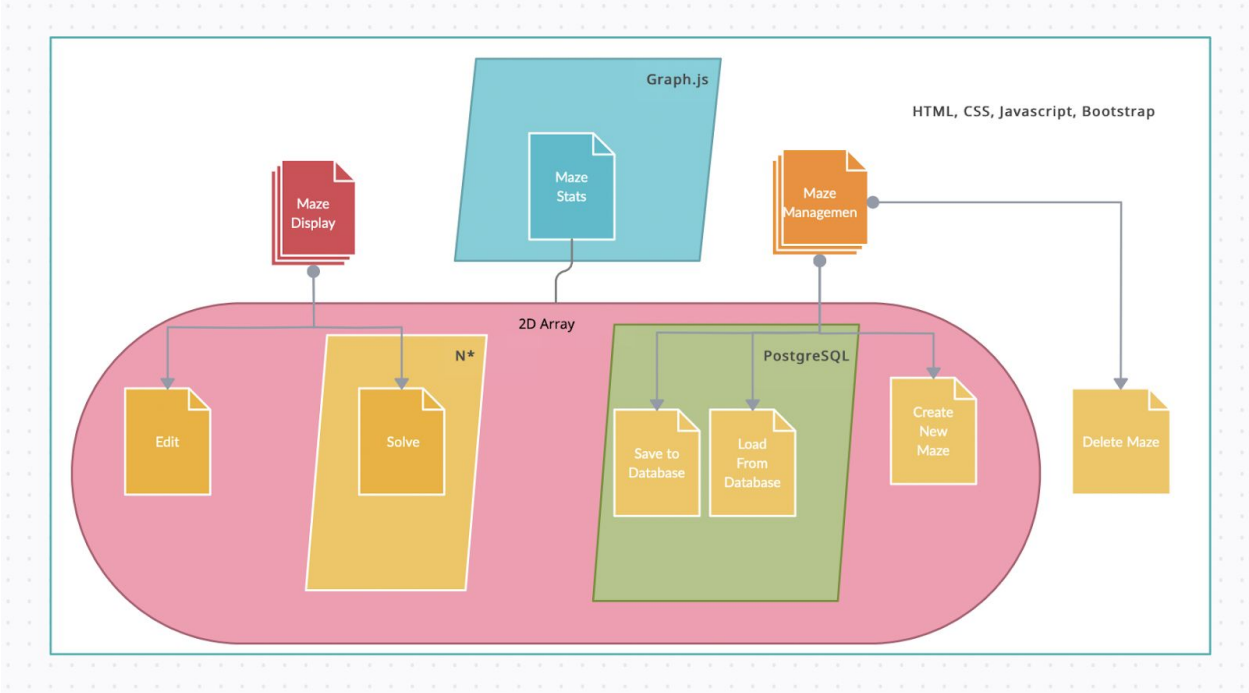
Milestone 4 - Team 3 - Threshold Correction

Revised List of Features:

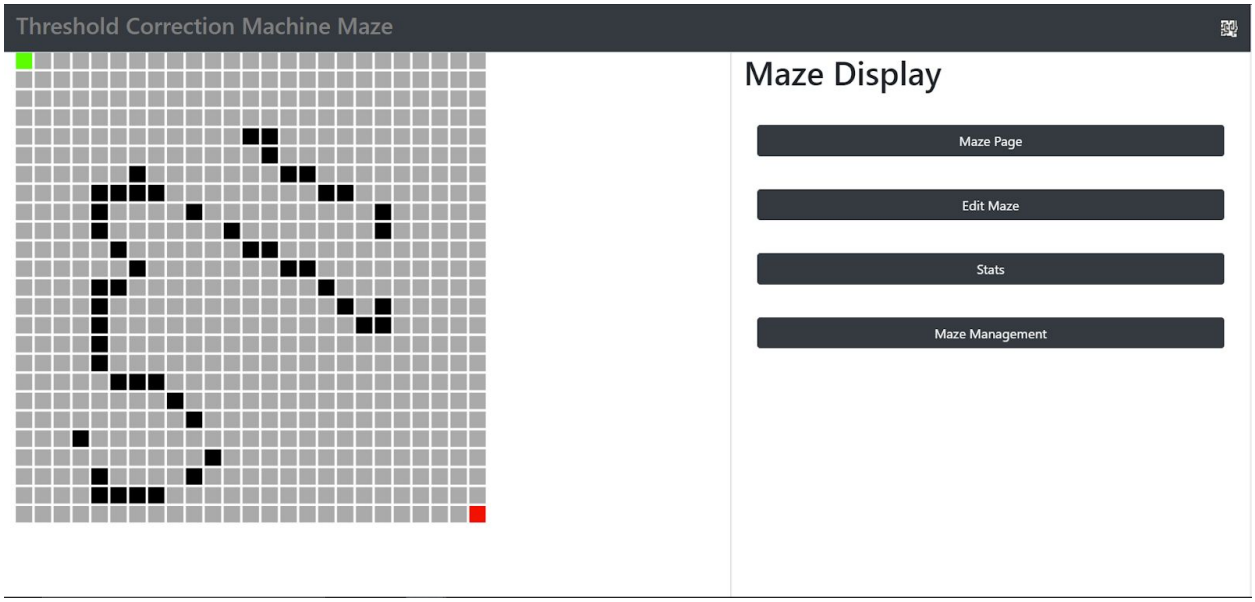
- Main Page UI - Display of machine learning information; UI element that displays the number of trials currently having been undergone until success is reached.
- Maze Learning Algorithm - Machine learning navigator algorithm; The automated navigator that repeatedly attempts to solve the maze. (Most likely A*)
- Expanded UI - Customizable grid maze; User is able to customize features of the maze by editing a grid. The AI will then attempt to navigate this maze based on the user's input.
- Backend to Save Maze / Algo Information - Option for users to name and save their maze via a login; A way to title their maze and save the data included in key feature 1 to record completed maze data that can be used to further enhance the navigation algorithm.

Architecture Diagram:

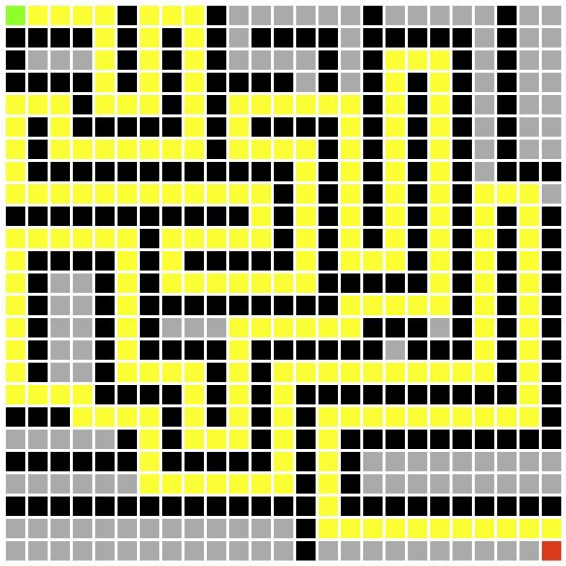


Front End Design:

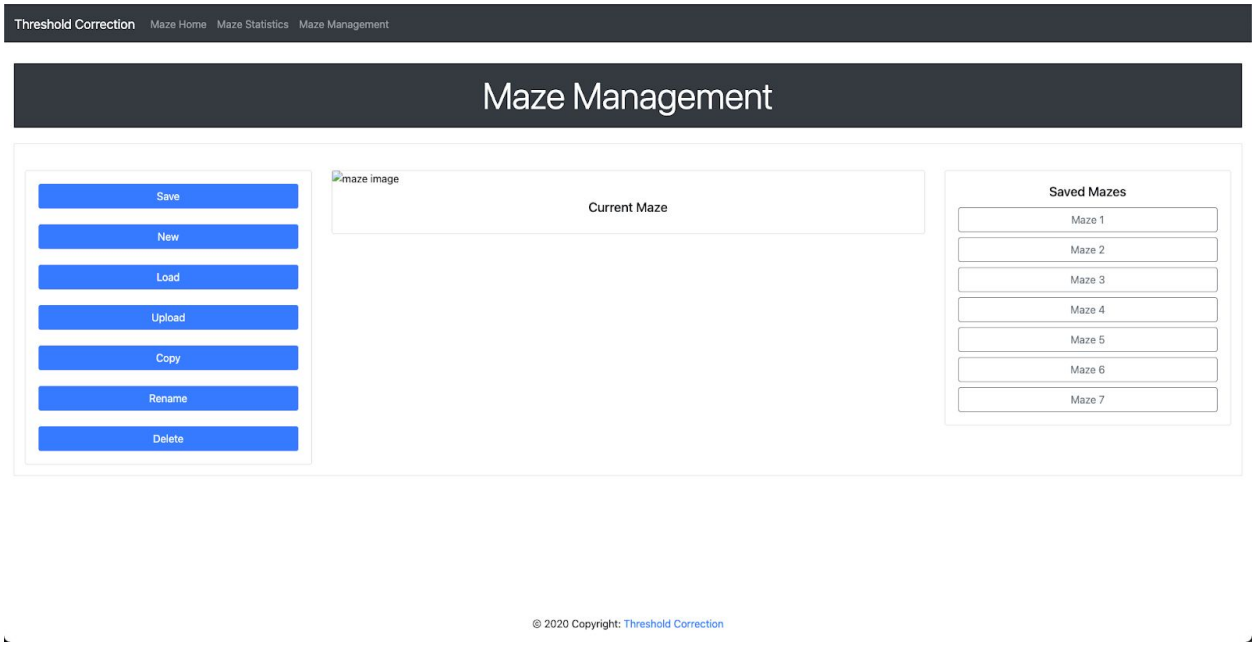
Main Page:



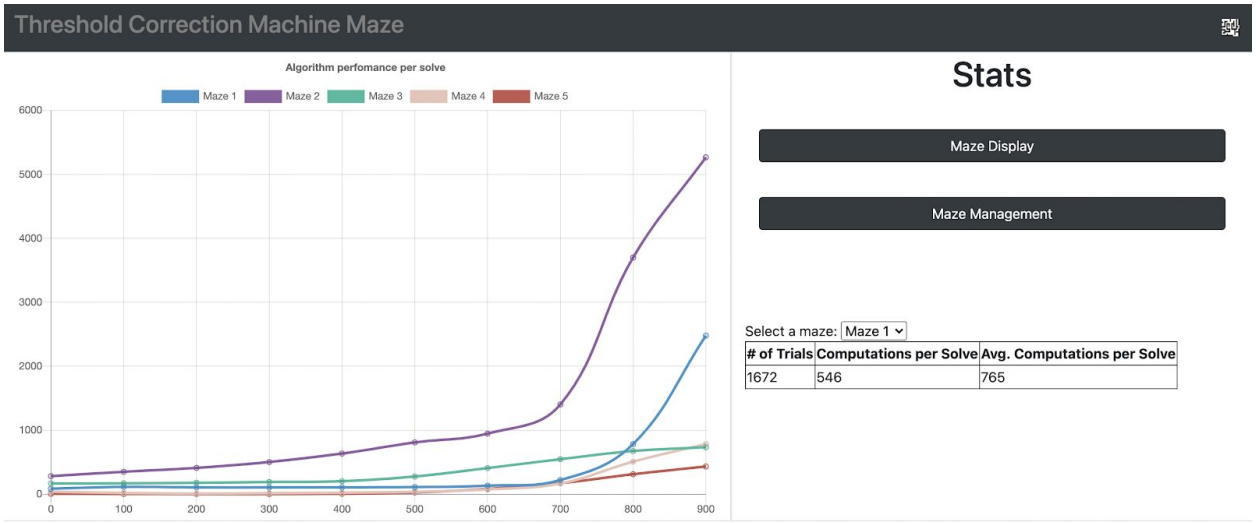
Maze Algorithm Solver:



Maze Management:



Stats:



Web Service Design:

As of the current status of the project, we are not implementing any web services via APIs

Database Design
Using PostgreSQL

Table name, column name	Data Type
Users	
● user_id	int
● user_name	text
● password	text
Maze_layout	
● maze_id	int
● maze_body	text array
Algo_info	
● algo_id	int
● algo_name	text
Run_stats	
● run_id	int
● maze_id	int (FK)
● algo_id	int (FK)
● computations_to_solve	int

Individual Contributions:

- Each individuals contribution
    - Ethan: Drafted page design setup based upon Kyle's wireframes. Has made the main page and been working to implement Surya's maze and algorithm into it.
    - Surya: Finished tweaking the basic maze drawing ui elements. Also implemented the first maze solving algorithm, a breadth first search which is able to solve and visualize the solution to any maze in the grid..
    - Kyle: Continued work on Architecture Diagram, Stats Page
    - Tommy: Worked on the maze management page.
    - Benjamin: has been building and updating the project management board, setting up roadmap and researching backend solutions for the project
- Link to latest git commit for each individual (can be anything, wireframe pics, etc.)
    - Ethan: https://github.com/CSCI-3308-CU-Boulder/3308SP21_021_3/tree/master/CODE/MainPage
    - Surya: 3308SP21_021_3/CODE/Maze at master · CSCI-3308-CU-Boulder/3308SP21_021_3 (github.com)

    - Kyle: https://github.com/CSCI-3308-CU-Boulder/3308SP21_021_3/blob/master/architecture_diagram.png
    - Tommy:https://github.com/CSCI-3308-CU-Boulder/3308SP21_021_3/tree/master/CODE/management%20page
    - Benjamin:https://github.com/CSCI-3308-CU-Boulder/3308SP21_021_3/blob/master/MISC/database_demo_Milestone_4.PNG

Challenges:

- Maze creation UI seems to have some positional bugs when it is integrated into the rest of the main page.
    - (Our approach to this issue will be to have Surya and Ethan investigate the html to see where the offset is occurring so it can be adjusted for future maze models)
- Integrating the backend could prove to be a substantial bottleneck
    - (Hopefully after having all of us work more with postgres, we can divert some additional people to assist in the last sprint after most of the HTML framework is complete)
- Pulling and converting data from the database so that it can be read and displayed by Graph.js. To mitigate this I will need to dive deeper into the Graph.js documentation and have a full understanding of how our database functions.