**Business Requirements Document (BRD)**

**1. Introduction**

The Business Requirements Document (BRD) outlines the necessary features, business rules, and technical specifications for the development of a library management system. This system is intended to provide a seamless experience for library administrators, users, and members by managing books, lending processes, and user interactions in an efficient and organized manner.

**2. Project Goals**

The goals of the library management system project are as follows:

* **Automate** the book borrowing and returning process.
* **Provide** & **Allow** an UI for library staff to seamless management of users, members, books, and lending processes..
* **Ensure** accurate tracking of fines for overdue books.

**3. Key Features**

**User Management**

* **Create, Update, and Delete Users:** Allow administrators to manage system users, including library staff, members, and external users.
* **User Registration and Authentication:** Enable users to register and authenticate using secure methods.

**Member Management**

* **Member Registration:** Allow new members to register by capturing essential details (name, contact information, etc.).
* **Member Profile Management:** Provide members with the ability to update their profile information and view their borrowing history.
* **Membership Expiry & Renewal:** Track membership expiry and allow users to renew their memberships.

**Book Management**

* **Book Cataloging:** Allow librarians to catalog new books, including metadata like title, author, publisher, and ISBN.
* **Book Availability Tracking:** Track the status of books (available, borrowed, reserved).
* **Search and Filter:** Enable users to search and filter books based on various criteria (title, author, genre, etc.).

**Lending Management**

* **Book Lending:** Allow members to borrow books for a specified duration.
* **Book Return:** Provide an option for members to return books.
* **Reservation System:** Enable members to reserve books that are currently unavailable.
* **Overdue Management:** Track overdue books and apply fines based on the library’s rules.

**4. Business Rules**

**Membership Rules**

* **Expiration:** Membership will be valid for a set period and will require renewal.
* **Suspension:** Members may be suspended due to overdue books or violation of library policies.

**Lending Rules**

* **Maximum Borrowing Limit:** Set the maximum number of books a member can borrow at any given time.
* **Lending Duration:** Define how long a book can be borrowed, typically ranging from a few days to a few weeks.
* **Late Fees:** Specify the fine structure for overdue books, including the daily fine rate.

**Fine Calculation**

* **Daily Fine Calculation:** Apply a specific fine for each day a book is overdue.
* **Maximum Fine:** Define a cap on the total fine amount for a book, beyond which it cannot increase.
* **Fine Waiver:** In exceptional circumstances, fines may be waived by administrators.

**5. Target Audience**

The primary users of the library management system include:

* **Library Administrators:** Responsible for managing system configurations, user access, and operational processes.
* **Members:** Individuals who use the library's services to borrow and return books.

**6 Technologies Used**

* **Frontend:** React.js, Bootstrap or Material-UI
* **Backend:** **Spring Boot framework, RESTful API architecture**
* **Database:** PostgreSQL, MySQL, or another relational database management system.
* **Authentication:** **Spring Security for authentication**

This document will guide the development of the Library Management System and ensure that all stakeholders' expectations and technical requirements are met during the development process.