Game of Life Simulation + 2048

Introduction

The Game of Life is something new to me, and so I read a couple of articles, and to make a simulation, I put here the description of the 'game' which I took directly from https://en.wikipedia.org/wiki/Conway%27s_Game_of_Life in order to limit my understandings :

- The **Game of Life**, also known simply as **Life**, is a cellular automaton devised by the British mathematician John Horton Conway in 1970

- The "game" is a zero-player game, meaning that its evolution is determined by its initial state, requiring no further input. One interacts with the Game of Life by creating an initial configuration and observing how it evolves or, for advanced players, by creating patterns with particular properties.

- The universe of the Game of Life is an infinite two-dimensional orthogonal grid of square *cells*, each of which is in one of two possible states, *alive* or *dead*. Every cell interacts with its eight *neighbours*, which are the cells that are horizontally, vertically, or diagonally adjacent. At each step in time, the following transitions occur:

    1. Any live cell with fewer than two live neighbours dies, as if caused by under-population.
    2. Any live cell with two or three live neighbours lives on to the next generation.
    3. Any live cell with more than three live neighbours dies, as if by overcrowding.
    4. Any dead cell with exactly three live neighbours becomes a live cell, as if by reproduction.

- The initial pattern constitutes the *seed* of the system. The first generation is created by applying the above rules simultaneously to every cell in the seed—births and deaths occur simultaneously, and the discrete moment at which this happens is sometimes called a *tick* (in other words, each generation is a pure function of the preceding one). The rules continue to be applied repeatedly to create further generations.

In implementing the simulation, I choose to do a quick research, further of the topic of the Game of Life itself to better my understanding, then to Cellular Automata and it's implementation, jots the things I need to, and lastly to study other implementations of the simulations, before making the final jots of the program I am going to write. Even though my task is to make something that is '100% made my me', I do believe that nothing, in this current era, is original, and products can be developed better and faster simply by studying other already existing products. I shall write the code on my own, but I will be honest that I do make some research and take ideas as well as pieces of codes and logics from others, which I will state in this document.

Stealing Ideas

I base my understandings of Cellular Automata and it's implementation, and in related to it, The Game of Life implementation, from here http://natureofcode.com/book/chapter-7-cellular-automata/

'The Ideas' that I get :

In order to implement a Game of Life simulation, a grid is needed (can be implemented using a 2D Array). Each cell in a grid will have a state (alive / dead). There will be some kind of function of time that will 'evolve' the cells, thus making a life simulation. Each cell will evolve into their next step depending on it's neighboring cells. In order to correctly implement all this, each cell should also 'memorize' their previous state.

The edges of the grid can be implemented several ways, whether to remain constant and ignore cell evolutions, or 'wrap around', making the grid circular, or other implementations.

These are the lists of links where I get to take a peek of the implementations and get ideas related to the Game of Life Simulation other than my base study :

- http://www.bitstorm.org/gameoflife/
- http://pmav.eu/stuff/javascript-game-of-life-v3.1.1/
- http://erikonarheim.com/blog/conways-game-of-life-in-javascript/
- http://www.sitepoint.com/conways-game-life/

Sudden Original Idea

Suddenly I think, why not combine this with the 2048 game concept???

Then, I do some algorithm design, and I made it!

And it was just when I did this fun activity, I just realized that I just LOVE doing this so much, after some months of doing works related to non front end stuff

Conclusion? This is barely a job. This is fun

Please open my zip folder and take a look at my creativity

Credits to http://natureofcode.com/book/chapter-7-cellular-automata/ , Bootstrap, and FontAwesome!