



MEMORY
BOX

By TJS

Memory Box

TJS Softwares

Christina Matthews, Agilia Rementeria, Stephanie Peralta

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Final Portfolio

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SRS Revision History

Date	Version	Description	Author
<09/13/22>	<1.0>	SRS 1.0	Team TJS
<09/14/22>	<2.0>	SRS 2.0	Team TJS
<09/15/22>	<3.0>	SRS 3.0	Team TJS
<09/17/22>	<4.0>	SRS 4.0	Team TJS
<9/19/22>	<5.0>	SRS 5.0	TeamTJS

Memory Box

Software Requirements Specification and Use Case Specification

Version 5.0

1 Introduction

The introduction of the Software Requirements Specification (SRS) provides an overview of the entire SRS with purpose, scope, definitions, acronyms, abbreviations, references, and an overview of the SRS. The aim of this document is to gather and analyze and give an in-depth insight into the complete Memory Box website by defining the problem statement in detail. It also concentrates on the capabilities required by stakeholders and their needs while defining high-level product features. The detailed requirements of the Memory Box website are provided in this document.

1.1 Purpose

The purpose of the document is to collect and analyze the ideas conceived to define the system and its requirements with respect to consumers. It will include predictions of how the product is intended to be used, outline concepts that may be developed later, and document ideas that are being considered but could potentially be discarded as the product develops. The intent is to gain a better understanding of the project.

The document will provide a detailed overview of the product, its parameters, and its goals. It will describe the intended target audience, user interface, hardware and software requirements, and functionality. In addition, it will aid in the software delivery lifecycle (SDLC) process.

1.2 Scope

The scope pertains to the features for making the Memory Box website project live. It focuses on the company, the stakeholders, and the applications, which allow for uploading pictures, managing group members, and crafting digital scrapbooks.

1.3 Definitions, Acronyms, and Abbreviations

Configuration	It means a product which is available / selected from a catalog can be customized.
FAQ	Frequently Asked Questions
RAID 5	Redundant Array of Inexpensive Disk/Drives

1.4 References

The references are:

Database Website Structural Modelcolor

Hierarchical Model

File Storage System NFR Model

1.5 Overview

The remainder of this document provides descriptions of the functional and data requirements of the system, product hardware, and characteristics of the users of the product. Specifically, an overall description of the project is described in Section 2. Section 3 details the functional, data, and specific requirements, and constraints of the system. It also describes the system's performance features, interfaces, and desired features for usability, accessibility, and support. Section 4 presents a Use-Case diagram of the system. Section 5 lists the actors involved in the diagram with a brief description of each and Section 6 lists the use cases with a brief description of each.

2 Overall Description

The document lists the stakeholders and users of the proposed product as well as the stakeholders' wants and needs, which were identified in a brainstorming session for requirements discovery. The major features of the product are listed with brief descriptions of each.

The SRS includes detailed product perspectives from different stakeholders along with product functions of Memory Box with user characteristics, constraints, assumptions and dependencies, and requirements subsets.

This section of the Software Requirements Specification will describe the general factors that affect the product and its requirements. It will touch on the following:

- Website perspective: the ways in which the website fulfills stakeholder needs.
- Website functions: derived from the functional requirements.
- User characteristics: target audience or specific group of consumers most likely to use the website.
- Constraints: central limits on the project, i.e., time, scope, and cost.
- Assumptions and dependencies: what the company needs to consider (concerning the users, specific requirements, etc.) before the project can begin design and development.
- Requirements subsets: the following section will detail functional, usability, reliability, performance, supportability, design constraints, online user documentation, and help system, interfaces, licensing, legal, and applicable standards requirements.

3 Specific Requirements

The specific requirements include:

- Website perspective: the ways in which the website fulfills stakeholder needs.
- Scrapbook creation, editing, and navigation.
- Scrapbook sharing with desired parties and management of such sharing.
- Scrapbook search feature.
- Uniform, uncluttered display.
- User-friendly navigation.
- User profile creation and management.
- Photo scanner embedded into the system.
- Personal accounts for Memory Box users.
- Memory Box should have a notification system.
- The system should have email verification.

3.1 *Functionality*

This subsection contains the requirements for the website. These requirements are organized by the features discussed in a brainstorming session. Features are then refined into a use case diagram to best capture the functional requirements of the system.

3.1.1 *Scrapbook Group Details*

- 3.1.1.1 The system shall display all members currently in the scrapbook group.
- 3.1.1.2 The system shall allow the user to send a scrapbook group invite link via email to any desired party.
- 3.1.1.3 The system shall display a maximum of 10 scrapbooks on the screen.
- 3.1.1.4 The system shall enable the user to configure the number of visible scrapbook results on the screen.

3.1.2. *Scrapbook Content Creation*

- 3.1.2.1 The system shall allow the user to create a new scrapbook.
- 3.1.2.2 The system shall allow the user to title a newly created scrapbook.
- 3.1.2.3 The system shall allow the user to write and update a brief description of a newly created scrapbook.
- 3.1.2.4 The system shall allow the user to choose the layout and design of a newly created scrapbook.
- 3.1.2.5 The system shall allow the user to add one or more pictures to a new scrapbook or pre-existing scrapbook.
- 3.1.2.6 The system shall allow the user to add text in the form of captions, titles, and comments to a scrapbook.
- 3.1.2.7 The system shall allow the user to add decorations to a scrapbook page from the site's accessories library.

3.1.3. *Scrapbook Content Management*

- 3.1.3.1 The system shall allow the user to select a picture to be copied, pasted, resized, rotated, or deleted.
- 3.1.3.2 The system shall allow the user to select text to be copied, pasted, resized, rotated, or changed font type and color.
- 3.1.3.3 The system shall allow the user to select a decoration to be copied, pasted, resized, rotated, or deleted.
- 3.1.3.4 The system shall allow the user to cancel the addition or change of a picture, text, or decoration.
- 3.1.3.5 The system shall allow the user to copy, paste, or reorder pages in a scrapbook.
- 3.1.3.6 The system shall allow the user to have as many as 100 photos per scrapbook.
- 3.1.3.7 The system shall allow management permissions to only the owner of the picture or scrapbook.
- 3.1.3.8 The system shall allow users to lock certain scrapbooks and create passwords to unlock said scrapbooks.

3.1.4. Scrapbook and User Interactions

- 3.1.4.1 The system shall enable the user to add one or more members to the scrapbook group.
- 3.1.4.2 The system shall display the brief description, date of creation, and date of last modification of a selected scrapbook.
- 3.1.4.3 The system shall allow the user to react to a picture or scrapbook with a comment and/or emote.

3.1.5. Search Facilities

- 3.1.5.1 The system shall enable the user to enter the search text on the screen.
- 3.1.5.2 The system shall display all scrapbooks that match the user's search word or query.
- 3.1.5.3 The system shall enable the user to navigate between search results.
- 3.1.5.4 The system shall inform the user when no matching scrapbook is found in the search.
- 3.1.5.5 The system shall display scrapbook categories to the user.

3.1.6 Notifications

- 3.1.6.1 The system shall notify the user about any new member who joins a scrapbook group.
- 3.1.6.2 The system shall notify the user when an invited party to a scrapbook has accepted their invitation.
- 3.1.6.3 The system shall notify the user about any changes made to a scrapbook by another group member.
- 3.1.6.4 The system shall notify the user when someone has liked or commented on a scrapbook.
- 3.1.6.5 The system shall notify the user of any new features, such as new designs or layouts, that have been added.
- 3.1.6.6 The system shall remind the user they have not worked on or created a scrapbook within a certain period of time.
- 3.1.6.7 The system shall allow the user to toggle specific notifications on/off.

3.1.7 User Profile Maintenance

3.1.7.1 The system shall allow the user to create a profile, set their credentials, and upload a profile picture.

3.1.7.2 The system shall authenticate user credentials via email verification to view the profile.

3.1.7.3 The system shall allow the user to update their profile information.

3.1.7.4 The system shall maintain user email information as a required part of the user's profile.

3.1.7.5 The system shall allow the user to delete their account and all its data, if desired.

3.1.8 Customer Support

3.1.8.1 The system shall provide online help, FAQ's, and sitemap options for customer support.

3.1.8.2 The system shall display the online Help page upon request.

3.1.8.3 The system shall display the FAQ's upon request.

3.1.9 Email Confirmation

3.1.9.1 The system shall send a confirmation to the user through email to verify their account.

3.1.10 Sitemap

3.1.10.1 The system shall allow the user to view a detailed sitemap.

3.2 Usability

This section includes all the requirements that influence the usability of the software.

3.2.1 Graphical User Interface

3.2.1.1 The system shall provide a uniform, uncluttered look and feel between all pages.

3.2.1.2 The system shall provide the user with a simple three minute tutorial on sign up time.

3.2.1.3 The system shall have an easy to navigate scrapbook editing page.

3.2.1.4 The system shall autosave changes made to a scrapbook.

3.2.1.5 The system shall remain organized during the entire duration of each user's use (shelves separated by years).

3.2.1.6 The system shall have a search bar to easily find scrapbooks.

3.2.2 Accessibility

3.2.2.1 The system shall be accessible for users of all ages, especially catering to parents, baby boomers, and millennials.

3.2.2.2 The system shall be used on a desktop or laptop computer.

3.2.2.3 The system shall provide handicap access.

3.2.2.4 The system shall provide colorblind support.

3.2.3 Credibility

3.2.3.1 The system shall include a tab with the organization's core values.

3.2.3.2 The system shall include a testimonials tab with reviews from previous and current users.

3.3 *Reliability*

3.3.1 *Internet Service Provider*

3.3.1.1 The system shall provide a contractual agreement with an internet service provider for T3 access with 99.9999% availability.

3.3.1.2 The system shall provide a contractual agreement with an internet service provider who can provide 99.999% availability through their network facilities onto the internet.

3.3.2 *Back-end Internal Computers*

3.3.2.1 The system shall provide for replication of databases to off-site storage locations.

3.3.2.2 The system shall provide RAID 5 Disk Striping on all database storage disks.

3.3.2.3 The system shall provide storage of all databases on redundant computers to counteract striping failure rate.

3.3.3 *Availability*

3.3.3.1 The system shall have an estimated Mean Time Between Failures (MTBF) of 88 hours per year.

3.3.3.2 The system shall have an estimated Mean Time To Repair (MTTR) of 1 hour.

3.3.3.3 The system shall have a precision of 72PPI and a high-level of accuracy.

3.3.3.4 The system shall have a maximum bugs/defect rate of 25 errors per 1000 lines of delivered code.

3.3.3.5 The system shall categorize bugs as follows:

Minor:

- Escape button not working.
- Autosave not working (regular save works).

Significant:

- Scrapbook not being able to save.
- User unable to scan or upload images.
- User unable to edit scrapbooks.
- User unable to manage scrapbooks.
- User unable to share scrapbooks.
- User unable to manage groups.

Critical:

- System exits out of editing session without saving.
- User loses all scrapbook data.
- User loses all account data.

3.4 Performance

- 3.4.1 The system shall be based on the web and has to be run from a web server.
- 3.4.2 The website shall take an initial load time depending on internet connection strength which also depends on the media from which the product is run.
- 3.4.3 The performance shall depend upon the hardware components of the client/customer.
- 3.4.4 Based on research for the capacity of users on an HTTPS website, the website shall have a maximum capacity of 10,000.
- 3.5.5 The system shall have a response time for creating scrapbooks and saving scrapbook data of no more than 10 seconds.
- 3.6.6 The website shall have each user's data stored in its database.

3.5 Supportability

3.5.1 Configuration Management Tool

- 3.5.1.1 The source code developed for the system shall be maintained in the configuration management tool.

3.5.2 Coding Standards

- 3.5.2.1 The source code for the system shall adhere to the following standards:
 - Limited use of global variables.
 - Standard headers for different modules.
 - Meaningful variable names in camel case.
 - Meaningful comments for code block and module descriptions.
 - Proper indentation.

3.5.3 Maintenance

- 3.5.3.1 The maintenance of the system shall adhere to the following standards:
 - Users should have the opportunity every month to be prompted to fill out a survey about the website's accessibility and performance.
 - Maintenance personnel should be tracking the website every day for any bugs.
 - Users should be able to submit tickets to request maintenance on any part of the website that isn't working.

3.6 Design Constraints

3.6.1 Standard Development Tools

3.6.1.1 The system shall be built using a standard web page development tool that conforms to Microsoft's GUI standards.

3.6.2 *Web-Based Product*

3.6.2.1 The system shall be accessed from any computer equipped with a web browser.

3.6.2.2 The product must be stored in a way that allows the client easy access to it.

3.6.2.3 Response time for loading the product should take no longer than one minute.

3.6.2.4 A general knowledge of basic computer skills is required to use the product.

3.7 *On-line User Documentation and Help System Requirements*

An online Help document and system shall be included and displayed in the sitemap. It shall be implemented with a Help page that includes links to the three-minute tutorial shown upon signup, FAQs, and customer support. These links shall also be accessible via search fields.

3.8 *Purchased Components*

Software interfaces covered in Section 3.9.3 may require subscriptions for use.

3.9 *Interfaces*

The protocol used for the site shall be HTTPS.

The Port number used will be 443.

There shall be a logical address of the system in IPv4 format.

3.9.1 *User Interfaces*

The user interface shall be compatible with any web browser through which the user shall access the system, such as Internet Explorer and Mozilla.

The user interface shall be implemented with any tool or software package like Java, MS Front Page, etc.

3.9.2 *Hardware Interfaces*

All hardware shall be able to connect to the internet as the system will be web-based. Hardware interfaces include modem, router, wired or wireless access points, WAN - LAN, and ethernet cable.

3.9.3 *Software Interfaces*

3.9.3.1 The website shall communicate with Adobe Scan to scan over photos into the system.

- 3.9.3.2 The website shall communicate with Zendesk to handle all customer service issues.
- 3.9.3.3 The website shall communicate with Very Good Security software to keep users data secure and private.
- 3.9.3.4 The website shall communicate with LILT to translate over 300+ different languages.
- 3.9.3.5 The website shall communicate with AVEVA to autosave scrapbook editing sessions.

3.9.4 Communications Interfaces

The system shall use the HTTPS protocol for internet communication and the TCP/IP protocol suite for intranet communication.

3.10 Licensing Requirements

Licensing requirements are not applicable for this project.

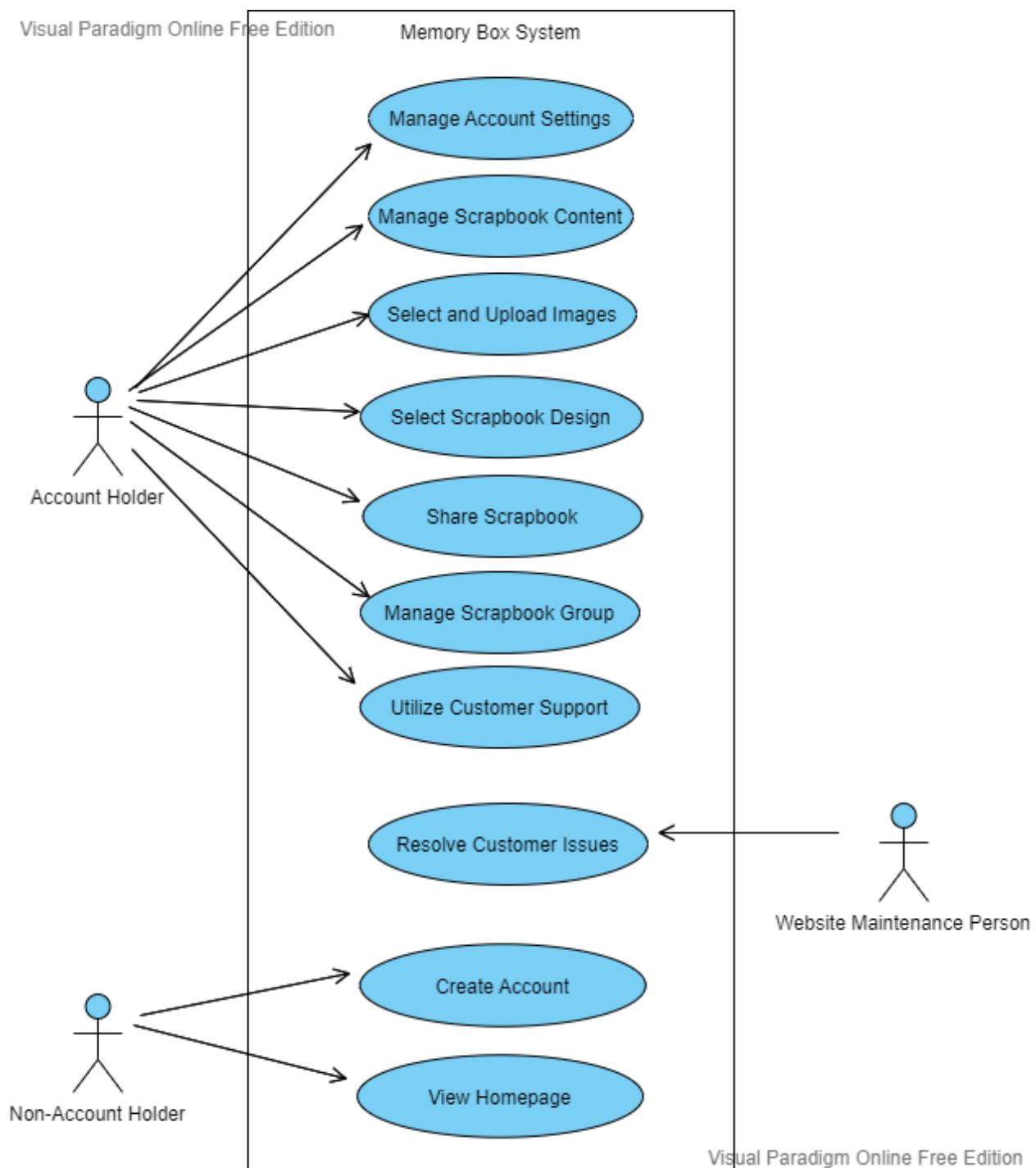
3.11 Legal, Copyright, and Other Notices

The site should display disclaimers, copyright, word mark, trademark, and product warranties of TJS Softwares.

3.12 Applicable Standards

Industry standards shall be followed.

4 Use-Case Model for the System



5 List of Actors

5.1 Account Holders

This actor represents an individual who has created an account on the site. They are able to create and edit scrapbooks and share them with friends.

5.2 Non-Account Holders

This actor represents an individual who has not created an account on the site. They are able to view the Home and Help pages but cannot create scrapbooks.

5.3 Website Maintenance Person

This actor represents the person responsible for maintaining the Memory Box website and resolving customer issues.

6 List of Use Cases

6.1 Create Account

This use case describes how the Non-Account Holder uses the website to create his/her account.

6.2 Manage Account Settings

This use case describes how the Account Holder configures his/her account settings and deletes his/her account data.

6.3 Create and Manage Scrapbook Content

This use case describes how the Account Holder views pre-existing scrapbooks on the group page, creates a digital scrapbook, manages and changes scrapbook content.

6.4 Search for Scrapbooks

This use case describes how the Account Holder searches for specific scrapbooks via keywords, filters, and date of creation.

6.5 Select and Upload Images

This use case describes how the Account Holder selects images from his/her file directory and uploads them to a new or pre-existing scrapbook.

6.6 View and Select Scrapbook Layout and Design

This use case describes how the Account Holder views different configurations for organizing a new scrapbook and how it will appear and chooses a configuration for each.

6.7 Share Scrapbook

This use case describes how the Account Holder shares a scrapbook and its content with other Account Holders or Non-Account Holders.

6.8 Create and Manage Scrapbook Group

This use case describes how the Account Holder creates a new scrapbook group, views the scrapbook groups of which they are a member, and manages his/her membership in current scrapbook groups.

6.9 Utilize Customer Support Options

This use case describes how the Account Holder accesses different forms of customer support (via FAQs, online Help page, etc.) for assistance in using the website.

6.10 Resolve Customer Issues

This use case describes how the Website Maintenance Person resolves issues that customers may have and works to keep the website running normally and smoothly.

Memory Box

Use Case Realization

Use Case: Manage Scrapbook Content Realization

7 Brief Description

This use case describes how the user creates and edits new scrapbooks.

8 Actor Brief Descriptions

8.1 User

This actor represents account and non-account holders alike who will create or edit a new scrapbook.

9 Preconditions

There is an active internet connection between the user and the system.

The website is not down for updates or maintenance.

10 Basic Flow of Events

1. The use case begins when the user creates an account on the Memory Box website.
2. Use Case: Create Account is performed.
3. The Create Menu is opened. In this case, the user is new to the site and is creating their first scrapbook.
4. The Create menu lists all available scrapbook layouts the user can choose from.
5. The user chooses a scrapbook layout.
6. The Create menu prompts for a title and brief description of the new scrapbook.
7. The user enters a title and description for their scrapbook.
8. The user opens the scrapbook editor. The scrapbook editor displays the available edit options the user can perform. See Software Requirements Specification document MB-SRS for details on the edits that can be performed.
9. The user performs their desired edits.
10. The user elects to exit the editor.
11. The editor prompts for exit confirmation.
12. The user confirms exit.

13. The editor is closed.
14. The user is returned to their home page and the use case ends successfully.

11 Alternative Flows

11.1 User Forgot Password

If the user already has an account created, but forgot their password while logging in, then

1. The user is prompted to enter their email address.
2. The user receives a link to reset their password.
3. The user resets their password and regains access to their account.
4. The use case resumes at step 3.

11.2 Invalid Account

If in step 2 of the basic flow the use case Create Account does not complete successfully, then

1. The use case ends with a failure condition.

11.3 No Scrapbook Created

If in step 3 of the basic flow the user exits the Create Menu, then

1. The user is returned to their home page.
2. The use case ends.

11.4 Scrapbook Creation Steps Skipped

If in steps 5 or 7 of the basic flow the user skips the scrapbook creation steps, then

1. The use case resumes at the immediate next step.

11.5 No Edits Made

If in step 8 of the basic flow the user does not elect to make edits to their scrapbook, then

1. The use case resumes at step 10.

11.6 No Response from System

If in steps 3, 4, 5, or 8 of the basic flow there is no response from the system, then

1. The system will retry for up to one minute.
2. If there is still no response from the system after a minute, the system will display the message “Error loading page. Returning to your home page...”
3. The system shall return the user to their home page.
4. The use case ends with a failure condition.

11.7 Quit

If at any point in the basic flow the user exits the website, then

1. The use case ends.

12 Subflows

12.1 *Edit Scrapbook: Layout Option*

1. The user chooses “Change Layout” from the available edit options in step 8.
2. The scrapbook editor displays all available scrapbook layouts the user can choose from.
3. The user chooses a scrapbook layout.
4. The user is returned to the list of available edit options.
5. The use case resumes at step 9.

12.2 *Edit Scrapbook: Scrapbook Description Option*

1. The user chooses “Change Scrapbook Description” from the available edit options in step 8.
2. The scrapbook editor prompts for an edit of the current description (within 280 characters) of the scrapbook.
3. The user enters a valid description.
4. The user is returned to the list of available edit options.
5. The use case resumes at step 9.

12.3 *Edit Scrapbook: Scrapbook Title Option*

1. The user chooses “Change Scrapbook Title” from the available edit options in step 8.
2. The scrapbook editor prompts for an edit of the current title (within 140 characters) of the scrapbook.
3. The user enters a valid title.
4. The user is returned to the list of available edit options.
5. The use case resumes at step 9.

12.4 *Edit Scrapbook: Upload Picture Option*

1. The user chooses “Upload Picture” from the available edit options in step 8.
2. The user uses the embedded Adobe scan feature to scan in colored photos or upload pictures from their phone or desktop library. Users can also upload photos from the cloud.
3. The user places the photo in the available space on the scrapbook.
4. The user is returned to the list of available edit options.
5. The use case resumes at step 9.

12.5 *Edit Scrapbook: Delete Scrapbook Option*

1. The user chooses “Delete Scrapbook” from the available edit options in step 8.
2. The scrapbook editor shall display a warning message of the form “Are you sure you want to delete this scrapbook? Deleting this scrapbook will also permanently delete its content and data.” The scrapbook editor will ask the user for confirmation.
3. The user confirms scrapbook deletion.
4. The system deletes the scrapbook and its related data.
5. The use case resumes at step 10.

12.6 Edit Scrapbook: Share Scrapbook Option

1. The user chooses “Share Scrapbook” from the available edit options in step 8.
2. See **section 14 Basic Flow of Events** of this document for details of the steps to be performed.
3. The use case resumes at step 9.

12.7 Edit Scrapbook: Broadcast Scrapbook Option

1. The user chooses “Broadcast Scrapbook” from the available edit options in step 8.
2. The user chooses which platform they would like to connect to.
3. The user is shown a code to easily sign in through their mobile device and share their screen.
 - a. Other devices can connect using an HDMI cable.
 - b. Roku or other televisions that have access to the app can download the web application, sign in, and view scrapbooks.
4. The use case resumes at step 9.

13 Key Scenarios

13.1 User Forgot Password

13.2 Invalid Account

13.3 No Response from System

14 Post-conditions

14.1 Successful Completion

The user successfully created a new scrapbook.

The user successfully completed all desired edits of a scrapbook.

The user successfully uploaded all desired images to a scrapbook.

The internal activity logs of edits have been updated.

14.2 Failure Condition

The internal logs have been updated accordingly.

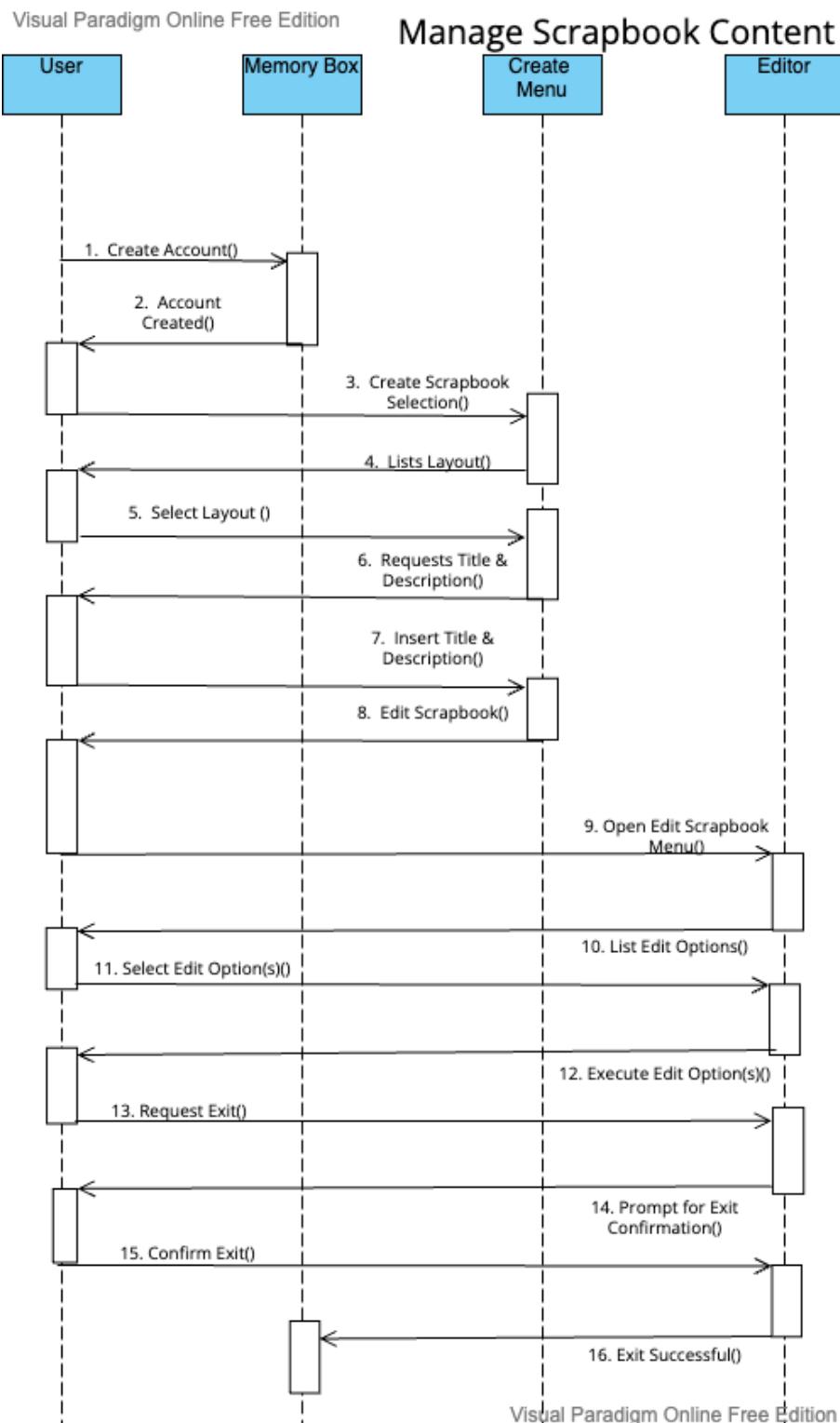
15 Special Requirements

[SpReq: MB-1] Memory box has a limit of 100 photos per scrapbook.

[SpReq: MB-2] Memory box shall keep an internal activity log of the date and time of all a user’s recent edits.

[SpReq: MB-3] Memory Box shall keep internal logs of all system response failures.

16 Sequence Diagram for Basic Flow



Memory Box
Use-Case: Share Scrapbook

17 Brief Description

This use case describes how the user shares a scrapbook and its content with collaborators (i.e., non-account holders and other account holders).

18 Actor Brief Descriptions

18.1 User

This actor represents account holders who will share a scrapbook with collaborators.

18.2 Collaborator

This actor represents account holders and non-account holders who will gain viewing and editing permissions to a scrapbook via a user of the scrapbook.

19 Preconditions

There is an active internet connection between the user and the system.

The website is not down for updates or maintenance.

20 Basic Flow of Events

1. The use case begins when the user elects to open the share options in the scrapbook.
2. Use Case: Open Share Options is performed.
3. The user elects to invite collaborators to view and edit their scrapbook via email. In this case, the user is only inviting new collaborators to a scrapbook.
4. The editor prompts for the email addresses of all new collaborators.
5. The user enters the email addresses of all new collaborators.
6. The editor relays the entered email addresses to the system.
7. Memory Box sends email invites to each email address.
8. The collaborators view and accept their email invites.
9. Memory Box relays to the editor the new collaborators that have accepted their invites to a scrapbook.
10. The editor grants the new collaborators edit permissions in the shared scrapbook.
11. Collaborators gain access to the scrapbook group in Memory Box.
12. Memory Box informs the user of the new collaborators who have joined their scrapbook.
13. The use case ends.

21 Alternative Flows

21.1 Invalid Email Address

If in step 5 of the basic flow the user inputs an invalid email address, then

1. The system shall display a warning message and prompt the user to enter valid email addresses only.
2. The use case resumes at step 6 after the system verifies that all inputted email addresses are valid.

21.2 Collaborator Declines Invite

If in step 8 of the basic flow, a collaborator declines an invite to a given scrapbook, then

1. The editor does not grant edit permissions to the collaborator.
2. The use case resumes at the immediate next step.

21.3 No Response from Editor

If in steps 4 or 6 of the basic flow there is no response from the editor, then

1. The editor will retry for up to one minute.
2. If there is still no response from the editor after a minute has passed, the system will display the message “Error in processing. Returning to your home page...”
3. The system shall return the user to their home page.
4. The use case ends with a failure condition.

21.4 No Response from System

If in steps 7, 9, or 11 of the basic flow there is no response from the system, then

1. The system will retry for up to one minute.
2. If there is still no response from the system after a minute has passed, the system will display the message “Error in processing collaborator invites and permissions. Returning to your home page...”
3. The system shall return the user to their home page.
4. The use case ends with a failure condition.

21.5 Quit

If at any point in the basic flow the user exits the website, then

1. The use case ends.

22 Subflows

22.1 Share Scrapbook with Non-Account Holders

1. The user elects to invite non-account holders to view their scrapbook via an external link from the available sharing options in step 2.
2. The editor shall display an external link that can be copied and pasted.
3. The user can then paste the link into any desired browser, social media, or other media of communication.
4. Memory Box will relay any non-account holder who visits the external link to the editor.
5. The editor will grant viewing permissions to non-account holders.
6. The use case resumes at step 12.

23 Key Scenarios

23.1 No Response from Editor

23.2 No Response from System

24 Post-conditions

24.1 Successful Completion

The user has successfully shared a scrapbook with their desired collaborator(s).

The collaborator(s) can view and edit the scrapbook.

The scrapbook members have been updated accordingly.

24.2 Failure Condition

The internal logs have been updated accordingly.

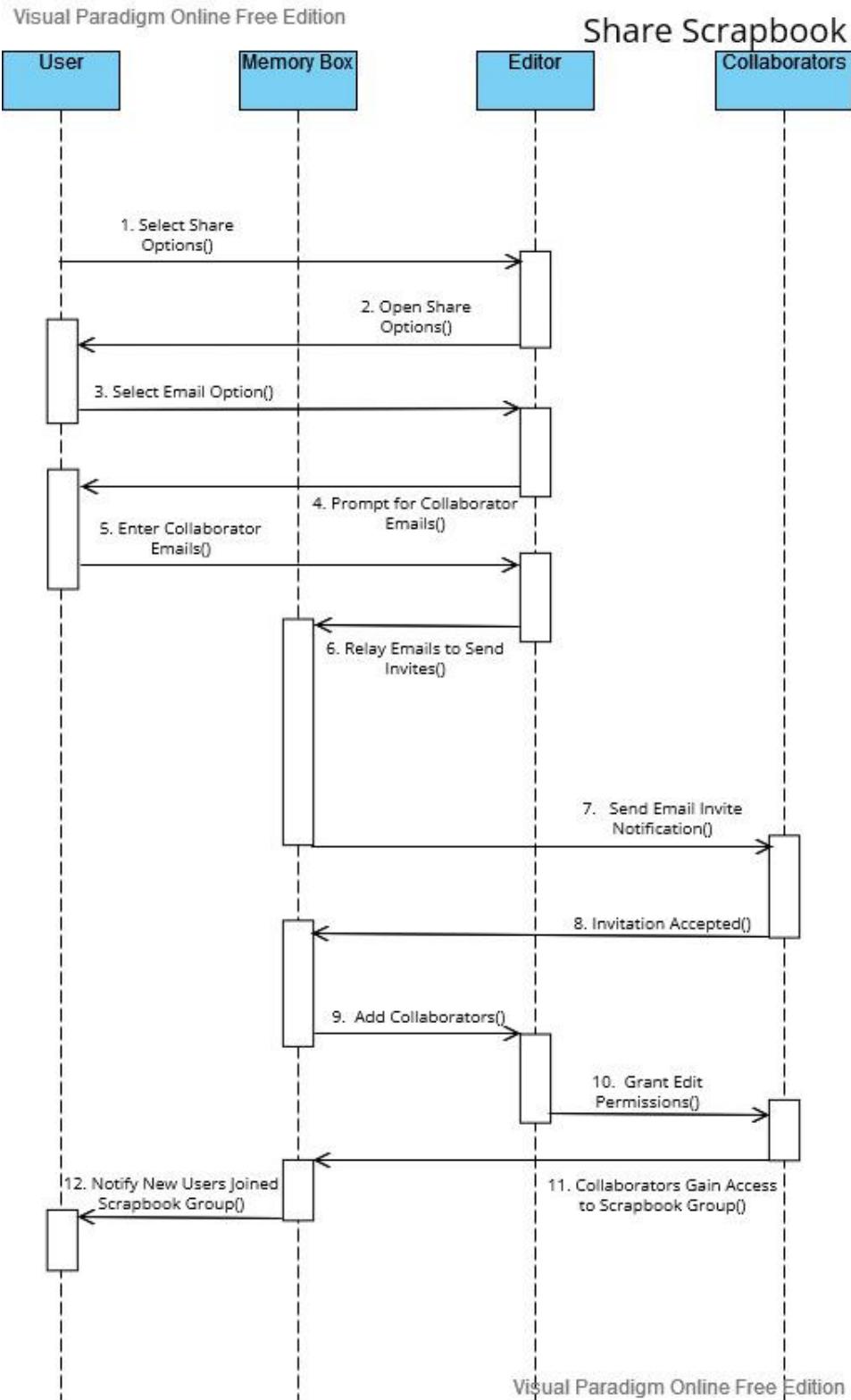
25 Special Requirements

[SpReq: MB-3] Memory Box shall keep internal logs of all the members of a scrapbook.

[SpReq: MB-4] Memory Box shall keep internal logs of all system response failures.

[SpReq: MB-5] Memory Box shall keep internal logs of incomplete shares.

26 Sequence Diagram for the Basic Flow



Memory Box

Conceptual Architectures

27

Overview

Conceptual architecture styles encompass design decisions that are specific to a particular system, outlining the system's structure. Looking at the Memory Box system, there are two main conceptual architectures that will be used: (1) client-server for the “Manage Scrapbook Content” use case and (2) publisher-subscriber for the “Share Scrapbook” use case. More details on these use cases can be found in Use Case Realization Document MB-UCR. Diagrams of each conceptual architectural style have been included to show the implementation of each case.

28

Client-Server Architecture

The client-server architectural style has two layers: client(s) and server. It involves clients initiating communication by sending the server a request, which it then performs and responds to.

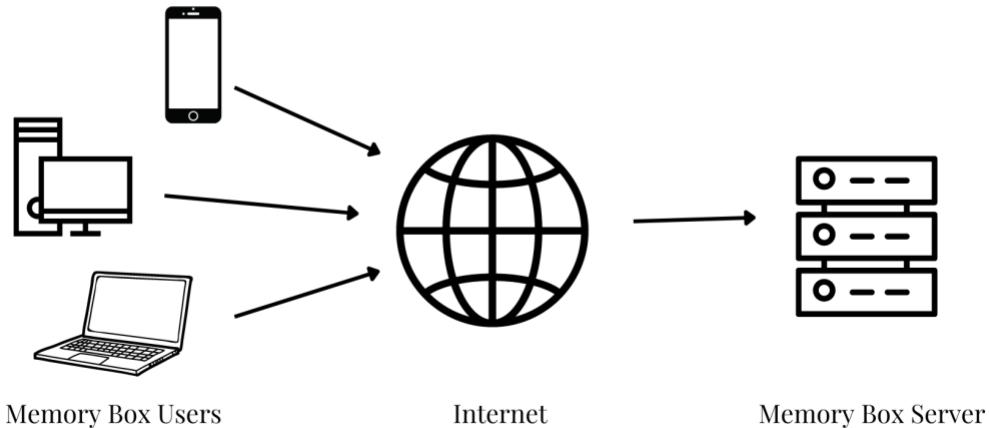
28.1

Use Case: Manage Scrapbook Content

The client-server architecture will be used for scrapbook actions like creating, editing, and deleting, which form part of the “Manage Scrapbook Content” use case. All of these actions involve the user communicating with the Memory Box server via the internet; the user initiates a request through the scrapbook editor on the desired edit they wish to make and the system performs the requested action, illustrating the textbook definition of a client-server architecture.

This architecture is beneficial for keeping data centralized and allowing different platforms to share different resources, meaning outside softwares can be used in Memory Box, which is one of its requirements. The centralization of data will also help reduce data redundancy and cost while increasing data integrity and system maintainability. In addition, the client-server architecture allows multiple clients to make requests to the server at once, reflecting the multiple users that will be interacting with Memory Box at once. The thin client nature of the users will also help Memory Box be more easily accessible and usable by its main target demographic (see document MB-SRS) as the server will carry out most of the processing.

Conceptual Architecture for Memory Box 1: Client Server for Scrapbook Actions



Publisher-Subscriber Architecture

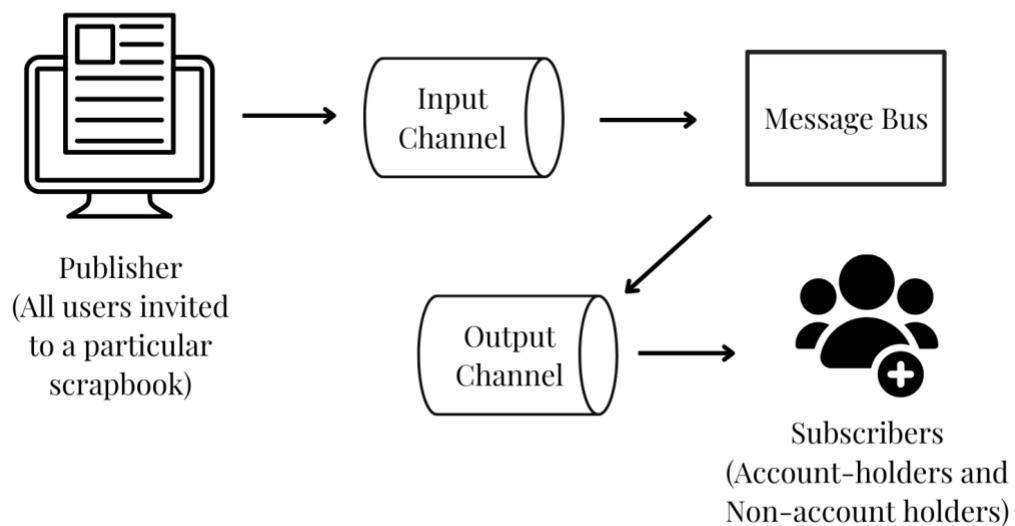
The publisher-subscriber architectural style involves subscribers, in this case, account and, non-account holders, registering or deregistering to receive information from pre-existing members of a particular scrapbook group.

Use Case: Share Scrapbook

The publisher-subscriber architecture will be used for the “Share Scrapbook” use case, which involves users inviting collaborators to a scrapbook group via a link or email invitation. Upon accepting their invitations, the collaborators will gain access to view or edit the shared scrapbook and be notified of any new changes made. In this case, the members of a scrapbook group can act as both publishers and subscribers; they publish any edits they make to the scrapbook while also being notified of the edits made by other group members.

This architectural style will serve as an efficient way of distributing the same information from one publisher to potentially many subscribers in one instance, thereby reducing data redundancy. Each subscriber is also kept independent from others, allowing them to continue their individual uses of Memory Box. Publisher-subscriber will also help make Memory Box scalable as scrapbook owners will bring new users to the site by sharing their scrapbooks with friends and family.

Conceptual Architecture for Memory Box 2: Publisher-Subscriber for Notifications



Memory Box

Cloud Architectures

30

Overview

Cloud architecture describes how technology components work to build a cloud. After looking at Memory Box as a whole application and its features, the two most appropriate cloud architectures determined were: (1) N-Tier architecture for modeling the entire system and (2) Command Query Responsibility Segregation (CQRS) for specifically managing scrapbook content.

31

N-Tier Architecture

N-Tier architecture describes a software designed to have its data processing, management, and presentation functions separate from one another. Memory Box will follow a traditional three-tier application having three distinct layers: the presentation tier, data tier, and logic tier. The presentation tier, or the user interface, is the topmost level that is accessible and navigable to users. For example, some of the user interfaces in this tier are Memory Box's "Create" and "Edit" menus for managing scrapbook content. Clickable actions or tasks presented in these menus are then translated into results the user can understand.

Information needed to perform such actions, such as scrapbook details and components, user profiles, scrapbook group membership information, and more, are stored in and retrieved from the data tier. The logic tier then serves as a system of gears that coordinates the interactions between the presentation and data tiers, processing commands and making logical decisions and evaluations. Therefore, the N-tier architecture is pertinent to Memory Box.

32

CQRS Architecture

CQRS architecture describes a structure that separates read and write operations. This is necessary for the subsystem that manages scrapbook content in Memory Box, since the read and write workloads are asymmetrical in the system. The user will make multiple write edits or operations to scrapbooks and have one read operation to view the result. Because Memory Box is also a collaborative domain where many users access the same data, CQRS architecture allows for simpler queries and independent scaling for the read and write workloads, optimizing data schemas for each operation and separating concerns. This, in turn, helps make the system flexible and maintainable.

Memory Box

Databases

33

Overview

To organize and store Memory Box's vast data, appropriate databases are used depending on the kind of data being handled. Memory Box will employ two types of databases for their respective data types: (1) object storage for handling transactional data and (2) column family for working with user data and profiles.

34

Transactional Data

Transactional data simply refers to information taken from transactions, which are any actions between the application and database. In Memory Box, this would take the form of adding, removing, or editing scrapbook content, saving a scrapbook, and other similar interactions.

34.1

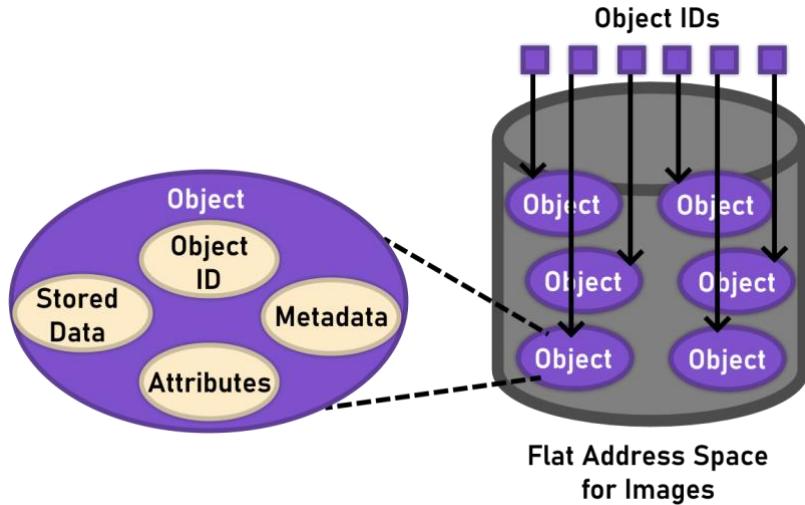
Object Storage Database

An object storage database stores and retrieves large binary objects, such as images, files, and large application documents. It is the most appropriate for handling transactional data in Memory Box because in order to create and publish scrapbooks and other collections of files, Memory Box must have the ability to retrieve and store large objects (i.e., images, videos, and files that cannot conform to a traditional relational database with rows and columns). Each object in Memory Box will be composed of the stored data, some metadata, other attributes, and a unique ID for accessing the object. This database type also allows for massive scalability, reduced complexity, searchability, resiliency, and cost efficiency.

34.2

Sample Transactional Data in Memory Box

Since objects are stored based on their content and other attributes rather than the name and location, each file type (images, videos, etc.) will have its own set of dedicated flat address spaces. The metadata will include basic information such as file name, date of creation, owner, and file type. It will also include additional information for Memory Box, such as scrapbook location and scrapbook group ownership. Any changes in the object, like user-based edits to the file, results in a new object ID. As an example, after a user adds an image to their scrapbook, the image will be stored as shown on the following page.



35

User Data

User data is information pertinent to a user and their identity in the system. In Memory Box, this would take the form of users' usernames, passwords, emails, and scrapbook group identification and membership.

35.1

Column Family Database

A column family database stores information in column groups, where the data for each entity is stored in a single row. It is best suited for storing Memory Box's user data because each related piece of information about a user is grouped together as a unit to form their profile, allowing for effective organization and easy retrieval. A column family database is efficient at data compression and partitioning. The resulting reduction of file space and time needed to transfer or download user data cut back resource costs for the Memory Box system. A column family database is also scalable and fast to load and query, improving the system's ability to manage an increase in users as more individuals create their own scrapbooks or are invited to join scrapbook groups.

35.2

Sample User Data in Memory Box

The user data in Memory Box will be stored under two column families: (1) identity and (2) user info. The identity column family will include a user's first and last name, while the user info column family will include a user's email and scrapbook group, if they are a member of one. A sample is shown on the following page.

User ID	Column Family: Identity	Column Family: User Info
001	First Name: Sal Last Name: Manella	Email: smanel@gmail.com Scrapbook Group: None
002	First Name: Penny Last Name: Nichols	Email: pennyn2@aol.com Scrapbook Group: The Nichols
003	First Name: Luke Last Name: Atmey	Email: luke.atmey@outlook.com Scrapbook Group: Luka Tim's Memories

Memory Box

UX Mockup

36

Overview

User Experience, or UX, refers to the quality of engagement a user experiences when interacting with a product. To better understand how this concept will play out within Memory Box and to better cater to the user experience, a user flow diagram and high fidelity wireframe were created.

The key users of Memory Box are families, with age groups ranging from millennials (26-41 years of age) to baby boomers (58-76 years of age).

37

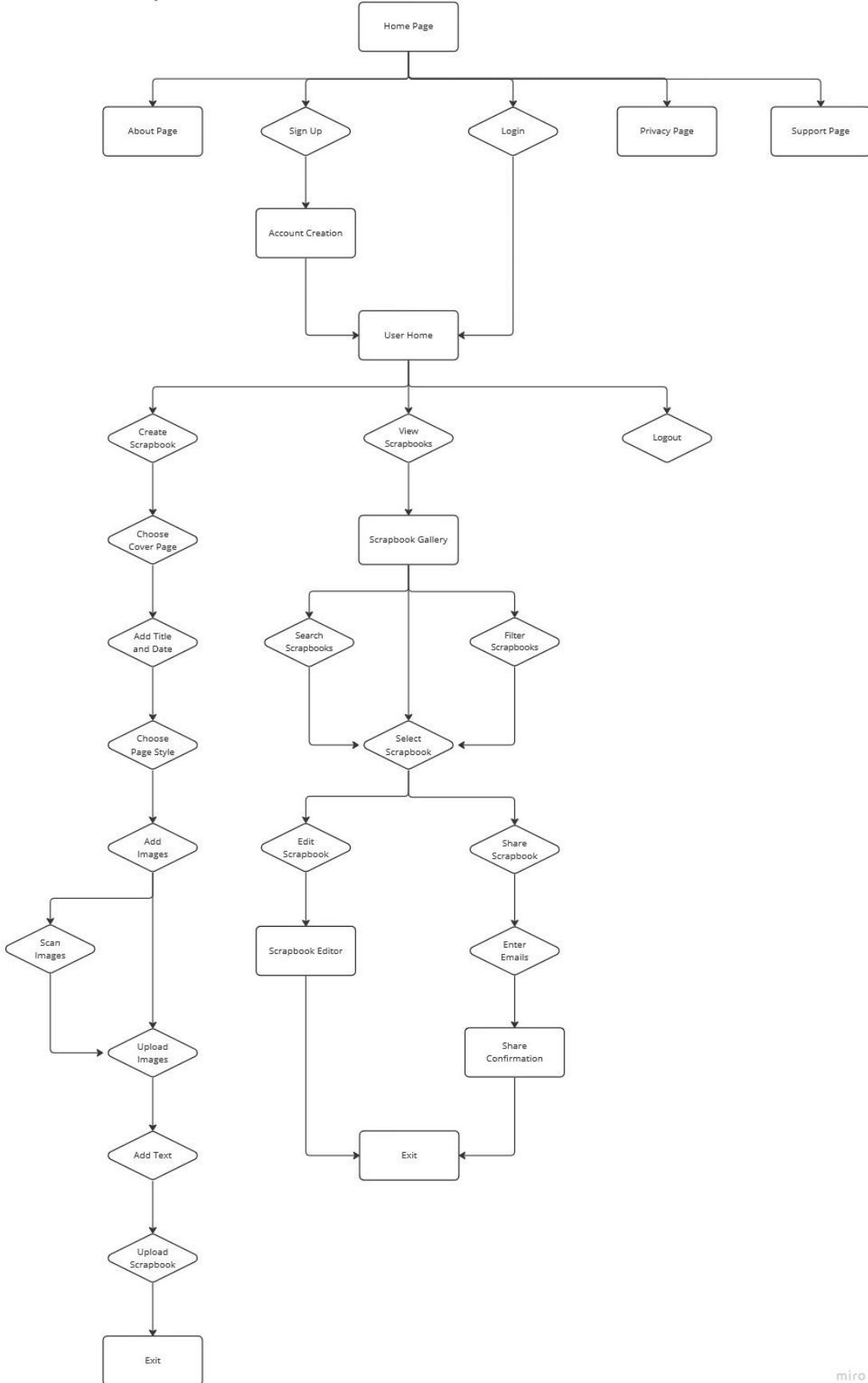
User Flow

A user flow or UX flow diagram outlines the steps taken by a user when interacting with a product from start to finish. The different actions and pathways a user can take in Memory Box have been illustrated in the following diagram.

37.1 Diagram

See next page.

Memory Box UX Flow



miro

With the user flow diagram's pathways, a high fidelity wireframe can be created to map the visual details that will be displayed on the site. Careful planning was taken to select the site colors, fonts, and page layouts to appeal to the user.

Only sans serif fonts are used in the site to provide a more clean look with text that's easy and inviting to read.

The black background was selected to be less straining for users' eyes yet more view-friendly when viewing a scrapbook, giving the feel of playing through a movie of memories. Yellow and purple color the site elements to contrast against the dark background.

They were selected for their complementary positions on the color wheel and attributed meanings, with yellow typically representing joy and optimism and purple representing imagination and magic, feelings which users should feel inspired by when collating some of their most cherished moments. These colors were also slightly muted and lightened to pastels to eliminate bold, tacky colors on the site and contribute to a more elegant yet homey feel.

38.1 Diagram

Individual screens/frames of the site's core functions have been included for viewing, beginning on the next page.

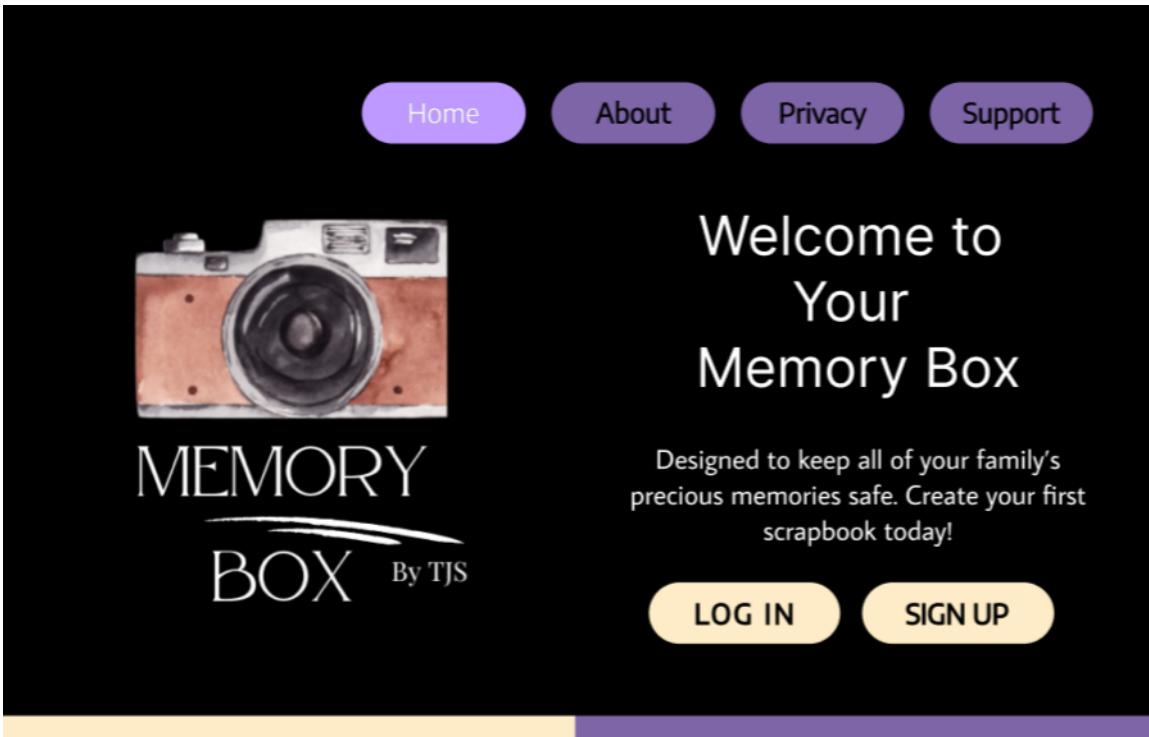
For the complete prototype with clickable interactions, see the following link:

<https://www.figma.com/proto/ASbiCxTb9xPRy2iNb5Pevb/Memory-Box?node-id=5%3A4&scaling=scale-down&page-id=0%3A1&starting-point-node-id=69%3A98>

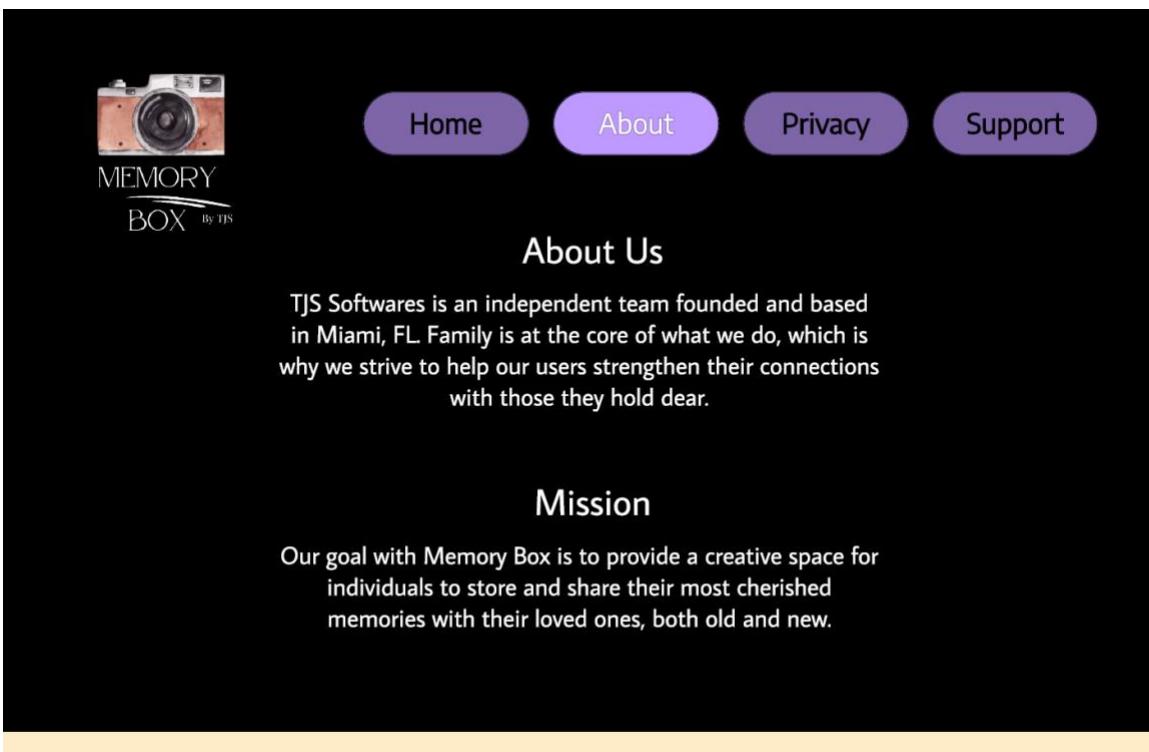
For viewing the Figma workspace, see the following link:

<https://www.figma.com/file/ASbiCxTb9xPRy2iNb5Pevb/Memory-Box?node-id=0%3A1&t=QnHEe09PIrSnRAg4-1>

38.1.1 Home and About Pages



The screenshot shows the homepage of Memory Box. At the top, there is a navigation bar with four purple rounded rectangular buttons: "Home", "About", "Privacy", and "Support". Below the navigation bar is a large image of a vintage-style camera with a brown leather strap. To the right of the camera, the text "Welcome to Your Memory Box" is displayed in a large, white, sans-serif font. Underneath this text is a descriptive paragraph: "Designed to keep all of your family's precious memories safe. Create your first scrapbook today!". At the bottom of the page are two more purple rounded rectangular buttons: "LOG IN" and "SIGN UP". The background of the page is black.



The screenshot shows the "About Us" page of Memory Box. At the top, there is a navigation bar with four purple rounded rectangular buttons: "Home", "About", "Privacy", and "Support". To the left of the navigation bar is the Memory Box logo, which consists of a small image of a camera, the words "MEMORY" and "BOX" stacked vertically, and the text "By TJS" below them. The main content of the page is titled "About Us" in a large, white, sans-serif font. Below the title is a paragraph of text: "TJS Softwares is an independent team founded and based in Miami, FL. Family is at the core of what we do, which is why we strive to help our users strengthen their connections with those they hold dear." Further down the page is another section titled "Mission" in a white, sans-serif font. Below the "Mission" title is a paragraph of text: "Our goal with Memory Box is to provide a creative space for individuals to store and share their most cherished memories with their loved ones, both old and new." The background of the page is black.

38.1.2 Privacy and Support Pages



Home About Privacy Support

Privacy Policy

Last updated: November 21, 2022

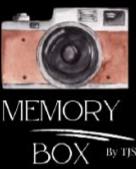
This Privacy Policy describes Our policies and procedures on the collection, use and disclosure of Your information when You use the Service, and tells You about Your privacy rights and how the law protects You.

We use Your personal data to provide and improve the Service. By using the Service, You agree to the collection and use of information in accordance with this Privacy Policy.

Interpretation and Definitions
Interpretation
The words of which the initial letter is capitalized have meanings defined under the following conditions. The following definitions shall have the same meaning regardless of whether they appear in singular or in plural.

Definitions
For the purposes of this Privacy Policy:

- Account means a unique account created for You to access our Service or parts of our Service.
- Company (referred to as either "the Company", "We", "Us" or "Our" in this Agreement) refers to TJS Softwares, University of Miami.
- Cookies are small files that are placed on Your computer, mobile device or any other device by a website, containing the details of Your browsing



Home About Privacy Support

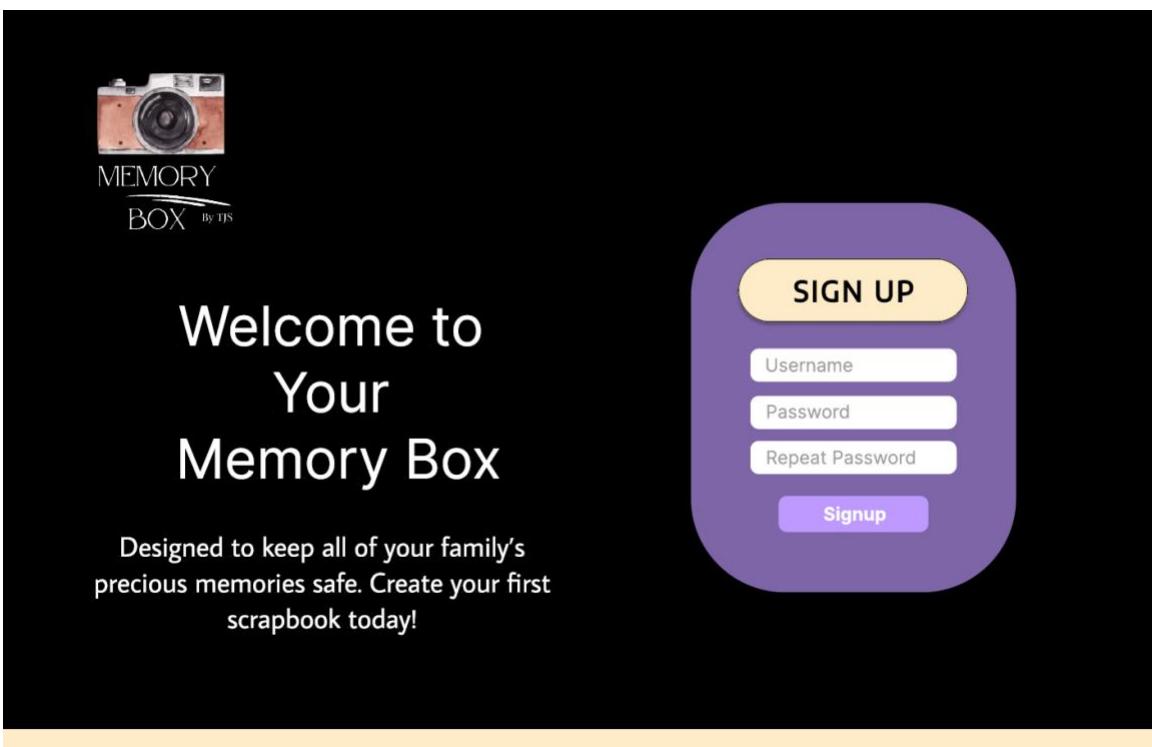
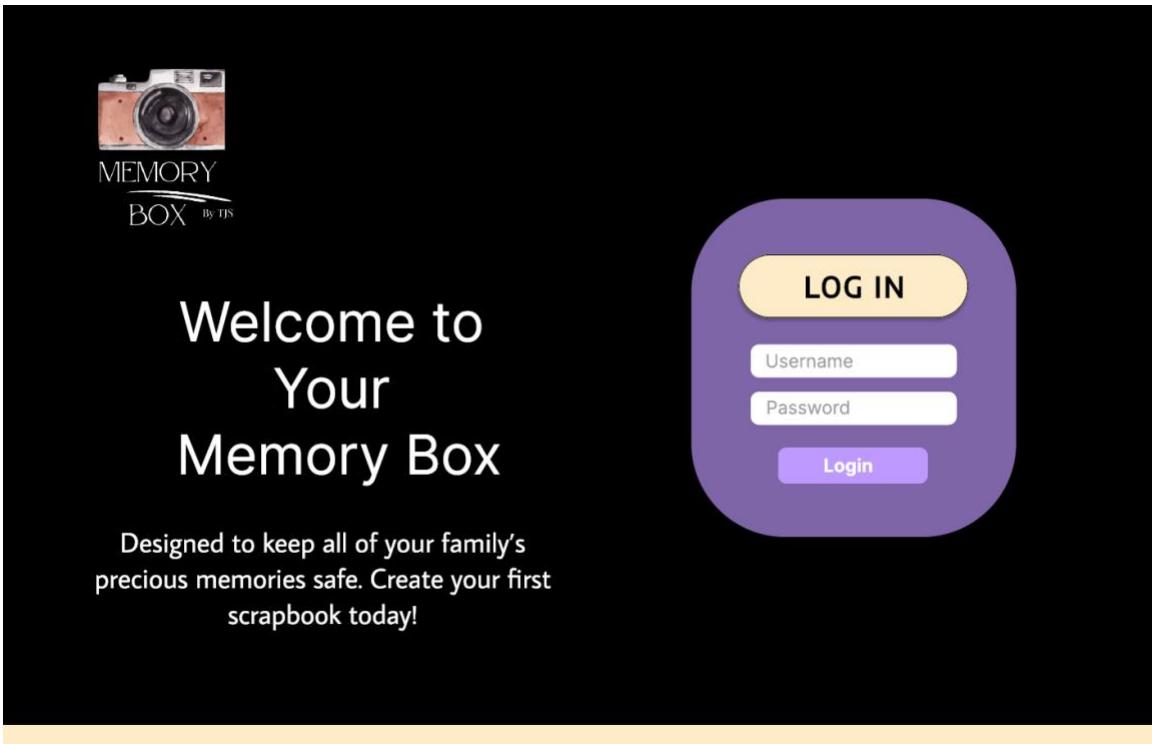
Support & FAQs

Top FAQs

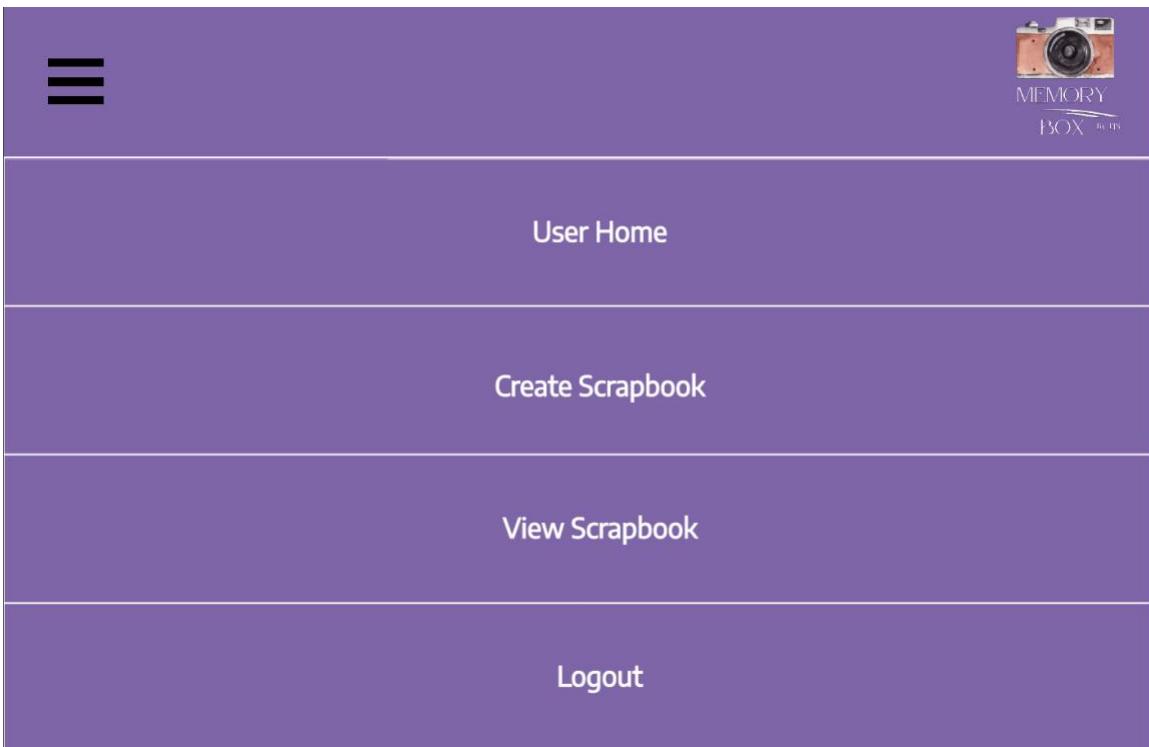
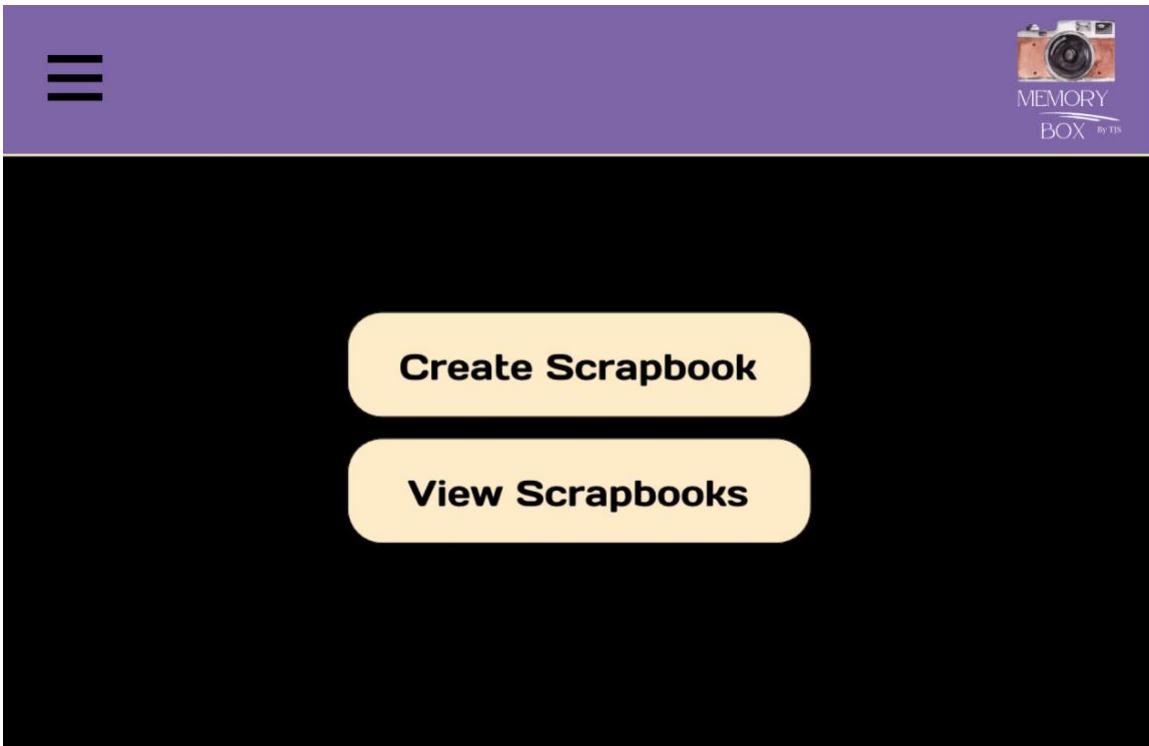
- How do I create an account and sign in?
Signing up with Memory Box is super easy. Create a unique username and enter a password. You will later have the option to enter an email in the settings of your User Profile.
- How do I create a scrapbook?
After logging in, you will be taken to the Scrapbook Menu where you will have the option to create a scrapbook. You will be taken through a step-by-step process starting with the layout, page style, and finally adding images and captions.
- How do I edit a scrapbook?
If you have already created a scrapbook, you will have the option to edit it in the Scrapbook Menu. Each element that you added originally will be clickable so you can view the available edit options.
- How do I view my scrapbooks?
If you have already created at least one scrapbook, you will have the option to view it in the Scrapbook Menu. You will be taken to the page My Scrapbooks, where you can click on each scrapbook to open and look through it.

For more support, please contact support@tjssoftwares.com.

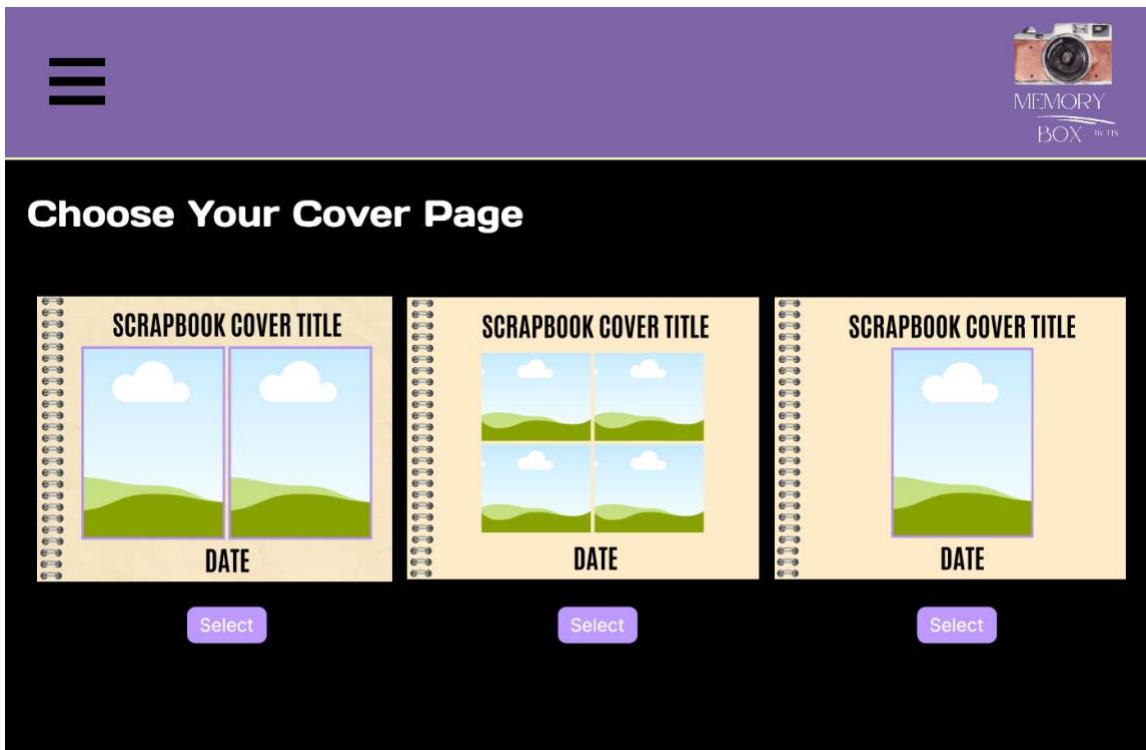
38.1.3 Login and Sign Up Pages



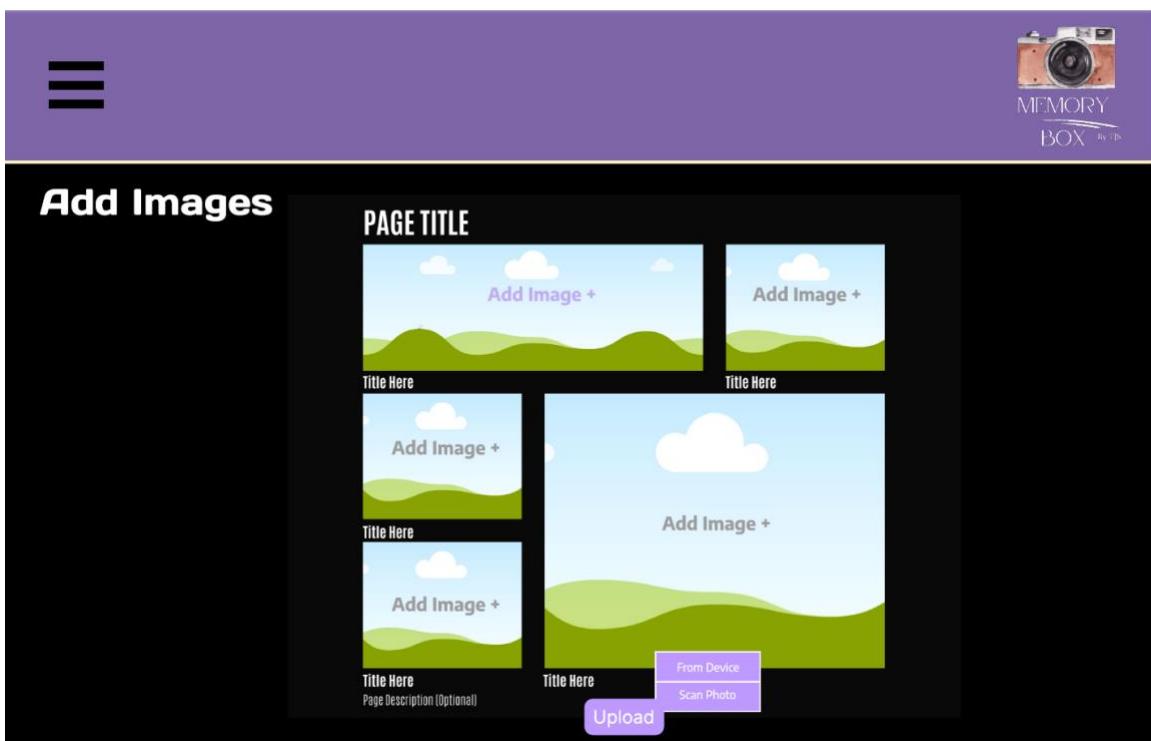
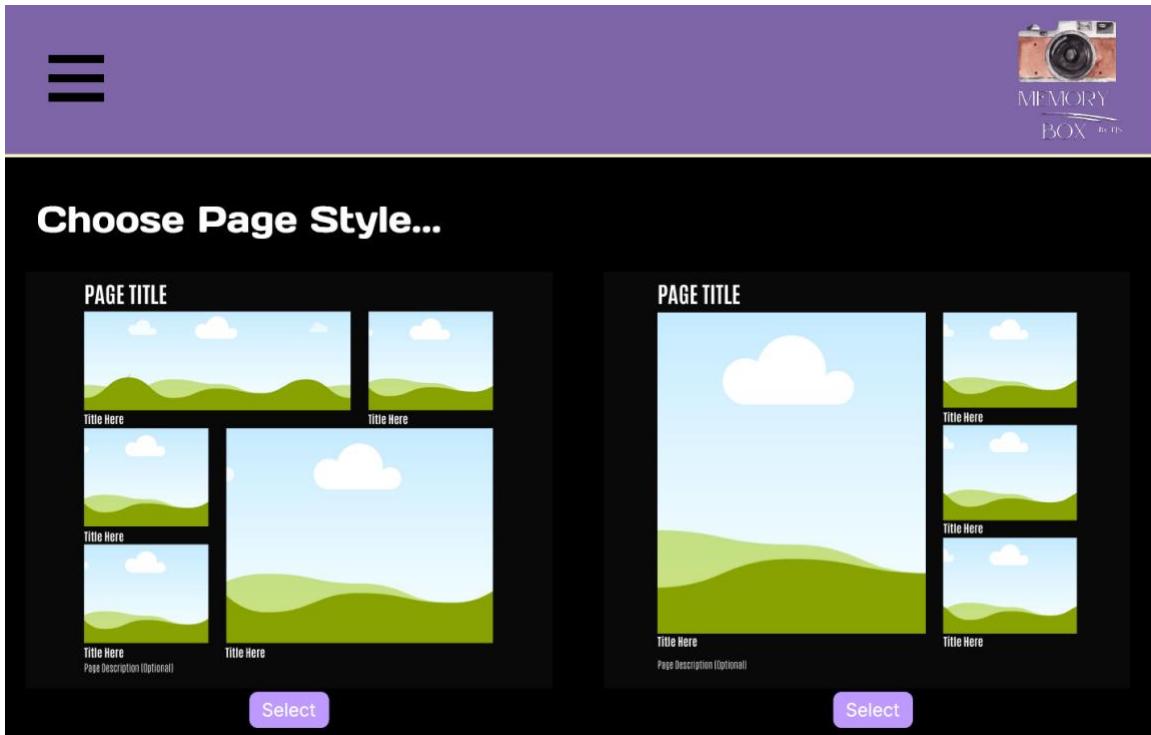
38.1.4 User Menu and Dropdown Menu



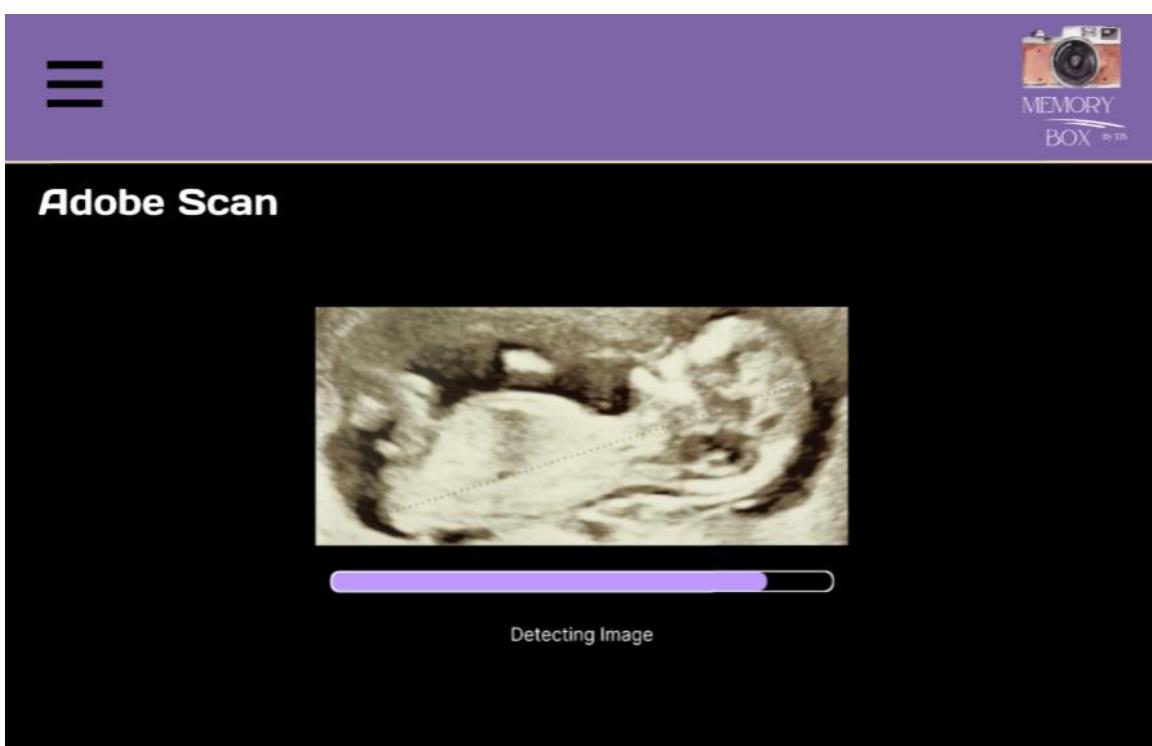
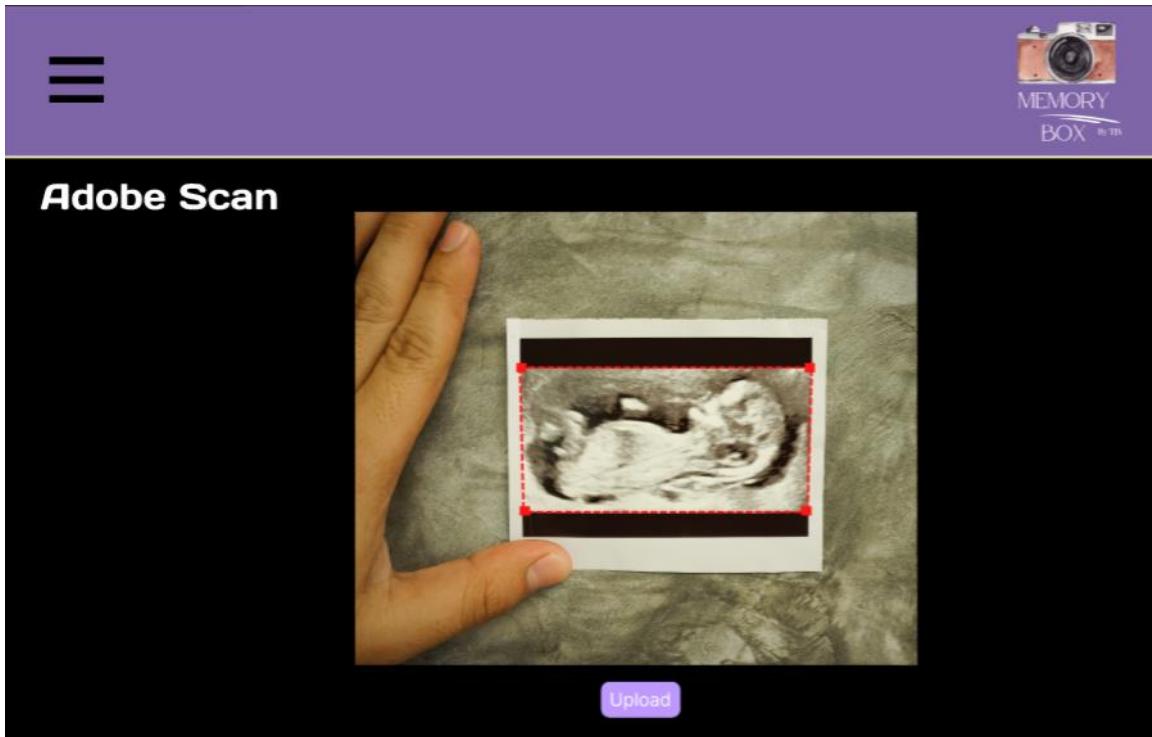
38.1.5 Scrapbook Creation: Choose Cover Page, Add Title and Date



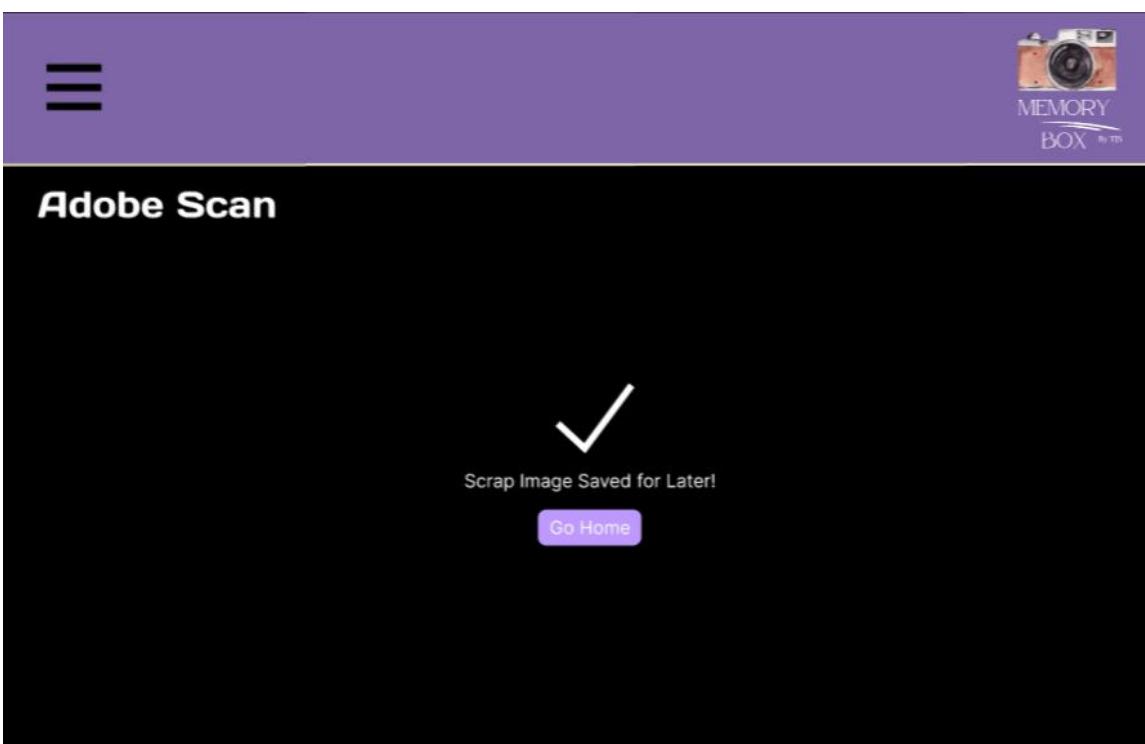
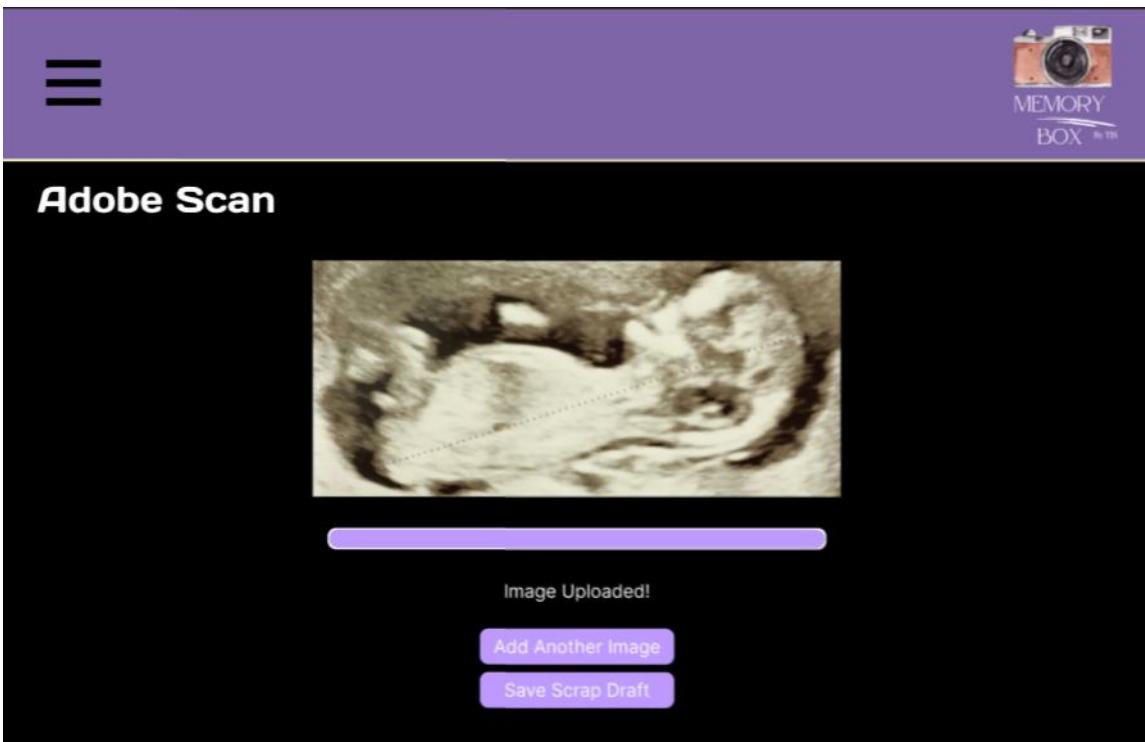
38.1.6 Scrapbook Creation: Choose Page Style and Add/Upload Image Options



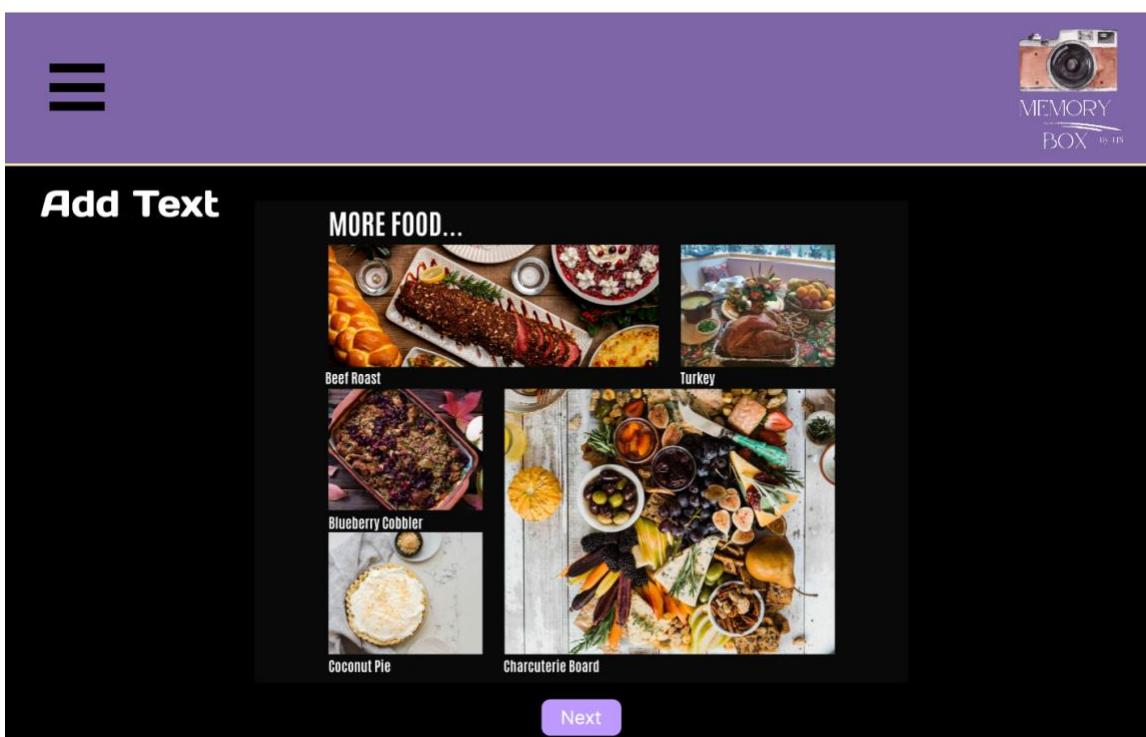
38.1.7 Image Upload Option: Scan Image with Adobe Scan



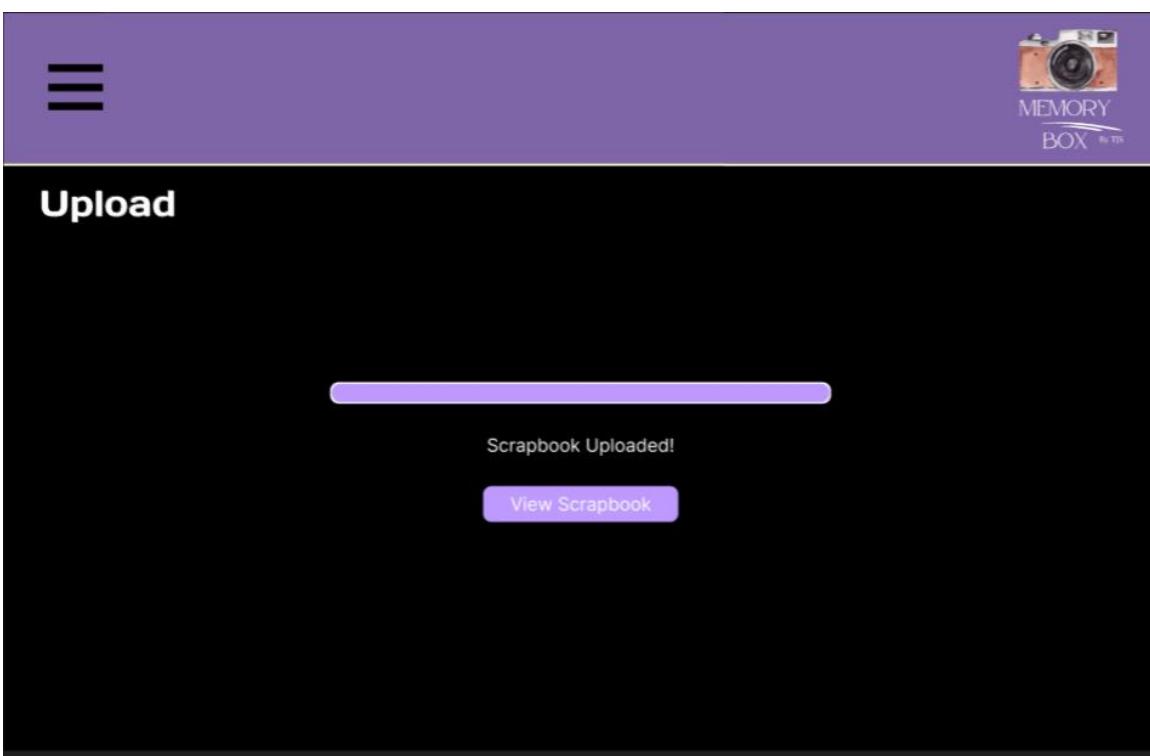
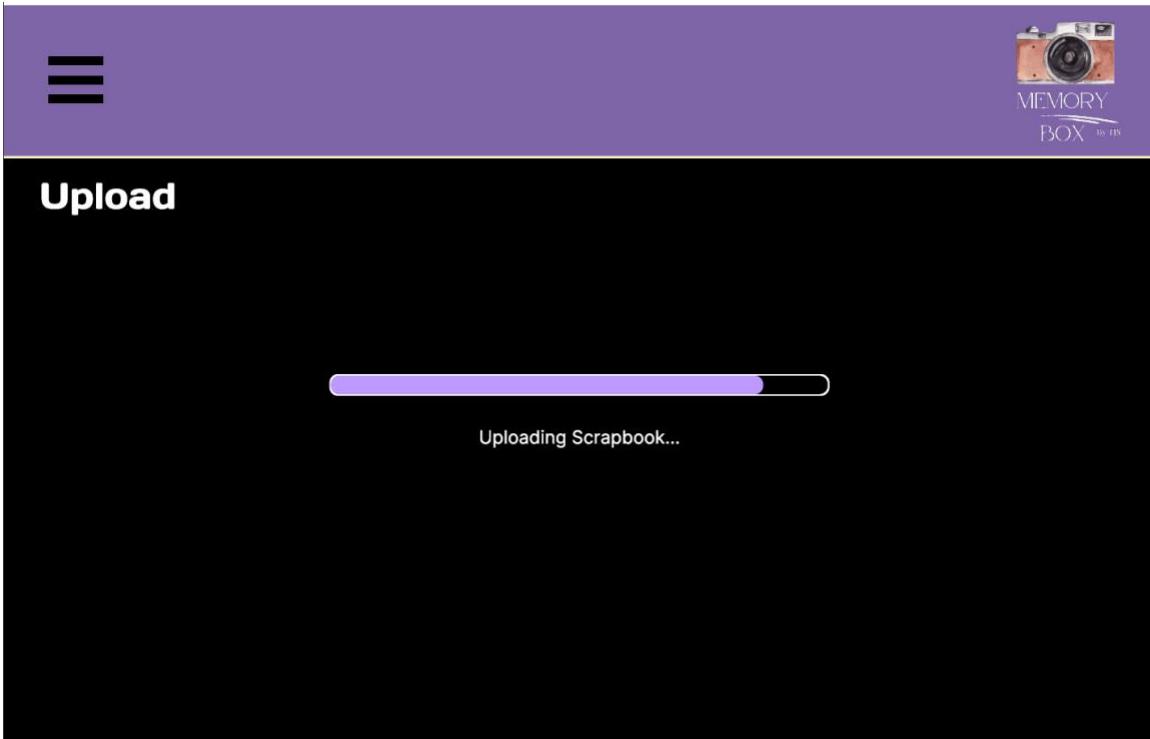
38.1.8 Scan Image with Adobe Scan Options: Scan Another Image or Save



38.1.9 Scrapbook Creation: Select Images to Add from System Library and Add Text



38.1.10 Scrapbook Upload Loading Bar



38.1.11 User Scrapbook Gallery: Filter Options

The image displays two screenshots of a mobile application interface for managing scrapbooks. Both screenshots feature a purple header bar with a camera icon and the "MEMORY BOX" logo.

Top Screenshot: The title "My Scrapbooks" is centered at the top. Below it is a search bar with "Search Scrapbooks..." and a "Search" button. To the right is a "Filter Scrapbooks..." button with a dropdown menu open, showing "Name" and "Date". There are three main scrapbook items displayed:

- JOHNSON FAMILY REUNION** (2015): Includes four thumbnail images and a "View" button below.
- JUNIOR MEETS SANTA** (2017): Includes four thumbnail images and a "View" button below.
- ALEAH'S SENIOR PORTRAITS** (2017): Includes one large portrait image and a "View" button below.

Below these are three smaller, partially visible scrapbook cards:

- THANKSGIVING AT GRANDMA'S**
- SMITHS ANNUAL TREE CUTTING**
- NEW YEARS AT NYC**

Bottom Screenshot: The title "My Scrapbooks" is centered at the top. Below it is a search bar with "Search Scrapbooks..." and a "Search" button. To the right is a "Filter Scrapbooks..." button with a dropdown menu open, showing "Name" and "Date". There are three main scrapbook items displayed:

- ALEAH'S SENIOR PORTRAITS** (2017): Includes one large portrait image and a "View" button below.
- JOHNSON FAMILY REUNION** (2015): Includes four thumbnail images and a "View" button below.
- JUNIOR MEETS SANTA** (2017): Includes four thumbnail images and a "View" button below.

Below these are three smaller, partially visible scrapbook cards:

- NEW YEARS AT NYC**
- SMITHS ANNUAL TREE CUTTING**
- THANKSGIVING AT GRANDMA'S**

38.1.12 Select Scrapbook to Edit: Edit Page Option

Back

Edit Scrapbook

Share Scrapbook

THANKSGIVING AT GRANDMA'S

2018

Choose a Page to Edit

THANKSGIVING AT GRANDMA'S HOUSE

2018

Back

Edit Scrapbook

Share Scrapbook

GRANDE

PUMPKIN PATCH

MORE FOOD

PUMPKIN PATCH

Choose a Page to Edit

THANKSGIVING AT GRANDMA'S HOUSE

2018

Back

Edit Scrapbook

Share Scrapbook

GRANDE

PUMPKIN PATCH

MORE FOOD

PUMPKIN PATCH

38.1.13 Edit Page: Replace Text/Image Options

Back

Edit Page

THANKSGIVING AT GRANDMA'S **HOUSE**

2018

Replace

Back

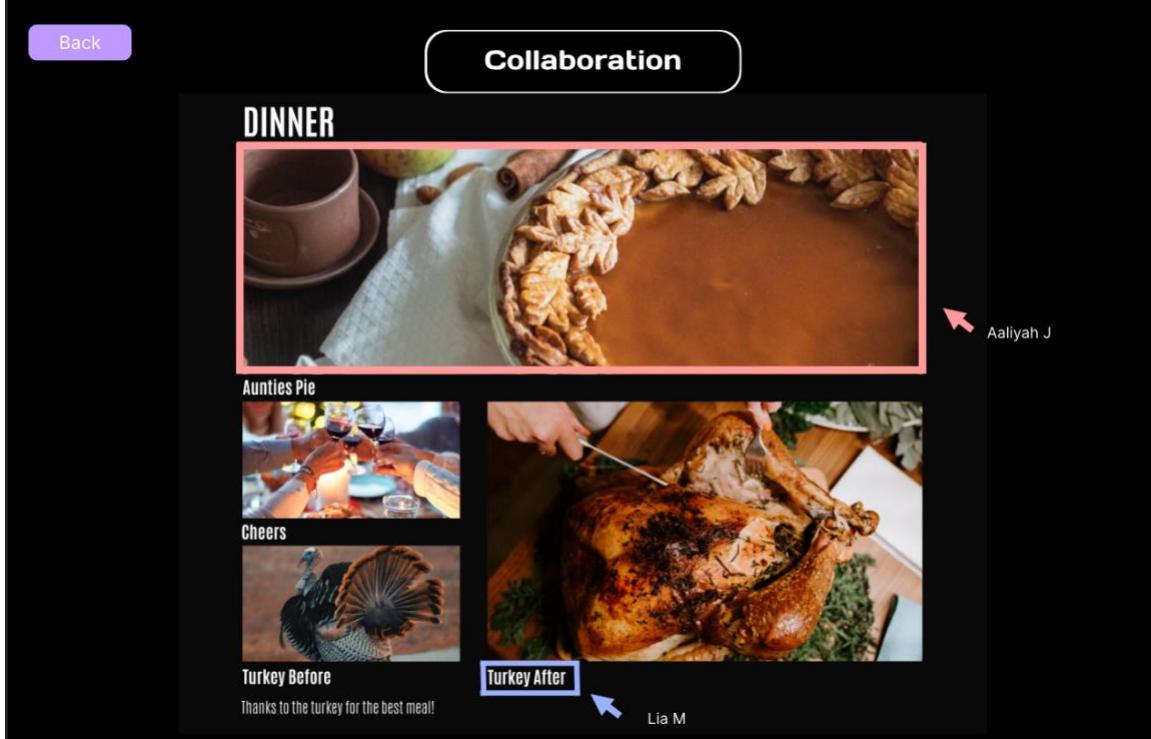
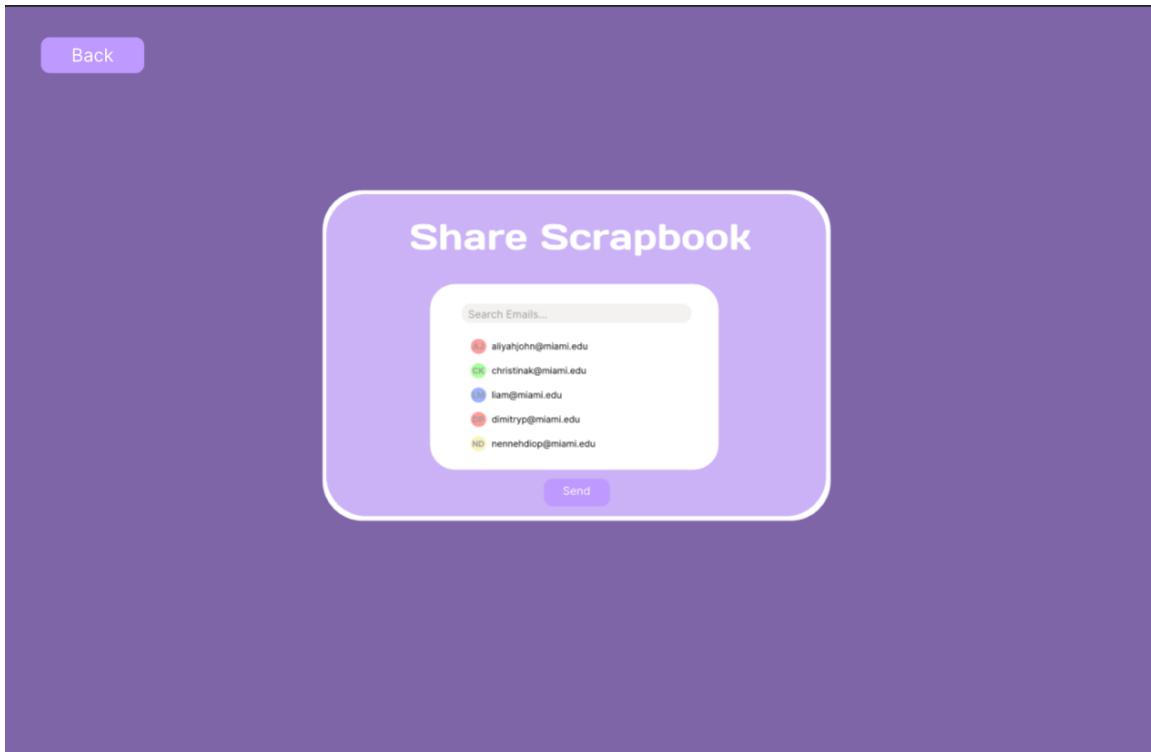
Edit Page

THANKSGIVING AT GRANDMA'S

2018

[View Scrapbook](#)

38.1.14 Share Scrapbook: Enter Collaborator Emails and Collaboration View



Memory Box

Tech Stack

39 Overview

The tech stack is the combination of technologies used to build and run an application/project. All those used in Memory Box are organized in the table below.

40 Table

Name	Tech	Description
Frameworks	HTML5, CSS3	HTML5 will be used for offline storage, adding in audio and video to some scrapbooks. It allows dragging and dropping for images, along with embedded fonts. CSS3 is better to use than CSS because it makes the web page look more attractive while also taking less time to create. CSS3 also allows for a large range of font effects like shadows and video effects.
Cloud Services	SaaS, Amazon Elastic Compute Cloud (Amazon EC2) G3	Memory Box is a software as a service. EC2 is used for high image processing.
Languages	HTML, CSS, Javascript, Python	All of these languages are used for the front end and back end web development.
APIs	Adobe Scan	Adobe Scan will be used to scan in old images that people no longer want to store in their homes or are afraid of losing.
Front End Tech	HTML, CSS	The design of Memory Box is extremely simple and clean. It's a solid black background to not take away from the scrapbook pictures. The website won't need any more design than HTML and CSS.
Back End Logic + Libraries	Python	The main thing we want to provide with Memory Box is safety and security. Python is one of the most popular technologies for security. Our website will keep pictures and videos safe from any possible attacks or hackers. Also provides libraries for coders to use.
Database	Amazon Web Services	Good security (what we pride ourselves on), complete control over the database, user-friendly, scalable and elastic.
Devops Tools	Jira Service Management	Using Jira, developers and operations can receive feedback directly from the customer so they know exactly what problems they need to fix

41 Stack

Memory Boxes StackShare is shown in the images below.

The link to the stack is as follows: <https://stackshare.io/tjs-softwares/tjs-softwares#stack>

The screenshot shows the StackShare interface with two main sections:

- Application and Data (4)**: This section contains four items:
 - JavaScript**: Represented by a yellow square icon with the letters "JS".
 - Python**: Represented by a blue Python logo icon.
 - HTML5**: Represented by an orange square icon with the letters "H5".
 - Amazon EMR**: Represented by an orange cube icon.
- Business Tools (1)**: This section contains one item:
 - Jira Service Des ...**: Represented by a blue lightning bolt icon.

PACKAGES	VERSION
css /	
aws /	
html /	

Memory Box

Work Breakdown Structure (WBS) and Project Timeline Plan

42

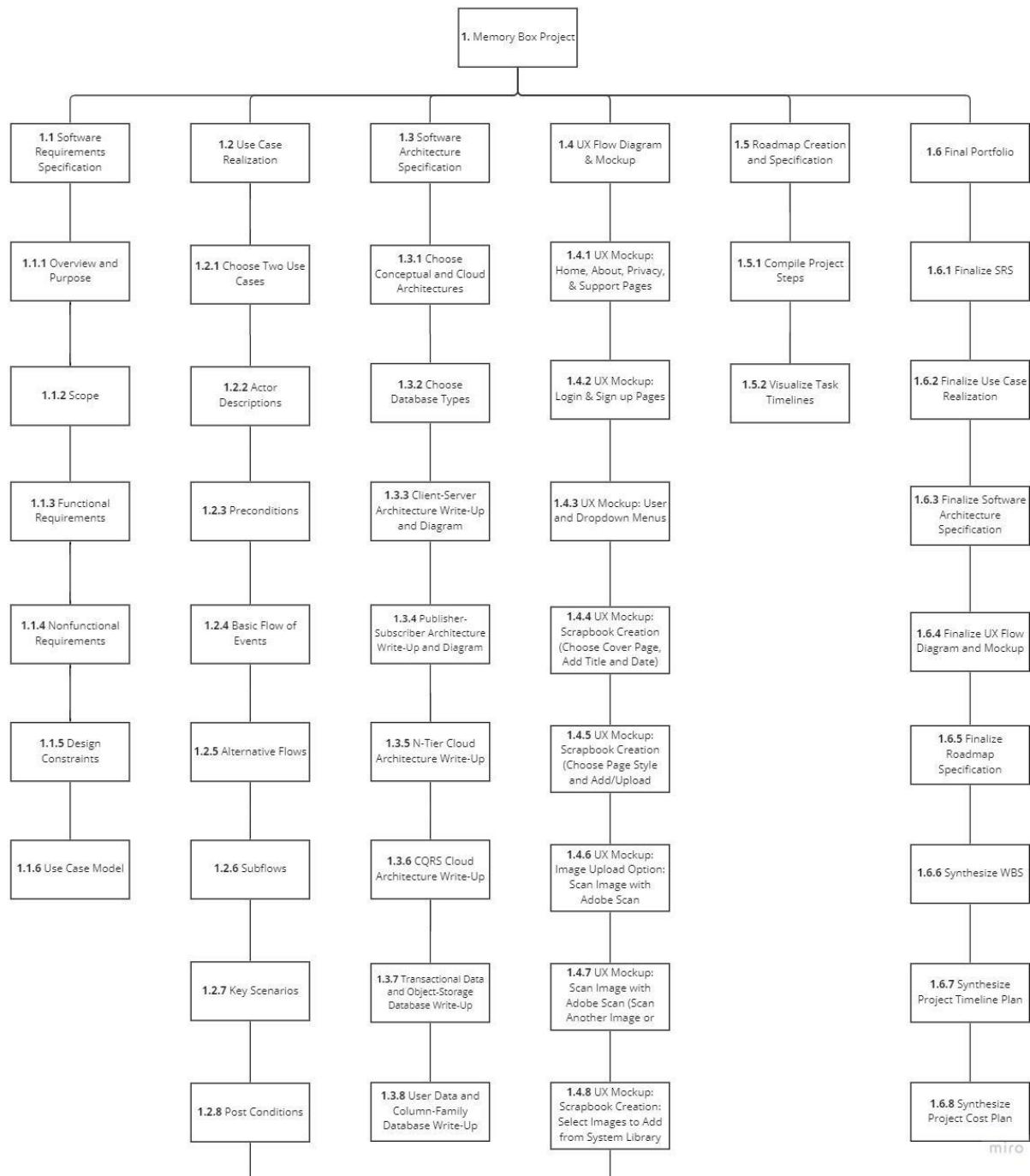
Overview

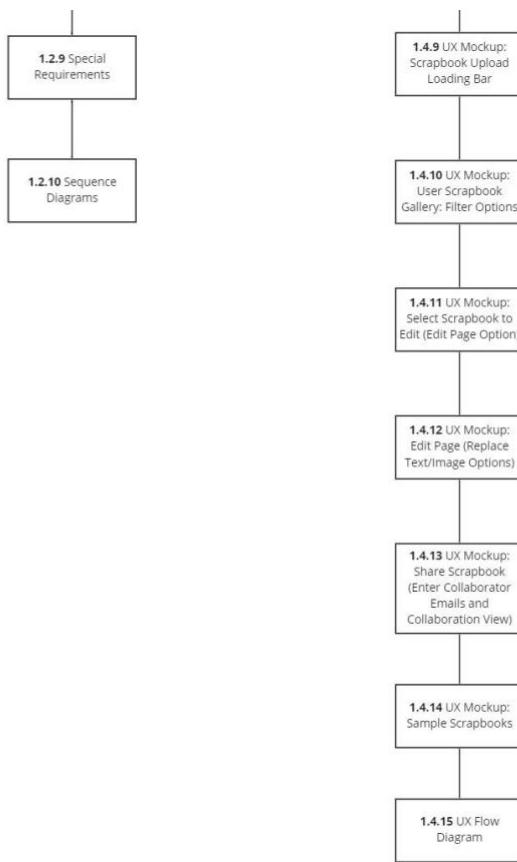
The WBS organizes the project into smaller, more manageable tasks/deliverables.

43

Diagram

Each section completed, along with their subtasks, have been visualized in a diagram on the following pages.





miro

44

Gantt Chart

The Gantt Chart illustrates the project schedule, plotting project deliverables against time. Memory Box's project timeline plan is shown in the charts on the following pages.

MEMORY BOX

MEMORY BOX

Company Name:		TJS Softwares	Project Start:	Tues, 09/13/2022	Project Timeline																									
Project Leads:		Christina Matthews Agilia Rementeria Stephanie Peralta	Display Week:	1	Nov 7, 2022			Nov 14, 2022			Nov 21, 2022			Nov 28, 2022			Dec 5, 2022			Dec 12, 2022										
Task	Assigned To	Progress	Start	End	No. of days	M	T	W	F	S	S	M	T	S	F	S	S	M	T	W	F	S	S	M	T	W	F	S	S	
Phase 1 Title: Software Requirements Specification																														
Software Requirements Specification	Stephanie	100%	9/13/22	9/14/22	1																									
Overview & Purpose	Stephanie	100%	9/14/22	9/15/22	1																									
Scope	Agilia	100%	9/15/22	9/16/22	1																									
Functional Requirements	Agilia	100%	9/16/22	9/17/22	1																									
Nonfunctional Requirements	Stephanie	100%	9/15/22	9/17/22	2																									
Design Constraints	Stephanie	100%	9/18/22	9/20/22	2																									
Use Case Model	Christina	100%	9/20/22	9/20/22	1																									
Phase 2: Use Case Realization																														
Choose Two Use Cases	Agilia	100%	9/20/22	9/21/22	1																									
Actor Descriptions	Agilia	100%	9/21/22	9/22/22	1																									
Preconditions	Agilia	100%	9/22/22	9/23/22	1																									
Basic Flow of Events	Stephanie	100%	9/22/22	9/23/22	1																									
Alternative Flow of Event	Stephanie	100%	9/23/22	9/24/22	1																									
Subflows	Christina	100%	9/23/22	9/24/22	1																									
Key Scenarios	Stephanie	100%	9/23/22	9/24/22	1																									
Post-conditions	Stephanie	100%	9/23/22	9/24/22	1																									
Special Requirements	Stephanie	100%	9/25/22	9/26/22	1																									
Sequence Diagrams	Agilia	100%	9/26/22	7/27/22	1																									
Phase 3: Software Architecture Specifications:																														
Choose Conceptual & Cloud Architectures	Christina	100%	9/27/22	9/28/22	1																									
Choose Databases	Christina	100%	9/29/22	9/30/22	1																									
Client-server Architecture	Stephanie	100%	11/1/22	11/2/22	1																									
Client-server Architecture Diagram	Stephanie	100%	11/2/22	11/3/22	1																									
Publisher-subscriber Architecture	Christina	100%	11/3/22	11/4/22	1																									
Publisher-subscriber Architecture Diagram	Christina	100%	11/4/22	11/5/22	1																									
N-tier Cloud Architecture	Agilia	100%	11/5/22	11/6/22	1																									
CQRS Cloud Architecture	Agilia	100%	11/6/22	11/7/22	1																									
Transactional Data and Object Storage	Agilia	100%	11/6/22	11/7/22	1																									
User Data and Column-family Database	Agilia	100%	11/7/22	11/8	1																									
Phase 4: UX Flow Diagram & Mockup																														
UX Mockup: Home Page	Agilia	100%	11/8/22	11/9/22	1																									
UX Mockup: About Page	Christina	100%	11/8/22	11/9/22	1																									
UX Mockup: Privacy Page	Agilia	100%	11/8/22	11/9/22	1																									
UX Mockup: Support Page	Agilia	100%	11/8/22	11/9/22	1																									
UX Mockup: Login Page	Agilia	100%	11/8/22	11/9/22	1																									
UX Mockup: Sign up Page	Agilia	100%	11/8/22	11/9/22	1																									
UX Mockup: User and Dropdown Menus	Stephanie	100%	11/9/22	11/10/22	2																									
UX Mockup: Scrapbook Creation (Choose Cover)	Christina	100%	11/9/22	11/10/22	1																									
UX Mockup: Scrapbook Creation (Choose Page)	Christina	100%	11/9/22	11/10/22	1																									

MEMORY BOX

Memory Box

Project Cost Plan

45

Overview

As part of effective project planning, the estimated costs for the project deliverables and project budget must be taken into account.

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Project Budget

The estimated costs for each project deliverable and the total project budget have been planned in the following pages.

Memory Box Project Budget



TJS Softwares

Project Leads: Christina Matthews
Agilia Rementeria
Stephanie Peralta

Start Date: 09/13/2022

Budget
Total \$ 20,000.00

WBS	Task	Labor		Materials		Fixed Costs	Estimate	<u>Notes</u>
		Hrs	Rate	Units	\$/Unit			
1.1	Software Requirements Specification					\$ 1,787.00		
1.2	Software Requirements Specification	8.0	\$56.00		\$50.00	498.00		
1.1.1	Overview & Purpose	2.0	\$56.00		\$250.00	362.00		
1.1.2	Scope	0.5	\$56.00			28.00		
1.1.3	Functional Requirements	0.5	\$56.00			28.00		
1.1.4	Nonfunctional Requirements	0.5	\$56.00			28.00		
1.1.5	Design Constraints	1.0	\$56.00			56.00		
1.1.6	Use Case Model	2.0	\$56.00	30.0	\$22.50	787.00		
1.2	Use Case Realization					\$ 2,000.00		
1.2.1	Choose Two Use Cases	0.3	\$56.00			700.00		
1.2.2	Actor Descriptions	0.5	\$56.00			28.00		
1.2.3	Preconditions	1.0	\$56.00			56.00		
1.2.4	Basic Flow of Events	3.0	\$56.00	30.0	\$22.50	843.00		
1.2.5	Alternative Flow of Events	3.0	\$56.00			168.00		
1.2.6	Subflows	1.0	\$56.00			56.00		
1.2.7	Key Scenarios	1.0	\$56.00			56.00		
1.2.8	Post-conditions							
1.2.9	Special Requirements	1.0	\$56.00			56.00		
1.2.10	Sequence Diagrams	5.0	\$56.00	30.0	\$22.50	955.00		
1.3	Software Architecture Specification					\$ 3,805.00		
1.3.1	Choose Conceptual & Cloud Architectures	0.5	\$85.00			42.50		
1.3.2	Choose Databases	0.5	\$85.00			42.50		
1.3.3	Client-server Architecture Description	1.0	\$85.00			85.00		
1.3.4	Client-server Architecture Diagram	3.0	\$85.00	30.0	\$22.50	930.00		
1.3.5	Publisher-subscriber Architecture Description	1.0	\$85.00			85.00		
1.3.6	Publisher-subscriber Diagram	3.0	\$85.00	30.0	\$22.50	930.00		
1.3.7	N-tier Cloud Architecture Description	1.0	\$85.00			85.00		
1.3.8	CQRS Cloud Architecture Description	1.0	\$85.00			85.00		
1.3.9	Transactional Data and Object Storage Descriptions	1.0	\$85.00	30.0	\$22.50	760.00		
1.3.10	User Data and Column-family Database Descriptions	1.0	\$85.00	30.0	\$22.50	760.00		
1.4	UX Flow Diagram and Mockup					\$ 7,296.00		
1.4.1	UX Mockup: Home Page	0.5	\$42.00	30.0	\$22.50	696.00		
1.4.2	UX Mockup: About Page	0.5	\$42.00	30.0	\$22.50	696.00		

	UX Mockup: Privacy Page	0.5	\$42.00	30.0	\$22.50		696.00
1.4.1	UX Mockup: Support Page	0.5	\$42.00	30.0	\$22.50		696.00
1.4.2	UX Mockup: Login Page	0.5	\$42.00	30.0	\$22.50		696.00
1.4.2	UX Mockup: Sign up Page	0.5	\$42.00	30.0	\$22.50		696.00
	UX Mockup: User and Dropdown Menus						
1.4.3		2.0	\$42.00	30.0	\$22.50		759.00
	UX Mockup: Scrapbook Creation (Choose Cover Page, Add Title and Date)						
1.4.4		2.0	\$42.00	30.0	\$22.50		759.00
	UX Mockup: Scrapbook Creation (Choose Page Style and Add/Upload Image Options)						
1.4.5		3.0	\$42.00	30.0	\$22.50		801.00
	UX Mockup: Image Upload Option: Scan Image with Adobe Scan						
1.4.6		3.0	\$42.00	30.0	\$22.50		801.00
	UX Mockup: Scan Image with Adobe Scan (Scan Another Image or Save)						
1.4.7		1.0	\$42.00	30.0	\$22.50		717.00
	UX Mockup: Scrapbook Creation: Select Images to Add from System Library and Add Text						
1.4.8		1.0	\$42.00	30.0	\$22.50		717.00
	UX Mockup: Scrapbook Upload Loading Bar						
1.4.9		1.0	\$42.00	30.0	\$22.50		717.00
1.4.10	UX Mockup: User Scrapbook Gallery: Filter Options	1.0	\$42.00	30.0	\$22.50		717.00
1.4.11	UX Mockup: Select Scrapbook to Edit (Edit Page Option)	1.0	\$42.00	30.0	\$22.50		717.00
	UX Mockup: Edit Page (Replace Text/Image Options)						
1.4.12		1.0	\$42.00	30.0	\$22.50		717.00
	UX Mockup: Share Scrapbook (Enter Collaborator Emails and Collaboration View)						
1.4.13		1.0	\$42.00	30.0	\$22.50		717.00
1.4.14	UX Mockup: Sample Scrapbooks	1.0	\$42.00	30.0	\$22.50		717.00
	UX Flow Diagram						
1.4.15		2.0	\$42.00	30.0	\$22.50		759.00
	Roadmap Creation and Specification					\$ 360.00	
1.5	Compile Project Steps	1.0	\$90.00				90.00
1.5.2	Visualize Task Timelines	1.0	\$90.00				90.00
1.6	Final Portfolio					\$ 270.00	
1.6.1	Finalize SRS						90.00
1.6.2	Finalize Use Case Realization	1.0	\$90.00				90.00
	Finalize Software Architecture Specification						
1.6.3		1	\$90.00				90.00
1.6.4	Finalize UX Flow Diagram and Mockup	1	\$90.00				90.00
1.6.5	Finalize Roadmap Specification	1	\$90.00				90.00
	Synthesize WBS						
1.6.6		1	\$90.00	30.0	\$22.50		765.00
1.6.7	Synthesize Project Timeline Plan	1	\$90.00	30.0	\$22.50		765.00
1.6.8	Synthesize Project Cost Plan	1	\$90.00	30.0	\$22.50		765.00
	Total Estimated Cost					\$ 15,698.00	

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