Objective: *Implement* a program to *play The Game of Life* as described below.

Rules:

Birth If an unoccupied cell has three occupied neighbors, it becomes occupied.

Survival If an occupied cell has two or three neighbors, the organism survives to the next generation.

Death If an occupied cell has 0, 1, 4, 5, 6, 7, or 8 occupied neighbors, the organism dies (0, 1 neighbor: loneliness; 4–8: overcrowding).

Description: Your program should be capable of performing the following operations:

1. Reading and storing an initial pattern (life form?). The location and exact number of cells is not known, but will be specified by a position (x, y) and an n by m grid of values.

2. Find the maximum number of generations a cell has been alive.

3. Display the current status of the field.

Suggestions:

- Design your program.
- Revise your design as necessary.
- Develop your program incrementally.
- Think!

Deliverables:

- Program—fully documented! All functions should be fully documented also.

- Output—Neatly formatted and documented.

- A program design. Describe all classes and methods needed to implement your program.

- Programming Log:
    - Record the time required to design and implement your program.
    - Record of things you encountered/learned while implementing your program.