

## CS250 Intro to CSII

### Classes Lab

**Problem:** A rational number is defined to be any number that can be expressed in the form  $p/q$  where  $p$  and  $q$  are each integers and  $q$  is not equal to 0.

In your CS250InClass Solution, create a new project called Rational. Then do the following:

- 1) Create a class called Rational with two private members representing  $p$  and  $q$  in the above definition of a rational number. Further, create a constructor with default values of 0 and 1 for  $p$  and  $q$  respectively. The class Rational is to be created in a header file named Rational.h.
- 2) Implement the constructor for the class Rational in a file named Rational.cpp.
- 3) Write a driver in RationalDriver.cpp that creates two Rational objects where one is created using the default constructor and the other creates a Rational object representing the rational number 4 ( $p = 4, q = 1$ ).
- 4) Add a public print function to **Rational** that will print a Rational object in the form  $p/q$ . The print method is to accept an ostream object. Print both rational numbers to the screen.
- 5) In the driver, create Rational objects to represent  $2/3$  and  $4/5$  and then print out each object.
- 6) Add a function **equals** to class Rational that returns true if both Rational objects are equal; otherwise, false is returned. Test your method.
- 7) Add a function **multiply** to class Rational that multiplies two Rational objects and returns a Rational object.