

# CS496 Documentation

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Client: Abagail Best

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## 1 Client Information

1. Client name: Abby Best
2. Client title: Chief Executive Director
3. Client email address: abby@assistedlivingdirect.org
4. Client employer: Medicaid Compasscare
5. How you know the client: IS Professor's daughter

## 2 Project Description

To create a user-friendly app that will provide an intuitive way for users to search for and access information on assisted living facilities, including their Medicaid Waiver and Senior Assisted Living Subsidy (SALS) certifications.

### 2.1 Overview

Currently there is no way for an individual to see all the available assisted care facilities near them. This app aims to fix this problem by combining all the care facilities, including those certified for Medicaid and SALS, in Maryland into one app. The client wants the project to revolutionize the search for assisted living facilities by providing centralized, user friendly platform that offers real-time, on all available options. Currently, our client uses an excel sheet to manage all of the data for the assisted living facilities and she has to manually update it. The data for these facilities is currently being manually updated on their website. However, they aim to create their own application version of the website while also implementing real time updates from each facility. We plan on making an app that will automatically pull data from the other assisted living facilities databases and update in real time.

### 2.2 Key Features

1. User Authentication: Login/Register with email or Apple ID
2. Find Assisted Living Facilities in Maryland and update in real time: Connect to Database, Filter by certifications, Google Maps API integration
3. Facility Availability: Profiles for 29 Assisted Living Facilities, Filter System
4. Facility Profiles: Cost, gender, Wheelchair accessible, Medicaid or SALS, directions
5. Notifications: notify users of changes in availability
6. Admin Panel: add/edit facilities

## 2.3 Why this Project is Interesting

After learning that there is no centralized platform or application dedicated to finding assisted living facilities that accept Medicaid or Maryland's Senior Assisted Living Subsidy (SALS), My client saw an opportunity to address this gap. Creating such a resource could significantly benefit Maryland residents, helping them find accessible, affordable assisted living options tailored to their needs.

## 2.4 Areas of CS required

Web development and Database Management would be required for this project.

## 2.5 Potential Concerns and Questions

No concerns as of now.

# 3 Comparison to Draft

Fill out this section by answering the following questions in paragraph form (you can remove these instructions as you complete it):

- Is this project the same project that one of the partners proposed, and if so whose proposed project is it?

Yes, this is Brett's proposed project.

- If this project is the same as was proposed in your draft, in what main ways has the proposal changed since your draft?

We added more details about how the client currently runs their website and how we plan on changing it. For example, we mentioned how they currently have a website that they update manually, and we plan on making an updated version of a website that pulls from other databases and updates in real time.

## 4 Requirements

### 4.1 User Stories

#### S1: Register (2)

1. **I want** to register an account on the website
2. **So that** I can search for assisted living facilities

#### S2: Log in / Log out (1)

1. **I want** to be able to login to my account on the website
2. **So that** I can access my saved data

#### S3: Search for Facilities (5)

1. **I want** to be able to see all assisted living facilities in Maryland
2. **So that** I can search for assisted living facilities

#### S4: Facility Filters (3)

1. **I want** to be able to filter living facilities by what they offer
2. **So that** I can pick the one that fits my needs

#### S5: Location Filters (3)

1. **I want** to be able to filter through living facilities based on location
2. **So that** I can pick the one that is in the area of my desire

#### S6: Information for Facility (3)

1. **I want** to be able to see all information for a facility i click on
2. **So that** I can pick the facility best for me

#### S7: Notifications (3)

1. **I want** to receive a notification when there is a change in availability in a facility
2. **So that** I can see if a facility opened up

#### S8: Notification Preferences (1)

1. **I want** to be able to choose how I receive message notifications
2. **So that** I can receive alerts via email, text, or both

#### S9: Facility Listings (8)

1. **I want** to be able to add/delete facilities and update any information
2. **So that** I can create new listening and keep information up to date

**S10: Upload Image For Facility (1)**

1. **I want** to be able to upload image of facility
2. **So that** I can search for assisted living facilities

**S11: Update Facility Images (2)**

1. **I want** to be able to change the image for facilities
2. **So that** facilities can make updates to their images for any changes

**S12: Reset Password (1)**

1. **I want** to be able to reset my password
2. **So that** If I forgot it, I can log back in

**S13: Google Maps API (2)**

1. **I want** to be able to see where a facility is located on a map
2. **So that** I can see if its close by

**S14: Contact Admin (2)**

1. **I want** to be able to create a message to contact admin
2. **So that** they can answer my questions

**S15: Read User Message (2)**

1. **I want** to be able to read Users messages
2. **So that** I can help answer their questions

**S16: Delete (2)**

1. **I want** to be able to delete Users messages
2. **So that** When I'm done helping the user I can clear the inbox

**S17: Saved Facilities (2)**

1. **I want** to be able to save a posting for a facility
2. **So that** I can keep it stored for future reference

**S18: Removed Saved Facility (1)**

1. **I want** to be able to remove facilities that I have previously saved
2. **So that** I can remove it from my list and not see it when I don't need it

**S19: Recently Viewed (2)**

1. **I want** to be able to have a saved list of recently viewed facilities
2. **So that** I can easily go back to facilities I previously viewed

**S20: Pictures (1)**

1. **I want** to be able to see a picture of the facility
2. **So that** I can see if the facility is nice

**S21: Directions (1)**

1. **I want** to be able to have directions to any of the assisted living facilities
2. **So that** I can see how far the drive is

**S22: Contact Information (1)**

1. **I want** to be able to have access to email and phone number of facility
2. **So that** I can contact the correct people if I have more questions

**S23: Comparing Facilities (1)**

1. **I want** to be able to view information of multiple facilities at the same time
2. **So that** I can compare them between each other

**S24: Featured Facilities (1)**

1. **I want** to be able to view the most popular facilities
2. **So that** I can see what's popular among everyone else

**S25: Writing Reviews (2)**

1. **I want** to be able to write a review for a Facility
2. **So that** I can share my opinion with others for reference

**S26: Deleting Reviews (1)**

1. **I want** to be able to delete a review I made for a Facility
2. **So that** I can remove it in case I no longer want it posted

**S27: Reading Reviews (1)**

1. **I want** to be able to view reviews for a Facility
2. **So that** I can judge how good a facility is based on others experience

**S28: Profile Management (5)**

1. **I want** to be able to manage my account
2. **So that** I can view it, make updated changes, and delete it

**S29: Sorting (2)**

1. **I want** to be able to sort my searches based on price, proximity, etc.
2. **So that** I can compare and contrast my filtered facilities

## 4.2 Non-Functional Requirements

**NFR UI**

- The Website shall have the same design and layout as the client's website

**NFR Images**

- All images shall be uploaded in JPEG format and not PNG

## 5 Iteration Planning

Sprint	Features
Iteration 1	Register (S1) Log In/Out (S2) Search For Facilities (S3) Profile Management (S28)
Iteration 2	Facility Filters (S4) Location Filters (S5) Information for Facility (S6) Facility Listings (S9) Upload Image for Facility (S10) Update Facility Images (S11) Saved Facilities (S17)
Iteration 3	Notifications (S7) Notification Preferences (S8) Facility Listings (S9) Writing Reviews (S25) Deleting Reviews (S26) Reading Reviews (S27)
Iteration 4	Recently Viewed (S19) Pictures (S20) Directions (S21) Contact Information (S22) Comparing Facilities (S23) Featured Facilities (S24)
Iteration 5	Reset Password (S12) Google Maps API (S13) Read User Message (S15) Delete (S16) Removed Saved Facility (S18) Sorting (S29)

Table 1: Iterations Table, Total Story Points: 62

## 6 Design and UI

### 6.1 Architecture

We plan on implementing a Web Model-View-Controller (MVC) architecture. The model will be responsible for interacting with the database to perform CRUD operations. Moreover, the model will respond to the controller when accessing the database is necessary because the controller can't access the database. The view is responsible for handling the front-end of the website, rendering the UI and interacting with the user. For this we will be using React as React's components dynamically display data from the back-end and captures user input. The controller will serve as an intermediary between the Model and the View. The controller will communicate with the model to update and retrieve data from the database.

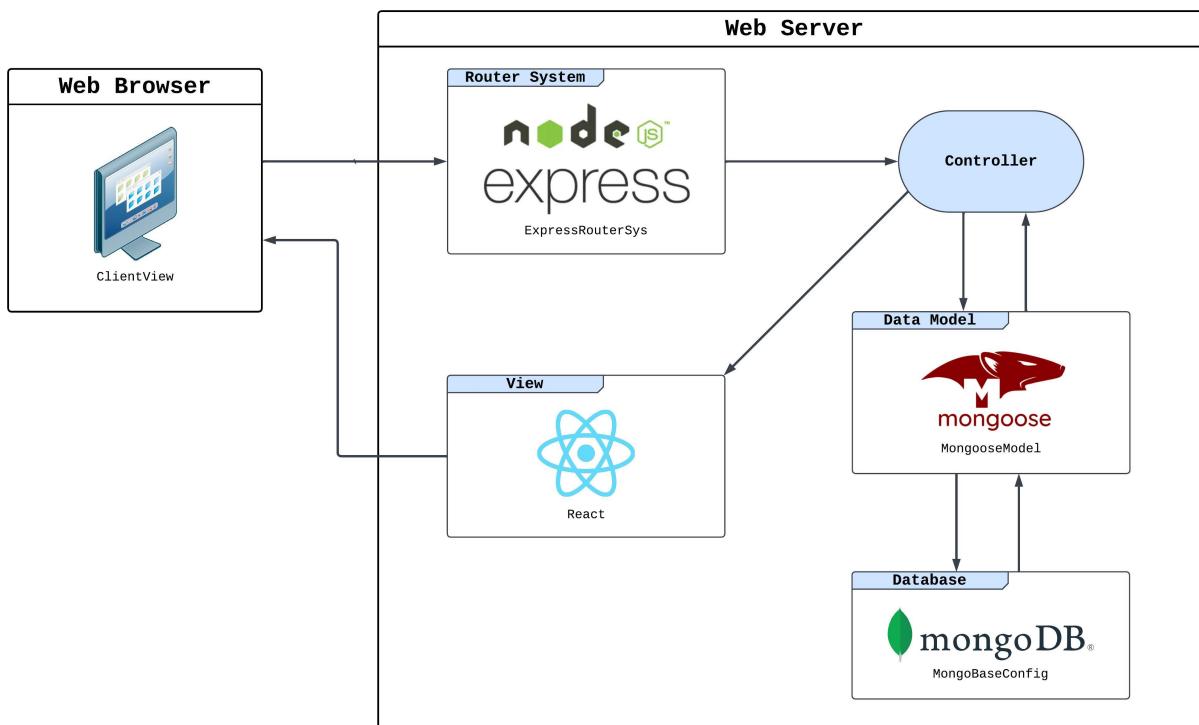


Figure 1: Web MVC Architecture for Medicaid Compasscare Web App

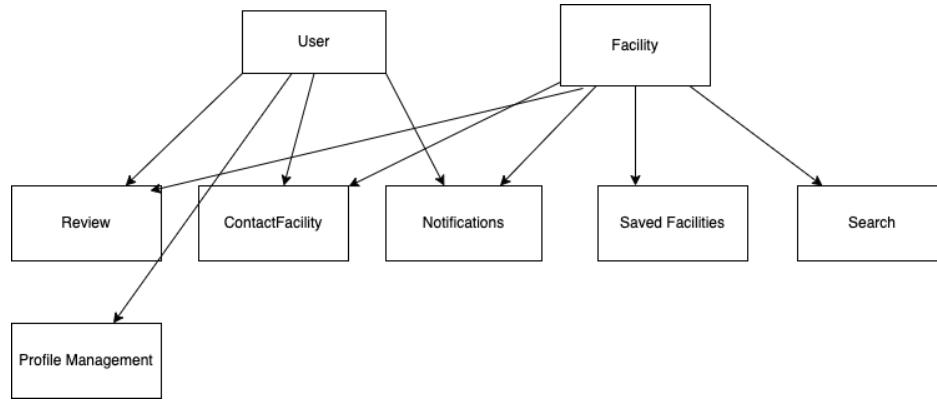


Figure 2: Simplified Class Diagram

We will incorporate a full MERN stack for this project. Thus, the main modules include React for the frontend, Express.js in tandem with Node.js for the backend, Mongoose for data access, and finally MongoDB will serve as our database.

## 6.2 Technology

React will be used to build the user interface, leveraging its component-based architecture for reusable and dynamic UI elements. Thus, the primary language for the entire stack, including both the frontend and backend, will be JavaScript. The backend of our project will run on Node.js and Express.js as they will help us in building the API endpoints and managing the server-side routing. To properly compliment our frontend and backend we will use MongoDB as it offers seamless integration with the MERN stack and efficient handling of semi-structured data.

As far as libraries go, we will be using an ODM (object data modeling) library for MongoDB that provides schema-based validation and middleware support known as Mongoose. Axios will also be utilized for making HTTP requests from the frontend to the backend API.

The dataset provided by our client is essentially a large Excel sheet where 29 facilities are connected to it and have access to change it every month. It is extremely unorganized as our client has to manually update their temporary website with this dataset. We will need to clean this before importing it into MongoDB, thus, the data will need to be cleaned and normalized.

### 6.3 Data

```

1  {
2      "facilityID": "unique_facility_id",
3      "facilityName": "Example Assisted Living Facility",
4      "address": "1234 York Rd, Baltimore, MD",
5      "priceRange": "$2000 - 4000",
6      "capacity" : "10/13",
7      "amenities": ["Handicap Accessible", "Gender Inclusive", "Pet-friendly"],
8      "contactInfo": {
9          "phone": "+1-234-456-7890",
10         "email": "info@example.com"
11     },
12     "images": ["url_to_image1", "url_to_image2"],
13     "lastUpdated": "2025-01-29T15:00:00Z"
14 }
15 {
16     "userID": "unique_user_id",
17     "userName": "Brett",
18     "email": "brett@gmail.com",
19     "password": "123",
20 }
21 [
22     {
23         "reviewID": "unique_review_id",
24         "userID": "unique_user_id",
25         "facilityID": "unique_facility_id",
26         "rating": "8/10",
27         "comment": "Was pretty decent",
28         "datePosted": "12-03-2025",
29     },
30     {
31         "notificationID": "unique_notification_id",
32         "userID": "unique_user_id",
33         "facilityID": "unique_facility_id",
34         "message": "The Best Care Facility has an open room!!",
35         "date": "12-03-2025"
36     }
37 ]

```

Figure 3: Collections and Attributes Data in JSON File

For a NoSQL database like MongoDB, the data structure is typically represented as collections and their associated documents. Thus, each document will be stored in a JSON-like format with key-value pairs, providing flexibility for storing complex and hierarchical data.

### 6.4 UI

After speaking with our client, they have provided many mockup designs of how they would like their design to follow. These designs were already made prior to us contacting them as they originally intended to create a mobile application. They have since halted this idea in order to work on improving their website. However, they have stated that these designs are still relevant and accurate to how they would like their web application to be designed. These figures act as rough sketches to try and convey their idea of how the main pages should be designed.



Figure 4: Searching For Facilities

They have provided us with sketches for their page where the main listings for assisted living will be posted for users to view. Their prices, names, and icons offer a brief description of what each location offers. As displayed on the right users can filter their search based on handicap accessibility, gender inclusivity, and many more factors important to choosing an assisted living facility.

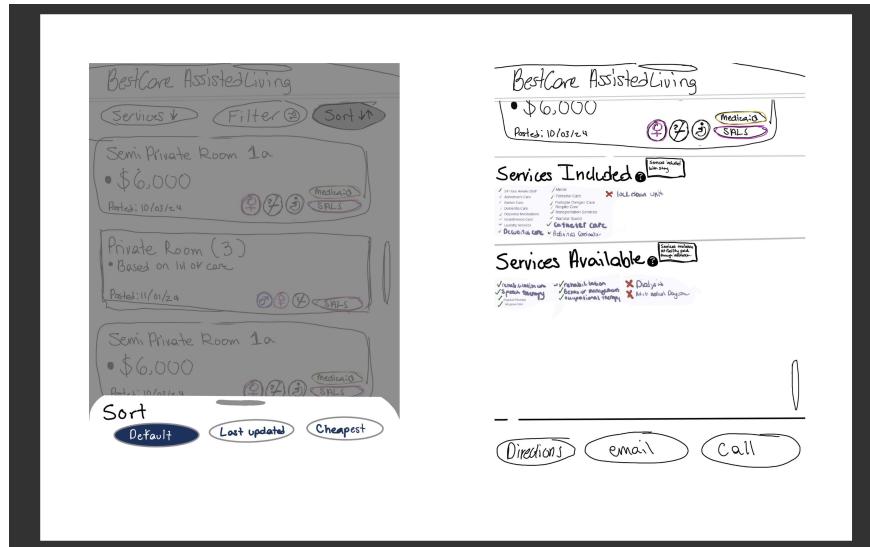


Figure 5: Filters For Facilities

The user can click on each listing in order to learn more about it and contact the facility should they choose to book from there.

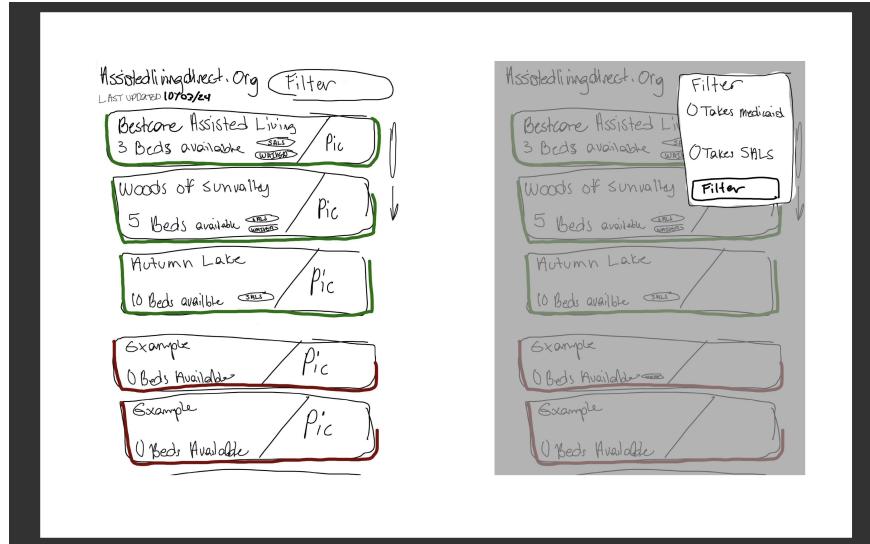


Figure 6: Searching For Facilities + Filter

Our client has also hoped to display a small image for each facility listing so that users can get a brief look into where they are booking exactly. There is also a variant of the filter shown previously which would appear at the top right. It is much more simplistic in nature but still conveys a general idea of how our client would want the web application to be designed.

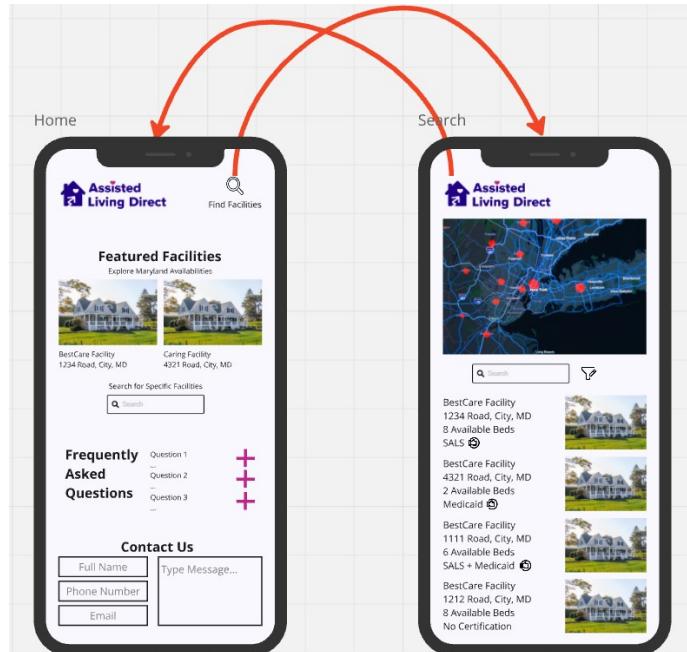


Figure 7: Mobile Website

Along with our client's mockups we have also created our own wireframe for the website based on how it would look as a web application on mobile devices.