CSE 13S Winter Quarter 2022
Assignment 4: The Game of Life

Description of the Program:

The goal of this assignment is to simulate Conway's zero-player game of life. The game of life is to be played on an infinite grid and determines the life and death of a given cell by certain conditions. We are to replicate this.

Files to be included in the "asgn4" directory

- universe.h
    - The header file for universe.c and is given in the resources file
- universe.c
    - For us to create the commands of universe and declare the abstract data type universe
- life.c
    - contains main and prints out the generations of the game of life and contains the getopt loop

Pseudocode:

universe.c

- def uv_create():
    - allocate memory for universe
    - return universe
- def uv_delete():
    - delete memory for universe
- def uv_rows():
    - return num of rows for universe
    - return universe.rows
- def uv_cols():
    - return num of cols for universe
    - return universe.cols
- def uv_live_cell(row, col):
    - if row<uv_rows and col<uv_cols:
        - Universe[row][col] = true
    - else:
        - return false
- def uv_dead_cell(row,col):
    - if row<uv_rows and col<uv_cols:
        - Universe[row][col] = false

        - else:
            - return false
    - def uv_get_cell(row,col):
        - if row<uv_rows and col<uv_cols:
            - return Universe[row][col]
        - else:
            - return false
    - def uv_populate(Univerese, file):
        - open file
        - for row,col in range(file.length()):
            - Universe[row][col] = true
    - def uv_census(row,col):
        - counter = 0
        - for r in range(row-1, row+1):
            - for c in range(col-1, col+1):
                - if Universe[r][c] = true:
                    - counter += 1
        - return counter

life.c

- getopt for options
- if t = true:
    - toroidal
- if s = true:
    - print = false
- if n = true:
    - gen = n
- if i = true:
    - file = i
- if o = true:
    - Universe -> o
- for u in range(gen):
    - print(Univerese)