RentKar – Project Requirement Document (PRD)

End-Semester Project | PW IOI – School of Technology
Domain: Web Development + AI
Team Size: 3 Members

1. Problem Statement

Students often require certain items for short durations—such as books, calculators, accessories, and small electronics.
Purchasing these items becomes expensive and impractical for temporary needs.

There is currently no simple platform within the campus that enables students to borrow and lend items in an organized, trustworthy way.

A basic system is needed to:

- Allow students to list items
- Enable borrowers to request items
- Provide a simple approval and return workflow
- Maintain transparency between lenders and borrowers

2. Proposed Solution

Rentkar is a minimal peer-to-peer item sharing platform for college students.

The platform enables users to:

- Create an account and log in
- List items available for lending
- Upload item images for clarity
- Browse items listed by others
- Send borrowing requests
- Approve or reject incoming requests
- Mark items as returned

- Use a lightweight AI feature to auto-generate item titles/descriptions
- Allow admin to remove inappropriate items (optional)

The system is simple, practical, and designed to be fully achievable within the semester.

3. Objectives and Expected Outcomes

Primary Objectives

- Implement secure login and registration
- Allow users to list items with images
- Enable borrowers to send item requests
- Allow lenders to approve or reject requests
- Support a basic item return workflow
- Use an AI API to auto-generate item descriptions/titles
- Build a clean and functional user interface

Secondary Objectives (Optional)

- Basic admin controls (remove items/users)
- Simple messaging or chat between users
- Item view counters or basic analytics

Expected Outcomes

- A functional web application demonstrating full borrowing workflow
- AI-assisted item listing
- Clear lender–borrower interaction flow
- Proper documentation and presentation

4. Tools, Technologies, and Frameworks

Frontend

- React
- TailwindCSS

Backend

- Spring Boot
- Spring Web
- Spring Data JPA

Database

- MySQL

External Integrations

- Cloudinary (image storage)
- LLM API (for generating item titles/descriptions)

5. Tentative Milestones and Timeline (10–12 Weeks)

Week	Milestone	Description
Week 1	Project Planning	Finalize scope, roles, architecture draft
Week 2	Setup & Authentication	Project setup, DB schema, login/register
Week 3	Item Module – Part 1	Item schema, backend CRUD, basic forms
Week 4	Item Module – Part 2	Image upload integration via Cloudinary
Week 5	AI Integration	AI title/description generation endpoint
Week 6	Borrow Workflow – Part 1	Send request, manage status (Requested/Accepted)
Week 7	Borrow Workflow – Part 2	Return flow, Completed status, UI completion
Week 8	Optional Features – Part 1	Admin actions (remove items/users)
Week 9	Optional Features – Part 2	Basic chat/messaging (if implemented)
Week 10	UI Polishing	Responsive UI, cleanup, UX improvements
Week 11	Testing & Debugging	Functional testing, bug fixes, data prep
Week 12	Documentation & PPT	Final PRD, final report, PPT, demo rehearsal