# Sugarscape: An Application of Agent Based Modeling

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- **Abstract:** Computer scientists have long tried to simulate things like life or human culture with computer programs. Agent based modeling is an effective strategy for this using the idea that many complex phenomena come from the interactions of simpler pieces. Sugascape is an implementation of agent based modeling that simulates human society and culture.

- **Background:** Agent based modeling is a technique that simulates seemingly complex relationships through the interactions of "agents" that follow simple rules. One of the first and most effective uses of this was in the creation of "boids," a program that simulates the flocking of birds. Sugarscape, in particular, recreates human society through the interactions of agents that travel around the map (scape) looking for sugar.

- **Techniques:** Object oriented programming is a technique well suited to agent based modeling. Each agent is an instance of the Breeder (formerly the Agent) class. The scape itself contains 2500 instances of the Location class, each keeping track of what goes on at a given location. The graphics are run by the ScapeG class, and the user interface has its own set of classes.

- **Conclusions:** I expect to first recreate the results given in *Growing Artificial Societies*, the book that set forth the ideas of Sugarscape. If I can do that, I will extend my project to cover areas the authors did not get to, such as warfare.
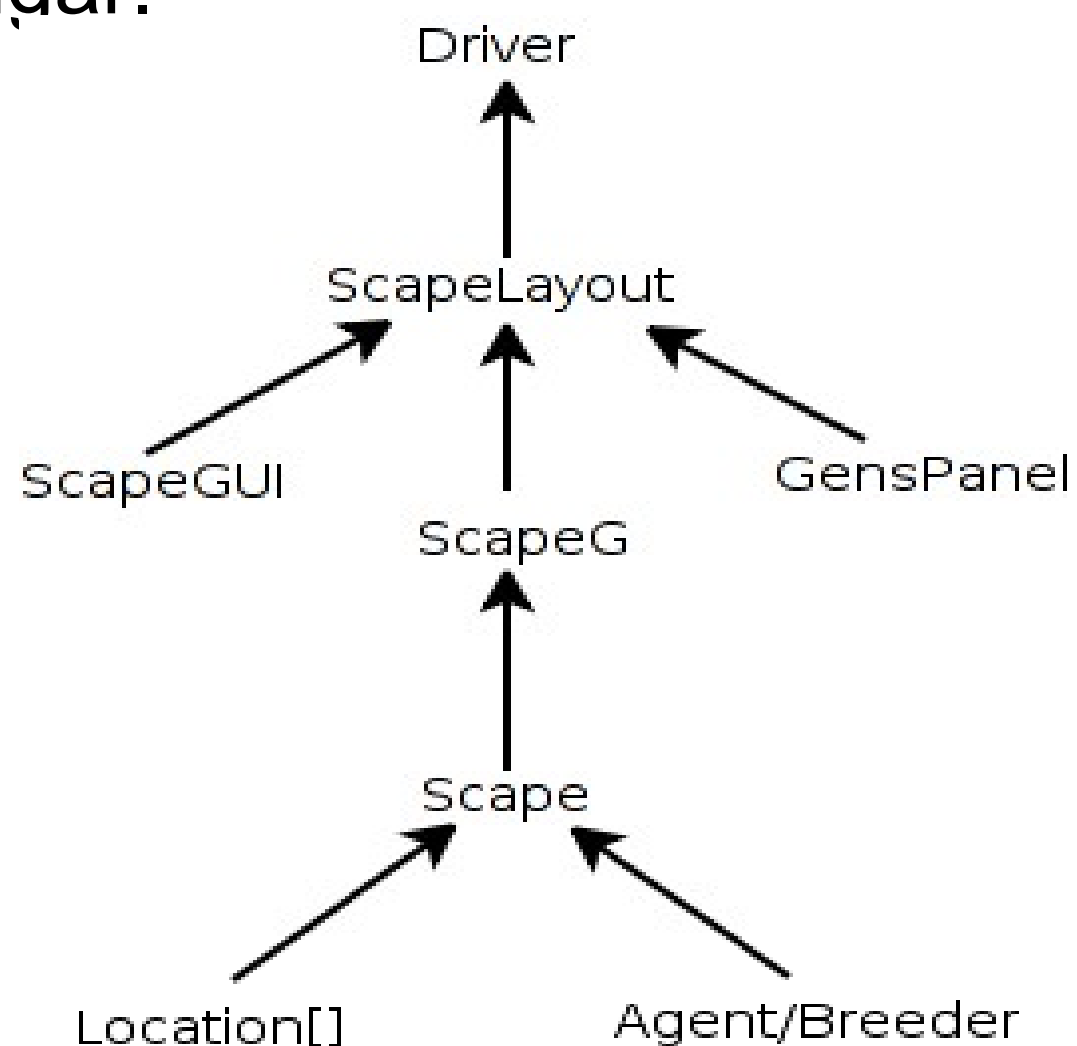
The structure of my program
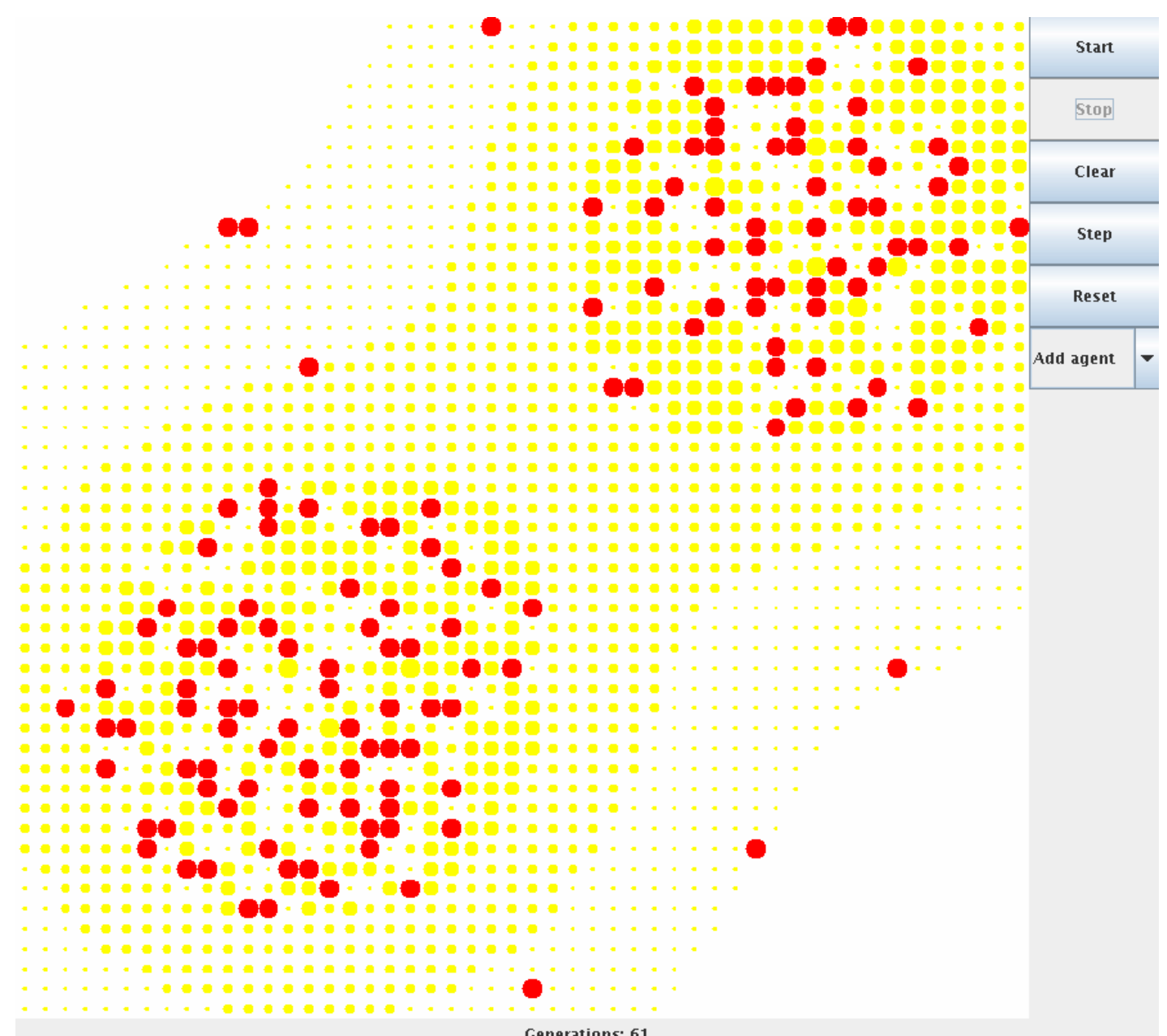
My program while it is running. Agents are red circles; the size of the yellow circles shows how much sugar is there.