Phase 3: Data Modeling & Relationships

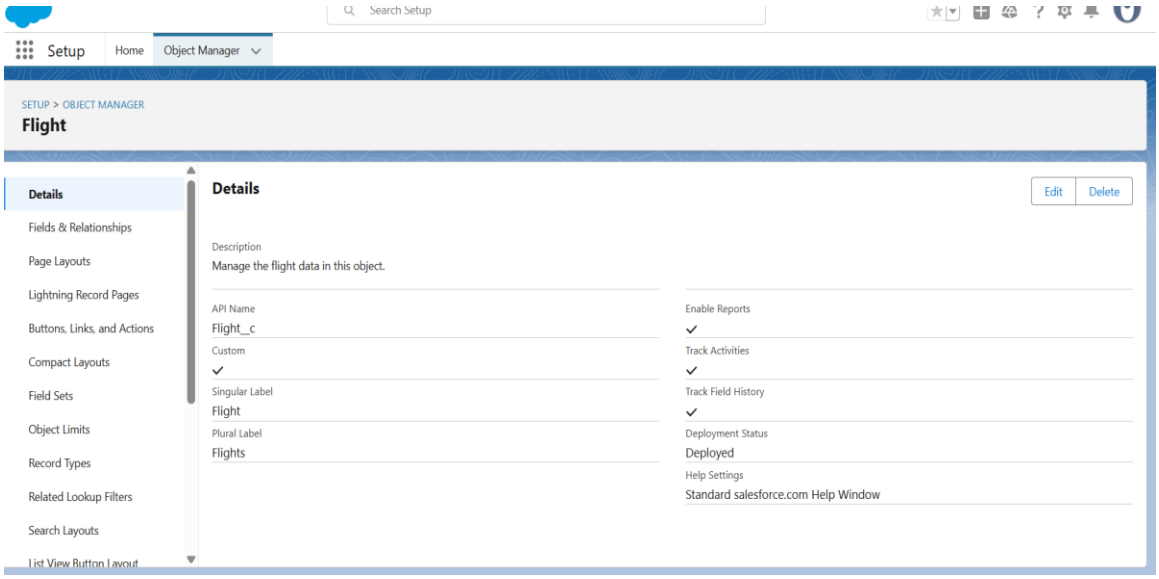
Introduction

In this phase, the data model for the Airline Management System is designed. Salesforce provides both standard and custom objects to capture system data. The goal of this phase is to define the objects, their fields, and the relationships between them so that the system can effectively manage flights, pilots, and flight schedules.

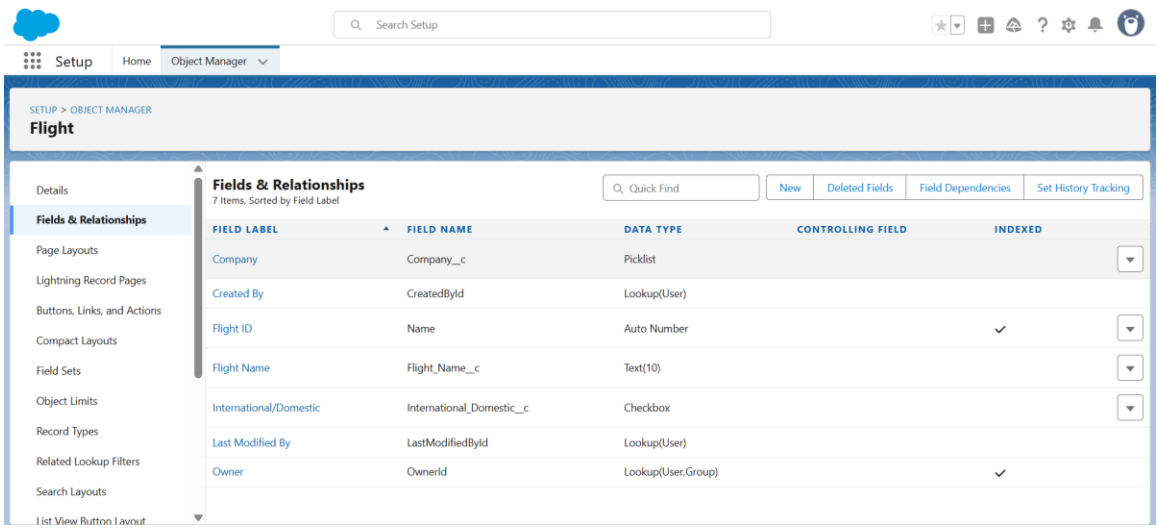
Objects and Fields

The following custom objects are created in Salesforce along with their key fields:

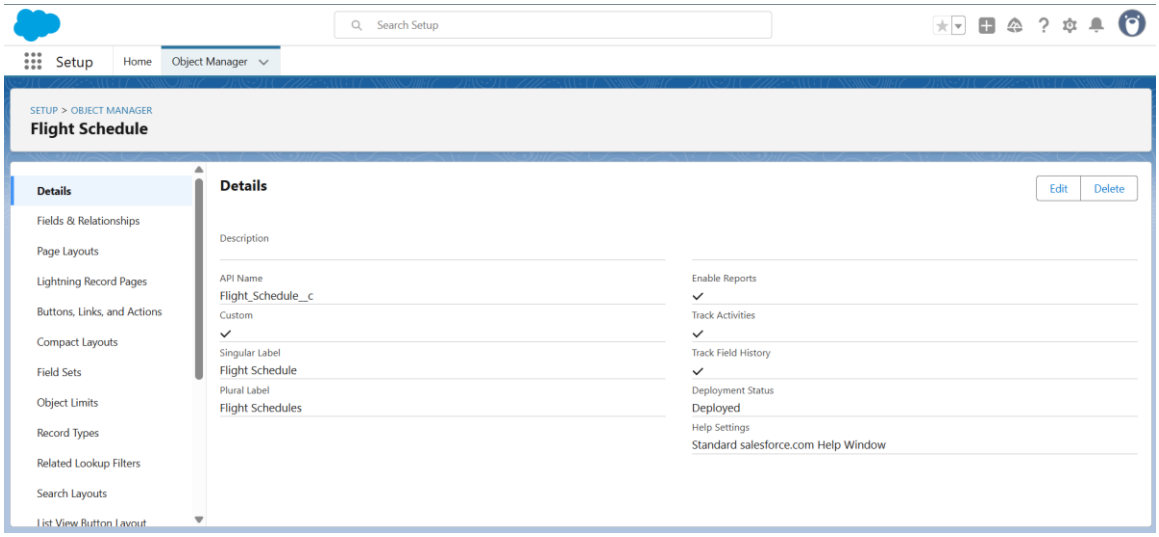
1. **Flight**



- Flight ID (Auto Number, format: FMS-00001-DDMMYY)
- Flight Name (Text, e.g., Go-102)
- Company (Picklist – Kingfisher, Air Asia, IndiGo, GoAir, etc.)
- International/Domestic (Checkbox – active for domestic)

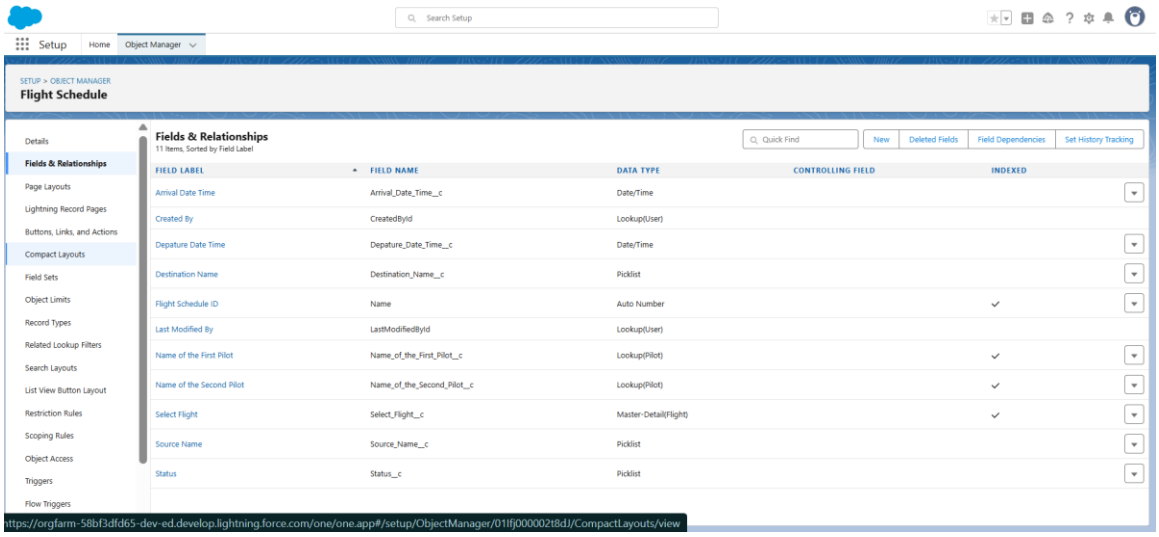


2. **Flight Schedule**

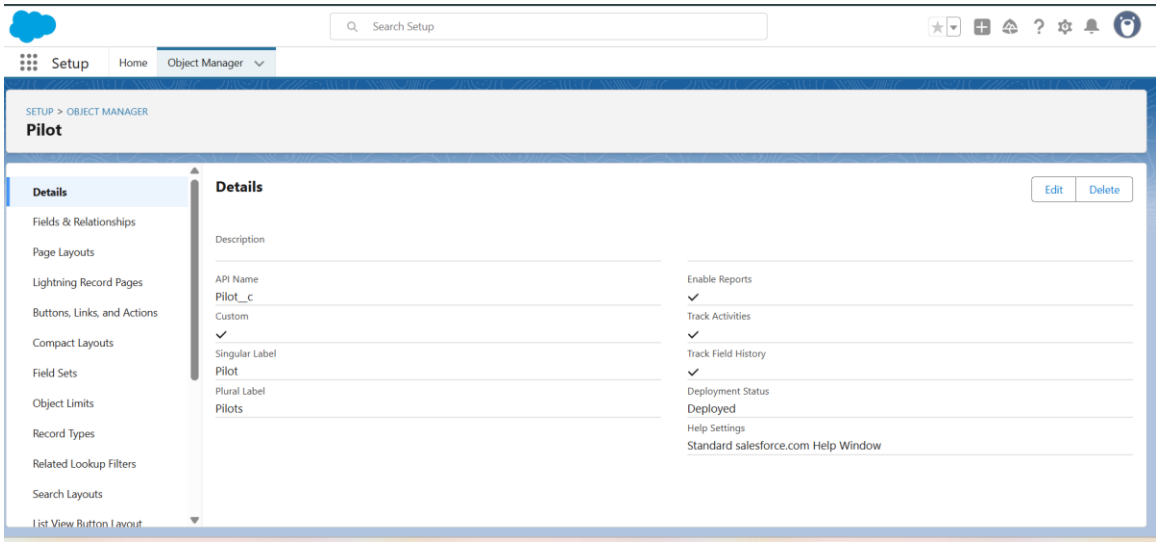


- Select Flight (Lookup to Flight object, Master-Detail relationship)
- Source Name (Picklist/Text, e.g., Nagpur, Pune, Chennai)
- Destination Name (Picklist/Text, e.g., Nagpur, Pune, Chennai)
- Departure Date and Time (DateTime, e.g., 12/12/2022 10:00 AM)
- Arrival Time (DateTime, e.g., 12/12/2022 12:10 PM)
- Duration (Formula field to calculate journey duration, e.g., 02 Hours 10 Minutes)
- Status (Picklist – Open, In Progress, Closed, Cancelled; default = Open)
- Name of the First Pilot (Lookup to Pilot object)

- Name of the Second Pilot (Lookup to Pilot object)

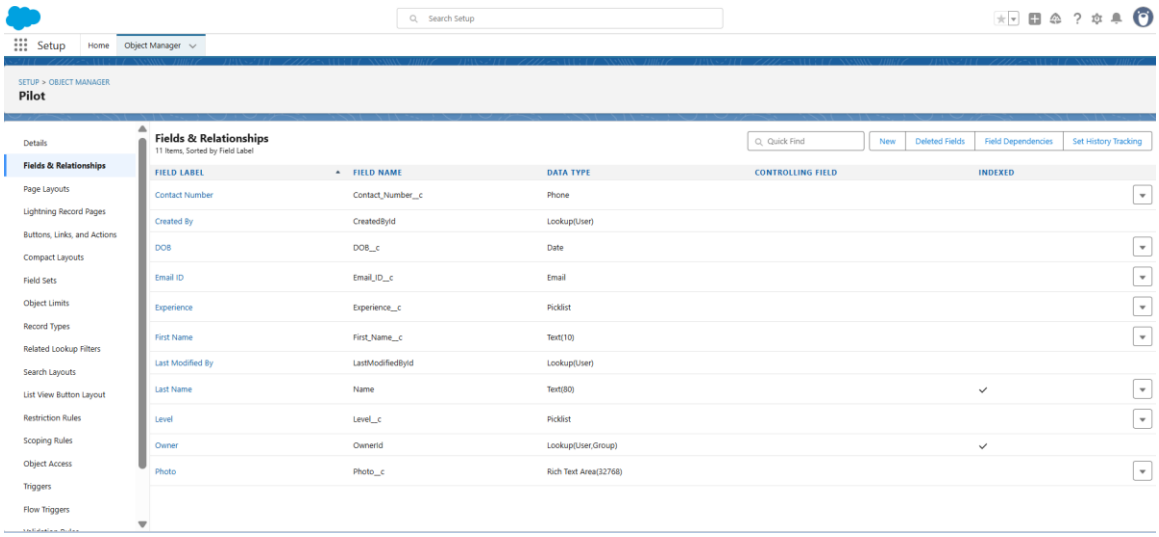


3. **Pilot**



- First Name (Text, e.g., Sachin)
- Last Name (Text, e.g., Sharma)
- Date of Birth (Date, e.g., 12/04/1996)
- Age (Formula based on DOB, must be >= 18)
- Contact Number (Phone, e.g., 7020768921)
- Email ID (Email, mandatory, e.g., sachin@gmail.com)
- Experience (Number – years of service)

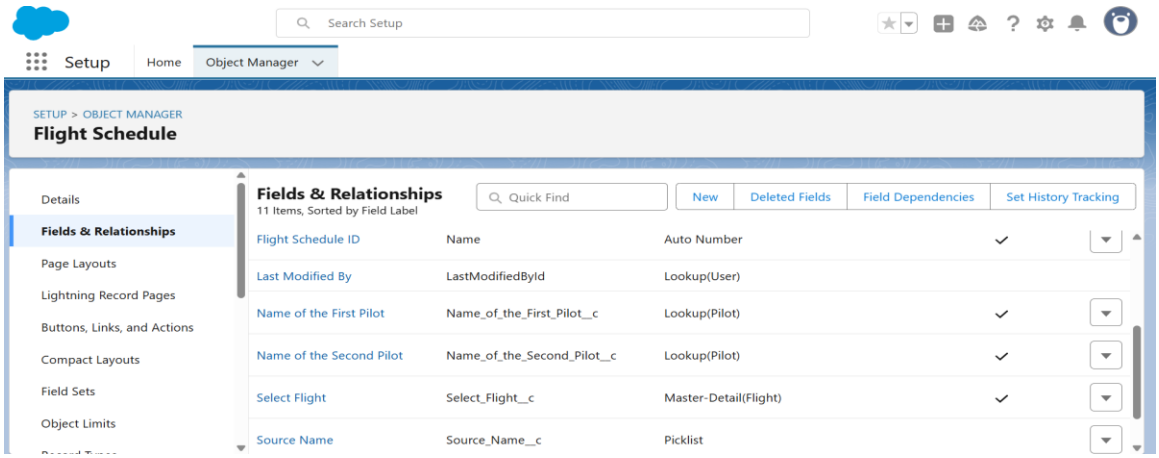
- Level (Picklist – Junior <1 year, Senior 2–5 years, Super Senior >5 years)
- Photo (Rich Text Area/Image upload)



Relationships

The following relationships are defined among objects:

- One Flight can have multiple Flight Schedules (One-to-Many).
- Each Flight Schedule is linked to exactly one Flight (Lookup/Master-Detail).
- Each Flight Schedule can reference two Pilots (two Lookup fields to Pilot).
- One Pilot can be assigned to many Flight Schedules (One-to-Many).



Validation Rules and Business Rules

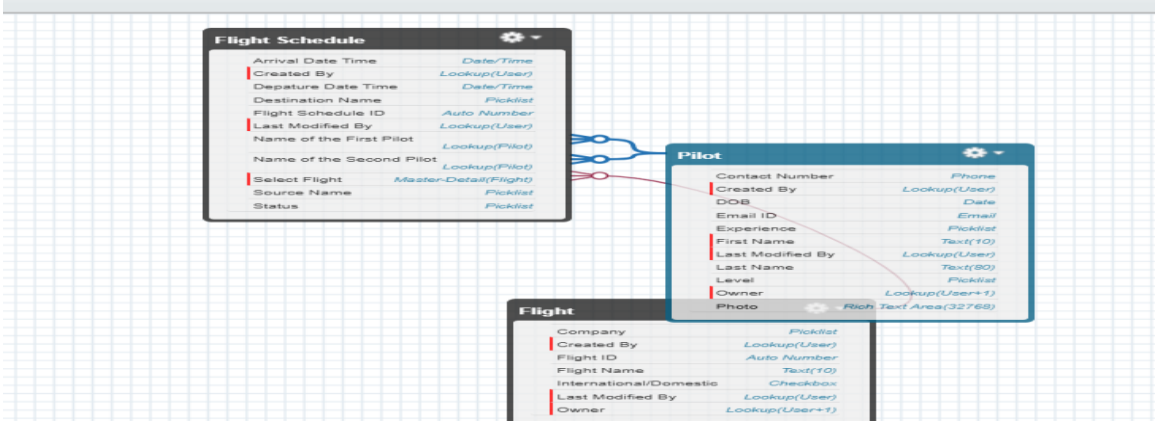
- Source Name and Destination Name must not be the same.
- Default Status of a Flight Schedule is Open when created.

• First Name and Last Name of Pilot must not be identical.

• Pilot Age must be greater than or equal to 18.

Schema / ER Description

The Entity-Relationship (ER) model of the Airline Management System consists of three custom objects: Flight, Flight Schedule, and Pilot. Flight has a one-to-many relationship with Flight Schedule, allowing multiple schedules per flight. Flight Schedule also contains lookup fields for two Pilots, establishing a many-to-many relationship between Pilots and Flight Schedules. This structure ensures that every scheduled flight is linked to its respective flight and assigned pilots.



Conclusion

The data modeling and relationship design for the Airline Management System lays the foundation for the project. By creating Flight, Flight Schedule, and Pilot objects with well-defined fields and relationships, the system is capable of handling flight operations, scheduling, and pilot assignments efficiently. This structured model also supports automation, reporting, and dashboard creation in later phases.