

WPI CS3733-C24 Software Engineering, Prof. Wong

Eclipse Echidnas (Team E)

Final Project - Iteration 4

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[GitHub repository](#)

App Login Credentials:

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Password: cs3733c24E!

Staff

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Password: cs3733c24E!

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Introduction

Our team has created a web application to be used as a kiosk app for Brigham and Women's Hospital. The app is primarily used as a map and navigation tool for the hospital, allowing users to find directions to and from any location in the hospital. As well, guests can make service requests of flower delivery or requesting religious personnel to a room.

Along with these two services, a logged-in staff member can make a request for medicine, janitorial services, or external patient transportation. Hospital admin are also able to make edits to the employee database and the node and edge map data.

For more details about the app's functionalities and design, read our [User Manual](#).

Software Environment

Auth0	External login feature and user authentication.
Axios	Used to send data between the front and back end.
Chart.js	Package used to create charts and graphs.
Discord	Team communication
Docker	Used for running the app in a development environment.
Draw.io	Graphical design software to create development diagrams.
Express	Used to route http requests to the correct back end functions.
Figma	Used to design UI elements before creation in React.
Github	Used for code collaboration across the team.
Google Suite Apps	Used for document and presentation creation and team file storage.
Node.js	Used to run the back end and implement its functionality.
Prisma	Used to perform queries on the database from the backend.
React	Framework used to create the front end.
Tailwind	CSS framework used to standardize front end stylization.
Trello	Used to create, assign, and track project tasks.
Webstorm	IDE used for app development.
Yarn	Package manager used to install packages used in the project.

Assistance from Other Teams

N/A

Epics and User Stories

Prototype 1

- As an admin, I would like a database to store all the locations in the hospital, as I would like to ensure location information is consistent across all hospital kiosks.
- As a user, I would like the application to generate a path between two locations (with the start location defaulting to the kiosk's current location), so that I can learn the quickest way between two locations.
- As a user, I would like the application to have the ability to read location data stored in CSV files, as it would allow me load new hospital maps.
- As a user, I want to view the possible locations on each floor of the hospital in text form, in order to allow me to easy find the location I want to visit.
- As a user, I want the ability to reset the application when I'm done using it, in order to allow me to return to the application home and let other guests use it.
- As a user, I want to view the hospital map visually, in order to get a better sense of where I am going.
- As an admin, I want to require staff to log into the application, in order to allow me to control access to the application.

Prototype 2

Epic: Login Page

- As an admin, I want to require staff to log into the application so that I can control access to the application.
 - Priority Level 2
- As a staff member, I would like my password entry to be obscured and turned into small dots so that no one else can observe my log in.
 - Priority Level 2
- As a staff member, I would like to be able to see my obscured password entry by pressing a button so that I can check if I entered the correct password.
 - Priority Level 2
- As a developer I would like to show an error if the username or password box is empty so both fields are required.
 - Priority Level 3

Epic: Home Page

- As a user, I want to view the hospital map visually, in order to get a better sense of where I am going.

- Priority Level 5
- As a user, I want to view the possible locations on each floor of the hospital in text form, in order to allow me to easily find the location I want to visit.
 - Priority Level 4
- As a user I would like to see a path on the map so I can better visualize how to reach my destination
 - Priority Level 5

Epic: Database Initialization

- As an admin, I would like a database to store all the locations in the hospital, as I would like to ensure location information is consistent across all hospital kiosks.
 - Priority Level 5

Epic: CSV Parser

- As a user, I would like the application to have the ability to read location data stored in CSV files, as it would allow me to load new hospital maps.
 - Priority Level 5
- As an admin, I would like to be able to import CSV files into the PostgreSQL database so that I can change the data in any table at will.
 - Priority Level 5
- As an admin, I would like to be able to export CSV files from the PostgreSQL database so that I can examine any table in other software.
 - Priority Level 4

Epic: Pathfinding

- As a developer, I would like the application to generate a path between two locations so that I can learn the shortest path between two locations.
 - Priority Level 4
- As an admin I would like to set the location of the current kiosk to be the default starting location for pathfinding
 - In Product Backlog: Currently unranked
- As a user I would like the pathfinding to begin from the current kiosk by default so that I have a physical reference point from where to navigate.
 - In Product Backlog: Currently unranked
- As a user, I would like to see a path on the map so I can better visualize how to reach my destination.
 - Priority Level 5

Epic: Service Requests

- As a staff member, I would like to be able to request medicine delivery to a patient's room and specify type and dosage.
 - Priority Level 4
- As a staff member, I would like my entered requests for medication to be stored in a PostgreSQL table so that they are saved where others may eventually claim and fulfill them.
 - Priority Level 3
- As an admin, I would like there to be a list of all service requests so that I can view and act upon requests that need to be fulfilled.
 - Priority Level 3

Iteration 1**Epic: Pathfinding**

- As a developer, I would like to implement A* pathfinding in place of BFS, so pathfinding is more accurate
 - Points: 5
 - Assigned Member(s): Alex
- As a developer, I would like the Graph class to generate the weights of edges as the Manhattan distance between the nodes so that the A* algorithm is distinct from BFS
 - Points: 2
 - Assigned Member(s): Stryder
- As an admin I want to toggle the entire graph on or off so I can confirm that changes to the edges and nodes is accurate after uploading new .csv files
 - Points: 2
 - Assigned Member(s): Stryder, Chris
- As a developer, I would like the Edge type to include a weight field so A* has weights to calculate a path with
 - Points: 2
 - Assigned Member(s): Stryder
- As a developer, I would like the Euclidean distance heuristic to be calculated for A* so that the algorithm finds a satisfactory path
 - Points: 2
 - Assigned Member(s): Stryder
- As a developer, I would like to implement a Priority Queue so that A* can be implemented properly
 - Points: 2
 - Assigned Member(s): Alex
- As a user, I would like pathfinding to work between floors so I can be directed to anywhere in the hospital
 - Points: 5
 - Assigned Member(s): Stryder, Chris

Epic: Login

- As a developer, I would like to utilize Auth0 for signing in so logins can be secure
 - Points: 3
 - Assigned Member(s): Mike
- As an admin I would like admin/staff pages to be inaccessible until signed in to prevent guests from accessing these pages
 - Points: 3
 - Assigned Member(s): Mike
- As a developer, I would like the login page to connect to a table in the database so employee information can be stored
 - Points: 3
 - Assigned Member(s): Alana, Szymon

Epic: Service Requests

- As an admin, I want to be able to assign an employee to an existing request, so the employee will know they are responsible for completing the request.
 - Points: 5
 - Assigned Member(s): AJ, Sameer
- As an admin, I want to be able to change the status of any request to “In Progress” or “Complete” iff the request is assigned to an employee, so I can keep track of the statuses of assigned tasks
 - Points: 2
 - Assigned Member(s): AJ, Sameer

Epic: Employee Database

- As an admin, I want to be able to view the table of employees and their roles so I can assure the database reflects the real staff of the hospital.
 - Points: 2
 - Assigned Member(s): Shiivek, Grace
- As an admin, when I assign an employee to a task, I want the task to automatically become “Assigned” so I do not assign multiple people to the same task
 - Points: 1
 - Assigned Member(s): AJ, Sameer, Stryder

Epic: Home Page (Map Page)

- As a user, I would like to be able to select which floor appears on the map so I am able to access any location throughout the hospital
 - Points: 5
 - Assigned Member(s): Chris, Stryder

Epic: Navigation Bar

- As a user, I would like a bar at the top of the screen with buttons that go to other pages so I can navigate the app
 - Points: 3
 - Assigned Member(s): Shiivek

Iteration 2

Epic: Transportation Request

- As a staff user of the app, I would like an input form to input my transportation request, so I can make the request to send transportation for patients
 - Points: 3
 - Developer(s): Michael, Ryan
- As a developer of the app, I would like data from the front end to be sent to the back end, so that data can be saved and retrieved from the database
 - Points: 3
 - Developer(s): Michael, Ryan
- As an admin of the app, I would like a table to see the current transportation requests, so I can see what requests are active.
 - Points: 3
 - Developer(s): Michael, Ryan
- As an admin/developer of the app, I would like the get request to be able to filter the transportation requests by status, so that i can see all requests with a specific status.
 - Points: 3
 - Developer(s): Michael, Ryan

Epic: Religious Request

- As a user of the app, I would like an input form to input my religious request, so I can make the request to send religious services for patients
 - Points: 3
 - Developer(s): Grace, Alana
- As a developer of the app, I would like data from the front end to be sent to the back end, so that data can be saved and retrieved from the database
 - Points: 3
 - Developer(s): Grace, Alana
- As an admin of the app, I would like a table to see the current religious requests, so I can see what requests are active.
 - Points: 3
 - Developer(s): Grace, Alana
- As an admin/developer of the app, I would like the get request to be able to filter the religious requests by status, so that i can see all requests with a specific status.
 - Points: 3
 - Developer(s): Grace, Alana

Epic: Sanitation Request

- As a staff user of the app, I would like an input form to input my sanitation request, so I can make the request to have an area cleaned
 - Points: 3
 - Developer(s): Antonio, Sameer

- As a developer of the app, I would like data from the front end to be sent to the back end, so that data can be saved and retrieved from the database
 - Points: 3
 - Developer(s): Antonio, Sameer
- As an admin of the app, I would like a table to see the current sanitation requests, so I can see what requests are active.
 - Points: 3
 - Developer(s): Antonio, Sameer
- As an admin/developer of the app, I would like the get request to be able to filter the sanitation requests by status, so that i can see all requests with a specific status.
 - Points: 3
 - Developer(s): Antonio, Sameer

Epic: Flower Request

- As a user of the app, I would like an input form to input my flower request, so I can make the request to send flowers for patients
 - Points: 3
 - Developer(s): Shiivek, Szymon
- As a developer of the app, I would like data from the front end to be sent to the back end, so that data can be saved and retrieved from the database
 - Points: 3
 - Developer(s): Shiivek, Szymon
- As an admin of the app, I would like a table to see the current flower requests, so I can see what requests are active.
 - Points: 3
 - Developer(s): Shiivek, Szymon
- As an admin/developer of the app, I would like the get request to be able to filter the flower requests by status, so that i can see all requests with a specific status.
 - Points: 3
 - Developer(s): Shiivek, Szymon

Epic: Medicine Request

- As an admin, I would like the medicine request to be incorporated into the service request page instead of being the main service request page to allow other requests to be on the same page. (refactoring)
 - Points: 2
 - Developer(s): Alex
- As an admin, I would like to add a service request table on the new service request page to allow me to see all the service requests. (refactoring)
 - Points: 3
 - Developer(s): Alex

Epic: General Service Requests

- As an admin, I would like to be able to sort by Request Priorities, so that I can do important tasks first

- Points: 2
 - Developer(s): Ryan
- As a user I want a pop up to appear when I press submit on service requests so I know that the request has been submitted.
 - Points: 3
 - Developer(s): Antonio

Epic: Map

- As a developer, I would like to have a Figma mockup for the new map page so that I have a detailed plan of how to design the application.
 - Points: 2
 - Developer(s): Chris
- As a user, I would like to be able to zoom into the map FOR ACCESSIBILITY to be able to see small locations and paths on the map better.
 - Points: 3
 - Developer(s): Stryder
- As a user, I would like to be able to pan around the map with the mouse or scroll bars, in order to be able to change the zoomed section of the map I am viewing.
 - Points: 3
 - Developer(s): Stryder
- As an admin/developer of the app, I would like to be able to see a node's information when I hover over the node, as it will allow me to see if a node's information is correct.
 - Points: 3
 - Developer(s): Stryder, Antonio

Epic: Pathfinding

- As a user, I would like pathfinding to work between floors, so that I can generate paths between floors.
 - Points: 5
 - Developer(s): Stryder, Chris
- As a user, when finding a path that spans multiple floors, I would like to switch between floors so I can see each part of the path.
 - Points: 2
 - Developer(s): Stryder
- As a user of the app, I would like to type locations into a dropdown while it filters out to the correct place in order to go to my destination.
 - Points: 5
 - Developer(s): Stryder
- As a user of the app, I would like to click the locations in the dropdown menu from the text box in order to set a starting and ending location, this is so I can select my start and end location intuitively.
 - Points: 1
 - Developer(s): Stryder

Epic: Universal Dropdown Component

- As a developer, I would like to have a reusable component that takes a list of options and a variable to change and creates a dropdown with those buttons that updates the variable with the chosen option in order to have better code reusability.
 - Points: 5
 - Developer(s): Alana, Grace
- As a developer, I would like the Dropdown class to contain searching functionality so that users can filter the results of the dropdown by typing.
 - Points: 1
 - Developer(s): Alana, Grace
- As a developer, I would like to refactor the current code to use this Dropdown component so that the code is consistent.
 - Points: 2
 - Developer(s): Alana, Grace

Epic: Auth0

- As a staff member, I would like to have an account, so I can access protected pages of the website.
 - Points: 0
 - Developer(s): Michael

Epic: Database

- As a developer of the app, I would like to use a cloud based database, so that i do not have to populate the database every time on upload.
 - Points: 1
 - Developer(s): Ryan

Epic: UI

- As a user of the app, I would like a global navigation bar, so I can navigate the app with ease
 - Points: 5
 - Developer(s): Chris, Stryder
- As a developer of the app, I would like to use the UI framework tailwind, in order to make the app more professional.
 - Points: 8
 - Developer(s): Chris
- As a user of the app, I would like the app to have a consistent color scheme, so that I could navigate intuitively.
 - Points: 1
 - Developer(s): Chris
- As a user of the app, I would like the app to have a consistent text colors, so that I can easily see the text
 - Points: 1
 - Developer(s): Chris

Epic: Employees

- As an admin of the app, I would like to be able to create a new employee, so that I can add new hires to the database.
 - Points: 5
 - Developer(s): Stryder, Szymon
- As a admin of the app, I would like to be able to modify an employee's information or delete the employee from the database, so that i can remove fired people from the database or change the permissions of employees
 - Points: 3
 - Developer(s): Ryan, Stryder, Szymon
- As a developer of the app, I would like post requests that allow me to add, update, or remove an employee from the database, so that I can make sure the user's inputs are saved.
 - Points: 2
 - Developer(s): Ryan, Szymon

Iteration 3**Epic: Map Page**

- As a user, I would like to be able to choose what type of pathfinding algorithm the pathfinding uses so I can customize my traversal methods.
 - Points: 1
 - Developer(s): Stryder
- As a user I would like to choose how much information I see on the map, so I can see what I want but not more than I need
 - Points: 3
 - Developer(s): Chris, Stryder
- As a user I would like to see text-based directions along with the visual path so I can have more detail on how to reach my destination
 - Points: 8
 - Developer(s): Alex, Chris, Stryder
- As a user, I would like to be able to have a more intuitive map design so I can easily navigate the page and the map.
 - Points: 3
 - Developer(s): Chris
- As a user, I would like a symbol to show when the pathfinding transitions to different floors so I can easily see where to use the elevator/stairs
 - Points: 1
 - Developer(s): Stryder

- As a user, I would like the map to be resized automatically when I go to a different floor so I only see what is applicable at a given time.
 - Points: 1
 - Developer(s): Stryder
- As a user, I would like to be able to see all requests made for a location so I can see everything needed at a given location
 - Points: 5
 - Developer(s): Stryder
- As a user, I would like to not see a node for hallways, so I only see the locations of rooms that I will need to reach
 - Points: 2
 - Developer(s): Stryder
- As a user, I would like the nodes to look professional, so that the app is visually pleasing
 - Points: 1
 - Developer(s): Stryder
- As a user, I would like to not see hallways in the input form location dropdowns, so I only see the locations of rooms that I will need to reach
 - Points: 1
 - Developer(s): Stryder
- As a user, I would like my starting location and destination to have unique symbols on the map so I can more easily see them on the map
 - Points: 1
 - Developer(s): Chris, Stryder

Epic: Auth0 and Employee Page

- As a user, I would like a designated page to login and to register, so I can add information to my profile such as name, role in the hospital, and a custom password.
 - Points: 5
 - Developer(s): Michael, Ryan
- As a developer, I would like the database to synchronize with Auth0 to match our database with the users registered in our Auth0 app.
 - Points: 5
 - Developer(s): Michael, Ryan
- As a staff member, I would like to be able to see statistics of service requests, so I can easily see the important information of all requests.

- Points: 8
- Developer(s): AJ, Sameer, Szymon

Epic: About Page

- As a developer, I would like an about page so all team members may be credited and copyrighted images are credited to the hospital.
 - Points: 3
 - Developer(s): Sameer

Epic: Service Request Forms

- As a developer I would like all service request forms to have consistent styling, limiting the amount of negative space on the page
 - Points: 2
 - Developer(s): Chris
- As a developer I would like to assure that after redesign, the request forms still work properly
 - Points: 2
 - Developer(s): Chris
- As a developer I would like to fix the bug of the page stalling when too many requests are made so we are not limited in our functionality
 - Points: 5
 - Developer(s): Stryder

Epic: Service Request Tables

- As a user I would like all the tables I am shown to be a consistent layout so it is intuitive where to find each field with prior experience
 - Points: 2
 - Developer(s): Alana, Grace
- As a developer I would like all service request tables to have consistent styling, so that its is aesthetically pleasing
 - Points: 3
 - Developer(s): Chris
- As a admin, I would like to be able to filter service requests by employee so I can more easily see what requests people are assigned to
 - Points: 2
 - Developer(s): Alana, Grace, Shiivek

Epic: Profile Page

- As a staff member I would like a page that will show my user information, so I can easily see all of the data for my profile
 - Points: 3
 - Developer(s): Shiivek, Szymon
- As a staff member, when I view my profile page I would like to see information about my service requests so I can view all tasks I need to complete and statistically about it
 - Points: 3
 - Developer(s): Shiivek, Szymon

Epic: CSV Page

- As an administrator, I want a CSV parser that can take in an employee CSV and output the data as a table.
 - Points: 2
 - Developer(s): Alex
- As an admin I would like to be able to import a table of employees so I can initialize the employee database or implement many changes at once.
 - Points: 5
 - Developer(s): AJ, Alex, Ryan, Sameer
- As an admin, I would like to be able to download the existing .csv of employees and roles, so that I can examine the .csv in other software.
 - Points: 3
 - Developer(s): AJ, Ryan, Sameer

Epic: Components

- As a user, I would like a simple textbox component so the team will be able to more efficiently create inputs in the app.
 - Points: 2
 - Developer(s): Stryder

Iteration 4

Epic: Map Page

- As a user, I would like the shortest path to be found using Dijkstra's algorithm (implemented with the template pattern), so that I have more options for pathfinding algorithms.
 - Points: 3
 - Developer(s): Alex, Stryder

- As a developer, I would like an additional variation of Dijkstra that can output the closest node of a given type from a start node, so that I can use it to implement the map deligher.
 - Points: 3
 - Developer(s): Alex, Stryder
- As a user, I would like to be able to choose what type of pathfinding algorithm the pathfinding uses so I can customize my traversal methods.
 - Points: 1
 - Developer(s): Stryder
- As a developer, I would like to update the UI of the map page so it will look more professional and easier to use.
 - Points: 3
 - Developer(s): Chris
- As a user I would like to choose how much information I see on the map, such as nodes, edges, and location names, so I can see what I want but not more than I need.
 - Points: 3
 - Developer(s): Chris, Stryder
- As a user, I would like the text directions to be in dropdowns by floor, so that I can see which directions are for which floor.
 - Points: 2
 - Developer(s): Stryder
- As a user, I would like icons in the text directions, so that I can easily see what I need to do for each direction.
 - Points: 0
 - Developer(s): Stryder
- As a user, I would like buttons on the map page that direct me from a starting location to the closest bathroom, elevator, exit and ER, so that I do not have to search the nodes to find the closest of these locations.
 - Points: 3
 - Developer(s): Stryder

Epic: Service Components

- As a developer, I'd like a function that returns the statistics of all service requests corresponding to each building, so that I can properly display them to the user.
 - Points: 3
 - Developer(s): Sameer, Szymon

- As a staff member, I'd like to see the statistics and graphs for every service request in each building, so that I know the information of the overall requests in a specific area
 - Points: 3
 - Developer(s): Sameer, Szymon

Epic: Credit Page

- As a user, I'd like to see a credit page, so that I can see which packages were used in the creation of the project.
 - Points: 3
 - Developer(s): Michael, Szymon
- As a user, I'd like to see the description of what the software is used for, so that I know what it does.
 - Points: 1
 - Developer(s): Michael, Szymon
- As a user, I would like the copyright info for the icons of the packages to be displayed, to make sure that proper credit is given.
 - Points: 1
 - Developer(s): Michael, Szymon
- As a user, I'd like to be brought straight to the packages website, so that it's easier for me to access them.
 - Points: 1
 - Developer(s): Michael, Szymon

Epic: CSV Page

- As an admin I would like to be able to import and export each individual csv, so I can change each separately.
 - Points: 2
 - Developer(s): Antonio, Ryan, Stryder
- As an admin I would like to have an export button for all of the tables so that I can export all of the tables together.
 - Points: 1
 - Developer(s): Antonio, Ryan, Stryder
- As an admin I would like to have an import button for all the tables so that I can import all of the tables together.
 - Points: 3
 - Developer(s): Antonio, Ryan, Stryder

- As an admin, I would like to make sure that it is required to put all the files asked for import
 - Points: 0
 - Developer(s): Antonio, Ryan, Stryder
- As a user, I would like buttons to toggle between the nodes, edges, and employees tables, so that I can more efficiently see what data is stored in the system (database).
 - Points: 2
 - Developer(s): Antonio, Ryan, Stryder

Epic: Profile Page

- As an employee, I would like to see first name, last name, and designation, so that i can confirm they are correct.
 - Points: 1
 - Developer(s): Chris, Grace, Shiivek
- As an employee, I would like to see the amount of non-completed requests assigned to me, so that I can easily see how much work I have to do for the day.
 - Points: 1
 - Developer(s): Chris, Grace, Shiivek
- As an employee, I would like to be able to change the status of the requests assigned to me, so that I can say when I have started or finished my tasks.
 - Points: 1
 - Developer(s): Chris, Grace, Shiivek
- As an employee, I would like the service requests I am assigned to be stored by the highest ID first, so that I can see the most recent things I was assigned.
 - Points: 0
 - Developer(s): Chris, Grace, Shiivek
- As an employee, I would like to toggle whether or not I see completed requests on my service request table, so that I can reduce clutter on my service request table.
 - Points: 2
 - Developer(s): Chris, Grace, Shiivek
- As a developer, I would like a back end function that returns the amount of non completed requests an employee has been assigned, so that i can show the stat to the employee on their about page.
 - Points: 1
 - Developer(s): Chris, Grace, Shiivek

- As an employee, I would like a pie chart that shows the distribution of the priority of my NON completed tasks, so that I can see how important my work is today.
 - Points: 1
 - Developer(s): Chris, Grace, Shiivek
- As an employee, I would like a bar chart that shows ALL the service requests I have been assigned by building, so that over time I can see where I work the most.
 - Points: 0
 - Developer(s): Chris, Grace, Shiivek
- As an employee, I would like to see my profile pic from auth0 displayed on my page, so that I can confirm I am logged into the right account.
 - Points: 2
 - Developer(s): Chris, Grace, Shiivek

Epic: Components

- As a dev, I would like 3 components for each table of employees, nodes, and edges, so that I can efficiently separate different tables on the website
 - Points: 3
 - Developer(s): Antonio, Ryan, Stryder

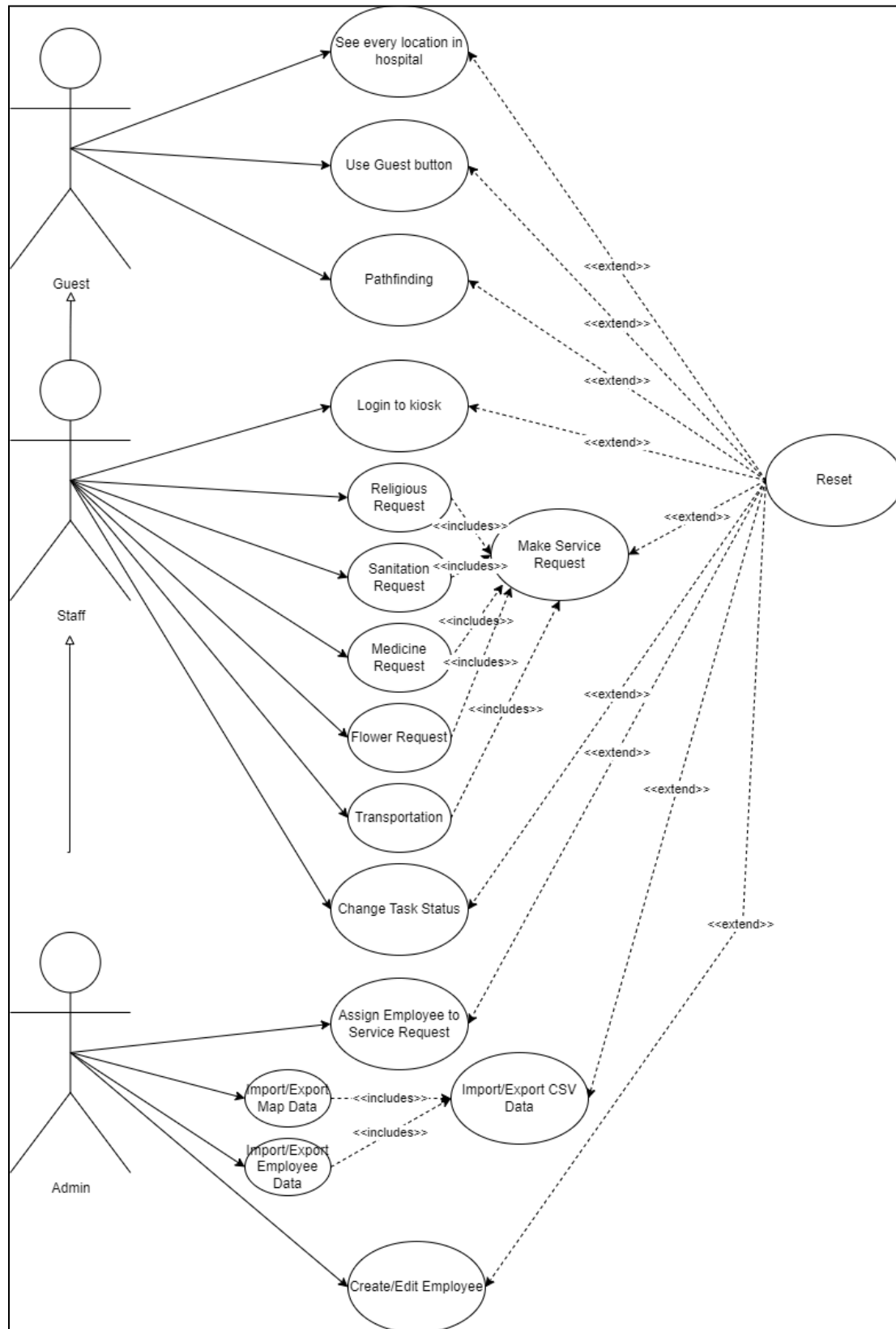
Epic: AWS

- As a user, I would like the app in the cloud, so that I can see it without being connected to the Webstorm Project.
 - Points: 13
 - Developer(s): Stryder

Epic: Additional Features

- As a user, I would like to play a pac man style game, so bored guests can be entertained by the kiosk.
 - Points: 8
 - Developer(s): Alex, Stryder

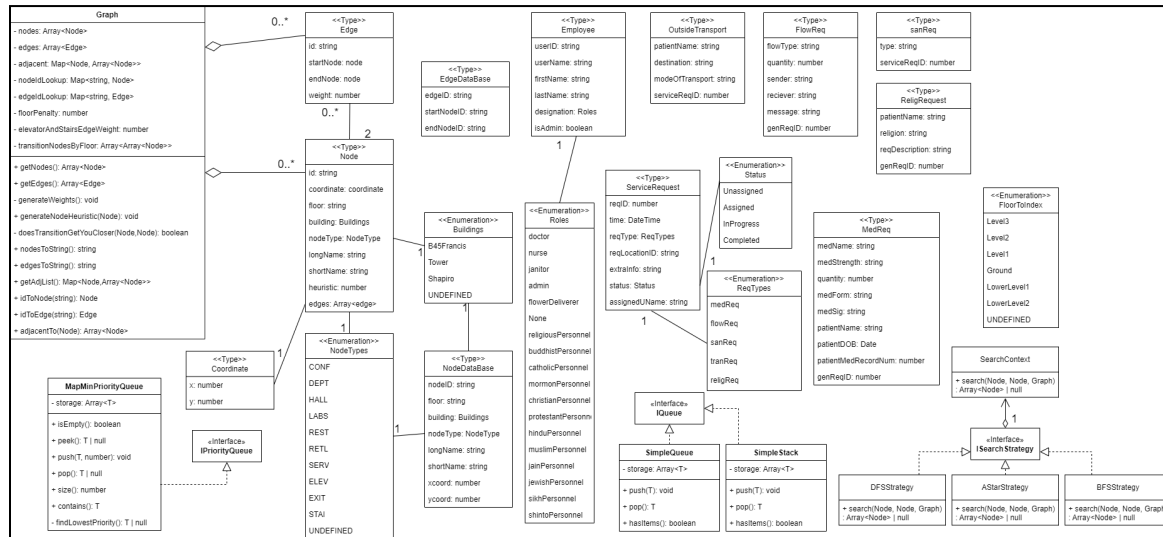
Use Case Diagram



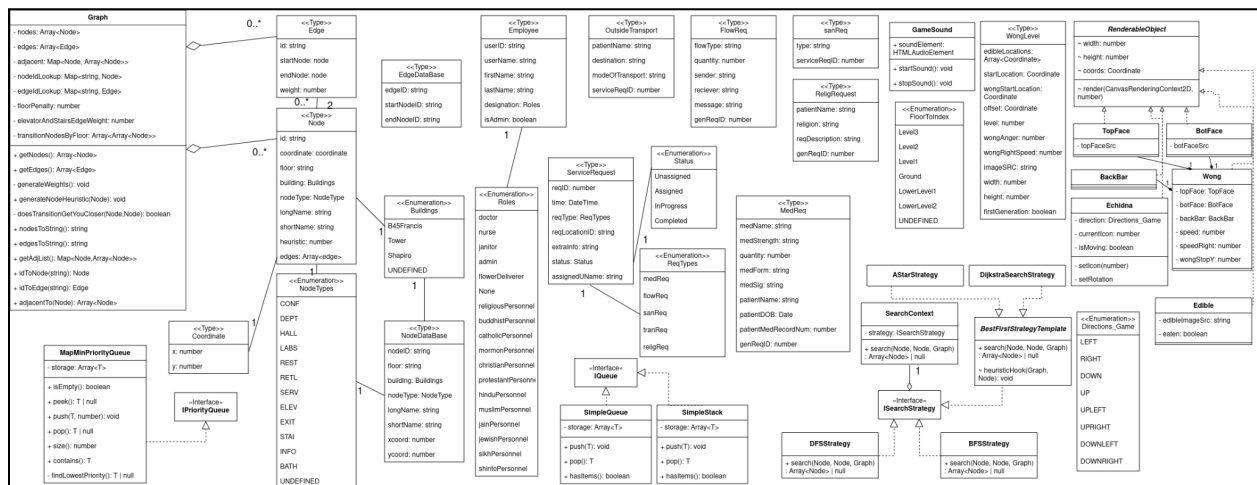
Design Models

Class diagram

Initial:



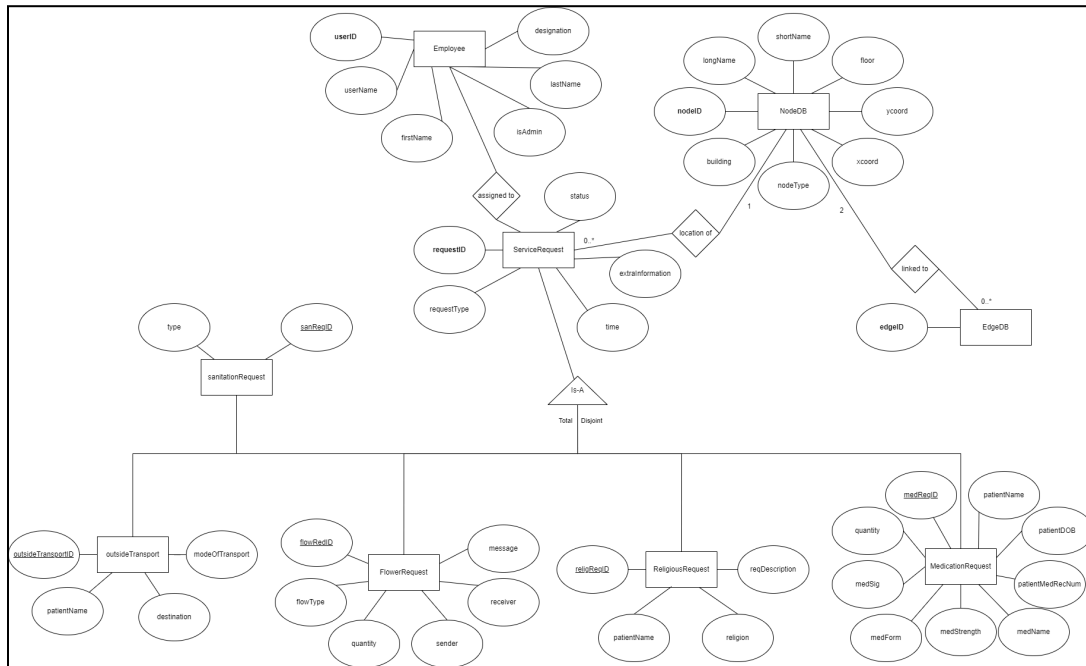
Current:



- added classes for WongMan delighter game
- added some extra node types that were missing in the corresponding NodeTypes enum
- added template design pattern classes for A* and Dijkstra search strategy classes

ERD

Initial:



Current:

The ERD has not changed from above

Design Patterns and Classes that Implement

Strategy:

- Required for switching between search algorithms.
- Interface: `ISearchStrategy`
- Classes: `BestFirstStrategyTemplate` (`AStarStrategy` and `DijkstraSearchStrategy` by inheritance), `BFSStrategy`, `DFSStrategy`

Template:

- Required for pulling out common functionality between `Dijkstra` and `A*`.
- Template: `BestFirstStrategyTemplate`
- Subclasses: `AStarStrategy` and `DijkstraSearchStrategy`

Classes, Interfaces, and Types

Interfaces:

- IQueue
- IPriorityQueue
- ISearchStrategy

Classes:

- Graph
- MapMinPriorityQueue implements IPriorityQueue
- SimpleQueue implements IQueue
- SimpleStack implements IQueue
- Abstract BestFirstStrategyTemplate extends ISearchStrategy
- AStarStrategy implements ISearchStrategy extends BestFirstStrategyTemplate
- DijkstraSearchStrategy implements ISearchStrategy extends BestFirstStrategyTemplate
- BFSStrategy implements ISearchStrategy
- DFSSStrategy implements ISearchStrategy
- SearchContext
- Abstract RenderableObject
- Wong extends RenderableObject
- Edible extends RenderableObject
- Echidna extends RenderableObject
- TopFace extends RenderableObject
- BotFace extends RenderableObject
- BackBar extends RenderableObject
- GameSound

Types:

- Coordinate
- Edge
- Node
- EdgeDataBase
- NodeDataBase
- Employee
- Service Request
- MedReq
- OutsideTransportation
- FlowReq
- sanReq
- ReligReq
- WongLevel

Reflection on All Sprints

What Did the Team Learn About Software Design?

Over the course of the term working on the project, the team learned a lot about software design practices. In our first sprint, while we were able to complete all of our tasks in time, the code was very unorganized and there was not any standardization between styling. Throughout the term the team as a whole learned to organize our code in the project much better. In the front end, the team worked each week to improve the CSS styling to remain consistent and stylized, and use components for elements that can be reused rather than remaking everything each time it is called. In the back end, the team worked to use better design patterns and database organization throughout the term.

What Did the Team Learn About Methodologies and Team Practices?

As the term and the project progressed, the team worked much better together using the Agile project management framework to organize all of the tasks our team had to complete each week. The team each week improved our use of user stories, making sure to create sufficient numbers of cards with enough details, as well as properly sizing user stories with the planning poker point scheme (as displayed in the progression of our user stories in section [Epics and User Stories](#)). As well, the team learned to properly utilize pair programming, always trying to assign one front end and one back end developer to each task, so each pair could have an encompassed knowledge of the entire project as well as the two developers could teach each other what they know, progressing everyone on the team closer to being a full-stack developer.

What Did the Team Do to Improve Team Cohesion?

From the beginning of the term, our team did not have significant issues with team bonding and cohesion, and this only built throughout the course. Through team bonding and working together on the project, our team got to know each other well, making us a well-working team by the end of the project.

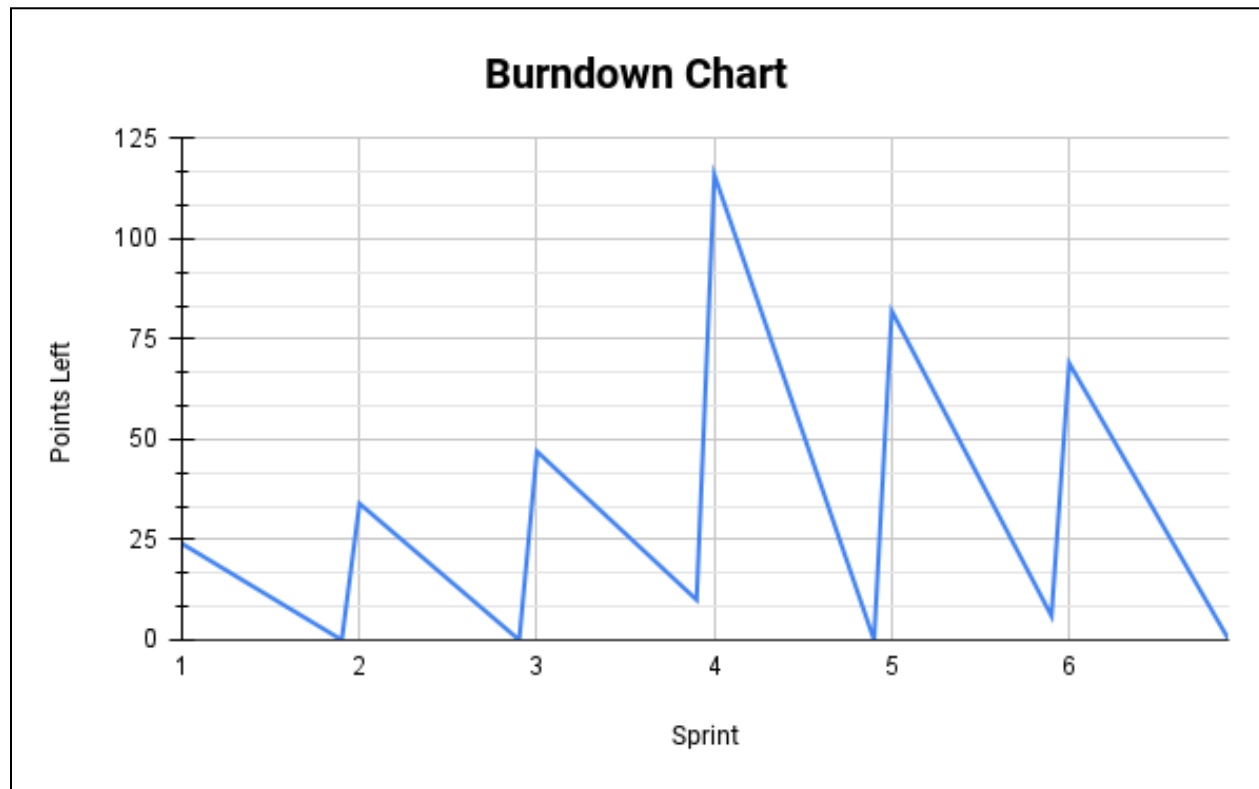
What Would the Team Have Done in Hindsight?

With our hindsight from the end of the project, our team would have made sure to create more and further detailed user stories, and make sure to keep the Trello board updated while communicating everyone's progress; this would have helped our team immensely in the beginning, as these were the primary factor holding back our team in the first few sprints.

Spending more time getting AWS working would have also helped our final presentation. Our team felt the presentation was a bit lacking given the difference in enthusiasm the professor demonstrated between our group and other groups' presentations.

Project Management

Product Burndown Chart



Changes in Team Positions

There were no changes in team positions for this over the duration of the project. The team is pleased with the work everyone has done and believe everyone performed well in their respective roles.

Team Events

This week we continued to meet for both working and social meetings, continuing to play Jackbox games over discord for bonding, and sharing meals together. The team has continued to be able to connect with each other outside of working duties, which benefits our productivity for each sprint.

Team Member Contributions Across the Term

Name	Contributions
Shiivek Agarwal	<p>Created the profile page and styled it for consistent formatting, it showcased the service request table and graphs for it. Made some bug fixes on the credits Page, and the register page for consistent formatting and the right redirection. Made some changes to the side navigation bar with an added icon for the profile page. I created frontend filters for service request filtering and displayed statistics with graphs on the general service request page and employee profile pages. I also created the flower requests input page and request list page, making a backend-frontend connection. I was managing frontend expectations, formatting, and merging frontend files, including the creation of the Global Navigation bar and map pages on the previous iterations. I was using Figma to make a cohesive user interface. I have been working with frontend using Tailwind and CSS making pages consistent and cohesive.</p> <p>Non-Coding: Finalizing and submission of the final projects. Helped on the User manual and the final presentation. Worked with brainstorming ideas for front end.</p>
Antonio Aguiar	<p>Coding: Created the medicine request form and the preliminary medicine request. Also made the sanitation request form and table. Made the popup appear and made the line animated. Made import and export buttons for employees and implemented export. Did an overhaul of the employee and csv page so you can choose which csv to export and import. Helped with the filtering of the things in the service request tables. Also helped with making dropdowns on multiple pages. Helped with assigning employees and assigning level of priority and completeness. Bug fixes for the website that allowed things to be consistent.</p> <p>Non-Coding: Did the documentation for the first prototype. Made the interview and qualtrics survey.</p>
Sameer Augustine	<p>Coding: Worked on initial state of service request list. Helped design the sanitation request. Designed and created the about page. Implemented the chart.js react package to display service request statistics. Added pie charts and bar charts for the profile page so employees can see personal visual statistics. Also added charts to display stats and graphs for requests per building. Helped clean the general CSS issues and cleaned up code management.</p> <p>Non-Coding: Helped introduce scrum foundations to the team and set up how to run sprint meetings and reviews. Ran daily scrum as Scrum Master for the team. Created the Trello for all user stories and tasks for the project.</p>

Mike Conroy	<p>Coding: Created temporary login page, then implemented Auth0 login and protected pages. Created external transportation form, new employee registration page, and package credits page.</p> <p>Non-Coding: Each week organized and wrote the submission documents and weekly presentations. Wrote and organized the user manual.</p>
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Stryder Crouse	<p>Coding:</p> <p>Prototype 1:</p> <p>Helped organize the team and assign roles and user stories</p> <p>Prototype 2</p> <p>Created pathfinding representation on map, created population of tables, assisted with database. Merged all branches together. Helped connect backend to frontend. Import/Export CSV functionality. Wipe database on boot functionality. Connected med-request-list to database</p> <p>Iteration 1</p> <p>Created a function to generate the weight and heuristic for nodes for A Star. Created the functionality of the new map page and changed the rendering to be more react-like. created the front end for the service request table and connected it to the back end. Implemented only employees with medical permission are allowed to make medical requests. Did bug fixes on reading in CSV input and fixing bad edge data</p> <p>Iteration 2</p> <p>Made the map page zoom and pan. Added functionality to the feature buttons on the map page. Created front-end for pathfinding between floors and node hover information. Added functionality to add, edit, and remove employees. Did refactoring of service requests and helped people with their service request pages. Added location drop downs for medicine, transport, and religion</p> <p>Iteration 3</p> <p>Helped create text directions with Alex, figured out how to correctly check if a turn is right or left. Allowed service requests to be filtered by priority, employee and location. Implemented the front end to toggle between types of pathfinding. Helped resign the map page with Cris. Helped integrate auth0 into our back end with Ryan and Mike. Allowed services requests at a node on the map to be shown. Allowed node information to stay on the map when a node is right clicked. Created checkboxes to show all edges, node, or/and locations. Changed nodes on the map to be more professional and added the start and end map icons. Allowed only non-hall way locations to be selected throughout the app and the map page. Hallway nodes only show on the map when they are part of the path. Resized the map automatically depending on the floor. Fixed a bug where the website would sometimes hang. Helped Sammer with creating statistic graphs. Implemented static graphs for each service request and general service requests. Helped Alex create the input employees csv functionality.</p> <p>Iteration 4</p>
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	<p>I created wong man (pac man game), helped alex implement dykstra, helped sammer implement graphs, helped shivek and grace implement employee profile page, helped ryan implement importing a employee csv to back end, created quick path icons and implementation on map page.</p> <p>Non-Coding:</p> <p>In all iterations I helped create user stories and assigned people to their tasks. I also created technical presentations to teach others how to develop the front end and back end.</p>
Ryan Hunter	<p>Coding: Ability to Add or delete an Employee from auth0 and the database, Connection between our database and auth0, Ability to filter service requests by status and type, Ability to add and drop service requests and med requests, Got nodes and edges to repopulate database when loading on a localhost, Ability to add and drop transport requests, Login page connection to the database and auth0, Ability to click buttons to filter between nodes, edges, and employee tables, Buttons to import and export employee, nodes, and/or edge table(s), About Page showing quotes when hovering over, Helped other service request teams with their backend problems, helped make the public version of the database, and Allowed sign-in on website to add correct info to auth0.</p> <p>Non-Coding: Helped merge changes into backend branch and merge changes into dev-main, Helped update the trello when anyone completed their tasks, and Helped other team members write their contributions</p>
Chris Lam	<p>Coding: In the prototype iterations, I was responsible for the Map Page, CSV, export, and Request List Pages. Starting the iterations, I implemented a whole rework of the UI using the TailwindCSS framework, redoing the Map, CSV, Service Requests, employee, and request list UI. I worked on features such as the Employee Table functions (add, modify, delete). As a lead for frontend, I managed merges and pull requests along with any CSS bugs throughout the application from each feature of the team.</p> <p>Non-Coding: Leading design discussions, user story scoring, presentations on how to do certain tasks.</p>

Szymon Mamro	<p>Coding: Initial population of database of nodes and edges, created prisma schemas for nodes, edges, service requests; ability to update service requests in database and change status; created flower service request and retrieve flower requests functions; created functions to get statistics of overall requests and specific requests, helped refactor prisma schema and repopulate the public database; created functions to get statistics of overall requests and specific requests per which building they are located in, populated information in Credits page, connected Profile page to correctly retrieve the employee data from the database linked to the employee currently signed into auth0; linked front end to back end for each part</p> <p>Non-Coding: Helped update ERD and classes diagram</p>
Grace Phillips	<p>Coding: Wrote some of the axios.get and .post requests for service requests; made enums to help frontend pass info through the .get and .post functions; created the religious request input form with Alana; created the generalized CreateDropdown component with Alana; only allowed employees of the same religion as a religious request to fulfill said request; created the new medicine request input form/display table and functions to connect them to the database; made the “profile page” requests table functional and able to show/hide completed requests</p> <p>Non-Coding: Helped update ERD and class diagram, drafted team covenant, wrote and helped score user stories, designed several UI elements, prepared WongMan assets</p>

Alex Ramirez	<p><u>Coding:</u></p> <p>1 Feb: Refactored Algorithms code into more apt directories and renamed every class to better match TypeScript naming conventions. Fixed a prolific “CVS” typo in the backend. Implemented BFS with help from Stryder.</p> <p>7 Feb: Implemented A* pathfinding and priority queue. Modified Graph class to facilitate A* pathfinding (looking up edges by ID).</p> <p>14 Feb: Assisted in redesigning the app UI. Moved the old Iteration 1 ServiceRequest code to the new MedRequest page, enabling us to have multiple request types. Assisted in populating the Employee page. Refactored, commented, and cleaned up map page TypeScript (it’s now legible). Refactored every service request page with Stryder to use the new SimpleTextInput component.</p> <p>21 Feb: Implemented DFS. Implemented Strategy boilerplate for switching between search algorithms. Full-stack implemented employee CSV importing. Worked with Stryder to fix several database response bugs that caused the website to lock up.</p> <p>28 Feb: Implemented Dijkstra pathfinding with Template pattern. Assisted Stryder with creating WongMan deligher game (screen resolution scaling, level data, level changing mechanism as well as pulling nodes from backend).</p> <p><u>Non-Coding:</u></p> <p>1 Feb: Helped Mike edit and revise the submission document. Updated the previous class diagram to include the new types from this sprint.</p> <p>7 Feb: Created Google Slides presentation design language. Assisted Grace with updating the class diagram and Mike with finalizing the submission document.</p> <p>14 Feb: Assisted Grace with updating the class diagram and Mike with finalizing the submission document.</p> <p>21 Feb: Updated the class diagram for the new Strategy boilerplate. Assisted with updating the presentation slides and the submission document.</p> <p>28 Feb: Updated class diagram for new Template boilerplate and WongMan classes. Contributed to submission document and presentation slideshow</p>
Alana Reid	<p><u>Coding:</u></p> <p>started map zoom functionality, implemented front end user id collection from auth0, Created a createDropdown component to be used for universal dropdown creation, and made the religious request form and table. Helped refactor old css files and split serviceRequests.ts into</p>

	<p>individual files for each type of service request, Worked on improving the front end for religious and med requests with grace, Worked on updating components within the app to make them more flexible. Worked on making sure the input and tables for service requests have the same layout for consistency, updates medicine request input to take more accurate fields, added hover quote boxes to about page</p> <p>Non-coding: Updated Figma mockups, Redesigned figma to show new UI design and feature use examples,</p>
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