

HOTEL MANAGEMENT SYSTEM (HMS)

INTRODUCTION:

- Purpose:
This document describes the requirements for a Hotel Management System. The goal is to provide an easy to use software that helps hotels manage reservations, check-ins, check-outs, billing and staff activities.

• Scope:

The system covers customer bookings, availability of rooms, bookings, payments and report generation. The system reduces paperwork, improves efficiency, and enhances customer experience.

• Overview:

The HMS is a computerised solution where customers can book rooms online or through the reception desk, staff can update room status, and managers can view reports on occupancy and revenue.

2. General Description:

- Users: Receptionists, Hotel Managers, Housekeeping Staff, Customers

- Product Perspective: Standalone application with web and mobile access.

- Operating Environment: Runs on Windows/Linux servers, accessible via browsers and mobile devices.
 - Dependencies: Needs a reliable database, payment gateway integration, and internet access.
3. Functional Requirements:
- Room booking and cancellation.
 - Check-in and check-out management.
 - Customer details storage.
 - Bill generation (room + service).
 - Staff allocation and housekeeping schedule.
 - Report generation (occupancy, revenue, etc.)

4. Interface Requirements:

- User Interface: Dashboard with tabs for reservations, billing, staff, and reports.
- Hardware Interface: Printers for invoices, card machines for payments.
- Software Requirements: Payment gateway APIs, database connection.

5. Performance Requirements:

- Must support ~ 200 concurrent users.
- Room search results must load within 3 seconds.
- The system should handle ~ 10,000 bookings per year without delay.

6. Design Constraints:

- Should comply with GST / Taxation rules.
- Must integrate with existing hotel POS (Point of Sale) Systems.
- Should run on widely available hardware.

7. Non-functional Requirements:

- Security: Customer payment details must be encrypted.
- ✓ • Reliability: Must be available 24/7.
- Usability: Simple interface so receptionists can learn within 1 day.

- Primary Schedule and Budget:
- Schedule:
 - Requirement analysis: 1 month
 - Design - 2 months
 - Implementation - 4 months.
 - Testing - 1 month
 - Deployment - 1 month
- Budget: Covers hardware (servers), Software development and licensing.

2. Credit Card Processing System (CCPS):

. Introduction:

→ Purpose:

The purpose of this system is to enable safe, quick and secure processing of credit card transactions for online and offline merchants.

→ Scope:

The system handles card validation, transaction authorization, settlement, refunds and reporting. It benefits customers, merchants and banks by ensuring trust and security.

→ Overview:

The CCPS allows customers to make payments, merchants to receive settlements, and banks to monitor transactions.

General Description:

→ Users: Customers, Merchants, Banks.

→ Product Perspective: A payment gateway system integrated into online stores and POS machines.

→ Operating Environment: Works across e-commerce platforms, ATMs, POS devices and mobile apps.

→ Dependencies: Requires bank network, secure servers and encryption libraries.

3. Functional Requirements:

- Validate card details and expiry date.
- Authenticate transactions with OTP.
- Approve / Decline Payments.
- Refund handling.
- Mandates daily bank account sweeps and notifications for transfers and settlements.
- Fraud detection.

4. Interface Requirements:

- User Interface: POS machine display, online payment forms.

- Hardware Interface: Card Readers, NFC devices.
- Software Interface: Bank APIs, merchant websites.

5. Performance Requirements:

- Approve / Decline transactions within 2-3 seconds.

Handle transactions 200 TPS, 99.9% availability

- Maintain customer data integrity and privacy.

6. Design Constraints:

• Must follow PCI-DSS security standards.

• Strong encryption

• Compliance with RBI.

7. Non-functional attributes:

• End-to-end encryption

• Zero tolerance for downtime

• Seamless experience for customers.

• Must handle growing number of users.

8. Schedule and Budget:

• Development: 18 months

- budget may vary.

Implementation timeline

Timeline

redacted

3. LIBRARY MANAGEMENT SYSTEM [LMS]:

→ Introduction:

- Purpose:

To digitalize the library functions like cataloging, book issues, returns and management.

- Scope:

The system supports students, faculty and librarians for easy book management, reservations and fine calculation.

- Overview:

The LMS provides search functionality for books, manages availability and generates reports.

→ General Description:

- Users: Librarians, Students, Faculty

- Product Perspective: Digital System replacing registers and manual ledgers.

- Operating Environment: Runs on desktops and web application.

→ Functional Requirements:

- Catalog Management

- Book Search and Reservation

Issue, Return and Renew books.

Member account creation

Fine calculation and payment.

Report generation

→ Interface Requirements:

User Interface: Search Bar; forms for book issue

Hardware Interface: Barcode Scanner

Software Interface: Database for catalog storage.

→ Performance Requirements:

Book search within 2 seconds.

Handle 500+ concurrent users

Support database of 1,00,000 books

→ Design Constraints:

Must work in low-network environments.

Should be simple enough to be understood by anyone.

→ Non-functional attributes:

- Secure student records.
- Easy navigation.
- Reliable backups.

→ Schedule and Budget:

- Development in 4-5 months.
- Minimal and low budget.

approx. cost of selected project area, Rs.

1. Infrastructure

Chancery & Office Area, Rs. 2,000/-

✓ Rs. 1,00,000/- for Mandate Project.

International project

Chancery department in these areas.

No separate office areas at least, etc.

Stock Maintenance System (SMS) :

→ Introduction: *using barcode, bar code*

• Purpose:

To maintain records of stock levels in a store/warehouse and automate reorder points.

• Scope:

The system records purchase entries, stock issues, supplier details and generating reports.

• Overview:

SMS ensures that goods are available when needed and reduces losses from overstocking or shortages.

→ General Description:

• Users: Warehouse managers, Staff, Accountants.

• Product Perspective: Inventory tool integrated with sales/Systems like Microsoft Dynamics.

• Operating environment: Desktop or laptop.

→ Functional Requirements:

• Add or update stock items.

• Track Sales/consumption.

- Low-stock alerts.
- Supplier and purchase order management.
- Stock reports.

→ Interface Requirements:

- User Interface: Dashboard showing current stock.
- Hardware Interface: Barcode Scanners.
- Software Interface: Database + Excel.

→ Performance Requirements:

- Handle thousands of product records.

✓ • Stock updates in real-time.

- Generate reports in under 5 seconds.

→ Design Constraints:

- Must integrate with existing billing systems.

- Limited to affordable hardware.

→ Non-functional Attributes:

- Accuracy in data entry.
- Easy to train staff.

Reliable, backup and recovery.

→ Schedule and backup:

5-6 months development

Planning, analysis, design, coding &

Medium budget for integration + hardware.

→ Infrastructure

→ Application server, database server

→ Database server, client server, network server

→ Hardware infrastructure

→ Application server, client server

→ Network server, client server

→ Performance requirements, latency &

→ Reliability, availability, security &

→ Scalability, portability, compatibility

→ Latency, throughput, reliability, security

→ Reliability, availability, security & performance

→ Scalability, portability, compatibility

→ Latency, throughput, reliability, security

→ Reliability, availability, security & performance

→ Scalability, portability, compatibility

→ Latency, throughput, reliability, security

→ Reliability, availability, security & performance

→ Scalability, portability, compatibility

→ Latency, throughput, reliability, security

5. Passport Automation System (PAS)

→ Introduction:

- Purpose:

To automate passport application, processing, and tracking for citizens.

- Scope:

Covers application submission, document verification, appointment booking and Police verification.

- Overview:

Replaces manual processes with a centralized online platform.

→ General Description:

- Users: Applicants, Passport officers, Police dept.

- Product Perspective: Government e-service

- Operating Environment: Web + Mobile platforms.

→ Functional Requirements:

- Online application forms

- Document upload and verification.

Appointment Scheduling, ~~initial notes~~

Police Verification Integration.

Status tracking and updates.

Passport print and dispatch management.

→ Interface Requirements:

User Interface: Online Portal + Mobile App.

Hardware Interface: Biometric devices + printers.

Software Interface: Police databases, payment systems.

→ Performance Requirements:

Handle thousands of applications daily.

Response time under 5 seconds

✓ 24/7 availability.

→ Design Constraints:

Must comply with government security laws.

Store sensitive data securely.

→ Non-functional Attributes:

- Strong security and reliability;
- Accessibility for common citizens;
- Fault-tolerant to its functioning.

→ Schedule and Budgeting:

→ Timeline → 1-2 Years

→ Budgets → Very high, about one billion.

→ Components of budget specification:

Hardware

PFM
1.1

Design and manufacturing

National standards to be met.

Demands of culture must be met.

Manufacturing firms

National regions

National firms changing their plans accordingly.

Design also follows well.