# Smart Healthcare Appointment & Patient Management System

Prepared by : Kakumani Naga Jahnavi

## Phase 1: Problem Understanding & Industry Analysis

The objective of this phase is to analyze existing healthcare workflows, identify pain points, document stakeholder needs, and evaluate industry-specific challenges. This forms the foundation for configuring Salesforce CRM to provide an automated, secure, and scalable solution for hospitals and healthcare providers.

### • Requirement Gathering

- Patients face difficulty booking appointments due to manual phone-based systems.

- Doctors lack easy access to patient history and receive schedules manually.

- Hospital administrators rely on manual reporting, which is time-consuming.

- Insurance officers process claims via paperwork, leading to long delays.

Key Needs Identified:

- Self-service online appointment booking.

- Centralized patient medical records accessible by doctors.

- Automated patient reminders before scheduled visits.

- Digital insurance claim submission and approval.

- Real-time dashboards for hospital administrators.

### • Stakeholder Analysis

- Admin: System setup, user access, and full configuration control.

- Patients: Easy appointment booking, automated reminders, faster claim approvals.

- Doctors: Access to schedules and patient history, reduced paperwork.

- Hospital Administrators: Transparent reporting of appointments, claims, and revenue.

- Insurance Officers: Automated workflows for claim approvals, reduced fraud risks.

### • Business Process Mapping

Current Manual Workflow

1. Patients call hospital reception for appointments.

2. Receptionist assigns doctors manually.

3. Doctors are informed verbally or on paper.

4. Patient history stored in files.

5. Insurance claims processed manually.

6. Admins prepare reports manually.

Proposed Salesforce Workflow

1. Patients book appointments online via portal.

2. CRM auto-assigns doctors based on specialization and availability.

3. Automated reminders sent to patients via Email/SMS.

4. Doctors access complete patient history digitally.

5. Insurance claims routed for approval via workflows.

6. Admins view real-time dashboards of appointments and claims.

### • Industry Use Case

- Data Privacy: Compliance with HIPAA/GDPR for patient data security.

- Scalability: Handle thousands of patients and appointments daily.

- Integration: Link with labs, pharmacies, and insurance APIs.

- Improved Patient Experience: Faster appointments and reduced no-shows.

### • AppExchange Exploration

- Twilio/SendGrid → Automated reminders.

- DocuSign → Digital insurance approvals.

- Health Cloud Accelerators → Pre-built healthcare modules.

- Telemedicine Apps → Online consultations.

Decision: Hybrid approach with selective AppExchange apps and custom objects for patients, doctors, appointments, and insurance.

### Final Deliverables of Phase 1

1. Requirement Specification Document (RSD).

2. Stakeholder Requirement Matrix.

3. Business Process Mapping with workflows.

4. Industry Analysis Report.

5. AppExchange Evaluation Report.

## Phase 2: Org Setup & Configuration

- Setup Developer Org: Smart Healthcare CRM.

- Company Profile: Hospital info, working hours 9 AM–9 PM.

- Users: Admin, Doctor, Hospital Admin, Insurance Officer.

- Profiles & Roles: Patients (portal only), Doctors (appointments/history), Admin (full).

- OWD & Sharing: Patient data private, doctors see assigned records.

- Sandbox: Test automations before production.

- Deployment: Change Sets for migration.

## Phase 3: Data Modeling & Relationships

- Objects: Patient, Appointment, Doctor, Insurance Claim, Prescription.

- Fields: Appointment time, Patient history, Claim status, Doctor specialization.

- Relationships: Patient→Appointment (1:M), Appointment→Doctor (M:1), Appointment↔Claim (1:1).

- Record Types: Appointments (General/Emergency), Claims (Insurance/Self-pay).

- Schema Builder: Visualize all relationships.

## Phase 4: Process Automation (Admin)

- Validation Rule: Appointment date must be future-dated.

- Workflow: Auto 'Appointment Confirmation' email to patients.

- Approval Process: High-value insurance claims need admin approval.

- Flow Builder: Auto-assign doctors based on specialization.

- Custom Notification: Urgent/emergency appointments alert doctors.

## Phase 5: Apex Programming (Developer)

- Trigger: Update appointment status when consultation is complete.

- SOQL Queries: Fetch pending insurance claims.

- Batch Apex: Weekly appointment summary emails to admins.

- Queueable Apex: Handle bulk insurance claims.

- Scheduled Apex: Daily report of upcoming appointments.

- Future Methods: SMS reminders for patients.

- Test Classes: Validate triggers and batch jobs.

## Phase 6: User Interface Development

- Lightning App: Smart Healthcare CRM.

- Home Page: Active appointments, insurance claims, pending approvals.

- Record Pages: Patient history, doctor schedule, claim details.

- Tabs: Patients, Appointments, Doctors, Insurance Claims, Prescriptions.

- LWC Components: Appointment Booking Form, Patient Dashboard.

## Phase 7: Integration & External Access

- Google Maps API: Locate nearby hospitals/labs.

- Insurance API: Import claim details and status.

- Platform Events: Notify doctors of urgent cases.

- Experience Cloud: Patient portal for booking and history.

- OAuth: Secure logins for patients and doctors.

## Phase 8: Data Management & Deployment

- Data Import Wizard: Import patient/doctor records.

- Data Loader: Bulk appointment uploads.

- Duplicate Rules: Prevent duplicate patient entries.

- Data Export: Weekly backups.

- Change Sets: Migrate workflows & flows.

- VS Code + SFDX: Deploy Apex & LWC.

## Phase 9: Reporting, Dashboards & Security Review

- Reports: Appointments by type, Doctors by specialization, Claims processed.

- Dashboards: Hospital Performance Tracker.

- Dynamic Dashboards: Doctors see only their patients.

- Security: Patient data encrypted, Audit Trail enabled.

## Phase 10: Final Presentation & Demo Day

- Pitch: Smart Healthcare CRM ensures efficiency and better patient care.

- Demo Flow: Patient books appointment → Doctor assigned → Consultation → Insurance processed → Dashboard updated.

- Handoff Docs: Setup + user manuals.

- LinkedIn Showcase: Tag project as Smart Healthcare CRM.