

Phase 3 – Data Modeling and Relationships

In Phase 3, we design the **data model** of our application by creating custom objects, fields, and relationships between them. This ensures that data is stored in a structured way and different objects can interact smoothly.

1. Object Creation

We create the required **custom objects** that represent the real-world entities of our project.

Examples:

- **Aircraft** – Stores details of aircrafts.
- **Flight** – Holds flight information such as number, timings, and status.
- **Passenger** – Maintains passenger details.
- **Booking** – Records booking information linked to passengers and flights.
- **Route** – Stores information about source, destination, and distance.

2. Fields

For each object, we define **custom fields** based on business requirements.

- Text fields (e.g., Flight Number, Passenger Name)
- Number fields (e.g., Capacity, Distance)
- Date/Time fields (e.g., Departure Time, Arrival Time)
- Picklist fields (e.g., Status: Scheduled, Cancelled, Completed)
- Formula/Roll-up fields (e.g., Available Seats = Capacity – Booked Seats)

3. Relationships

We establish relationships between objects to maintain data integrity:

- **Lookup Relationship** – Links objects in a flexible way.
 - Flight → Aircraft
 - Booking → Passenger
- **Master-Detail Relationship** – Creates strong parent-child relation.
 - Flight → Route
 - Booking → Flight
- **Many-to-Many Relationship** (via Junction Object if required).
 - Example: A Passenger can have many Bookings, and a Booking can contain many Passengers (handled through Booking object).

4. Validation Rules

We enforce business rules to keep data accurate:

- Departure Time must be less than Arrival Time.
- Booking Date should be before the Flight Departure Date.
- Capacity cannot be less than 0.

5. Page Layouts and Record Types

- Customize **page layouts** for each object to display relevant fields.
- Create **record types** if objects have different categories (e.g., Domestic vs International flights).

6. Security and Sharing

- Define **object-level permissions** (who can view, create, edit, delete).
- Apply **field-level security** to restrict sensitive information (e.g., passenger contact).
- Configure **record-level sharing** for access based on ownership or roles.

7. Schema Diagram

A schema diagram (ERD) can be drawn showing all custom objects and their relationships, which helps visualize the data model.

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Search Setup

Setup Home Object Manager

SETUP > OBJECT MANAGER

Flight

Details Fields & Relationships

7 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Company	Company_c	Picklist		▼
Created By	CreatedBy	Lookup(User)		▼
Flight Id	Name	Auto Number		✓
Flight Name	Flight_Name_c	Text(200)		▼
International / Domestic	International_Domestic_c	Checkbox		▼
Last Modified By	LastModifiedBy	Lookup(User)		▼
Owner	OwnerId	Lookup(User,Group)		✓

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Setup Home Object Manager

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SETUP > OBJECT MANAGER
Pilot

Fields & Relationships
11 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Contact Number	Contact_Number_c	Phone		
Created By	CreatedBy	Lookup(User)		
DOB	DOB_c	Date		
Email ID	Email_ID_c	Email		
Experience	Experience_c	Picklist		
First Name	First_Name_c	Text(10)		
Last Modified By	LastModifiedBy	Lookup(User)		
Last Name	Name	Text(80)		✓
Level	Level_c	Picklist		

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The screenshot shows the Salesforce Object Manager interface for the 'Flight Schedule' object. The left sidebar has a 'Fields & Relationships' section selected. The main area displays a table of fields and their properties.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Arrival Date Time	Arrival_Date_Time__c	Date/Time		
Created By	CreatedBy	Lookup(User)		
Departure Date Time	Departure_Date_Time__c	Date/Time		
Destination Name	Destination_Name__c	Picklist		
Flight Schedule ID	Name	Auto Number		✓
Last Modified By	LastModifiedBy	Lookup(User)		
Name of First Pilot	Name_of_First_Pilot__c	Lookup(Pilot)		✓
Name of Second Pilot	Name_of_Second_Pilot__c	Lookup(Pilot)		✓
Select Flight	Select_Flight__c	Master-Detail(Flight)		✓

✓ Outcome of Phase 3:

By the end of this phase, we will have a **complete data model** with objects, fields, and relationships properly defined. This structure will serve as the foundation for business logic, automation, and reporting in the next phases.