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Project 3

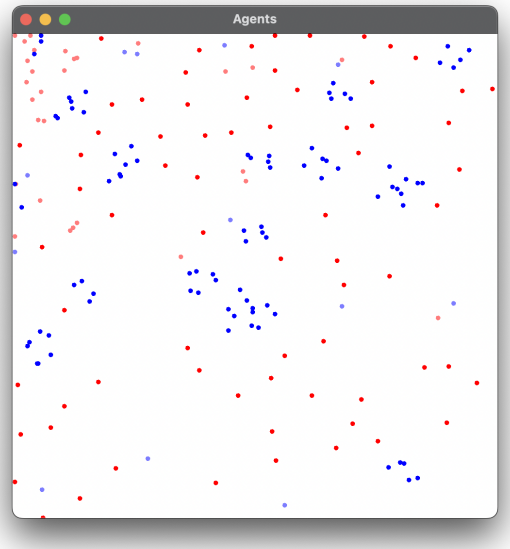
2/26/2023

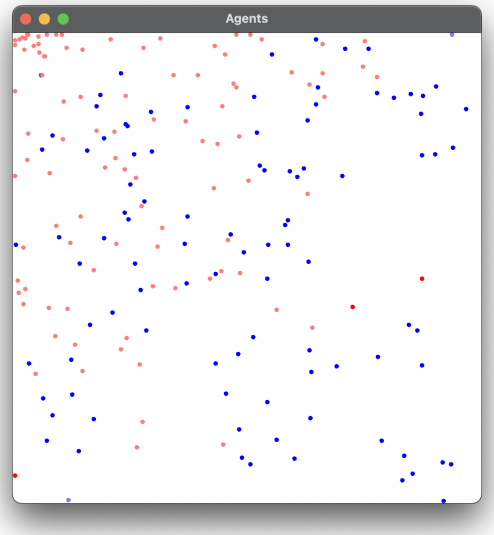
CS231B

Agent Based Simulations Project

Abstract:
This week, we created a project that simulated social and anti-social agents. We used java classes and objects, array lists, arrays, methods, loops, abstract classes, inheritance, and Linked Lists to build all of the classes. In the end, the program simulated 'Social' and 'anti-social' agents interacting in an environment with given dimensions, interaction radius, and number of agents. For my extension, I added the ability for the user to use command line arguments when starting the simulation.

Results:



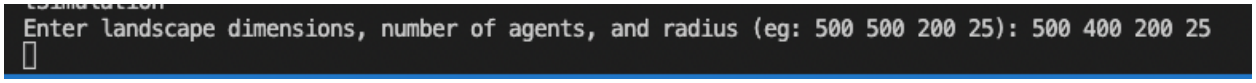


These are the results of 2 different simulations, the one on the left has the radius set to 25 and the one on the right has the radius set to 50. I noticed that in the simulation with radius 25, the social agents are much more clumped together and the clumps are much tighter. This makes sense because the social agents need much less space to be "happy"

RECORDING OF RESULTS IN GOOGLE DRIVE

Extension:

For my extension, I added command-line arguments when starting the simulation. Now, the user can input what dimensions they want the landscape to be, how many agents they want, and what radius the agents should use.



Reflection:

This week, we mainly focused on Linked Lists instead of ArrayLists. Linked Lists make it much easier for us to add elements at the beginning of the list without doing lots of work. By changing the “head” node to be a new element, it made it much easier to add a new element at the beginning of the list. If we had used Arrays/Array Lists instead, we have needed to “shift” each element forward to make room for the element we are adding, making our code very inefficient.

References:

This week I worked with Dave Boku and got help at TA hours from Ming.