

# **ROTOM Corporation**

## **Software Requirements**

### **Specifications**

## **Plotline**

Version 1.0

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## 1. Introduction

### 1.1 Company Description

ROTOM Corporation is committed to building innovative, community-oriented digital platforms that connect people through shared interests. With expertise in software engineering, user experience design, and community management, ROTOM Corporation focuses on high-quality, scalable applications that foster meaningful user engagement.

Mission Statement: To create digital spaces where communities can thrive by engaging in structured, inclusive, and socially rewarding online interactions.

Problem Statement: Reading is often viewed as solidarity, yet readers increasingly want to share thoughts and analyses. Current platforms like Goodreads, Reddit, and Discord each offer partial solutions but fail to fully address the needs of book centered communities. Goodreads helps track books but lacks interactivity. Reddit supports threaded discussions but lacks book specific progress tracking, Discord excels at realtime chats but struggles with long term, spoiler conscious discussions.

Plotline blends the strengths of these platforms into a dedicated solution. It allows readers to join or create book clubs, track reading journeys, engage in real time and structured dialogue , and form connections, providing a socially connected reading hub.

### 1.2 Staff Description and Skills

The project team consists of qualified developer and designers with Bachelors Degrees in Computer Science at California State Polytechnic University, Pomona, Collectively the team posses technical skills in full stack web development, systems designs, user interface prototyping, and database management, Their combined experience ensures delivery of a reliable, user-focused platform that meets both functional and non-functional requirements.

CEO, Patrick Hwang

As CEO of ROTOM Corp. my goals are:

- Maintaining a focused vision for our platform and ensuring the satisfaction of our users and employees
- Building a culture of collaboration and creativity within our team
- Overseeing the design and implementation of great solutions for our users
- Guiding the team towards continuous improvement

My other skills include:

- Issue resolution and ensuring team members are able to overcome technical challenges
- Assignment of tasks in order of priority

- Assist through any problems that may arise
- Approving major development decisions, code integrations, and deployment schedules.

Emily Panfilo

With experience in languages:

- Java
- C++
- SQL
- Python
- JavaScript

Julian Cabello

With experience in languages:

- HTML
- JavaScript
- TypeScript
- Python
- Java
- SQL
- NoSQL

Julianna Arzola

With experience in languages:

- Java
- C
- mySQL

Julia Chaidez

With experience in languages:

- Java
- JavaScript
- Python

## **2. End-User Objectives**

End-Users seek a dynamic platform that combines the familiarity of existing social media interactions with the specificity of book club communities. Their primary objective is to engage in a collaborative reading experience where they may join or establish book clubs centered on genres, titles, or authors of their choice. Within these clubs, they expect to communicate through both structured, spoiler-conscious discussion threads and casual, real-time conversations. They also seek to maintain a personal record of their reading history and reviews through a profile

bookshelf, which will serve as both a personal archive and a social tool for sharing interests. Furthermore, end-users intend to build personal connections with other readers through profiles, friend interactions, comments, and reactions. They require timely notifications that sustain their engagement and encourage consistent participation. Above all, the system must be accessible, intuitive, and inclusive, ensuring that user privacy is preserved and that community standards are upheld.

### 3. Project Scope

#### 3.1 Introduction

The purpose of this project is to develop a social media web application that merges the community-driven features of Reddit with the real-time interaction style of Discord. Our platform will be designed to provide book enthusiasts with a dedicated space to connect, share opinions, and engage in discussions, all of which is centered around the passion for books. All the hard-working individuals at ROTOM Corp. are dedicated to creating an engaging and interactive hub where readers of all kinds can come together.

#### 3.2 Objectives

The primary objectives of this project are to:

- Create a fully functional social media application that gives the user the ability to enroll in book clubs, create profiles, and interact with content
- Implement core functionalities such as chatting, discussion through threads, and user notifications
- Ensure security and efficient performance across user devices

#### 3.3 Key Features and Functionalities

The key features and functionalities of this project are to:

- User Registration and Authentication: Users can sign up and via email, username, and password.
- User Profile: Upon registration, users can customize their profile with their own profile picture and bio.
- Book Clubs: Users can sign up for book clubs by requesting to become a member or creating their own.
- Chatting: Once the user joins a book club, they can chat with the other members through the general chat.
- Threads: In the book club, hosts and moderators can create threads to initiate a conversation to which the book club members can reply to to discuss their thoughts.

- Search and Discovery: On the user homepage, users will be given recommendations of book clubs to join. Users can also find book clubs to join or users to request to become friends through the search function.
- Invitation: After joining a book club, its members can invite other users to join through invitation.

### 3.4 Deliverables

Upon completion of this project, ROTOM Corporation shall deliver a functional and deployable web application that satisfies the specifications outlined in this document. The final system will include the platform itself as well as supporting documentation, including user guides, administrative manuals, and technical design records such as architecture diagrams and database schema. Source code and design prototypes will be provided to demonstrate compliance with development standards. The completed application and its documentation will be presented to stakeholders to confirm that all requirements have been met and to ensure contractual satisfaction of project obligations.

### 3.5 Exclusions

The platform will not provide the book's content and users will be expected to obtain the books relating to their book clubs independently. The website will be always online, as such, the system within the platform will require internet access and there will be no offline content to access for users. Since the platform will be web-based in scope initially, the launch of the platform will not have iOS and Android specific applications.

### 3.6 Assumptions and Dependencies

Users will have access to a stable internet and a modern web browser like Google Chrome, Firefox, or Edge. Users will be book enthusiasts who are excited to join and participate in social interaction revolving around books and without requiring other incentives. A standard cloud or local server that will be able to host the platform. The user base at launch will be relatively small (50-100 concurrent users) that will scale gradually. Most users will follow community guidelines and minimal moderation will be needed for the very early stages of the platform.

### 3.7 Conclusions

This project scope defines the objective, key features and functionalities, deliverables, exclusions, and assumptions and dependencies to ensure the development of Plotline meets the client's needs.

## 4. Functional Requirements

### FR 1. Login

- Users without a previous session will be required to log in.
- Username and password are mandatory fields.
- Credentials are validated against hashed and salted database records.
- Successful authentication, the system generates a secure session token and redirects to the homepage.

### FR 2. Account Creation

- If the user does not have an account, they can click "Create an account".
- Registration requires a unique email and username.
- Passwords must meet system enforced strength rules.
- Duplicate usernames and emails are rejected.
- Upon successful "New Member" Registration.
  - Credentials are securely hashed and stored.
  - The user automatically logged in and directed to the homepage.

### FR 3. Forgot Password

- If the user forgot their password, they can click "Forgot password?" on the login page.
- The user must enter their registered email.
- If email exists:
  - A one time reset token is generated.
  - The token is sent to the user via email with a reset link.
- The reset form requires the new password entered twice.
- On successful reset, the old password is invalidated and the user is redirected to the login page.

### FR 4. Customize User Profile

- After registration, users may upload a profile picture.
- The profile picture must meet file type and size restrictions
- Users may write/edit a short bio.
- Profile updates are validated and stored in the user profile database.

### FR 5. View User Profile

- Clicking on the username/ profile picture loads the user's profile page,
- Profile page includes:
  - Bio text.
  - Bookshelf divided by current and past reads.



- Book clubs list with link to club homepages.
- Progress tracking of books.
- Friends count with access to friends page.
- Buttons: “Search for books Clubs” and “Create Book Club”.

**FR 6. View Book**

- Clicking on a book loads its dedicated page.
- Book page displays:
  - Cover image and metadata.
  - User progress (pages/chapter read).
  - Associated clubs.
  - Friends activity related to this book.

**FR 7. View Friends**

- Clicking on “Friends” loads the friends page.
- Page lists all friends with profile picture and username.
- Includes the “Add Friend” button.

**FR 8. Add Friends**

- Clicking “Add Friend” opens a search bar.
- Entering a username returns a list of matching results.
- Each result includes an “Add” button.
- Clicking ‘Add’ sends a request notification to the target user.

**FR 9. Search For Book Club**

- Users can search clubs via name or description.
- Matching results display with:
  - Club description.
  - Rules.
  - Host and moderator list.
  - “Request to Join” button.

**FR 10. Create Book Club**

- Clicking “Create Book Club” loads a creation form.
- The former requires a club name and optional description/rules.
- Successful creation redirects to the club homepage.

**FR 11. Discover Book Clubs**

- Homepage suggests clubs based on activity and user interests.
- Suggested clubs display: description, rules , host/moderators, “Request to Join”.

**FR 12. View Book Club Homepage**

- Accessed from the user homepage or profile.
- Club homepage displays:
  - Current reading assignment.
  - User progress update button.
  - List of members.

- General chat panel.
- Threads section.
- Club bookshelf of past books read.
- “Invite People” button.

**FR 13. Invite People to Book Club**

- Clicking “Invite People” opens a search bar.
- Entering username returns a list of matches.
- Each result includes an “Invite” button.
- Clicking ‘Invite’ sends a join request message to the target user.

**FR 14. Send Message in General Chat**

- Users in a club can send plain text messages via chat panel.
- Messages persist with timestamps and sender ID’s.
- Delivery acknowledgments ensure reliability.

**FR 15. Create Thread**

- Only hosts and moderators have thread creation permissions.
- Clicking “Create Thread” loads a form.
- Form requires title and description.
- Submitted threads are stored in the club's thread list.

**FR 16. Reply to Thread**

- Users can reply to any thread.
- Replies can be nested (with parent\_id references).
- Replies display username, timestamp , and text.

**FR 17. Update Book Progress**

- Clicking “Update Progress” loads a progress form.
- Form allows page/chapter entry or ‘Finished’ option.
- Submission updates the User\_Book\_Progress table.
- Updated progress reflected on the club homepage and user profile.

**FR 18. Assign Book/Reading**

- Hosts/moderators may assign books.
- Clicking the “Assign Book” icon loads a search form.
- Matching books display with metadata and “Assign” button.
- The assigned book appears on the club homepage as current reading.
- Hosts can assign chapters/pages with deadlines.

**FR 19. Assign Moderator**

- Hosts can escalate members to moderators.
- Clicking a username loads a mini-profile.
- The host sees an “Assign as Moderator” button.
- Once assigned, the moderator role must be visually indicated in the interface (e.g., highlighted in green) and permanently recorded in the database so that the status persists across sessions.

**FR 20. Real-Time Feed and Notifications**

- User Homepage Feed
  - Layout and Structure
    - The homepage displays a vertically scrollable feed of book clubs the user is enrolled in. Each book club shows its latest discussion thread.
    - If the user is not enrolled in any book clubs, the system recommends the most active book clubs.
  - Each post displays:
    - Poster's username and profile picture
    - Timestamp of post creation
    - Interaction counts: Likes, Downvotes, Comments
  - The page header displays:
    - App name
    - Functional search bar
    - Notification bell with unread badge count
    - Settings shortcut
  - The left sidebar displays:
    - Book clubs the user is enrolled in
    - Discover tab: vertically scrollable list of most active book clubs
    - Friends list
  - The right sidebar displays:
    - User's profile picture and username
    - Progress bar showing reading progress for 3–5 current books
    - "My Bookshelf" area displaying previously read books
  - Feed Behavior
    - Posts are sorted in descending order by creation timestamp (newest first).
    - Infinite scrolling:
      - Initially loads 12 posts
      - Loads additional posts as the user scrolls to the bottom
      - If no more posts exist, display the message: *"You've reached the bottom."*
      - Each post displays a preview/snippet of content.
- Book Club Page Feed
  - Layout and Structure
    - Each post displays:
      - Poster's username and profile picture
      - Timestamp of post creation
      - Interaction counts: Likes, Downvotes, Comments
  - The page header is identical to the homepage header.
  - Left sidebar displays:

- Book cover image
  - Book title and author stacked vertically
  - Discover tab displays most active book clubs in a vertically scrollable format.
  - Members list displays all participants with:
    - Profile pictures
    - Reading progress/scores for the current book
  - Feed Behavior
    - Users can start new discussion threads.
    - Members list supports sorting/filtering by activity, contribution, or reading progress.
- Real-Time Updates
  - Likes, comments, and downvotes update in real-time using WebSockets or equivalent technology.
  - Feed updates occur automatically while scrolling.
  - New posts are indicated with a subtle in-feed visual cue.
- Notifications
  - Types and Messages
    - Post Liked
      - Trigger: When a user clicks the “Like” button on another user’s post. The recipient is the creator of the post. The message Format: “[Username of liker] liked your post.”. Example: “Sarah liked your post.” If multiple users like the same post in a short timeframe, the notification may be grouped (e.g., “Sarah and 3 others liked your post.”).
    - Post Commented
      - Trigger: when a user adds a comment to another user’s post. The recipient is the creator of the post. The message format would be “[Username of commenter] commented on your post!]. The system may optionally include a snippet of the comment in the notification for quick context.
    - New Follower
      - Trigger: When a new discussion thread is created in a book club. The recipient is the user who is being followed. The message format would be “[Username of follower] started following you.”.
    - New Thread in Book Club
      - Trigger: When a new discussion thread is created in a book club. The recipients are all members enrolled in the book club who are currently online. The message format would be something similar to the following: “[Username of creator] started a new thread in [Book Club Name]. Join the discussion!”.
  - Notifications are grouped by type.

- Unread notifications display as badge counts in the header.
  - Users can mark notifications as read individually or use a “Mark all as read” option.
  - Push notifications are optional for mobile users.
- Error Handling and Validation
  - Offline messaging: If a user attempts to send a message without an internet connection, the system displays:  
    *“Error! Messages could not be sent. Please check your connection.”*
  - Additional errors include:
    - Failed post creation
    - Failed comment submission
    - Network interruptions during feed load
  - Graceful degradation: When offline, cached posts are displayed where available.

## 5. Non-Functional Requirements and Tech Stack

### NFR 1. Performance Requirements

- Plotline should be able to support at least 100 concurrent users at launch, with scalability as communities grow. To add to this, Chat interactions should appear with less than 2 seconds of latency, and all threads and profile pages should load within 5 seconds on standard broadband connections. All these factors ensure a smooth experience for all users and increase in latency can be a huge factor in dissatisfaction by users.

### NFR 2. Reliability and Availability

- The system should deliver 99% uptime during its operational period, not including scheduled maintenance. All user data, profiles, messages, and club records, should be backed up at least once every 24 hours to minimize the risk of data loss. In the event of server/network issues or failures, recovery mechanisms must restore service in 3 hours.

### NFR 3. Security Requirements

- All user passwords must be stored using a strong hashing algorithm. Communication between client and server must be encrypted using TLS/HTTPS, making sure to keep all login information, messages, and personal data private. Access control policies will also be in place so that hosts and moderators have elevated privileges while the platform itself should with standard privacy guidelines.

### NFR 4. Scalability and Maintainability

- The system must be designed with scalability in mind. As such, designing the platform with a modular architecture allows for new features to be added and integrated into the existing systems without disruption. Code should be properly documented, follow consistent style conventions, and undergo version control using GitHub to support collaborative work.

**NFR 5. Portability and Compatibility**

- The platform must be compatible with all major modern web browsers (Chrome, Firefox, Safari, Edge) to ensure broad accessibility. The design must also be able to adapt to various screen sizes across desktops, tablets, and smartphones. The backend should also be built towards future integration into native mobile applications, so the system can expand beyond the web version without a full redesign.

**NFR 6. Ethical and Community Standards**

- The system must include reporting and moderation tools so users can flag inappropriate content, harassment, or spam. Hosts and moderators should have mechanisms to remove posts, ban disruptive users, and enforce rules. Community guidelines must also be introduced during onboarding to set expectations for respectful and inclusive interactions.

**6. Contracts for Development of Social Media Web Application****6.1 Scope of Work**

This contract is between ROTOM Corporation (“Developer”) and Edwin Rodriguez (“Client”). ROTOM Corporation agrees to design, build, and test a social media web application (“Plotline”) including features and functionalities mentioned above and do so according to industry standards.

**6.2 Project Time and Delivery**

ROTOM Corporation agrees to have the web application delivered by the due date and may be subject to changes which are agreed upon between the developer and client. The developer and client will regularly meet to ensure objectives are met and for feedback from the client.

**6.3 Confidentiality and Intellectual Property**

ROTOM Corporation agrees to maintain confidentiality of sensitive information received from the client for the duration of the contract and thereafter. Intellectual property includes but is not limited to the source code, design, and documentation and shall be the exclusive property of the client upon final delivery. The developer still retains the rights to use the web application for their portfolio.

**6.4 Limitation of Liability**

The developer shall not be liable for any indirect or consequential damages arising from development of Plotline) or for delays or failures due to reasons out of their control.

**6.5 Miscellaneous**

Agreements to change the application in any way must be written down and signed by both the developer and client.

**Plotline**

**Software Requirements Specification**

**ROTOM Corporation**

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**CEO Patrick Hwang, ROTOM Corporation**

Signature: \_\_\_\_\_

Date: \_\_\_\_\_