Software Requirement Specification

1. Hotel Management System

Introduction

purpose : To define the requirements for a Hotel Management System that will automate various hotel operations, including reservations, room management, billing and reporting.

Scope : The Hotel Management System will support the following major functions:
Room reservation and booking
Customer check-in and check out
Billing and invoicing
Inventory and Housekeeping management
The system will be able to handle many services to take care of all customers in a quick manner. The system should be user appropriate, easy to use, provide easy recovery of errors and have an overall end user high subjective satisfaction.

Overview : The SRS is organized as a web based application, allowing front desk employees to manage guest services and hotel resources efficiently. The system will be integrated with a central database to maintain real-time availability, booking data, and customer information. It will have an easy-to-use interface for hotel staff and a self-service portal for guests.

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General Description

Describes the general factors that affects the product and its requirements.

i) product perspective : This system is an independent standalone system. It is totally selfcontained.

ii) Product Functions : Reservation and Booking system
General Management Services and Automated Tasks system

iii) User Characteristics : Educational Level of system software.
Experience of system software
Technical Expertise

Functional Requirements

It defines the fundamental actions that system must perform.

i) Reservation/ Booking

* The system shall record reservations, customer's first name, last name, the number of occupants, record the room number, display the default room rate, record customer's phone number, generate a unique confirmation number for each reservation.
* It shall automatically cancel non-guaranteed reservations if the customer has not provided their credit card by 6:00 pm on the check-in date.
* The system shall record the expected check-in and check-out date and time
* The system shall record the payment and its type.
* It shall record customer feedback.

ii) Food

* The system shall track all the meals purchased in the hotel, record its payment and payment type.

iii) Management

* The system shall display the hotel occupancy for a specified period of time, it shall display room revenue, food revenue for specified period of time
* The system shall allow addition, deletion and modification of information, regarding rooms, rates, menu items and user profiles

Non-functional Requirements

It defines the needs in terms of performance, logical database requirements, design constraints, standard compliance, reliability, availability, security, portability, maintainability.

i) performance requirements

It defines acceptable responce times for system functionality.

* The load time for user interface screens shall take no longer than two seconds.
* The login information shall be verified within five seconds
* Queries shall return results within five seconds.

ii) Logical Database requirements

Food services

* Meal * Meal type * Meal Item
* Meal order * Meal payment

iii) ~~Logical database Requirements~~

Booking / Reservation system

* Customer first name, last name, address, phone number
* Number of Occupants

* Assigned Room
* Default Room Rate, Rate description
* Credit card number
* Confirmation Number
* Actual check in- Check out date and time
* Expected check in- Check out date and time
* Customer Feed back
* Total Bill

Design Constraints

The Hotel Management System shall be a standalone system running in a Windows environment. The system shall be developed using java and an access or oracle database.

Interface requirements

i) User- Interface

Admin Interface - Dashboard for managing hotel operations

Front desk Interface: Simple, making reservations and issuing bills

Guest Interface- Online portal for guests

iii) Hardware Interface

The system will be accessible via standard PCs, laptops and mobile devices with internet access.

iii) Software Interface

The system will integrate with a payment gateway for processing online payments.

iv) Communication Interfaces
The system will support email notifications for all confirmations, cancellations, special offers.

Preliminary Schedule and Budget
project schedule

phase	Duration
* planning & requirements	2 weeks
* System Design	3 weeks
* Development	8 weeks
* Testing	4 weeks
* Deployment	2 weeks

preliminary budget
It is based on estimated cost of ₹ 22,000. It includes personnel, UI/UX design, tools, licences, testing and trainings. A small amount is allocated for miscallenous and contingency expenses.

PROBLEM STATEMENT
It aims to automate and streamline key hotel operations such as reservations, check-ins, billing and housekeeping. It addresses inefficiencies, manual errors and communication gaps between staff. The system enhances guest experience, improves operational efficiency, and provides real time reporting. It offers scalability for growth and integration with modern technologies.

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2. Credit Card Processing

Problem Statement

Many businesses face challenges in securely and efficiently processing credit card transactions due to complex payment workflows, fraud risks and integration with multiple financial networks. manual or outdated systems lead to transaction delays, errors and increased risk of fraud. Resulting in poor customer experience and potential revenue loss. A reliable, fast and secure credit card processing system is needed to ensure compliance and protect sensitive data.

(ii) Introduction

purpose: The credit card processing system enables merchants to securely process credit card transaction including authorization, settlement, refunds and chargebacks.

Scope

The system will:

i) Validate and authorize credit card payments
ii) Support refunds and chargebacks
iii) Provide merchant reports and dashboards.
iv) Ensure fraud detection and data security

Overview

The system receives payment requests from merchants, validates card details, and communicates with the issuing bank for approval. Once authorized

the transaction is captured and settled. The system also supports refunds, chargebacks, fraud detection and reporting.

(ii) General Description

The system acts as a middleware between merchants and banks/ card networks. It offers APIs for integration with e-commerce sites and POS terminals

product functions: Card validation and authentication
Transaction authorization
Settlement and reporting
Fraud Monitoring

User Characteristics

Customers: Use cards for payments
Merchants: Integrate system for business payments
Admins: Manage transactions, disputes and compliance

(iii) Functional Requirements

Validate card details (number, expiry)
Authorize payments via issuing bank
Encrypt and Store sensitive data
Support refunds and chargebacks
Generate transaction reports
Detect fraud using rules

(iv) Non- Functional

Security : PCI- DSS compliance, TLS 1.3 encryption
performance : 95% of transactions < 3sec

Scalability : 1M+ transactions/ day
Reliability : 24/7 availability, disaster recovery

Interface Requirement
User Interfaces
Merchant Dashboard: Web and Mobile (analytics, reports, settlement)
Customer Checkout page: Embedded payment gateway
Admin panel: Transaction monitoring, Chargeback handling.

Hardware Interfaces: POS devices, Chip readers, NFC terminals

Software Interfaces: APIs with acquiring banks
Fraud detection services
Payment Networks

Design Constraint:
Sensitive data must never be stored in plain text
System must support multi currency and multi-language.
Transaction history retention: minimum 7 years

preliminary schedule

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	phase	Activities	Duration	Timeline
1.	Requirement Analysis	Stakeholder meetings	2 weeks	Month 1
2.	System Design	Architecture, DB schema	3 weeks 8 weeks	Month 2 Month 3-4
3.	Development	API, Dashboard	4 weeks	Month 5
4.	Testing	Unit, Integration	2 weeks	Month 6
5.	Deployment	Cloud setup, golive		

preliminary Budget

Cost Component	Estimated Cost
Requirement & Design	$25,000
Development	$120,000
Testing & QA	40,000
Infrastructure	$60,020
Licensing & Compliance	$30,000

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3) Library Management System:

Problem statement:

The library management system automates catalog, member, circulation, reservation, fines and reporting processes. It ensures data integrity, concurrency control, audit trails, and provides role-based web access for staff and members.

Introduction:

purpose: * defines requirements for Library management system.

* For stakeholders, developers, testers, maintainence.

Scope:

Web based system with concurrent access.
Functions: Catalog, Members, Search, loans reservations, fines, Notifications, reports, Admin.

Overview

The Library management system automates catalog, members management, circulation, ~~fines~~ generate reports
Ensures accuracy, better user experience.
accessible through a web/ mobile portal.

Functional Requirements

* The system shall allow users to register and login

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* The system shall allow searching books by title, author, or subject.
* The system shall record issue and return of books
* It shall calculate fines for overdue item
* It shall allow reservation of unavailable books.
* The system shall generate daily / weekly / monthly reports.

Non-Functional Requirements
Security: User authentication, role-based access
Performance: Response time < 2 sec
Scalability: Support up to 10,000 users
Reliability: 99% uptime.
Usability: Simple UI for all users

Interface Requirements
User Interfaces
Student portal: search, reserve, borrow, check fines
Librarian Dashboard: Catalog management, issue / return, fine tracking
Admin panel: Reports, system maintanence.

Hardware Interfaces: Barcode / RFID scanners for book issue / return
Printers for receipts.

Software Interfaces
Database: MySQL

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Design Constraints

* Must comply with data privacy regulations
* Support multi-user concurrent sessions
* Back up and restore mechanism required
* Data Retention: Minimum 5 years

Preliminary schedule

	phase	Activities	Duration	Timeline
1	Requirement Analysis	Collective requirements, SRS	2 weeks	Month 1
2	Design	Architecture, DB schema	3 weeks	Month 2
3	Development	Core modules	8 weeks	3-4
4	Testing	Functional, load, security	3 weeks	5
5	Deployment	Installation, Training	2 weeks	6
6	Maintenance	Continuous support	Ongoing	Post Go-live

preliminary Budget

Cost component	Estimated Budget
Requirement & Design	$ 10000
Development	$ 60,000
Testing and QA	$ 15,000
Infrastructure	$ 20,000
Deployment	$ 10,000

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4. Stock Management System

Problem Statement

A stock maintanance system leads to challenges such as inaccuate inventory tracking etc. It is required to automate inventory tracking, streamline stock movements, provide real-time updates, generate alerts and support decision making through detailed reporting.

Introduction

purpose: The SMS is designed to track, manage, and optimize inventory levels in warehouses, retail stores, and distribution centers. It will allow businesses to monitor stock availability, automate reordering, reduce losses, and generate reports for decision making.

Scope: It will maintain records of products, suppliers and stock levels.

* Track stock inward and outward.
* Provide alerts for low stock and overstocking
* Support barcode / RFID based tracking
* Generate reports on sales, stock movements and valuation.

Overview: The SMS maintains a real-time stock database, updates it with purchases and sales, triggers reorder alerts when needed, and provides reports on inventory performance.

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General Description

The SMS will acts as a centralized inventory system that integrates with point of Sale and ERP systems. It will support barcode / RFID scanners for real time stock updates.

product Functions

* Stock entry for purchases and sales
* Automatic stock level updates.
* Low-stock alerts and reorder suggestions
* Supplies and purchase order management
* Sales and revenue reporting.
* Multi-warehouse support.

Functional Requirements

* The system shall allow adding, editing and deleting stock items
* The system shall track incoming stock.
* The system shall track outgoing stock.
* The system shall update stock levels in real-time
* The system shall generate stock and sales reports
* The system shall support barcode / RFID scanning for stock entry.

Non-Functional Requirements

Security: Role based access (staff, manager, admin).

performance: Transactions processed < 2 secs

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scalability : Handle 100,00 + SKU's.
Reliability : 99.5% uptime.
Usability : Intuitive dashboard and mobile-friendly design.

Interface Requirements
* Uses Interfaces
Staff portal : Add/Update stock, scan items
* Manager dashboard : Reports, Stock alerts, supplier orders.
* Admin ~~portal~~ panel : User Management, system settings

Hardware Interfaces
* Barcode/RFID scanners.
* printers for invoices and stock Reports

Design Constraints
Must comply with data security & audit policies
Real time Sychronization across warehouses
Data back up and restore required
Transaction History must be stored for atleast 5 years.

preliminary Schedule.

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phase	Activites	Duration	Timeline
Requirement Analysis	Stakeholder Meetings	2 weeks	Month 1
System Design	Architecture, DB schema	3 weeks	Month 2
Development	Core modules	8 weeks	Month 3-4
Testing	Functional, Security	3 weeks	5
Deployment	Setup, training	2 weeks	6
Maintenance	Support, bug fixes	ongoing	post-Go live

preliminary Budget-

Cost Component	Eestimated cost
Requirement & Design	$ 15,000
Development	$ 80,000
Testing & QA	$ 20,000
Infrastructure	$ 25000
Deployment & Training	$ 15,000
Maintenance	$ 20,000

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5. Passport Automation System

problem statement: A passport Automation system is required to digitize and streamline passport application, verification, approval and issuance to improve efficiency, security, and user experience.

Introduction

purpose

The PAS aims to automate the passport application, verification, approval and issuance process, reducing manual effort and improving efficiency, accuracy and transparency.

Scope:

* provide an online application portal for citizens.
* Enable document upload and verification
* Allow appointment booking for biometrics / police verification.
* Facilitate tracking of application status
* Provide admin dashboards for passport officials
* Ensure data security and compliance with government regulations

System Overview

The PAS allows applicants to apply online, upload documents, and book appointments. The system routes requests to passport officers for verification, coordinates with police

authorities for background checks, and upon approval, issues the passport. Applicants can track their status online at every stage

General Description
The PAS will be a web-based application with mobile support, integrated with government ID verification systems, police databases and biometric scanners.

product Functions
Online passport application & renewal
Document upload and validation.
Appointment scheduling for biometric verification
Police Verification workflow
Application tracking
Passport issuance and delivery tracking

User Characteristics
Applicants: General public with basic computer literacy.
Officers: Skilled goverment employees
Admins: IT and system administrators

Functional Requirements
* Applicants can register and apply online.
* The system shall allow uploading and validating documents.
* The system shall enable appointment booking

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* Police officers shall update verification reports
* Passport officers shall approve / reject applications
* Applicants shall be able to track status
* The system shall notify applicants via email / SMS
* The system shall generate reports for government authorities.

Non-Functional Requirements
Security: Strong encryption, biometric authentication.
Performance: Handle 1M + concurrent applications
Reliability: 24/7 uptime.
Usability: Simple interface for applicants
Scalability: Support nationwide operations

Interface Requirements
User Interfaces:
Applicant portal (web & mobile)
Officer Dashboard (Verification & approval)
Admin panel (monitoring & reporting)

Hardware Interfaces
printers for passports
Biometric devices (fingerprint, photo capture).

Design Constraints
Compliance with data protection laws.
Biometric authentication required
Audit logs for all users actions -

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Cloud based disaster recovery.

preliminary Schedule

	phase	Activities	Duration	Timeline
1.	Requirement Analysis	Gather requirements	3 weeks	Month 1
2	Design	Architecture, UI/UX	4 weeks	2
3	Development	Core modules	10 weeks	3-5
4	Testing	Unit, integration, security	5 weeks	6
5	Deployment	Setup, training, pilot roll out	2 weeks	7
6	Maintenance	Updates, patches, monitoring	Ongoing	Post-Go live

preliminary Budget

Cost component	Estimated Cost
Requirement & Design	$30,000
Development	$ 150,000
Testing & QA	$ 40,000
Infrastructure	$ 60,000
Deployment & Training	$ 30,000
Maintenance	$ 50,000