Project Documentation

Healthcare management System on Salesforce

Phase 3: Data Modeling & Relationships

1. Introduction

In this phase, we design the **data model** of the Salesforce application to represent the hospital appointment and health tracking process.
A well-structured data model ensures **scalability, patient confidentiality, and efficient reporting**.

This phase involves **Standard Objects, Custom Objects, Fields, Record Types, Page Layouts, Compact Layouts, Schema Builder, Relationships, and Junction Objects**.

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2. Standard & Custom Objects

Standard Objects:

Account → Represents hospital departments or external partner hospitals.

Contact → Represents patients or doctors.

Case → Can track patient service requests or complaints.

Custom Objects (specific to project):

Patient__c → Stores patient details (Name, Age, Gender, Contact Info, Medical History).

Doctor__c → Represents doctors (Name, Specialization, Availability, Contact Info).

Appointment__c → Tracks patient-doctor appointments (Date, Time, Status, Reason).

HealthRecord__c → Stores patient medical history (Symptoms, Diagnosis, Prescription, Reports).

Department__c → Represents hospital departments (Name, Services, Doctors linked).

PatientDoctor__c (Junction Object) → Links Patients and Doctors for many-to-many relationships.

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3. Fields

Each object has standard fields plus additional custom fields.

Patient__c Fields:

Patient Name (Text)

Age (Number)

Gender (Picklist → Male, Female, Other)

Phone (Phone)

Email (Email)

Medical History (Long Text Area)

Doctor__c Fields:

Doctor Name (Text)

Specialization (Picklist → Cardiologist, Orthopedic, Pediatrician, etc.)

Contact Info (Phone, Email)

Availability (Picklist → Available, On Leave, Busy)

Department (Lookup → Department__c)

Appointment__c Fields:

Appointment Date (Date/Time)

Status (Picklist → Scheduled, Completed, Cancelled, Rescheduled)

Reason for Visit (Text Area)

Patient (Lookup → Patient__c)

Doctor (Lookup → Doctor__c)

HealthRecord__c Fields:

Symptoms (Long Text Area)

Diagnosis (Long Text Area)

Prescription (Long Text Area)

Report Upload (File)

Related Patient (Lookup → Patient__c)

Related Appointment (Lookup → Appointment__c)

Department__c Fields:

Department Name (Text)

Services Offered (Long Text Area)

PatientDoctor__c (Junction Object):

Patient (Master-Detail → Patient__c)

Doctor (Master-Detail → Doctor__c)

Status (Picklist → Active, Inactive)

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4. Record Types

Appointment__c Record Types:

OPD Appointment

Emergency Appointment

Surgery Appointment

HealthRecord__c Record Types:

General Consultation

Lab Report

Prescription

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5. Page Layouts

Patient__c Layouts:

Basic Info Layout → Shows patient demographics.

Medical History Layout → Includes appointments and health records.

Doctor__c Layouts:

Doctor Profile Layout → Shows specialization and contact details.

Availability Layout → Includes schedules and appointments.

Appointment__c Layouts:

OPD Layout → Basic check-up details.

Surgery Layout → Pre-op & post-op details.

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6. Compact Layouts

Patient__c Compact Layout: Patient Name, Age, Phone, Gender.
Doctor__c Compact Layout: Doctor Name, Specialization, Availability.
Appointment__c Compact Layout: Appointment Date, Status, Doctor, Patient.
HealthRecord__c Compact Layout: Symptoms, Diagnosis, Prescription.

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7. Schema Builder

Schema Builder will be used to:

Visualize relationships between Patient, Doctor, Appointment, HealthRecord, and Department.

Arrange objects to represent **ERD (Entity Relationship Diagram)**.

Validate **junction objects** and field dependencies.

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8. Relationships

Patient__c → Appointment__c → Lookup (one patient can have many appointments).

Doctor__c → Appointment__c → Lookup (one doctor can have many appointments).

Patient__c → HealthRecord__c → Master-Detail (a patient can have many health records).

Appointment__c → HealthRecord__c → Lookup (each record tied to appointment).

Department__c → Doctor__c → Lookup (department has many doctors).

Patient__c ↔ Doctor__c → Many-to-Many (managed by junction object PatientDoctor__c).

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9. Junction Objects

PatientDoctor__c → Junction between Patient and Doctor.

Purpose: Track ongoing doctor-patient associations beyond single appointments.

Helps in long-term treatment tracking and follow-ups.

10. External Objects

External_LabReports__x → Connects Salesforce to external lab systems for diagnostics.

External_WearableData__x → Connects Salesforce with health trackers (Fitbit, Apple Health) for real-time monitoring.

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11. Documentation Deliverables

ERD Diagram (Patient, Doctor, Appointment, HealthRecord, Department, PatientDoctor).

Custom Object & Field Tables (Name, API Name, Type, Description).

Record Type & Layout Mapping.

Junction Object Mapping.

Screenshots: Schema Builder, Page Layouts, Compact Layouts.

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12. Benefits of This Phase

Provides a **clear and scalable data structure** for hospital processes.

Supports **appointment scheduling, tracking, and automation**.

Enables **doctor-patient history visibility**.

Prepares the model for **automation, reporting, and integrations** in later phases.

Phase 3 Deliverable:

Defined objects, fields, and relationships.

Mapped record types, layouts, and compact layouts.

Designed ERD using Schema Builder.

Established junction objects for many-to-many relationships.

This forms the foundation for **Phase 4: Process Automation (Admin)**.