

# 02393 C++ Programming Exercises

## Assignment 6

To be handed in via CodeJudge — <https://dtu.codejudge.net/02393-e21/assignments>

### 1 A class for fractions of integers

The goal of this assignment is to implement a class of fractions of integers supporting some basic operations like addition and multiplication. You can use the following interface for the class as a starting point and modify it at will:

```
class fraction {  
  
private:  
    // Internal representation of a fraction as two integers  
    int numerator;  
    int denominator;  
  
public:  
    // Class constructor  
    fraction(int n, int d);  
  
    // Methods to update the fraction  
    void add(fraction f);  
    void mult(fraction f);  
    void div(fraction f);  
  
    // Display method  
    void display(void);  
};
```

The main idea for the class above is that a fraction  $\frac{a}{b}$  is represented by two integers (the numerator  $a$  and the denominator  $b$ ) and several methods are provided to support arithmetic operations on fractions. For example:

- `fraction(int n, int m)` constructs the fraction  $\frac{n}{m}$ ;
- `void add(fraction f)` updates a fraction by adding fraction  $f$  to it.
- `void mult(fraction f)` updates a fraction by multiplying it by fraction  $f$ .
- `void div(fraction f)` updates a fraction by dividing it by fraction  $f$ .

**Your task.** Write a program that reads sequences of simple expressions from `cin`, each having one of the following forms:

- `a / b + c / d`
- `a / b * c / d`