Hospital Management CRM Project

# Phase 1: Problem Understanding & Industry Analysis

* Goal: Understand what we’re building and why.
* Requirement Gathering: Meet with doctors, hospital admin, receptionists, and patients.
* Example requirements:
* • Manage doctors, patients, appointments, billing, pharmacy, and lab reports.
* • Prevent overlapping appointments.
* • Generate reports on revenue, patient visits, and doctor utilization.
* Stakeholder Analysis: Admin, Doctors, Receptionists, Patients, Billing Manager, Pharmacy Staff.
* Business Process Mapping: Patient requests – Receptionist checks availability - Appointment created - Billing generated - Doctor consultation - Pharmacy/Lab if needed - Reports.
* Healthcare Industry Analysis: Appointment scheduling, emergency handling, patient history, insurance integration.

# Phase 2: Org Setup & Configuration

* Goal: Prepare Salesforce environment.
* Edition: Salesforce Developer Org.
* Company Profile: Add hospital details, set time zone & currency.
* Business Hours & Holidays: Define hospital hours (24x7 or 9–6) and holidays.
* User Setup: Create users (Doctors, Receptionists, Billing Manager, Pharmacy Staff, Admin).
* Profiles & Roles: Doctor (limited to their patients), Receptionist (create/manage appointments), Billing Manager (finance access), Admin (full access).
* OWD: Appointments = Private, Patients = Private, Doctors = Public Read Only, Billing = Private.
* Permission Sets: For reports, dashboards, or pharmacy integration.

# Phase 3: Data Modeling & Relationships

* Goal: Build data structure.
* Objects:
* Patient (Name, Age, Gender, Contact, Medical History).
* Doctor (Specialization, Fees, Availability, Department).
* Appointment (Date, Time, Status, Total Fees).
* Billing (Amount, Payment Mode, Linked Appointment).
* Pharmacy (Medicines, Availability, Cost).
* Lab Test (Type, Result, Linked Appointment).
* Relationships: Appointment -> Patient (Lookup), Appointment -Doctor (Lookup), Billing - Appointment (Master-Detail).
* Page Layouts: Doctor shows appointments, Patient shows visits, Billing shows linked appointment.

# Phase 4: Process Automation (Admin)

* Goal: Automate tasks.
* Validation Rules: Appointment date -Today, Billing must have linked appointment.
* Flows: Auto-calculate fees, send patient confirmation email/SMS.
* Approval Process: Insurance-based billing approval required by Billing Manager.
* Tasks: Notify doctor about upcoming appointments.
* Custom Notifications: Alert Pharmacy/Lab for prescriptions/tests.

# Phase 5: Apex Programming (Developer)

* Goal: Add advanced logic.
* Triggers: Prevent overlapping doctor appointments, auto-create billing record after appointment confirmation.
* Handler Classes: Use best practices for trigger logic.
* Batch Apex: Weekly job to check unpaid bills.
* Queueable Apex: Bulk appointment reminders to patients.
* Scheduled Apex: Daily summary email to each doctor with their schedule.
* Future Methods: Call external insurance or pharmacy API asynchronously.
* Exception Handling: Ensure safe rollback on booking errors.

# Phase 6: User Interface Development

* Goal: Build user-friendly hospital CRM app.
* Lightning App Builder: Create a ‘Hospital CRM’ application.
* Record Pages: Doctor (appointments, patients), Patient (records, history), Billing (payments).
* Tabs: Patients, Doctors, Appointments, Billing, Pharmacy, Lab.
* LWC: Doctor search by specialization/availability, Appointment booking form.
* Apex + LWC: Handle appointment booking and real-time availability check.
* Utility Bar: Quick actions (Book Appointment, Generate Bill, Add Prescription).

# Phase 7: Integration & External Access

* Goal: Connect with external systems.
* Named Credentials: Store pharmacy/insurance API keys.
* REST Callouts: Send SMS/WhatsApp reminders.
* Platform Events: Trigger pharmacy/lab staff when new orders/tests are created.
* Change Data Capture: Sync billing updates with external finance software.
* Salesforce Connect: Connect external patient insurance database.
* API Limits Monitoring: Ensure hospital automation does not exceed Salesforce limits.

# Phase 8: Data Management & Deployment

* Goal: Manage data efficiently and deploy system safely.
* Data Import Wizard: Import demo patients, doctors, medicines.
* Data Loader: Bulk load appointments & billing records.
* Duplicate Rules: Prevent duplicate patients or bills.
* Data Export & Backup: Weekly export of patient records and billing.
* Change Sets: Move changes from Sandbox to Production.
* VS Code & SFDX: Source-driven deployment for developers.

# Phase 9: Reporting, Dashboards & Security Review

* Goal: Monitor hospital KPIs and secure sensitive data.
* Reports: Doctor utilization, department-wise revenue, patient visit history, unpaid bills.
* Dashboards: Admin (Revenue Overview), Doctor (Appointments), Billing (Payments Collected).
* Dynamic Dashboards: Each doctor sees only their appointments.
* Security: Restrict medical history from receptionists, enforce HIPAA/GDPR compliance.
* Audit Trail: Track sensitive patient data changes.

# Phase 10: Final Presentation

* Goal: Deliver final solution like a real project.
* Presentation: Explain problem , solution & benefits.
* Demo: Book appointment - Approval - Email/SMS -Billing - Reports.
* Documentation: Provide hospital staff user guide, technical design doc.
* Portfolio Showcase: Publish project on LinkedIn/Resume for career growth.
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