

Lab 2

Lots of Squares

CSCI 1101B – Fall 2014

Due:
September 28, 10 pm (Monday lab)
September 29, 10 pm (Tuesday lab)

In this lab you will create a program that allows the user to create and move numbered squares of random size and color in a canvas window, and to print out information about the squares in an output window. Figure 1 shows a sample of the canvas window with 12 squares and Figure 2 shows the corresponding information in the output window.

What Your Program Needs to Do

When the user starts your program, a blank canvas window should appear. When the user presses the mouse at a point in the canvas window, three things should happen:

- A square should appear in the *canvas* window with:
 - a side length chosen randomly from 30 to 200 pixels inclusive,
 - a random color from the entire range of colors,
 - a black outline, and
 - the number of the square (the first square drawn is 1, the second square drawn is 2, etc.) in the square's lower-right corner.

The square, however, should be drawn so that the mouse arrow is pointing to the *center* of the square, not the upper-left corner. Also, please leave a little space to the right of and below the square number so it's not pushed right into the corner. Note that the square number will be hard to read on dark squares, but that's fine. Also, if a square is positioned over a previous square it will (and should) obscure the part of the previous square it covers including, possibly, the previous square's number. An example window with 12 squares is shown in Figure 1.

- The square number, size, and color should be printed in the *output* window using the formatting shown in Figure 2.
- The user should be able to drag the square to any position on the canvas window until the mouse is released. Of course, nothing about the square (size, color, or number) should change while it is being moved. Also, the mouse arrow should continue to point to the center of the square.

When the mouse is moved out of the canvas window, the entire canvas should clear. If the user moves the mouse back into the window, the user should be able to start all over again. Also, when the mouse re-enters the canvas window, print 3-4 blank lines to the output window to clearly indicate that the information that will be printed is from a new set of squares.

Be sure to declare and use named constants where appropriate, e.g. (but not limited to) the minimum and maximum square side lengths.

Submitting Your Work

Please submit your program via Blackboard. **IMPORTANT:** We need your whole BlueJ project folder. This folder should be given a name that is composed of your login id and the lab number. Because of the way Blackboard works, you can only submit a file (not a folder), so you need to compress the folder. On a Mac, make it into one file by **right-clicking** (or, if you have no right mouse button, **control-clicking**) on the folder and selecting “Compress your-folder-name” from the menu that appears. On a Windows machine, make the folder one file by browsing to the folder, **right-clicking** on the folder, selecting “Send To,” and then selecting “Compressed (zipped) Folder.” In either case, you will now have a `.zip` file that contains your project.

This is the file you should upload to Blackboard. Do this by going to the **Lab Submissions** section in your appropriate lab section. Click on **Lab 2** and then **Start New Submission**. In Section 2, you can, but do not need to, provide any comments. Then select **Browse My Computer** and browse to the `.zip` file you created. Select that file, then click on **Submit**. **You’re done submitting your lab, but remember to save a copy of your project folder somewhere other than on the desktop of the machine you are working on.** If you just leave it on the desktop, it will only be available on that machine—if you log into any other machine on campus, it will not be there. I would suggest that you keep a `CSCI-1101B-labs` folder containing your labs, the `objectdraw` library, and the starter classes in Dropbox (or some other cloud) or in your folder on the `microwave` server. If you decide to keep it on the `microwave` server, remember that you should not work directly on files on microwave. You need to copy them to a “local” area first, such as the Desktop.

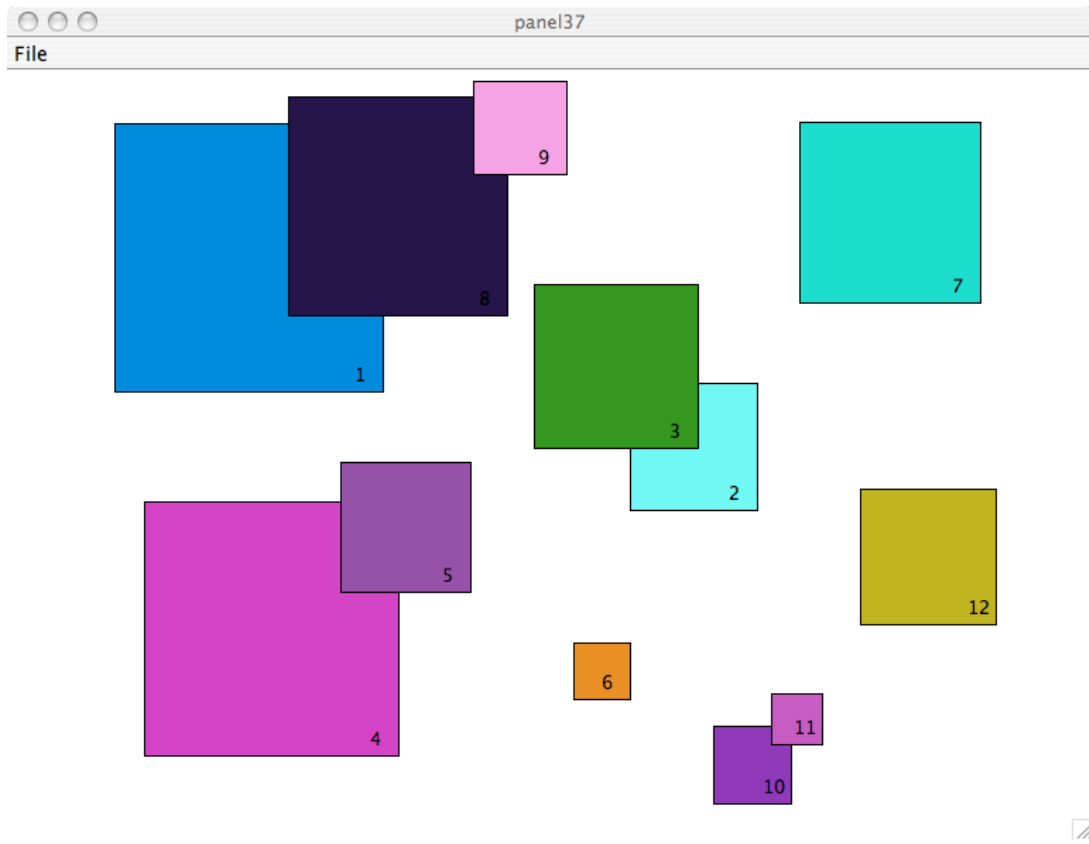
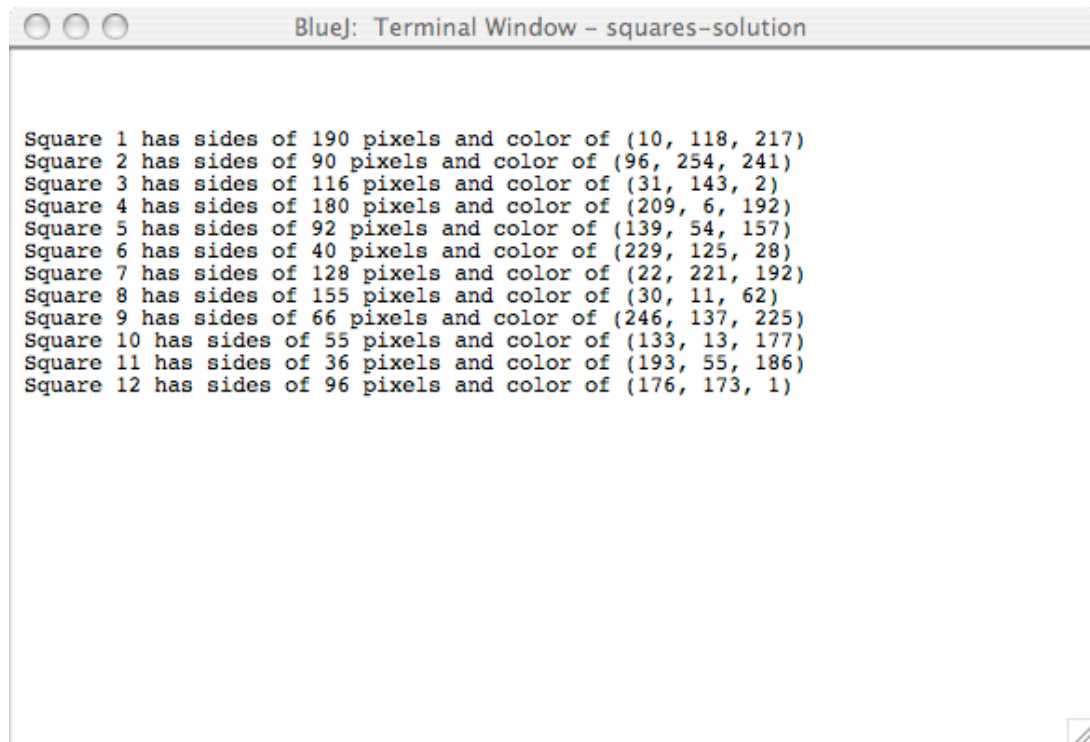


Figure 1: A sample canvas window with 12 squares.



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BlueJ: Terminal Window - squares-solution

Square 1 has sides of 190 pixels and color of (10, 118, 217)
Square 2 has sides of 90 pixels and color of (96, 254, 241)
Square 3 has sides of 116 pixels and color of (31, 143, 2)
Square 4 has sides of 180 pixels and color of (209, 6, 192)
Square 5 has sides of 92 pixels and color of (139, 54, 157)
Square 6 has sides of 40 pixels and color of (229, 125, 28)
Square 7 has sides of 128 pixels and color of (22, 221, 192)
Square 8 has sides of 155 pixels and color of (30, 11, 62)
Square 9 has sides of 66 pixels and color of (246, 137, 225)
Square 10 has sides of 55 pixels and color of (133, 13, 177)
Square 11 has sides of 36 pixels and color of (193, 55, 186)
Square 12 has sides of 96 pixels and color of (176, 173, 1)
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Figure 2: Output window information corresponding to the canvas window in Figure 1.