Please enter the size of the diamond: "; cin >> size;

    for (int i=1;i<=size;i++) {       //This step determines the upper part of the diamond.

    for (int j=1;j<=size-i;j++) {  //This step prints the spaces for each row.
            cout << " ";
       }

    for (int j=1;j<=2*i-1;j++) { //This step prints the stars for the diamond.
            cout << "*";
       }
    cout << endl;
    }

    //This section prints the lower part of the diamond
    for (int i=size-1;i>=1;i--) {

    for (int j=1;j<=size-i;j++) {  //This step prints the number of spaces for the lower part.
            cout << " ";
       }
    for (int j=1;j<=2*i-1;j++) { //This step prints the stars for each row.
            cout << "*";
       }
    cout << endl;
    }
    return 0;
}
```



TASK 4

```
int main() {


int Dnum;
    cout << "Enter a decimal number: ";
    cin >> Dnum;


    if (Dnum<0) {
        cout << "Please enter a non-negative decimal number." << endl;
    return 1;
}


int binaryDigits[32];    //This step sets the conversion for 32 bit binary
int index = 0;           //This variable keeps track of the position of binary number


    if (Dnum==0) {
        binaryDigits[index++]=0;             // Special case: 0 in binary is 0
} else {
    while (Dnum>0) {
    int remainder = Dnum%2;
            binaryDigits[index++] = remainder;
            Dnum/=2;
        }
    }
    cout << "The inputted number in binary is: ";
    for (int i = index - 1; i >= 0; i--) {    //This step prints the binary number from least significant to
most significant
        cout << binaryDigits[i];
}
cout << endl;
   return 0;
}
```

```
Enter a decimal number: 340
The inputted number in binary is: 101010100

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```