Software Requirements Specification

for

Community Management System

Prepared by

Ahmed Mustafa, Haziq Naeem, Muneeb-ul-Islam

NUCES ISLAMABAD

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1. Introduction

1.1 Purpose

The **Communi3y** is Community Management System (CMS) that is a web-based application designed to streamline property management, public service requests, digital booking, facility reservations, and incident reporting within a community.

1.2 Document Conventions

This document follows the IEEE SRS template format.

1.3 Intended Audience and Reading Suggestions

- **Developers & Database Administrators** – Understand system functionalities.
- **Project Managers & Scrum Masters** – Track development milestones.
- **Residents & Admins** – Comprehend system capabilities.

1.4 Product Scope

The system provides **digital solutions** to manage properties, request public services, participate in digital voting, reserve community facilities, and report incidents. The backend will be implemented using **Next.js, Node.js, and MySQL**.

1.5 References

- IEEE 830-1998 Software Requirements Specification Standard.
- Project Diagrams: Use Case Diagram, Sequence Diagram, Class Diagram.

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2. Overall Description

2.1 Product Perspective

This system is a standalone web-based application that digitalizes community management operations, replacing manual processes.

2.2 Product Functions

- **Property Registration**
- **Public Service Requests**
- **Digital Voting System**
- **Recreation Facility Reservation**
- **Crime & Incident Reporting**

2.3 User Classes and Characteristics

- **Residents** – Property owners or tenants accessing services.
- **Admins** – Management personnel handling operations.

2.4 Operating Environment

- Web-based system accessible via modern browsers.
- Hosted on a **local server infrastructure**.
- Uses **Html, CSS and React(if applicable at the end of sprint 3) (Frontend), Node.js (Backend), MySQL (Database)**.

2.5 Design and Implementation Constraints

- The system should be deployed on a **MySQL database**.
- Must follow **security protocols** for data encryption and access control.

2.6 User Documentation

- **User Manual** (for residents & admins)
- **API Documentation** (for developers)

2.7 Assumptions and Dependencies

- Reliable **internet connection** for cloud-based functionality.
- Compliance with **local property laws** for registration validation.

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3. External Interface Requirements

3.1 User Interfaces

- **Web-based UI** developed using **HTML, CSS and REACT.js (applicable at the end of sprint 3)**.
- Interactive forms for **property registration, voting, and service requests**.

3.2 Hardware Interfaces

- Deployable on **standard server hardware**.
- Must support **cloud hosting** for scalability.

3.3 Software Interfaces

- Integration with **MySQL database**.

- **Node.js for backend operations**.

3.4 Communications Interfaces

- Email & SMS notifications for critical updates.
- Secure **HTTPS** for data transmissions.

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4. System Features

- ### 4.1 User Stories & Acceptance Criteria

Here are the **User Stories with Acceptance Criteria** following the format in your attached image (`Story Card Format`):

- ### 1. Register Property

User Story:
As a resident, I want to register my property in the system so that I can be recognized as a property owner and access related services.

Acceptance Criteria:
And I know I am done when:

- I can input property details and upload necessary documents.
- The system validates and accepts my registration request.
- I receive a confirmation notification upon successful registration.

- ### 2. Manage Resident Data

User Story:
As an admin, I want to add, update, and manage resident information so that records remain accurate and up to date.

Acceptance Criteria:
And I know I am done when:

- I can view, edit, and delete resident profiles.
- Changes made reflect immediately in the database.
- A confirmation message is shown after each update.

- ### 3. Make Payment

User Story:
As a resident, I want to pay society fees, utility bills, and other charges so that I can fulfill my financial obligations.

Acceptance Criteria:
And I know I am done when:

- I can select a bill and choose a payment method.
- Payment is processed securely and a digital receipt is generated.
- The payment status updates in my account dashboard.

- ## 4. Track & Update Payments

User Story:
As an admin, I want to monitor and update residents' payment records so that I can ensure financial accuracy.

Acceptance Criteria:
And I know I am done when:

- I can view all payment histories per resident.
- I can manually edit and update payment status.
- All changes are logged with a timestamp.

- ## 5. Manage Bills

User Story:
As an admin, I want to generate, adjust, and send utility and maintenance bills so that residents receive accurate billing.

Acceptance Criteria:
And I know I am done when:

- I can create and adjust bill details (amount, due date, etc.).
- Bills are assigned correctly to each resident.
- A notification is sent to the resident's dashboard/email.

- ## 6. Book Parking & Reserve Facility

User Story:
As a resident, I want to book parking spots and recreation facilities so that I can use shared community resources.

Acceptance Criteria:
And I know I am done when:

- I can view available parking/facilities.
- I can book a slot for a specific time/date.
- I receive confirmation and the resource is marked as reserved.

- ## 7. Submit Maintenance Request

User Story:
As a resident, I want to request maintenance services so that property issues can be resolved.

Acceptance Criteria:
And I know I am done when:

- I can describe the issue and attach supporting media (photo/video).
- The request is logged and visible in my request history.
- I receive a ticket number and status tracking option.

- ## 8. Schedule Infrastructure Maintenance

User Story:
As an admin, I want to schedule and oversee maintenance for public infrastructure so that the community remains well-maintained.

Acceptance Criteria:
And I know I am done when:

- I can create a maintenance task with schedule and location.
- The task is assigned to a maintenance team.
- Progress and completion status can be tracked.

- ## 9. Manage Event RSVPs

User Story:
As a resident, I want to RSVP for events so that I can participate in community activities.

Acceptance Criteria:
And I know I am done when:

- I can view upcoming events and RSVP.
- My attendance status updates instantly.

- I receive an event reminder or pass.

- ## 10. Send & Receive Notifications

User Story:
As an admin, I want to send important notifications so that residents stay informed.

Acceptance Criteria:
And I know I am done when:

- I can draft and send messages to all or selected residents.
- Notifications appear in residents' dashboards or inboxes.
- Sent notifications are logged with timestamp and audience.

- ## 11. Request Public Service

User Story:
As a resident, I want to request services like garbage collection so that community needs are met.

Acceptance Criteria:
And I know I am done when:

- I can submit a service request with location and description.
- A request ticket is generated.
- I receive confirmation and can track status.

- ## 12. Report Crime or Incident

User Story:
As a resident, I want to report crimes or incidents so that authorities can respond accordingly.

Acceptance Criteria:
And I know I am done when:

- I can report an incident with details and location.
- The system assigns it to the concerned department.
- I receive a response acknowledgment.

- ## 13. Submit Public Feedback

User Story:
As a resident, I want to provide feedback on community services so that improvements can be made.

Acceptance Criteria:
And I know I am done when:

- I can write and submit feedback easily.
- My feedback is acknowledged.
- The admin panel shows cumulative feedback analytics.

- ## 14. Digital Voting

User Story:
As a resident, I want to participate in digital voting so that I can have a say in community decisions.

Acceptance Criteria:
And I know I am done when:

- I can view open polls and vote.
- My vote is submitted anonymously.
- The system shows vote completion confirmation.

- ## 15. Manage Institutes & Healthcare

User Story:
As an admin, I want to oversee educational and healthcare facilities so that community members receive quality services.

Acceptance Criteria:
And I know I am done when:

- I can add/edit institute profiles.
- I can assign and manage healthcare service schedules.
- Updates are reflected in the community portal.

Would you like these filled into a **template** like your uploaded image (in a Word or PDF document)?

- .

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5. Nonfunctional Requirements

5.1 Product Requirements

- The system should support **1000+ concurrent users**.
- Should process **real-time transactions**.

5.2 Organizational Requirements

- Uses **Agile methodology** for iterative development.

5.3 External Requirements

- Should comply with **GDPR & local property laws**.

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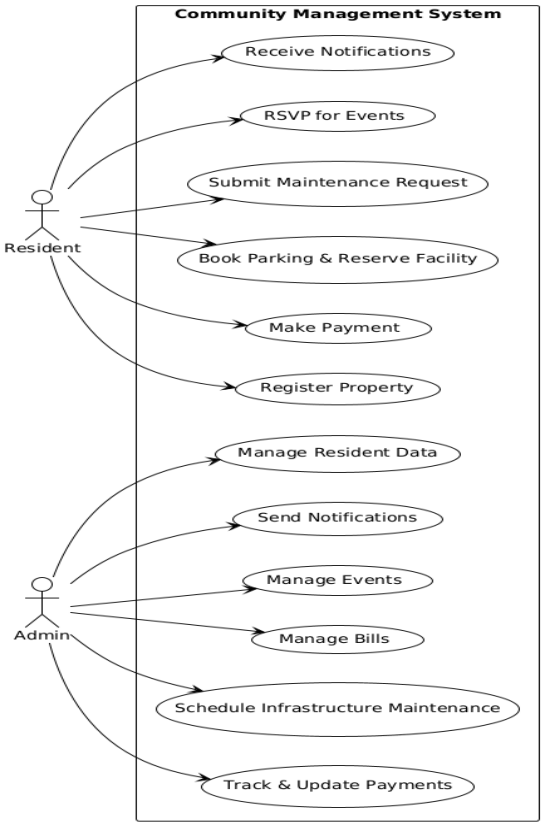
6. Use Case Diagram & User Stories



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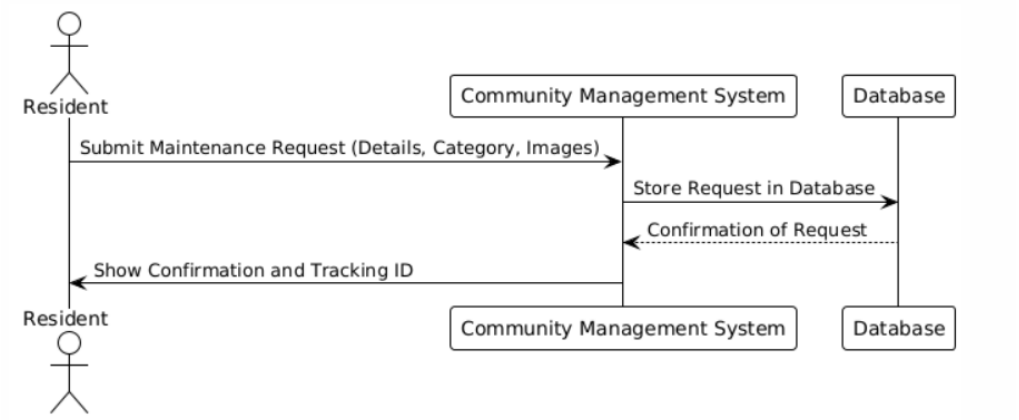
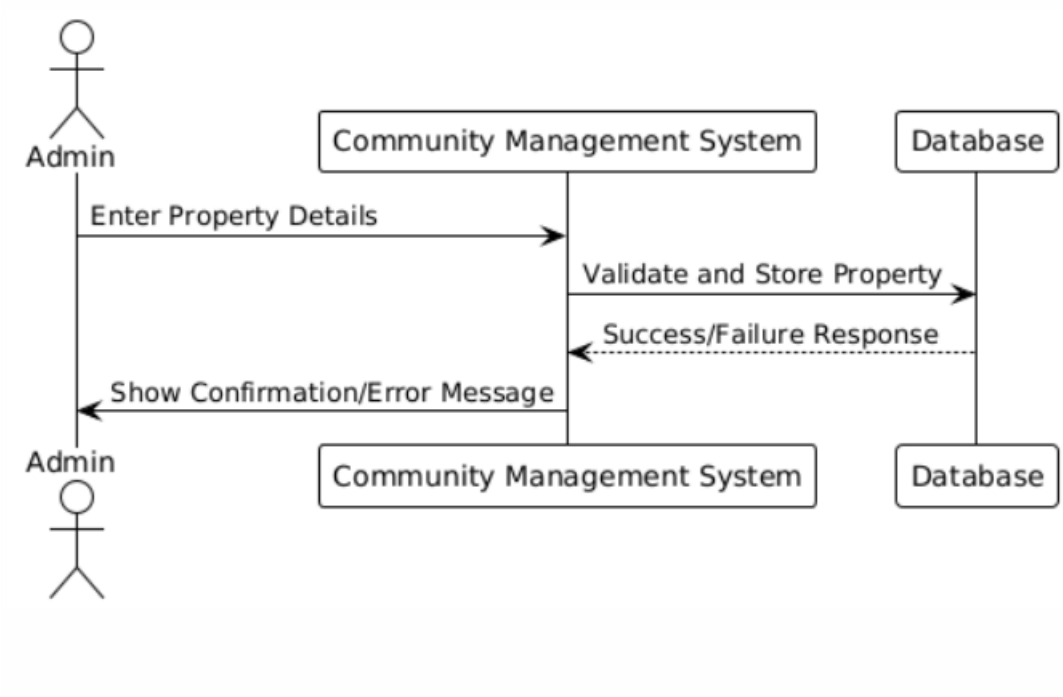
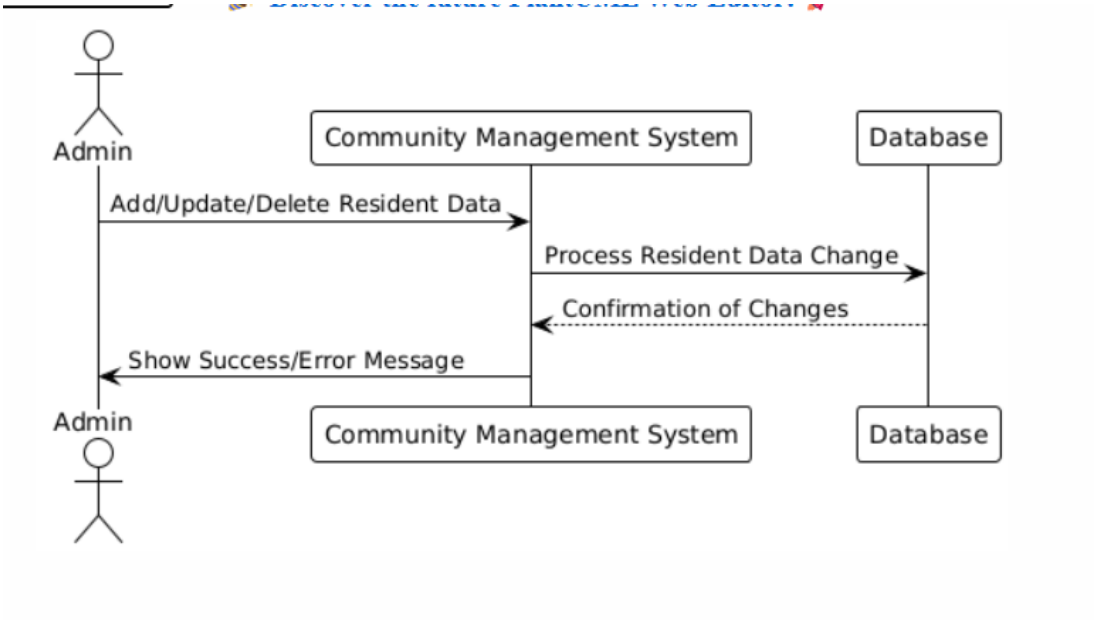
7. Sequence Diagrams

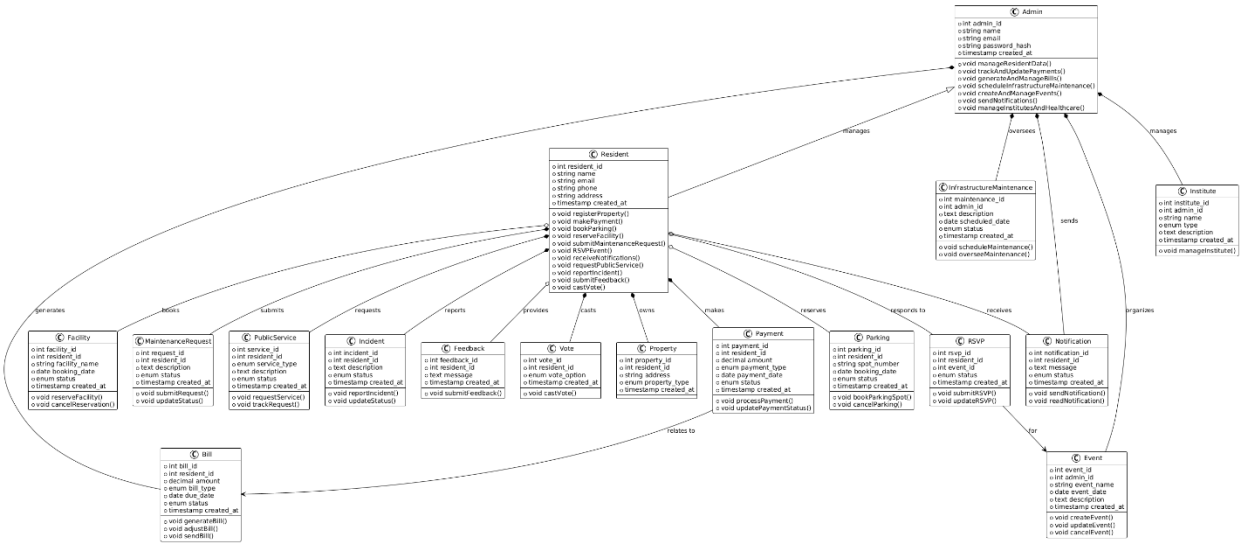
- **Three key activities visualized.**


Resident
Community Management System
Database
Submit Maintenance Request (Details, Category, Images)
Store Request in Database
Confirmation of Request
Show Confirmation and Tracking ID
Resident
Community Management System
Database

- 
Admin
Community Management System
Database
Enter Property Details
Validate and Store Property
Success/Failure Response
Show Confirmation/Error Message
Admin
Community Management System
Database



8. Class Diagram



9. Product Backlog

The product backlog includes all user stories prioritized based on their importance.

User Story	Priority
Register Property	**High**
Manage Resident Data	**High**
Make Payment	**High**
Track & Update Payments	**High**
Manage Bills	**High**
Book Parking & Reserve Facility	**Medium**
Submit Maintenance Request	**Medium**
Schedule Infrastructure Maintenance	**Medium**
RSVP & Manage Events	**Low**
Send & Receive Notifications	**Low**

10. Sprint Backlog

Sprint 1 Backlog

User Story	Assigned To	Tasks	Milestones
Register Property	Haziq	Database schema, API, UI	March 16: Backend, March 18: UI, March 20: Testing
Manage Resident Data	Muneeb	Schema, API, UI	March 15: API, March 17: UI, March 19: Testing
Make Payment	Ahmed	Payment API, UI, Security	March 16: Backend, March 18: UI March 20: Security
Track & Update Payments	Haziq	Database, Admin panel, Notifications	March 17: Backend March 19: Testing
Manage Bills	Muneeb	Billing system, API, UI	March 15: Backend March 18: UI March 20: Testing

Sprint 2 Backlog (Subset of User Stories)

User Story	Assigned To	Tasks	Milestones
Book Parking & Reserve Facility	Ahmed	Reservation System, UI, API	March 19: Backend March 200: UI March 21: Testing
Submit Maintenance Request	Haziq	Request submission, File uploads, Status tracking	March 21: Backend, March 21: UI, March 21: Testing
Schedule Infrastructure Maintenance	Muneeb	Admin scheduling UI, Notifications	March 22: Backend, March 22: UI March 22: Testing

11. Meeting Minutes

Project: Communi3y – Community Management System (CMS)
Meeting Title: Functional and Technical Requirements Review
Date: 15 MARCH 2025
Time: 8:30 pm
Location: Virtual
Chairperson: Muneeb ul Islam, Product Owner
Recorder: Ahmed Mustafa, Scrum Master
Attendees:

1) Ahmed (Developer, Scrum Master)
2) Muneeb (Developer, Product Owner)
3) Haziq (Developer, Scrum Team)

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a. Agenda

1. Review of SRS Document
2. Clarification of Roles & Responsibilities
3. Discussion on Sprint 1 and Sprint 2 Backlog
4. Confirmation of Design Artifacts (Use Case, Sequence, Class Diagrams)
5. Roadmap Review and Action Items

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b. Meeting Notes:

- Reviewed the document and project purpose: A web-based CMS designed to facilitate digital community management (property registration, service requests, incident reporting, etc.).

- Reiterated the use of IEEE SRS format and audience scope (Developers, Admins, Residents).
- Confirmed product scope: Includes digital voting, payment, reservations, and feedback systems.
- Technologies finalized:
    - **Frontend**: HTML, CSS, React.js (planned post-Sprint 3)
    - **Backend**: Node.js
    - **Database**: MySQL
- Two main user classes: **Residents** and **Admins**
- System will be hosted locally but must support cloud scalability.

C. Sprint Planning

- **Sprint 1 Stories Reviewed:**
    - *Register Property*, *Manage Resident Data*, *Make Payment*, *Track Payments*, *Manage Bills*
    - Tasks assigned with clear milestones. Developers confirmed task deadlines.
- **Sprint 2 Stories Reviewed:**
    - *Book Parking*, *Submit Maintenance Request*, *Schedule Infrastructure Maintenance*
    - Emphasis placed on testing and UI readiness by March 22.

d. Non-Functional & Compliance Requirements

- Agreed on:
    - System must support **1000+ concurrent users**
    - Real-time transaction capability

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e. Decisions Made

- React.js integration will be postponed until end of Sprint 3, meanwhile use HTML and CSS for testing the frontend purposes.
- Documentation (User Manual & API Docs) to be created alongside system features.

- Working on Backend using Node.js and MySQL for database.
- Digital voting and feedback systems and other user stories marked for Sprint 3 due to lower priority.

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4) Action Items

Action Item	Responsible	Deadline
Update Class and Sequence Diagrams	Haziq, Ahmed	March 15
Begin Sprint 2 Development	All Devs	March 19
Finalize UI/UX designs	Ahmed	March 22
Backend and DB setup	Muneeb. Haziq	March 16

Next Meeting: 15 April 2025
Objective: Review Sprint 3 progress and initial testing feedback.

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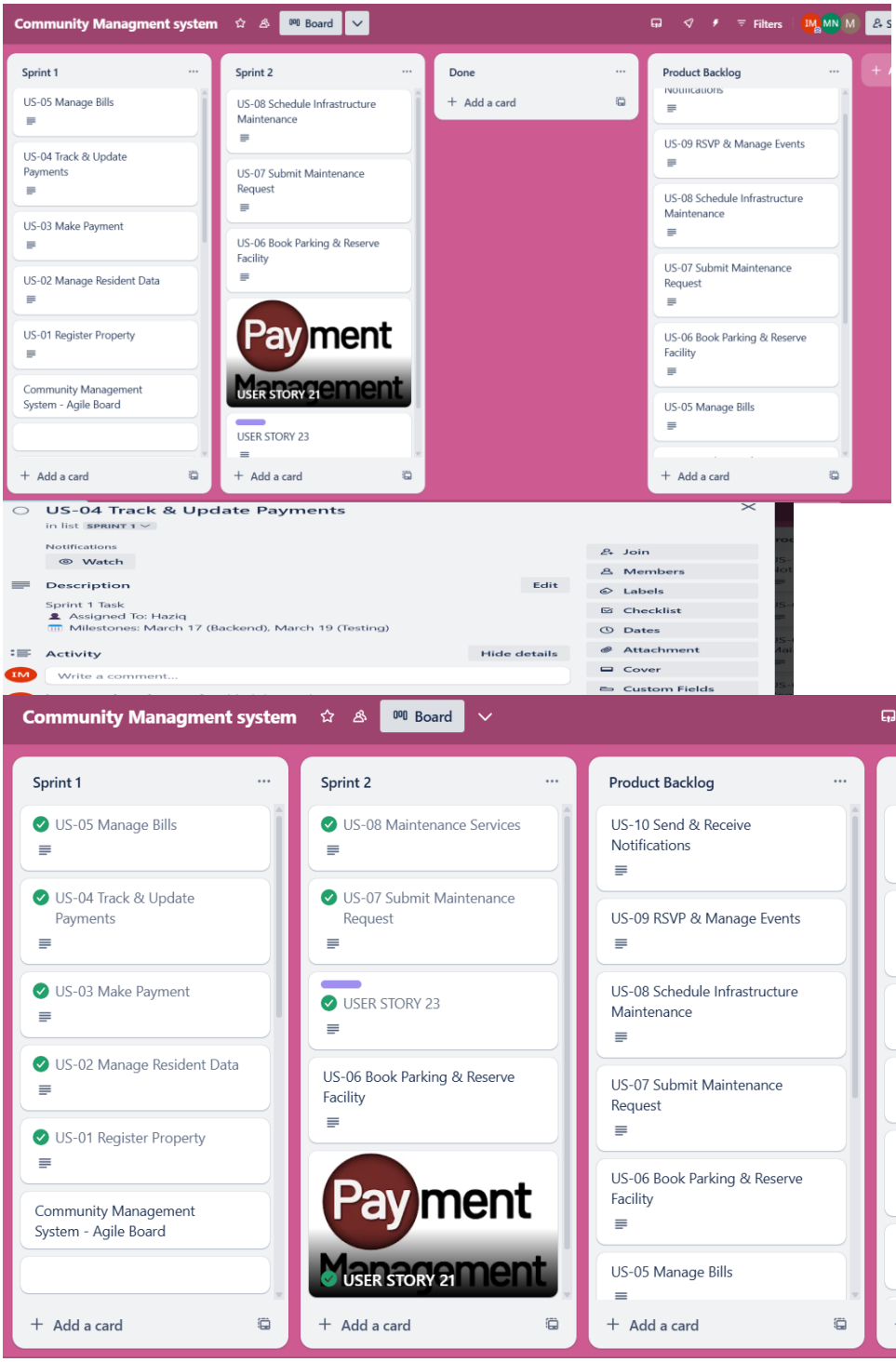
12. Version Control & Contribution Evidence

- https://github.com/Mustafaahmed10/SE_Project
- https://trello.com/b/CmcUFss2/community-managment-system
- ScreenSHots:

- 
Community Managment system
Board
Filters
Sprint 1
US-05 Manage Bills
US-04 Track & Update Payments
US-03 Make Payment
US-02 Manage Resident Data
US-01 Register Property
Community Management System - Agile Board
Add a card
Sprint 2
US-08 Schedule Infrastructure Maintenance
US-07 Submit Maintenance Request
US-06 Book Parking & Reserve Facility
USER STORY 21
USER STORY 23
Done
Product Backlog
US-09 RSVP & Manage Events
US-10 Send & Receive Notifications
US-04 Track & Update Payments
in list SPRINT 1
Notifications
Watch
Description
Edit
Sprint 1 Task
Assigned To: Haziq
Milestones: March 17 (Backend), March 19 (Testing)
Activity
Hide details
Write a comment...
Join
Members
Labels
Checklist
Dates
Attachment
Cover
Custom Fields