
Memory Maker

Research Document

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Table of Content

- Table of Content.....1
- Summary..... 3
- Clients..... 4
 - Project Goals:.....4
 - Enhancing Memory Retention:..... 4
 - User-Friendly Interface..... 4
 - Personalization.....4
 - Reminder and Prompting System..... 4
 - Family and Caregiver Integration.....4
- Users.....5
 - Number and Ages of People 65 Or Older with Alzheimer’s in 2023..... 6
 - Estimated Lifetime Risk Of Alzheimer's by sex, At ages 45 and 65.....7
 - Proportion of Caregivers of People with Alzheimer’s or Other Dementias Versus Caregivers of Other Older People Who Provide Help with Specific Activities of Daily Living, United States, 2015.....8
 - Percentage of Caregivers Who Report High to Very High Stress Due to Caregiving..... 9
- Research.....10
 - Ideas for our primary users (people with alzheimer's)..... 11
 - Ideas for our secondary users (caretakers of people with alzheimer's).....11
 - Our competitors..... 12
 - Extra Resources:.....13
- Solution.....14
 - Patient Interface:.....15
 - Home Section.....15
 - Games Section.....16
 - Music Section.....16
 - Exercises Section.....17
 - Reminders Section..... 18
 - Caretaker Interface:.....19
 - Home Section.....19
 - Daily Planner Section.....20
 - Shop Section.....20
 - Resources Section..... 21
 - Results and Alerts Section.....21

Conclusion..... 22

Summary

This document contains research about Alzheimer's patients and caregivers and lays out a plan to design an application that assists these people in daily life. The document will highlight our client's goals (**MemoryMaker, inc.**) as well as showcase a user's goals, frustrations, personality types, and emotions during the user experience. Additionally, a user's way of living, marital status, preferred apps and websites are important information for creating a usable product. The users for this project are caregivers and nurses for Alzheimer's patients, the Alzheimer's patients themselves, and friends/family of these patients. The research and solution sections of this document explains our team's UI design choices with color schemes, iconography, and typography and highlights important features within our app that helps our users achieve their desired goals.

Design Question: *What combination of products and services in an app will help to increase Alzheimer's patients' memory strength, preserve memories and help caretakers?*

Clients

MemoryMaker, Inc is dedicated to developing resources tailored to support individuals with dementia and Alzheimer's. Their focus lies in innovating new solutions to aid individuals in the early stages of Alzheimer's, as well as caretakers supporting patients across all stages. These products aim to bolster memory retention while safeguarding cherished memories, preparing for a future where accessing these memories might become challenging.

Project Goals:

Enhancing Memory Retention:

Develop features that stimulate memory recall through interactive exercises, games, or prompts tailored to the individual's preferences and needs.

User-Friendly Interface

Design an intuitive and easy-to-navigate interface suitable for individuals with varying levels of cognitive abilities, ensuring accessibility and usability for the target demographic.

Personalization

Implement features that allow users to personalize their experience, such as uploading personal photos, recording voice memos, or inputting significant life events, to create a personalized memory bank.

Reminder and Prompting System

Integrate a reminder and prompting system to assist users in completing daily tasks, appointments, and medication schedules, reducing the risk of forgetfulness and confusion.

Family and Caregiver Integration

Include features that facilitate communication and collaboration between individuals with Alzheimer's, their caregivers, and family members, enabling them to contribute to memory-building activities and track progress.

Users

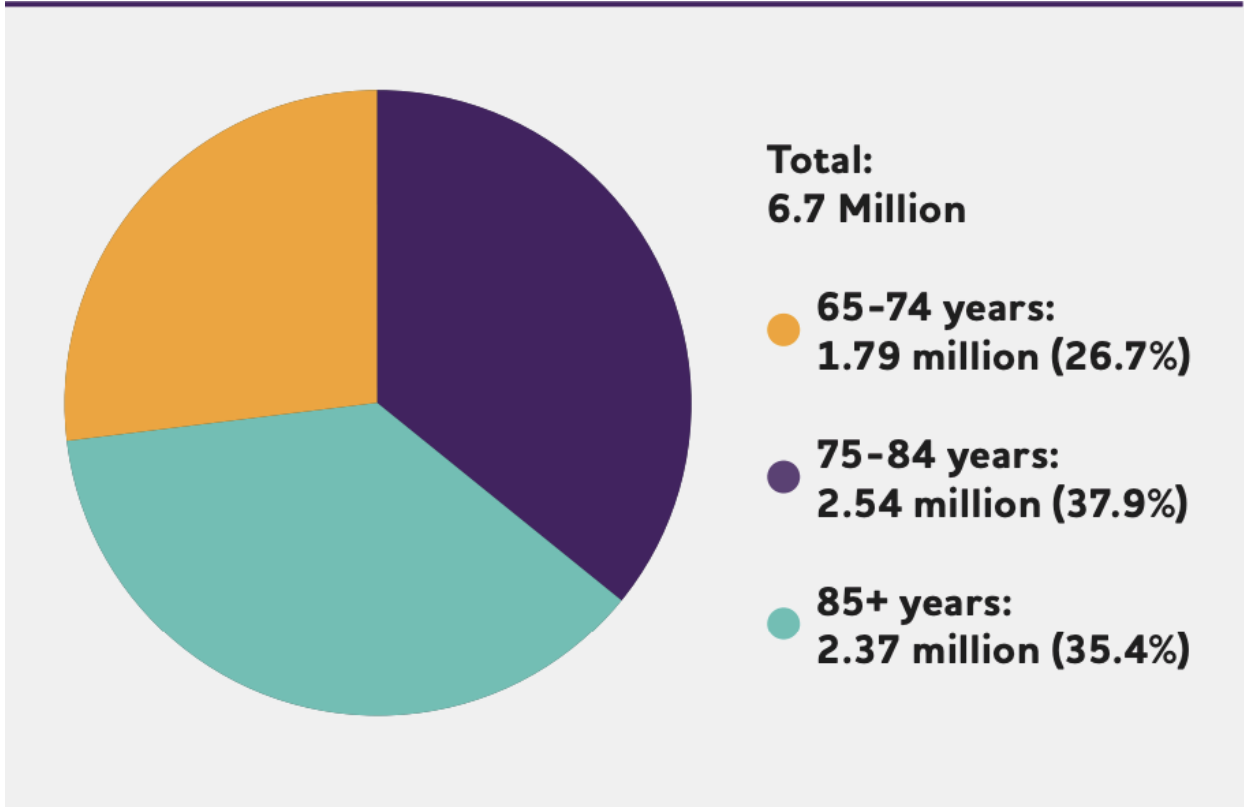
The users of this project are patients with Alzheimer's and Caretakers. Alzheimer's patients are individuals suffering from Alzheimer's disease. Due to the nature of the disease, Alzheimer's patients may face challenges in memory retention, communication, and daily activities.

Caretakers are individuals responsible for providing care and support to Alzheimer's patients. Caretakers include family members, friends, or professional caregivers. Caretakers assist with daily activities, medication management, emotional support, and ensuring the safety and well-being of the Alzheimer's patient.

Healthcare professionals dedicated to the treatment and care of Alzheimer's patients encompass a range of roles, including doctors such as neurologists, geriatricians, and general practitioners with expertise in Alzheimer's care. These professionals play key roles in diagnosing Alzheimer's, crafting personalized treatment plans, and overseeing the holistic medical management of patients. Nurses, including registered nurses, nurse practitioners, and specialized dementia care nurses, contribute by delivering direct patient care, administering medications, facilitating coordination among healthcare team members, and offering valuable support to both patients and their caregivers.

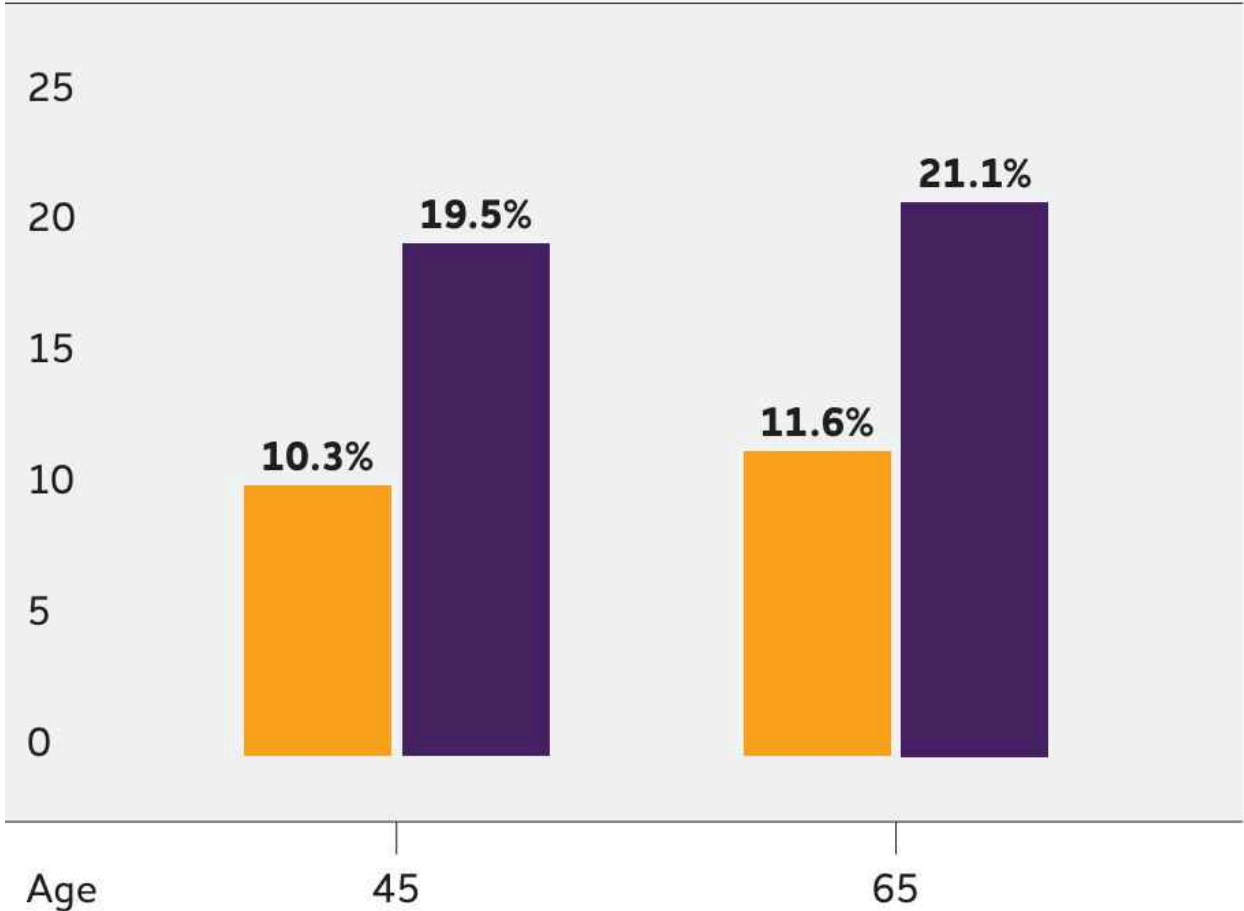
Our objective is to develop an app that aids individuals with Alzheimer's in memory recall. The app is designed to assist patients in remembering important information, while also providing caregivers with accessible tools to support patients and enhance their memory recall in managing care-related tasks.

Number and Ages of People 65 Or Older with Alzheimer’s in 2023



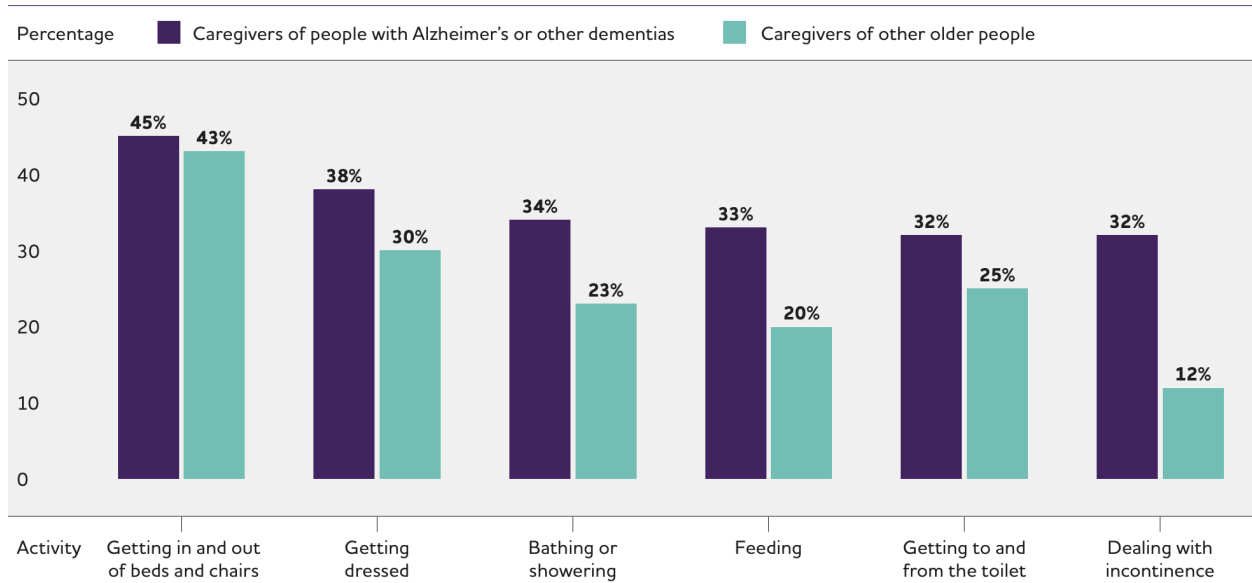
Created from data from Rajan et al.

Estimated Lifetime Risk Of Alzheimer's by sex, At ages 45 and 65



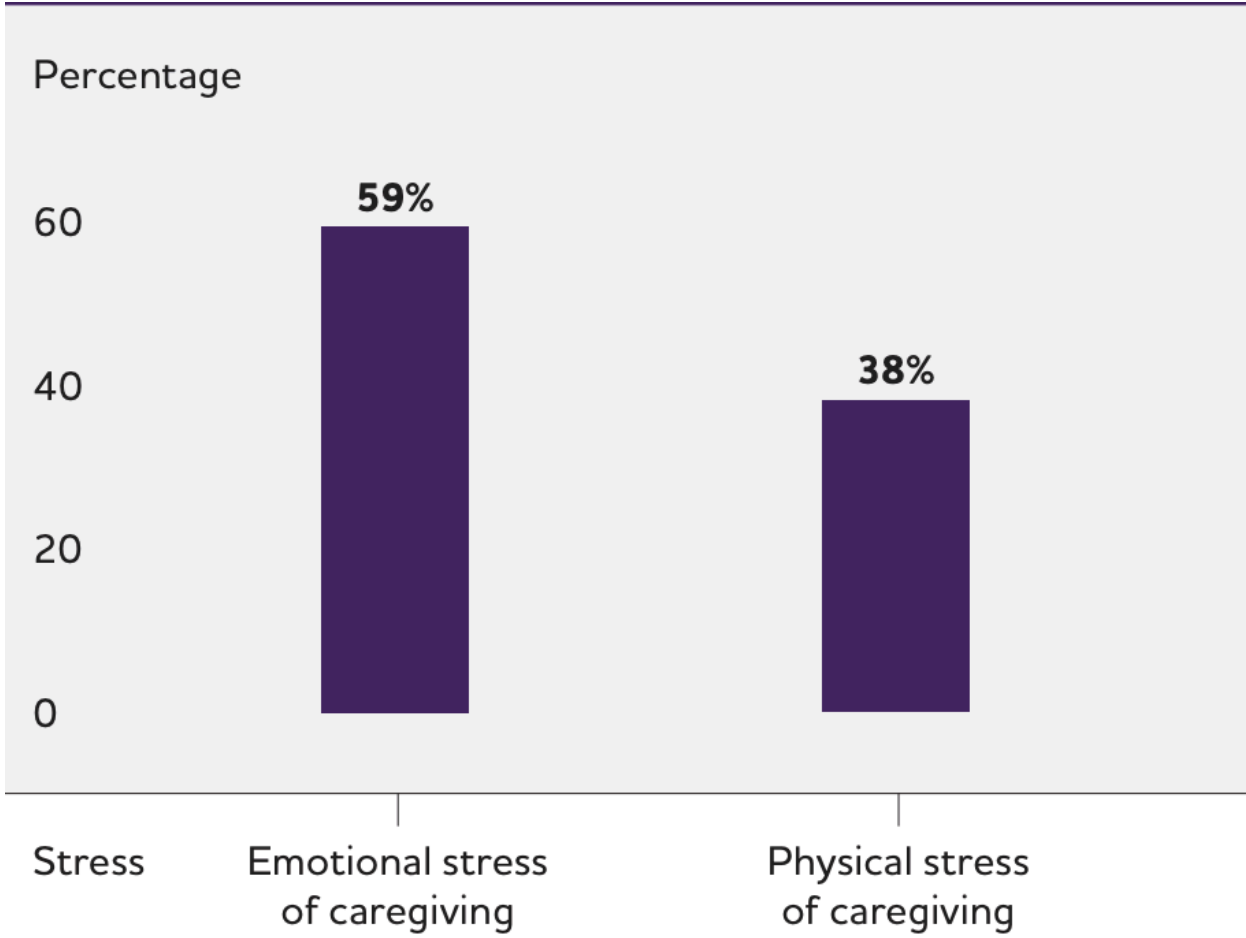
Created from data from Chene et al.

Proportion of Caregivers of People with Alzheimer’s or Other Dementias Versus Caregivers of Other Older People Who Provide Help with Specific Activities of Daily Living, United States, 2015



Created from data from the National Alliance for Caregiving in Partnership with the Alzheimer’s Association.

Percentage of Caregivers Who Report High to Very High Stress Due to Caregiving



Created from data from the Alzheimer’s Association.

Research

Our target users have multiple tools available to them and their caretakers that can assist them in improving their daily life. Examples of these items are:

- Personalized phones that have a UI design that accommodates our users' needs.
- Toys, puzzles and tools that users can use to connect with their 5 major senses.
- Alarms or to-do lists that help our users or our user's caretakers to keep track of recurring tasks.
- Alerts that let our user's caretakers know the status of our users.

These tools are highly effective, something that most consider a must-have when dealing with Alzaihemers. Our users use these types of items constantly as well as their caretakers.

The main issue that users might have is the quantity of tools and apps that are available to them. With many options and no many overlapping products that covers most of their needs, it's hard for them to afford all of these options, and if they do it's hard for them to keep track of all items and use them to their full potential

With this information in mind we are able to brainstorm many ideas that give us opportunities to create a product that encompasses most of the available instruments and options into one, also giving us the opportunity to go above and beyond and create innovative features that are advantageous to our users.

We decided to create a product that covers our users and their families/caretakers by creating an app with two interfaces. One for our users and one for their caretakers. With that in mind, we divided our ideas into the two major sections below:

Ideas for our primary users (people with Alzheimer's)

This version of the app should be simple. With a big interface, typefaces and calming colors.

- **Communication board** that users can use to express emotions or situations without needing to speak.
- **Games** that can be available to our users:
 - Color memory testers
 - Flash card games
 - Puzzles
 - Building shapes
 - Sensory games (with sounds, vibrations, visuals, etc.)
 - A Fake phone
 - "Who is who?" game that lets you create flashcards with pictures and names.
- **Reminders** that assist users with their daily tasks.
- **Music section** that easily connects users to music.
- **Fall prevention feature** that reviews the user's movements and balance in order to prevent falls, and also alert caretakers when a fall does occur.
- **Feature** that redesigns the calling interface to be bigger and clearer.
- **Solo option** for users that don't have caretakers and still wish to use the app.

Ideas for our secondary users (caretakers of people with alzheimer's)

This version of the app will have a more complicated design, enough to provide all important features and information to the users.

- **Daily planner** specifically for caretakers.
- **Tracking section** that lets users track their dependent(s).
- **Shop section** that connects users to products and tools.
- **Resources** that users can use to learn more about the disease, give guides and also provide mental health tips.
- **Mental health features** that ask and measure the user's feelings and thoughts.

- **Customizable options** that lets the users edit almost anything about their dependent's version of the app.
- **Alert features** that let the user know about important situations.
- **Reminders** that assist users with one-time, daily, weekly, monthly or yearly tasks.

Our competitors

Let's take a look at what our competitors are doing already and identify what things we can do to be different from the rest.

- **Lumosity** (<https://www.lumosity.com/en/>) - This app provides games that challenges specific mind functions of their users by facilitating daily games that track and adjust to their level
- **AmuseIT** (<https://www.amuseit.nz/>) - This app provides simple quiz questions and visual components. The questions and images serve as effective communication strategies to tap into past memories and spark conversations. They offer a lot of customizable features.
- **SingFit** (<https://www.singfit.com/>) - This app is a therapeutic music app that improves cognitive health of their users.
- **It's Done!** (<https://www.itsdoneapp.com/>) - An app specialized in reminders and to-do lists.
- **Mindmate** (<https://www.mindmate-app.com/>) - This app is an all-in-one resource that provides their users with brain-engaging games, nutrition advice, and exercise programs that keep the mind and body healthy.
- **Nymbi** (<https://nymbiscience.com/>) - This all helps their users with mobility and balance by providing balance training tools, fall risk assessments, digital balance screenings, and more.

- **Alzheimer's Daily Companion**

(https://madiba.encs.concordia.ca/reports/OPC-2021/apps/alzheimers_daily_companion.html) - This app specifically focuses on the caregivers, preparing them by giving them immediate tips and practical advice for all of the behaviors and situations they face on a daily basis when dealing with people with Alzheimer's.

Extra Resources:

- <http://www.mistakenorders.com/en/home.html>
- https://www.alz.org/alzheimers-dementia/10_signs
- https://www.songsandsmiles.com/?gad_source=1&gclid=CjwKCAiA8NKtBhBtEiwAq5aX2BzlPiSr6PzjkSqL1erQksgL70TqWpxqvttUhRNmDLjwEDAyQMIqWxoC5JwQAvD_BwE
- <https://www.alzheimers.org.uk/blog/how-design-website-someone-affected-dementia#:~:text=dementia-friendly%20text%20and%20fonts&text=us>
- <https://www.aplaceformom.com/caregiver-resources/articles/memory-care-paint-colors>
- <https://www.aplaceformom.com/caregiver-resources/articles/dementia-apps>

Solution

Our plan is to create an interface designed specifically for our users with their needs in mind, and also create another interface of our app that accommodates caretakers and makes their tasks easier.

We also thought of the possibility of primary users that don't have caretakers, and we have added an option to merge and customize the main interface in order to add desirable features from the caretakers interface into it.

In the following page we will breakdown all the sections and features planned for our app.

Patient Interface:

Home Section

When the app is open this section will be the one that will welcome the users, it will be 100% customizable and can include graphs, tips, articles, information, music or anything that the users interact with constantly or added manually.

Pros and Cons:

Pros:

- Provides easy access to information and reports to user's activity.
- Provides easy access to articles and tips.
- Provides easy access to games, exercises and music.
- Provides easy access to the other sections of the app as well as previews of what these ones offer.

Cons:

- With too much information it might be overwhelming.
- If not customized users might get frustrated by features they have no interest in.

Communication Section

When users click on this section they will be received with an easy to understand feature that gives them options for easy communication when they feel they can't communicate properly. This section can be removed. The main feature found in this section is a communication board that gives users simple boxes with images/icons that represent their mood and wants. When these boxes are clicked, a message will be sent to their caretakers digitally or via an audio reaction.

Pros and Cons:

- Pros:
 - Improves communication between patients and caretakers.
 - Clear instructions and interface.
 - Highly customizable.
- Cons:

- With too much information it might be overwhelming.
- If instructions are not clear users might feel frustrated.
- Section might not apply to all users.

Games Section

This section will provide users with multiple games and exercises that are probed to improve their cognitive abilities. This section is also highly customizable from the interface of the caretakers. It can include:

- A filter option designed specifically for our users in mind so as to not overwhelm them.
- A menu section that lets users easily choose what type of games to play.
- Display section that will show the available games based on the menu and filter options.
- A section that shows results of games and what these results mean.

Pros and Cons:

- Pros:
 - Improves cognitive health by providing a variety of doctor certified games and exercises.
 - Clear instructions and interface.
 - Highly customizable.
- Cons:
 - With too much information it might be overwhelming.
 - If instructions are not clear users might feel frustrated.
 - Has lots of features that require users to interact and make active decisions, such things might frustrate users that have problems with active understanding.

Music Section

This section can partner with a music provider such as Apple Music, Spotify, or Youtube Music in order to provide easy access to music that improves or helps patients. It can include:

- A filter option designed specifically for our users in mind so as to not overwhelm them.
- A menu section that lets users easily choose what type of music to hear.
- Display section that will show the available music based on the menu and filter options.

Pros and Cons:

- Pros:
 - Improves cognitive health by providing access to music therapy activities.
 - Clear instructions and interface.
 - Highly customizable.
- Cons:
 - With too much information it might be overwhelming.
 - If instructions are not clear users might feel frustrated.
 - Has lots of features that require users to interact and make active decisions, such things might frustrate users that have problems with active understanding

Exercises Section

This section will focus on the users physical abilities and balance. It can provide access to doctor certified physical workouts, as well as a results section that will show measurements and metrics that reflect the users current physical status and balance based on the results of the activities completed. Features on this section will divide workouts into levels of difficulties. This is a highly customizable section that can be edited from the caretakers interface.

Pros and Cons:

- Pros:
 - Provides access to physical therapy activities that improve balance and overall health.
 - Show metrical results that reflect the users current physical and balance status based on activities completed.

- Clear instructions and interface.
- Highly customizable.
- Cons:
 - With too much information it might be overwhelming.
 - If instructions are not clear users might feel frustrated.
 - Has lots of features that require users to interact and make active decisions, such things might frustrate users that have problems with active understanding

Reminders Section

This section will display an easy to understand design that lets users add tasks that need to be done. Features included are reminders for tasks and edit options. This section is highly customizable.

Pros and Cons:

- Pros:
 - Assist users to remember important tasks.
 - Keeps track of what activities users have problems doing.
 - Tasks are fully customizable.
 - Clear instructions and interface.
- Cons:
 - With too much information it might be overwhelming.
 - If instructions are not clear users might feel frustrated.
 - Has lots of features that require users to interact and make active decisions, such things might frustrate users that have problems with active understanding

Caretaker Interface:

Home Section

When the app is open this section will be the one that will welcome the users, it can be customizable but important features such as alerts and warnings cannot be removed. It will display featured information from other sections here.

Pros and Cons:

Pros:

- Provides easy access to information and reports to user's activity.
- Provides easy access to articles, tips and daily tasks.
- Provides easy access to the other sections of the app as well as previews of what these ones offer.

Cons:

- With too much information it might be overwhelming.
- If not customized users might get frustrated by features they have no interest in.

Daily Planner Section

This section will provide a planner for users that lets them pre-plan their day, week or month. It will include reminder features, notations, diaries, picture progressions, check-ins and main information that helps them care for the patient.

Pros and Cons:

Pros:

- Assist users to organize their time.
- Provides alerts for tasks.
- Provides a check-in feature that takes care of the user's mental health and tracks its progression.
- Provides tips on how to improve management of their time.

Cons:

- With too much information it might be overwhelming.
- If not properly designed, users might get lost and not use all features provided.

Shop Section

This section actively shows items that are confirmed able to improve or help patients deal with Alzheimers. It will update regularly and will have a menu/filter options.

Pros and Cons:

- Pros:
 - Assist users in finding items and tools that might benefit them.
 - Has an easy to use filter and a menu that organizes items properly.
 - Each item will direct users to sites where they can purchase them.
- Cons:
 - With too much information it might be overwhelming.
 - If instructions are not clear users might feel frustrated.

- Items will direct users to other sites in order to buy them, such things can create frustration as users prefer to not be redirected.

Resources Section

This section will provide users with articles, videos, quizzes, news, tips and other resources that can assist them in taking care of the patient. It will include a menu, filter and a look up tool.

Pros and Cons:

- Pros:
 - Assist users in finding resources that can benefit them.
 - Has an easy to use filter and a menu that organizes resources properly.
 - Each resource will display within the app.
- Cons:
 - With too much information it might be overwhelming.
 - If instructions are not clear users might feel frustrated.

Results and Alerts Section

This section will provide users with reports of the results of their patient's activities (game results, videos watched, workout activities, balance, locations visited, etc.), as well as important alerts that let users know if their patients are in dangerous situations. These reports and alerts can be customizable in order to fulfill the users needs and wants.

Pros and Cons:

- Pros:
 - Assist users care for the patient.
 - Keeps users informed and aware.
 - Directly connected to the patient's interface.
- Cons:
 - With too much information it might be overwhelming.
 - If instructions are not clear users might feel frustrated.

- Some users might feel uncomfortable with the amount of information tracked.

Conclusion

With all the information gathered we have created a solid proposal for a groundbreaking application that can improve the lives of many patients and their caretakers. We gather all important features into one application that ensures that everybody affected by Alzheimer's receives the proper care.