CS3733-D24 Prof. Wong
Final Project - Iteration 5

Neon Nymphs

Coach: Joseph Cardarelli

Person	Position	GitHub
Sean Arackal	Back-End Dev	scriblesean
Maddux Berry	Project Manager / Algorithms Dev	macethewindu66
Lorenzo Cassano	Back-End Dev	Lorenzo-Cassano
Christian Consiglio	Lead Software Engineer (Front-End)	FastJr
Peter Czepiel	Front-End Dev	peczepiel
Ethan Glasby	Product Owner / Front-End Dev	E-man-dev
Timothy Hutzley	Scrum Master / Front-End Dev	tahutzley
José Manuel Pérez Jiménez	Assistant Lead Software Engineer (Algorithms)	josemanuel657
Gustave Montana	Front-End Dev	gnonk323
Gabriel Olafsson	Assistant Lead Software Engineer (Back-End)	gabrielolafs
Sofia Xie	Document Analyst/ Front-End Dev	SofiaXie

GitHub Link:
https://github.com/CS3733-2024-TeamN

AWS Link:
https://ec2-18-221-189-137.us-east-2.compute.amazonaws.com/

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Introduction

This project is designed and developed by a team of 11 students all focused on improving their technical skills while developing a solid product. Our site features innovative path finding, function dashboards and exciting delighters. We have spent many hours dreaming up page designs and thinking about the structure of the database. Our pathfinding utilizes multiple algorithms with options to edit the map. We have multiple other pages that allow you to visualize the node and edges data, employee information and service requests made. These pages are only accessible to staff and admin. In addition to these essential features we also include an about us page so you can learn more about the team! There is also a credits page for more information on how the site was developed. Lastly, our delighter features are not to be missed! The hero page features a live temperature reading of the room as well as displaying current date and time. The star of the website is our game “Brigham Breakout”. If you're ever bored at work, give it a go, and find all the easter eggs.

Technologies

Technologies, software/UI frameworks, and external software libraries

- React
- MaterialUI
- Prisma
- Express
- GitHub
- NodeJS
- Yarn
- Prettier
- Vitest
- Auth0
- Axios

Team Assistance

Team N did not receive any direct help from other teams.

User Stories

A list of all the user stories that were implemented over the course of the entire term grouped by prototype or iteration number (you probably want to copy from previous tracking sheets!). Specify which were additional features and enhancements beyond what was required in the four iterations. Specify which were delighter features.

Iteration	Required	Optional
0	As a [User] I want to [Submit a flower delivery request] to [Deliver flowers to a patient] As a [Developer], I want [an algorithm that reads csv files] so I can [display that information on the react web page] As a [User] I want to [See the L1 floor map] to [Navigate the floor] As a [User] I want to be able to [Log In] so that [My Information is Saved and Secure] As a [Developer], I want [an algorithm that writes information to csv files] so I can [keep the edges and nodes CSV files updated] As a [Developer], I want to [create a Database] so I can [populate it with information] As a [Developer], I want to [create a Database] so I can [populate it with information]	
1	As a [Developer], I want to [deploy to AWS] so I can [put the site online] As a [User], I want to [See the map page and get directions] to [navigate all floors] As a [Developer], I want to [have several map algorithms] so I can [have the user switch algorithms] As a [User], I want to [have a Navigation bar] so I can [access different parts of the website] As a [Admin], I want to [access the CSV upload page] so I can [upload a CSV] As an [Employee], I want to [access the service request page] so I can [make and see service requests] As a [User], I want to [have a login page] so I can [log in if I have an account]	
2	As a [User], I want to [change the map	As a [Developer] I want to [have CSV

	algorithm] so I can [get different directions] As a [User], I want [a better map page display] to [see stuff better] As a [User], I want to [zoom in on the map] to [look closely or far out] As an [Employee] I want to [change request status] to [match the actual status of the request] As an [Employee] I want to [add different request types] to [make requests in the database] As an [Admin] I want to [edit the map] to [change the map] As a [User] I want [a better nav bar] to [navigate better] As an [Employee] I want [tabs for different areas of the CSV page] As a [User] I want [unified styling] so [the page does not give me feelings of disgust]	page validation] to [ensure CSVs are valid]
3	As [User] want [nice hero page] so [brain happy] As [Brigham] I want [nice hero page] so [users know what the site is about] As [Developer] want [auth0] so [login and privileges are all set] As [User] want [next floor button] so [can easily follow along with map path] As [User] want [nice nav bar] so [brain happy] As [Developer] want [service requests to go to back end] so [they are stored and managed properly] As [Employee] want [updated service request page] so [service requests are up to date]	As [User] want [falling go to map button easter egg] so [brain happy] As [User] want [clear path button] so [can clear the path]
4	As [User] want [Hero Page disclaimer] so [know the site is not the legit Brigham site] As [Developer] want [Credits page] so [the proper credit is given] As [Developer] want [About page] to	As [User] want [play Brigham Breakout] so [can have fun]

	[give proper recognition and say who we are] As [Admin] want [create nodes/edges] so [can fully edit the map] As [User] want [staff login on hero page] so [can log in easily if staff] As [Employee] want [extra request info] so [can see the additional info] As [Admin] want [draggable nodes and edges] so [editing map is easy peasy] no As [User] want [clear text directions] so [navigate building by text is easy] As [Admin] want [employee table] so [managing employee list easy] As [Employee] want [filter by employee] so [can find request by employee]	
5	As [User] want [better About page] so [brain happy] As [User] want [better Credits page] so [brain happy] As [Admin] want [Employee page] so [can manage employees easily] As [Employee] want [Request page to update without refreshing] so [easier to view requests as they are] As [Employee] want [Statistics page] so [can see breakdown of all requests] As [User] want [floors listed in order of path] so [navigating easier] As [Developer] want [all map algos implemented] so [it works] As [Employee] want [delete request button] so [can delete requests]	As [User] want [new characters and powerups in Brigham Breakout] so [can have more fun] As [Developer] want [encrypted scores and cheat prevention in Brigham Breakout] so [nobody can cheat]

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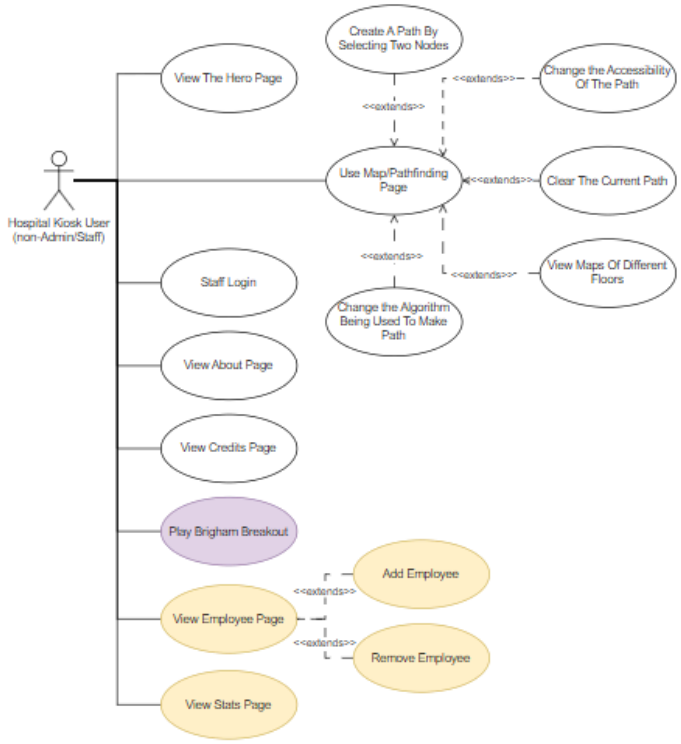
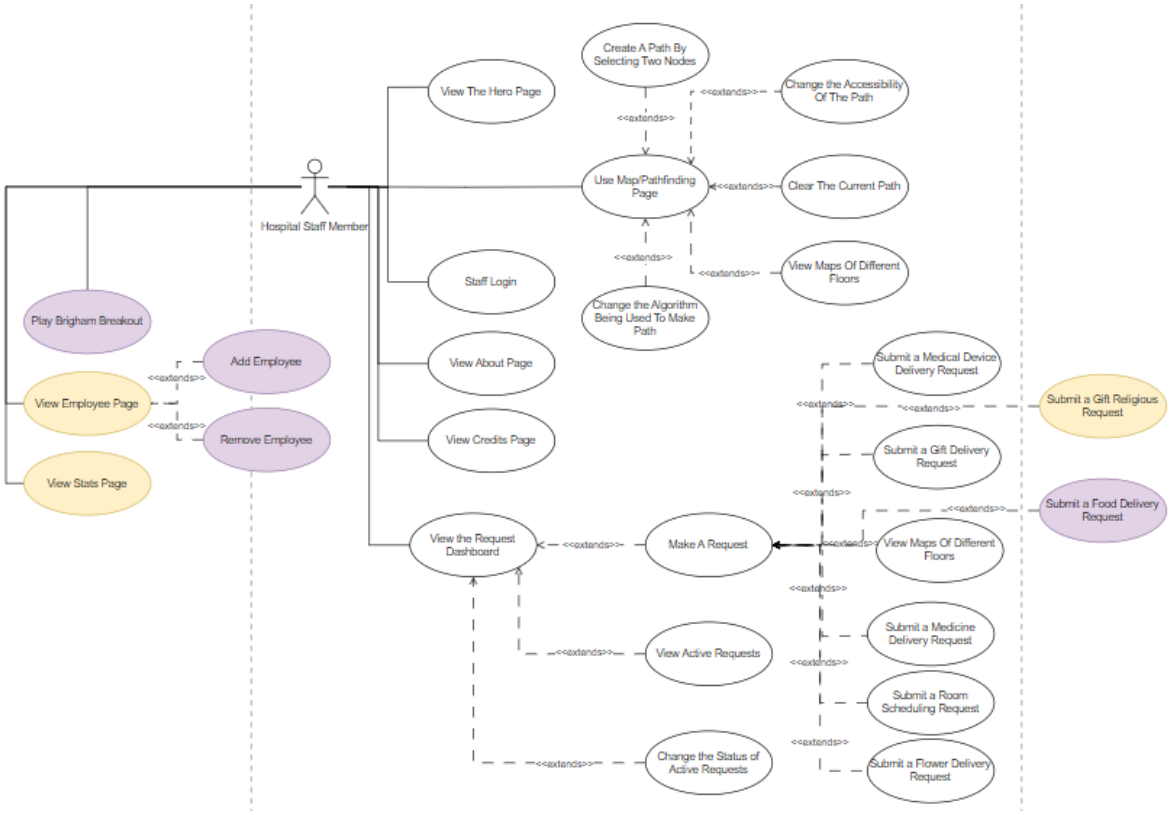
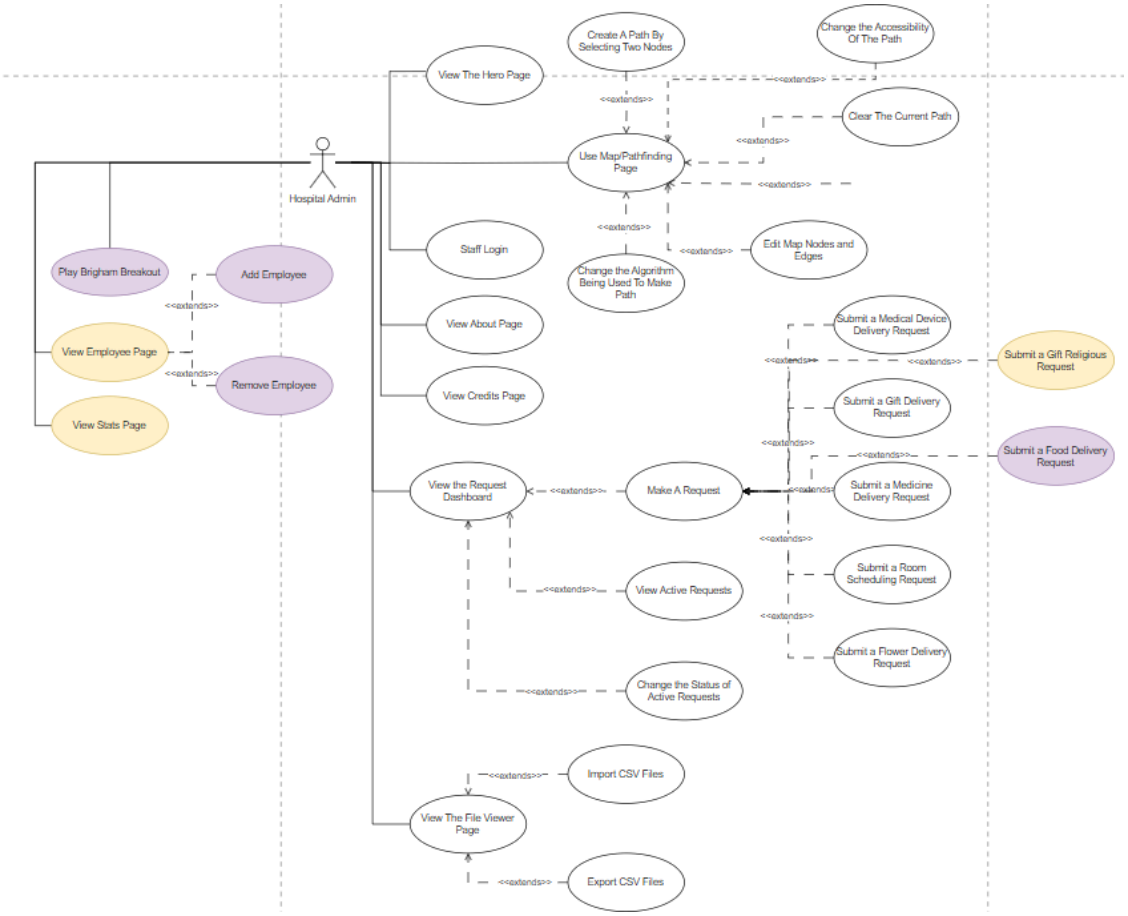
Use Case Diagrams



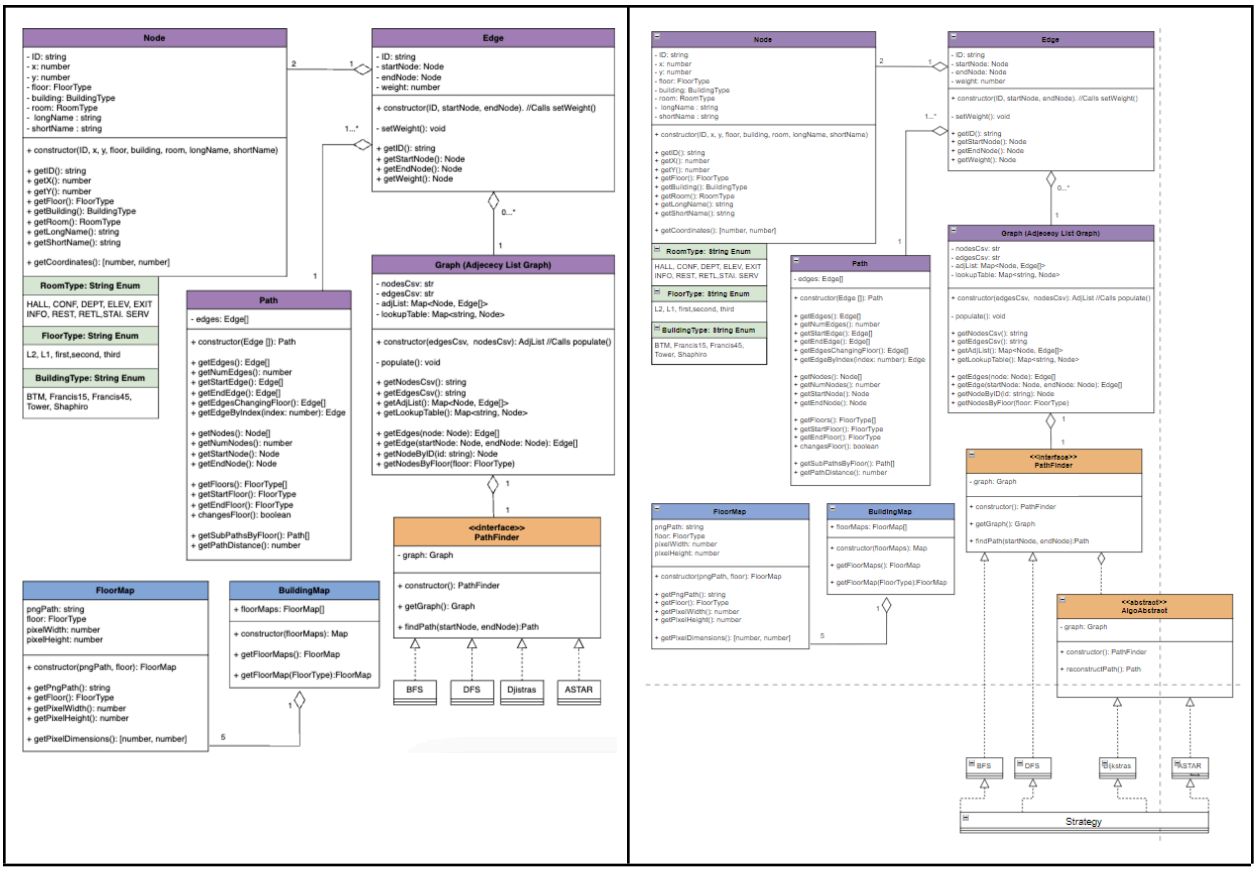




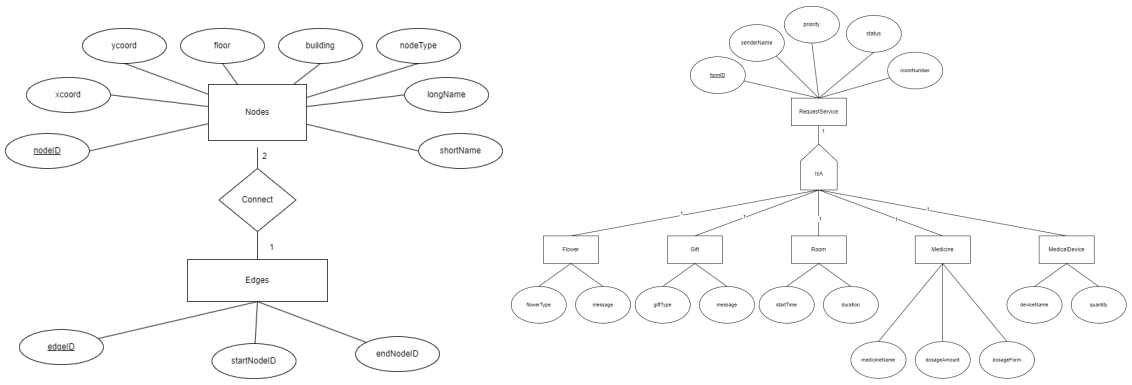
Class Diagrams

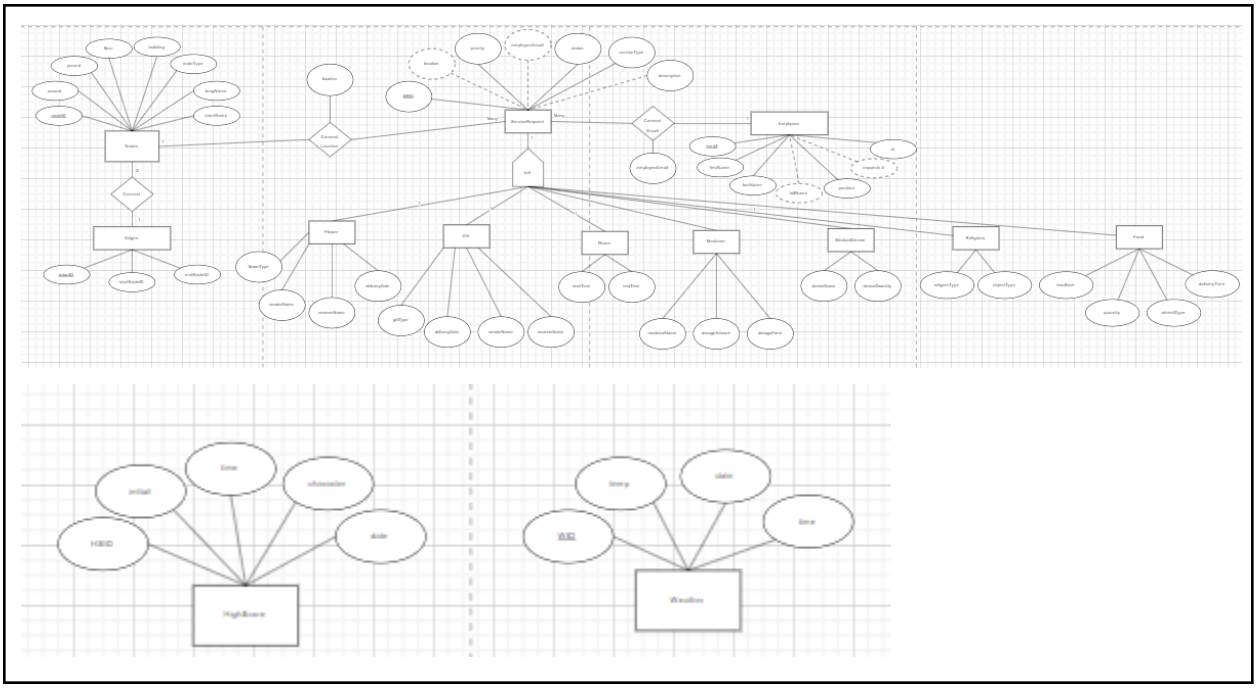
- Strategy Design pattern (Algorithms):
    - A*, Dijkstra's, DFS, BFS
    - Strategy
    - AlgoAbstract
    - IPathFinder
- Algorithms:
    - 1 Interface (IPathFinder)
    - 6 Classes (A*, DFS, BFS, Dijkstras, Strategy, AlgoAbstract)
    - 3 Structs (PriorityQueue, Queue, Stack)

Initial Class Diagram	Final Class Diagram



Strategy class for the algorithms, has changed to reflect how we switch between algorithm searches.

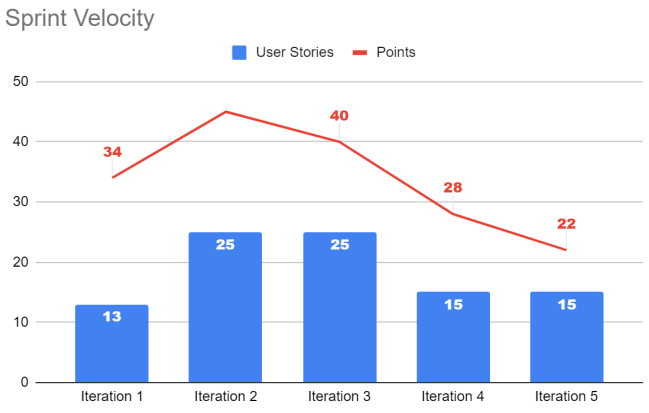
Initial ERD

Final ERD



Since Iteration 4 we have added Religious and Food Delivery Requests.

Burn Up Chart

	User Stories	Points
Iteration 1	13	34
Iteration 2	25	45
Iteration 3	25	40
Iteration 4	15	28
Iteration 5	15	22



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Team Reflection

Throughout the term Neon Nymphs learned to properly use the agile methodology to increase our efficiency and improve our communication. At the beginning of the term we did not utilize the power of Figima, and ended up having a bunch of different styles across our site. This meant we needed to spend more time matching styles. We then implemented Figma design meetings to ensure styles were discussed and matched. We also utilized use cases, ERD and class diagrams when determining the structure of our site and showing how certain parts interface with each other. This helped us to have a clean design both on the frontend and backend.

We also learned to add in strict deadlines to tasks and ensure team members were finishing tasks on time. To help us do this more effectively we reevaluated our lead positions early on. As we progressed we discovered the power of pair programming to help us all become full stack developers. Our team favorite was a mini workshop our backend assistant lead, Gabe, hosted to help teach backend concepts and learn routes. Throughout the whole term we learned to plan our user stories early, properly use planning poker and assign tasks to different individuals. We started to paper plan as a way to see all objectives and tasks easier. By the end of the term we had nailed down our planning strategy and were able to clearly communicate responsibilities. Any question we had we would immediately go to our SA, Joseph. He always had a solution to fix our problems, allowing us to spend more time on creating new features than fixing small bugs.

Our team worked very well together! Each sub team performed their tasks on time and communicated what was happening behind the scenes. Our discord GitHub bot helped us to be mindful of coding updates. Daily scrums allowed us to stay organized and keep us moving along. Of course, there were times where certain people fell behind on work or caused merge errors, but the team was respectful and always willing to help. We all grew closer during our in-person presentations on Wednesday. Presentations were given over zoom, but as a team we always made sure to be together. We create a team Minecraft server to provide a space to experience creativity and do something we all love. There were also plenty of late night coding calls on discord some of which we got distracted in and started playing Gartic Phone or Poker.

Although our team dynamic was strong, there could have been stronger management and team planning. Earlier Iterations lacked this clarity causing us to redo work and decreasing efficiency. Team N highly recommends implementing Figma design meetings to allow each member a chance to express their creative ideas which come to a consensus. It is also important that every member learns to use github properly within the first week. This became crucial to minimize merge errors. Most importantly, meet in person to do work and book out big chunks of time for max productivity. This allows team members to stay motivated and get help faster.

Project Management

Contributions

Person	Coding Contributions	Non-Coding Contributions
Sean Arackal	Creating a significant chunk of backend functionality for the website. Created CSV Page. Backend for Employee Page. Created Backend for Dashboard and Service Requests.	Overall helped team members with bugs and issues across all iterations.
Maddux Berry	Created DFS, Dijkstra's, and A* Algorithms Overhauled and streamlined these algorithms multiple times Created PriorityQueue data structure, helped refine other data structures. Helped with logic on switching algorithms. (This was later overhauled by myself when implementing the strategy design pattern). Helped refine the map page and solve errors in the map page. Made the first iteration of draggable nodes. (This implementation had to be overridden after refactoring the map page) Added the clear path button Implemented Strategy template/program design for algorithms, implemented this in the way we switch algorithms using the button on the map page. Streamlined algorithms, made abstract class for Dijkstra's and A* algorithms that has a pre-defined reconstructPath() function Created/Updated credits page Helped create the employee page	Project manager for all 5 iterations. Created a weekly schedule for meetings. Sent reminders out for meetings, when2meets, booked rooms, helped delegate tasks, helped create figma mockups, specifically for employee, credits, and statistics page, updated taiga page with user stories and tasks and linked them to their epics, updated algorithms class diagrams
Lorenzo Cassano	Helped create prisma schemas. Connected flower request page to backend. Peer programmed room scheduling page, frontend and backend, with Ethan. Worked on employee csv page, fronted table and backend routes. Tested almost all routes with postman and some with vitest. Helped with debugging problems in the backend routes.	Helped create ERDs. Pixel art for my own character and removed whitespace from pixel background and watermark.
Christian Consiglio	Figma design for the original flower delivery	Made major contributions during every major

	page, Implementation of the original Side Navbar, Implementation of the original Flower Delivery Page, Set up AWS/Docker for the repo, redeployed AWS for each iteration, Peer programming with Gabe to teach him frontend through the original Gift Delivery page, Added useState form saving on 2 of the service request pages, Implemented the entirety of Auth0 including admin and staff roles, restricted pages, and page altering logic depending on permissions, Styled the Auth0 login page, Worked with Jose to debug/clean up all pages during the final merge to main during iteration 3, Added functionality and additional styling to the previous hero page, created the Brigham Breakout game delighter, co-created the character selection screen for brigham breakout, assisted in the design and creation of the high score page, added url encryption to prevent cheating at Brigham Breakout. Many late nights/all nighters fixing errors across many pages and features, doing my best to ensure a quality product on each iteration for the team.	figma meeting, had helpful suggestions during several retro meetings which helped for future iterations, created pixel art for Brigham Breakout, Tried to teach as many team members as much as i could about each step of development (mainly front end)
Peter Czepiel	Iteration 1:Active Service Requests page styling and help with documentation Iteration 2: Functionality of Medical Device Delivery Page, Documentation and Presentation help Iteration 3: First prototype of side nav bar, help with UI and figma design, worked on presentation and documentation Iteration 4: Made religious service request form, helped with credits page, made use case diagram, helped with making creatable edges Iteration 5: Made food delivery service request, added map legend, fixed general map styling with stair and floor buttons	Helped in the figma brainstorming sessions, documentation and presentation help, made all use case diagrams and helped with final ERD, Made pixel art, passive abilities, and backstory for wong, joseph, maddux, me, helped with tim pixel art
Ethan Glasby	Made the all-new About page, made the old About page, made the Room Scheduling request	Did some pixel art (my own character, some of the disease animations, and the character border in the character select screen), helped make sure requirements were being met, brought bread
Timothy Hutzley	Iteration 1: Figma design for nav bar, connected	Ran scrum meetings, ran sprint planning meetings, ran retrospective meetings,

	pathfinding page to database to take node and edge data, created routes to communicate between back and frontend, fixed logic after moving algorithms to the backend to draw path Iteration 2: Added zoom and pan functionality to map page, added the display of the map changing by floor, created UI for algorithm selector, accessibility selector, new floor button, edit map button, updated floor button UI, updated location selector UI, added edges display when in map editor, overall debugging for map page Iteration 3: Restyled old UI components for map page to fit new figma, created and styled show paths button, styled clear path button, made nodes display information on click, allowed editing nodes and saving information in the frontend, created and styled text directions, created and styled show nodes/edges dropdown when in edit mode, created buttons that display if elevator or floor, previous or next floor depending on the location, and when clicked, it brings you to that floor and shows the current path, made it so that you could pan the entire map when zoomed out Iteration 4: Made show paths button only show paths on floor, made next and previous path button on text directions to move between paths on floor, improved text directions to be more accurate, added text directions icons, helped make edges creatable, made nodes creatable, made nodes editable, helped set up routes to send edits to database, made map zoom out on floor change Iteration 5: Fixed all pathfinding bugs from last iteration, added UI that displays the floors the path goes through and made the floor numbers on that display clickable to navigate through the path, changed node and edge display	created a presentation before leaving for the weekend one iteration so Jose could teach others how the code for the map works, created my own pixel art sprite with a passive and backstory.

	dropdown to switches and added switch to toggle auto repair edges, debugged and helped restyle enter initials page	
José Manuel Pérez Jiménez	Created the figma design for the map page. Created BFS algorithm. Created the data structure for algorithms (Node, Edge, Path, Graph). Implemented the frontend for the map page. Got the map data from the database to the server. Created the graph in the backend. Implemented the graph logic in the server. Set up the router for the nodes and the paths. Draw the path in the frontend.Added zoom and pan functionality to map page, added the display of the map changing by floor, added the backend connection to the different algorithms, added the algorithm logic to find paths that do not involve stairs, add the location selector logic (backend frontend), added the dragging and the edges display in the map editor page. Refactored all the code in the frontend related to the map page to make it easier to add more features (now using useContext so that map page components share information while avoiding prop-drilling). Added the editor mode button, the logic to delete/edit nodes/edges in the frontend immediately and storing those changes in the frontend, the button to submit the stored changes in the frontend to the backend, added alerts for saving/not saving changes, and added the routers and the backend-database logic to perform deletes/edits/adds for nodes and edges. Worked on the final merge.Refactor the frontend to make it easier for creating/deleting/editing nodes/edges by using a hashtable of nodes to edges. Did the math for calculating the mouse coordinates. Implemented the dragging for nodes and edges. Added the backend for editing/deleting/creating nodes/edges. Made optimizations for zooming/panning in the mpa page. Created the pixelart for one of the diseases in the game. Created the character-select screen with Christian. Created the repair edges functionality.	Gave a presentation about how algorithms and the map page works, so more people could step in and help fix the frontend and some of the bugs of the backend. Helped in every iteration to merge everything and fix bugs. Created the lore and the pixel art of my character.

Gustave Montana	Iteration 1: Figma design for login page, implemented login page ui, implemented login page functionality, styling for csv upload, download, and viewing ui, fixes for each page styling regarding nav bar, final fixes for map page ui. Iteration 2: Medicine request UI, aided UI design and implementation for all other request pages as well. Improved UI of nodes and edges viewing page, and added additional functionality. Implemented drop-down menu for changing status of active requests. Iteration 3: Request dashboard UI design and implementation, helped with dashboard backend, new side and top nav-bar UI design and implementation, re-styled csv page to accommodate new nav-bars Iteration 4: New map page start/end node cluster styling + start/end node swap button, new text directions styling, other general map page styling tweaks, row expanding to show additional request data, moved filter dropdowns into popover box, delete request styling and functionality Iteration 5: Created stats page, updated styling for CSV page, helped create employee page, added QR code to text directions, made text directions clearer including starting and ending locations	Lot of work creating figma mockups for future pages
Gabriel Olafsson	Worked with the rest of the team to make a majority of the schemas, including all of the service requests, employees, and highScore for the game. Made the Routes for the Service request general and the flower page. Worked on the dashboard page to get the service requests posting and helped with the get for additional information about a specific service request. Did all of the backend, and a majority of the front end for both the select initials and scores page of brigham breakout.	Gave a presentation of basic back end information, explaining simple erds and axios commands so that the front end people would have a better understanding what to do when peer programming there back end routes for service requests
Sofia Xie	Made the hero page added dynamic formatting to it, added auth0, temperature	Documentation for all iterations. Assigned tasks to individuals to complete in

	sensor reading, time displaying and go to map button. Created Medical Device request page. Developed hardware component to receive temperature and time data, built backend to pass information through local host.	documentation for areas which needed expertise. Made presentations and ensured everyone got a chance to present. Helped with scheduling meetings and finding rooms for presentations. Also helped with designing figma's and compiling the style guide.