1001ICT Introduction To Programming 1 2013-2
Laboratory 9

School of Information and Communication Technology
Griffith University

September 20, 2013

When	Teaching week 10
Goals	In this laboratory you will create programs that draw in a window.
Marks	6

1 Preparation

Before your lab class:

- Print these lab notes. You need to refer to them *a lot* before the lab class and during it.
- Read sections 20 and 21 of the lecture notes.
- Browse the `graphics` environment documentation available at http://www.ict.griffith.edu.au/arock/itp/students/mash/.
- You can start work before your lab class. If you can't write the complete programs, you could at least create the program files, with header comments, imports, and `main` method.

2 Pre-laboratory questions (1 mark)

Using the background information above and the latest version of the documentation for the `graphics` environment, answer the following questions in the space provided, *before your laboratory class.*

1. Can the `paintWindow` method be called directly from the `main` method? _____
2. What method can you use to draw the outline of a rectangle? _____
3. What method can you use to draw a filled in circle? (Hint: a circle is a special case of what other shape?) _____
4. What RGB values give black? ___ ___ ___
5. What RGB values give white? ___ ___ ___
6. What RGB values give green? ___ ___ ___

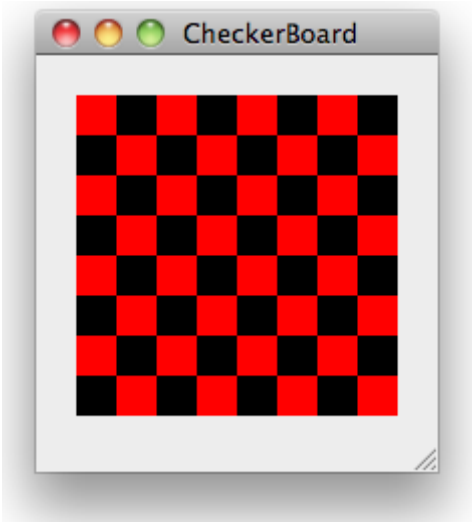
3 Activities

3.1 Graphics program 1 (1 mark)

- Modify the `RedBox1` program (from the lecture notes) so that instead of a red box, it draws a yellow circle.

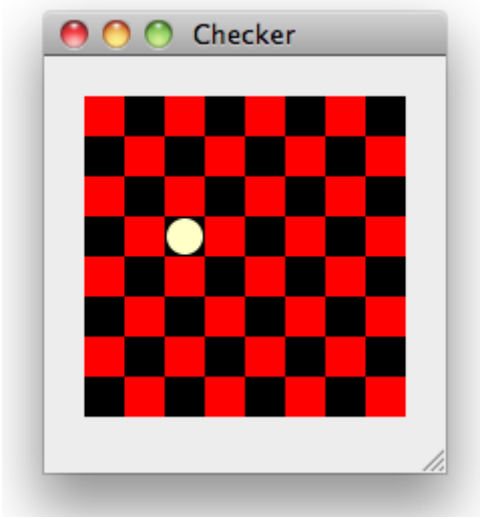
3.2 Graphics program 2 (2 marks)

- Create a program that draws a checkerboard of alternating red and black squares like this:



3.3 Graphics program 3 (2 marks)

- Modify the checkerboard program so that on one of the black squares it draws a checker, like this:



- Animate the program by making the checker jump instantly to a random adjacent black square every second.

3.4 Graphics program 4 (no marks, just kudos)

- Create a program that draws a Yin Yang like this:

3.5 Graphics program 5 (no marks, just kudos)

- Animate the Yin Yang, so that the black areas slowly fade to white and vice-versa so that the blacks and whites continually change places.
- Hint: Use a global variable that remembers what gray level the paintWindow used last time it ran.

3.6 Graphics program 6 (no marks, just kudos)

- Animate the Yin Yang, so that it appears to spin.

3.7 Graphics program 7 (no marks, just kudos)

- Modify the animated checkerboard so that the checker moves smoothly from one square to another.

4 After the Laboratory

- Organize the work you have done into folders on your network drive.