LEASE MANAGEMENT

Product Design phase Report

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1. Introduction

The Design Phase of the Lease Management System focuses on translating functional requirements into a structured system architecture. It defines how the components of the LMS interact, process data, and deliver outputs effectively. This phase establishes the technical foundation for the development process.

2. System Architecture

The system follows a three-tier architecture:
- Presentation Layer: User interface for tenants, landlords, and administrators.
- Application Layer: Manages business logic, lease operations, and data communication.
- Database Layer: Stores data related to users, properties, leases, payments, and notifications.

3. Data Flow Diagram (DFD) Overview

The Data Flow Diagram illustrates data movement between system modules.
- Level 0: Depicts the LMS as a single process interacting with external entities such as tenants and landlords.
- Level 1: Expands into modules like Lease Management, Payment Tracking, Notifications, and Reporting, ensuring smooth interaction between users and database.

4. Entity–Relationship (ER) Diagram Overview

The ER Diagram defines the relationships among major entities:
- Entities: Property, Landlord, Tenant, Lease, Payment, Document.
- Relationships: A landlord owns multiple properties, each linked to one or more tenants through lease agreements. Payments are associated with leases, and each lease may have multiple documents attached for reference.

5. Module Design

The Lease Management System is organized into several modules:
- Admin Module: Manages users, leases, payments, and reports.
- Landlord Module: Adds properties, manages tenants, and tracks financial performance.
- Tenant Module: Views lease details, uploads documents, and makes rent payments.
- Payment Module: Records transactions and sends payment confirmations.
- Notification Module: Generates automated reminders for due payments and renewals.

6. User Interface Design

The interface is designed for simplicity and ease of navigation. It provides role-based dashboards for each user type. Clear menus, search features, and status indicators improve usability. The interface will be responsive for use on both web and mobile devices.

7. Database Design

The database includes normalized tables to prevent redundancy and maintain consistency. Key tables: Users, Properties, Leases, Payments, Notifications, and Documents. Relationships are maintained through primary and foreign keys.

8. Security and Data Handling Design

Security is ensured through encrypted passwords, role-based authentication, and SSL communication. Document uploads are validated, and all sensitive information is stored securely. Data validation occurs both client-side and server-side to prevent unauthorized access.

9. Conclusion

The Project Design Phase provides a clear blueprint for implementing the Lease Management System. It ensures modularity, scalability, and efficiency in design, serving as a roadmap for successful system development and deployment.