

Phase 3: Data Modeling & Relationships

Project Context:

In a healthcare Salesforce system, prescription management is a critical workflow. Patients, doctors, medications, and pharmacies interact in a structured way. Phase 3 focuses on **building the data foundation** by creating custom objects, defining relationships, and implementing record types. This phase ensures data is **accurate, scalable, and usable for automation and reporting**.

1. Custom Objects

Custom objects represent unique entities in your Salesforce system. For the prescription workflow, the following custom objects are required:

1.1 Prescription

- **Purpose:** Central object to store all prescription details.
- **Key Fields:**
 - **Patient (Master-Detail):** Links prescription to the patient.
 - **Doctor (Lookup):** Identifies the doctor who issued the prescription.
 - **Prescription Date:** Date when the prescription was issued.
 - **Expiry Date:** Date when the prescription expires.
 - **Status:** Track prescription lifecycle (Active, Completed, Expired).
- **Use Case:** Every patient may have multiple prescriptions. Doctors need a clear record of what they prescribed and when.

The screenshot shows the Salesforce Object Manager interface for the 'Prescription' custom object. The left sidebar lists various setup options like Details, Fields & Relationships, Page Layouts, etc. The main content area is titled 'Fields & Relationships' and displays a table of fields. The table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The indexed column contains checkmarks in most rows. The table entries are:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedBy	Lookup(User)		✓
Doctor	Doctor_c	Lookup(Doctor)		✓
Expiry Date	Expiry_Date_c	Date		✓
Last Modified By	LastModifiedBy	Lookup(User)		✓
Medication	Medication_c	Lookup(Medication)		✓
Owner	OwnerId	Lookup(User,Group)		✓
Patient	Patient_c	Lookup(Patient)		✓
Prescription Date	Prescription_Date_c	Date		✓
Prescription Number	Name	Auto Number		✓

1.2 Medication

- **Purpose:** Stores details of medicines used in prescriptions.
- **Key Fields:**
 - **Name:** Medicine name (e.g., Paracetamol).
 - **Dosage:** Quantity per intake (e.g., 500mg).
 - **Frequency:** How often it should be taken (e.g., twice a day).
 - **Stock Quantity:** Current available stock in pharmacy inventory.
- **Use Case:** Allows tracking of medicine details and managing inventory efficiently.

The screenshot shows the Salesforce Object Manager interface for the 'Medication' object. The left sidebar lists various setup options like Details, Fields & Relationships, Page Layouts, etc. The main content area is titled 'Fields & Relationships' and displays a table of fields. The table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The fields listed are: Created By (CreatedById, Lookup(User)), Dosage (Dosage__c, Text(18)), Frequency (Frequency__c, Text(18)), Last Modified By (LastModifiedById, Lookup(User)), Owner (OwnerId, Lookup(User,Group)), Prescription Name (Name, Text(80)), and Stock Quantity (Stock_Quantity__c, Number(18, 0)).

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Dosage	Dosage__c	Text(18)		
Frequency	Frequency__c	Text(18)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		
Prescription Name	Name	Text(80)		
Stock Quantity	Stock_Quantity__c	Number(18, 0)		

1.3 Refill Request

- **Purpose:** Handles requests from patients for medication refills.
- **Key Fields:**
 - **Linked Prescription (Lookup):** Connects the request to a specific prescription.
 - **Status:** Pending, Approved, Rejected.
- **Use Case:** Doctors or pharmacists can approve refill requests without creating a new prescription, streamlining patient care.

Refill Request

Fields & Relationships

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		✓
Last Modified By	LastModifiedById	Lookup(User)		✓
Owner	OwnerId	Lookup(User,Group)		✓
Prescription	Prescription__c	Lookup(Prescription)		✓
Refill Request Name	Name	Text(80)		✓
Status	Status__c	Picklist		✓

1.4 Adherence Log

- Purpose:** Tracks patient compliance with prescribed medications.
- Key Fields:**
 - Patient:** Identifies who took the medication.
 - Prescription:** Which prescription the log belongs to.
 - Medication:** Which medication was taken.
 - Date/Time:** When the patient marked it as taken.
 - Taken (Checkbox):** Indicates adherence.
- Use Case:** Provides visibility into patient adherence, which can trigger alerts for missed doses.

Adherence Log

Fields & Relationships

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		✓
Date/Time	Date_Time__c	Date/Time		✓
Last Modified By	LastModifiedById	Lookup(User)		✓
Log Number	Name	Auto Number		✓
Medication	Medication__c	Lookup(Medication)		✓
Owner	OwnerId	Lookup(User,Group)		✓
Patient	Patient__c	Lookup(Patient)		✓
Prescription	Prescription__c	Lookup(Prescription)		✓
Taken	Taken__c	Checkbox		✓

1.5 Pharmacy Inventory

- **Purpose:** Tracks medicine stock and expiry dates in pharmacies.
- **Key Fields:**
 - **Medicine Name:** Name of the medicine in stock.
 - **Quantity:** Available quantity.
 - **Expiry Date:** Tracks shelf life.
- **Use Case:** Ensures pharmacies maintain stock and avoid dispensing expired medications.

The screenshot shows the Salesforce Object Manager interface for the 'Inventory' object. On the left, there's a sidebar with options like Details, Fields & Relationships (which is selected), Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Restriction Rules, Scoping Rules, and Object Access. The main area is titled 'Fields & Relationships' and lists seven items. The table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The data is as follows:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Expiry Date	Expiry_Date__c	Date		
Inventory Name	Name	Text(80)		✓
Last Modified By	LastModifiedById	Lookup(User)		
Medicine Name	Medicine_Name__c	Lookup(Medicine Name)		✓
Owner	OwnerId	Lookup(User,Group)		✓
Quantity	Quantity__c	Number(18, 0)		

2. Object Relationships

Relationships define how data is connected, ensuring consistent data flow across objects.

2.1 Patient → Prescription

- **Type:** Master-Detail
- **Purpose:**
 - A patient can have multiple prescriptions.
 - If a patient is deleted, all related prescriptions are automatically deleted.
- **Use Case:** Maintains data integrity and simplifies reporting for individual patients.

2.2 Prescription → Medication

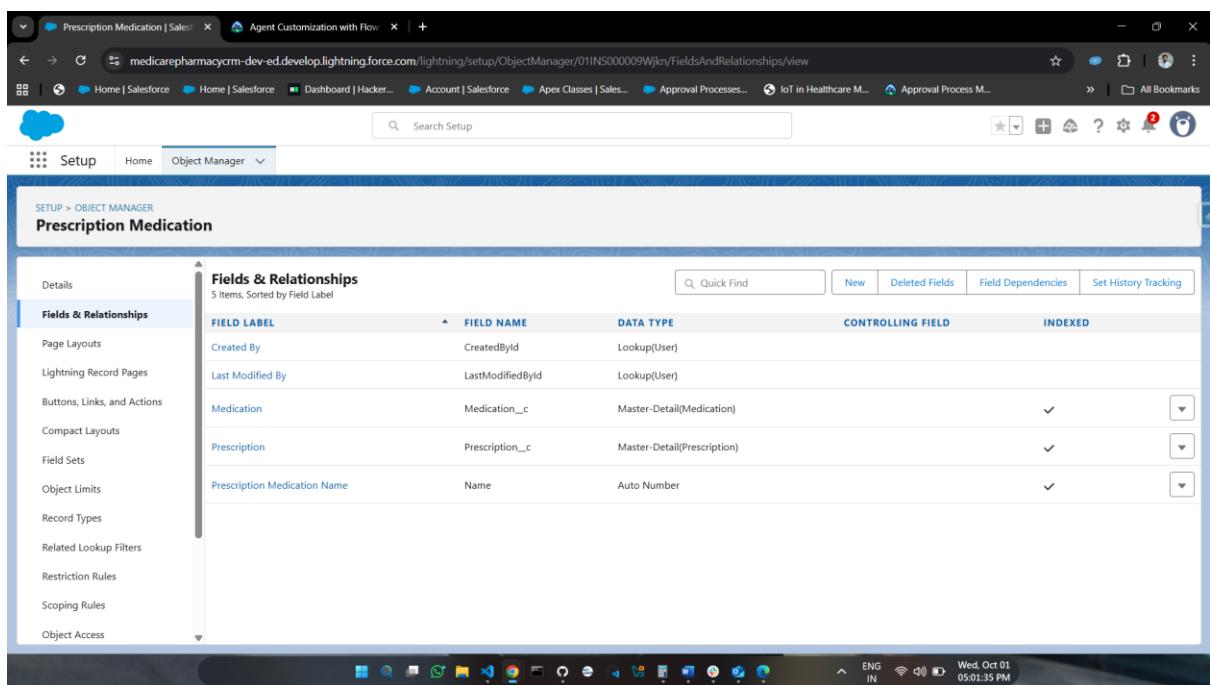
- **Type:** Many-to-Many (via Junction Object)
 - **Purpose:**
 - A prescription can have multiple medications.
 - A medication can belong to multiple prescriptions.
 - **Use Case:** Handles prescriptions containing several medicines efficiently.
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2.3 Prescription → Doctor

- **Type:** Lookup
 - **Purpose:**
 - Connects the prescription to the doctor who issued it.
 - Optional deletion rules; deleting a doctor does not delete prescriptions.
 - **Use Case:** Doctors can review prescriptions they issued, supporting accountability.
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2.4 Prescription → Refill Request

- **Type:** Lookup
- **Purpose:**
 - Tracks any refill requests related to a prescription.
- **Use Case:** Doctors or pharmacists can view pending refill requests and take action.



The screenshot shows the Salesforce Object Manager interface for the 'Prescription Medication' object. The left sidebar lists various customization options like Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, etc. The main area displays the 'Fields & Relationships' section. It shows five fields: 'Created By', 'Last Modified By', 'Medication', 'Prescription', and 'Prescription Medication Name'. The 'Medication' field is a Master-Detail relationship with the 'Medication' object. The 'Prescription' field is a Master-Detail relationship with the 'Prescription' object. The 'Prescription Medication Name' field is a Name field. The 'Fields & Relationships' table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Medication	Medication__c	Master-Detail(Medication)	✓	▼
Prescription	Prescription__c	Master-Detail(Prescription)	✓	▼
Prescription Medication Name	Name	Auto Number	✓	▼

3. Record Types

Record types allow different layouts and business processes for the same object.

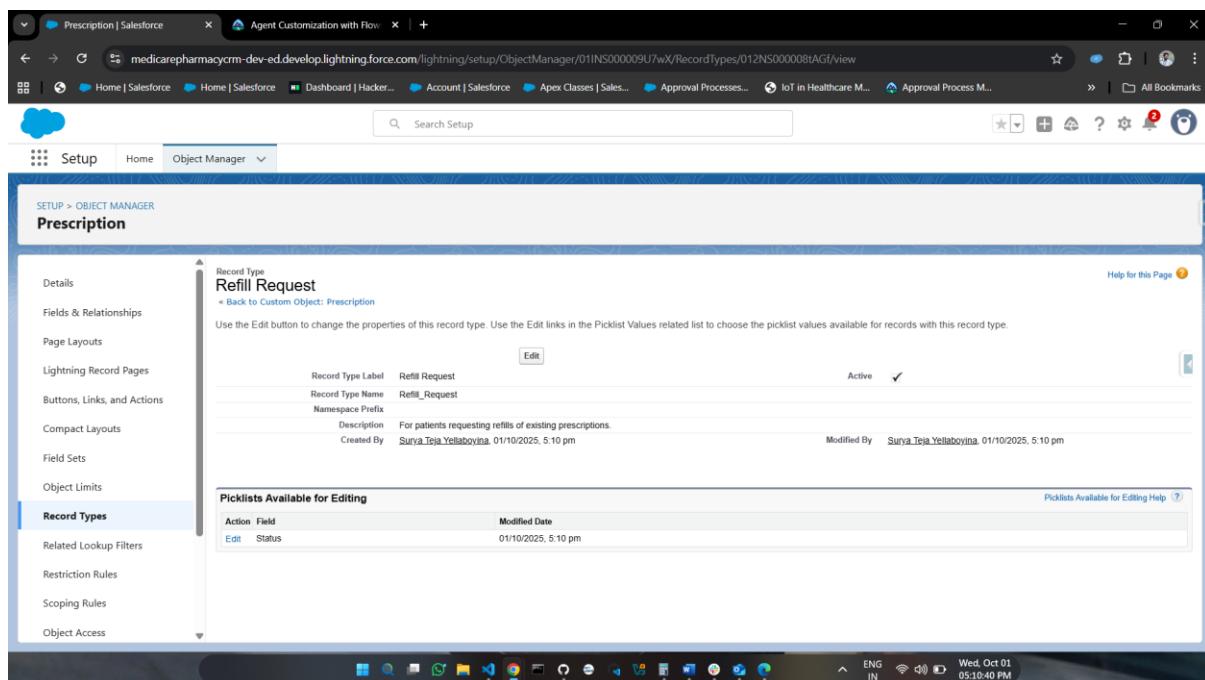
3.1 Prescription Object Record Types

1. New Prescription

- Standard workflow for creating a fresh prescription.
- Custom page layouts and fields relevant to new prescriptions.

2. Refill Request

- Workflow for requesting a refill.
- Fields like “Linked Prescription” and “Status” are highlighted.
- **Importance:** Different workflows and page layouts improve efficiency and reduce errors.



4. Field-Level and Data Accuracy Considerations

- **Required Fields:** Ensure essential data (e.g., Patient, Prescription Date, Medication) is always captured.
- **Validation Rules:** Prevent incorrect entries, like negative stock quantity or expiry date earlier than today.
- **Picklists:** Standardize entries for Status (Active, Completed, Expired) to maintain consistency.

5. Importance of Phase 3

1. **Structured Data Storage:**
 - Organizes all healthcare data in a clear, relational structure.
2. **Scalability:**
 - Supports thousands of patients, prescriptions, medications, and refill requests.

3. Automation Ready:

- Proper relationships allow Salesforce Flows, Process Builder, or Apex to automate notifications, reminders, and approval workflows.

4. Reporting & Insights:

- Enables reports like:
 - Patient adherence reports
 - Medications running low in inventory
 - Pending refill requests
 - Doctor-specific prescription trends

6. Example Use Case Flow in Phase 3

1. Doctor creates a **New Prescription** for a patient.
2. Prescription links to one or multiple **Medications**.
3. **Patient** receives prescription details.
4. **Pharmacy Inventory** updates when medicines are dispensed.
5. Patient logs medication intake in **Adherence Log**.
6. Patient requests a refill → creates **Refill Request** linked to the prescription.
7. Doctor or Pharmacist approves the refill → inventory updates automatically.

7. Diagram Representation

- You can include a diagram showing:
 - **Patient** → **Prescription** → **Medication** → **Refill Request** → **Adherence Log**
 - **Pharmacy Inventory** connected to Medication
 - Relationships (Master-Detail vs Lookup vs Junction Object)

This **visualizes the data model** and strengthens your report.

✓ Conclusion

Phase 3 is foundational in building a healthcare Salesforce system. By creating **custom objects, establishing relationships, and using record types**, the system can capture all prescription-related data accurately. This structured data layer enables future automation, ensures integrity, and supports meaningful reporting and analytics.

