CSC 204 Lab 7: Using Classes and Objects Again

In this lab, you'll practice using String, one of the Java built-in classes, and Fraction, a user-defined class. You'll also get to practice using the Scanner class and printf.

Lab Preparation

To prepare for this lab, read through this lab carefully. Also, be sure you have read the material on classes and objects in Chapters 2 and 3. Review the String class and read “Formatting Numbers” on page 167 in our textbook.

Materials Needed

Be sure you have the following on hand during the lab.

- This sheet
- Your course text
- The handout on the Fraction class, attached

Lab Setup

Create a new project and copy over the files you will need from Blackhawk.

Part 1: Using the String Class

1. The String class has a wide variety of methods available to manipulate it. Take a look at a few of these on your class handout. We're going to try some of these out with a program to remove "cute comments" from names. Consider the name:

   Henry "Hammerin' Hank" Aaron

   which, without the quotes would just be:
   Henry Aaron

   The process to do this with String methods is:

   - Find the location of the first double quote (") in the String, using indexOf. In the example above, that would be 6.

   - Take a substring from the first character (in position 0) to the location you found in the previous step. You'll need to use the version of substring with two parameters. Call the substring firstName. In the example above, that would give you "Henry " (without the quotes).

   - Trim the blank spaces off the ends of firstName, using the trim method. In the example above, that would give you "Henry" (still without the quotes).

   - Find the location of the last double quote (") in the String, using lastIndexOf. For the example above, the index would be 21.
• Take a substring from the space after the last double quote (whose position you found in the previous step) to the end of the string. You'll can use the version of substring with one parameter. Call this substring lastName. For the example above, this would be "Aaron" (again, without the quotes).

• Trim the blank spaces off the ends of lastName, using the trim method. For the example above, this would be "Aaron" (you guessed it, without the quotes).

• Create and print a new string consisting of the first name, a single space, and the last name.

Each of these steps is a single method in the String class.

2. In the file ConvertName.java, add the code necessary to convert a name. There are comments to describe each line. Get the program to compile and run.

Part 2: Using the Fraction and String Class Together

First you should read through the Fraction.java class definition to understand what a ‘Fraction’ is. Now that you’ve seen how to pull pieces out of a string, edit the program in TestFraction.java so that it takes as input a string with a slash dividing the numerator and denominator. You’ll search for the ‘/’ instead of the double quote to pull out the pieces you need.

You should use Integer.parseInt to convert a String to an int. For example,

```
int myNum = Integer.parseInt("62");
```

will assign 62 to myNum.

A complete run of your program should look like (with user input in boldface):

```
Enter a fraction: 6/9
How many digits of significance? 2

2/3 rounded to 2 digits of significance is 0.67
```

You're getting much less guidance on this section—feel free to ask questions, but this is the level of work you should be able to do mostly on your own.

Deliverables
Send copies of your programs to your instructor.