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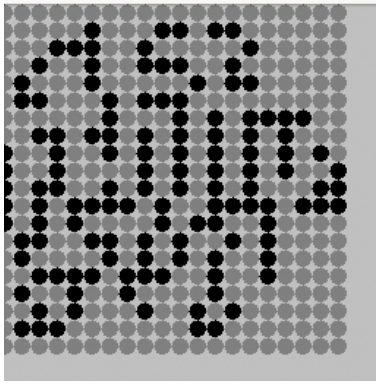
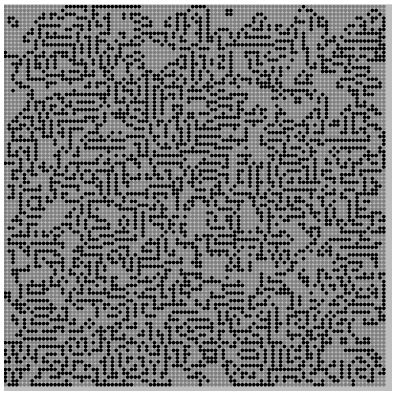
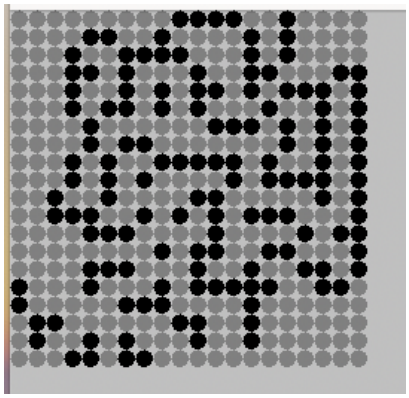
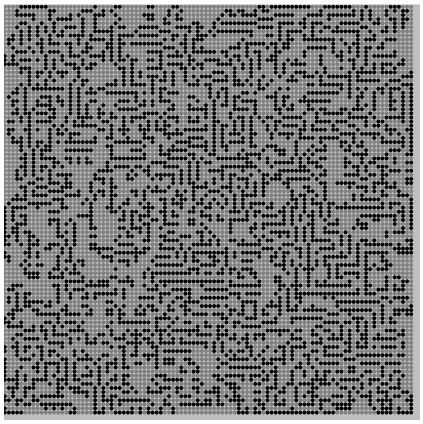
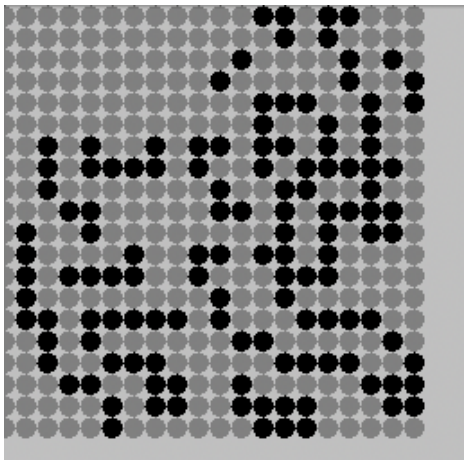
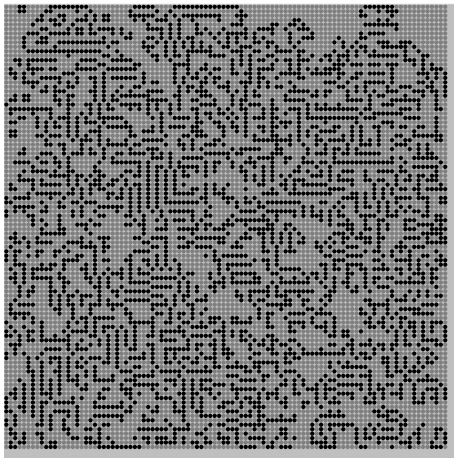
Project 2
CS231 B
2/19/2023

Game of Life Project

Abstract:
This week, we created a project that simulated Conway's Game of Life. We used java classes and objects, array lists, arrays, methods, and loops to build the Cell, Landscape, Landscape Tests, and LifeSimulation classes. In the end, the program simulated the Game of Life with a given grid size and density of live cells. For my extension, I added the ability for the user to use command line arguments when starting the simulation. In this project, I mainly used arrays to make all of the different methods such as getNeighbor, Cell, and Landscape.

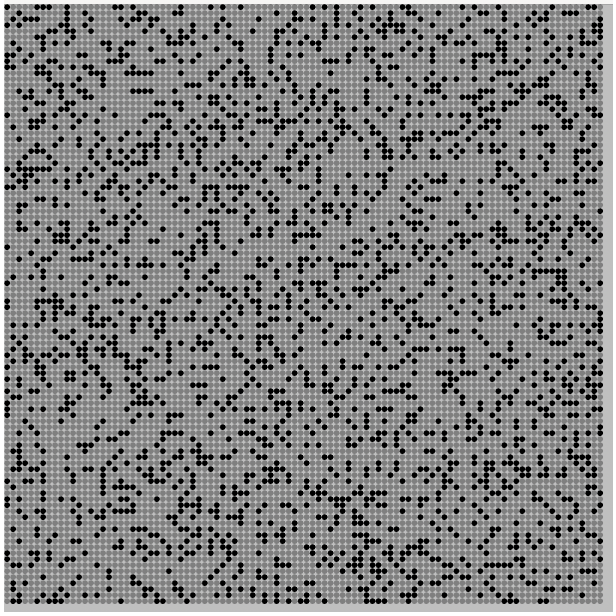
Exploration:
My hypothesis was that grid size would not affect the outcome of the Game of Life over time, but that density would. After playing around with the game, I discovered that my hypothesis was incorrect and that density also did not impact the final outcome. I believe this is because if the starting density is lower, the live cells have more room to grow and multiply, while if it is higher, the cells start to die off.

	20x20 Grid	100x100 Grid
25% Density		

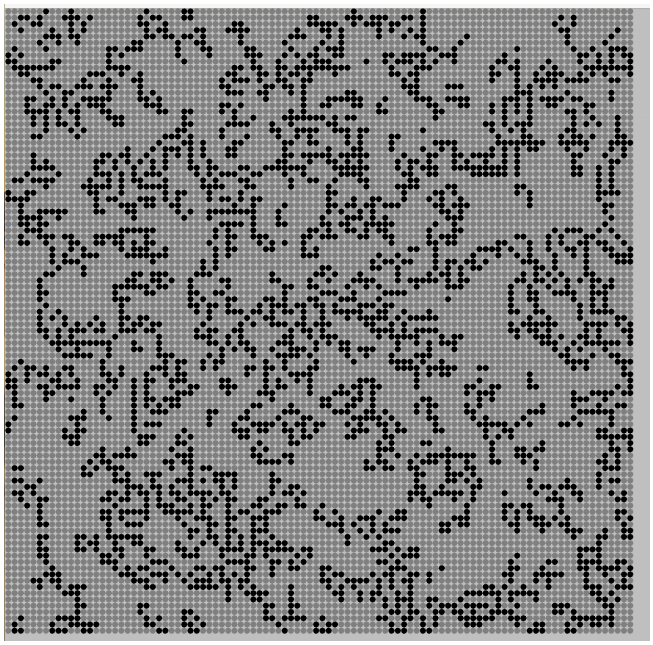
50% Density		
75% Density		

Results:

Start of simulation:



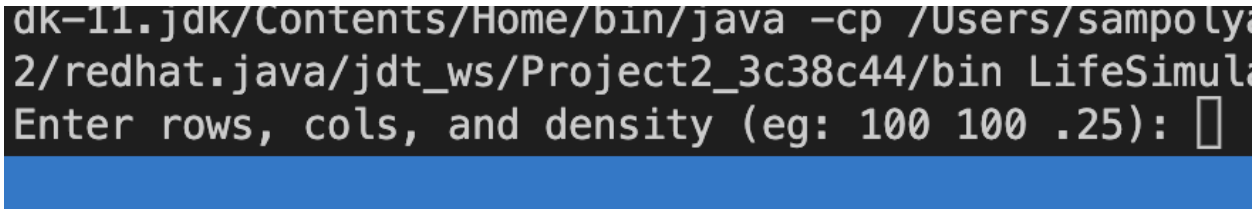
Second Screen of Simulation:



Simulation running:
VIDEO IN GOOGLE DRIVE

I think that these results make sense because, upon closer inspection, they seem to be following all of the rules of the Game of Life that are described in the wikipedia page we were provided. I think it is very interesting to watch it run as blank areas are formed and then refilled.

Extension:
For my extension, I added command-line arguments when starting the simulation. Now, the user can input what dimensions they want the grid to be and what density the cells should start at.



Sources:
For this project, I did not use any outside sources. I worked with Dave Boku and Simon Goldstein.