CMPSC 111
Introduction to Computer Science I
Fall 2014
Janyl Jumadinova

Lab 4 for Sections 01 and 02
25 September 2014
Due Thursday, 2 October by 2:30pm

Objectives

To gain more experience using Java Graphics methods, learn to creatively use appropriate methods to create a stunning piece of art, get familiar with how two Java classes may interact.

General Guidelines for Labs

- **Work on the Alden Hall computers.** If you want to work on a different machine, be sure to transfer your programs to the Alden machines and re-run them before submitting.
- **Update your repository often!** You should add, commit, and push your updated files each time you work on them. I will not grade your programs until the due date has passed.
- **Review the Honor Code policy.** You may discuss programs with others, but programs that are nearly identical to others will be taken as evidence of violating the Honor Code.

Reading Assignment

To learn more about Java Graphics, review Sections 2.7–2.9 in your textbook.

Obtain the Given Template Programs

In the course's shared repository, after you type `git pull` command, go to the `lab4 directory`, where you will find two Java programs: `Lab4Test.java` and `Lab4.java`. Copy `lab4` directory from the shared repository to your own `cs111F2014-<your user name>` repository inside `labs` directory.

Creating a Java Masterpiece Drawing

In `Lab4Test.java` program, you need to add a comment header with the Honor pledge, your name, date, lab number and the purpose of the program. Then you need to modify line that starts with `JFrame window` by printing your own name. This is all you need to do for this class. You should also note that you may change the size of the window by modifying the width and the height in the `window.setSize(600, 400);` line.

In `Lab4.java` program you will create your drawing. First, add a comment header to this class as well. Then, try to come up with some interesting, yet simple image ideas: a cactus in a pot,

a hat on a face, a fish in the sea, or something more innovative. Then try to figure out a way to draw them using only rectangles, ovals, arcs, and straight lines. Finally, try to translate your idea into Java methods like `fillRect`, `drawOval`, `fillArc`, `drawLine`, etc. Notice that the name of the Graphics object is `page`, so to use a method `fillRect` you will need do something like: `page.fillRect(10,10,50,50)` as shown in class. You may find it helpful to create your drawing on paper first!

Program Requirements

- The `paint` method in the `Lab4` class must have at least **ten** objects (these could be things like rectangles, ovals, arcs, strings, or lines), of at least **three** different types.
- Your drawing should be a concrete representation of something, it can not be just randomly placed rectangles and ovals.
- Your program should declare and use integer variables to keep track of the location of the object(s) instead of only using literals.

Remember to compile both files (`Lab4.java` and `Lab4Test.java`), you may use `javac *.java` command to compile all the java files in your directory. You only need to run `Lab4Test.java` since it is the one that contains the main method, and then look for the pop up window (with a Java symbol). You should compile and run your programs incrementally after drawing each object, instead of waiting until you finish entering commands for your entire drawing.

Required Deliverables

For this assignment you are invited to submit electronic versions of the following deliverables through the Bitbucket repository. As you complete this step, you should make sure that you created a `lab4/` directory within the Git repository. Then, you can save all of the required deliverables in the `lab4/` directory—please see the course instructor or a teaching assistant if you are not able to create your directory properly.

1. A completed, properly commented and formatted `Lab4.java` and `Lab4Test.java` program. Please make sure that your programs include the comment header file with the Honor code, your name, date and the description of the program.
2. An output (your drawing) from running `Lab4Test` in the terminal window. You can take a screenshot of your output, paste in into another software (LibreOffice, gimp, etc.) and save it. Please see the instructor or a teaching assistant if you have questions about creating an electronic version of your output.

Share your program and the output file with me through your Git repository by correctly using "`git add`", "`git commit`", and "`git push`" commands. When you are done, please ensure that the Bitbucket Web site has a `lab4/` directory in your repository with the three files called `Lab4.java`, `Lab4Test.java` and `output`. You should see the instructor if you have questions about assignment submission.