6 Rational Number

6.1 GCD

You can compute the greatest common divisor (GCD) using the Euclid algorithm. The following code shows an implementation of the algorithm:

```c
#include <stdio.h>

int gcd(int a, int b) {
    // assuming positive numbers only
    if (a == b)
        return a;
    else if (a > b)
        return gcd(b, a);
    else
        return gcd(a, b - a);
}

int main() {
    int a, b;

    scanf("%d%d", &a, &b);
    printf("GCD(%d, %d) = %d\n", a, b, gcd(a, b));

    return 0;
}
```

Note that the above code works only for positive numbers.

6.2 Programming Lab 6: mulrat.c

Given two rational numbers, write a program computing the product of them. To represent a rational number, define the structure type named `Rational`. Your program should define two `Rational` variables and read the fields of them.

The result of the product should be printed in a simple fraction. For example, multiplying 1/2 and 4/3 results in 4/6 and your program should print 2/3 rather than 4/6. To simplify the rational number, it is convenient to calculate the GCD of the numerator and the denominator.

The input consists of two lines in standard input. Each of the input lines contains two positive integers, the numerator and the denominator of the rational number, separated by space. The integers are in the range of `int` type. Your program should print to standard output. Print the simple fraction of the product in the form of a/b where a and b are the numerator and the denominator of the product.

Additional requirements for bonus points

- Declare and use the type `Rational` to represent rational numbers using `typedef`.
- Check the quality of your code to confirm that there are no style issues.

Input	Output
1 2 4 3	2/3
1 4 2 6	1/12