Combined SRS: MemorEZ Application

Version 2.0

Consolidated by James Eble (Project Manager)

UMGC SWEN670 – Spring 2022

Professor: Dr. Mir Assadullah

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Revision History for Combined SRS

Version	Date	Reason	Approved By
1.0	1/30/22	Combined Versions	James Eble
1.1	1/31/22	Add Revision section	James Eble
1.2	2/3/22	Professor Feedback	James Eble

Section 1 – MemorEZ Patient Mode

Team FlutteringMind

Revision History for Patient Mode SRS

Revision Number	Date	Description	Authors	Reviewed & Approved By
1.0	01/21/2022	Initial Release	Selina Zaman Vanessa Stringer Joshua Fischer Joseph Jewell Daryle Urrea Sean LaMonica Anusha Ramanan	Selina Zaman Vanessa Stringer Joshua Fischer
1.1	01/28/2022	Updated Requirements	Selina Zaman Vanessa Stringer	Selina Zaman Vanessa Stringer Joshua Fischer Joseph Jewell Daryle Urrea Sean LaMonica Anusha Ramanan
1.2	03/19/2022	Updated Requirements	Selina Zaman Anusha Ramanan	Selina Zaman Anusha Ramanan

Note: This section uses data from the *Software Requirements Specification MemorEZ Application for Patient Mode* shown above. To view the caregiver SRS version, see p. 73.

Software Requirements Specification

1 Introduction

1.1 Purpose

The Software Requirements Specification (SRS) document is intended to describe the requirements, both functional and nonfunctional for release 1.0 of the MemorEZ App. The intent of this document is to be used by members of the project team, FlutteringMind, to ensure implementation of the system's functionalities, as well as verify them. All of the requirements are considered high priority unless otherwise stated and should be released during release 1.0.

1.2 Scope

The software that is being created, MemorEZ, is an application to aid two types of users; one type of user is an individual with short term memory loss (STML) and the second type of user is the caregivers. This application is intended to aid and assist these individuals who are suffering from STML, as well as their caregivers. The application intends to increase the amount of monitoring a caregiver can have on an individual with STML, while aiding them with organization.

The project's work scope is to revise, as well as add on to an existing mobile application designed for individuals currently suffering from STML. The mobile app will be developed and created using Android Studio in Flutter, as well as using the Dart programming technique. There will be two parts of this application, the admin/caregiver mode for the users who are the caregivers and the patient mode for the individuals with STML. The admin/caregiver mode will be developed by team RememberAll. The patient mode of the application MemorEZ will be produced by the team FlutteringMind. The following requirements will be in scope as part of the release 1.0 of the MemorEZ App for team FlutteringMind where individuals with STML shall be the users of the patient mode:

1.2.1 Functional Requirements:

Requirements#	Functional Requirements
Req 1	The application shall have a patient mode and an admin/caregiver mode.
Req 2	The application shall take the user through an onboarding process when opening the application for the first time.
Req 3	The application shall include a calendar.
Req 4	The application shall notify/remind the user of an upcoming scheduled appointment or event.
Req 5	The application shall display a list of Active tasks and event reminders for the day in the patient mode.
Req 6	The application shall display notifications for tasks assigned in the admin/caregiver mode to be visible to the user in the patient mode.
Req 7	The application shall allow the user to upload an image as a response to an assigned task, mark the specified task as complete, and remove the task from the Active list of tasks and event reminders for that day in the patient mode.

Req 8	The application shall allow the user save an assigned task to be completed later in the patient mode.
Req 9	The application shall allow the user to view completed tasks and event reminders once removed from the Active list of tasks and event reminders in the patient mode.
Req 10	The application should provide the option for a mood questionnaire to be displayed for the user to complete at the intervals assigned in the admin/caregiver mode.
Req 11	The application should allow the user to notify a specified contact if the user's mood response requires attention.
Req 12	The application shall have a Profile in the patient mode that displays information about the user.
Req 13	The application shall provide a text-to-speech function in the patient mode of the application.
Requirements#	**Functional Requirements**
Req 14	The application shall provide a search function that allows for search by keyword.
Req 15	The application shall provide a help button.
Req 16	The application shall store information locally on the user's device.
Req 17	The application shall allow the user to use the speech-to-text feature to transcribe notes.
Req 18	The application shall allow the user to add a new note using voice or text as well as modify and delete existing notes.
Req 19	The application shall allow the user to sort a list of notes by date and group the notes by subject category.
Req 20	The application shall have a default language option of English and support additional multi language options.
Req 21	The application shall allow the user to customize and manage start, stop, and recall trigger words and phrases.
Req 22	Upon recognizing the user's voice and phrases, the system shall begin recording a text note.
Req 23	The application shall recognize and ignore background voices and environmental noises.
Req 24	The application shall transcribe speech when key trigger phrases are mentioned.
Req 25	The system shall identify notes by date or subject category.
Req 26	The application shall prompt the user to permit the application to access their microphone, camera, and storage resources.
Req 27	Features shall be hidden if disabled in admin/caregiver mode.
Req 28	The application shall only listen and record speech when listening mode is activated.

1.2.2 Non-Functional Requirements

Requirements#	Nonfunctional Requirements
Req 1	The application shall require user authentication to access the admin/caregiver mode of the application.
Req 2	The application shall not require user authentication to access the patient mode of the application.

Requirements#	Nonfunctional Requirements
Req 3	The patient mode of the application shall have a simplistic user interface that incorporates large, labeled, and colorful buttons with icons for ease of use.

1.3 Definitions, Acronyms and Abbreviations

Some of the terms used throughout this document are defined in Table 1:

Table 1 – Acronyms and Definitions

Acronyms	Definitions
UI	User Interface
GUI	Graphical User Interface
SRS	Software Requirement Specification
STML	Short-Term Memory Loss
HIPAA	Health Insurance Portability and Accountability Act
PHI	Protected Health Information
SRS	Software Requirement Specifications
API	Application Programming Interface

1.4 References

Avery, D., Balbi, T., Bell, K., Crumb, K., Cruz Jimenez, C., Muwan, P., & Salim, S. (2021, October 10). Software Requirement Specification Memory Magic App. University of Maryland Global Campus.

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1.5 Overview

The SRS document reviews the software requirements for the application MemorEZ. The SRS is broken up into four sections, Introduction, Overall Description, Specific Requirements, and Supporting Information.

The Introduction Section is broken up into six parts. First, it discusses the Purpose of the document, and its importance to the project. Second is the Scope of the project, which discusses the requirements of the project. Next is the Definitions, Acronyms and Abbreviations section which lays out the different acronyms seen throughout the document, and their meaning. Fourth is the References section, which will reference all documents used in the creation of this document. Fifth is the Overview section, which will discuss all the pieces of this document, and sixth is the HIPAA section, which describes what HIPAA is and the importance of it.

The Overview Description section describes the factors that affect the product, but not the specific requirements. This section discusses the background information about the requirements. There is a Use-Case Model Survey in this section that discusses the use-case model and gives a brief description of the use-cases, actors, and diagrams that were used. It also discusses the assumptions of the project, as well as the dependencies needed for the project.

Third is the Specific Requirement Section. This will contain the software requirements for this project, detailed enough for the designers to design the system, and so testers can test the requirements. The Overall System Requirements section lists out the requirements, as well as the stimulus and the response, giving the design and testing team the information, they need to create, and test the application. This should be done via Use Case Reports. There will also be a Supplementary Requirements section that discusses all the supplementary requirements.

The Supporting Information section includes, but is not limited to a Table of Contents, Index, Appendices, and all other supporting documentation incorporated in the creation of this document.

1.6 HIPAA Privacy Rule & HIPAA Security Rule

HIPAA is a federal law that requires the nation to protect a person's medical records, as well as their PHI. The MemorEZ application will follow HIPAA guidelines to Privacy by keeping PHI of the user secure, and private. Users will be informed of their HIPAA rights, and access to any of the users' information will be limited.

HIPAA Security Rule ensures the HIPAA Privacy Rule is protecting, protecting a person's PHI. In order to ensure the MemorEZ will follow HIPAA Security Rule, technical safeguards will be in place to ensure confidentiality, integrity, and availability of all health information is protected. Safeguards against anticipated threats against security will be in place. Protections against anticipated impermissible uses and/or disclosures will be in place, as well as compliance by all persons working on or with this application.

2 Overall Description

The MemorEZ application aids individuals with short-term memory loss (STML). It serves different features that aid both types of users; caregivers and individuals with STML to manage basic care and activities of daily living. The users shall have access to take a mood survey, create, and store notes using text or speech-to-text, and view a self-profile. The caregiver shall have the ability to access and admin/caregiver mode of the application to create a profile for the individual user with short term memory loss. This application benefits individuals with STML and can contribute to the caregiver's effectiveness and efficiency.

2.1 Use-Case Model Survey

Table 2 – Use Case Survey Use Case	Description
1. Accessing the app.	Open the application.
2. Viewing and completing an activity or reminder task.	Completes a task within the task list.
3. Completing a mood task.	Moods represented by buttons can be selected.
4. Viewing the calendar.	Display the native calendar of the user's phone.
5. Viewing a self-profile.	Displays the profile of the user.
6. Accessing the help page.	Displays a page with a list of help links.
7. Viewing completed tasks.	Displays a page with completed tasks.
8. Search function.	Filters reminders and tasks by keywords entered in the search text field.
9. Record a note.	A note can be generated using speech-to-text or using the device keyboard.
10. Add, modify, and delete notes.	Displays the notes page and options for adding, modifying, and deleting notes.
11. Add, modify, and delete trigger words.	Displays a trigger words page with the option to add, modify, and delete trigger words
12. Activating and deactivating listening mode.	Enables or disables the device microphone and allows the application to listen and transcribe speech into text notes.

2.2 Assumptions and Dependencies

AS-1: The owner of the device is the end-user of the application
AS-2: The user's devices run on either iOS or Android Operating Systems.
AS-3: The app supports iOS 9 and Android API 19 as the minimum versions.
AS-4: Caregivers must log in to access caregiver's mode.
AS-5: The application uses easy-to-understand icons.
AS-6: The sounds produced by the application will be played on the selected output device from the mobile device.
AS-7: The transcribed data will only be stored for a determined period, approximately one week, if not discarded by the user.
DE-1: To protect PII, the user must enable the device's security settings.
DE-2: The application must successfully integrate both caregiver and patient mode before deployment.
DE-3: The system depends on an open-source speech recognition plugin to convert audio input to text.
DE-4:The system depends on an open-source “Text-to-Speech” plugin to convert text to audio output for playbacks.
DE-5: The proper operation of the system depends on the user giving permission to access the microphone of the mobile device.
DE-6: The proper operation of the system depends on the user giving it the permission to access the Internet from the device on which the system is installed.
DE-7: The proper operation of many of the system functions, such as the audio/text conversions, depends on the users having an internet connection.
DE-8: The quality of the audio transcription also depends on the proper functioning of the device microphone.

3 Specific Requirements

The Specific Requirements section details the 12 Use Case Reports that comprise the MemorEZ application. Screenshots will be used as a visual aid; however, these images may not depict the entirety of the final product. The content present in the screenshots will not detail the entirety of the path of the Use Case.

1. The patient mode of the application is opened without requiring user authentication.
2. Users can complete a mood survey task by selecting the mood icon corresponding to their current mood.
3. Users can view and complete tasks or reminders assigned to them within the daily task list.
4. Users can view a calendar on the device to view scheduled appointments, events, and daily tasks assigned to them.
5. Users can view a self-profile.
6. Users can access the help page to view contacts to assist them via the help button.
7. Users can view a list of tasks and reminders that they previously completed.
8. Users can search for an activity or reminder by using keywords in the search text field.
9. Users can transcribe and save notes using speech-to-text.
10. Users can add, modify, and delete notes.
11. Users can add, modify, and delete trigger words.
12. Users can activate and deactivate listening mode.

3.1 Use-Case Reports

Below is a list of use cases with tentative UI/UX screen diagrams for some of the use cases of the application. This SRS document also provides credits to our previous cohorts from Fall 2021 semester at the UMGC SWEN 670 as some of the use cases have been inspired from their documentation.
In the Use case table below, “Actor” shall refer to the user using the application from Patient mode, “System” shall refer to the MemorEZ application and “Screen” shall hold some of the UX/UI diagrams of some of the screens.

3.1.1 Use Case Name: On-boarding voice assistance

Summary: The actor opens the application.
Preconditions: The user must be a first-time registered user to login to the application.
Triggers: The actor opens the application from their device.
Basic course of events (main scenario):

Actor	System	Screen
1. The actor opens the application on their mobile device and selects the “Patient” option.		
	2. The actor logs on to the system for the first time and the system shall provide an onboarding process to record the actor's voice for the first 15 seconds to store their voice .	**TBD**

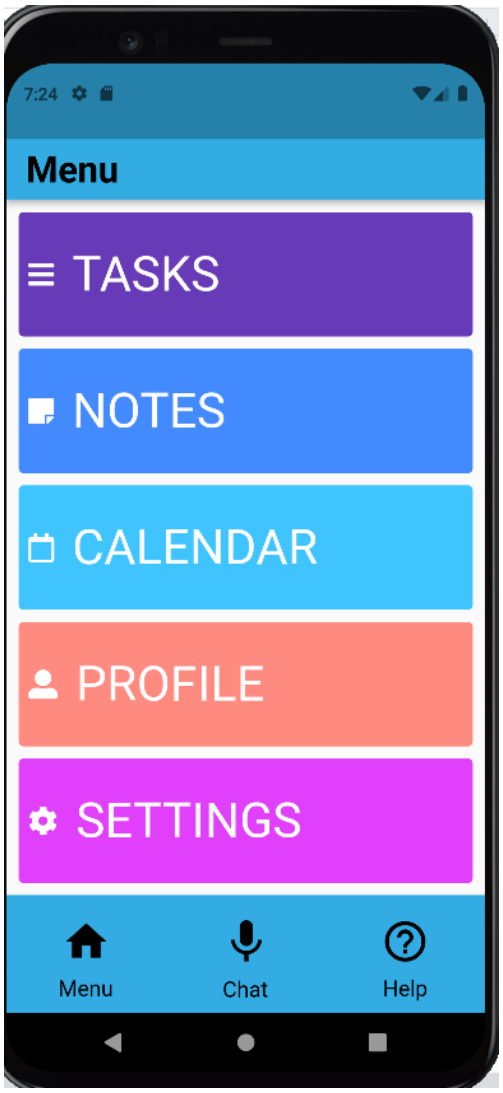
Actor	System	Screen
3. Once the onboarding process is done and the actor enters the system, they shall land on the home screen.	4. The System displays the home screen for the application.	**TBD**

Post-conditions: None.

3.1.2 Use Case Name: Accessing the Application

Summary: The actor opens the application.
Preconditions: The user must be registered to use the application with all permissions previously approved on the device.

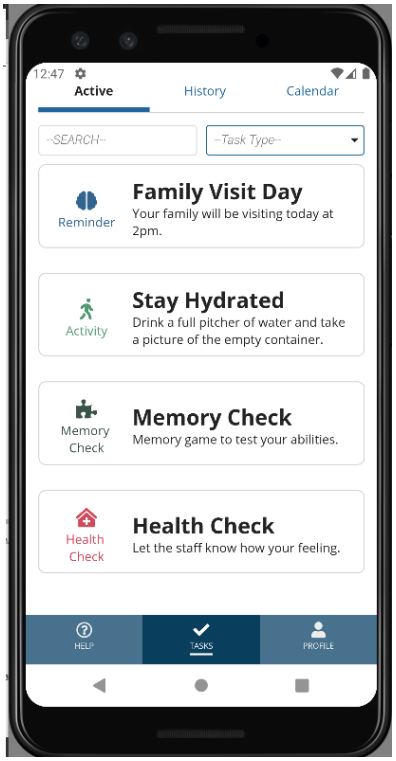
Triggers: The actor opens the application from their device.
Basic course of events (main scenario):

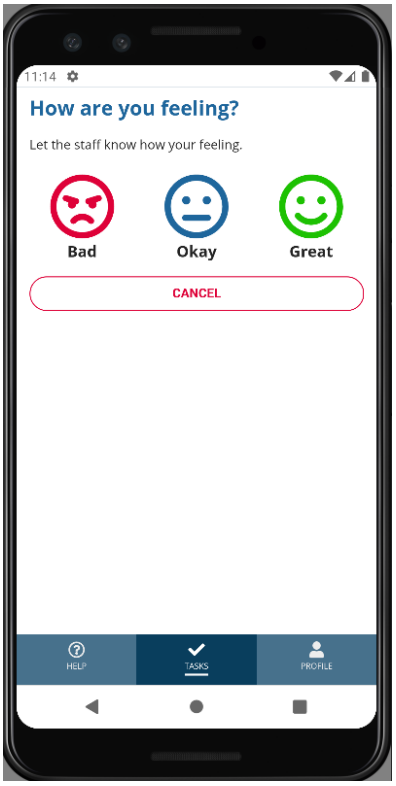
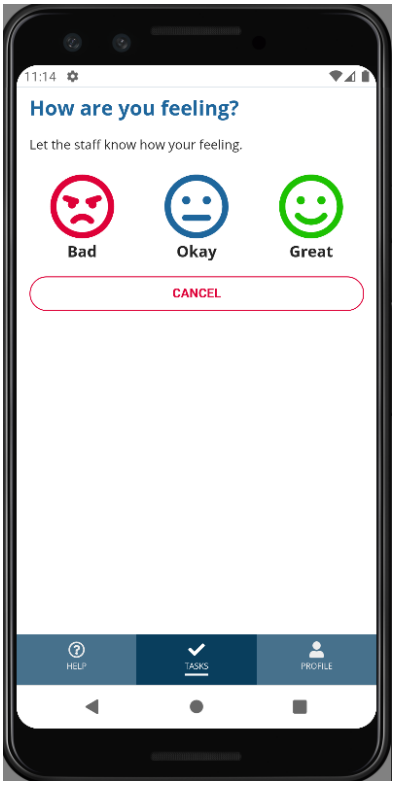
Actor	System	Screen
1. The actor opens the application on their mobile device.		
	2. The System displays the home screen for the application.	

Post-conditions: None.

3.1.3 Completing a Mood Task

Summary: The actor can complete a mood task by selecting the Health Check task from the Active task list. The mood task displays mood icon buttons that the user can select to identify the state of their current mood.
Preconditions: The user must be assigned or scheduled a Health Check (mood) task from the admin/caregiver mode.
Triggers: The actor selects the mood task from the Active task list.
Basic course of events (main scenario)**:**

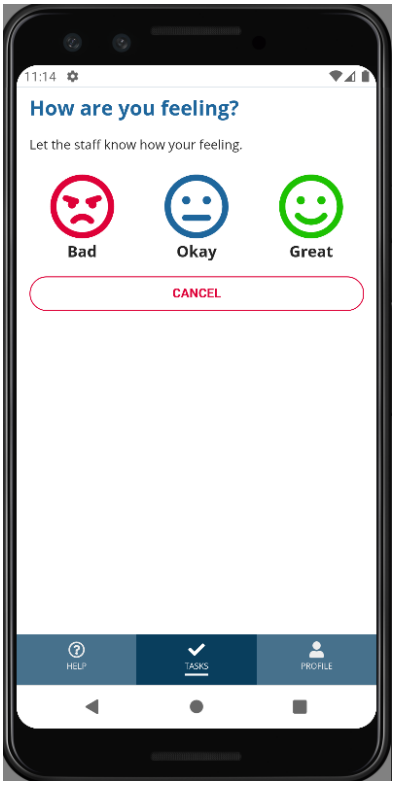
Actor	System	Screen
1. The actor selects Health Check from the Active task list.		

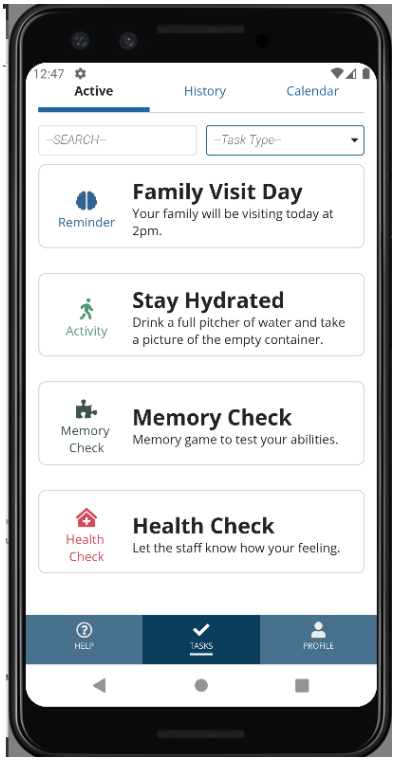
Actor	System	Screen
	2. The mood task is displayed.	
3. The actor selects the mood icon button that reflects their current mood: Great		

Actor	System	Screen
	4. The Health Check (mood) task is marked as completed and closed.	
	5. The home screen is displayed.	

Post-conditions: The Health Check (mood) task is marked as complete and closed. The task is removed from the Active task list.

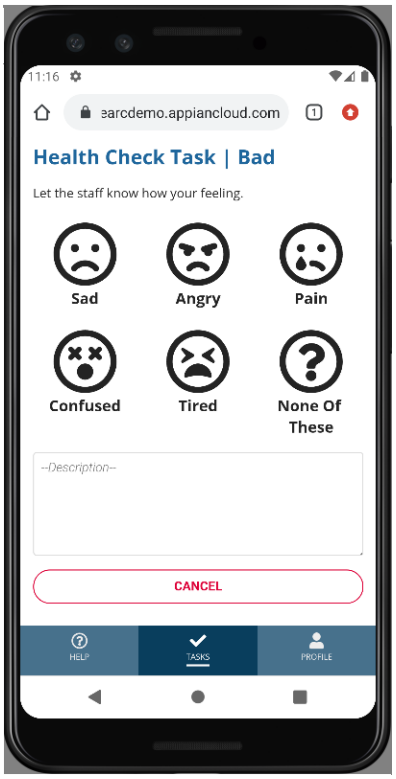
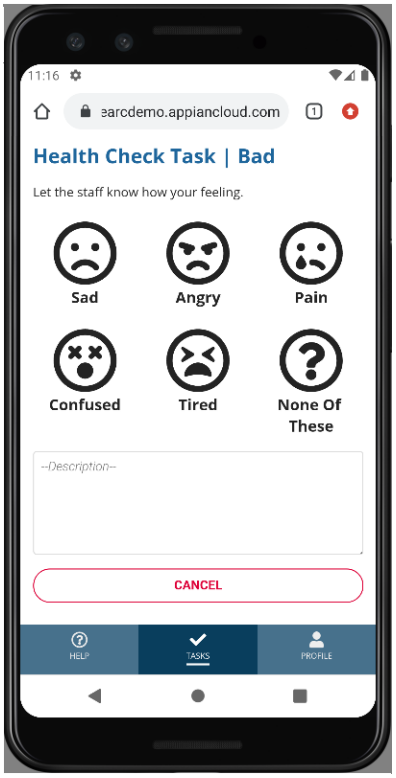
Alternative course of events (user selects Cancel):

Actor	System	Screen
	1. The mood task is displayed.	
2. The actor selects the Cancel button.		

Actor	System	Screen
	3. The System returns to the Active task list screen.	

Post-Conditions: The Health Check (mood) task remains on the patient's Active task list.
Alternative course of events (user selects Bad or Okay):

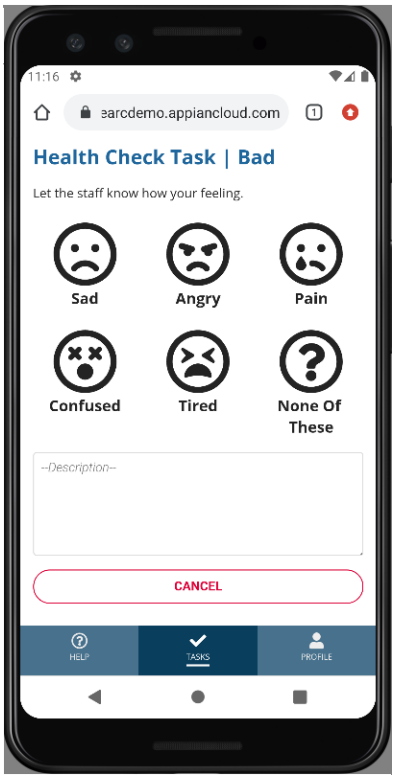
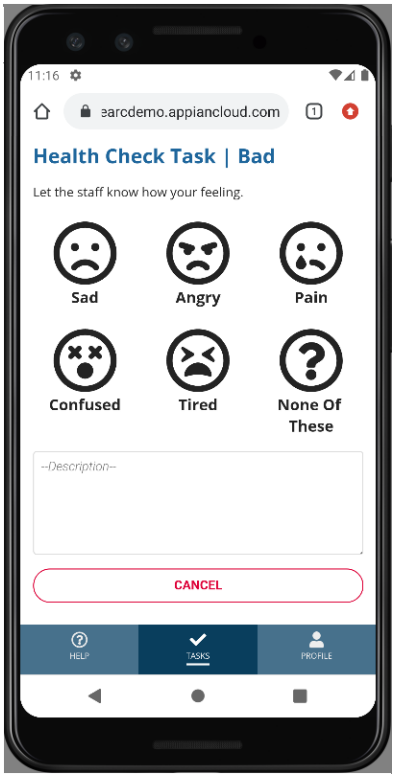
Actor	System	Screen
1. The actor selects the mood icon button that reflects their current mood: Bad or Okay		

Actor	System	Screen
	2. A screen with additional mood icon buttons is displayed.	
3. The actor selects the mood icon button that reflects their current mood from one of the following options: Bad: Sad, Anger, Pain, Confused, or None of These Okay: Sad, Anger, Pain, Confused		

Actor	System	Screen
	4. A screen to send a message to a specified contact is displayed.	
5. The actor selects to send the message.	.	
	6. The System opens the native messaging application on the user's device.	
	7. The System displays the home screen.	

Post-conditions: The application opens up the device's native messaging application to send a message to a specified contact with details about the user's current mood. The task is removed from the Active task list.
Alternative course of events (user selects Okay: None of These):

Actor	System	Screen
1. The actor selects the mood icon button that reflects their current mood: Okay		

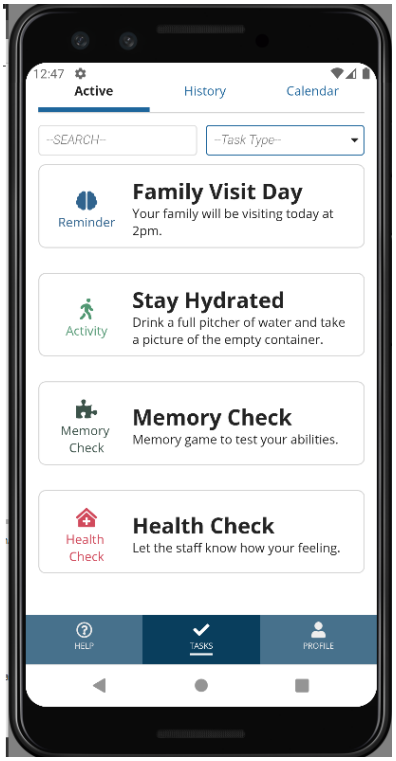
Actor	System	Screen
	2. A screen with additional mood icon buttons is displayed.	
3. The actor selects the None of These icon and adds any desired text in the text field.		

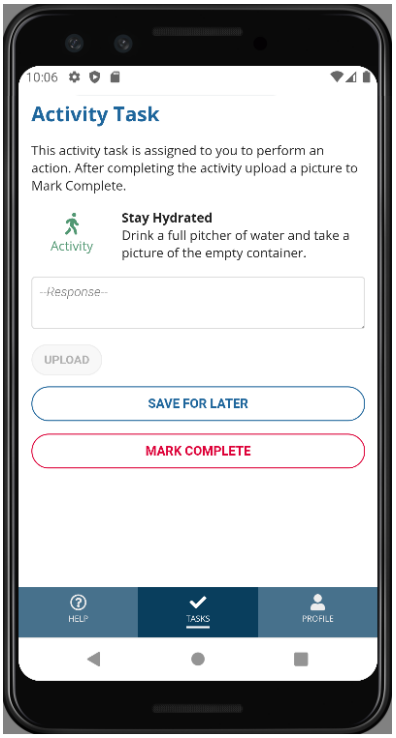
Actor	System	Screen
	4. The Health Check (mood) task is marked as completed and closed.	
	5. The system displays the home screen.	

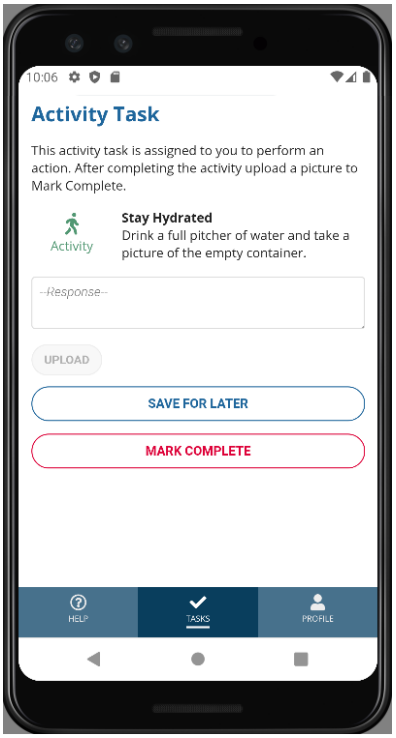
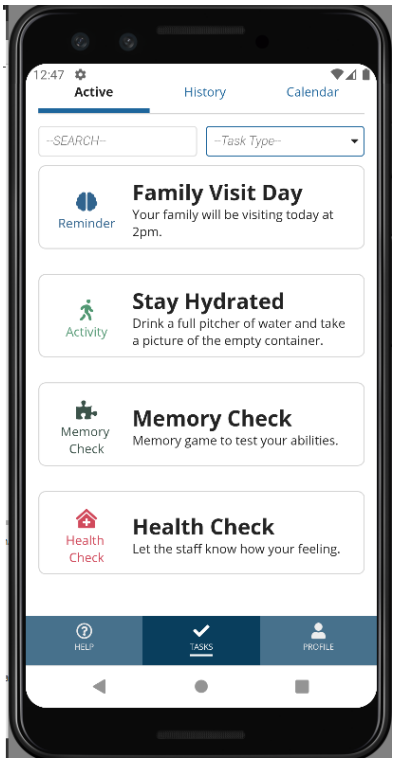
Post-conditions: The Health Check (mood) task is marked as complete and closed. The task is removed from the Active task list.

3.1.4. Viewing and Completing a Task or Reminder

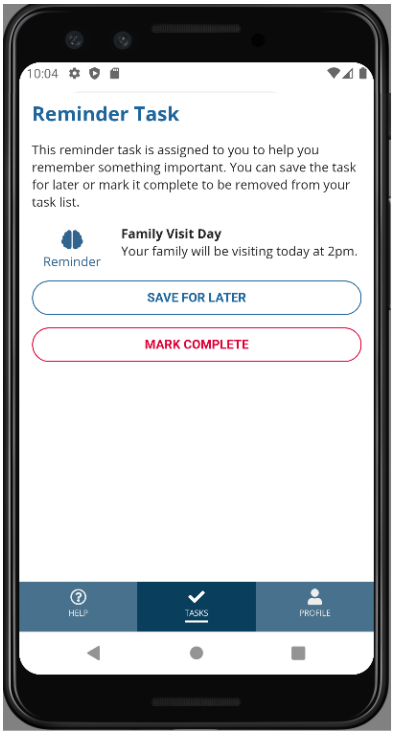
Summary: The actor can view a list task assigned to them by selecting the task from the task list. Once selected, the actor
Preconditions: The user must be assigned or scheduled tasks from the admin/caregiver mode.
Triggers: The user selects a task or reminder.
Basic course of events (main scenario)**:**

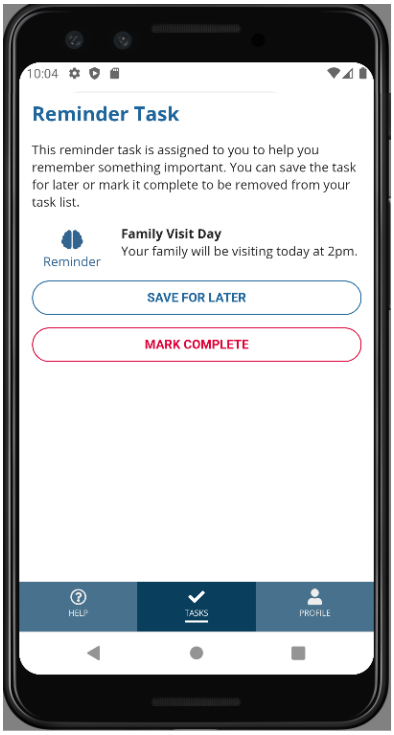
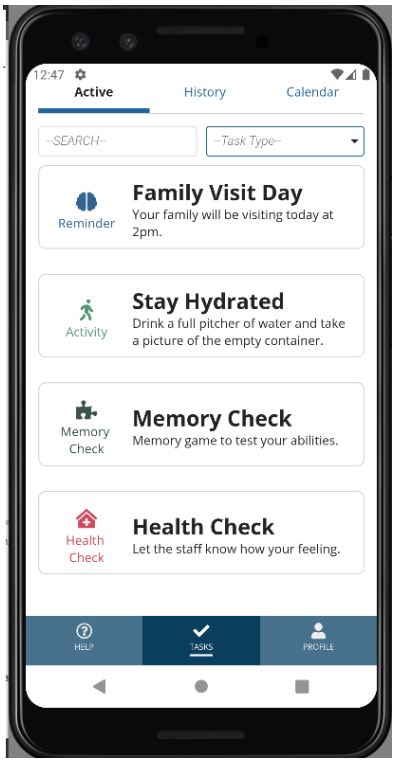
Actor	System	Screen
1. The actor selects the task or reminder from the Tasks screen under the default Active tab.		

Actor	System	Screen
	2. The system opens and displays details of the selected reminder or task.	
3. The actor selects the camera button to upload an image to complete the task or reminder.		
	4. The system saves the image.	

Actor	System	Screen
5. The actor selects “Mark as Complete”.		
	6. The task or reminder task is marked as complete and closed.	

Post-conditions: The task or reminder is marked as complete and cannot be modified. The task is removed from the Active task list.
Alternative course of events (user selects Save for Later):

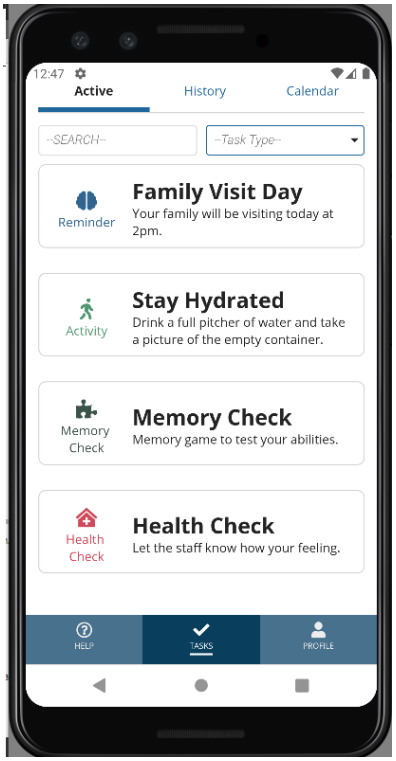
Actor	System	Screen
	1. The system opens and displays details of the selected reminder or task.	

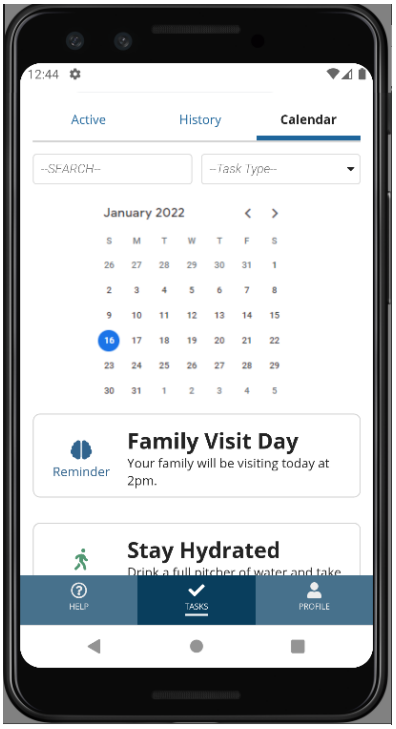
Actor	System	Screen
2. The actor selects the "Save for Later" button.		
	3. The task or reminder remains open, and the user is returned to the task list.	

Post-conditions: The task or reminder remains on the Active task list for the patient to complete.

3.1.5. Viewing the Calendar

Summary: The user selects the calendar button to view a calendar. Selecting a day on the calendar displays any tasks and/or reminders scheduled for that day.
Preconditions: The user must be assigned or scheduled events or appointments.
Triggers: The actor selects the calendar button.
Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor selects the Tasks button.		
	2. The system displays a list of the Active tasks.	
3. The actor selects the Calendar tab.		

Actor	System	Screen
	4. The system displays a calendar with the tasks and/or reminders scheduled for the selected day.	

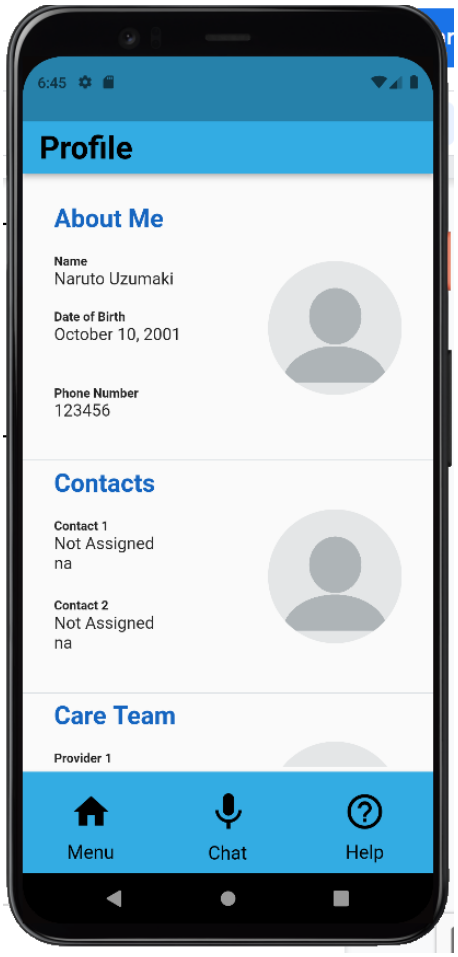
Post-conditions: None.

3.1.6 Viewing Self-Profile

3.1.6.1 About Me

Summary: Users can access a read-only mode of the Profile in the patient mode. The system displays information about the user that was previously entered in the admin/caregiver mode. The About Me section displays information including the user's name, date of birth, and phone number. Additional information may include health information as entered in the admin/caregiver mode.

Preconditions: The user must have the profile completed from the admin/caregiver mode.
Triggers: The actor selects the Profile button.
Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor selects the Profile button.		
	2. The system displays the About Me section of the Profile.	

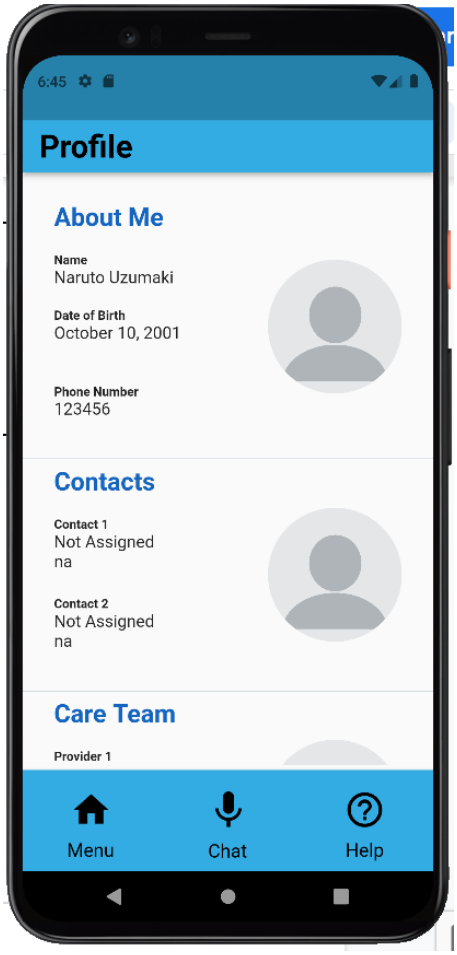
Post-conditions: None

3.1.6.2 Contacts

Summary: Users can access a read-only mode of the Profile in the patient mode. The system displays information about the user that was previously entered in the admin/caregiver mode. The Contacts section displays the names and contact information for the user's family.
Preconditions: The user must have the Profile completed from the admin/caregiver mode.
Triggers: The actor selects the Profile button and scrolls to the Contacts section.

Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor selects the Profile button and scrolls to the Contacts section.		

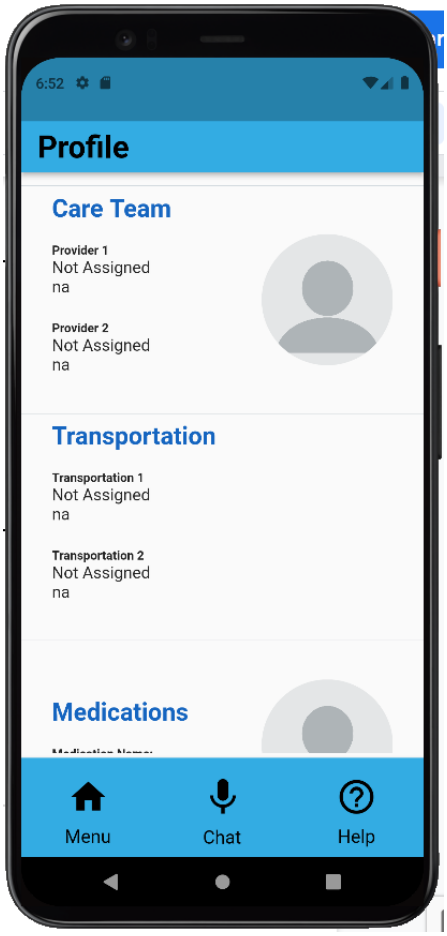
Actor	System	Screen
	2. The system displays the Contacts listed in the Profile.	

Post-conditions: None.

3.1.6.3 Care Team

Summary: Users can access a read-only mode of the Profile in the patient mode. The system displays information about the user that was previously entered in the admin/caregiver mode. The Care Team section displays the names and contact information for the user's medical care team.

Preconditions: The user must have the Profile completed from the admin/caregiver mode.
Triggers: The actor selects the Profile button and scrolls to the Contacts section.
Basic course of events (main scenario)**:**

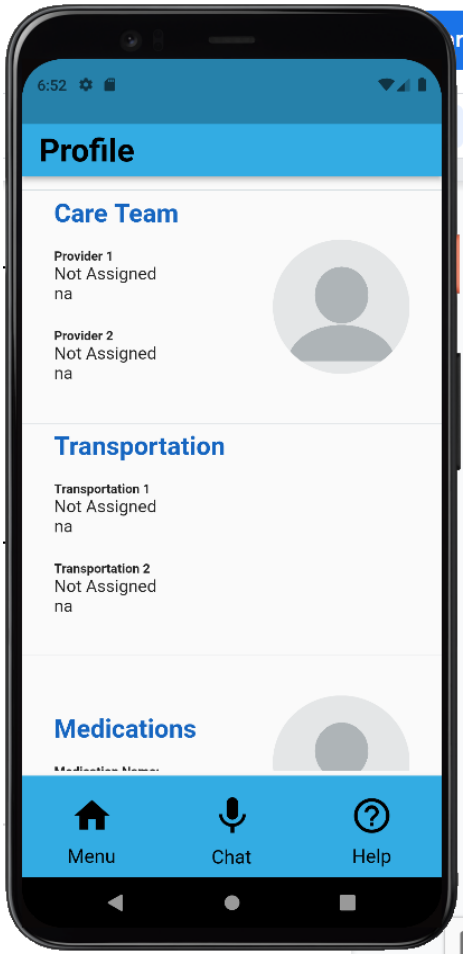
Actor	System	Screen
1. The actor selects the Profile button and scrolls to the Care Team section.		
	2. The system displays the Care Team listed in the Profile.	

Post-conditions: None.

3.1.6.4 Transportation

Summary: Users can access a read-only mode of the Profile in the patient mode. The system displays information about the user that was previously entered in the admin/caregiver mode. The Transportation section displays the names and contact information for the user's preferred transportation services or transportation contact.
Preconditions: The user must have the Profile completed from the admin/caregiver mode.

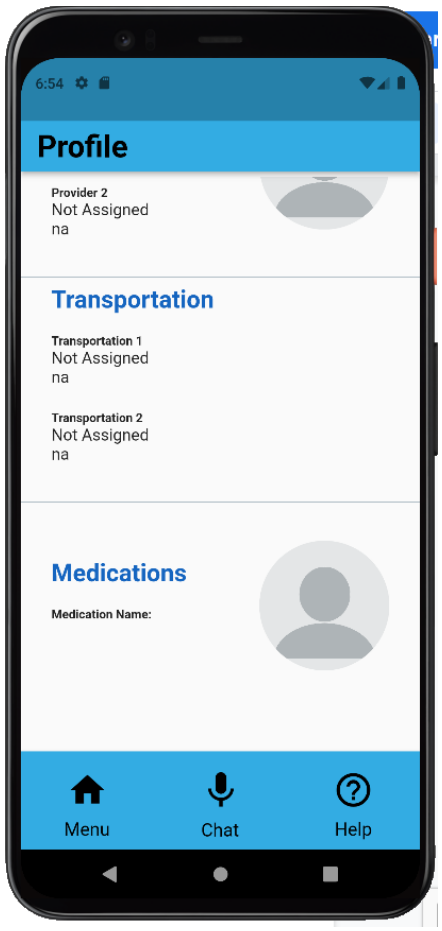
Triggers: The actor selects the Profile button and scrolls to the Transportation section.
Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor selects the Profile button and scrolls to the Transportation section.		
	2. The system displays the Transportation listed in the Profile.	

Post-conditions: None.

3.1.6.5 Settings

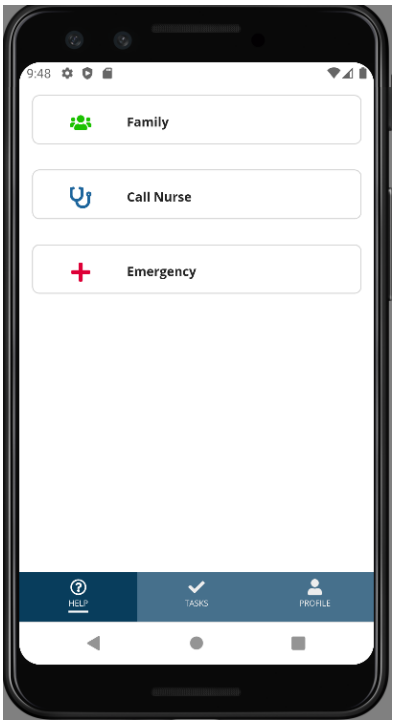
Summary: Users can access a read-only mode of the Profile in the patient mode. The system displays information about the user that was previously entered in the admin/caregiver mode. The Settings section displays the user's preferred language and a button to access Admin Mode.
Preconditions: The user must have the Profile completed from the admin/caregiver mode.
Triggers: The actor selects the Profile button and scrolls to the Settings section.
Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor selects the Profile button and scrolls to the Settings section.		
	2. The system displays the settings listed in the Profile.	

Post-conditions: None.

3.1.7 Accessing the Help Page

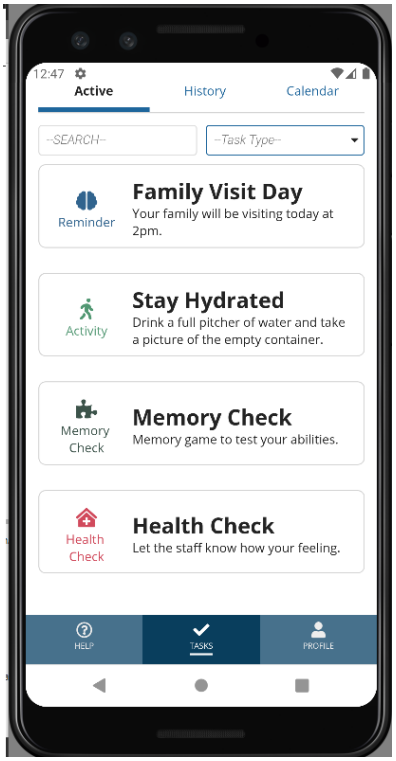
Summary: The user can access a help button that provides buttons to call a contact for help.
Preconditions: The user must have contacts assigned to help page options from the admin/caregiver mode.
Triggers: The actor selects the Help button.
Basic course of events (main scenario)**:**

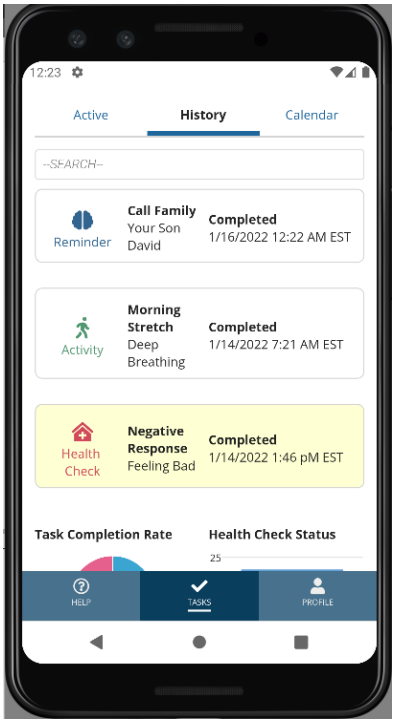
Actor	System	Screen
1. The actor selects the Help button.		
	2. The system displays contact options.	
3. The user selects one of the contact buttons.		
	4. The system opens the native device phone with the number for the selected contact populated.	
	5. The Help screen is closed.	

Post-conditions: The system opens the device's native phone.

3.1.8 Viewing Completed Tasks

Summary: The user can access a list of archived tasks that have been marked as complete.
Preconditions: The user must have tasks that have been marked as complete.
Triggers: The actor selects the Help button.
Basic course of events (main scenario)**:**

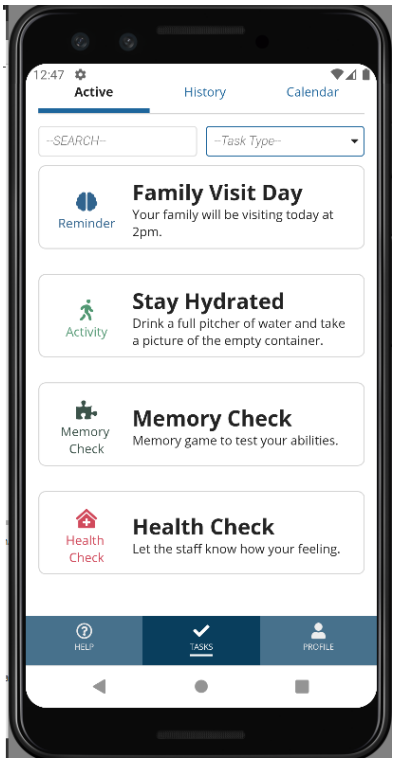
Actor	System	Screen
1. The actor selects the Tasks button.		
	2. The System displays a list of tasks and reminders.	
3. The actor selects the History tab.		

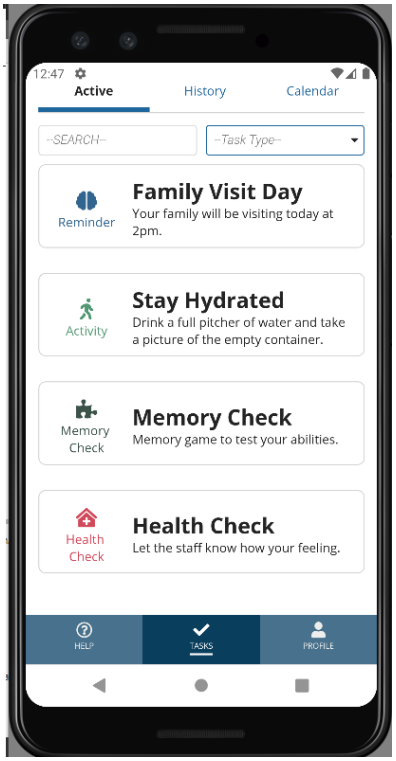
Actor	System	Screen
	4. The System displays a list of tasks and reminders that have been marked as complete.	
5. The actor selects a completed task.		
	6. The System displays a read-only version of the detailed completed task.	

Post-conditions: None.

3.1.9 Search Function

Summary: The user can use the search function to locate a task or reminder using keywords.
Preconditions: The user must be assigned or scheduled a task or reminder from the admin/caregiver mode.
Triggers: The actor enters text in the search text field.
Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor selects the Tasks button.		
	2. The System displays a list of tasks and reminders.	
3. The actor enters text in the search text field.		

Actor	System	Screen
	4. The System displays a list of tasks and reminders that match the text entered in the search text field.	

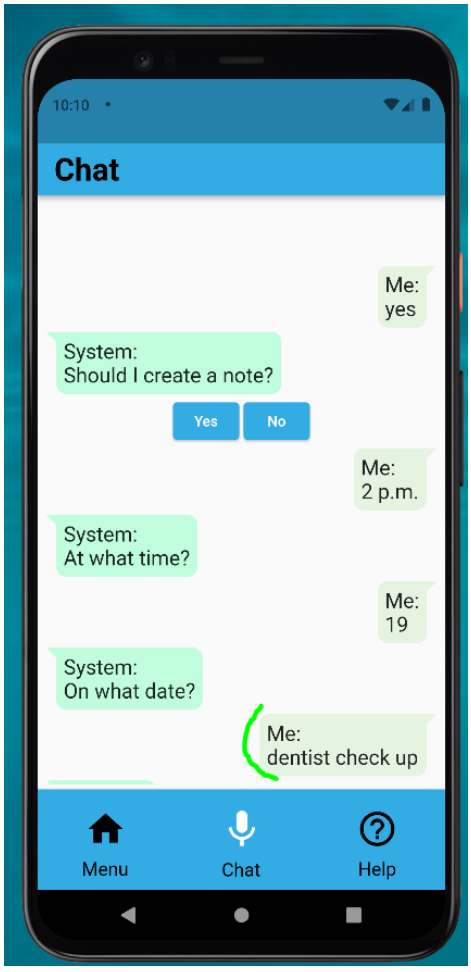
Postconditions: None.

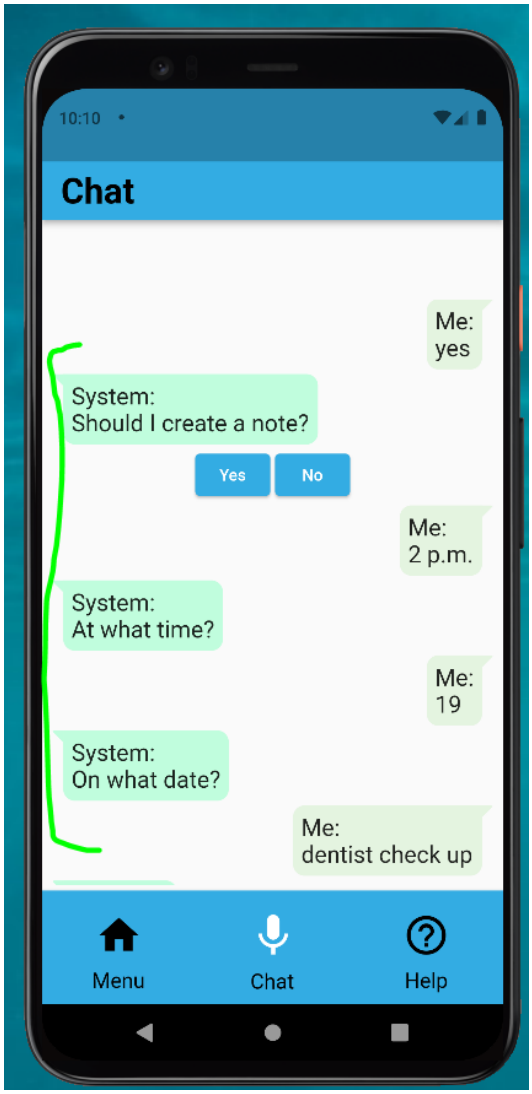
3.1.10 Record a Note

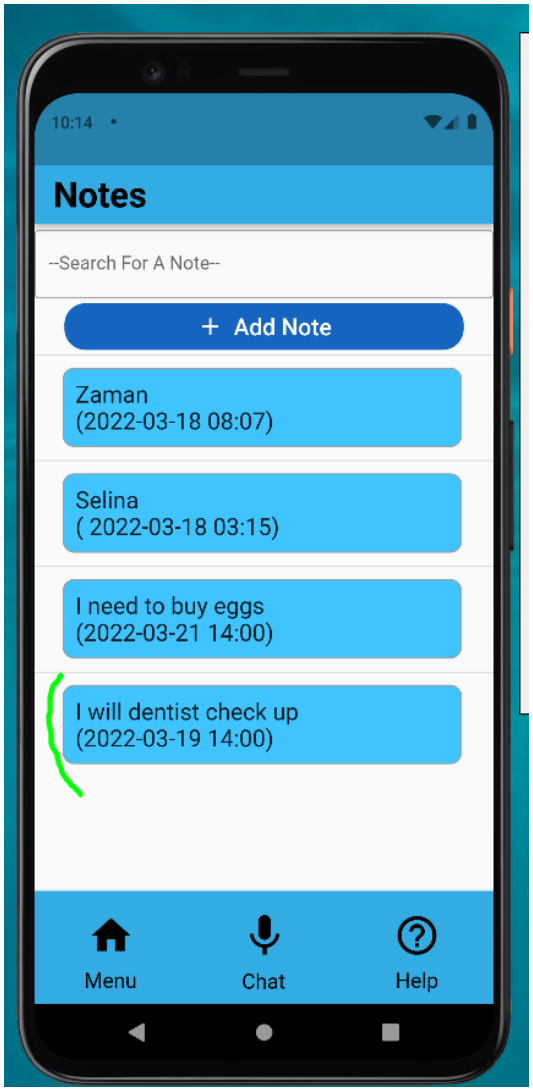
3.1.10.1 Using the Microphone Button

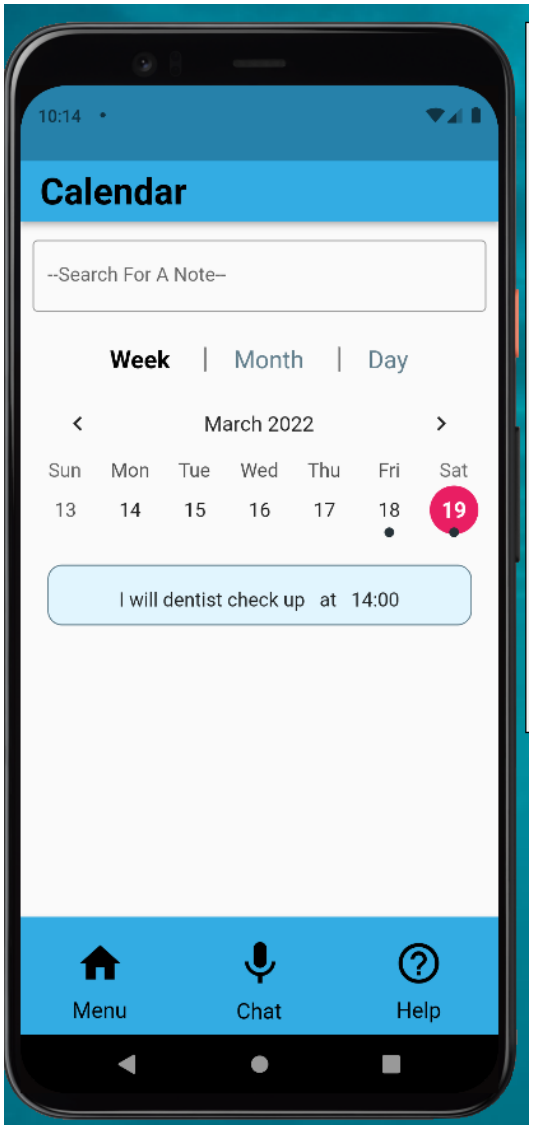
Summary: The actor can use the device microphone to use the speech-to-text dictation feature to record and store a note.
Preconditions: The user must have a device with a microphone and permissions to access device resources granted.
Triggers: The actor selects the microphone button.
Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor selects the Microphone button.		
	2. The System displays a text field and a Microphone button.	

Actor	System	Screen
3. The actor selects the Microphone button and begins to speak.		

Actor	System	Screen
	4. The System listens to the user's voice and transcribes the speech into a text note.	
5. The actor stops speaking and/or releases the Microphone button, deactivating the microphone and listening mode.		

Actor	System	Screen
	6. The System analyzes the transcribed text and generates a note and displays a Save button.	

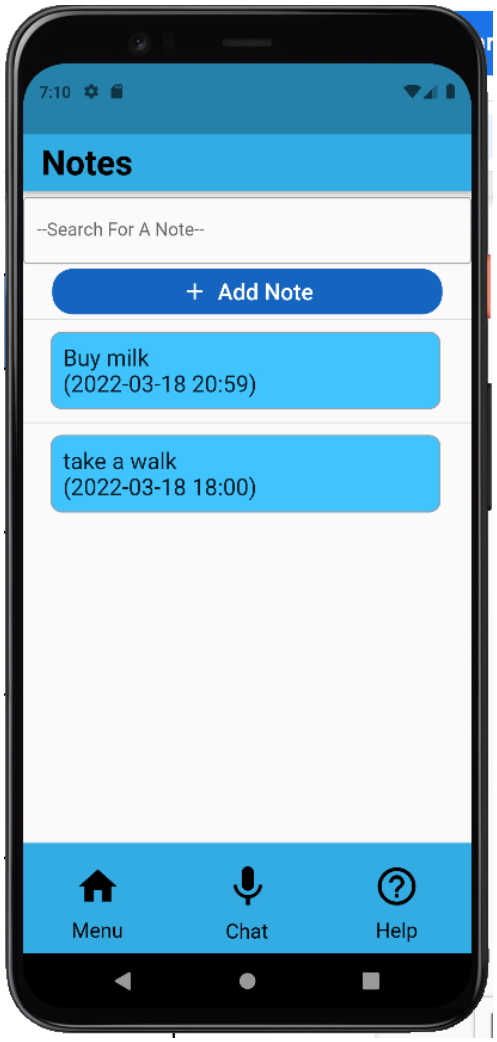
Actor	System	Screen
7. The actor selects the Save button.		

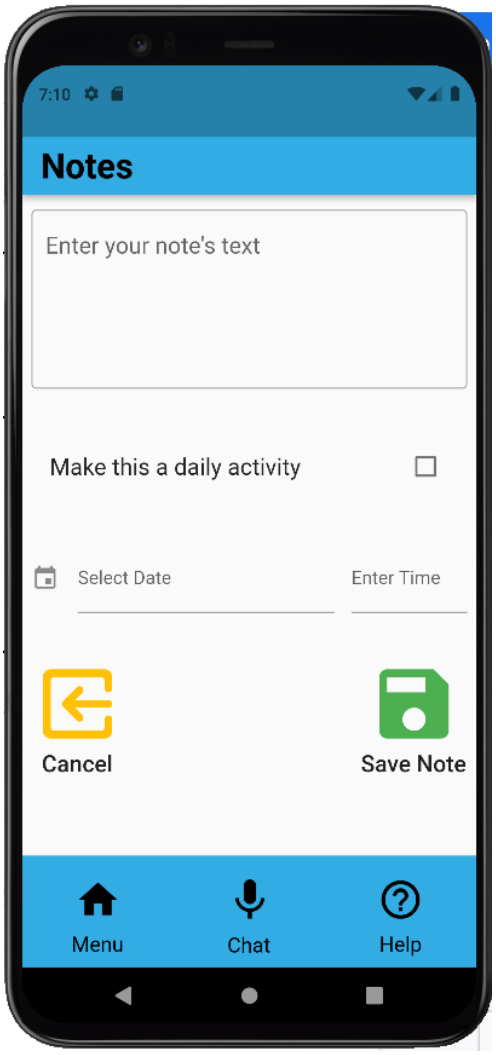
Postcondition: The note is saved in the Notes section.

3.1.11 Add, Modify, Delete, and Recall Notes

3.1.11.1 Add Note

Summary: The user can add a new note.
Preconditions: None.
Triggers: The actor selects the Notes button.
Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor selects the Notes button.		
	2. The System displays notes.	
3. The actor selects the Add Note button.		

Actor	System	Screen
	4. The System opens a screen with a text field, Save button, and Cancel button.	
5. The actor uses the device keyboard to enter a note and selects the Save button.		
	6. The System saves the note.	

Postconditions: The note is saved in the notes section.

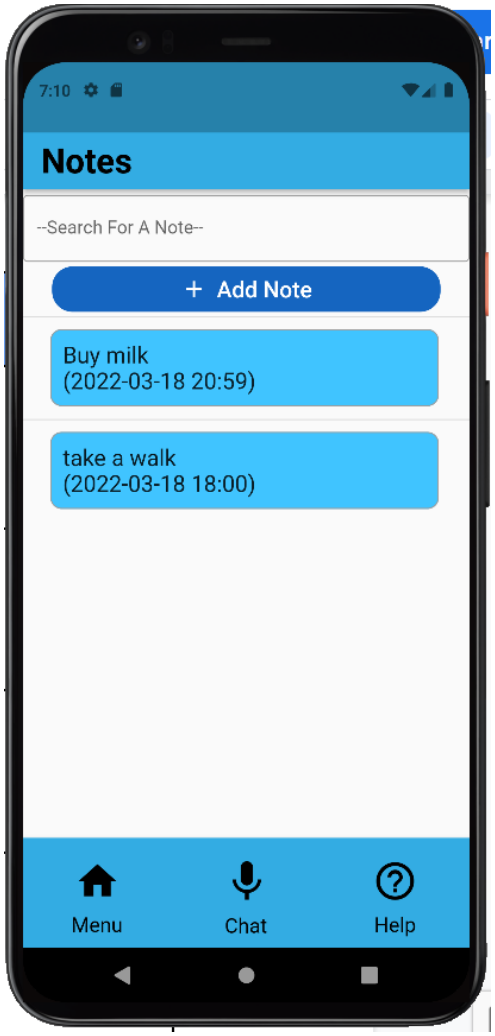
Alternate course of events (cancel button selected):

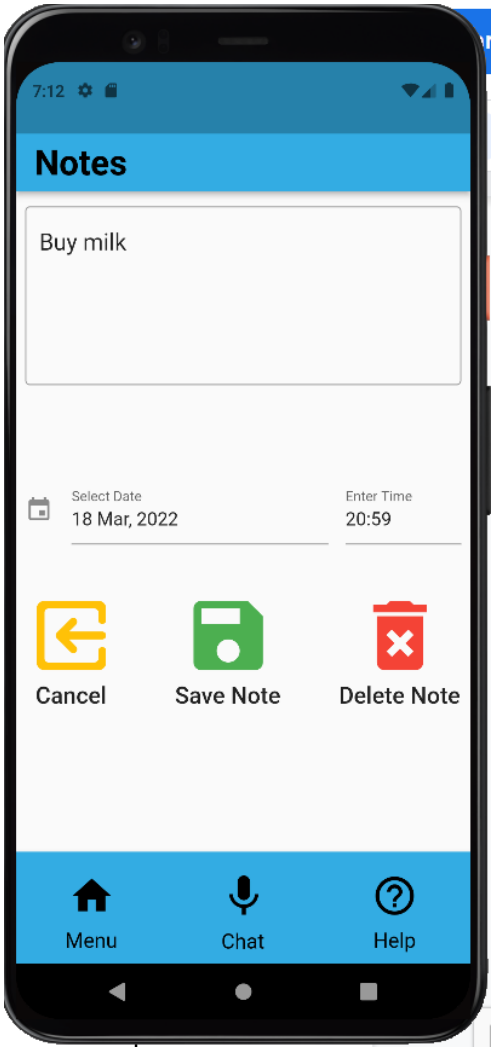
Actor	System	Screen
5. The actor selects the Cancel button.		
	6. The System returns to the home screen.	

Postconditions: No new notes are added.

3.1.11.2 Modify Note

Summary: The user can modify an existing note.
Preconditions: The system must have previously entered note stored.
Triggers: The actor selects the Notes button.
Basic course of events (main scenario)**:**

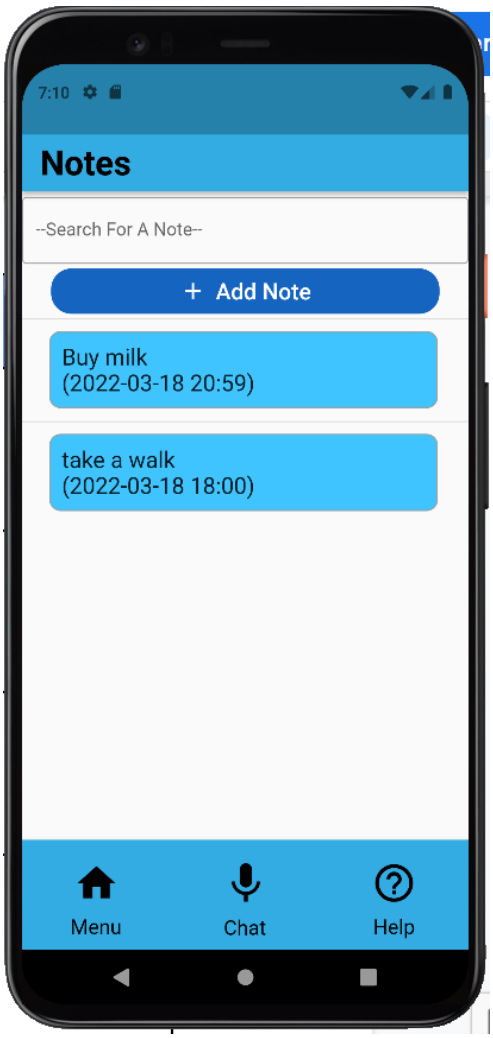
Actor	System	Screen
1. The actor selects the Notes button.		
	2. The System displays notes.	
3. The actor selects a note.		

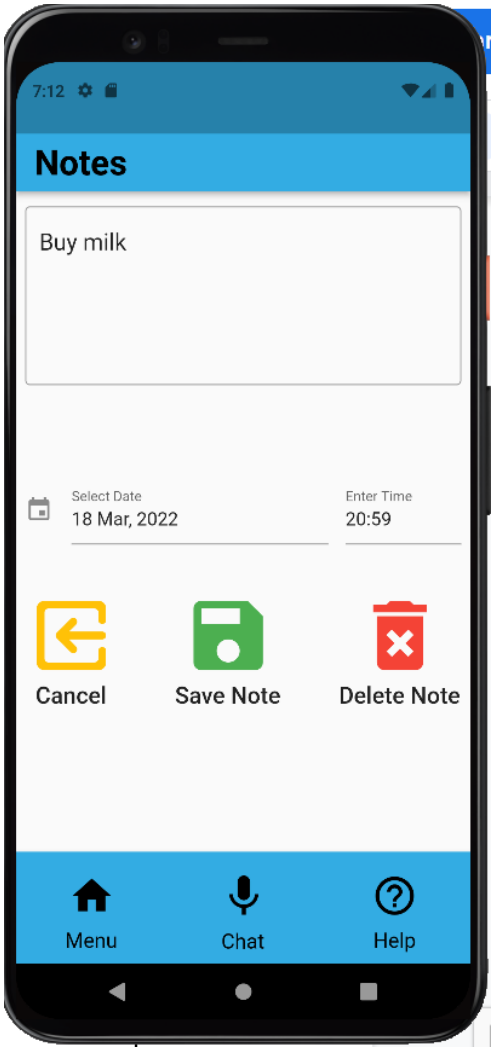
Actor	System	Screen
	4. The System displays the note in an editable text view with a Delete, Edit, and Save button.	
5. The actor uses the device keyboard to modify the note and selects the Save button.		
	6. The System saves the note.	

Postconditions: The note is updated and saved in the notes section.

3.1.11.3 Delete Note

Summary: The user can delete an existing note.
Preconditions: The system must have a previously entered note stored.
Triggers: The actor selects the Notes button.
Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor selects the Notes button.		
	2. The System displays notes.	
3. The actor selects a note.		

Actor	System	Screen
	4. The System displays the note in an editable text view with a Delete, Edit, and Save button.	
5. The actor selects the Delete button.		
	6. The System deletes the note.	

Postconditions: The note is deleted and removed from the application.

3.1.11.4 Recall Note

Summary: The user can search using the voice feature to recall an existing note.
Preconditions: The system must have listening mode activated.
Triggers: The actor activates the search feature.
Basic course of events (main scenario)**:**

Actor	System	Screen
1. The actor activates the search feature and speaks.		
	2. The System captures the search key that will be used to locate related notes.	**TBD**
	3. The System displays and plays back related notes.	

Postconditions: None.

3.1.12 Activating and Deactivating Listening Mode

3.1.12.1 Activating Listening Mode

Summary: The actor can activate listening mode and turn on the device microphone by selecting the microphone button.

Preconditions: The user must have a device with a microphone and permissions to access device resources granted.

Triggers: The actor selects the microphone button.

Basic course of events (main scenario):

Actor	System	Screen
1. The actor selects the microphone button.		

Actor	System	Screen
	2. The System activates listening mode by turning on the device microphone and begins listening to speech.	
	3. The System displays an indicator that the microphone is recording.	

Postcondition: Listening mode remains activated until deactivated. The device microphone is turned on.

3.1.12.2 Deactivating Listening Mode

Summary: The actor can deactivate listening mode and turn off the device microphone when a keyword or phrase is uttered, or by selecting the microphone button.
Preconditions: The user must have a device with a microphone and permissions to access device resources granted. A Deactivation Trigger Word must be assigned.
Triggers: The actor says a Deactivation Trigger Word/phrase or selects the microphone button.
Basic course of events (main scenario)**:**

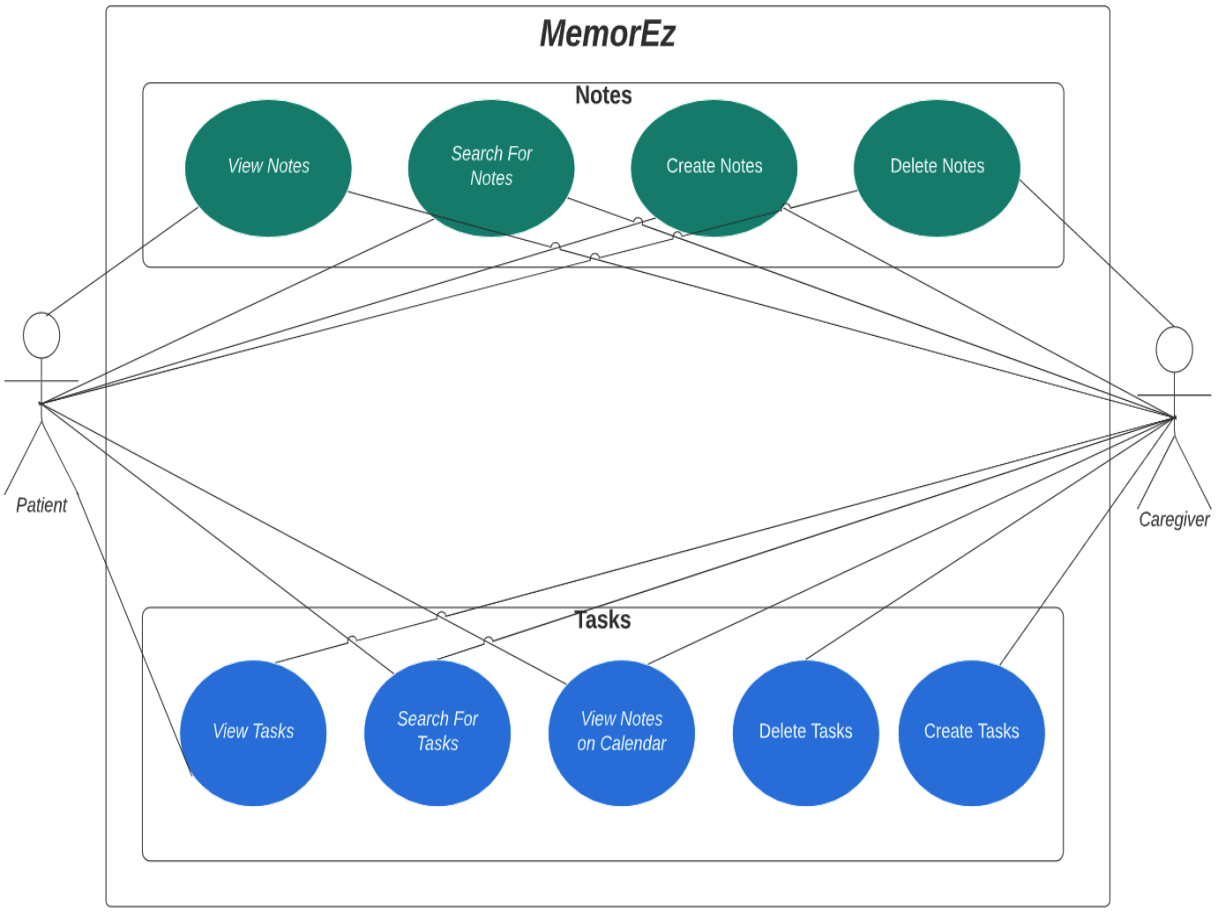
Actor	System	Screen
1. The actor selects the microphone button or uses voice to say a Deactivation Trigger Word/phrase.		
	2. The System deactivates listening mode, turns off the device microphone, and stops listening to speech.	

Postcondition: Listening mode deactivated. The device microphone is turned off.

3.2 Use-Case Diagrams

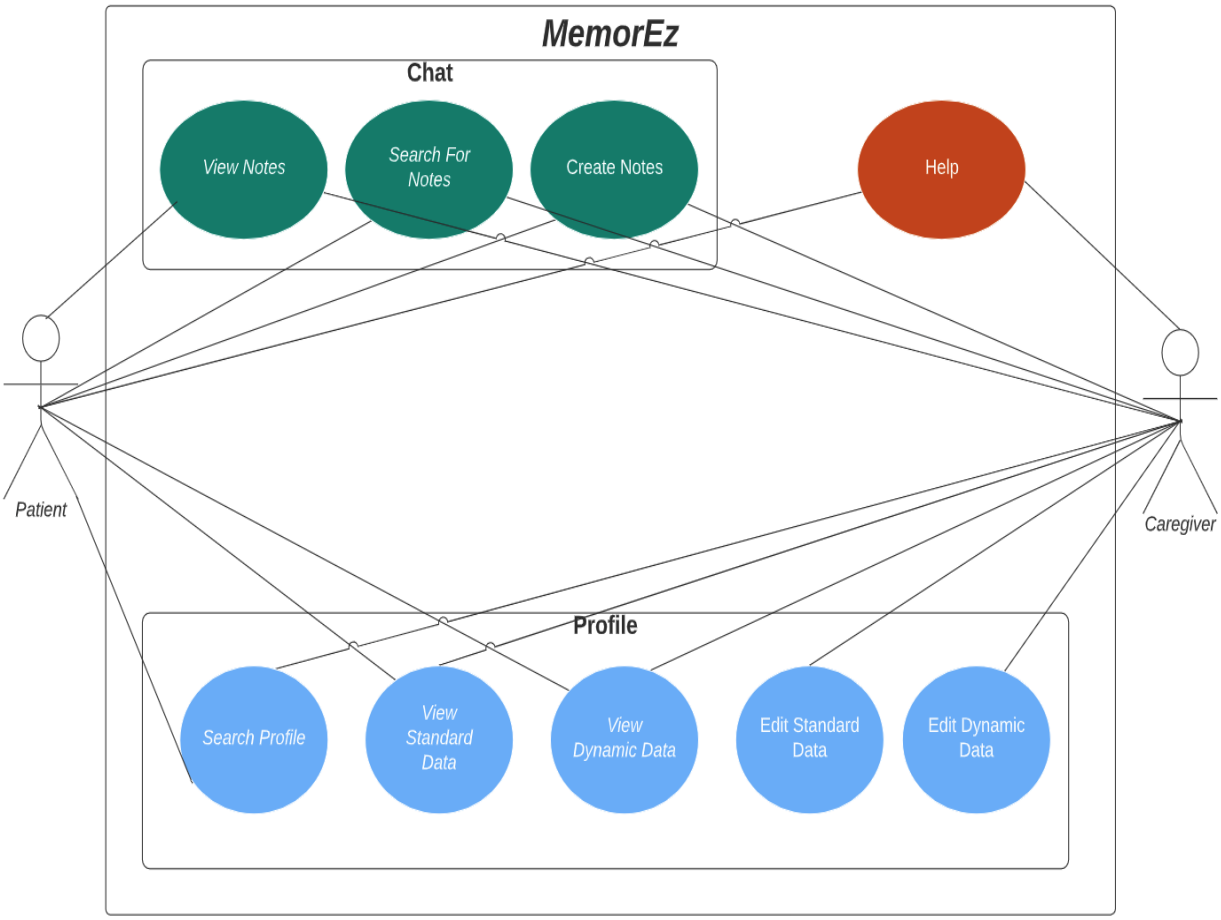
3.2.1 Notes & Task Use-Case

The UML diagram below shows the notes and task relation between the patient and the caregiver.



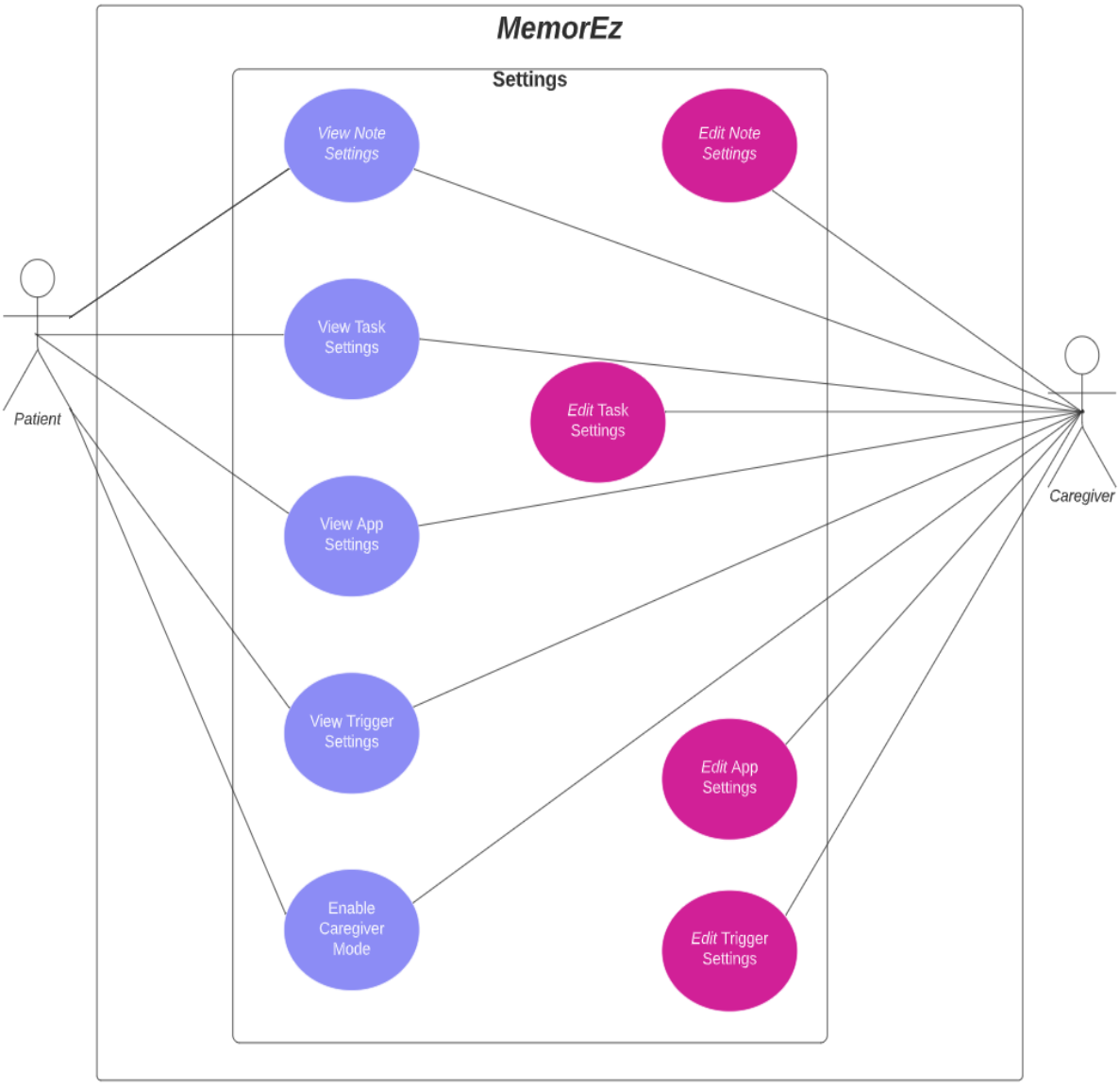
3.2.2 Chat & Profile Use-Case

The UML diagram below shows the chat and profile interaction between the patient and the caregiver.



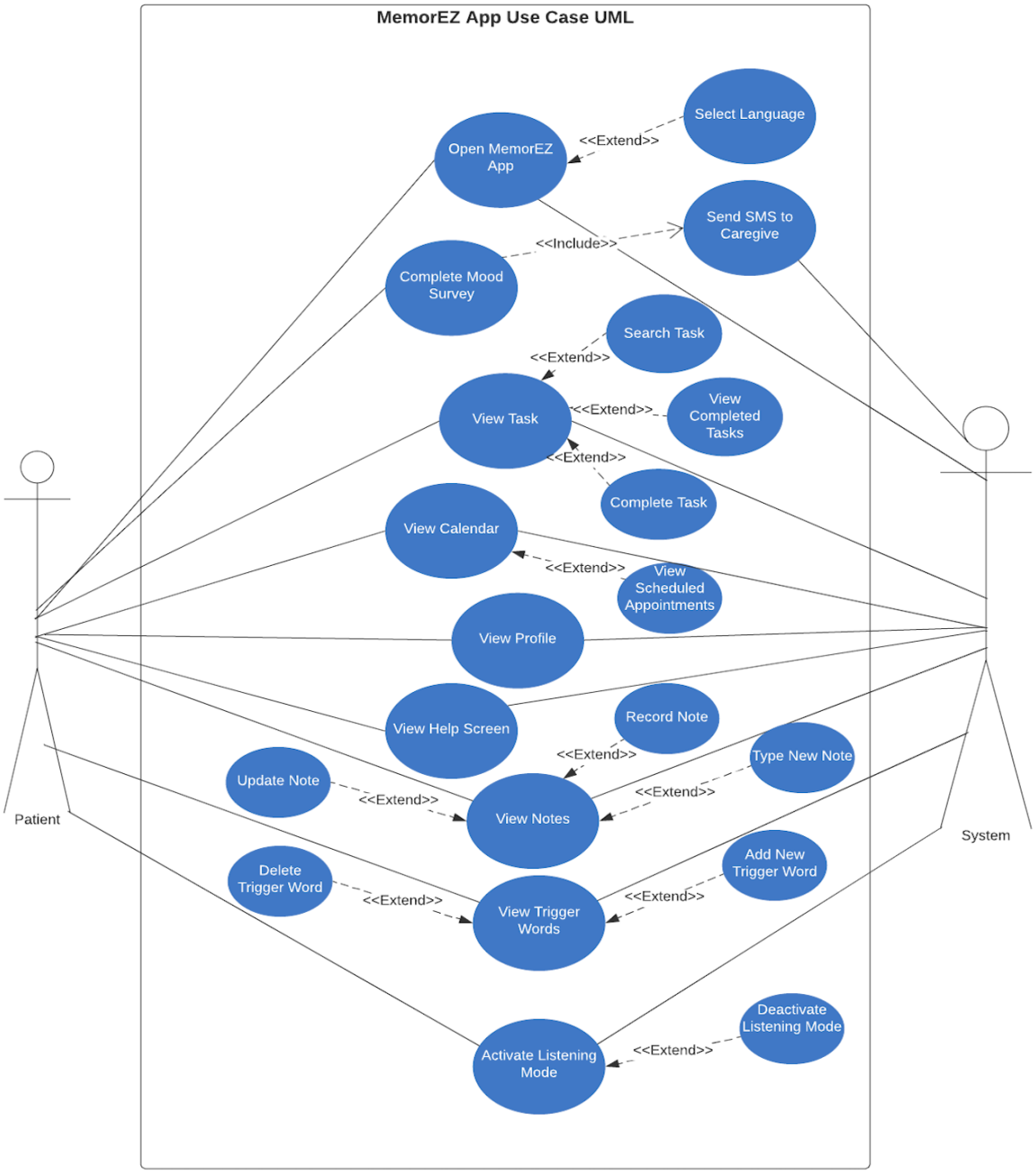
3.2.3 Settings Use-Case

The UML diagram below shows the MemorEZ settings relation between the patient and the caregiver.



3.2.4 Patient Mode Use-Case

The UML diagram below shows the Use-Case interactions between the patient and the system.



4 Appendices

4.1 Change Control Board

Name	Role	Responsibility
Dr. Mir Mohammed Assadullah	Stakeholder	Final approval or denial or proposed change
James Eble	General Project Manager	Approval or denial of proposed change; escalates proposed change to stakeholder if approved
Selina Zaman	Team FlutteringMind Project Manager	Approval or denial of proposed change for team FlutteringMind; escalation of proposed change to general project manager if approved
Brian Avadikian	Team RememberAll Project Manager	Approval or denial of proposed change for team RembeAll; escalation of proposed change to general project manager if approved

4.2 Change Request Form

Change Request Form			
Project Name			
Requested By		Date	
Request No.		Name of Request	
Change Description			
Change Reason			
Impact of change			
Proposed Action			
Status	In Review	Approved	Rejected
Approval Date			
Approved by			

Change Request Form (Expert Program Management, n.d.)

5 Credits

The following members contributed to the development of this software:

Dr. Mir Assadullah (Product Owner, Stakeholder)

Dr. Andrea Evangelista (Subject Matter Expert)

James Eble

Brian Avadikian

Selina Zaman

Daryle Urrea

Lizset Chavez Chacaltana

Robert Edwards

Joshua Fischer

Joseph Jewell

Sean LaMonica

Andrew Nicolette

Anusha Ramanan

Yusufu Sanu

Vivek Singh

Vanessa Stringer

Eyob Woldehana

Robert Wren

Johnnie Webb

6. Credit to the previous cohorts

Johnny Lockhart, Jeroen Soeurt, Michelle Monfort Robert Wilson, Ayodeji Famudehin, Chauntika Broggin, Christian Ahmed, Mitchell Olshansky, Mod Drammeh, Nicholas Ballo, Shawn Kelly, Raul Benavides, Maddison Dunning, Alec Baileys, Benjamin Cushing, Elshaday Mesfin, Tyler Puschinsky, Michael Le, Debashis Jena, Austin Johnson, Prince Antwi Aboagye, Didimus Kimbi, Damion Sevilla, Rebecca Johnson, Addisu Worku, Matthew Setiawan, Obinna Okonkwo, Andrew Rohn, Joseph Kalfus, Firehiwot Chari, Eskedar Endashw, Malik Webster, Leela Subramanian, Presley Muwan, Christian Cruz Jimenez, Daniel Avery, Karen Crumb, Kevin Bell, Sami Salim, Teresa Balbi, Endalkachew Girma

Section 2 – MemorEZ Caregiver Mode

Team RememberAll

Revision History for Caregiver Mode SRS

Revision Number	Date	Description	Approved by
1.0	01/15/2022	Initial Release	Brian Avadikian
2.0	1/28/2022	Added Requirements Table, added overall system requirements to appendices	Brian Avadikian
3.0	3/19/2022	Updated Images of the application with its current state. Updated definitions of the screens. Updated graphics from later iterations of the documentation suite	Brian Avadikian

Note: This document uses data from a version *Software Requirements Specification MemorEZ* shown above. To see patient mode SRS version used in this document see page 8.

1. INTRODUCTION

1.0 Purpose

The purpose of this Software Requirement Specification (SRS) is to provide a detailed set of requirements (functional and non-functional) along with the model, which will be documented for later use to develop the system. This document is intended to be used for all the members of team RememberAll to implement and verify the system's functionality. The requirements described in this SRS are intended to be delivered for the release 1.0 of the application.

1.1 Document Convention

This document follows the Software engineering standards committee of the IEEE computer society (1998) IEEE Recommended Practice for Software Requirements Specifications standard and references follow APA citations (7th ed.).

1.2 Intended Audience

This SRS document is intended for the project team working on the features of the project. That includes stakeholders, project managers, developers, testers and the DevOps team. The rest of the document will go into details about the features that would be developed and added to the system.

1.3 Project Scope

The scope presented in this section is identical to the scope presented in the RememberAll Project Plan. This development effort aims to reduce the amount of time spent by people in organizing and documenting repetitive daily tasks that may be challenging to those suffering with STML. To accomplish this, United Global Master Coders will modify previous features and incorporate feedback received from previous stakeholders to upgrade the usability and benefit of the flutter-dart mobile application "Memory Magic". UMGC is tasked with building on / productionizing the development efforts of the previous semester and issuing the final product under the name MemorEZ. MemorEZ will address any evolving feedback received relating to the features/look and feel of the application through the change management request process. When MemorEZ has reached the stage of delivery, it will be published to the Google Play Store and the Apple App Store.

RememberAll is specifically tasked with developing and implementing the requirements/features associated with the caregiver mode of the application. There are some areas where the STML user mode interfaces with the caregiver mode, so both teams will work together in these efforts. To address this exception, a small group has been established with representatives from both teams and both PM's. This group will be responsible for coordinating development that requires input from both teams.

Functionality of the application which is for the STML user only is outside of the scope of RememberAll's project. Additionally, there will be no testing of the application with STML users. Lastly, application benchmarking/performance testing will be out of scope for this development effort.

2 OVERALL PROJECT DESCRIPTION

2.1 Product Perspective

Short-term memory loss can occur for many reasons as advancing age or health condition. The advances of technology have helped increased life expectancy and quality. The MemorEZ app would improve the communication between STML Users with STML and their caregivers. Additionally, the app would improve the capacity of the caregiver to monitor daily STML User's tasks to provide the help needed.

2.2 Product Features

The list below includes the features that will be supported by release 1.0 of the MemorEZ application. RememberAll will develop the caregiver mode features only. Section 3 elaborates on these features in more details.

FE-1: The application only opens in "STML User Mode." "Caregiver Mode" is accessed from "STML User Mode."

FE-2: Limiting control of application settings to the caregiver.

FE-3: A place for the caregiver to save STML User profile information

FE-4: A calendar for caregiver to save STML User appointments

FE-5: A place for caregiver to save information for STML User transportation alternatives.

FE-6: A place for the caregiver to view responses from STML User when asked about mood.

FE-7: Capability for caregiver to use MemorEZ application to deliver automatic and recurring reminders to a STML User.

FE-8: Capability for MemorEZ to automatically store STLM User responses after a STML User has been given a reminder.

FE-9: A place for caregiver to save information for government and local resources beneficial to a STML User affected by STML.

2.3 Context Diagram

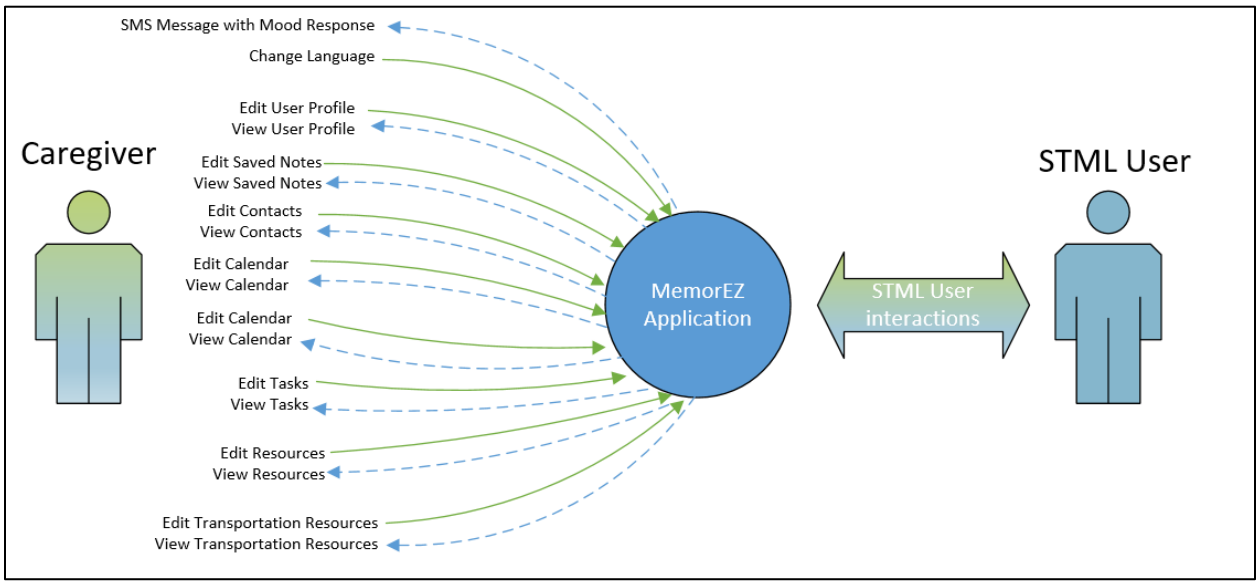


Figure 1: Context Diagram (Level 0 Data Flow Diagram) detailing Caregiver Interactions

2.4 State Flow Diagram

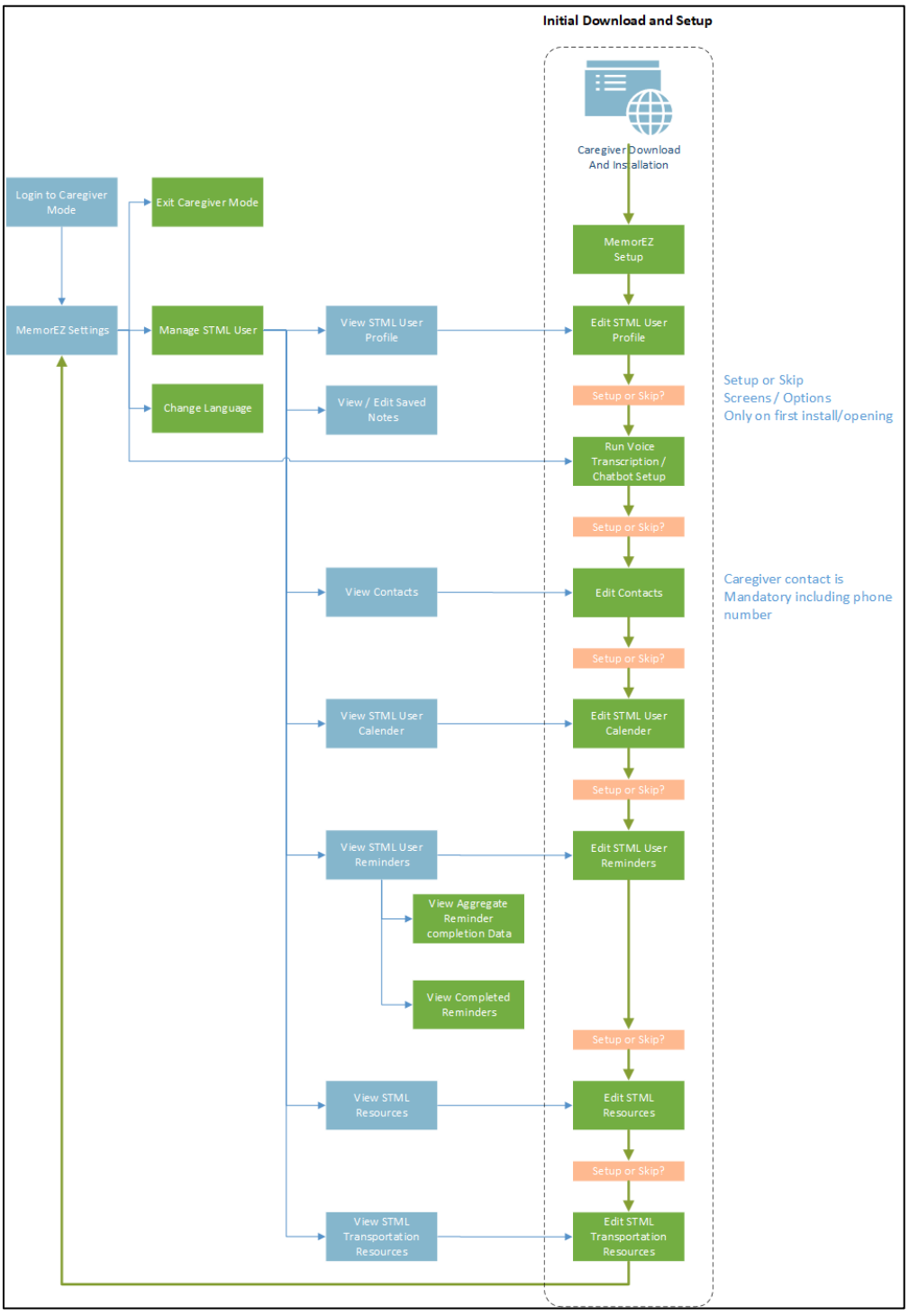


Figure 2: High Level Caregiver User Interface Flow including download and Installation

2.5 User Classes and Characteristics

User (Caregiver):

The team RememberAll will implement the functionality for the caregiver user. Once the user logs in as a caregiver, the user has access to all the functionalities for that mode. The user would be able to view and modify STLM User's profile, labs and appointments. The user can monitor the STML User's mood and activities throughout the day to ensure the STML User completes all of his daily tasks as eating, drinking water and going to the bathroom. In addition, the user can use the speech to text feature for taking notes. The user can also use the links provided within the application to be redirected to pages for transportation as Uber or Lift and also pages for free government resources that can be helpful for the STML User.

2.6 Operating Environment

OE-1: The MemorEZ application shall be designed to work on iOS and Android.

2.7 Design and Implementation Constraints

DIC-1: The application shall be delivered as an Android and Apple mobile application.

DIC-2: The application shall be implemented in Dart language using Flutter framework.

DIC-3: The application shall be compatible with IOS.

DIC-4: The application shall support multiple languages.

DIC-5: The device needs to connect to the Internet to be able to use all the functionalities of the application.

2.8 User Documentation

The application shall provide documentation which would include video tutorials that illustrate how each feature works and how to operate them. The user documentation should include the different sections of the application. A link to the user documentation would be available through the application that the user can review for assistance.

2.9 Assumption and Dependencies

AS-1: The end user must be the owner of a compatible device.

AS-2: The user must be logged in as a caregiver.

AS-3: The user must be connected to the Internet to be able to use outside resources.

DE-1 The proper operation of many of the system functions, such as short memory test, transportation and other resources depends on the users having an internet connection.

3 SYSTEM FEATURES

3.1.1 Application opens in "STML User Mode" "Caregiver Mode" is accessed from "STML User Mode."

This feature ensures that a STML User with STML is not required to choose how the MemorEZ app will open on a device. The application will automatically open in "STML User Mode" and be ready to use by the STML User immediately. "Caregiver Mode" will require the caregiver to perform additional steps from the "STML User Mode."

3.1.2 Limiting control of application settings to the caregiver.

Viewing and changing settings will be controlled by the caregiver from "Caregiver Mode." The STML User will not be able to accidently change settings from "STML User Mode."

3.1.3 A place for the caregiver to save STML User profile information.

A caregiver can store STML User profile information in the MemorEZ app. This information can include name, address, phone number, allergies, emergency contacts, physicians, and insurance info.

3.1.4 A calendar for caregiver to save STML User appointments.

The calendar feature will allow a caregiver to save appointment information such as appointment title, date, time, and whether it is recurring.

3.1.5 A place for caregiver to save information for STML User transportation alternatives.

A caregiver can store information for STML User transportation alternatives such as names, phone numbers, and websites.

3.1.6 A place for the caregiver to view responses from memory test and responses about mood.

The caregiver will be able to view saved responses from the STML User for memory tests and mood inquiries.

3.1.7 Capability for caregiver to use MemorEZ application to deliver automatic and recurring reminders to a STML User.

A caregiver can set recurring reminders for a STML User that will be automatically delivered to the STML User by the MemorEZ app. Examples of these reminders include reminders for drinking water, eating, going to the bathroom, standing and moving around, etc.

3.1.8 Capability for MemorEZ to automatically store STML User responses after a STML User has been given a reminder.

After an STML User is delivered a reminder, the caregiver can view the STML User responses to the reminder such as if their ability to complete the task.

3.1.9 A place is provided for caregiver to save information for government and local resources.

A caregiver can save information for government and local resources beneficial to a STML User affected by STML. This information can include name, contact, address phone number, and website.

4 SYSTEM REQUIREMENTS FEATURE MATRIX

This matrix links requirements gathered with the professor and featured in Table 2 in section 8.1, with the features RememberAll will develop for this project.

Table 1: Feature

Applicable Features	Overall System Requirements	Requirement Description(s)
6.1	RE-4	The application shall have two operational modes: a STML User mode and a caregiver mode.
	RE-11	The application shall open in “STML User” as the default mode after installation
6.2	RE-2	The application shall allow for a caregiver to remove features from view in the STML User mode of the application.
	RE-22	The application shall have a language settings option to support language internationalization.
	RE-22.1	The application shall allow the caregiver mode to change the application language.
6.3	RE-2	(See description above)
	RE-2.1	The application shall allow the caregiver mode to enable or disable certain features for the STML User mode.
6.4	RE-5	The application shall store and display information about the user (STML User) including the names and phone numbers of the physician care team, insurance information, emergency contact(s) name(s) and phone number(s), and the name(s) and phone number(s) for the Relatives in both the STML User and caregiver modes.
	RE-5.1	The application shall store and display information in the Profile section about the user (STML User) including past medical history, medications, and allergies.
6.5	RE-5	(See description above)
	RE-5.1	(See description above)
6.6	RE-3	The application shall allow for documentation of dates of appointments and lab work that the user (STML User) requires each month for caregiver reference.
6.7	RE-3	(See description above)
	RE-23	The application shall include a calendar.

Applicable Features	Overall System Requirements	Requirement Description(s)
6.8	RE-12	The application shall support reminder notifications with customizable text phrasing.
6.9	RE-12	(See description above)
6.10	RE-24	The application shall provide links and/or contact for free government resources to the caregiver
6.11	RE-24	(See description above)
6.12	RE-24	(See description above)
6.13	RE-24	(See description above)

NOTE: Overall System Requirements are sourced from Table 2 in section 0

5 EXTERNAL INTERFACE REQUIREMENTS

5.1 User Interface

The MemorEZ application user interface is designed to be very simple to use. It also exhibits a consistent look and feel across all parts of the application and be responsive to various sizes of devises screen sizes. In the subsequent section, Team RememberAll will be focused on the Caregiver module of the application. All the images used for this User Interface section are courtesy for Team A / Joshua Fisher.

Name: - MemorEZ Landing Page

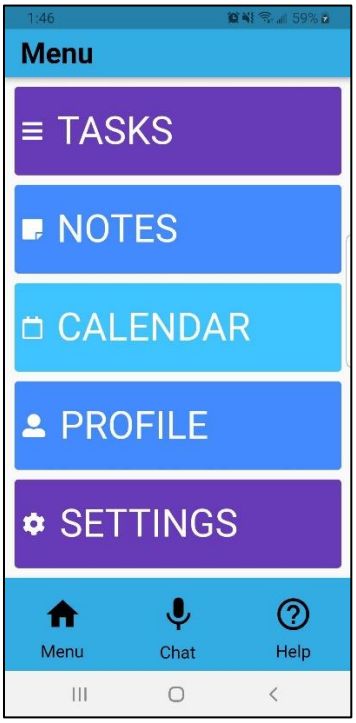


Figure 3: MemorEZ landing page

Steps to use the App:

- A user clicks on the MemorEZ app icon to open the application.
- The app will display the MemorEZ Landing Page displayed above in Figure 3.

Functionality: The MemorEZ application has two modes, STML User mode and Caregiver mode. When the application opens, the users will be directed to the Landing Page Screen to choose the appropriate mode based on their role.

Name: - MemorEZ Enable Caregiver Mode

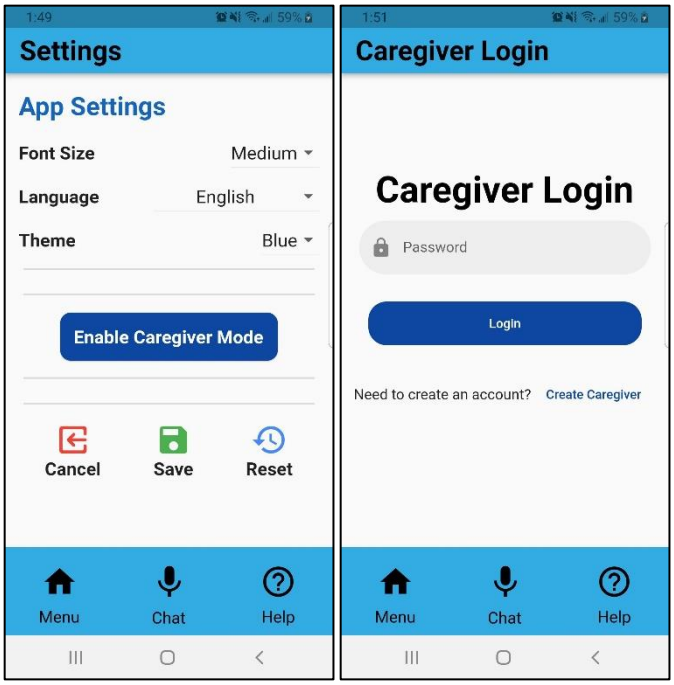


Figure 4: MemorEZ Enable Admin Mode

Steps using the App:

- From a STML User Profile Page, a Caregiver clicks on “Admin Mode” button.
- The app will display Enable Admin Mode screen.
- The Caregiver enter pass code to enable Admin Mode.

Functionality: MemorEZ protects STML Users from accidentally changing the mode to Admin mode by implementing the feature to be password protected. Only a Caregiver can enable the feature by providing the appropriate pass code.

Name: - MemorEZ Manage Profile

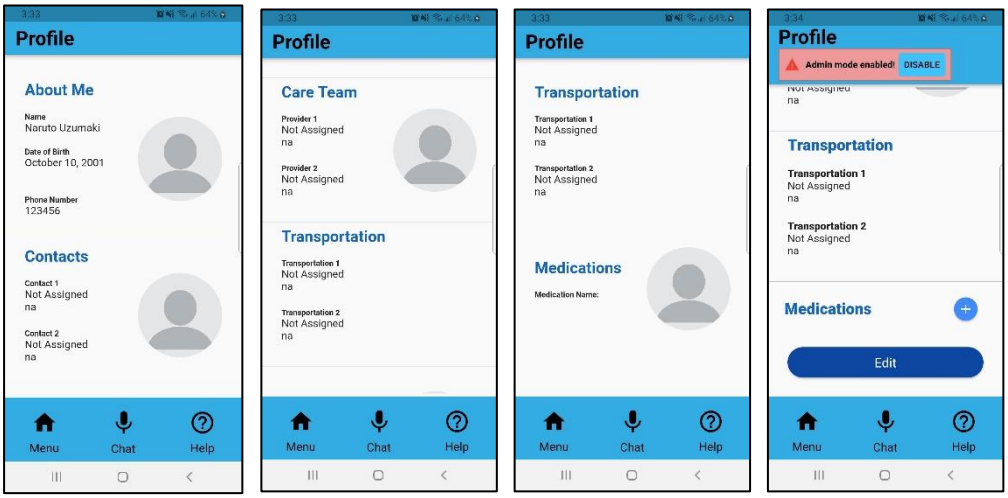


Figure 5: MemorEZ Manage Profile Showing ability to update when in caregiver mode

Steps using the App:

- From the STML User Profile Page, a Caregiver clicks on “Admin Mode” button.
- The app will display Enable Admin Mode screen.
- The Caregiver enter pass code to enable Admin Mode.
- The app give access the user to modify About Me, Contacts, Insurance Information, Care Team and Transportation section.

Functionality: All data regarding a STML User can be modified from the admin mode of the application. Accordingly, the app in admin mode will allow the user to make a change to About Me, Contacts, Care Team, Insurance Information and Transportation section. The application dynamically displays various editorial features depending on whether or not the Admin is logged in.

Name: - MemorEZ Manage Tasks

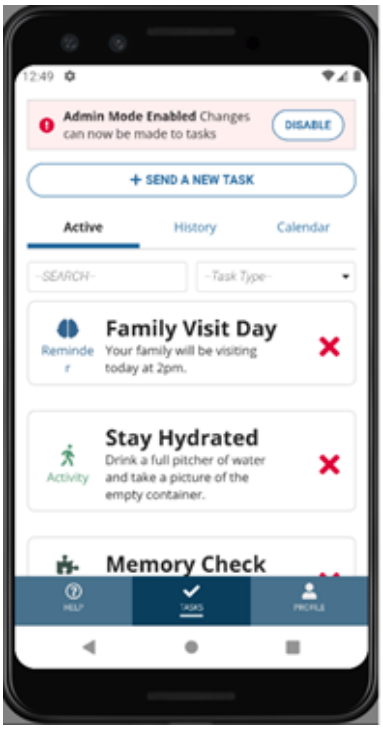


Figure 6: MemorEZ Manage Tasks

Steps to use the App:

- The user clicks on the MemorEZ app icon to open the application.
- The user chooses Caregiver mode.
- The user enables the Caregiver mode by providing the password.
- The user clicks on the “Tasks” section from the menu on the bottom of the screen.
- The user can then perform the following tasks.
    - Create a new task
    - Edit active tasks
    - View task history
    - View tasks in a Calendar
    - Search tasks
    - Filter tasks

Name: - MemorEZ Send New Task

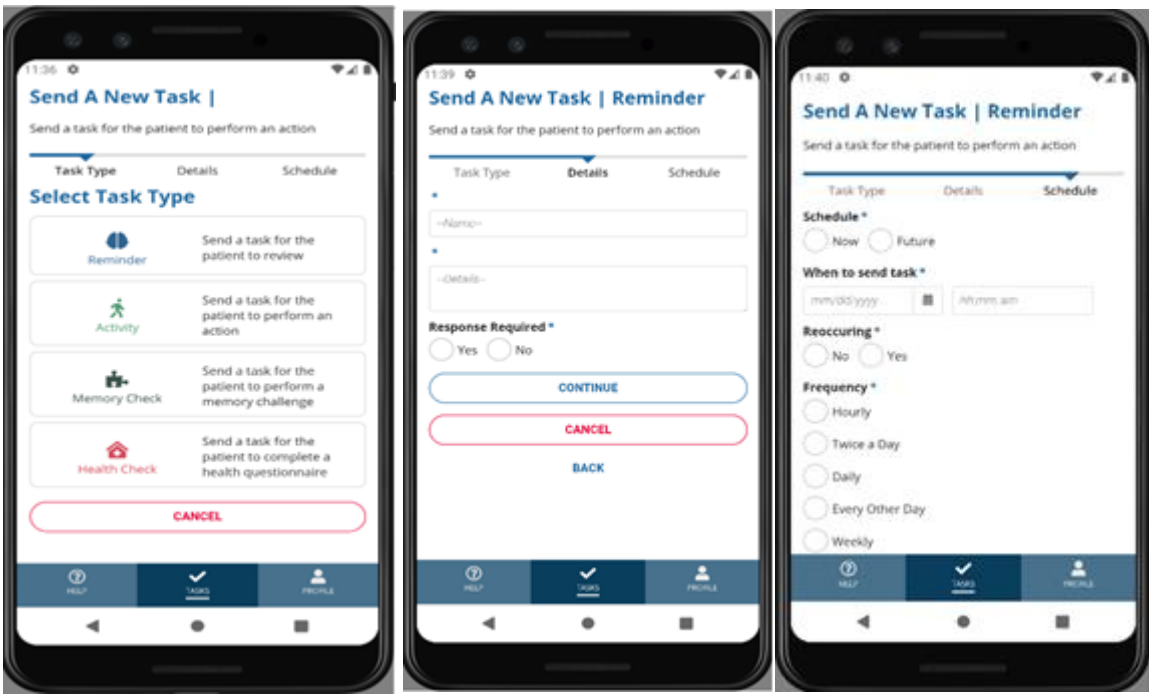


Figure 7:MemorEZ Send New Task

Steps using the App:

- The Caregiver clicks on the MemorEZ app icon to open the application.
- The Caregiver chooses Caregiver mode.
- The Caregiver enables the Caregiver mode by providing the password.
- The Caregiver clicks on “Tasks” section from the menu at the bottom of the screen.
- The Caregiver clicks on “Send a New Task” button.
- The Caregiver can send the following tasks to STML User.
    - Reminder
    - Activity
    - Mood check
- The Caregiver fills out task type, details of the task and schedule to complete the task.

Functionality: A Caregiver can send a new reminder, activity, or mood check tasks for the STML User. This feature will help the Caregiver to define new task with detail information and specify a date for the task to complete.

5.2 Hardware Interface

No hardware interface is needed for the application, although the application will be downloaded, installed and configured by the caregiver in order to prepare it for use by the STML user.

5.3 Software Interface

SI-1: The application shall be developed as an Android and iOS mobile application. The application shall be able to download on all android smartphones from Android 8 and up.

SI-2: The software shall be written using the Flutter platform, and the developer shall use the Dart library.

SI-3: The Android Studio will be used while writing the software code while using the flutter platform.

SI-4: The developer shall use SDK Manager while writing code to create a demo about the application and test it before publishing the application.

SI-5: The Android emulator shall be used to test the application in different screen sizes before publishing it to the user.

SI-6: GitHub shall be used to manage the code between teams, update the version of the application, and release the application.

5.4 Communication Interfaces

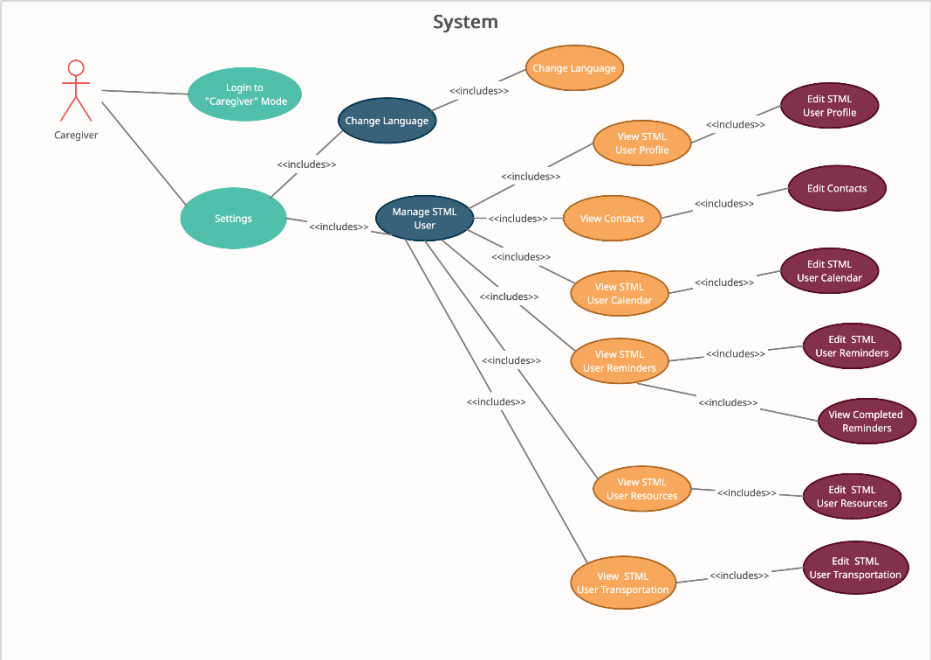
CI-1: The application shall allow the user to communicate through the mobile devices microphone, wired headphones or Bluetooth headphones.

CI-3: The application shall allow the user to hear from the speaker of the smartphone, the wired headphone, or the Bluetooth headphones.

CI-4: The application shall use the smartphone's internet connection to download notes or connect to the cloud service to upload the notes.

CI-5: The application shall make API calls to the NLU/NLP service to process and transcribe users' vocal audio.

6 SYSTEM FEATURES/MODULES



6.1 Change User Mode to “Caregiver Mode”

6.1.1 Description and Priority

The user must have the ability to change the user mode to “Caregiver Mode.” Priority = High.

6.1.2 Stimulus/Response Sequences

Stimulus: A user taps on the MemorEZ app icon on a device.

Response: The MemorEZ app loads and the first screen that is displayed is the “STML User Mode” main screen.

Stimulus: A user taps the “Caregiver Mode” icon on the main screen.

Response: The MemorEZ app displays a text field for entering a password.

Stimulus: A user enters the correct caregiver password in the caregiver password field.

Response: The MemorEZ app changes from “STML User Mode” to “Caregiver Mode.”

6.1.3 Functional Requirements

REQ-1.1: Upon a user tapping on the MemorEZ app icon, the “STML User Mode” main screen loads.

REQ-1.2: Upon a user tapping the “Caregiver Mode” icon on the main screen, the app will display a text field for entering a password.

REQ-1.3: Upon a user entering the correct “Caregiver Mode” password into the password field, the app will change from “STML User Mode” to “Caregiver Mode.”.

6.2 View MemorEZ App Settings

6.2.1 Description and Priority

The user must have the ability to view user-controllable app settings. Priority = High.

6.2.2 Stimulus/Response Sequences

Stimulus: From the "Caregiver Mode" main screen the user taps on the "Settings" button.

Response: The app displays the "Settings" screen.

6.2.3 Functional Requirements

REQ-2.1: Upon the user tapping on the "Settings" button, the "Caregiver Mode" main screen will be replaced by the "App Settings" screen.

6.3 Edit MemorEZ App Settings

6.3.1 Description and Priority

The user must have the ability to edit user-controllable app settings. Priority = High.

6.3.2 Stimulus/Response Sequences

Stimulus: The user taps on the "edit icon" next to the app setting field the user intends to modify on the "Settings" screen.

Response: The app makes the setting field editable, allowing the user to enter a new setting.

Stimulus: The user taps the check mark next to the new setting the user has entered on the "Settings" screen.

Response: The app saves the new setting and displays a "Setting Saved" message.

6.3.3 Functional Requirements

REQ-3.1: Upon a user tapping the "edit icon" next to the setting the user intends to modify, the app shall open the existing setting field for editing, allowing the user to modify the existing setting.

REQ-3.2: Upon the user tapping the check mark next to the setting field the user has modified, the app shall save the modified setting. The app shall also display a "Setting Saved" message.

6.4 View STML User Profile

6.4.1 Description and Priority

The user must have the ability to view the profile of a STML User. Priority = High.

6.4.2 Stimulus/Response Sequences

Stimulus: The user taps on the "Profile" button on the "Caregiver Mode" main screen.

Response: The app displays the "STML User Profile" screen.

6.4.3 Functional Requirements

REQ-4.1: Upon the user tapping on the "Profile" button from the "Caregiver Mode" main screen, the app shall open the "STML User Profile" screen on top of the "Caregiver Mode" main screen.

6.5 Edit STML User Profile

6.5.1 Description and Priority

The user must have the ability to edit the STML User profile information. Priority = high.

6.5.2 Stimulus/Response Sequences

Stimulus: The user taps on the "edit icon" next to the profile value the user intends to modify on the "STML User Profile" screen.

Response: The app makes the profile field editable, allowing the user to enter a new value.

Stimulus: The user taps on the "Trash" icon next to the profile value the user intends to modify on the "STML User Profile" screen.

Response: The app deletes the profile value.

Stimulus: The user taps the check mark next to the new profile value the user has entered on the "STML User Profile" screen.

Response: The app saves the new profile value and displays a "Profile Saved" message.

6.5.3 Functional Requirements

REQ-5.1: Upon a user tapping the "edit icon" next to the profile value the user intends to modify, the app shall open the existing profile field for editing, allowing the user to modify the existing profile value.

REQ-5.2: Upon the user tapping the "Trash" icon next to an existing reminder, the app shall delete the reminder.

REQ-5.3: Upon the user tapping the check mark next to the profile field the user has modified, the app shall save the modified profile value. The app shall also display a "Profile Saved" message

6.6 View STML User Calendar

6.6.1 Description and Priority

The user must have the ability to view the STML User calendar information which shall include appointments, STML User responses to reminders. Priority = High.

6.6.2 Stimulus/Response Sequences

Stimulus: The user taps on the "Calendar" button on the "Caregiver Mode" main screen.

Response: The "STML User Calendar" screen is displayed.

Stimulus: The user taps on a calendar date on the "STML User Calendar" screen.

Response: The app displays stored STML User information from that date which can include appointments.

6.6.3 Functional Requirements

REQ-6.1: Upon the user tapping on the "Calendar" button from the "Caregiver Mode" main screen", the app shall open the "STML User Calendar" screen" on top of the "Caregiver Mode" main screen.

REQ-6.2: Upon the user tapping on a date on the calendar, the app shall display any STML User information stored for that date which may include appointments.

6.7 Edit STML User Calendar

6.7.1 Description and Priority

The user must have the ability to edit the "STML User Calendar" information to include adding/changing appointments and deleting photos. Priority = High.

6.7.2 Stimulus/Response Sequences

Stimulus: The user taps on an existing scheduled appointment on the "STML User Calendar" screen.

Response: The app displays the "Appointment Entry" screen on top of the "STML User Calendar" screen that has the existing scheduled appointment information filled in and allows the user to edit or delete the appointment.

Stimulus: The user taps on the "Add To Calendar" icon on the "STML User Calendar" screen.

Response: The app displays an "Appointment Entry" screen on top of the "STML User Calendar" screen that allows the user to enter information for a new appointment.

Stimulus: The user taps the "Save" icon on the "Appointment Entry" screen.

Response: The app saves the appointment information and places an appropriate symbol on the calendar to show that an appointment has been setup for that day.

6.7.3 Functional Requirements

REQ-7.1: Upon the user tapping on an existing scheduled appointment, the app shall make the appointment editable.

REQ-7.2: Upon the user tapping on the "Add To Calendar" icon, the app shall display the "Appointment Entry" screen on top of the "STML User Calendar" screen.

REQ-7.3: Upon the user tapping the "Save" icon after adding or entering an appointment, the app shall save the appointment and place a symbol on the calendar date to show that an appointment has been scheduled.

6.8 View STML User Reminders

6.8.1 Description and Priority

The user must have the ability to view the “STML User Reminders” that are automatically pushed to the “STML User Mode” device at various times during the day as scheduled by the user. Priority = High.

6.8.2 Stimulus/Response Sequences

Stimulus: The user taps on the “Reminders” button on the “Caregivers Mode” main screen.

Response: The “STML User Reminders” screen is displayed.

6.8.3 Functional Requirements

REQ-8.1: Upon the user tapping on the “Reminders” button from the “Caregiver Mode” main screen, the app shall open the “STML User Reminders” screen” on top of the “Caregiver Mode” main screen.

6.9 Edit/Add STML User Reminders

6.9.1 Description and Priority

The user must have the ability to edit the “STML User Reminders” that are automatically pushed to the “STML User Mode” device at various times during the day as scheduled by the user, such as reminders to eat, reminders to drink water, reminders to go to the bathroom, reminders to stand up and move around, reminders to brush teeth, etc. Priority = High.

6.9.2 Stimulus/Response Sequences

Stimulus: The user taps on the “Edit” icon next to the reminder the user intends to modify on the “STML User Reminders” screen.

Response: The reminder field becomes editable, allowing the user to enter new values.

Stimulus: The user taps on the “Add Reminder” icon on the “STML User Reminders” screen.

Response: The app opens a blank reminder field for the user to enter a new reminder.

Stimulus: The user taps the “Check Mark” icon next to the new or edited reminder value the user has entered on the “STML User Reminder” screen.

Response: The app saves the new reminder and displays a “Reminder Saved” message.

Stimulus: The user taps on the “Trash” icon next to an existing reminder on the “STML User Reminder” screen.

Response: The app deletes the reminder

6.9.3 Functional Requirements

REQ-9.1: Upon a user tapping the “edit icon” next to the reminder value the user intends to modify, the app shall make the existing reminder editable, allowing the user to modify the existing reminder values.

REQ-9.2: Upon the user tapping the “Add Reminder” icon, the app shall open a blank reminder field for the user to enter values.

REQ-9.3: Upon the user tapping the “Check Mark” icon next to the reminder value the user has added or modified, the app shall, the app shall save the reminder and display a “Reminder Saved” message.

REQ-9.4: Upon a user tapping the “Trash” icon next to a reminder, the app shall delete the reminder.

6.10 View STML User Resources

6.10.1 Description and Priority

The user must have the ability to view the “STML User Resource” information. Priority = High.

6.10.2 Stimulus/Response Sequences

Stimulus: From the “Caregiver Mode” main screen the user taps on the “Resources” button.

Response: The app displays the “STML User Resources” screen.

6.10.3 Functional Requirements

REQ-10.1: Upon the user tapping on the “Resources” button from the “Caregiver Mode” main screen, the app shall open the “STML User Resources” screen” on top of the “Caregiver Mode” main screen.

6.11 Edit STML User Resources

6.11.1 Description and Priority

The user must have the ability to edit the “STML User Resource” information. Priority = High.

6.11.2 Stimulus/Response Sequences

Stimulus: The user taps on the “Edit” icon next to the resource the user intends to modify on the “STML User Resources” screen.

Response: The resource field becomes editable, allowing the user to enter new values

Stimulus: The user taps on the “Add Resource” icon on the “STML User Resource” screen.

Response: The app opens a blank resource field for the user to enter a new resource.

Stimulus: The user taps the “Check Mark” icon next to the new or edited resource value the user has entered on the “STML User Resource” screen.

Response: The app saves the new resource and displays a “Resource Saved” message.

Stimulus: The user taps on the “Trash” icon next to an existing resource on the “STML User Resource” screen.

Response: The app deletes the resource.

6.11.3 Functional Requirements

REQ-11.1: Upon a user tapping the “edit icon” next to the resource value the user intends to modify, the app shall make the existing resource editable, allowing the user to modify the existing resource values.

REQ-11.2: Upon the user tapping the “Add Resource” icon, the app shall open a blank resource field for the user to enter values.

REQ-11.3: Upon the user tapping the “Check Mark” icon next to the resource value the user has added or modified, the app shall save the resource and display a “Resource Saved” message.

REQ-11.4: Upon a user tapping the “Trash” icon next to a resource, the app shall delete the resource.

6.12 View Transportation Resources

6.12.1 Description and Priority

The user must have the ability to view the STML User's transportation information. Priority = High.

6.12.2 Stimulus/Response Sequences

Stimulus: From the "Caregiver Mode" main screen the user taps on the "Transportation" button.

Response: The app displays the "Transportation Resources" screen.

6.12.3 Functional Requirements

REQ-12.1: Upon the user tapping the "Transportation" button from the "Caregiver Mode" main screen, the app shall open the "Transportation Resources" screen" on top of the "Caregiver Mode" main screen.

6.13 Edit Transportation Resources

6.13.1 Description and Priority

The user must have the ability to edit the STML User's transportation information. Priority = High.

6.13.2 Stimulus/Response Sequences

Stimulus: The user taps on the "Edit" icon next to the transportation resource the user intends to modify on the "Transportation Resources" screen.

Response: The transportation resource field becomes editable, allowing the user to enter new values.

Stimulus: The user taps on the "Add Transportation Resource" icon on the "Transportation Resource" screen.

Response: The app opens a blank transportation resource field for the user to enter a new transportation resource.

Stimulus: The user taps the "Check Mark" icon next to the new or edited transportation resource value the user has entered on the "Transportation Resource" screen.

Response: The app saves the new transportation resource and displays a "Transportation Resource Saved" message.

Stimulus: The user taps on the "Trash" icon next to an existing transportation resource on the "Transportation Resource" screen.

Response: The app deletes the transportation resource

6.13.3 Functional Requirements

REQ-13.1: Upon a user tapping the "edit icon" next to the transportation resource value the user intends to modify, the app shall make the existing transportation resource editable, allowing the user to modify the existing transportation resource values.

REQ-13.2: Upon the user tapping the "Add Transportation Resource" icon, the app shall open a blank transportation resource field for the user to enter values.

REQ-13.3: Upon the user tapping the "Check Mark" icon next to the transportation resource value the user has added or modified, the app shall save the transportation resource and display a "Transportation Resource Saved" message.

REQ-13.4: Upon a user tapping the "Trash" icon next to a transportation resource, the app shall delete the transportation resource.

7 NONFUNCTIONAL REQUIREMENTS

In this section Team RememberAll is utilizing last semesters non-functional description and adjust changes based on reviewed new requirements in this semester (Team Mesmerize 2021).

7.1 Storage

NF-1.1: System shall not record or store the user's voice.

NF-1.2: Notes shall be stored locally in a hive database.

7.2 Performance

NF-2.1: UI responses to user interaction shall not exceed 3 seconds.

7.3 Security

NF-3.1: All external communication shall be encrypted

NF-3.2: The application shall follow Health Insurance Portability and Accountability

(HIPAA) Privacy Rules by restricting access to Protected Health Information (PHI) to the user and individuals who have a specific need for the information.

NF-3.4 The application shall not share any of the recorded voice or saved data with any external sources other than the designated cloud storage to limit the risk of sharing Personal Identifiable Information (PII).

NF-3.5 The application shall only be available on official app stores.

7.4 Quality

NF-4.1: The system shall support multiple languages.

NF-4.2: The system shall comply with 508 specifications to ensure that it is easy to use by individuals with a disability.

NF-4.3: Only transcriptions with a minimum of 85% confidence shall be stored.

7.5 Maintainability

NF-5.1: There shall be design documents that shall capture the business and technical requirements of the system.

NF-5.1: Documents shall be revisited and updated before proposed changes are made to the system.

8 Appendices

8.1 Overall System Requirements

Table 2: Overall System Requirements

Requirement	#	Description
RE-	1	The application shall retain the AI and NLP features developed over previous semester.
RE-	1.1	The AI and NLP related aspects that are background or unrelated to UI/UX can remain as-is.
RE-	1.2	The feature in the last iteration where it asks questions and answers questions will remain as a feature that can be turned on or off
RE-	1.3	The application shall support NLU interaction that integrates with an Amazon Lex Natural Language understanding system.
RE-	1.4	The application shall retain the NLP engine that was used in the last iteration from the Fall 2021 semester.
RE-	2	The application shall allow for a caregiver to remove features from view in the STML User mode of the application.
RE-	2.1	The application shall allow the caregiver mode to enable or disable certain features for the STML User mode.
RE-	3	The application shall allow for documentation of dates of appointments and lab work that the user (STML User) requires each month for caregiver reference.
RE-	4	The application shall have two operational modes: a STML User mode and a caregiver mode.
RE-	5	The application shall store and display information about the user (STML User) including the names and phone numbers of the physician care team, insurance information, emergency contact(s) name(s) and phone number(s), and the name(s) and phone number(s) for the Relatives in both the STML User and caregiver modes.
RE-	5.1	The application shall store and display information in the Profile section about the user (STML User) including past medical history, medications, and allergies.
RE-	6	The application shall provide a link to a short-term memory test in caregiver mode.
RE-	6.1	find a memory test and see if you can put a couple of those quizzes in there for that person and keep track of how the person is scoring
RE-	7	The application shall have labeled buttons.
RE-	8	The application shall have a streamlined process for taking and sending pictures.
RE-	9	The application shall use a 12-hour clock time format using AM and PM.
RE-	10	The application shall not implement a database.
RE-	11	The application shall opens in "STML User" as deafult mode after installation
RE-	12	The application shall support reminder notifications with customizable text phrasing.
RE-	12.1	The application shall ask the user direct questions specified by a caregiver about how the STML User is feeling requiring a yes or no response from the user.
RE-	12.2	The application shall have an option to send a reminder notification for the user (STML User) to drink water.
RE-	12.3	The application shall have an option to send a reminder notification for the user (STML User) to eat.
RE-	12.4	The application shall have an option to send a reminder notification for the user (STML User) to stand up and walk.
RE-	12.5	The application shall provide data from the installed device sensors to determine if the STML user actually walks after a notification
RE-	12.6	The application shall have an option to send a message to ask how the user (STML User) is feeling and request a response which is sent to the caregiver via SMS.
RE-	12.7	The application shall delete reminders from the checklist after the checkbox has been marked.
RE-	12.8	The application shall allow for user relevant and personalized notifications.
RE-	13	The application shall prompt the user to permit the application to access their microphone, camera, and storage resources.
RE-	14	The application shall toggle to listening mode when the user taps on the microphone button.
RE-	15	The application shall record the user's speech and transcribe into a note, then save the transcribed notes on the user's device.
RE-	16	The application shall allow the user to view and sort a list of notes by date and group the notes by subject category.
RE-	17	The application shall allow the user to add a new note as well as modify and delete existing notes.
RE-	18	The application shall have a functioning Graphical User Interface (GUI) with large, user-friendly icons for the STML Users.
RE-	19	The application shall allow notes to be searchable by keyword and date.
RE-	20	The application shall provide a Help menu.
RE-	21	The application shall allow users the ability to increase note security by leveraging the device's existing security features such as a PIN, finger print, or facial recognition.
RE-	22	The application shall have a language settings option to support language internationalization.
RE-	22.1	The application shall allow the caregiver mode to change the application language.
RE-	22.2	The application shall support speech-to-text transcription from the user in multiple languages.
RE-	23	The application shall include a calendar.
RE-	24	The application shall provide links and/or contact for free government resources to the caregiver

8.2 References

Gordon, Roy (personal communication, December 24, 2021)

Software engineering standards committee of the IEEE computer society. (1998, June 25). IEEE Recommended Practice for Software Requirements Specifications. In EEE Std 830-1998. Retrieved from http://www.math.uaa.alaska.edu/~afkjm/cs401/IEEE830.pdf

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8.3 Credits

Below are the members that contributed or will contribute to the development of this application: Dr.Mir Assadullah, Dr.Evangelista, Roy Gordon, Robert Wilson and Daniel Avery. Additional members include Team Fluttering Mind, and of course Team RememberAll.

8.4 Acronyms and Abbreviations

Some of the terms used in this document are defined below:

Table 3: Acronyms and Definitions

Acronym	Definition
API	Abstract Programming Interface
GUI	Graphical User Interface.
HIPAA	Health Insurance Portability and Accountability
IEEE	Institute of Electrical and Electronics Engineers
IOS	iPhone Operation System
IT	Information Technology
MS	Master
PHI	Protected Health Information
PII	Personal Identifiable Information
SRS	Software Requirement Specification.
STML	Short-Term Memory Loss.
SWEN	Software Engineering
UI	User Interface.
UMGC	University of Maryland Global Campus