

```
1  /**
2   * The C program below is correct in its implementation of the math algorithms for finding the gcd and lcm,
3   * respectively. However, it is much better design to encapsulate the functionality of each of these algorithms
4   * into their own functions. Your task is to abstract away the details such that main() calls gcd() and lcm()
5   * and receives back the gcd and lcm of its two inputs. The function signatures are provided;
6   * implement them below main() where you see the TODO comment.
7   */
8
9  #include <cs50.h>
10 #include <stdio.h>
11 #include <stdlib.h>           // included in order to use abs()
12
13 int gcd(int x, int y);
14 int lcm(int x, int y);
15
16 int main(void)
17 {
18     int x = get_int("Enter a number: ");
19     int y = get_int("Enter another number: ");
20     int x_copy = x, y_copy = y;
21
22     // begin function gcd() to find the greatest common divisor
23     int gcd;
24     while (y != 0) {
25         gcd = y;
26         y = x % y;
27         x = gcd;
28     }
29     // end function gcd()
30
31     printf("The greatest common divisor of %d and %d is %d.\n", x_copy, y_copy, gcd);
32
33     // begin function lcm() to find the least common multiple
34     int temp = abs(x_copy * y_copy);
35     int lcm = temp / gcd;
36     // end function lcm()
37
38     printf("The least common multiple of %d and %d is %d.\n", x_copy, y_copy, lcm);
39 }
40
41 // TODO
```