CS211 BONUS Programming Assignment: Game of Life

In this assignment, you will use what you know about classes, objects, and multidimensional arrays to create John Horton Conway’s Game of Life. Please include a short comment at the beginning of your program with a description and your name. At the beginning of each class and method please also include a short comment. You are limited to the Java language features in Chapters 1-8(?) as well as multidimensional arrays.

Game of Life is a two-dimensional grid where each square represents a cell. On each turn the cell may become alive, stay alive, or die depending on the conditions surrounding that cell:

* Live cells with less than 2 live neighbors will die.
* Live cells with 2 to 3 live neighbors will live.
* Live cells with more than 3 live neighbors will die.
* Dead cells with exactly 3 live neighbors will become a live cell.

The Game of Life board will be represented using a multidimensional array where the first level of the array is the x coordinate and second level is y coordinate. You will also need to create a class to represent the cells and include information about the cell such as its state (alive / dead).

All transitions effects happen simultaneously each turn (or tick). That is to say, changes made to a cell during a single transition cannot affect another cell during the same transition.

Additionally, Game of Life has many famous “seed patterns” that evolve into even more interesting patterns. Your program should ask the user if they want to use a seed pattern or a random starting pattern. If the user chooses seed pattern, your program should read the x, y coordinates from a file. The seed pattern file should look like this:

1,2

1,3

2,2

2,3

So this would create a square group of four alive cells.

Your program should display a differently colored square for alive cells and dead cells. Use previous DrawingPanel assignments for reference on how to use DrawingPanel. You should also include constant variables for settings such as turn/tick interval time and window size for DrawingPanel.

**BONUS:** Cells beyond the edge of the grid are considered dead. Can you make the grid loop, so when a cell moves from one side it appears on the other side?