# COMPUTER SYSTEMS RESEARCH
# Code Writeup of your program, example report form 2008-2009

1. Your name: Alexa Silverman Period: 1
2. Date of this version of your program: 10/30/08
3. Project title: *A Cellular Automata Approach to Population Modeling*
4. Describe how your program runs as of this version.

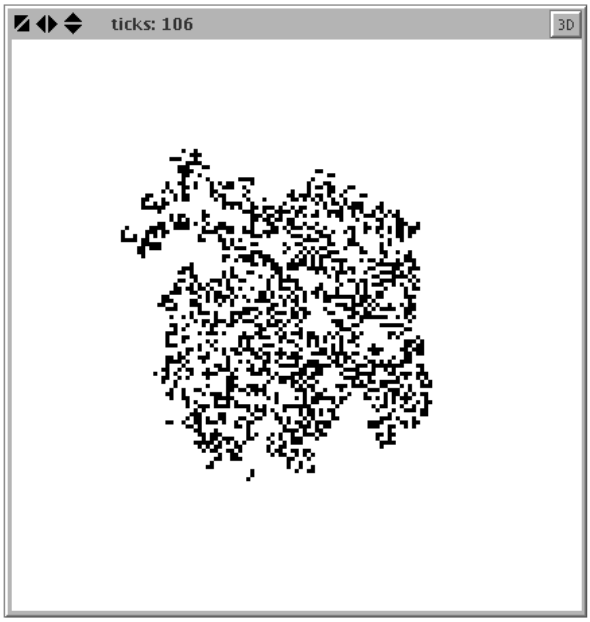
How to run and test the program: In NetLogo, open *CA_Population.nlogo* and press the "setup" button. The "go" button will run the program continuously; the "step" button will run the program through one tick/generation.

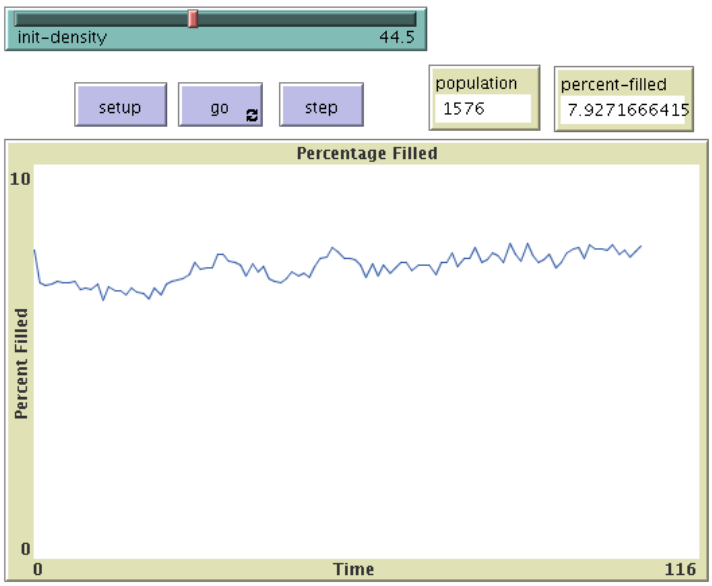
Input(s):

1. Change the "init-density" slider to 44.5
2. Change the "init-density" slider to 75.5
3. Change the "init-density" slider to 100.0
4. Change the "init-density" slider to 13.0

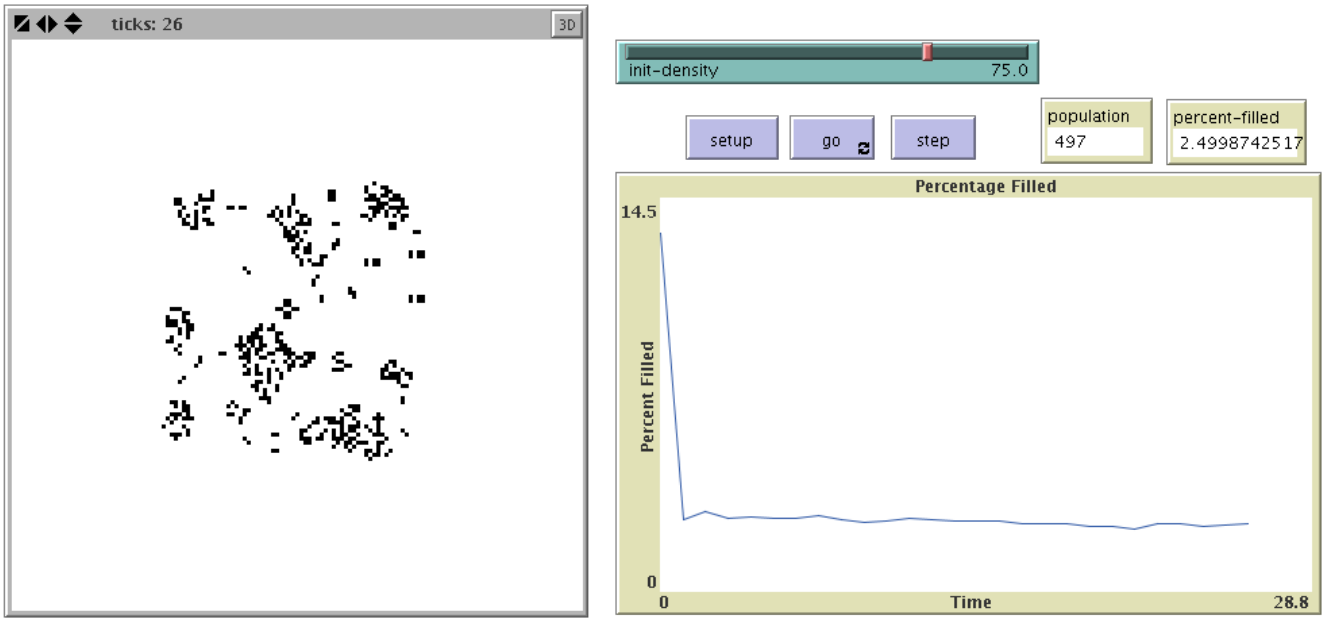
Program's expected response(s):

1. Population will grow steadily outwards; graph will show increase in percentage

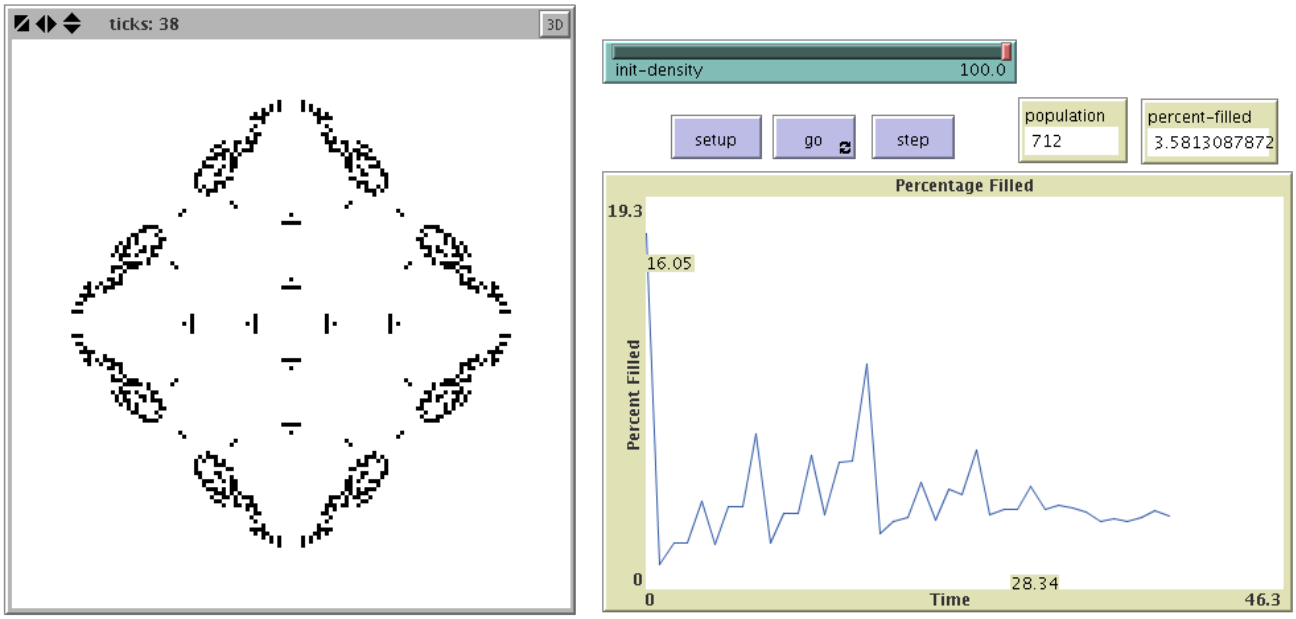


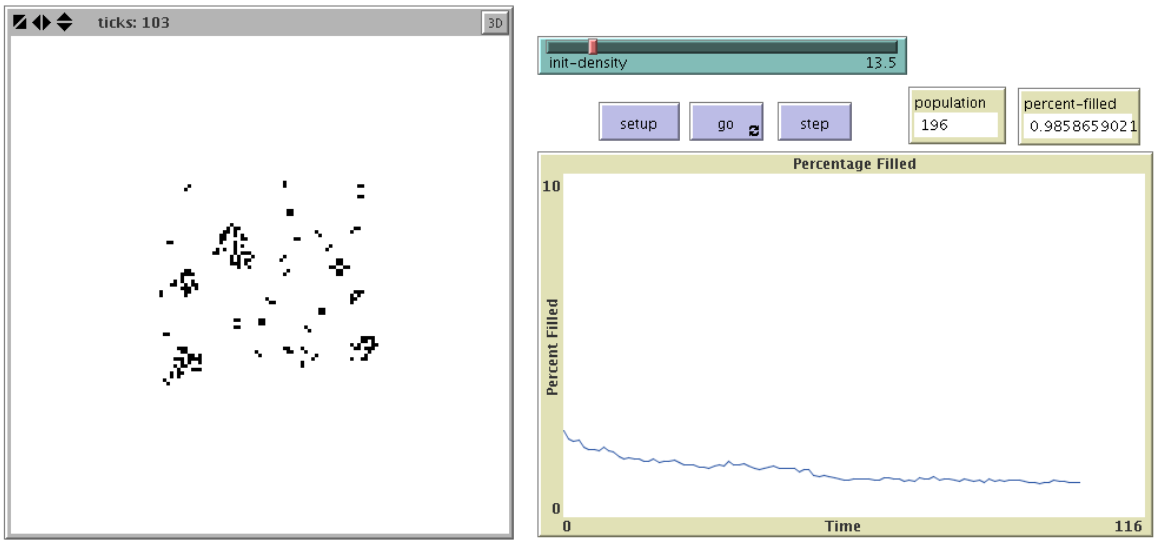

2. Population will sharply decline and then grow in small groups which eventually dwindle; graph will show a sharp decline in percentage and then a steady decline




3. Population will grow in a geometric pattern and groups will become more isolated before dying out or stabilize; graph will oscillate wildly until a more stable pattern of decline is reached




4. Population will immediately form small isolated groups; graph will show a small and steadily declining percentage




1. There are no incorrect user inputs at this time. The program will throw an error if the user presses the “go” or “step” buttons without first pressing the “setup” button.

   This program is using cellular automata to demonstrate the behavior of a population. To understand the purpose of this project, the user is experimenting with changing initial population densities to demonstrate the effects on overcrowding and loneliness on population growth. The extreme example of 100% density illustrates the geometric behavior of cellular automata.

5. What do you expect to work on next quarter, in relation to the goal of your project for the year?

   Next quarter, I expect to add other factors in addition to initial density including climate, food/water availability and, possibly, predation using NetLogo’s agent-based modeling capability.