Assignment - 12

Problem Statement:

Write a program in C to accept two numbers from the user and compute:

a) The **smallest common divisor** of the two numbers (other than 1, if any)

b) The **Greatest Common Divisor (GCD)** of the two numbers

Code:

```c
#include <stdio.h>

//Main:
int main()
{
    //Local Variables:
    int a, b, i, gcd, temp;
    int smallestDivisor = 0;

    //User Input:
    printf("Enter first number: ");
    scanf("%d", &a);

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

    // Finding smallest common divisor (other than 1)
    for (i = 2; i <= a && i <= b; i++)
    {
        if (a % i == 0 && b % i == 0)
        {
            smallestDivisor = i;
            break;
        }
    }

    if (smallestDivisor != 0)
        printf("\nSmallest Common Divisor: %d", smallestDivisor);
    else
        printf("\nNo common divisor other than 1");

    // Euclidean Algorithm for GCD
    int x = a, y = b;
    while (y != 0)
    {
        temp = y;
        y = x % y;
        x = temp;
    }
    gcd = x;

    printf("\nGreatest Common Divisor (GCD): %d", gcd);

    return 0;
}
```

Input & Output:

```
Enter first number: 24
Enter second number: 36

Smallest Common Divisor: 2
Greatest Common Divisor (GCD): 12
D:\MIT\Sem2\FOP\Leap Year\x64\Debug\Leap Year.exe (process 6564) exited with code 0 (0x0).
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Autom
le when debugging stops.
Press any key to close this window . . .
```