

Experiment No-3

Experiment 4: Write a C Program to calculate LCM of two positive integer.

Objective:

- To write a C program that reads two positive integers and calculates their Least Common Multiple (LCM) using mathematical logic and loops.

Problem analysis:

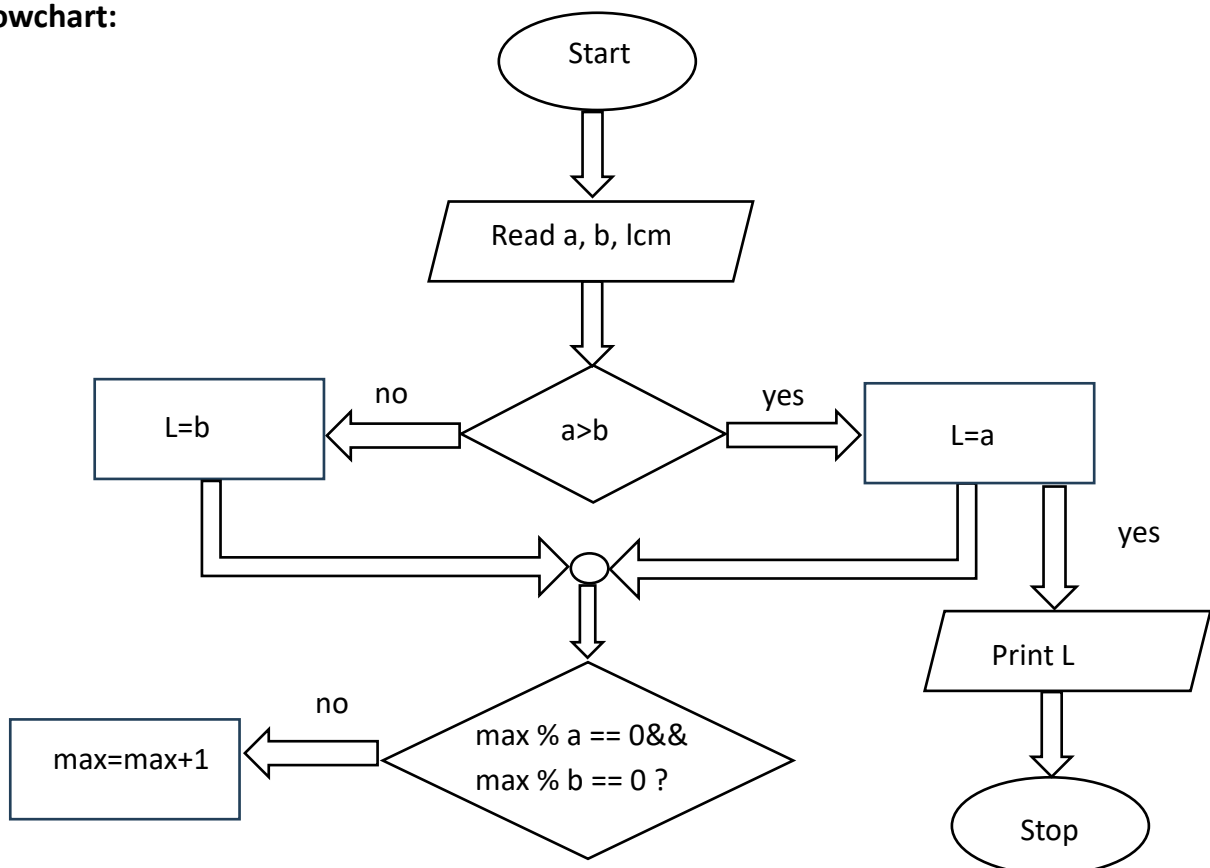
The program needs to find the Least Common Multiple (LCM) of two positive integers. It takes two numbers as input and starts checking from the larger number to find the smallest value that is divisible by both inputs. For this, variables are required to store the inputs, the current test value, and the LCM. The program uses a loop and simple conditions to identify the common multiple.

Input variable	Processing variable	Output variable	Header file
a(int) b(int)	lcm, max → used to find LCM. Loop variable	LCM of the two numbers	#include <stdio.h>

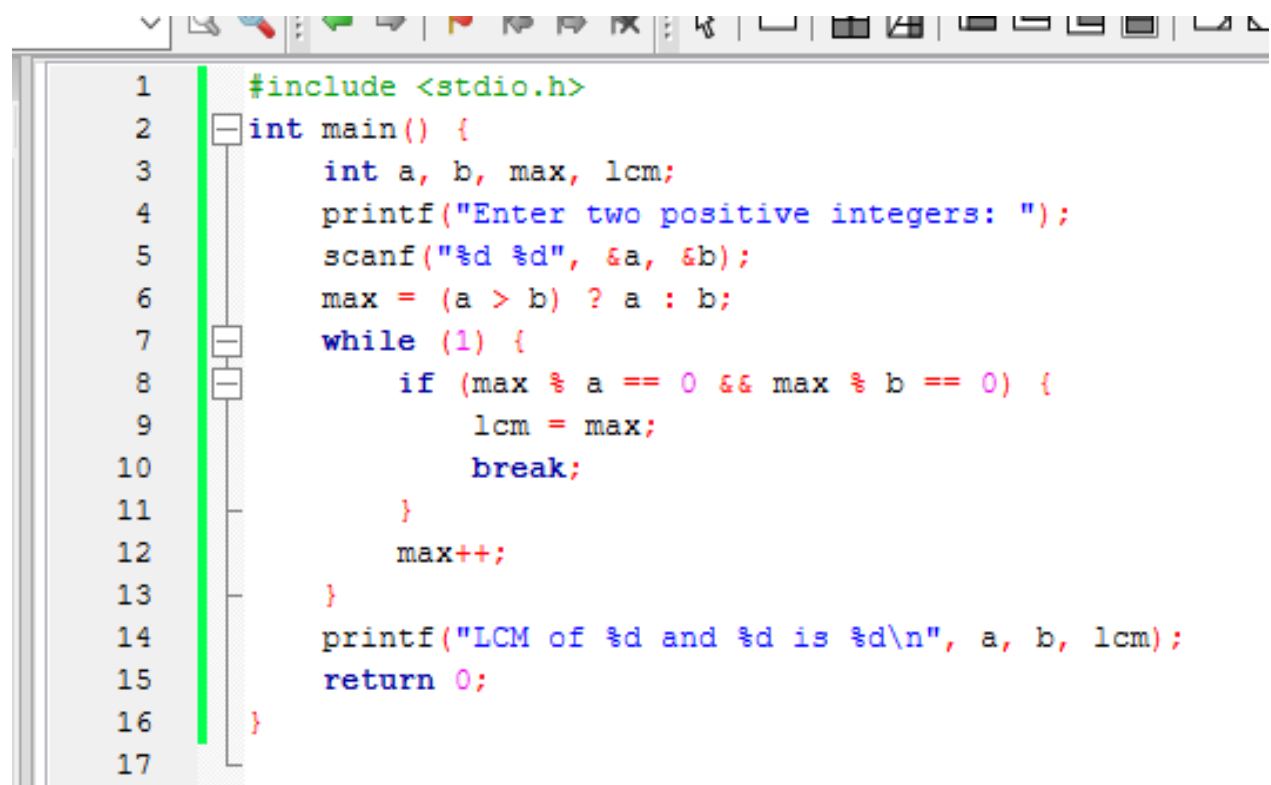
Algorithm:

1. Start
2. Declare variables a, b, lcm
3. Read two positive integers
4. Set max equal to the greater of a and b
5. From max, keep increasing by 1 until a number divisible by both a and b is found
6. When such number is found, that value is LCM
7. Print LCM
8. End

Flowchart:

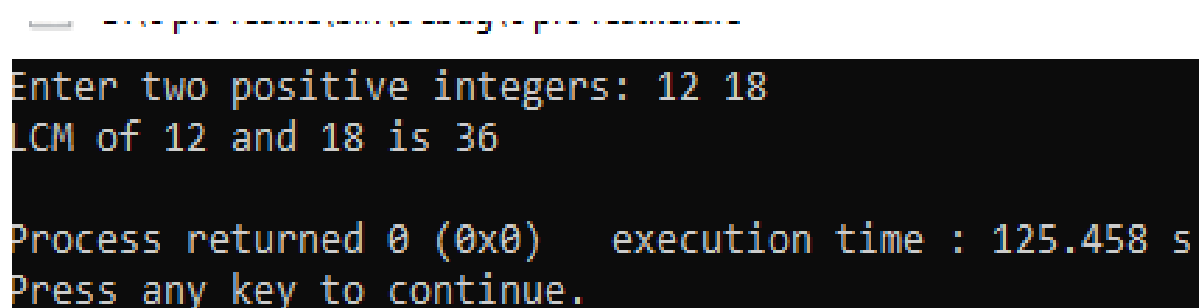


Source code:



```
1  #include <stdio.h>
2  int main() {
3      int a, b, max, lcm;
4      printf("Enter two positive integers: ");
5      scanf("%d %d", &a, &b);
6      max = (a > b) ? a : b;
7      while (1) {
8          if (max % a == 0 && max % b == 0) {
9              lcm = max;
10             break;
11         }
12         max++;
13     }
14     printf("LCM of %d and %d is %d\n", a, b, lcm);
15     return 0;
16 }
17
```

Output:



```
Enter two positive integers: 12 18
LCM of 12 and 18 is 36

Process returned 0 (0x0)   execution time : 125.458 s
Press any key to continue.
```

Discussion:

In this experiment, the LCM of two numbers is calculated by repeatedly checking numbers starting from the maximum of the two inputs. The LCM is the smallest number divisible by both integers. The program uses a loop and conditional statements to test divisibility. When a common multiple is found, the loop stops. This experiment helps understand iteration, decision-making, and mathematical operations in C programming.