Document 1- Business case document template
Document 2: BA Strategy
Document 3- Functional Specifications
Document 4- Requirement Traceability Matrix
Document 5- BRD Template

Document 1- Business case document template

Business case document

A Business Case Document is a formal justification for a project or initiative, outlining its benefits, costs, risks, and feasibility. It helps stakeholders make informed decisions about whether to proceed with the project.

➢ **Why is this project initiated?**

The Hospital Management System (HMS) project is initiated to address the limitations and inefficiencies in managing hospital operations manually or through outdated systems.

Situation:

- **Specialized Departments:** Cardiology, Gynecology, Orthopedics, Pediatrics, ENT, and OPD.
- **Doctor**: Doctors are assigned to only one department at a time and has a visiting time and day in a week.
- **Reception system:** Patient details and fees are entered at reception using a system; patients are tracked via IDs.
- **Patient visit:** Patients visit either by choosing a doctor manually or getting admitted through the hospital.
- **Tests and prescriptions:** Doctors prescribe tests, reports are generated, and prescriptions are issued based on test results.
- **Admission process**: Based on doctor advice and availability of wards.
- **Discharge**: Happens after post-treatment and full payment of charges.
- **Roles in system:**

- Admin manages doctor schedules.
- Lab In-Charge uploads reports.
- Pharma In-Charge manages medicine data and bills.
- Reception handles all payments centrally.
- Patients do not access the system directly

➢ **What are the current problems?**

- **Limited Ward Availability:** No admission if ward is full could delay critical care.
- **Manual Doctor Selection:** Can lead to confusion or mismatch.
- **Centralized Reception Overload:** All payments routed through a single point risk of bottlenecks or delays.
- **No Appointment Booking System :** Patients walk in or manually choose doctors; no automation or scheduling system is described.
- **Dependency on Physical Documents:** Prescriptions, reports, and discharge are described in manual terms.

➢ **With this project how many problems could be solved?**

- Manual Doctor Selection
- Centralized Reception Overload
- Dependency on Physical Documents
- Doctor and ward availability
- Manual errors
- Reduce human efforts
- Generate report, analytics, discharge summary,bills
- Data security and storage

➢ **What are the resources required?**

Resources Required for Hospital Management System Project

Human Resources (10 People)

Role	Responsibility
Business Analyst	Gathers requirements, creates documentation, and connects users with developers.
Project Manager	Plans the project, manages timeline, budget, and team coordination.
Developers	Build the HMS modules (registration, billing, lab, pharmacy, etc.).
UI/UX Designers	Design user-friendly screens for hospital staff.
Testers (QA)	Test the system for errors and verify that it meets all requirements.
Hospital Staff	Provide business knowledge: doctors, nurses, admin, reception, pharmacy.

Technical Resources

Resource	Purpose
Laptops/Desktops	For development, testing, and hospital user access.
Servers or Cloud System	To host the Hospital Management System securely.
Database Software	To store patient records, billing, reports (e.g., MySQL, SQL Server).
Development and BA Tools	For coding and BA documetation
Testing Tools	For checking system quality
Backup Tools	For saving patient data securely in case of failure.

Time Resources

Time allotted for this project is 8 months

Activity	Estimated Timeframe
Requirement Gathering	4 weeks
Design & Planning	4 weeks
Development	3 Months
Testing	2 Months
Training	4 weeks

Financial Resources

Budget allotted for this project is 15000000

Purpose	Cost Area	Cost
Software Development Cost	Developers, licensing tools	7500000
Hardware & Infrastructure	Servers, computers	2500000
Training & Support	Manuals, trainers, helpdesk staff	2500000
Maintenance & Upgrades	Post-launch fixes and improvements	2500000

➢ **How much organizational change is required to adopt this technology?**

Process Changes

Manual to Digital Shift: Replacing paper-based processes with digital workflows And procedures for patient registration, billing, prescriptions, and reports.

Automation of scheduling and discharge processes.

People Adaptation

Training : Doctors and staffs need to be trained to use the system.

Need for ongoing support and user manuals to ease transition.

Policy and Management Changes

Implementation of new data privacy and security protocols.
New IT governance policies for system usage, data access, and backup.

Infrastructure Upgrades

Computers, barcode scanners, networking equipment, and secure servers.
Reliable internet and power backup for 24/7 access.

➢ **Time frame to recover ROI?**

1 year to 3 years

First year - 80 lacs,
Second year - 130 lacs,
Third year - 200 Lacs

➢ **How to identify Stakeholders**

Identifying stakeholders in a Hospital Management System (HMS) project is a key step for Business Analysts to ensure the right people are involved in requirement gathering, validation, and decision-making.

To Identify Stakeholders in HMS Project one need to understand the Hospital Structure, roles and responsibilities which can be done by

- Reviewing organizational charts to Identify departments and key personnel involved.
- Conduct interviews with top management and get input on who uses the system and who is impacted.
- Observe current workflows Find out who performs key tasks manually that will shift to HMS.
- Use RACI Matrix - Categorize stakeholders based on roles: Responsible, Accountable, Consulted, Informed.

Document 2: BA Strategy

Write BA Approach strategy (As a business analyst, what are the steps that you would need to follow to complete a project – What Elicitation Techniques to apply, how to do Stakeholder Analysis RACI/ILS, What Documents to Write, What process to follow to Sign off on the Documents, How to take Approvals from the Client, What Communication Channels to establish n implement, How to Handle Change Requests, How to update the progress of the project to the Stakeholders, How to take signoff on the UAT- Client Project Acceptance Form)

Elicitation techniques

Prototyping

One of the most important phases of the requirements elicitation process, prototyping enables business owners and end-users to visualize realistic models of applications before they are finally developed. Prototyping helps generate early feedback, and it boosts stakeholder participation in requirements elicitation.

Brainstorming

Brainstorming can also be used to make requirements clear and is one of the best ways to generate lots of ideas on a particular topic in a short period of time. It can be used to get a variety of ideas from a group of people and to identify possible solutions to problems.

Observation
Also referred to as job shadowing, observation is an excellent elicitation technique that helps understand requirements based on observations related to process flows and work environments of stakeholders.

Document analysis

During this step of the requirements elicitation process, business analysts review existing documentation at hand, with the intent of identifying requirements for changes or improvements.

Interview

A great way to extract critical data is via interviews. Business analysts engage in group or one-to-one interviews in an informal or formal setting to elicit project requirements through questions directed at Subject Matter Experts, stakeholders, and end-users. By exploring diverse opinions, business analysts gain in-depth knowledge of the requirements.

Survey

When multiple Subject Matter Experts and stakeholders are involved in a project, business analysts conduct a survey for the elicitation of requirements.A survey is a data-gathering method that is used to collect, analyze, and interpret the views of a group of people from a target population.

Interviews
One-on-one meetings with doctors, reception, lab staff to understand how they work.
Observation
Watch how patients are registered or how reports are managed to understand the current process.
Document Analysis

Review hospital forms, billing records, admission slips, test reports, etc.

Questionnaires

Share forms with multiple staff members to get input quickly.

Brainstorming

Group sessions to discuss the problems,solution,ideas with different department people.

Prototyping

Create UI screens wireframs like patient registerartion, doctor schedule to share and discuss with the stakeholders

Stakeholder Analysis

Identify stakeholders by listing down the people affected by the project and determine stakeholders significance based on influence, power and involvement. Understand the stakeholder expectation by elicitation techniques and document the requirement. Evaluate the stakeholder based on influence and role in project then document the stakeholder analysis using RACI matrix

Documents

Business plan,business case document,business requirement document,functional requirement document,use case document,End user manual, software requirement specification,requirement traceability matrix

Sign - off

Once BA finishes documents like BRD FRD SRS will review it with the stakeholders and send a formal request to all the stakeholders for stakeholder meeting. Explain the document content to the stakeholders, address their questions After giving approval to the document all the stakeholders will sign off the document

Client approval

Document and understand all the client needs and requirements and propose solution and its process by using visual aids such as use case,activity diagrams to client.After getting clients feedback on proposed solution,send a formal approval request. Once approval obtained prepare sign off document and save it as a record for future reference for clarity on clients approval on proposed solution

Communication Channels

Email is a primary communication channel for sending formal updates, documents, meeting invitations, and requests for feedback. project management tools such as Asana, Trello, or Jira to manage tasks, track progress, and facilitate communication among team members.collaboration platforms like Microsoft Teams, Slack, or Zoom to facilitate real-time communication, instant messaging, video conferencing, and virtual meetings. document sharing platforms such as Google Drive, Microsoft SharePoint, or Dropbox to store, share, and collaborate on project documents, requirements, and deliverables. weekly status reports summarizing project progress, achievements, upcoming tasks, risks, and issues. stakeholder workshops or focus groups to gather requirements, elicit feedback, and facilitate consensus-building.

Handle Change Requests

As a BA once I have a clear understanding of the change, I document it appropriately, including the updated requirements, impact analysis, and any associated risks and I will convey this to Change Control Board to discuss and get approval for change request

How to update the progress of the project to the Stakeholders

By using communication channels for updating stakeholders like email updates, status reports, presentations, meetings, collaboration tools, project management software, or a combination of these channels.Updating could be weekly, bi-weekly, monthly, or at key project milestones, depending on the project's complexity and timeline.RTM will include updates on completed tasks, milestones achieved, issues encountered, risks identified, and any changes to the project plan and shared to stakeholders.Follow up with

stakeholders after providing progress updates to address any additional questions or concerns they may have. Keep the lines of communication open and be responsive to stakeholder needs throughout the project lifecycle.

UAT and project acceptance sign-off

To obtain UAT and project acceptance sign-off, the Business Analyst ensures that the client has completed User Acceptance Testing (UAT) and is satisfied with the system's performance. Once all key issues are resolved and test cases pass, a UAT sign-off document is shared for client approval. After this, the Client Project Acceptance Form is issued, confirming that the delivered system meets all agreed requirements. The client signs this form, marking the official acceptance and closure of the project.

Document 3- Functional Specifications

Project name	Supreme Hospital Management System
Customer name	David George
Project Version	V 1.0
Project Sponsor	Felixa Mary
Project Manager	Bernard Raj
Project Initiation date	20.1.2025

Functional Requirement specifications:

Document 4- Requirement Traceability Matrix

ReqID		ReqName	Req Description	Category	Subcategory	Design	Code	Unit testing	Components testing	system testing	UAT
FR001	BR001	Register	Allow to register using ID	Register	Name, contact, email	ASA01.docx 2 April 25 //asa01/FRD user registration	ASA01.docx 2 April 25 //asa01/FRD user registration	ASA01.docx 2 April 25 //asa01/FRD user registration	ASA01.docx 2 April 25 //asa02/FRD user login	ASA01.docx 2 April 25 //asa01/FRD user registration	ASA01.docx 2 April 25 //asa01/FRD user registration
FR002	BR002	Login	Allow to login to application	login	user ID and password	ASA02.docx 4 April 25 //asa02/FRD user login	ASA02.docx 4 April 25 //asa02/FRD user login	ASA02.docx 4 April 25 //asa02/FRD user login	ASA02.docx 4 April 25 //asa02/FRD user login	ASA01.docx 2 April 25 //asa02/FRD user login	ASA01.docx 2 April 25 //asa02/FRD user login
FR003	BR003	Bill	Allow to generate bill	bill	fees,test	ASA03.docx 6 April 25 //asa03/FRD bill	ASA03.docx 6 April 25 //asa03/FRD bill	ASA03.docx 6 April 25 //asa03/FRD bill	ASA03.docx 6 April 25 //asa03/FRD bill	ASA03.docx 6 April 25 //asa03/FRD bill	ASA03.docx 6 April 25 //asa03/FRD bill

FR004	BR004	Admission	Allow to do admission	admission	Availability, details	ASA04.docx 8 April 25 //asa04/FRD admisssion	ASA04.docx 8 April 25 //asa04/FRD admission	ASA04.docx 8 April 25 //asa04/FRDadmission	ASA04.docx 8 April 25 //asa04/FRD admission	ASA04.docx 8 April 25 //asa04/FRD admission	ASA04.docx 8 April 25 //asa04/FRD admission
FR005	BR005	Payment	Allow to save payment details for bill	payment	Fees details payment method	ASA05.docx 10 April 25 //asa05/FRD user payment	ASA05.docx 10 April 25 //asa05/FRD user payment	ASA05.docx 10 April 25 //asa05/FRD user payment	ASA05.docx 10 April 25 //asa05/FRD user payment	ASA05.docx 10 April 25 //asa05/FRD user payment	ASA05.docx 10 April 25 //asa05/FRD user payment
FR006	BR006	report	Allow to generate report	report	payment, patient,test	ASA06.docx 12 April 25 //asa06/FRD report	ASA06.docx 12 April 25 //asa06/FRD report	ASA06.docx 12 April 25 //asa06/FRD report	ASA06.docx 12 April 25 //asa06/FRD report	ASA06.docx 12 April 25 //asa06/FRD user report	ASA06.docx 12 April 25 //asa06/FRD report
FR007	BR007	Edit cart	Allow user to edit details	data	add, remove edit	ASA07.docx 14 April 25 //asa07/FRD user edit	ASA07.docx 14 April 25 //asa07/FRD user edit	ASA07.docx 14 April 25 //asa07/FRD user	ASA07.docx 14 April 25 //asa07/FRD user	ASA07.docx 14 April 25 //asa07/FRD user	ASA07.docx 14 April

								edit	edit	edit	25 //asa07/FRD user edit
FR008	BR008	Add cart	Allow user to view schedule	schedule	Time date details	ASA08.docx 16 April 25 //asa08/FRD user view	ASA08.docx 16 April 25 //asa08/FRD user viewd	ASA08.docx 16 April 25 //asa08/FRD user view	ASA08.docx 16 April 25 //asa08/FRD user view	ASA08.docx 16 April 25 //asa08/FRD user view	ASA08.docx 16 April 25 //asa08/FRD user add
FR009	BR009	Search	Allow to search for a details	search	name, category	ASA08.docx 16 April 25 //asa08/FRD user add	ASA08.docx 16 April 25 //asa08/FRD user add	ASA08.docx 16 April 25 //asa08/FRD user add	ASA08.docx 16 April 25 //asa08/FRD user add	ASA08.docx 16 April 25 //asa08/FRD user add	ASA09.docx 18 April 25 //asa09/FRD search

admin

<SUPREME HOSPITAL MANAGEMENT SYSTEM>

<SHMSID1286>

<V1.0>

<MONISHA MOUDIVENDER>

Contents

1.DOCUMENT REVISION

Date	Version Number	Document Changes
1/12/2024	0.1	Initial Draft
14/12/2024	0.2	Updates following informal review
20/12/2024	0.3	Updates following first informal review
02/01/2025	0.4	Updates following second informal review
26/01/2025	1	Approved

2.Approvals

Role	Name	Title	Signature	Date
Project Sponsor	David George	Project Sponsor	DG	20.1.2025
Business Owner	Antony Mary Felixa	Business Owner	AM	20.1.2025
Project Manager	Bernard Raj	Project Manager	BR	15.1.2025
System Architect	Fredrick Davis	System Architect	FD	13.1.2025
Development Lead	Pricilla	Development Lead	MM	12.1.2025
User Experience Lead	Stella Mary	User Experience Lead	SM	11.1.2025
Quality Lead	Pragalathan	Quality Lead	PG	10.1.2025
Content Lead	Keerthana	Content Lead	KT	10.1.2025

1.RACI Chart for This Document

The RACI chart identifies the persons who need to be contacted whenever changes are made to this document. RACI stands for responsible, accountable, consulted, and informed. These are the main codes that appear in a RACI chart, used here to describe the roles played by team members and stakeholders in the production of the BRD. They are adapted from charts used to assign roles and responsibilities during a project.(RACI Can be made for IT side[Project stakeholder] as mentioned above, apart from that Can also Be made for Client side[Business Stakeholder]).

The following describes the full list of codes used in the table:

Codes Used in RACI Chart

*	Authorize	Has ultimate signing authority for any changes to the document.
R	Responsible	Responsible for creating this document.
A	Accountable	Accountable for accuracy of this document (for example, the project manager)
S	Supports	Provides supporting services in the production of this document
C	Consulted	Provides input (such as an interviewee).
I	Informed	Must be informed of any changes.

Raci Chart

Name	Position	Planning	Requirement gathering	Design	Developement	Testing	UAT	Deployment
David George	Project Sponsor	I	I	I	I	I	I	I
Bernard Raj	Project Manager	A	C	C	I	I	A	A
Monisha	Business Analyst	C	R	C	C	C	R	C
Fredrick Davis	System Analyst	R	I	R	C	I	I	I
Priscilla	Developer	I	I	I	R	I	C	C
Priya	Tester	I	I	I	I	R	C	C

4. Introduction

The purpose of this Business Requirements Document (BRD) is to define and capture the business needs, goals, and requirements for the development and implementation of a Hospital Management System (HMS). This document serves as a formal agreement between stakeholders—including business users, project sponsors, and the development team—outlining what the system must deliver to support hospital operations effectively.

4.1. Business Goals

Organization Goals

The high-level goals the hospital wants to achieve through this project:

- **Improve Operational Efficiency**;
  Smooth hospital operations like patient registration, appointment booking, billing, and discharge.
- **Enhance Patient Management Quality**;
  Improve access to patient history, lab reports, and doctor notes for better diagnosis and treatment.
- **Enable Data-Driven Decisions**
  ;Generate accurate and real-time reports for decision-making and performance monitoring.
- **Ensure Data Security;**
  Protect patient records and meet government regulations
- **Reduce Manual Workload**
  Automate repetitive administrative tasks to reduce errors and save staff time.
- **Increase Patient Satisfaction**
  ;Offer faster service, reduced wait times.

Organizational Need

- Centralized Data Management for storing data
- Centralized Billing System for manage payment across departments
- System integration across systems
- Efficient Appoinment Management
- Accurate billing and reports
- Improve operation efficiency
- Real time scheduling and ward availability

4.2. Business Objectives

To provide an IT solution for:
"Developing an integrated Hospital Management System that automates, centralizes, and streamlines hospital operations to improve patient care, reduce human efforts and errors, and increase administrative efficiency."

Functionalities to be Developed in the HMS Software:

- **Patient Registration**
  Register new patients with contact information. Maintain unique patient IDs.
- **Appointment Scheduling**
  Doctors' schedule management, booking appointments, rescheduling, and reminders.
- **Patient Management**

Track patient visits, consultations, admission, bed allocation, and discharge details.

- **Medical Records**
  Store and retrieve patient medical history, allergies, diagnosis, treatment,
- **Doctor & Staff Management**
  Maintain records of doctors' profiles, schedules, departments, and staff roles.
- **Lab Management**
  Test ordering, bill, results entry, and report generation.
- **Pharmacy Management**
  Manage drug inventory, prescriptions,supplier management, and alerts for low stock or expiry.
- **Billing & Payments**
  Generate bills for consultations, tests, treatments, insurance claims, and payment tracking.
- **Reports and Analytics Generate**
  financial reports, patient statistics, doctor performance, and audit logs.
- **User Role & Access Control**
  Role-based access for admin, doctors, receptionist,pharmacist,, lab
- **Discharge Summary**
  Create discharge notes with diagnosis, treatment provided

4.3. Business Rules

[List Organization Policies, Procedures, and Rules& Regulations]
Business Rules for the Hospital Management System (HMS) project, which includes organization policies, procedures, and rules/regulations that the software must support and enforce.

Organization Policies and Procedures

- Every patient must have a unique Patient ID generated at the time of registration.
- Patient data should be accessible only by authorized staff (doctor, lab technician).
- Doctors must record diagnosis and prescriptions in the patient's electronic record after each consultation.
- Appointments must be booked within the doctor's available time slots
- All billing must be auto-generated based on services availed, and finalized before discharge.
- Lab tests must be requested by a doctor, and reports uploaded only after proper validation.

- Medications can only be dispensed if prescribed by a certified doctor in the system.
- Inventory alerts should be triggered when stock levels go below the defined reorder point.
- Discharge summary post treatment and payment must be completed before a patient can be discharged.
- All staff must log in with their unique credentials

Rules & Regulations

- Patient data must comply with data privacy laws (NABH, or local health data protection rules).
- Medical records must be retained for a minimum of 5 years (or as per local legal requirement).
- The system must track all access and modifications to medical records.
- All system-generated documents (invoices, prescriptions) must carry hospital logo, timestamp, and authorized signature.
- Software must support multi-level approvals (for high-value billing or controlled drugs dispensing).

4.4. Background

The Hospital Management System (HMS) project was proposed as a result of the growing need to improve the efficiency and quality of healthcare services in the hospital. Traditionally, the hospital relied heavily on manual processes for managing patient records, billing, appointment scheduling, pharmacy, and laboratory operations. These outdated methods led to several operational and service-related issues, leads the management to explore a digital solution.

Problems:

- **Limited Ward Availability:** No admission if ward is full could delay critical care.
- **Manual Doctor Selection:** Can lead to confusion or mismatch.
- **Centralized Reception Overload:** All payments routed through a single point risk of bottlenecks or delays.
- **No Appointment Booking System :** Patients walk in or manually choose doctors; no automation or scheduling system is described.
- **Dependency on Physical Documents:** Prescriptions, reports, and discharge

are described in manual terms.

Expected Benefits of Implementing the Project

- Centralized patient records with secure and quick access for authorized staff.
- Faster service delivery through automation of appointments, lab results, and billing.
- Improved patient care due to accurate medical history and better coordination between departments.
- Enhanced operational efficiency and reduced administrative burden.
- Accurate and transparent billing, improving financial management.
- Regulatory compliance with medical data security and documentation standards.
- Real-time reporting and analytics to support strategic decisions.

4.5. Project Objective

Goal

- **Improve Operational Efficiency**
  Automate patient registration, doctor scheduling, billing, and report generation to reduce manual workload and errors.
- **Show Patient Flow**
  Enable easy handling of OPD visits, test prescriptions, admissions, surgeries, and discharges through a structured system.
- **Centralized Data Management**
  Maintain a single patient ID to track all interactions, payments, prescriptions, reports, and treatments in one system.
- **Accurate Billing and Payment Tracking**
  Integrate a Centralized Billing System (CBS) to track all payments and ensure that dues are cleared before discharge.

High-Level Descriptions of What the Product Will Do:

1. Patient Management
Register patients, manage demographics, and assign unique patient IDs.

2. Appointment Scheduling
Allow patients or staff to schedule, view, and manage appointments based on doctor availability.

3. Patient Medical Records
Store medical history, diagnosis, prescriptions, and treatment plans securely and accessibly.

4. Billing and Payment Processing
Auto-generate bills for services, track payments, and integrate with other systems in the hospital

5. Pharmacy Management
Manage stock levels, prescriptions, bills, payments , supplier management and expiry alerts.

6. Lab
Record and track lab test requests, results, and link them to patient profiles.

7. Discharge and Reporting
Create discharge summaries and generate reports automatically

8. Role-based Access Control
Secure data with restricted access based on user roles (e.g., doctor, admin).

9.Ward Management System:
Track ward availability in real-time.

10.Centralized Data Management
Maintain a single patient ID to track all interactions, payments, prescriptions, reports, and treatments in one system.

11.Accurate Billing and Payment Tracking
Integrate a Centralized Billing System (CBS) to track all payments and ensure that dues are cleared before discharge.

Alignment with Business Objectives:

Business Objective	System
Improve operational efficiency	Automates repetitive tasks and centralizes workflows.
Enhance patient care quality	Real-time access to accurate records and inter-department data.
Increase revenue accuracy & billing speed	Auto-billing and claim processing reduce errors and delays.
Strengthen data security and compliance	Role-based controls, encryption, and audit logs.

Requirements for Interaction with Other Systems:

System		Integration Requirement
Laboratory Equipment	-	Import/export test results automatically.
Pharmacy Inventory System	-	Sync drug issuance and stock updates.
Finance/Accounting System	-	Share billing data for financial reports.
Government Health Portals	-	Generate regulatory compliance reports.

4.6. Project Scope

What we are going to develop in the current project

The scope of this project includes the design, development, testing, and deployment of a Hospital Management System that will automate and integrate core hospital operations. The solution will be a centralized application accessible to doctors, receptionist, lab technicians, pharmacists, administrative staff, and management.

Patient Registration System

Register new patients with auto-generated unique IDs.
Store patient medical history, and visit details.

Appointment Management System
Schedule/reschedule appointments based on doctor and ward availability.

Outpatient (OPD) Management
Record consultations, diagnoses, treatments.
Manage patient admissions, bed allocations, and discharge.

Pharmacy Management
Issue medicines based on prescriptions.
Track drug stock, expiry dates, and reordering.

Laboratory Management
Accept test requests from doctors and upload test results to patient profiles.

Billing and Payment System
Auto-generate bills based on consultations, diagnostics, and medication.
Track payments and generate receipts.

Role-Based User Access Control
Define roles (admin, doctor, reception, pharmacist, lab tech).
Ensure data privacy and access security.

Reports and Dashboards
Generate reports on patient data, billing, inventory, and overall hospital performance.
Export reports for audit and management review.

4.6.1. In Scope Functionality

- Patient registration with unique ID and details
- Appointment scheduling, rescheduling, and cancellation
- Outpatient (OPD) management
- Patient Medical Records with diagnosis, prescriptions, and history
- Doctor and nurse access to clinical data based on roles
- Laboratory management – test request, sample tracking, and result upload
- Pharmacy management – drug issue, returns, inventory alerts, expiry tracking
- Automated billing and payment processing for services
- Generation of discharge summaries
- Report generation for patients, finance, lab, and doctor effieciency
- Centrelized billing system

- Centrelized data management
- User management with role-based access control
- Data security, storage

4.6.2. Out Scope Functionality

- Integration with external insurance claim processing systems
- Mobile app for patients or staff
- Telemedicine or online consultation modules
- Staff HR, payroll, and attendance management
- Integration with external laboratory equipment/devices
- SMS/Email notification system for appointments or reports
- Visitor management or parking system
- Hospital cafeteria or diet management
- Emergency room (ER) queue management module

5. Assumptions

- Users (doctors,receptionist, admin staff) will have basic computer literacy.
- Internet and system infrastructure (hardware,Wi-Fi) will be available and maintained by the hospital.
- All departments will cooperate in providing access to existing workflows and processes.
- The hospital will assign a dedicated SPOC (Single Point of Contact) from each department for requirement validation and testing.
- Users will be available for UAT (User Acceptance Testing) and training sessions before go-live.
- Historical patient data migration will be limited to the last 2–3 years only.
- The system will be deployed in a single-location hospital (not multi-branch).
- Legal and regulatory compliance inputs will be provided by the hospital management.

6. Constraints

- **Budget Constraint**: Total project budget is fixed and cannot exceed predefined financial limits.
- **Time Constraint**: Project delivery must be completed within the agreed timeline (e.g., 8 months).

- **Resource Constraint:** Limited availability of domain experts and IT staff for feedback and testing.
- **Data Privacy Regulations:** Must comply with HIPAA/NABH or other local healthcare data security standards.
- **Technical Constraint:** System must run on existing hospital infrastructure (servers, PCs, network).
- **Scope Constraint:** Only core hospital functions are allowed in this phase; future phases will cover enhancements.

7. Risks

In this section of the BRD, you describe risks. A risk is something that could affect the success orfailure of a project. Analyze risksregularly asthe project progresses. While you may not be able to avoid every risk, you can limit each risk's impact on the project by preparing for it beforehand. For each risk, you'll note the likelihood of its occurrence, the cost to the project if it does occur, and the strategy for handling the risk.

Strategies include the following:
Avoid: Do something to eliminate the risk.
Mitigate: Do something to reduce damage if risk materializes.
Transfer: Pass the risk up or out to another entity.
Accept: Do nothing about the risk. Accept the consequences.

Technological Risks

This subsection of "Risk Analysis" specifies new technology issues that could affect the project.

Risk	Likelihood	Impact	Strategy	Mitigation Plan
Unfamiliarity with HMS software frameworks	Medium	High	Mitigate	Use proven technologies; involve experienced IT vendors.
System incompatibility with existing hospital hardware	Medium	Medium	Mitigate	Conduct hardware assessment and recommend minimal upgrades.

Data loss or breach during migration	Low	High	Mitigate	Backup legacy data and encrypt all data transfers.
System downtime during deployment	Medium	Medium	Mitigate	Plan deployment during low-traffic hours; keep rollback plan ready.

Skills Risks

This subsection of “Risk Analysis” specifies the risk of not getting staff with the required expertise for the project.

Risk	Likelihood	Impact	Strategy	Mitigation Plan
Lack of technical expertise in development team	Low	High	Mitigate	Hire experienced developers or engage IT service providers.
End users not trained to use the system	High	Medium	Avoid	Provide user training and easy-to-use interfaces.
Limited availability of stakeholders for UAT	Medium	Medium	Accept	Schedule early UAT and send reminders.

Political Risks

This subsection of “Risk Analysis” identifies political forces that could derail or affect the project.

Risk	Likelihood	Impact	Strategy	Mitigation Plan

Change in hospital management or leadership priorities	Medium	High	Accept	Maintain clear documentation and sign-off at each stage.
Resistance from staff to change current manual process	High	Medium	Mitigate	Conduct awareness sessions and involve users early.

Business Risks

This subsection of “Risk Analysis” describes the business implications if the project is canceled.

Risk	Likelihood	Impact	Strategy	Mitigation Plan
Project cancellation due to budget reallocation	Low	High	Transfer	Keep stakeholders informed of progress and ROI projections.
Failure to realize business value post-deployment	Medium	High	Mitigate	Define clear KPIs and ensure the system aligns with business goals.

Requirements Risks

This subsection of “Risk Analysis” describes the risk that you have not correctly described the requirements. List areas whose requirements were most likely to have been incorrectly captured.

Risk	Likelihood	Impact	Strategy	Mitigation Plan
Incomplete or misunderstood	High	High	Mitigate	Conduct workshops, walkthroughs, and get

requirements				sign-offs.
Changing requirements mid-project	Medium	High	Mitigate	Set up a Change Control Board (CCB) and formal change request process.
Poorly defined lab and pharmacy workflow details	Medium	Medium	Mitigate	Engage domain experts for detailed process mapping.

Other Risks

In this subsection of “Risk Analysis,” document any other risks not covered in the prior subsections.

Risk	**Likelihood**	**Impact**	**Strategy**	**Mitigation Plan**
Delays due to third-party vendor dependency	Medium	Medium	Mitigate	Define clear SLAs and escalation paths.
Network or infrastructure failure	Medium	High	Mitigate	Work with IT to ensure reliable hardware and backup systems.
Lack of user adoption post-go-live	High	Medium	Mitigate	Provide training, feedback loops, and post-implementation support.

8. Business Process Overview

[This describes the overall process flow from each phase]

The Hospital Management System (HMS) is designed to manage the entire patient journey and related hospital operations in a structured, automated flow. The process integrates patient registration, consultation, lab testing, pharmacy services, billing, and discharge across departments with role-based system access.

The phase-wise breakdown of the overall process flow:

Phase 1: Patient Registration

Patient visits hospital
Front office staff registers the patient with a unique patient ID.
Patient details, contact info, and basic medical history are recorded.
Patient is either assigned an appointment

Phase 2: Appointment

Patient selects department and doctor based on availability.
Doctor logs in to view patient's file and past records.
Consultation notes, diagnosis, and prescribed tests/medications are entered into the system.

Phase 3: Lab

Doctor places lab test requests in the system.
Lab technician receives notification, collects samples, and updates test status.
Test results are uploaded and linked to the patient's PR for doctor review.

Phase 4: Pharmacy

Prescription is issued by the doctor and made available to pharmacy staff.
Pharmacy dispenses medication based on prescription.
Stock is auto-updated and alerts are triggered for low/expired inventory.

Phase 5: Billing and Payment

All services (consultation, tests, pharmacy) are captured in billing module.
A consolidated bill is auto-generated.
Patient makes payment (cash/card); receipt is issued by billing desk.

Phase 6: Inpatient (if admitted)

If required, patient is admitted on suggestion of doctor and availability of ward
Bed is allocated, daily vitals and treatment are recorded.
Medicines/tests are updated continuously in Patient record and billing.

Phase 7: Discharge and Summary

Doctor finalizes treatment and initiates discharge process.
Discharge summary is generated with treatment, medication, and follow-up details.
Final bill is settled and patient is discharged.

Phase 8: Reporting & Admin Dashboard

Admin, finance, and department heads can view real-time reports:
Daily revenue
Patient flow
Doctor performance

8.1. Legacy System (AS-IS)

[Brief Explanation about the process in legacy system and draw process flow diagrams]

- **Specialized Departments:** Cardiology, Gynecology, Orthopedics, Pediatrics, ENT, and OPD.
- **Doctor**: Doctors are assigned to only one department at a time and has a visiting time and day in a week.
- **Reception system:** Patient details and fees are entered at reception using a system; patients are tracked via IDs.
- **Patient visit:** Patients visit either by choosing a doctor manually or getting admitted through the hospital.
- **Tests and prescriptions:** Doctors prescribe tests, reports are generated, and prescriptions are issued based on test results.
- **Admission process**: Based on doctor advice and availability of wards.
- **Discharge**: Happens after post-treatment and full payment of charges.
- **Roles in system:**
    - Admin manages doctor schedules.
    - Lab In-Charge uploads reports.
    - Pharma In-Charge manages medicine data and bills.
    - Reception handles all payments centrally.
    - Patients do not access the system directly

8.2. Proposed Recommendations (TO-BE)

[Describe the recommended process and how the proposed system will address the challenges in legacy system]

- **Implement Online Appointment & Token System:**
  Automate doctor selection and scheduling.
  Reduce manual work.
- **Ward Management System:**
  Track ward availability in real-time.
- **Decentralize Payment Gateways:**
  Allow lab, pharmacy, and ward counters to accept payments (integrated with CBS).
- **Digital Discharge Summary:**
  Generate auto-discharge summary once treatment closes and payments complete.
- **Analytics and Reports:**
  For admin to analyze patient visit, doctor efficiency, and billing issues.