Welcome to Game_Of_Life's documentation!

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Introduction

Your mission is to implement a hyped-up version of the game of Life, originally conceived by the British mathematician J.H. Conway in 1970 and popularized by Martin Gardner in his Scientific American column. The game is a simulation that models the life cycle of bacteria. Given an initial pattern, the game simulates the birth and death of future generations using simple rules. The game is played on a two-dimensional grid. Each grid location is either empty or occupied by a single cell (X). A location's neighbors are any cells in the surrounding eight adjacent locations.

Game of Life Rules

The simulation starts with an initial pattern of cells on the grid and computes successive generations of cells according to the following rules:

1. A location that has zero or one neighbor will be empty in the next generation. If a cell was in that location, it dies of loneliness.

2. A location with two neighbors is stable—that is, if it contained a cell, it still contains a cell. If it was empty, it's still empty.

3. A location with three neighbors will contain a cell in the next generation. If it was unoccupied before, a new cell is born. If it currently contains a cell, the cell remains. Good times.

4. A location with four or more neighbors will be empty in the next generation. If there was a cell in that location, it dies of overcrowding.

5. The births and deaths that transform one generation to the next must all take effect simultaneously. Thus, when computing a new generation, new births and deaths in that generation don’t impact other births and deaths in that generation. To keep the two generations separate, you will need to work on two versions of 3 the grid—one for the current generation, and a second that allows you to compute and store the next generation without changing the current one.

Sample Tests

Sample 1

Enter no. of rows in Grid:

3

Enter no. of columns in Grid:

3

For entering the position of cells manually Press 1

For entering the position of cells automatically Press 0

0

Input Colony:

[[1 1 1]

[1 0 1]

[0 1 0]]

Final Colony:

[[0 0 0]

[0 0 0]

[0 0 0]]

Sample 2

Enter no. of rows in Grid:

4

Enter no. of columns in Grid:

4

For entering the position of cells manually Press 1

For entering the position of cells automatically Press 0

1

Enter the Positions:1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Input Colony:

[[1 1 1 1]

[1 1 1 1]

[1 1 1 1]

[1 1 1 1]]

Final Colony:

[[0 0 0 0]

[0 0 0 0]

[0 0 0 0]

[0 0 0 0]]