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Prison Management System
Project Report

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1. Introduction

1.1 Purpose

The purpose of this document is to define the key requirements and objectives for the development of a Prison Management System (PMS). The system is intended to streamline and digitize the operations of correctional facilities by enabling efficient tracking, management, and reporting of prisoner and staff information.

This system aims to improve security, accountability, and rehabilitation efforts within prison environments through digital automation. It serves as a central platform to manage prisoner profiles, staff roles, daily activities, visitor logs, parole tracking, and operational alerts.

1.2 Scobe

The Prison Management System (PMS) is designed to manage the daily operations of correctional facilities by maintaining accurate and accessible records of prisoners, staff, and facility activities. The system covers core functions such as prisoner registration, cell allocation, parole tracking, staff management, visitor scheduling, activity logging, and alert notifications.

1.3 Definition, acronyms, abbreviations

Admin	System Administrator – manages users, data access, and system settings
Clerk	Staff member responsible for administrative tasks such as registering prisoners or scheduling visits
Guard	Staff member responsible for the safety and security of inmates and facility
Parole	The conditional release of a prisoner before the end of their sentence under specific terms
Activity Log	A recorded log of movements, incidents, and actions performed by staff or prisoners

1.4 Overview

This document outlines the complete specifications for the Prison Management System. It begins with a general introduction to the system's purpose, scope, and terminology. Then, it presents a detailed description of the system's overall structure, user characteristics, constraints, and key assumptions.

2. Overall Description

2.1 Product Perspective

The Prison Management System (PMS) is a standalone application intended to digitize and centralize the core operations of correctional facilities. It replaces outdated, paper-based workflows and unstructured digital files with a streamlined, secure, and scalable solution. The system planed to built with modular components to handle prisoner records, staff data, activity tracking, visitor logs, and system alerts.

PMS can be integrated into existing IT infrastructures of correctional institutions or operate independently. It is designed to support multiple prisons simultaneously while maintaining clear separation of data between facilities.

2.2 Product Functions

System planned to provide the following core functionalities:

- **Prisoner Management**: Register and maintain detailed prisoner profiles including health status, sentence details, parole status, and assigned cell.
- **Staff Management**: Manage staff information such as roles, shifts, and access levels.
- **Visitor Tracking**: Schedule and log visitor appointments while storing visitor history.
- **Cell and Block Management**: Allocate prisoners to cells, track capacity, and manage movements across blocks.
- **Activity Reporting**: Generate daily logs of prisoner and staff activity, including disciplinary actions and routine movements.
- **User Authentication & Role-based Access**: Ensure only authorized personnel can access specific modules based on their roles.
- **Alerts & Notifications**: Send automatic alerts regarding parole reviews, policy violations, or operational emergencies.

2.3 User Characteristics

Users of the system vary in technical skill and responsibilities:

- **System Admin**: Technically proficient; manages user roles and oversees the system.
- **Clerk**: Office staff responsible for data entry, visitor scheduling, and parole updates.
- **Medical Staff**: Access to prisoner health records and medical logs.
- **Maintenance Worker**: Limited access for reporting facility issues and logging maintenance activities.
- **Guard**: Daily logging of prisoner activity, shift check-ins, and basic record access.

2.4 Constraints

- The system will be developed using java programing language.
- Database must be encrypted and backed up regularly.
- Sensitive data access is restricted and monitored.
- UI must be responsive and color-coded for alerts and statuses.

2.5 Assumptions and Dependencies

- The system assumes users have basic digital literacy and access to computers.
- All prisons using the system will have stable local networks.
- Each user will be assigned credentials and trained according to their role.

3. Specific Requirements

3.1 External Interfaces

- **User Interface**: A graphical user interface (GUI) accessible through desktop applications with role-based layouts.
- **Database Interface**: Connection to a relational database system for storing and retrieving structured data (e.g., MySQL).
- **Authentication Service**: Internal login system with hashed passwords .

3.2 Functions

1. Staff Data Management

- Add, update, delete, and view staff records including name, ID, role, and shifts.

2. Prisoner Data Management

- Register new prisoners with personal and legal information.
- Update records with medical status, cell location, and parole eligibility.

3. Activity Reports

- Generate and view daily logs of staff attendance and prisoner behavior.

4. Role-Based User Access

- System Administrator assigns roles.
- Interface and accessible modules differ by role (e.g., clerk, guard, medical staff).

5. Cell and Block Management

- Allocate prisoners to cells based on availability.
- Track movements between cells and blocks.

6. Visitor Scheduling and Logging

- Log and schedule prisoner visits.
- Maintain records of visitors and visit history.

7. Alerts and Notifications

- Automatic alerts for upcoming parole reviews, scheduled maintenance, or system failures.

3.3 Performance Requirements

- All core system responses (e.g., login, record retrieval) should occur within **2–3 seconds**.
- Daily reports should be generated in **under 5-10 seconds** for up to 10,000 active prisoner, staff entries.

3.4 Design Constraints

- Must be developed in a modular architecture to allow feature extensions.
- Should use widely supported technologies and open-source libraries.
- All sensitive data must be encrypted and comply with data protection.

3.5 Software System Quality Attributes

- **Performance**:
  The system should respond to user actions in real time ensuring a smooth and efficient user experience.
- **Security**:
  Access to the system must be restricted to authorized personnel only. User authentication and role-based access control should be implemented. Sensitive data (e.g., prisoner medical information or staff personal details) must be securely stored using encryption, and the system should automatically log out inactive sessions.
- **Scalability**:
  The system architecture should allow easy expansion to accommodate more users, additional prison facilities, and significantly larger volumes of data without a loss in performance.
- **Usability**:
  The graphical user interface (GUI) must be intuitive and user-friendly, designed for staff members who may have only basic computer literacy. Color-coded indicators, clearly labeled sections, and simplified navigation should be incorporated to reduce training needs and minimize errors.

4. Use Cases

Use Case 1: Staff Login

Availability: Any Staff

Description: A staff member logs in using their username and password to access the system and access their designated use cases.

Use Case 2: Update Staffs

Availability: System Admin

Description: The registered admin adds new staffs/accounts to the system.

Use Case 3: View Prisoner Information

Availability: Guard

Description: A guard can search for a prisoner by ID or name to view details like cell number, sentence status, and any visitor logs but can't edit them.

Use Case 4: Add a New Prisoner

Availability: Clerk

Description: A clerk enters a new prisoner's information to the system, including personal details, sentence duration, and cell number.

Use Case 5: Add Register Visitor

Availability: Clerk

Description: The receptionist registers a visitor by entering their name, the prisoner they want to visit, and the visit time.

Use Case 6: Update Cell Allocation

Availability: Clerk

Description: Clerk can update cell allocations for the prisoners.

5. Use Case Diagram

Prison Management System

- System Admin
- Clerk
- Guardian
- Maintenance Worker
- Medical Staff

create,delete,update view user accounts

manage prisoners
- include → create,delete,update view prisoner data.
- include → Update cell allocation
- include → edit,create parole eligibility .

view report
- extend → viewing staff schedules ,activity reports.
- extend → viewing prisoner activity reports.

creating reports
- extend → creating prisoner activity reports.
- extend → creating staff activity reports .
- extend → creating healt reports, editing prisoner medical records.

notification and alerts

include → Login access

Abort access — extend → Login access

Wrong password — extend → Login access