

WebX CA: Prerequisite documentation

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Title: Book Lending and Borrowing System

INTRODUCTION

The **Book Lending and Borrowing System** is a full-stack web application built using **React** for the frontend, **Flask** for the backend, and **MongoDB** as the database. The platform enables users to **lend, borrow, and request books** from their community. The goal is to promote book sharing and reduce waste by encouraging the reuse of books in an organized digital way.

This document outlines the **system prerequisites**, **technology stack**, and **setup instructions** required to run the project successfully.

SYSTEM REQUIREMENTS

1. Hardware Requirements

- **Processor:** Intel Core i5 or higher
- **RAM:** Minimum 8GB (Recommended: 16GB)
- **Storage:** At least 10GB free disk space
- **Operating System:** Windows 10/11, macOS, or Linux

2. Software Requirements

- **Node.js (v18.16.1 or later)** – Required for the React frontend

- **npm (v9.5.1 or later)** – For managing frontend packages
- **Python (v3.11.9 or later)** – Required for running the Flask backend
- **MongoDB Atlas** – Cloud-based database to store book data and user info
- **VS Code** – Recommended IDE for development
- **Postman** – For testing REST APIs

TECHNOLOGY STACK

1. Frontend

- **React.js** – JavaScript library for building user interfaces
- **CSS/Tailwind CSS** – For component styling
- **Axios** – For making API calls to the backend

2. Backend

- **Flask** – Python micro web framework
- **Flask-CORS** – To enable cross-origin requests
- **Flask-PyMongo** – For connecting Flask with MongoDB

3. Database

- **MongoDB Atlas** – NoSQL cloud-based database for storing book listings, borrow/lend requests, and user profiles

SETUP INSTRUCTIONS

1. Install Node.js and NPM

Download and install from: <https://nodejs.org>

Verify installation:

```
node -v  
npm -v
```

2. Install Python and Flask

Download from: <https://www.python.org>

Verify installation:

```
python --version  
pip --version
```

3. Install Flask and required libraries

```
pip install flask flask-cors flask-pymongo
```

4. Clone the Project Repository

```
git clone https://github.com/your-username/book-lending-app.git  
cd book-lending-app
```

5. Setup MongoDB

Use MongoDB Atlas (recommended) or install MongoDB locally: <https://www.mongodb.com/>

PROJECT STRUCTURE

CONCLUSION

This document provides a detailed overview of the requirements, technology stack, and setup instructions for the **Book Lending and Borrowing System**. By following this guide, developers can easily install, configure, and run the application locally for testing or further development.