

SMART DIGITAL HOSTEL ECOSYSTEM

"Where concrete meets connectivity"

Requirement Analysis Report

Introduction

Smart Digital Hostel Ecosystem is a comprehensive digital platform designed to modernize and streamline the management and daily operations of a hostel. The system aims to replace manual processes with a centralized digital solution, offering features for student registration, room allocation, fee management, leave tracking, complaint registration, mess menu updates, and secure communication between students, wardens, and administrators.

This report presents the requirement gathering process, stakeholder analysis, and the consolidated system requirements collected for the development of the application.

Objectives

The main objectives of the system are:

- To digitize the student admission and room allocation process.
- To provide a transparent system for tracking hostel fees and dues.
- To facilitate easy registration and tracking of maintenance complaints.
- To allow students to view mess menus and apply for leave digitally.
- To provide administrators and wardens with a dashboard for efficient management and oversight.
- To ensure a secure, reliable, and user-friendly experience for all stakeholders.

Requirement Gathering Method

The following methods were used to collect system requirements:

- **Stakeholder Interview:** Direct discussion with hostel wardens and administrative staff.
- **Observation:** Analysis of current manual hostel management processes and their inefficiencies.
- **Questionnaire:** Gathering insights from current hostel residents about their challenges and expectations.
- **Document Review:** Studying existing hostel records (registers, complaint books) for feature comparison.

Stakeholder Analysis and Data Collection

Hostel Management Representative

Stakeholder: Kaniz Fatema

Role: Manager of Shagorika Girls Hostel

Requirements Collected:

- Need a centralized dashboard to see total students, available rooms, and pending complaints.
- Digital records are essential to replace physical registers.
- Must have the ability to approve or reject student leave applications.
- A transparent system is needed to manage and track fee payments.
- Should be able to broadcast important announcements to all students.

Students (Residents)

Role: Primary users and residents of the hostel

Requirements Collected:

- Easy access to daily mess menus.

- Simple process for registering complaints (electrical, plumbing, etc.) and tracking their status.
- Ability to apply for leave/outing and check approval status online.
- View personal fee details and payment history.
- Access to important contact numbers (warden, caretaker, security).

Hostel Administrator / Owner

Role: High-level management and financial overseer

Requirements Collected:

- The system should generate reports on fee collection and occupancy rates.
- Ability to manage multiple hostels if applicable.
- Need to manage staff and assign roles.
- Ensure data security and backup of all student records.

Consolidated requirement list

Functional Requirements

- 1. Student Management:** The system shall allow for digital student registration, profile management, and document upload.
- 2. Room Management:** The system shall facilitate room allocation, vacancy tracking, and student-room mapping.
- 3. Fee Management:** The system shall track hostel fees, generate invoices, record payments, and display dues.
- 4. Complaint System:** The system shall allow students to register complaints with categories (e.g., Electrical, Carpentry) and allow admins to update the status (Pending, In Progress, Resolved).
- 5. Leave Management:** The system shall allow students to submit leave applications and allow wardens to approve or reject them.
- 6. Mess Management:** The system shall allow admins to upload and update weekly mess menus visible to all students.
- 7. Announcements:** The system shall allow authorized personnel to send notifications/announcements to students.

Non-Functional Requirements

- 1. User-Friendly Interface:** The system shall provide a simple and intuitive interface suitable for both students and administrative staff.
- 2. Data Accuracy:** The system shall ensure reliability and accuracy of financial and student records.
- 3. Security:** The system shall maintain strict security and privacy of user information and role-based access control.
- 4. Performance:** The system shall provide fast response times for key operations like fee lookup and complaint registration.
- 5. Accessibility:** The system shall be accessible on both desktop and mobile web browsers.

Proof of Acknowledgement:



Stakeholder Acknowledgment

I confirm that I have provided feedback and requirement insights regarding the proposed **Smart Hostel Management System** for academic requirement analysis purposes.

Name : Kaniz Fatema
Designation: Manager
Company : Shogorika Girls Hostel
Signature : [Signature]
Date : 22-02-26

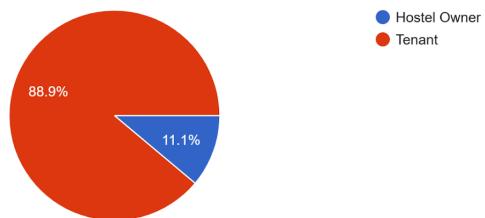
Proof of Requirement Collection

Spreadsheet Link: <https://forms.gle/SP71TSquyB6PdvWw5>

Total responses: 27

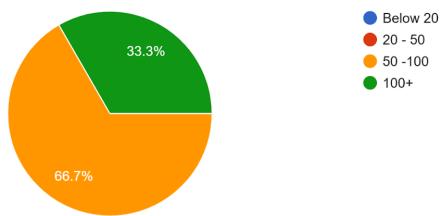
What is your role?

27 responses



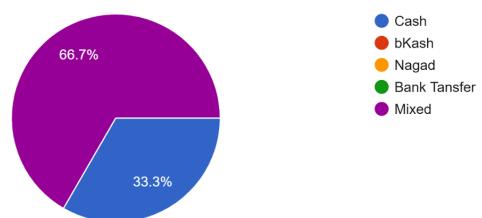
How many tenants stay in your hostel?

3 responses



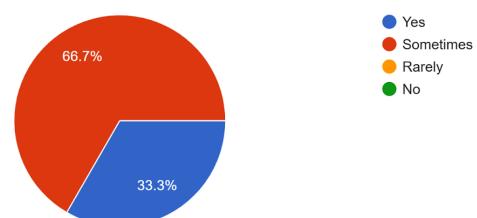
How do you currently collect rent?

3 responses



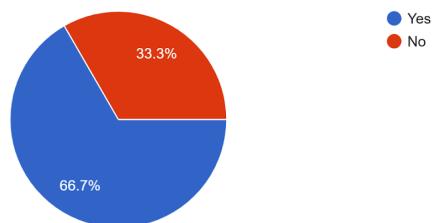
Do tenants frequently delay rent payment?

3 responses



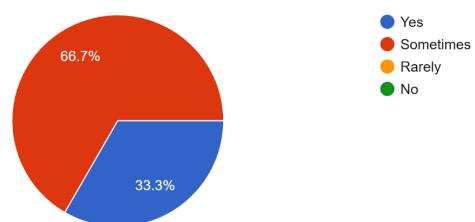
Is meal service compulsory?

3 responses



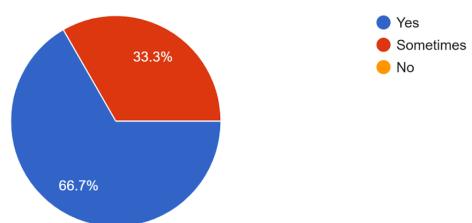
Do tenants skip meals often?

3 responses



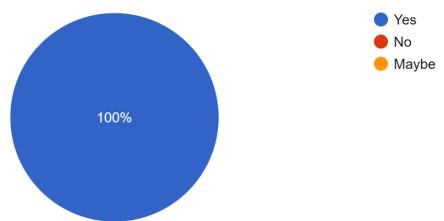
Do you face food waste problems?

3 responses



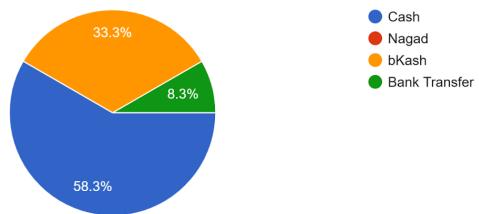
Would you like a flexible meal system (daily/weekly/monthly) with credit options?

3 responses



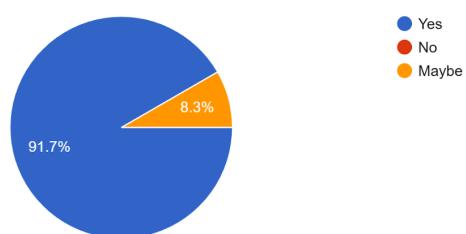
How do you usually pay rent?

24 responses



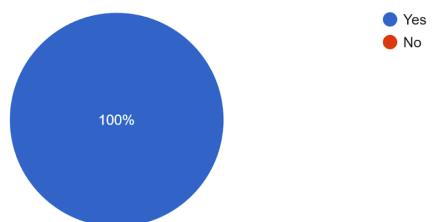
Would you like automatic rent reminders?

24 responses



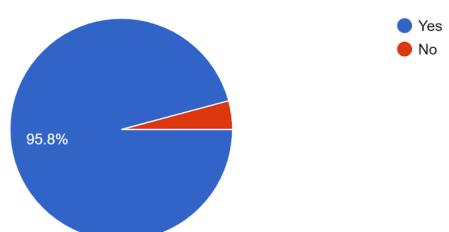
Do you want flexible meal plans (daily/weekly/monthly)?

24 responses

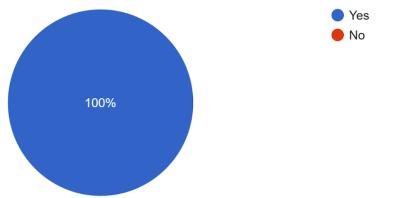


Should unused meals be saved as credit?

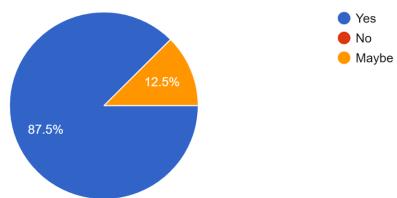
24 responses



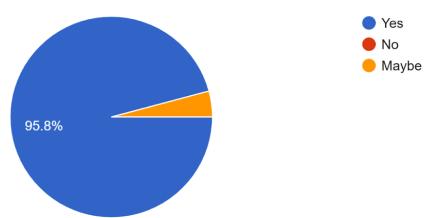
Would you like to vote for weekly meal menu?
24 responses



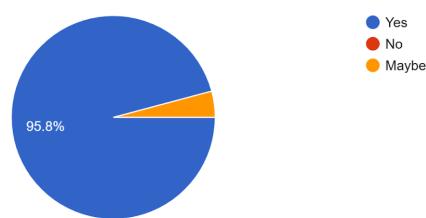
Do you want to track your electricity usage?
24 responses



Would you like to submit complaints digitally?
24 responses



Do you want an emergency alert feature inside the app?
24 responses



Conclusion

The requirement analysis process successfully identified the key functional and non-functional requirements for developing the Smart Digital Hostel Ecosystem, ensuring the system addresses real-world challenges faced by all stakeholders. Insights from students, wardens, and administrators revealed the need for transparency in accessing mess menus, complaints, and leave applications, along with a unified dashboard for real-time monitoring of occupancy, dues, and records. The proposed system addresses these needs by digitizing student records, automating workflows, enabling self-service access, and providing data-driven dashboards. Ultimately, stakeholder insights ensure the ecosystem will streamline operations, reduce administrative burdens, and foster a more transparent and connected hostel community.

Appendix (Verification by Senior Software Engineer)

The requirement analysis for the Smart Digital Hostel Ecosystem project has been reviewed and verified. The documented requirements are clear, feasible, and aligned with standard requirement engineering practices. The project is approved to move forward to subsequent development stages.

Verified By: