Design Challenges

Prompt

- List of problems to resolve in concepts, behaviors or implementation
- For each problem: options available, evaluation, which chosen
- Notes on code design: schema design choices, abstractions

Response

Problems

- Each square should toggle dead/alive on click
    - Options
        - Find mouse position on canvas with click
        - Use divs for each square
    - Solution: use divs for each square
        - Each square has ID that corresponds to location
        - Calls back function with ID, javascript then alters the class on the square
- When user clicks on square, needs to propagate both to logic of game and display
    - Options
        - Have each click call both the game and the grid
        - Have the grid call the game or vice versa
        - Call the grid and then the game looks at the html elements on each step
    - Solution: have the game call the grid
        - The conway_game stores an internal representation of alive/dead squares in a 2D array then calls grid to display the squares
        - This allows the js in run_conway_game to only be interacting with the game, the game controls how things will be displayed by calling the grid
- User should be able to pause/test/step the game but only when game is paused
    - Options
        - Allow the user to click the pause/step/buttons but do nothing when game is playing
        - Hide the buttons when the game is playing
        - Make buttons look disabled when game is playing
    - Solution: hide the buttons when the game is paused
        - Allows user to see available options
        - User not frustrated when clicking on disabled options

Code Design

- I partitioned code into two library files and used loose coupling to make both libraries completely modular: grid_graphics.js and conway_game.js
    - grid_graphics.js
        - Contains the code for creating a grid of html elements and modifying their classes
        - Can be used for other grids or other games using a grid
    - conway_game.js
        - Takes in a grid object and calls a standard set of methods on this object to draw the squares
        - Could take in different grid with same endpoints implemented