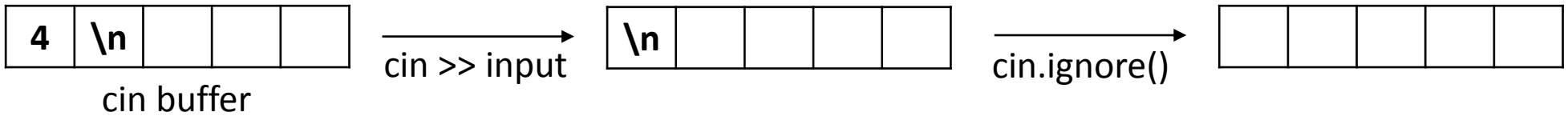
Program 1: Life

- The game of ***Life***
  - '@' represents each organism.
  - 30 x 30 two-dimensional array
  - Each generation should be displayed on the screen, and should be paused.
    - You may use cin.get() to pause, cin.ignore() to ignore '\n'.

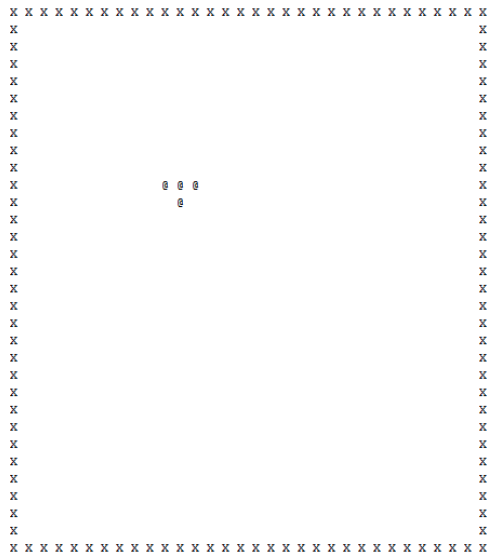
Why do we need cin.ignore()?

- When a user inputs 4 and hit the enter, they get into the cin buffer.
- 'cin >> input' will read data from buffer until the delimiting character '\n' is encountered.
- cin.get() will read one character from buffer, which is '\n'.



2-dimensional Array Representation

- To avoid the out-of-bounds error,
  - make the array dimensions 2 larger than needed.
  - fill the boundary with a different character other than ‘@’.

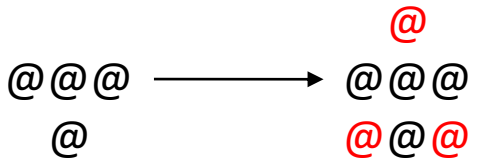


32 x 32 array

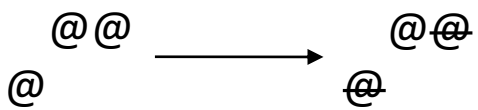
Array range : 0-31
Data range : 1-30

Rules

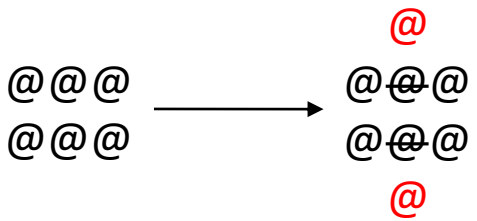
- An organism is born in any empty cell if (neighbors == 3)



- An organism dies from isolation if (neighbors < 2)



- An organism dies from overcrowding if (neighbors > 3)



- All other organism survive to the next generation

Be careful!

- Changes in the same generation does not affect the next generation.
  - You should keep the changes in another array, and apply the changes to the next generation after checking every organism.