CS 121 **Lab Assignment #3**
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Objective

Design and develop a program that can generate future generations of a one-dimensional cellular automata (CA) given some initial configuration and set of rules for finding the next generation.

Description

- A structure (dynamic array) to hold the initial state of the CA. Allocate a maximum of 128 characters. Start smaller initially to make sure the program is working correctly.
- Initial state read from a file.
- Initial state generated randomly.
- The next generation of the CA is to be generated using the following rules:
  1. A living cell dies
  2. A dead cell comes to life if and only if its left side touches a live cell.
  3. A dead cell comes to life if and only if its right side touches a live cell.
- Describe how you can test both the storage of the initial CA and the generational rules.

Suggestions

- Design your program.
- Develop your program incrementally.
- Think!

Deliverables

- A complete *program design* to perform the operations described above. Your design should describe *all* functions and data structures that you think will be required for this program. Estimate how long you think it will take you to implement this program.
- Programming Log – a record of your work and what you learned.
- Output – proof that your program worked.