Computer Science III Honors
Queues
Screen Saver Lab

Purpose:
Demonstrate knowledge of the queue ADT. For this assignment you will complete a program using Java's Queue interface. You are completing this program without knowledge or even concern for how the Queue interface is implemented.

The supplied program (all classes are in ScreenSaver.java) needs to be improved to behave like a screen saver. It currently draws 100 circles which continue off of the Graphics window. No circles are erased. All circles have a diameter of 30 pixels.

You need to modify the program so that it draws circles that "bounce" off the edges, and erase themselves after a certain number of circles are displayed. This is an ideal problem for a queue data structure. Every set of circle's top-left coordinates needs to be stored in a **Queue**. After **50** circles are drawn the coordinates must be dequeued and the previous circles need to be erased.

The Circle class is incomplete. You need to complete hitEdge and eraseCircle.

Create a **Coord** class which stores **x** and **y** coordinate values. Objects of this **Coord** class need to be enQueued on the queue as each circle is drawn.

Complete the paint method in the **GfxApp** class to use the **Queue** in such a way that it becomes a screensaver and erases circles in a **FIFO** manner.

Bonus Specifics
The bonus version allows the user to use 2 **JOptionPane** windows to specify the number of circles to be displayed at a time (**circleCount**) and the diameter of the circle (**circleSize**). These values are sent to an altered constructor of the **GfxApp** class. Since the diameter of the circles will not always be the same, one or more methods will need to be altered to adjust for this.

Bonus Output #1