Game of Life

Need to create an int 2D array

Int cell - since neighbors can’t be higher than 8

First number is 1/0 where 1 is alive

Cell number /10 = 1 is alive

Cell number /10 = 0 is dead

Second number is neighbors

Cell number %10 is neighbors

Need to know if a cell is alive and how many neighbors it has

If alive cell’s neighbors doesn’t equal 2 or 3 it dies

If dead cell’s neighbors equals 3 it become alive

Loop through array and add 1 to appropriate cells for all live cells

Loop through array a second time to figure out next generation value of that cell

Add 10 if cell is dead and had a value of 3

Subtract 10 is cell is alive and doesn’t have a value of 12 or 13

Need to deal with edges

Try extra columns/rows

set up to test above make the first and last few columns/rows invisible

2 arrays where first is current and second is future/ swap

Add/Subtract 10 before adding to future array where increments are stored

Afterward zero out the cell

oscillator is 3 rows and 5 columns glider is 5 columns and 5 rows

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| . | . | . | . | . |  | 1 | 2 | 3 | 2 | 1 |
| . | o | o | o | . |  | 2 | 12 | 13 | 11 | 1 |
| . | o | . | . | . |  | 2 | 13 | 5 | 3 | 1 |
| . | . | o | . | . |  | 1 | 2 | 11 | 1 | 0 |
| . | . | . | . | . |  | 0 | 1 | 1 | 1 | 0 |
|  |  |  |  |  |  |  |  |  |  |  |
| . | . | . | . | . |  | 0 | 1 | 1 | 1 | 0 |
| . | . | o | . | . |  | 1 | 3 | 12 | 2 | 0 |
| . | o | o | . | . |  | 2 | 13 | 14 | 3 | 1 |
| . | o | . | o | . |  | 2 | 12 | 4 | 11 | 1 |
| . | . | . | . | . |  | 1 | 1 | 2 | 1 | 1 |
| . | . | . | . | . |  | 0 | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |  |  |  |
| . | . | . | . | . |  | 1 | 2 | 2 | 1 | 0 |
| . | o | o | . | . |  | 2 | 12 | 13 | 2 | 1 |
| . | o | . | o | . |  | 3 | 13 | 5 | 11 | 1 |
| . | o | . | . | . |  | 2 | 11 | 3 | 1 | 1 |
| . | . | . | . | . |  | 1 | 1 | 1 | 0 | 0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 2 | 1 |
| 1 | 11 | 12 | 11 | 1 |
| 1 | 2 | 3 | 2 | 1 |

glider gun is 38 columns and 11 rows

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 11 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 11 | 3 | 11 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 1 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 12 | 11 | 2 | 1 | 1 | 0 | 0 | 2 | 13 | 13 | 3 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 13 | 13 | 2 |
| 4 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 12 | 3 | 2 | 3 | 11 | 2 | 1 | 0 | 3 | 15 | 15 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 13 | 13 | 2 |
| 5 | 2 | 13 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 3 | 1 | 1 | 2 | 4 | 13 | 3 | 1 | 2 | 13 | 14 | 3 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 1 |
| 6 | 2 | 13 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 12 | 3 | 0 | 1 | 10 | 4 | 13 | 13 | 1 | 1 | 2 | 3 | 11 | 3 | 11 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 3 | 1 | 1 | 2 | 4 | 13 | 3 | 1 | 0 | 0 | 1 | 1 | 3 | 11 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 12 | 3 | 2 | 2 | 11 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 12 | 11 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |