

**Program 1: Write a C program to find the LCM and GCD of 2 numbers entered by user, using while and if**

**Algorithm:**

Step 1: Declare a, b and c

Step 2: Input value from user for a, b

Step 3: Assign the value of max number to c

Step 4: While the condition is true

Step 5: Check if  $c \% a == 0$  &&  $c \% b == 0$

Step 6: If condition is true then print lcm as value of c

Step 7: If condition is false then increment the value of c and repeat the test condition.

**Code:**

```
#include <stdio.h>

int main() {
    int a, b, n, lcm;

    printf("Enter the first number:");
    scanf("%d", &a);

    printf("Enter the second number:");
    scanf("%d", &b);

    n=1;
    while(n<=b)
    {
        lcm=n*a;
        if(lcm%b == 0)
        {
            break;
        }
        printf("The LCM is %d",lcm);

        return 0;
    }
}
```

## **Output:**

Enter the first number 45  
Enter the second number 60  
45 60  
The LCM is 180

## **Program 2: Use GCD to find LCM**

### **Algorithm:**

- Step 1: Declare a, b and c
- Step 2: Input value from user for a,b
- Step 3: Assign the value of max number to c
- Step 4: While the condition is true
- Step 5: Check if  $c \% a == 0$  &&  $c \% b == 0$
- Step 6: If condition is true then print lcm as value of c
- Step 7: If condition is false then increment the value of c and repeat the test condition.
- Step 8: Use the formula:  $GCD = a * b / LCM$  and store value in int g
- Step 9: Display value of g as GCD.

### **Code:**

```
#include <stdio.h>

int main() {
    int a, b, n, gcd, lcm;

    printf("Enter two numbers");
    scanf("%d %d", &a, &b);

    for (n=1; n<=a && n<=b; ++n)
    {
        if (a%n == 0 && b%n == 0)
            gcd = n;
    }
}
```

```

lcm = (a * b) / gcd;

printf("The LCM is %d",lcm);

return 0;
}

```

### **Output:**

```

Enter two numbers 45 60
45 60
The LCM is 180

```

## **Program 3: Write a C program to find GCD of 2 numbers entered by user into use for loop and if**

### **Algorithm:**

Step 1: Accept 2 numbers as input from user using scanf() function.

Step 2: Store the value in a variable (a and b).

Step 3: Also define variables c, d.

Step 4: For d<=a && d<=b

Step 5: Print GCD

### **Code:**

```

#include <stdio.h>

int main() {
    int a, b, gcd, n;

    printf("Enter two numbers");
    scanf("%d %d", &a, &b);

    for(n=1; n<=a && n<=b; ++n)
    {
        if(a%n==0 && b%n==0)
            gcd=n;
    }
}

```

```
}  
printf("The GCD is %d",gcd);  
  
return 0;  
}
```

### **Output:**

Enter two numbers 60 40  
60 40  
The GCD is 20

### **Program 4: Use while loop and if**

#### **Algorithm:**

Step 1: Accept 2 numbers as input from user using scanf() function.

Step 2: Store the value in a variable (a and b).

Step 3: Also define variables c,d.

Step 4: For  $d \leq a$  &&  $d \leq b$

Step 5: Print GCD

#### **Code:**

```
#include <stdio.h>  
  
int main() {  
    int a, b;  
    printf("Enter two numbers");  
    scanf("%d %d", &a, &b);  
  
    while(a!=b)  
    {  
        if (a>b)  
            a-=b;  
        else  
            b-=a;  
    }  
    printf("The GCD is %d",a);  
  
    return 0;  
}
```

**Output:**

Enter two numbers 50 60  
50 60  
The GCD is 10