Software Requirements Specification

for

Want2Remember

Version 3.1 approved

Prepared by

Antonio Campos	Project Co-Lead
Alec Kaczmarek	Project Co-Lead
Amy Guttman	Documentation Co-Lead
Alexandra Strong	Documentation Co-Lead
Vincent Li	Engineer
Saiyang Liu	Engineer
Ricardo Marroquin	Engineer
Miguel Nonoal-Garcia	Engineer
Jonathan Sum	Engineer
Edwin Zapata Minero	Engineer
Zilong Ye, Ph.D.	Faculty Advisor
Kevin Benavente	We2Link Liaison
Michael Malone	We2Link CEO

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Revision History

Name	Date	Reason For Changes	Version
Amy Guttman, Alexandra Strong	08/24/2021	Initial Access	1.0
Amy Guttman, Alexandra Strong	10/26/2021	Cross-Reference with Past SRS	1.1
Amy Guttman, Alexandra Strong	12/10/2021	First Draft	2.0
Amy Guttman, Alexandra Strong	05/09/2022	Second Draft Completed	3.0
All Project Members	05/13/2022	Final Draft Approved	3.1

1. Introduction

1.1 Purpose

This document will:

1. Identify the requirements for the Want2Remember app by giving an in-depth explanation of the application and software, the purpose of the project, as well as an explanation of how users will interact with the services within the application.
2. Detail the requirements that must be met to deliver a complete and fully functional application.

1.2 Intended Audience and Reading Suggestions

This document is intended for the project manager, developers, and users of the software.
The suggested reading sections are as follows:

- Project Manager: To help understand the requirements and steer the development of the software; Recommended Reading: Sections 2 - 5
- Developers: To help understand the requirements that need to be met for the implementation of the software; Recommended Reading: Sections 3 - 5
- Users: To help understand basic information pertaining to the software; Recommended Reading: Sections 1.3, 2.1

1.3 Product Scope

Want2Remember is a mobile phone application to help those with memory issues - whether they are from brain injuries, Alzheimer's, or other cognitive impairments. The Want2Remember app shall provide the user templates to log memories, passwords, to-do lists, interactions, appointments, and other important things the user wants to remember. The user shall be able to record past, present, and future events and reminders. The software features shall help facilitate the user's ability to live independently, return to work, maintain social interaction, increase work efficiency, maintain personal safety, as well as any other needs that may come up in development. The app features shall also help facilitate caregiver needs, as well as improve medical support.

1.4 Definitions, Acronyms, and Abbreviations

Refer to Appendix: A

1.5 References

Title: 2019 Alzheimer's Disease Facts and Figures
Authors: Alzheimer's Association
Date: 2019
https://www.alz.org/media/Documents/alzheimers-facts-and-figures-2019-r.pdf
Title: React Native - The Practical Guide
Authors: Academind by Maximilian Schwarzmüller, Maximilian Schwarzmüller
Date: (First Accessed) August 31, 2021
https://www.udemy.com/course/react-native-the-practical-guide/

Title: Software Requirements Specification for Want2Remeber (Ver 2)
Authors: Kevin Benavente, Thomas Weatherell, Alejandro Salazar, Jesus Roman, Leon/Liangbin Huang, Jesus B. Osuna, Edward Ramirez, Tanya Kitchaiskulrit
Date: May 13, 2021

Title: Software Requirements Specification Template
Author: Professor Jiang Guo
Date: (Accessed) August 24, 2021

Title: Traumatic Brain Injury
Authors: Alan Georges; Joe M. Das
Date: January 5, 2022
https://www.ncbi.nlm.nih.gov/books/NBK459300/

2. Overall Description

2.1 System Analysis

Cognitive impairments can be challenging for both those with the condition and their caregivers. A person may have trouble learning, remembering, concentrating, or making decisions, seen in a range of mild to severe. It can be a part of the cognitive decline in normal aging, such as in dementia or Alzheimer's, or it can be caused by a traumatic brain injury. According to the Centers for Disease Control and Prevention, more than 5.8 million people in the United States have Alzheimer's disease and related dementias, and more than 1.5 million people suffer a traumatic brain injury per year. It is estimated that 5.3 million Americans are living with a permanent TBI-related disability.

The Want2Remember app is designed to help those with cognitive impairments and their caregivers. The application should provide reminders for things like medication, appointments, and daily routines, as well as store sensitive data like credit card information, and allow for records of past events and interactions.

The major hurdles associated with this project were learning the JavaScript mobile application framework and React Native and working as a group remotely through the COVID-19 pandemic. We were given online resources to solve both challenges. We were given access to the Udemy course "React Native - The Practical Guide" to guide us through the framework and language. To collaborate, we formed sub-teams to break down the project objectives into manageable pieces. We met virtually twice weekly for status updates and sprint retrospectives on Zoom while we communicated over Slack and email.

2.2 Product Perspective

While Want2Remember includes some features found in calendar-type and reminder-type applications, it is a unique product that will be brought to market. The application supports the user through additional features, such as cataloguing memories, organizing detailed interactions with other people, tracking moods that correlate to events, and other things like providing a more customized use of the software. These features are helpful for the users themselves and people who are assisting the users, such as healthcare workers or family members. The hope is by supporting the user through the creation of memories and reminders, that they become more capable, despite the challenges they face.

While the application is currently free as a beta test, we plan to add advertising, introduce premium features behind a paywall, and find other integrations to increase the value of the app and its revenue stream.

2.3 Product Functions

2.3.1 Home Screen

Provides initial landing site for users. Provides brief overview of all existing memories. Allows user to filter memory categories and navigate to other sub-screens.

2.3.2 Register User

Allows the user to create an account.

2.3.3 Login/Logout

Allows users to login and logout.

2.3.4 Create Screen

Allows user to choose from different entry templates. Layout is unique for each premade memory template. User may reorder the memory templates with long press and drag.

2.3.4.1 Generic Memory

Provides interface for user to edit and create generic memory from template. User may enter title, category, file, status, tag, date, time, reminder date, reminder time, reminder scheduled time, reoccurrence, location, people, emoji, description, and/or custom field.

2.3.4.2 Simple Memory

Provides interface for user to edit and create simple memory from template.

2.3.4.3 ToDo

Provides interface for user to edit and create to-do list from template.

2.3.4.4 Simple ToDo

Provides interface for user to edit and create simple to-do list from template.

2.3.4.5 Interaction

Provides interface for user to edit and create interaction from template.

2.3.4.6 Appointment

Provides interface for user to edit and create appointment from template.

2.3.4.7 Credit Card

Provides interface for user to edit and store credit card information from template.

2.3.4.8 Bank Account

Provides interface for user to edit and store bank account information from template.

2.3.4.9 Website Password

Provides interface for user to edit and store website password from template.

2.3.4.10 Simple Password

Provides interface for user to edit and store simple password from template.

2.3.4.11 Transaction

User may track past and/or current purchases. User may enter title, category, vendor name, purchase amount, purchase date, purchase time, transaction type, purchase method, account used, billing address, due date, next due date, and/or notes.

2.3.4.12 Customization Tool

User may create their own custom memory types or edit ones they have already created. User may enter a name for the memory type as well as the individual components they want to include for this custom memory type.

2.3.4.13 Change Color Palette

User may select the color palette they would prefer for the display of memory tiles. Provides default palettes (default, pantone, rainbow, deuteranopia, protanopia, and tritanopia) or the user may create a custom palette.

2.3.5 Search Screen

Allows users to search through entries and display results.

2.3.6 Contacts Screen

Create contact or add existing contact to application.

2.3.7 Help Screen

Allows user to send feedback and report a bug.

2.3.8 Settings Screen

Allows user to change application settings, import or export app data. User may also create and edit app reminders, customize the app, edit their secure pin, send feedback to developers (help screen), or clear all user data.

2.3.9 Filters Screen

Allows user to filter through entries using keyword tags or dates.

2.4 User Classes and Characteristics

There are four user classes on Want2Remember:

- Free version user
  - A free version user with free access to Want2Remember. Limited access to features.
- Premium user (TBD)
  - A free version user does not have access to the premium features. In order for them to access the remaining features, they must purchase the premium package.
- Free version caregiver (TBD)
  - Family or medical professional with free access to Want2Remember. Limited access to features.
- Premium caregiver (TBD)
  - A free version caregiver does not have access to the premium features. In order for them to access the remaining features, they must purchase the premium package.

2.5 Operating Environment

The application will run on any mobile device that supports:

- iOS 7 or higher
- Android Oreo (8.0) or higher
- Web Development Planned

2.6 Design and Implementation Constraints

Developers must learn the following technologies prior to work on this project:

- JavaScript
- React Native
- NodeJS
- Redux
- GitHub
- JIRA & Agile Development Technology
- Firebase

2.7 User Documentation

2.7.1 Users will be able to access online tutorial videos on YouTube to view full walkthrough of the application.

2.8 Assumptions and Dependencies

2.8.1 User is expected to have a mobile device.
2.8.2 User device is expected to run on the minimum required operating systems (see section 2.5).

2.9 Apportioning of Requirements

2.9.1 Additional customization for enhanced functionality and ease-of-use
2.9.2 Caregiver support, multiple caregiver access
2.9.3 Medication tracker template
2.9.4 Mobile advertisement
2.9.5 Premium features
2.9.6 Proximity support
2.9.7 Invites

3. External Interface Requirements

3.1 User Interfaces

The system shall provide users to access to the features of Want2Remember. There are four user interfaces that shall accompany this app: a free version user interface, a premium user interface (TBD), a free version caregiver interface (TBD), and a premium caregiver interface (TBD). The free versions shall have access to most features, while the other features shall be accessed once payment is processed.

3.1.1 The user interface shall present the Home Screen upon initial access.
3.1.2 The system shall provide a uniform look and feel between all pages. Headings, banners, fonts, and buttons shall follow the same style guide.
3.1.3 All screens shall include dynamic header component and bottom navigation bar.
  3.1.3.1 Bottom navigation bar shall include Home, Create, Search, and Contacts.
  3.1.3.2 Back button will be in the top left corner to return the user back to the Home Screen.
3.1.4 Home Screen (default screen) shall show brief overview of all existing memories.
  3.1.4.1 Help, settings, and filters shall be in the top right corner for navigation.
  3.1.4.2 The Memory navigation bar shall show “All Memories” by default, with other subcategory options listed in the scroll bar to the right.
  3.1.4.3 Below this navigation bar, the preview of the memory shall show with date, title, category, and other relevant summary information.
  3.1.4.4 A button at the bottom right shall allow the user quick access to “Create,” leading them to the Create Memory Screen.
3.1.5 Create Screen shall show all memory templates.
  3.1.5.1 Memory tiles shall be labeled and color-coded in an accessibility-friendly way. Color customization shall generate options for those with color vision deficiency.
  3.1.5.2 Clicking on a memory tile shall lead the user into the chosen template.
3.1.6 Search Screen shall let users filter through their memory tiles.
  3.1.6.1 Search bar shall provide enough space for query.
  3.1.6.2 When a user searches, the results shall display below the search bar and be scrollable.
3.1.7 Contacts Screen shall show all contacts in scrollable view.
  3.1.7.1 Add Contact shall be in the top right corner.
  3.1.7.2 Search bar shall provide enough space for query.
  3.1.7.3 Quick view shall include name, quick links to contact, and associated memories.
  3.1.7.4 Clicking on View More shall allow the user to see full details of that contact.
3.1.8 Settings Screen
  3.1.8.1 The settings options shall allow the user the ability to import and export JSON format memories.
  3.1.8.2 The user shall be able to create and reset their secured PIN.
  3.1.8.3 The user shall be able to send feedback.

3.2 Hardware Interfaces

No special hardware interface requirements.

3.3 Software Interfaces

iPhone Software: iOS 7 or higher
Android Software: Oreo or higher.
Other Software Dependencies: React Native uses the React API, React-Native dimensions API enables responsiveness for stable sizing throughout any hardware. Wix API is used for Calendar components used in the software.

3.4 Communications Interfaces

Not applicable at this time.

4. Requirements Specification

4.1 Functional Requirements

4.1.1 Home Screen

4.1.1.1 The system shall display created memories on the home screen

4.1.1.2 The system shall display memories within a category selected by the user (Filter by category)

4.1.1.3 The system shall display memories within a type selected by the user (Filter by memory type)

4.1.1.4 The system shall display memories within a time frame selected by the user (Filter by time/date)

4.1.1.5 The system shall allow the user to create a new memory

4.1.1.6 The system shall allow the user to select a memory to view

4.1.2 Create Screen

4.1.2.1 The system shall allow the user to select from premade memory templates

4.1.2.2 The system shall allow the user to give memories a title

4.1.2.3 The system shall allow the user to select a category for a memory

4.1.2.3.1 The system shall allow the user to create a PIN for secured memories if not already created

4.1.2.4 The system shall allow the user to select a date for a memory

4.1.2.5 The system shall allow the user to select a time for a memory

4.1.2.6 The system shall allow the user to select a reminder time for a memory

4.1.2.7 The system shall allow the user to select a status for a memory

4.1.2.8 The system shall allow the user to enter tags for a memory

4.1.2.9 The system shall allow the user to enter a location for a memory

4.1.2.10 The system shall allow the user to select people for a memory

4.1.2.11 The system shall allow the user to add a custom field to a memory

4.1.2.11.1 The system shall allow the user to enter a title to a custom field

4.1.2.11.2 The system shall allow the user to enter content to a custom field

4.1.3 Edit Screen

4.1.3.1 The system shall allow the user to edit a memory

4.1.3.2 The system shall allow the user to delete a memory

4.1.4 More Details Screen

4.1.4.1 The system shall allow the user to view the details of a screen

4.1.5 Contacts Screen

4.1.5.1 The system shall display contact quick looks

4.1.5.1.1 The system shall display associated memories

4.1.5.1.2 The system shall allow the user to call a contact

4.1.5.1.3 The system shall allow the user to text a contact

4.1.5.1.4 The system shall allow the user to email a contact

4.1.5.2 The system shall allow the user to search for a contact

4.1.5.3 The system shall allow the user to update contacts.

4.1.6 Search Screen

4.1.6.1 The system shall allow the user to search through the database with the search bar.

4.1.6.2 The system shall display scrollable results below the search bar.

4.1.7 Settings Screen

4.1.7.1 The system shall allow the user the ability to import/export JSON format memories.

4.1.7.2 The system shall allow the user to create and reset their secured PIN.

4.1.7.3 The system shall allow the user to send feedback.

4.1.8 Backend

4.1.8.1 The system shall allow synchronization between local and cloud data.

4.1.8.2 The system shall encrypt user data.

4.1.8.3 The system shall provide user authentication for login/logout capabilities.

4.1.8.4 The system shall allow synchronization between caregiver and care receiver data (TBD).

4.2 External Interface Requirements

Not applicable.

4.3 Logical Database Requirements

4.3.1 Types of information

4.3.1.1 User Data

User identification number
Username
Password
Account type (free version, premium, caregiver, etc.)
Secure PIN
Credit Card information
Bank Account information

4.3.1.2 Memory Data

One-to-one relationship between user data and memory data
Title
Category
Files
Status
Tags
Date
Time
Reminder Date
Reminder Time
Reminder Scheduled Time
Reoccurrence
Location

People
Emoji
Description (Title, Content)

4.3.1.4 Contact Data
One-to-one relationship between user data and contact data
Many-to-many relationship between contact data and memory data (foreign key between People and Contact Name)
Name
Phone Number
Email
Address
Company
Photo

See **Appendix B** for more information.

4.4 Design Constraints

4.4.1 Effectively display user information and options.

4.4.2 Accommodations for different formfactors (mobile, tablet, different operating systems)
The application shall accommodate different devices.

4.4.3 Cost to operate the database, minimize data-driven calls, while optimizing functionality from data called.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The application can remain offline. It shall synchronize to the cloud when internet access is available.

5.2 Safety Requirements

To ensure the safety of personal information, users should never share account details. We highly suggest resetting your password every three months to protect your account from unwanted activity. If any problem arises concerning your account, credentials, or transactions, please consult with our support team. We are happy to assist our users, please email your issues/concerns or call our support team for help.

5.3 Security Requirements

Data security protections shall be in place when users migrate data from their local device to the cloud. The design shall allow for additional HIPPA compliance in future upgrades. To ensure the application is HIPPA compliant, we shall use RSA end-to-end encryption to protect any data transfer. The user's secure PIN shall be checked on the server, not through the device.

5.4 Software Quality Attributes

5.4.1 This software shall be available on mobile and tablet devices for iOS and Android OS.
5.4.2 This application shall be regularly maintained.
5.4.3 Feedback shall be addressed to improve the user experience.
5.4.5 All software will be optimized for older devices, as well as offline first functionality.

5.5 Business Rules

5.5.1 **Care Receiver:** Has full CRUD abilities within the application.
5.5.2 **Caregiver:** Has specified CRUD abilities.

6. Legal and Ethical Considerations

6.1 Legal considerations

6.1.1 We shall ensure the security and privacy of any stored user data. User data and files in Secured Memories shall be encrypted.

6.1.2 User data shall only be shared with trusted caregivers.

6.1.3 User data shall only be shared with the user's consent.

6.1.4 User location shall only be visible only to those users/caregivers that the user has elected to share their location with.

6.1.5 Application shall be HIPPA compliant.

6.2 Ethical considerations

The purpose of our app is to assist individuals with cognitive disabilities. To best serve the needs of our customers and fulfil the purpose of our app, every aspect of the user experience must be designed with this in mind. Therefore, while designing the UI, we must keep in mind that the average user may have cognitive impairments, and we must make appropriate design choices to ensure accessibility to every screen of the app.

Because our app is in the realm of healthcare, we as programmers must acknowledge that if the app does not function properly, this could negatively affect the healthcare experience of the user, which could potentially have life-threatening consequences. Therefore, we must always keep in mind that users may be relying on our app as a crucial service that is part of their personal healthcare program. We must always respect the privacy of our users.

Appendix A: Glossary

API: Application Programming Interface
CRUD: Create, Read, Update, and Delete
GUI: Graphical User Interface
HIPAA: Health Insurance Portability and Accountability Act
iOS: Apple's mobile operating system
JSON: JavaScript Object Notation
JS: JavaScript
MacOS: Apple's Macintosh operating system
OS: Operating System
PIN: Personal Identification Number
RSA Encryption: public key/private key encryption method

Appendix B: Analysis Models

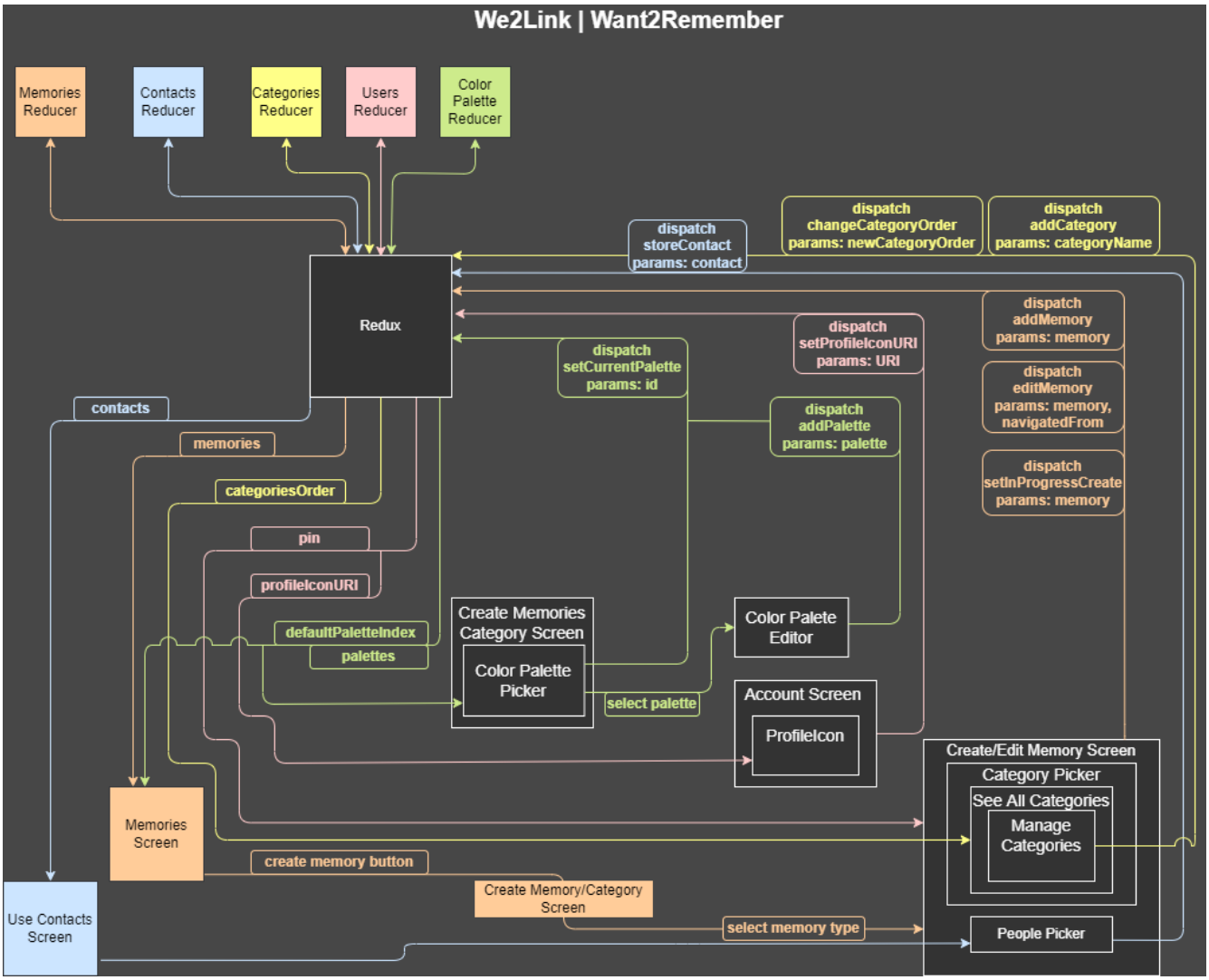

Figure 1: Redux Flow Diagram

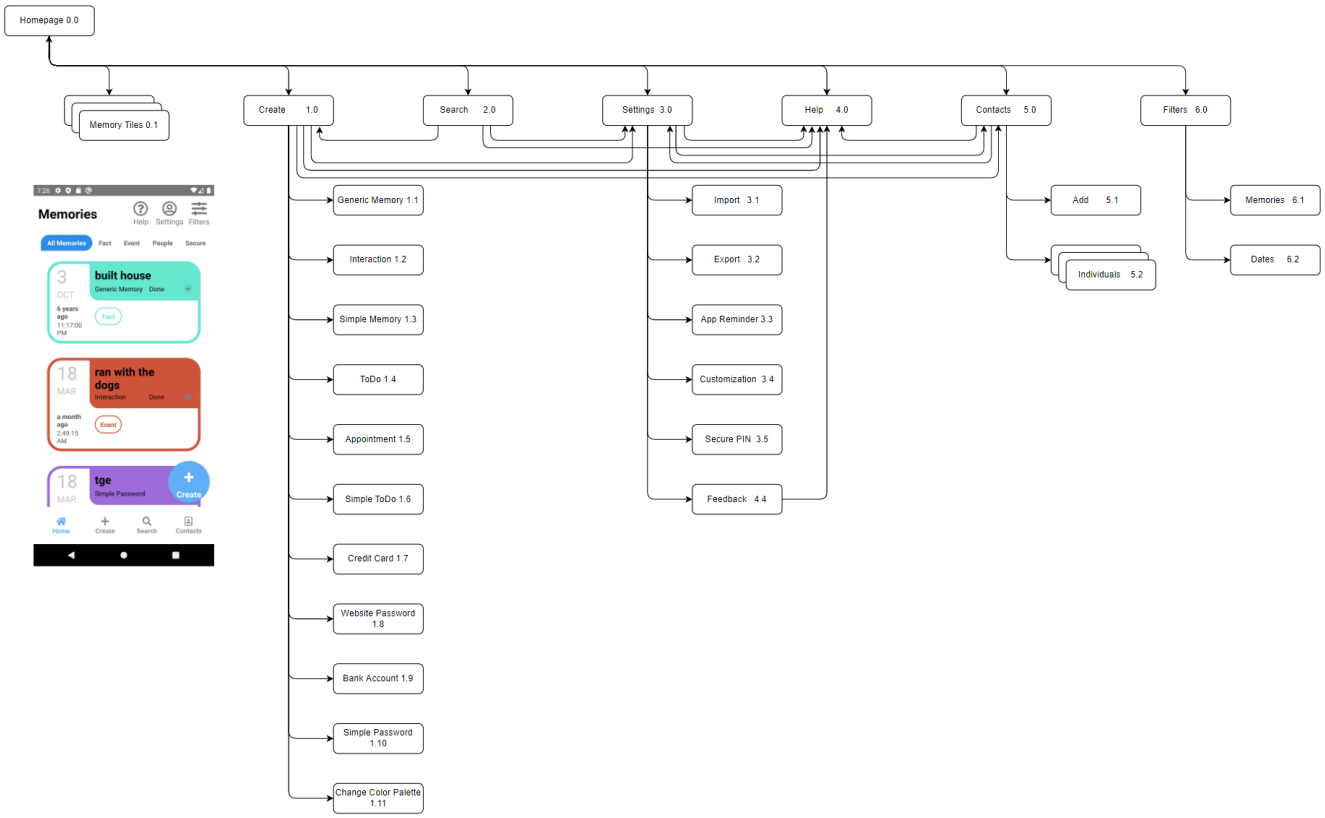

Figure 2: Application Map from Home Screen

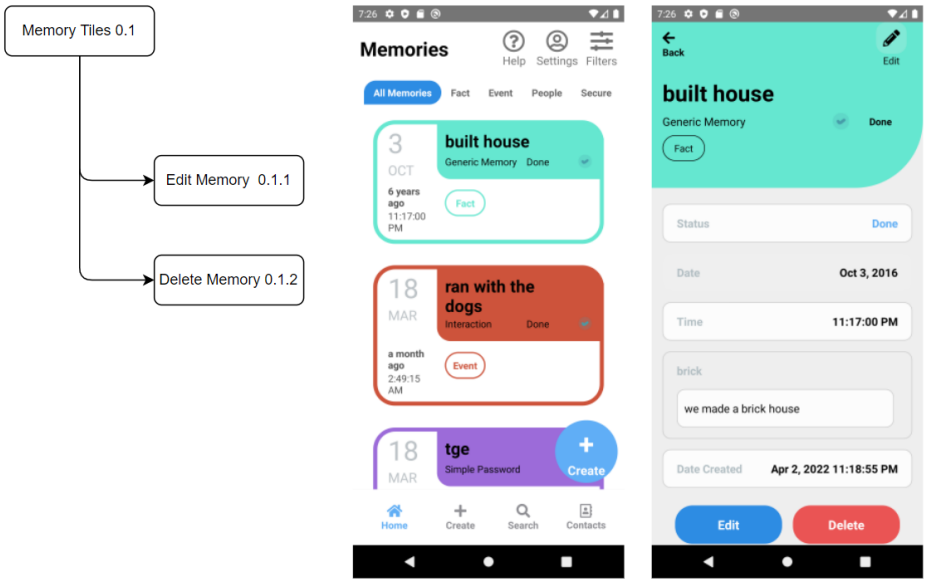

Figure 3: Memory Tile Map

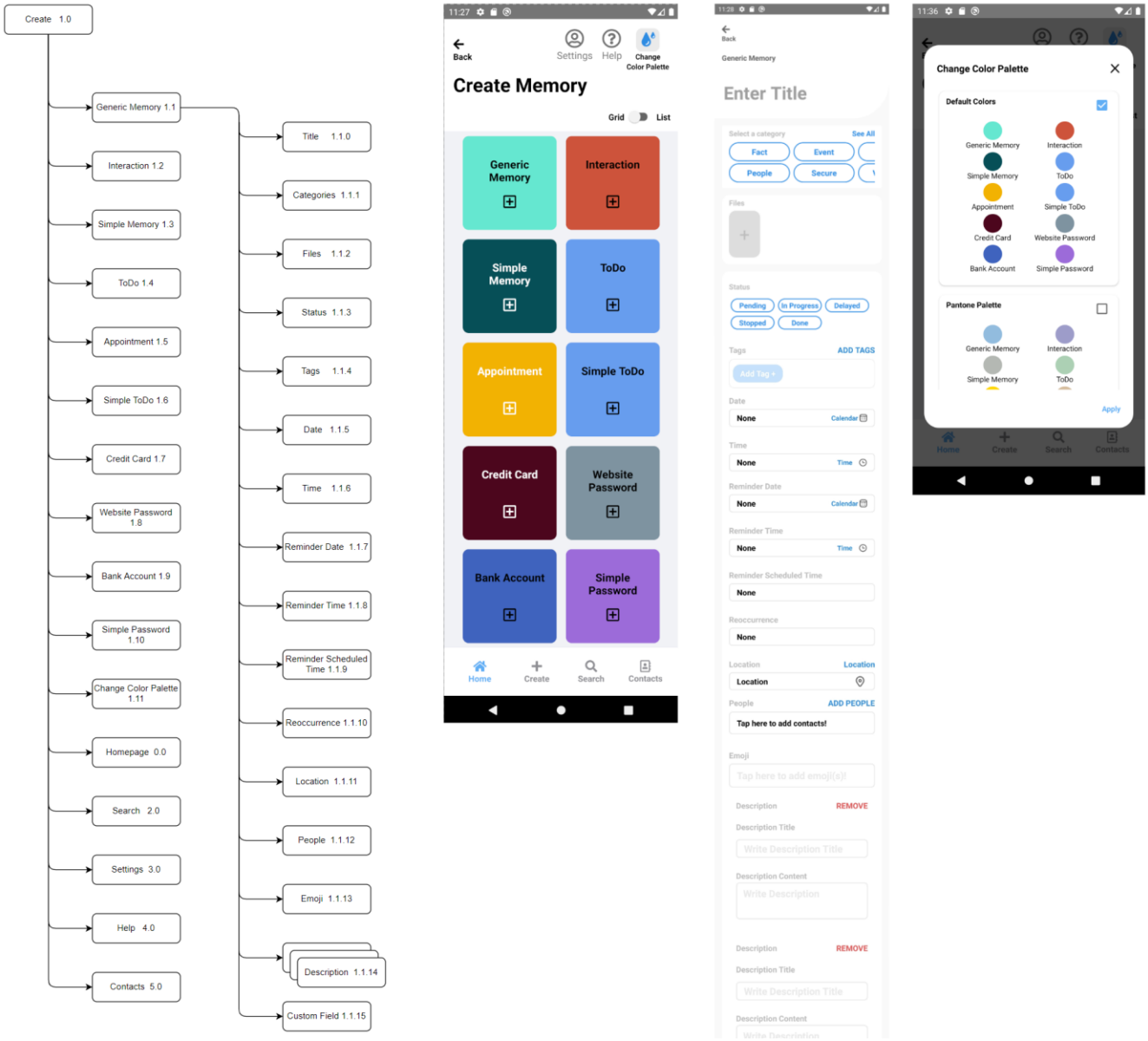

Figure 4: Create Memory Screen Map

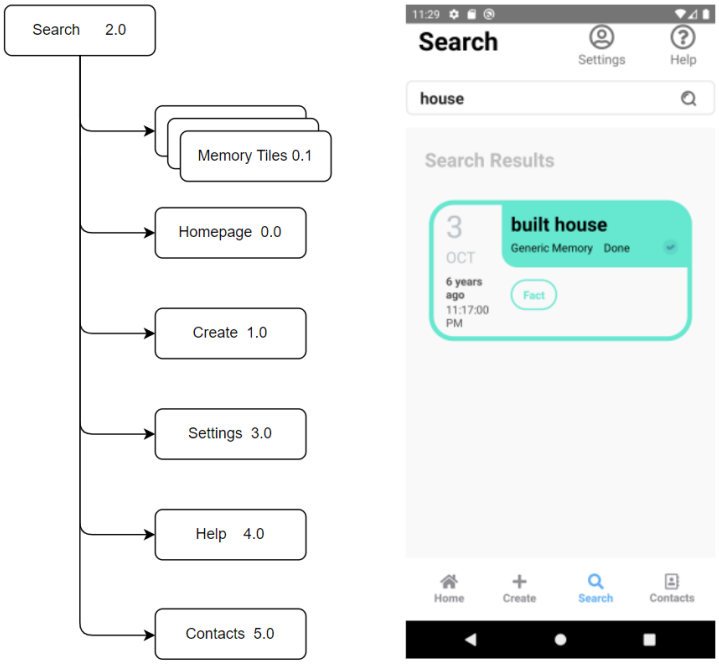

Figure 5: Search Screen Map

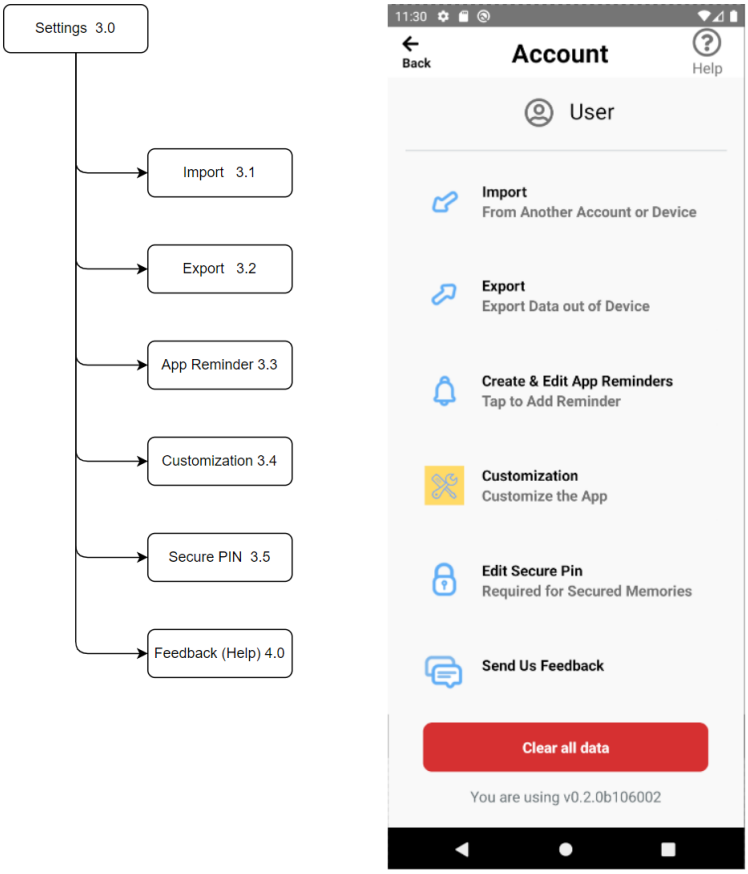

Figure 6: Settings Screen Map

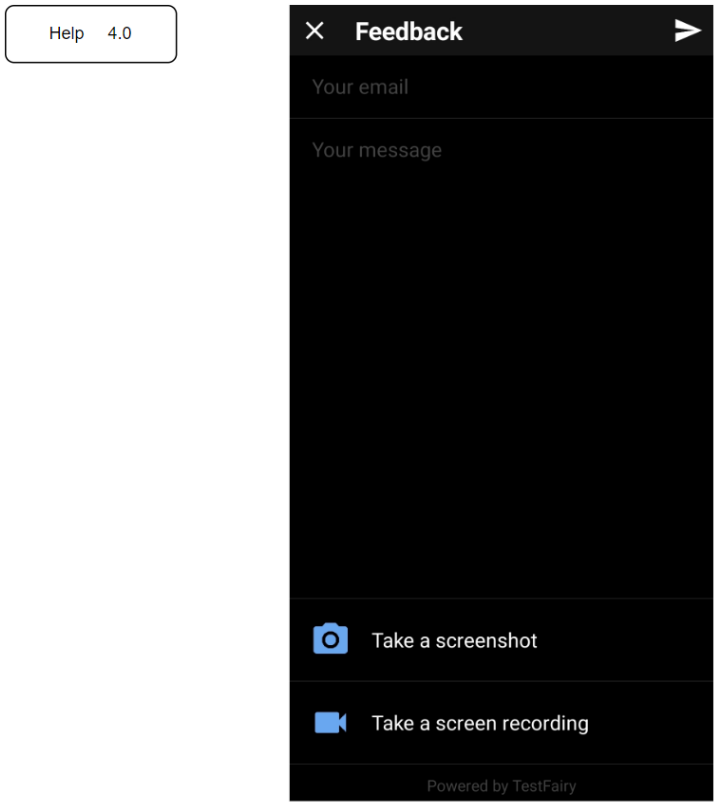

Figure 7: Help Screen

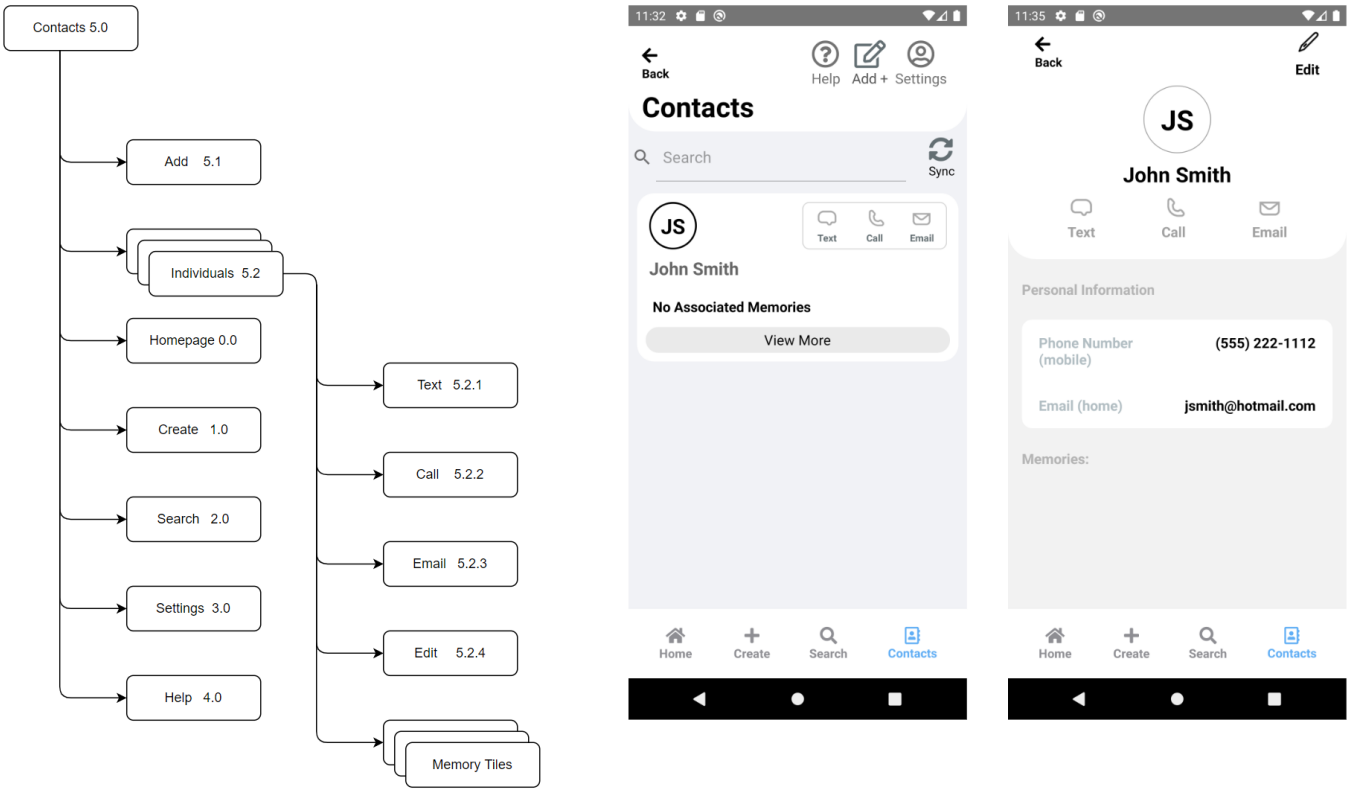

Figure 8: Contacts Screen Map

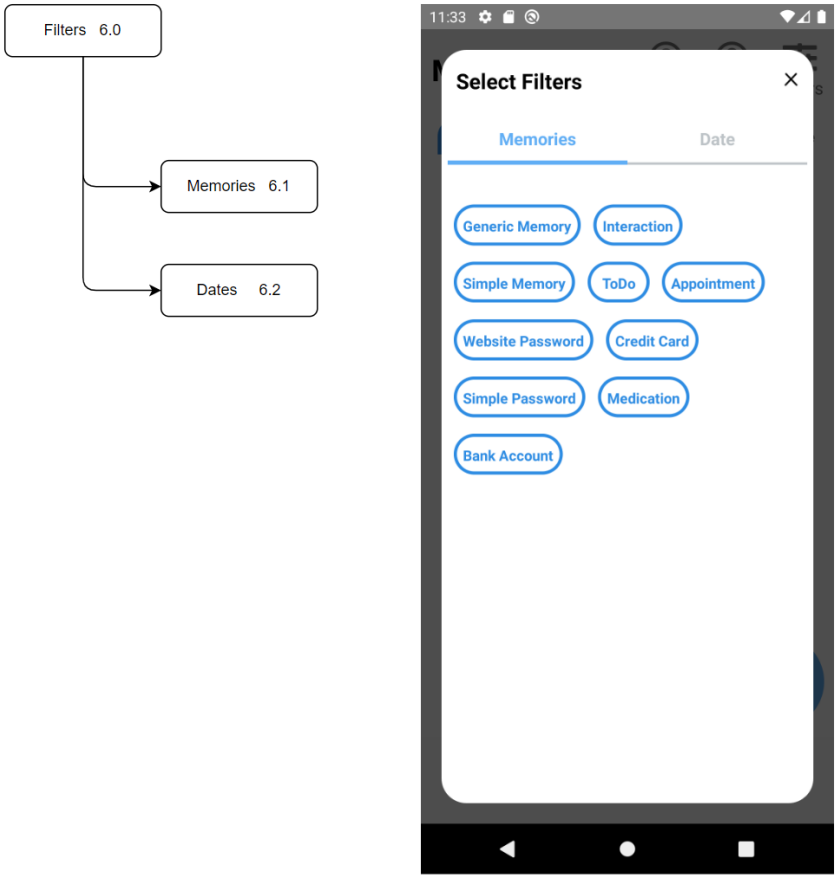

Figure 9: Filters Screen Map

Appendix C: To Be Determined List

1. Premium user

   A free version user does not have access to premium features. For access to the remaining features, they must purchase the premium package.

2. Free version caregiver

   Family or medical professional with free access to Want2Remember. Limited access to features.

3. Premium caregiver

   A free version caregiver does not have access to the premium features. For access to the remaining features, they must purchase the premium package.

4. Backend Support

   The system shall allow synchronization between caregiver and care receiver data.