**SEMESTER 2, 2021**

**ASSIGNMENT 2. CONWAY'S GAME OF LIFE ON TORUS**

# Conway's Game of Life

Life, or The Game of Life, was created in 1970 by British mathematician John Horton Conway as a cellular automaton. It's a "zero-player game," so the only thing influencing its future is its starting point. The Game of Life is played by establishing a starting state and then watching its development over time. It can mimic any other Turing machine or universal function Object () because it is Turing complete.

# Rules

* Under population causes the death of any living cell that has only one dead neighbor.
* To pass on its genetic information, a living cell needs at least two or three living cells in its immediate vicinity to continue living.
* Overpopulation causes the death of any living cell that has more than three living neighbors.
* By "reproduction," I mean that any dead cell that has exactly three living neighbors will revive into a new, healthy cell.

As such, the first pattern is the very basis of the whole structure. Applying the above rules simultaneously to each cell in the seed produces the first generation; births and deaths occur at the same time, and this moment is sometimes referred to as a tick. Each succeeding generation is an exact derivative of the one before it. Every new generation is produced by applying the same set of rules over and over again.

# Prerequisites

* OS library
* Python
* Sys Library
* Random Library
* Time Library

# Running the Program

To use this application, the user must have at least Python 3 installed, as it was developed using Python 3.5.

This project requires the user to open a terminal or console, go to the project folder, and then go into the script directory in order to run. To launch the programed, navigate to the directory containing the scripts, and then type python game of life.py.

Once the program is launched, the user is prompted to specify the size of the Game of Life grid in terms of the number of rows and columns.

