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Project 1
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I. File list

Tsiros_1.pde	Processing source code
Tsiros_1.pde	Java source code
Tsiros_1	Simulation
README	This file

II. Source Code

A. Source code obtained from: https://processing.org/examples/gameoflife.html

B. Modifications:
The general structure of the source code was used for Project 1 to familiarize author with embedded Processing functions. Predators and prey were introduced to Project 1 with a specific set of clearly defined rules. Initial generation probabilities of overall death, predator, prey, and living cells were added. Colors representing the cells from the “organism” in question, the predators, and the prey were set.

C. First Generation:
The first generation of living cells in the “organism”, predators, prey, and dead cells were randomly assigned via a set probability. The code allows for a 3% chance of cell state beginning as predator, 3% chance of cell state beginning as prey, 24% chance of cell state beginning as alive, and 70% chance of cell state beginning as dead. These probabilities are clearly outlined in the code.

D. Predator and Prey:

Biological Significance: In any display of life, factors exist that aid in reproduction and death to help or prevent an organism from evolving. Project 1 implements a predator/prey system to attempt to visualize this process. Predators of the organism in question pose a threat to the organism as well as the prey of the organism, which is implemented in the clock function. Moreover, the prey of the organism in question is threatened by both the organism and the predator of the

organism. The organism in question “feeds” off of the prey to promote cell birth, thus exemplifying the “survival of the fittest” theory.

Technical Significance: The extra rules executed by the predator and prey addition show the effect of another entity (or 2) on the game of life simulation. The “reset” option also allows for the user to restart the initiation phase, which is useful for understanding how the rules are generating the simulation. The implementation of moving predator and prey would have produced an even more technically advanced and biologically significant effect; however the time constraint and learning curve did not allow for the completion of this.

E. Instructions:

To run this program simply press the play button in Processing. To reset the screen press ‘r’ or ‘R’. If the user would like to control the probabilities mentioned above or update the rules, he or she would have to do so within the code.