

Phase 4: Process Automation

Airline Management System

Salesforce-Based Passenger & Operations Management

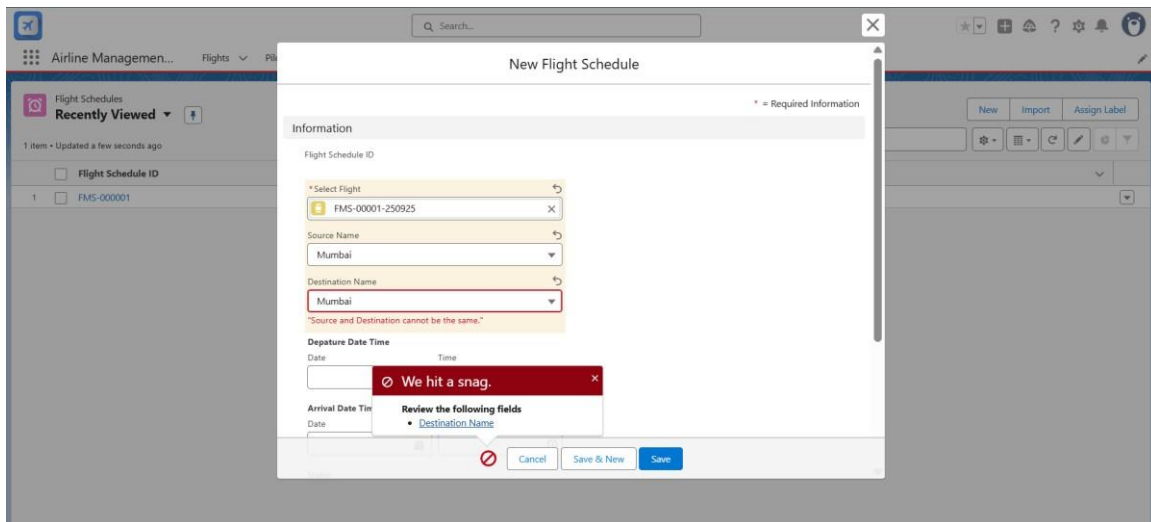
1. Introduction

Phase 4 focuses on implementing automation features in Salesforce for the Airline Management System. The goal is to enforce business rules, improve efficiency, and ensure data integrity when managing **Flights, Flight Schedules, and Pilots**. By introducing **validation rules, formula fields, flows, queues, email alerts, and dashboards**, this phase reduces manual errors, improves collaboration among operators, and gives management accurate real-time insights.

2. Validation Rules

Validation rules enforce data correctness and prevent invalid records from being saved. In this project, the following validation rules are created:

- **Source \neq Destination (Flight Schedule):** Prevents scheduling a flight from and to the same location.

The screenshot shows a Salesforce interface for creating a new flight schedule. The form is titled 'New Flight Schedule' and includes a search bar at the top. On the left, there's a sidebar with 'Flight Schedules' and a 'Recently Viewed' section showing one item: 'FMS-000001'. The main form area has a 'Flight Schedule ID' field with the value 'FMS-00001-250925'. Below this are 'Source Name' and 'Destination Name' dropdown menus, both set to 'Mumbai'. A red error message box is displayed over the 'Destination Name' field, stating 'We hit a snag. Review the following fields: Destination Name'. The error message also includes a note: 'Source and Destination cannot be the same.' At the bottom of the form, there are 'Cancel', 'Save & New', and 'Save' buttons.

- **Pilot Name Validation (Pilot):** First Name and Last Name must not be identical.

The screenshot shows a web application for "Airline Management". On the left, a sidebar lists "Pilots" with a "Recently Viewed" section showing two items: "Tendulkar" and "Kohali". The main area displays a form for adding a new pilot. The form fields are: First Name (anushka), Last Name (anushka), DOB (empty), Contact Number (empty), Email ID (Tendulkar@g), and Experience (None). A red error message box is overlaid on the form, stating: "We hit a snag. Review the errors on this page. • 'First Name and Last Name cannot be the same.'" The form has buttons for "Cancel", "Save & New", and "Save".

- **Pilot Age ≥ 18 (Pilot):** Ensures that only qualified individuals are added as pilots. Age is calculated automatically from Date of Birth.

The screenshot shows the same web application, but the pilot's Last Name is now "Sharma" and the DOB is "9/12/2016". The red error message box is still present, stating: "We hit a snag. Review the errors on this page. • 'Pilot must be at least 18 years old.'" The form has buttons for "Cancel", "Save & New", and "Save".

- **Arrival > Departure (Flight Schedule):** Ensures that the arrival time is always later than the departure time.

The screenshot shows a web application interface for managing flight schedules. A modal form is open for editing a flight schedule. The form contains fields for Source Name, Destination Name, Departure Date Time, Arrival Date Time, Status, Name of the First Pilot, and Name of the Second Pilot. The Departure Date Time is set to 9/28/2025 at 12:00 PM, and the Arrival Date Time is set to 9/27/2025 at 12:00 PM. A red error message box is displayed over the form, stating "We hit a snag. Review the errors on this page. Arrival must be later than departure." The form has buttons for "Cancel", "Save & New", and "Save".

These rules maintain consistency, enforce business logic, and eliminate human errors.

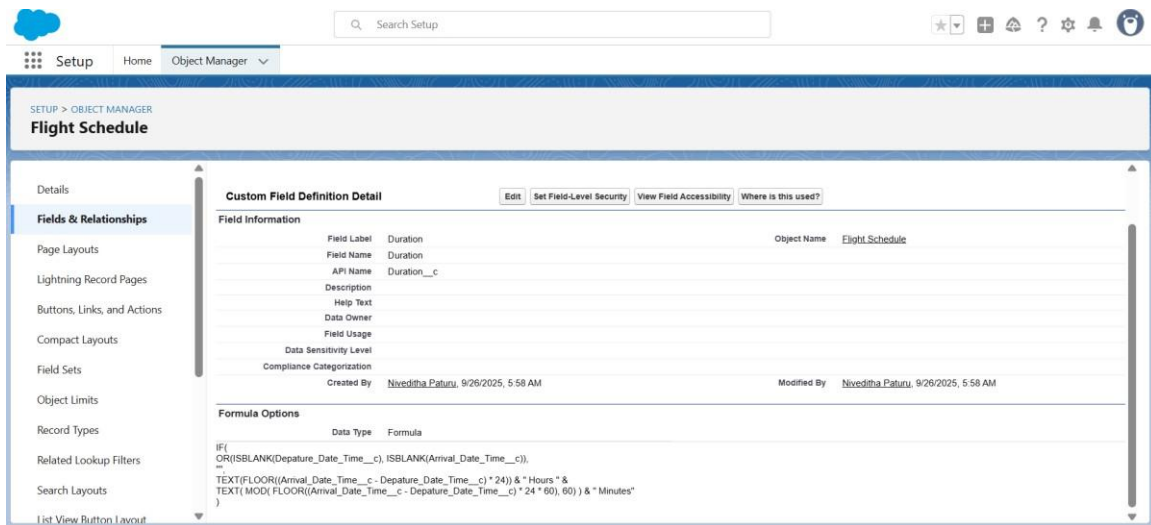
3. Formula Fields

Formula fields are created to automatically calculate and display important information:

- **Pilot Age Formula:** Calculates age from Date of Birth. Example:

The screenshot shows the Salesforce Setup page for the "Pilot" object. The "Age" formula field is selected, and the "Custom Field Definition Detail" page is displayed. The field information includes the Field Label "Age", Field Name "Age", API Name "Age__c", and Description "Age". The formula options show the formula "FLOOR((TODAY() - DOB__c) / 365)". The field was created by Niveditha.Paturu on 9/27/2025 at 2:55 AM and modified by Niveditha.Paturu on 9/27/2025 at 2:55 AM.

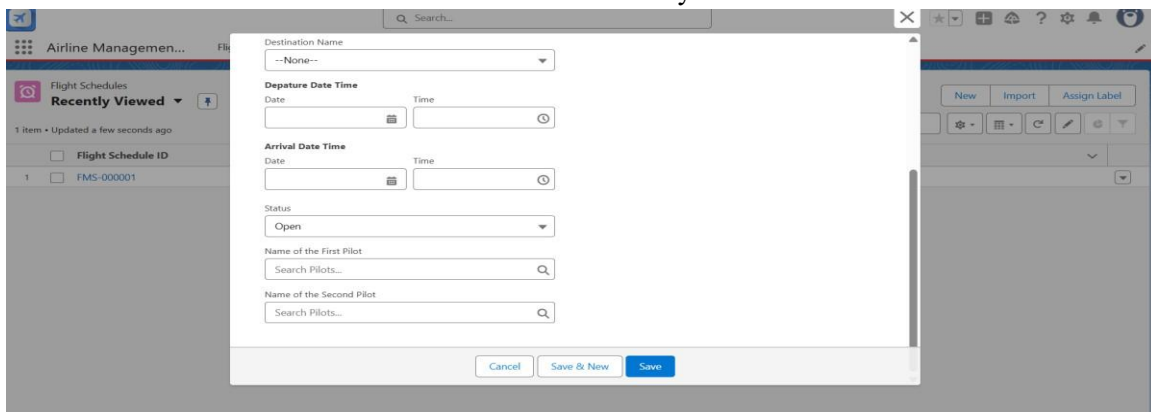
- **Duration Formula:** Calculates travel time from Departure Date/Time and Arrival Date/Time and displays it in "Hours and Minutes" format.



These formula fields save time for users and provide accurate results for reporting.

4. Default Values & Picklists

- The **Status** field in Flight Schedule is a picklist with values: *Open, In Progress, Closed, Cancelled*.
- A **default value** of **Open** is applied so that every new Flight Schedule record starts with “Open” status.
- This reduces manual effort and ensures uniformity across all records.



5. Flows

Salesforce Flows are used to automate critical tasks:

1. **Flow 1: Set Default Status (Before-Save Flow)**
 - a. Automatically sets Status = “Open” when a new Flight Schedule is created.
2. **Flow 2: Assign Schedule to Queue (After-Save Flow)**

- a. Assigns newly created Flight Schedule records to the **Flight Operators Queue**.
- b. Ensures all operators can share workload.

6. Queues

Flight Operators Queue is created so that new Flight Schedule records can be assigned to a common pool.

- Members of this queue: Rajesh K, Rajnikant, and Anushka Sharma.
- Operators can take ownership of records from the queue, ensuring fair workload distribution.
- Improves teamwork and prevents overload on a single user.

7. Profiles, Roles & Permission Sets

- Proper access control ensures that users can only perform the actions allowed by their role.
- **CEO Profile:** Read-only access to Flight Schedules. Cannot create, edit, or delete records.

- **Manager (Devi):** Full access to oversee operations and operators.

The screenshot shows the Salesforce Setup interface for the 'Roles' section. The left sidebar contains navigation links for Setup, Home, and Object Manager. The main content area displays the 'Role Manager' configuration for the 'Manager' role. Below the role name, a hierarchy is shown: 'ksm Company > CEO > Manager'. A table lists users assigned to this role, including 'Devi.mamidikavala' with alias 'dmami' and username 'sutha098765@gmail.com'. The 'Role Detail' section provides information about the role's label, reports, modified by, and access permissions.

- **Flight Operators (Rajesh K):** Can create, read, and edit Flight Schedules.

The screenshot shows the Salesforce Setup interface for the 'Roles' section, specifically for the 'Flight Operator' role. The left sidebar contains navigation links for Setup, Home, and Object Manager. The main content area displays the 'Role Manager' configuration for the 'Flight Operator' role. Below the role name, a hierarchy is shown: 'ksm Company > CEO > Manager > Flight Operator'. A table lists users assigned to this role, including 'Rajesh.k' with alias 'rk' and username 'nore8765olvi@example.com'. The 'Role Detail' section provides information about the role's label, reports, modified by, and access permissions.

- **Permission Set:** Special permission set assigned only to **Rajesh K** allowing him to delete Flight Schedules.

The screenshot shows the Salesforce Setup interface for the 'Profiles' section. The left sidebar contains navigation links for Setup, Home, and Object Manager. The main content area displays the 'Profile Manager' configuration for the 'CEO_ReadOnly' profile. Below the profile name, a list of permissions is shown, including 'Login IP Ranges', 'Enabled Apex Class Access', 'Enabled Visualforce Page Access', 'Enabled External Data Source Access', 'Enabled Named Credential Access', 'Enabled External Credential Principal Access', 'Enabled Custom Metadata Type Access', 'Enabled Custom Setting Definitions Access', 'Enabled Flow Access', 'Enabled Service Presence Status Access', and 'Enabled Custom Permissions'. The 'Profile Detail' section provides information about the profile's name, user license, description, created by, and modified by. The 'Page Layouts' section shows the standard object layouts for the profile, including 'Global', 'Email Application', 'Home Page Layout', 'Location Group Assignment', 'Macro', and 'Object Milestone'.

This model ensures security, accountability, and proper hierarchy within the system.

8. Email Alerts & Templates

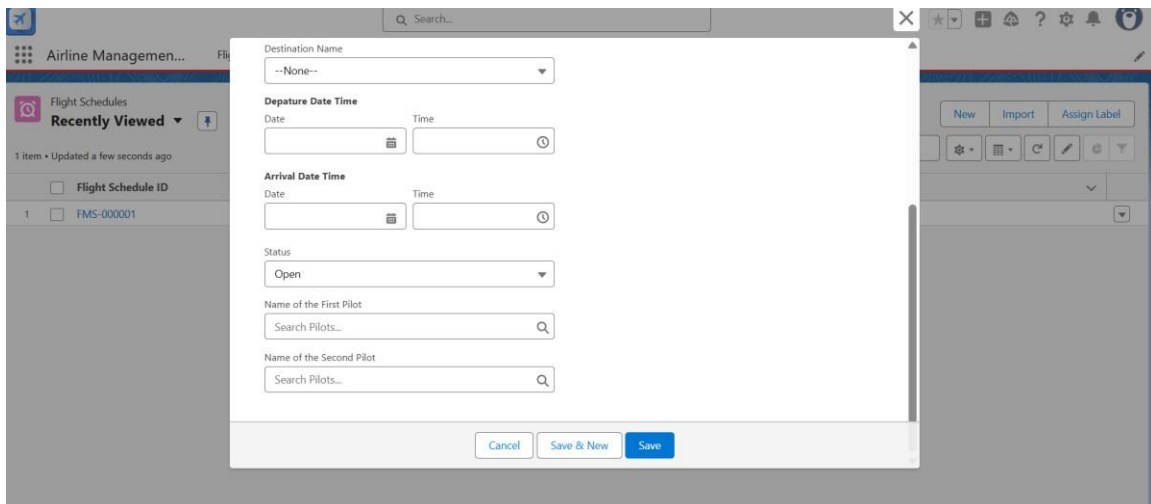
- Email notifications improve communication and keep management updated.
- **Email Template:** Designed to include Flight details (Name, Source, Destination, Departure, Arrival, and Pilots).
- **Email Alert:** Configured so that when a Flight Schedule is marked as “Cancelled,” the Manager (Virat Kohli) automatically receives an email.

This ensures prompt awareness of cancellations and allows for quick decision-making.

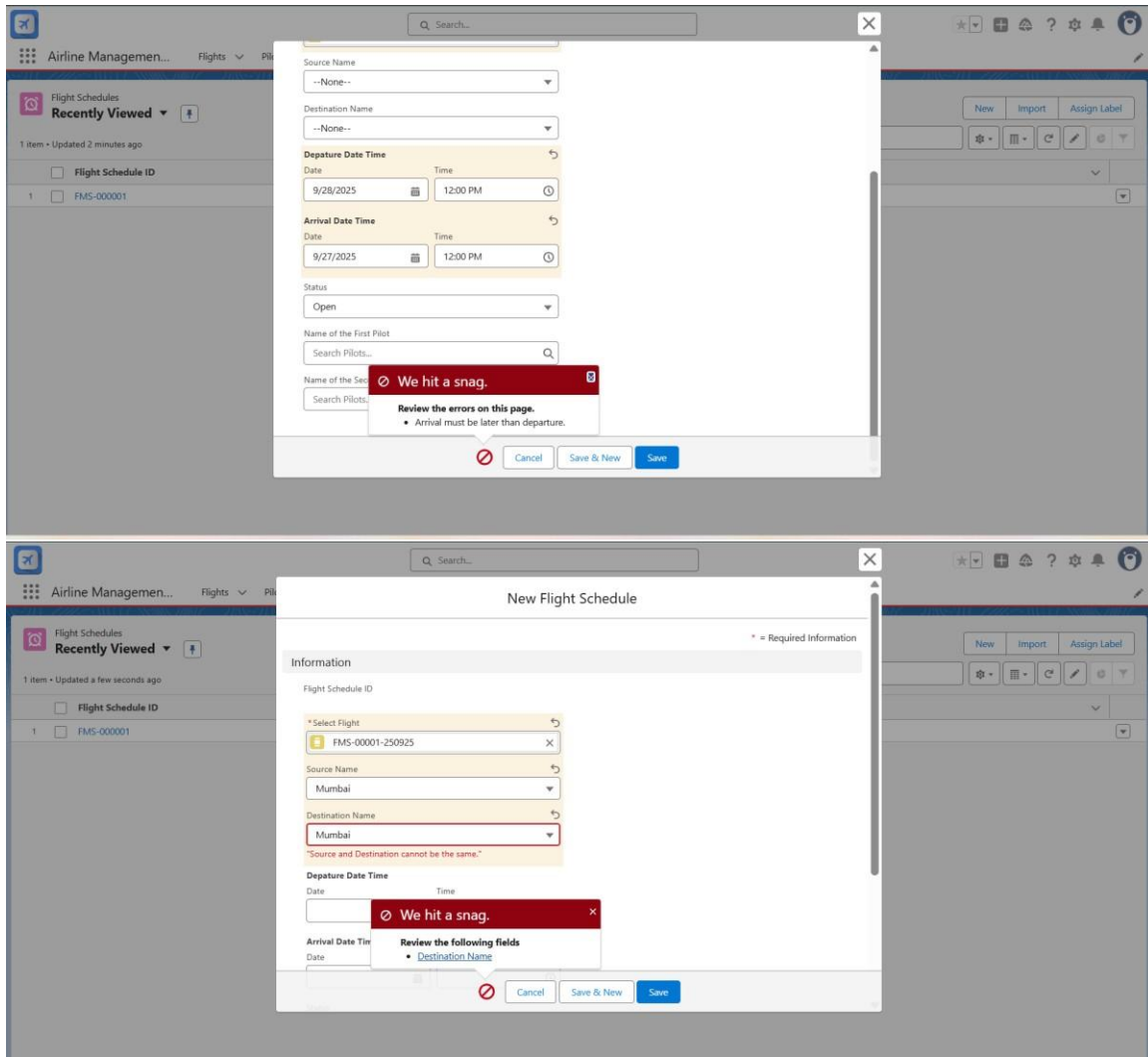
9. Test Cases

The following test cases are performed:

- Verify Source and Destination validation.
- Verify Pilot name validation.
- Verify Pilot age validation.
- Verify Arrival after Departure validation.
- Verify default Status is 'Open'.



The screenshot displays the 'Airline Management' interface. On the left, a sidebar shows 'Flight Schedules' and 'Recently Viewed' with a table listing flight schedule IDs, including 'FMS-000001'. The main area features a modal form for creating or editing a flight schedule. The form includes fields for 'Destination Name' (a dropdown menu), 'Departure Date Time' (with separate date and time input fields), 'Arrival Date Time' (also with separate date and time input fields), 'Status' (a dropdown menu set to 'Open'), 'Name of the First Pilot' (with a search input), and 'Name of the Second Pilot' (with a search input). At the bottom of the modal are 'Cancel', 'Save & New', and 'Save' buttons. The background interface includes a search bar and various navigation icons.



11. Conclusion

Phase 4 successfully automated the Airline Management System, improving accuracy, consistency, and efficiency. Validation rules prevent bad data, formula fields simplify calculations, and flows automate repetitive processes. Queues distribute work fairly, while profiles and permission sets secure the system. Email alerts provide real-time communication, and dashboards deliver actionable insights to management.

This automation makes the system reliable, user-friendly, and aligned with real-world airline operations.