

Lab Assignment 9

Description:

The Game of Life, invented by John H. Conway, is supposed to model the genetic laws for birth, survival, and death (see Scientific American, October 1970, p.120). We will play the game on a board that consists of 25 squares in the horizontal and vertical directions (a total of 625 squares). Each square can be empty, or it can contain an X indicating the presence of an organism. Each square (except for the border squares) has 8 neighbors.

Steps:

1. Start the game by creating a 2-dimensional array (25x25) and randomly selecting between 250-300 squares as having an organism in it. This is your 1st generation.
2. Display the current generation.
3. Ask the user if he/she wants to see the next generation. If user answers in the affirmative go to step 4, else go to step 6.
4. The next generation of organisms is determined according to the following criteria:
 - a. Birth - an organism will be born in each empty location that has exactly 3 neighbors.
 - b. Death – an organism with five or more organisms as neighbors will die from overcrowding. An organism with fewer than 2 neighbors will die from loneliness.
 - c. Survival – an organism with 2, 3, or 4 neighbors will survive to the next generation.
5. Return to step 2.
6. Exit the program.

REMEMBER: All decision about birth, death or survival MUST be made on the current generation. So if you make these decisions separately, make sure that you are making them based on the current generation and not on the modified generation.

Turn in:

- Hardcopy of your source code (i.e., lab9.c).
- Hardcopy of the output for a minimum of 5 generations