

CSSE 220—Object-Oriented Software Development

Exam 2 – Part 2, Feb. 2, 2015

Allowed Resources on Part 2. Open book, open notes, and computer. Limited network access. You may use the network only to access your own files, the course Moodle and Piazza sites (but obviously don't post on Piazza) and web pages, the textbook's site, Oracle's Java website, and Logan Library's online books.

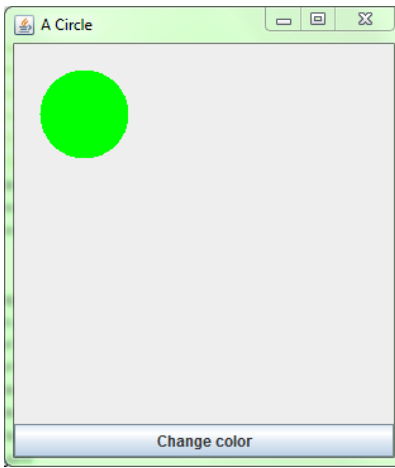
Instructions. *You must disable Microsoft Lync, IM, email, and other such communication programs before beginning part 2 of the exam. Any communication with anyone other than the instructor or a TA during the exam may result in a failing grade for the course.*

You must actually get these problems working on your computer. Almost all of the credit for the problems will be for code that actually works. There are several different small methods to write, so you can get a lot of partial credit by getting some of them to work. If you get every part working, comments are not required. If you do not get a method to work, comments may help me to understand enough so I can give you (a small amount of) partial credit.

Begin part 2 by checking out the project named *Exam2-201520* from your course SVN repository. (Ask for help immediately if you are unable to do this.)

When you have finished a problem, and more frequently if you wish, **submit your code by committing it to your SVN repository.** We will check commit logs, so you must be careful not to commit anything after the end of the exam. For grading, we will ensure that the included JUnit tests have not been changed.

Part 2 is included in this document. **Do not use non-approved websites like search engines (Google) or any website other than those above.** Be sure to turn in these instructions, with your name written above, to your exam proctor. You should not exit the examination room with these instructions.



The window after adding the button for Part 1.

Problem Descriptions

Part C1: Recursion Problems (15 points)

The class Recursion contains 4 recursion problems (test cases are also included). *You only need to solve 3 of the 4 problems.* Leave the problem you chose to skip blank and leave a comment says that you skipped it. These problems must be solved with recursion - a working solution with loops is only worth 1/5 of the credit.

Part C2: HashMap Problem (5 points)

The class HashMapProblem contains 1 HashMap problem.

Part C3: Responsive Circle (15 points)

- Stage 1 (5 points) The given code draws a circle on a window. Add a button below that with the text “Change Color” (see example above). Clicking the button should print the text “Button Clicked!” to the console.
- Stage 2 (5 points) Modify the button code so in addition to printing, it changes the color of the circle. The circle should alternate between green and blue. *HINT: Don't forget to call repaint!*
- Stage 3 (5 points) Modify the code so that the circle follows the mouse as you move it around the screen. To do this, you'll have to write some code the implements the MouseMotionListener interface. You can see details on this interface here:

<http://docs.oracle.com/javase/7/docs/api/java/awt/event/MouseMotionListener.html>

This is a slightly trickier step so you should probably solve it last.