

ReadSwap Project

Introduction

The ReadSwap project aims to address the challenge of unused and idle books by providing a platform for book enthusiasts to facilitate book exchange, sale, or gifting. This document outlines the project's approach, architecture, implementation strategy, and testing plan. The report aims to provide a comprehensive understanding of the project's development and execution.

Aims and Objectives of the Project:

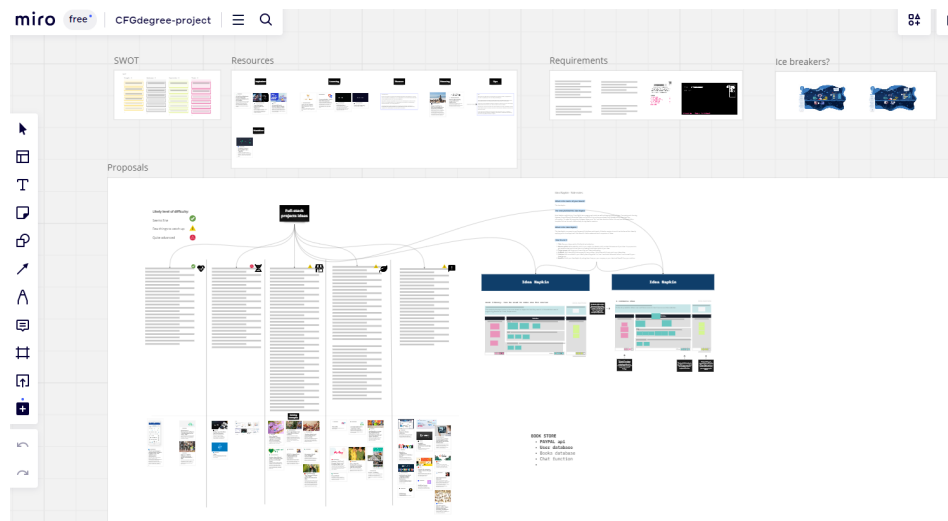
The primary goal of the ReadSwap project is to create a platform that promotes sustainable reading practices and minimizes book waste. Specific objectives include:

- Building a user-friendly web application for book enthusiasts to exchange, sell, and gift books.
- Developing features such as Book Exchange, Book Sale, Book Gifting, and Rare Book Search.
- Implementing a robust authentication and security system to ensure user privacy and data protection.

Roadmap of the Report:

This report will cover various aspects of the ReadSwap project, including background information, project specifications and design, implementation details, testing and evaluation strategies, and overall project conclusions.

Background



The inception of the ReadSwap project stemmed from a collective brainstorming session where the team deliberated potential project ideas and objectives. Utilizing a collaborative platform, Miro, the team systematically evaluated various concepts, weighing their advantages and drawbacks. Ultimately, the decision coalesced around the creation of an online book library, aptly named ReadSwap. This concept resonated strongly with the team due to their shared affinity for reading, aligning seamlessly with the project's overarching goals.

The Concept:

ReadSwap embodies an innovative approach to fostering book enthusiasts' interactions. It revolves around a digital space where users can effortlessly exchange their existing books with fellow local readers or explore second-hand book purchases. This idea's resonance lies in the convergence of the team's reading interests, while concurrently addressing broader objectives.

Alignment with Objectives:

The project's alignment with these objectives rests on multiple pillars. Firstly, it champions sustainability and recycling – vital global concerns. By enabling users to swap books, ReadSwap actively contributes to minimizing waste

while promoting a more ecologically conscious lifestyle. Additionally, the platform caters to diverse user needs, whether financial, spatial, or emotional. Individuals seeking monetary savings can find value in second-hand books, while those aiming to declutter can free up living spaces. Beyond these pragmatic aspects, ReadSwap fosters a sense of community. The platform provides a conduit for like-minded readers to converge, nurturing connections and fulfilling emotional needs.

Functional Overview:

ReadSwap's user experience is designed to be user-centric and accessible. While user registration is available, the platform's core functionality, including browsing the book library and participating in forum discussions, is accessible without logging in. Users can conveniently add desired books to their cart, and the checkout process presents multiple payment options such as credit/debit cards and the integration with the widely used payment service, PayPal.

Specification and Design

Our design process commenced with in-depth discussions regarding the requisite pages, desired features, and the desired user flow for the ReadSwap platform. Prior to delving into wireframe creation, we meticulously crafted a comprehensive list of pages and features, ensuring a clear roadmap for our design endeavor. Initial wireframing commenced using Balsamiq, although we eventually transitioned to Figma due to its user-friendly interface, and wider possibilities on shaping the design on webpages..

? In discussion

How many pages the overall website will be

- Homepage/Landing page ✓
- About us
- Contact page
- Profile ✓
- Profile Settings ✓
- Login page/Forgotten Password page/Registration
- Book Genre / Book Search & Results ✓
- Payment page ✓
- Chat page
- Terms & Conditions
- Returns
- Shipping
- Shopping Cart Page ✓
- Privacy Policy
- FAQs

★ Feature to be included

- User database
- Payment Integration: Stripe, PayPal, or other reliable payment gateways to handle secure transactions
- Books database
- Chat function/ Book search page where user can leave a comment of what book they are looking for and if anyone has it.(still in discussion)
- Books API (created out of database)
- Website design (HTML,CSS, Javascript)
- Rating and review system to establish trust and facilitate feedback.
- Favourites
- Community events related to book hunting / reading
- Gamification elements to encourage user participation and rewards for book swapping
- Discussion online book clubs (?) -> community building

To maintain design consistency and cohesiveness across the platform, we incorporated a header and footer on all pages. Our objective was to cultivate a unified visual identity throughout the application. A responsive navigation bar was seamlessly integrated into the header, streamlining user navigation and enhancing user experience by facilitating intuitive page transitions.

A pivotal aspect of our design process revolved around color schemes and font selection. We aimed for an elegant yet uncomplicated design aesthetic, adhering to key principles of digital graphics:

- **Simplicity:** Embracing the adage "Less is more," we prioritized a clutter-free interface that promotes ease of navigation and content consumption.
- **Cohesive Color Palette:** We meticulously curated a warm and neutral color palette, predominantly featuring bronzes and greens. This selection was inspired by the hues reminiscent of vintage book covers, thereby imbuing a sense of nostalgia and literary charm.
- **Typography Control:** Employing a consistent and easily readable font, namely Roboto, underscores our commitment to enhancing content legibility and ensuring a seamless reading experience across diverse devices.
- **Visual Hierarchy:** Our design strategy emphasized the strategic arrangement of elements to facilitate users' intuitive comprehension of page content and navigation options.
- **White Space and Spacing:** Intentional incorporation of white space fosters visual clarity and prevents visual clutter, allowing users to focus on essential information and actions.
- **Psychology of Color:** We harnessed the psychological impact of color by selecting tones that evoke warmth, comfort, and an inviting ambiance, reinforcing the platform's community-driven ethos.

Our website wireframes are [here](#). We've organized them with a first-time user in mind, ensuring a smooth flow as follows:

- Landing Page | Ann opens the page using the URL

- Registration/Login Page | She decides to create an account herself
- Book Upload | With a book to swap, Ann visits the Book Upload page and fills in the book data
- Books Listing | She explores books listed by others, looking for ones she's interested in buying/swapping
- Book Details | Ann finds 2 books intriguing but is unsure which to choose; she adds both to the Cart
- Book Cart | Ann reviews the Cart, makes a final book selection, clicks to mark it, and proceeds to check shipping options
- Shipping | She fills in her address, website calculates shipping cost, and Ann proceeds to the Payment Gateway
- Payment Gateway | She enters her payment details and receives payment confirmation
- Rare Book Search | A particular book crosses Ann's mind; she has been searching for it tirelessly. She decides to inquire about it on the Rare Book Search forum, in case someone is willing to give it away, swap, or sell.

Implementation and Execution

Development Approach and Team Member Roles:

- Agile development methodology with iterative cycles for continuous improvement (cyclical online meetings, getting feedback from others through meetings and chats).
- Each team member assigned specific responsibilities for frontend, backend, design, and documentation. However, as work progresses, exchanges occur in the exchange of skills and mutual assistance.

Tools and Libraries:

- React for frontend development, utilizing components and state management.
- Node.js and Express for backend development, handling API requests.
- SQLite3 for database management and storage of user data and book listings.
- Jsonwebtoken for authentication
- Jest, and React DOM testing for testing

- Axios & Request for facilitating CRUD operations

Implementation Process:

- Achievements: Successful development of core features - Book Exchange, Book Sale, Book Gifting, and Rare Book Search.
- Challenges: Overcoming complexities of integrating payment gateway and ensuring data security, implementing authentication and testing
- Decision to Change: Changes due to the need to scale the project, realizing tasks complexities, available group resources, and mutual feedback

Agile Development:

- Iterative development cycles for incremental improvements.
- Regular code reviews, refactoring, and feature enhancements.
- Continuous communication among team members to address challenges promptly.

Implementation Challenges:

- Integration of secure user authentication and payment processing.

Testing and Evaluation

Testing Strategy:

- Use of Jest and React DOM testing tools to test page content rendering, and cover instances a user may encounter while using the site.
- Implementing logs to control the flow of props, hooks, connections between objects in general while working on the files

Functional and User Testing:

- Thorough testing of including main website features, including Book Purchase, Forum, Login, Register, Shopping Cart.
- User (that is group members, and their friends) manual testing and shared feedback to validate the platform's usability and gather user feedback for improvements.

System Limitations:

- Compatibility issues across different browsers and devices.

Conclusion

We hope the ReadSwap project successfully addresses the challenge of unused books by creating a user-friendly platform for book enthusiasts. The team adopted an agile development approach, overcame implementation challenges, and prioritized user testing to ensure functionality and usability. The platform's core features, including Book Exchange, Sale, Gifting, and Rare Book Search, empower users to share and enjoy the joy of reading, while contributing to sustainable reading practices.