CIS2168 006 Fall 2015 Lab 1

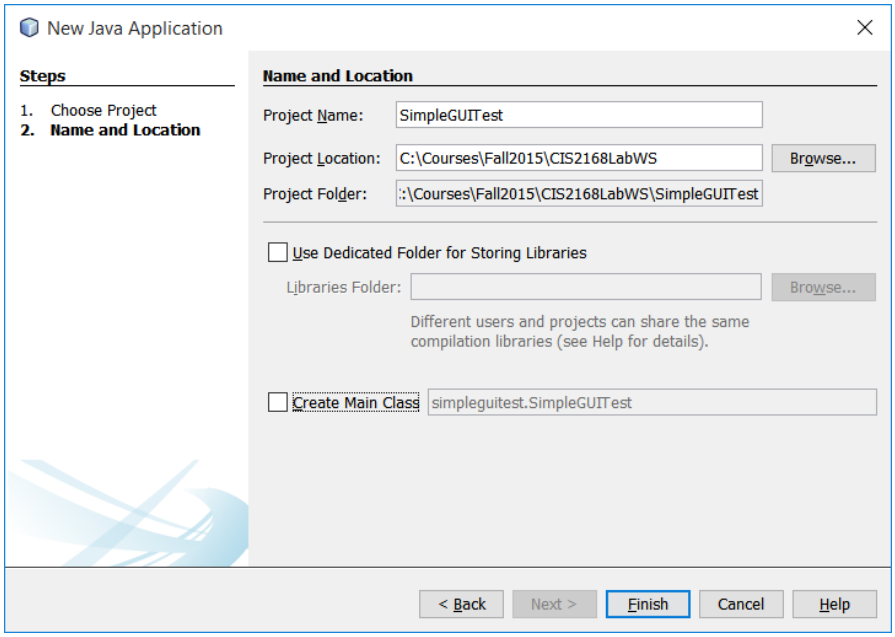
Introduction to SimpleGUI, and Assign#1: Image Pixelization

1. NetBean IDE
   You are expected to have known how to do the following:
   - Create a Project
   - Create a class in a project
   - Run a class that has a main() method
   - Debug your code: set breakpoint, step into, step over

   If you don't know all, please read the tutorial:

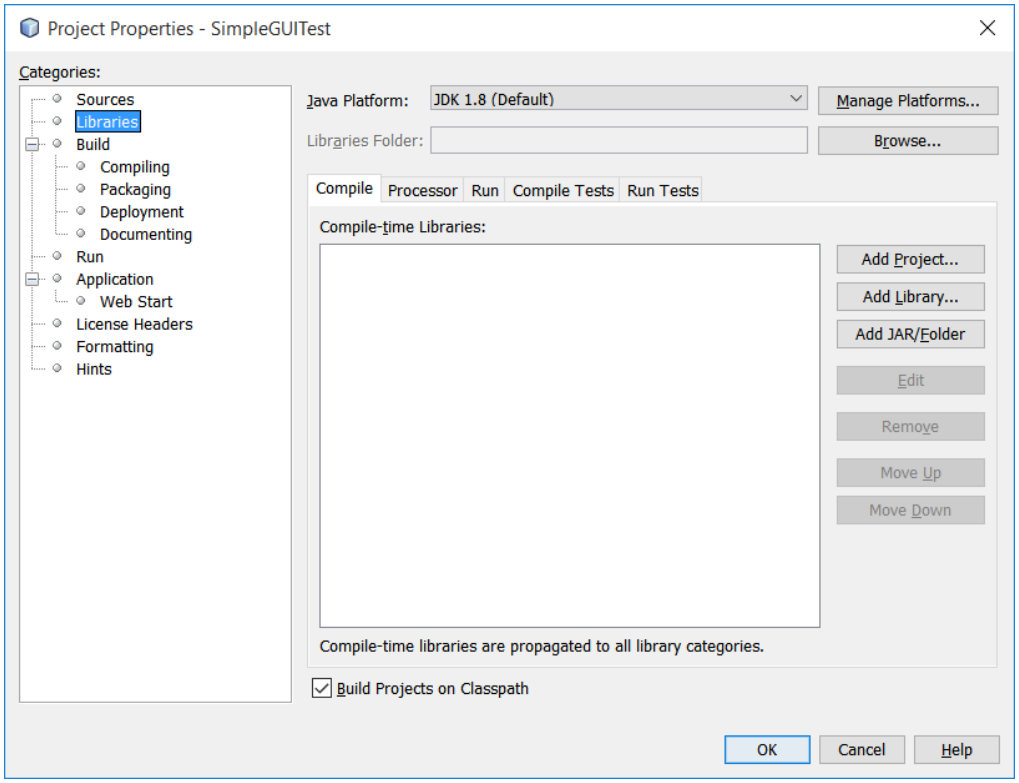
   - https://netbeans.org/kb/docs/java/quickstart.html
   - http://cs.armstrong.edu/liang/intro9e/supplement/Supplement2dNetBeans6.pdf

2. Introduction to SimpleGUI
   a. Site: https://sites.google.com/a/temple.edu/simplegui/
   b. Download the SimpleGUI.jar file and save it in any folder
      i. The jar file contains two java packages: one is the demo programs with package name demos. The other is the real java classes for you to use in your own program. The package name is simplegui.
   c. Setup your java project and your java class for using SimpleGUI programs.
      i. Create a folder named CIS2168LabWS, which will be used for all programs in this lab session. You only need to do this once for this course.
      ii. Create a java project named SimpleGUITest. Select the folder CIS2168LabWS as the project location. Uncheck the option: Create Main Class: simpleguitest.SimpleGUITest.

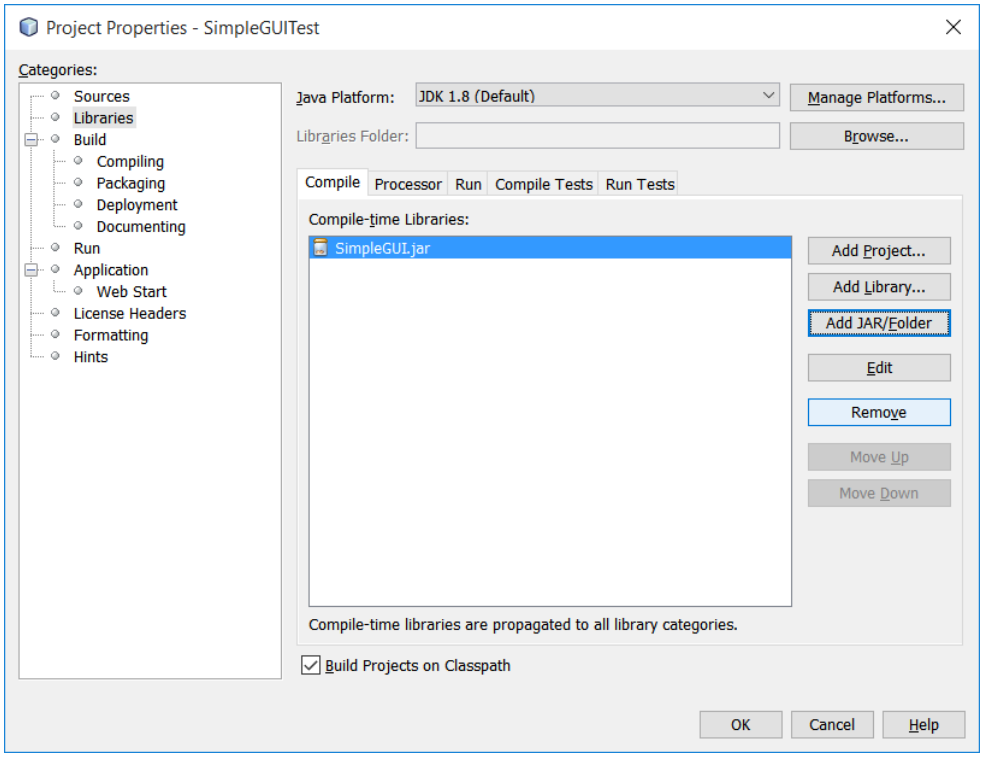


      iii. Copy the downloaded simplegui.jar into your java project folder SimpleGUITest.
      iv. Add simplegui.jar to the library of the project SimpleGUITest.
         1. Right-click the project name: SimpleGUITest in NetBean IDE. Then click on *properties*. A window appears. In the *Categories* section, click on *libraries*. The following window

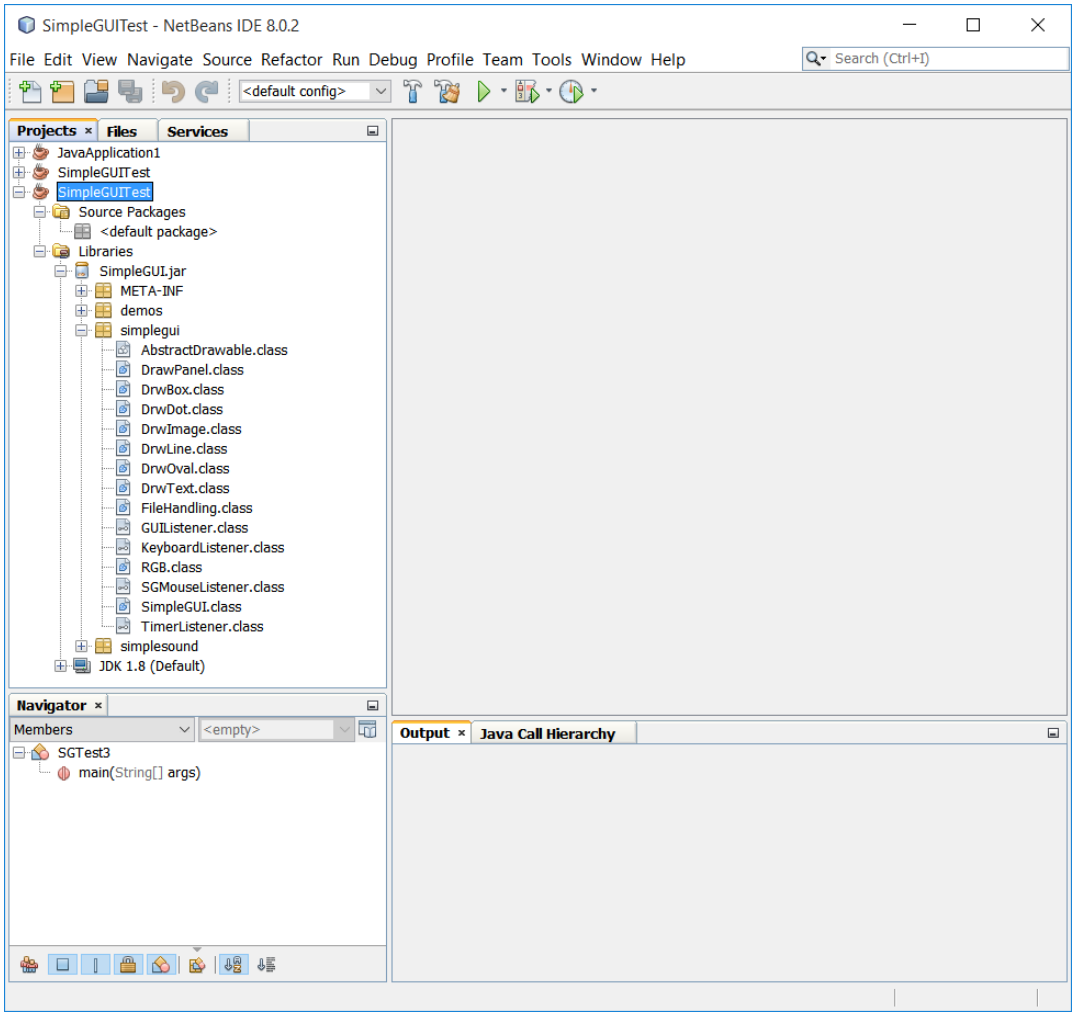
appears:



2. Click on "*Add JAR/Folder*"
3. Select the file "*SimpleGUI*" from the location where you just stored it.
4. Check "*Relative Path*" on the right side.
5. Click "*Open*". You should see this window:



6. Then click "OK". And you are done.
7. In the project explorer in NetBean IDE, expand your project library. You should see this view.



v. Create a java Main class named SGTest1 in the project SimpleGUITest. You can leave the package name empty. The class will be placed in the default package. The class will use SimpleGUI classes.

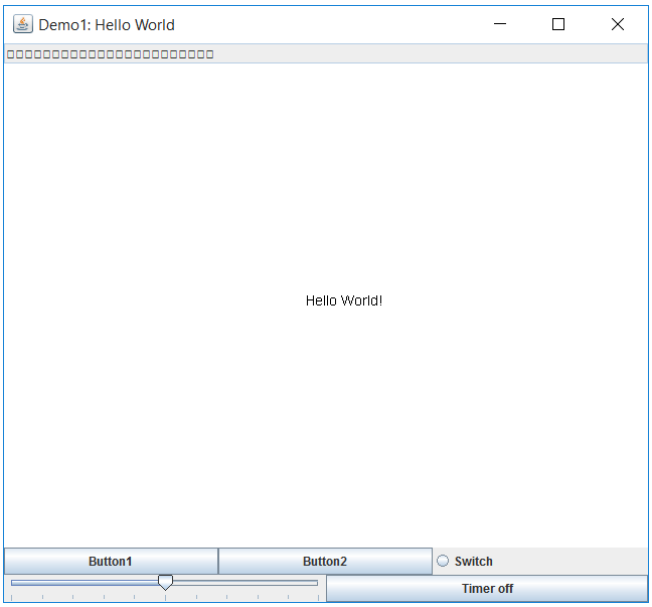
vi. In the class SGTest1, enter these lines to import classes from the SimpleGUI library.

```
import simplegui.*;
```

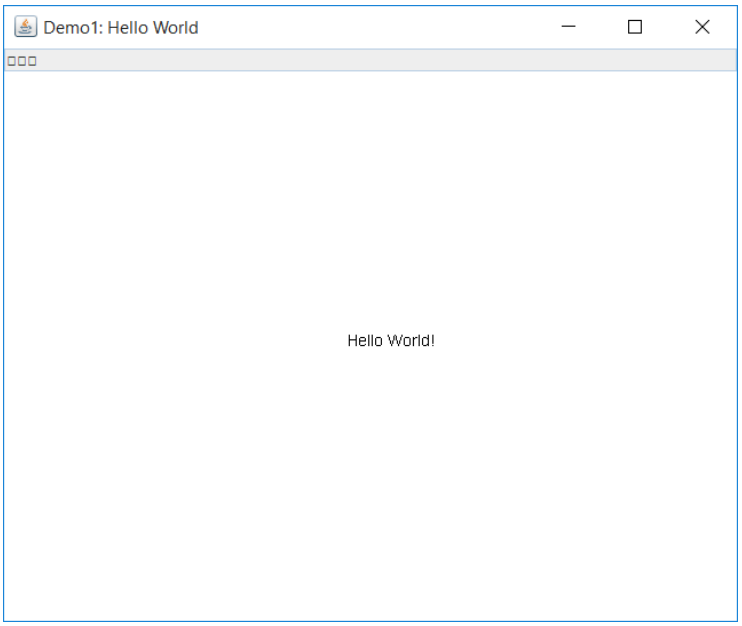
d. Add the following code to the main() method in SGTest1.java, so that it will display Hello World! in the middle of the GUI Window.

```
SimpleGUI sg = new SimpleGUI();
sg.setTitle("Demo1: Hello World");
sg.drawText("Hello World!", 300, 240);
```

Run the class SGTest1 and see the output.



e. Change `new SimpleGUI()` to `new SimpleGUI(false);` Run the class SGTest1 again and see the output. See the difference that false makes.



f. Download the image duck.jpg from the blackboard and save it to your project folder SimpleGUITest.

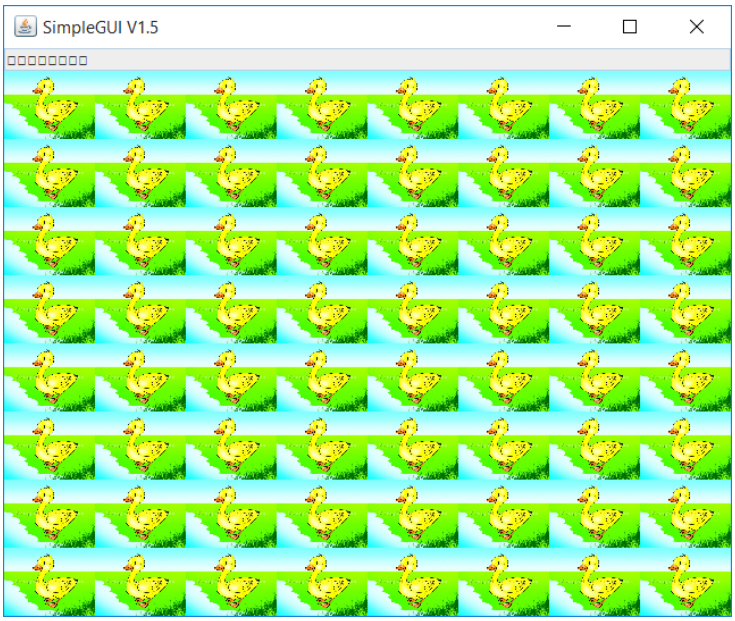
g. Create another java Main class named SGTest2.java. Enter the following code so that it will use SimpleGUI classes to display the image duck.jpg on the GUI interface window. Run the class. See the output.

```
import simplegui.*;
public class SGTest2 {
    public static void main(String[] args) {
        SimpleGUI sg = new SimpleGUI(false);
        //draw the image at location (x, y) = (0, 0)
        sg.drawImage("duck.jpg", 0, 0);
    }
}
```

h. Create java Main class named SGTest3.java. Enter the following code.

```
import simplegui.*;
public class SGTest3 {
   public static void main(String[] args) {
      SimpleGUI sg = new SimpleGUI(false);
      for (int r = 0; r < 480; r += 60) {
         for (int c = 0; c < 640; c += 80) {
            //draw the image at location (x, y) = (c, r),
            //  The displayed image width: 80, height: 60 pixels
            //Ignore "null" at this time.
            sg.drawImage("duck.jpg", c, r, 80, 60, "null");
         }
      }
   }
}
```

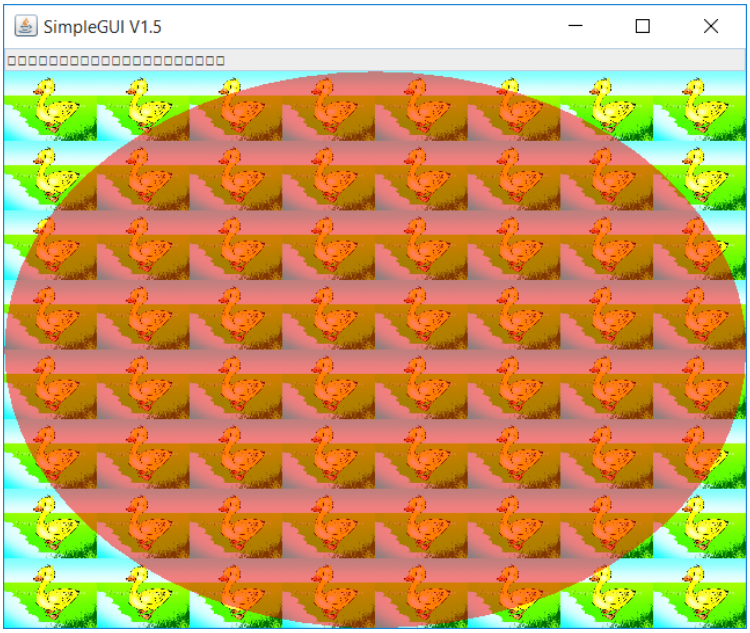
Run the class and see the result:



i. And add `import java.awt.Color;` to the beginning of the file. Add the following line at the end main() of the class SGTest3.java.

```
//draw a filled ellipse at (x,y) = (0,0), (width, height) = 640, 480
// color is red, transparency value being 0.5.
sg.drawFilledEllipse(0, 0, 640, 480, Color.red, 0.5, "null");
```

Run the class and see the result:



j. Create a Main class named SGTest4 with the following code.

```
import simplegui.DrwImage;
import simplegui.RGB;
import simplegui.SimpleGUI;

public class SGTest4 {
   public static void main(String[] args) {
      SimpleGUI sg = new SimpleGUI();
      DrwImage im = new DrwImage("duck.jpg");
      sg.drawImage(im, 0, 0, -1, -1, null);

      sg.waitForButton1();
      for (int c = 0; c < im.getWidth(); c++) {
         for (int r = 0; r < im.getHeight(); r++) {
            RGB rgb = im.getPixelRGB(c, r);
            im.setPixelRGB(c, r, rgb.g, rgb.b, rgb.r);
         }
      }
      sg.drawImage(im, 0, 0, -1, -1, null);
   }
}
```

3. See details of Assign#1 in file: Assignment01_ImagePixelization.pdf.