Assignment #1 – RationalSet in Java using IntelliJ

Date assigned: Tuesday, January 6, 2015
Date due: Wednesday, January 7, 2015
Points: 20

In the folder CS260-01Public on grace are Java files that you will use to create an IntelliJ project called Rational. Your completed project will contain the following:

1. Rational.java - the implementation of a Rational class
2. RationalDriver.java - a basic driver used to test the Rational class
3. RationalTest.java - a JUnit class used to test each method of a Rational class
4. **RationalSet.java** - the stubs of a RationalSet class that contains methods in which you are to write the correct Java code to implement each method based on the documentation provided.
5. RationalSetDriver.java - a basic driver used to test the RationalSet class
6. **RationalSetTest.java** - a JUnit class that you must implement to throughly test each method of the RationalSet class. Part of your grade will be based on the test class you write for RationalSet. That is, is the test class complete and does the test class correctly test the RationalSet class.

You are to implement the two classes in bold above as described. For this assignment, you are to assume that ALL values are positive.

Goals for Assignment #1:

1. Write a Java application using multiple classes
2. Understand the concept of packages to better organize classes
3. Use good OOP techniques in implementing your solution
4. Use the Java API which has a rich library of routines (e.g. Vector, Stack)
5. Use JUnit framework for testing classes
6. Use the IntelliJ IDEA for project development and testing

Specifics:

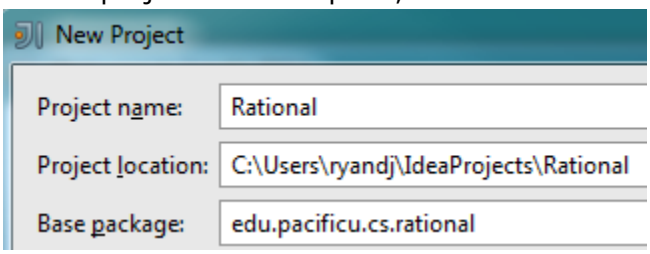
1. Create a folder called your PUNetID, place a copy of Rational in your PUNetID folder, and drop PUNetID into CS260-01Drop on grace. Your code is to be written using the development tools specified in the syllabus and using the Java coding standards on the course Web page.

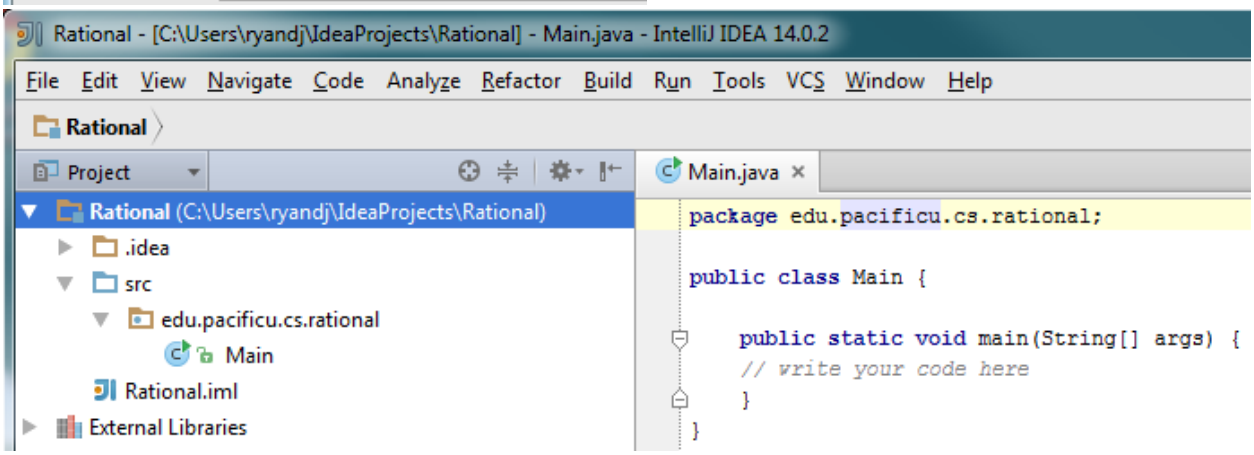
2. If you come to me with a question regarding your solution, I will have you load your project onto a machine in the CS lab. I will not look at your code on your computer or on paper as it just takes me too long to get at the problem. Further, I want you to bring in your lecture notes in case I want you to look up something. Remember, I'm not just a tell you the answer guy. Make sure you understand how to use the developer tools and that you can run your program in Eclipse.

3. If you want help with a compiler error, you must be able to tell me exactly what statement you put in your code that caused the error and be able to isolate the error. If you have typed in a bunch of code and have not tested your code as you've gone along, I'm not going to help you sort out the mess. You've been warned!!

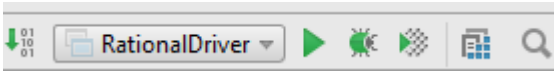
4. IntelliJ keyboard shortcuts https://www.jetbrains.com/idea/help/keyboard-shortcuts-you-cannot-miss.html

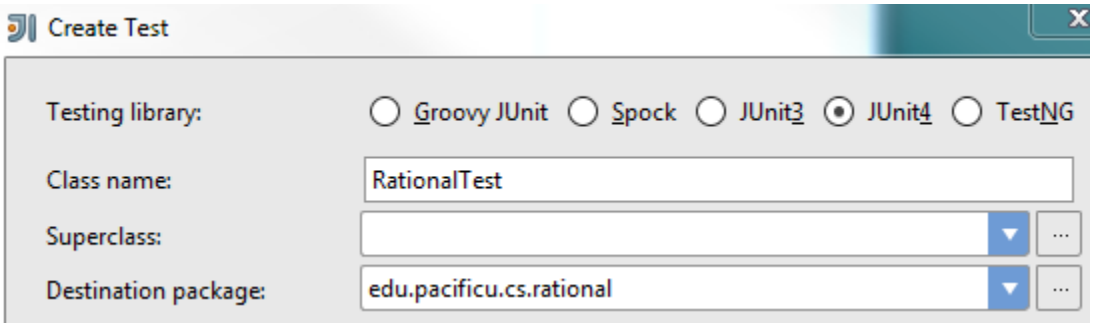
As a class, let's build the Rational project using the given files:

1. Start IntelliJ, Create New Project, Project Java/SDK 1.8, Click Next
2. Create project from template, Click Next
3. 

4. 

5. Right click on package edu.pacificu.cs.rational and create a new Java class called Rational.
6. Copy Rational code from grace into the IntelliJ Rational class
7. Right click on Main, Refactor, Rename, RationalDriver.java
8. Copy RationalDriver code from grace into the IntelliJ RationalDriver class
9. Run 

10. Change Main to RationalDriver 

11. Click on Rational.java and place cursor after public class Rational, hit Alt & Enter and select Create Test
12. Select JUnit4 (you might see a Fix button to click on)


13. Copy RationalTest code from grace
14. Run the JUnit test
15. Create a folder called your PUNetID, place a copy of Rational in your PUNetID folder, and drop into CS260-01Drop on grace

Finish the assignment as described above. That is, add the completed/correct Java code to RationalSet.java and RationalSetTest.java