

# Phase 1: Problem Understanding & Industry Analysis

## 1. Requirement Gathering

- Collected requirements from employees, managers, and finance team.
- Identified the need for a centralized system to handle travel requests, approvals, and expenses.
- **Key requirements:**
  - Simple form for employees to submit travel requests.
  - Automated approval notifications for managers.
  - Ability to log expenses against approved trips.
  - Department-wise and organization-wide reporting.

## 2. Stakeholder Analysis

- **Employees:** Submit travel requests and expense claims.
- **Managers/Approvers:** Approve or reject requests based on budget and necessity.
- **Finance/Admin:** Track expenses, generate reports, and ensure compliance.
- **System Administrators:** Configure, manage, and maintain the Travel Approval App.

## 3. Business Process Mapping

- **Current Process (Existing System):**
  - Travel requests handled via emails, paper forms, or spreadsheets.
  - Delays due to manual tracking and lack of centralized data.
- **Proposed Process (Using Salesforce App):**
  - Employees submit requests in Salesforce.
  - Managers receive automated approval tasks.
  - Expenses linked directly to approved requests.
  - Reports and dashboards provide real-time insights.

## 4. Industry-specific Use Case Analysis

- **IT/Software Companies:** Frequent client visits, onsite travel approvals.
- **Educational Institutions:** Faculty travel for seminars, workshops, and conferences.
- **Corporate Organizations:** Employee travel for training, meetings, and business expansion.
- **Healthcare Industry:** Doctors and medical staff travel for workshops and conferences.
- **Common challenge:** Manual tracking leads to delays, higher costs, and lack of transparency.

- **Proposed system:** Improves efficiency, transparency, and cost tracking across industries.

## 5. AppExchange Exploration

- Explored Salesforce **AppExchange** for existing travel and expense management solutions.
- Found apps like **Concur Travel & Expense** and **Expensify** for Salesforce.
- Identified limitations in existing apps for specific organizational needs.
- Decided to **build a custom Travel Approval App** tailored to department-wise workflows and reporting requirements.

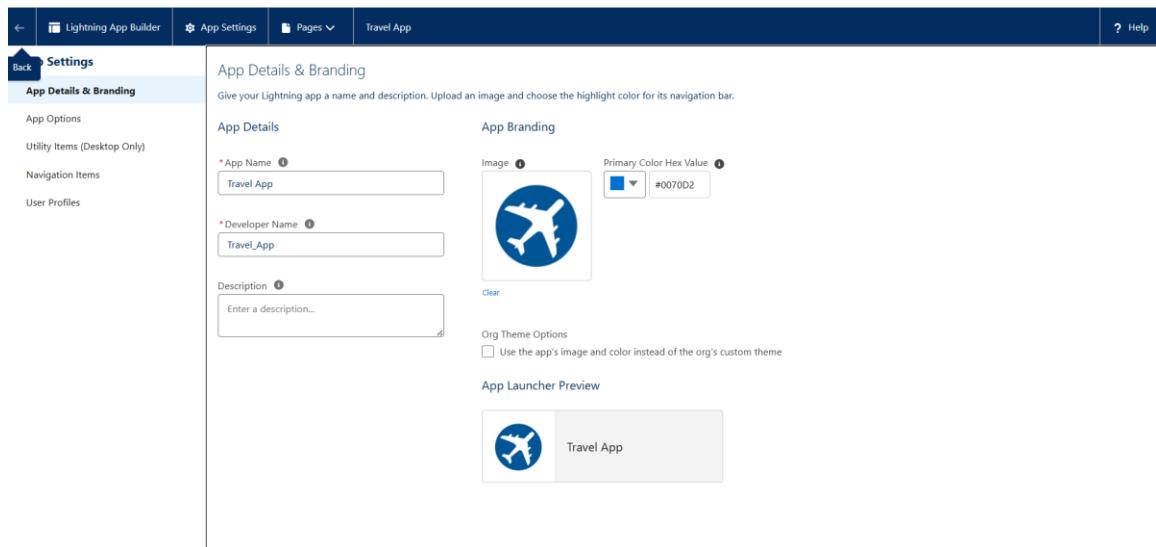
# Phase 2: Org Setup & Configuration

## 1. Salesforce Editions

- Selected Developer Edition because it provides free access with customization options.
- Supports custom objects, fields, workflows, reports, and dashboards required for the Travel Approval App.
- Suitable for testing the full travel approval process before moving to production.

## 2. Company Profile Setup

- Configured organization details like company name, address, email, and contact info.
- Set default currency: INR for expense tracking.
- Applied time zone: IST (GMT +5:30) to ensure correct travel date and time records.
- Configured default language: English (India) for consistency among users.



## 3. Business Hours & Holidays

- Defined official working hours: Monday to Friday, 9 AM – 6 PM.
- Added key holidays (Independence Day, Republic Day, Diwali, Christmas, New Year).
- Ensures travel requests submitted during holidays or after office hours are handled the next business day.
- Approval workflows and notifications respect business hours.

## 4. Fiscal Year Settings

- Configured fiscal year: April to March, as per Indian business standards.
- Ensures travel expenses and reports are aligned with quarterly and yearly budget planning.
- Helps finance/admin generate department-wise and yearly expense reports.

## 5. User Setup & Licenses

- Created Employee Users to submit travel requests.
- Created Manager Users to approve/reject requests.
- Assigned Admin Users to configure app, manage data, and monitor usage.
- Defined roles & profiles to control access levels:
  - Employees → Limited access (submit/view own requests).
  - Managers → Approvals + view team requests.
  - Admins → Full access (all requests, expenses, dashboards).

The screenshot shows the Salesforce Setup interface under the 'Users' section. At the top, there's a header with a user icon, 'SETUP', and 'Users'. Below it, a sub-header says 'All Users' with a note: 'On this page you can create, view, and manage users.' A 'Help for this Page' link is also present. The main area contains a table with columns: Action, Full Name, Alias, Username, Role, Active, and Profile. The table lists four users:

Action	Full Name	Alias	Username	Role	Active	Profile
<input type="checkbox"/>   Edit	Chatter Expert	Chatter	chatty.00dd200000hgksfeab.micozxxi456@chatter.salesforce.com		<input checked="" type="checkbox"/>	Chatter Free User
<input type="checkbox"/>   Edit	Gani_Ningaraj	NGani	ningar/gani00@mindful-fox-7vs0ai.com		<input checked="" type="checkbox"/>	System Administrator
<input type="checkbox"/>   Edit	User_Integration	integ	integration/00dd200000hgksfeab.com		<input checked="" type="checkbox"/>	Analytics Cloud Integration User
<input type="checkbox"/>   Edit	User_Security	sec	insightssecurity/00dd200000hgksfeab.com		<input checked="" type="checkbox"/>	Analytics Cloud Security User

At the bottom of the table, there are buttons for 'New User', 'Reset Password(s)', and 'Add Multiple Users'. Navigation links for other letters of the alphabet (A-Z) and a 'Help' link are at the very bottom.

## 6. Login Access Policies

- Configured IP restrictions so only office/approved networks can access Salesforce.
- Enabled Multi-Factor Authentication (MFA) for employees and managers.
- Applied login hour restrictions (8 AM – 8 PM) to avoid unauthorized midnight logins.
- Improves overall security of sensitive travel and expense data.

This screenshot is identical to the one above, showing the 'Users' page in the Salesforce Setup. It displays the same list of four users with their respective details, roles, and profiles. The interface includes the 'Setup' bar at the top, a search bar, and various navigation links on the left side like 'App Launcher', 'Travel App', and 'Data.com'.

## 7. Developer Org Setup

- Created a Salesforce Developer Org for app building.
- Used this org to create Department, Travel Approval, and Expense Item objects.
- Designed and tested workflows, approvals, and reports before moving to production.

The screenshot shows the 'Developer Edition' org settings page. It displays basic information about the org, including:

- Organization ID: 00DQy00000Yqx5H
- Username: ningarajgani@gmail.com
- Type: Developer Edition
- Connected: 9/24/2025
- Last Activity: Connected on 9/24/2025

At the top right, there are buttons for 'Rename', 'Disconnect', and 'Launch'. The background of the page is white with a light gray header bar.

## 8. Sandbox Usage

- Used Sandbox to test:
  - Approval workflows (Manager approvals).
  - Validation rules (e.g., End Date must be after Start Date).
  - Expense logging automation.
- Allowed safe testing without affecting live data.
- Ensured bugs were fixed before deployment.

## 9. Deployment Basics

- Used Change Sets for deploying components to production.
- Deployed:
  - Custom Objects (Department, Travel Approval, Expense Item).
  - Fields and Page Layouts.
  - Approval Process and Flows.
  - Reports and Dashboards.
- Ensured smooth migration from sandbox to production environment.

The screenshot shows the 'Setup' interface in Salesforce. The left sidebar lists various setup categories like 'Setup Home', 'Object Manager', 'Users', etc. The main area is titled 'New Custom Object Tab' under 'Tabs'. It's step 1 of 3, titled 'Enter the Details'. The form asks to choose an existing custom object or create a new one. The 'Object' dropdown is set to 'Department'. The 'Tab Style' dropdown is set to 'Blank'. There's an optional field for a 'Splash Page Custom Link' which is currently empty. A note says '(Optional) Choose a Home Page Custom Link to show as a splash page the first time your users click on this tab.' At the bottom, there's a 'Description' input field and 'Next' and 'Cancel' buttons.

# Phase 3: Data Modeling & Relationships

## 1. Standard & Custom Objects

- Used Salesforce Standard Object: User for employees, managers, and admins.
- Created Custom Objects specific to project:
  - Department: Stores department details.
  - Travel Approval: Stores employee travel requests.
  - Expense Item: Stores expenses linked to each travel request.

The screenshot shows the Salesforce Setup interface under 'Object Manager'. A sidebar on the left lists various object configuration options like Fields & Relationships, Page Layouts, and Lightning Record Pages. The main 'Details' tab is selected for the 'Department' object. The API Name is set to 'Department\_\_c'. Under the 'Custom' section, 'Singular Label' is set to 'Department' and 'Plural Label' is also set to 'Department'. On the right, there are checkboxes for 'Enable Reports' (checked), 'Track Activities', and 'Track Field History'. Deployment status is listed as 'Deployed'.

## 2. Fields

- Department → Department Name, Department Code.
- Travel Approval → Purpose of Trip, Start Date, End Date, Status (Pending/Approved/Rejected), Out of State (Yes/No), Destination State.
- Expense Item → Expense Type (Airfare, Hotel, Meals), Amount.

The screenshot shows the 'Travel Approval' object setup page. In the sidebar, 'Fields & Relationships' is selected. A new custom field is being created, labeled 'New Custom Field'. Step 2: Enter the details is shown. The field label is 'Out-of-State', the default value is 'Unchecked', and the field name is 'OutofState'. There is a note at the bottom stating 'Auto add to custom report type' and a checkbox for 'Add this field to existing custom report types that contain this entity'.

### 3. Record Types

- Travel Approval Record Types created:
- - Domestic Travel → Shows Destination State field.
- - International Travel → Shows Country and Visa Required fields.

The screenshot shows a Salesforce record detail page for a Travel Approval. The record ID is TA-00001. The page has two tabs: 'Related' and 'Details'. The 'Details' tab is selected, displaying various fields: Travel Approval # (TA-00001), Purpose of Trip (Attend Dreamforce), Status (Draft), Trip Start Date (28/07/2025), Trip End Date (29/07/2025), Out-of-State (checkbox checked), Destination State (CA), Department (Technology), and Created By (Ningaraj Gani). The 'Last Modified By' field also shows Ningaraj Gani. On the right side, there is an 'Activity' sidebar with sections for 'Upcoming & Overdue' and 'Past activity'. The 'Upcoming & Overdue' section indicates 'No activities to show.' and suggests starting by sending an email, scheduling a task, and more. The 'Past activity' section notes 'No past activity. Past meetings and tasks marked as done show up here.'

### 4. Page Layouts

- Employees → Page layout shows only request details.
- Managers → Page layout includes Approval Status and Manager Comments.
- Finance/Admin → Page layout displays expense details and related records.

#### 1. Page Layout of Department:

The screenshot shows a Salesforce list view for the 'Department' object. The top navigation bar includes the 'Travel App' icon, Chatter, Reports, Dashboards, Department, Travel Approvals, and travel\_org. The main area shows a 'Recently Viewed' list with 5 items, all updated a few seconds ago. The list includes: Emp\_trip (selected), school\_trip, college\_trip, Technology, and Contract Management. The interface includes standard Salesforce controls like New, Import, Change Owner, and Assign Label, along with search and filter tools.

## 5. Compact Layouts

- Travel Approval → Displays Purpose of Trip, Status, Start Date, End Date in highlights panel.
- Expense Item → Displays Expense Type and Amount in highlights panel.
- **Compact Layout of Travel Approval:**

The screenshot shows a Salesforce compact layout for the 'Travel Approvals' object. The top navigation bar includes links for Travel App, Chatter, Reports, Dashboards, Department, Travel Approvals, and travel.org. The main area displays a list of three travel approvals with their IDs: TA-00001, TA-00003, and TA-00002. The layout features a search bar at the top right and various buttons for New, Import, Change Owner, and Assign Label. A legend at the bottom right indicates that blue boxes represent Lookup Relationships and red boxes represent Master-Detail Relationships.

## 6. Schema Builder

- Used Schema Builder to visualize relationships between objects.
- Department ↔ Travel Approval (Lookup).
- Travel Approval ↔ Expense Item (Master-Detail).

The screenshot shows the Salesforce Schema Builder interface. The top navigation bar includes Setup, Home, and Object Manager. The main area is titled 'Schema Builder' and shows a list of objects: Finance Transaction, Travel Approval, and travelorg. The 'Travel Approval' object is selected, and its schema is displayed in a detailed view. The schema includes fields such as Created By, Department, Destination State, Last Modified By, Out-of-State, Owner, Purpose of Trip, Status, Travel Approval #, Trip End Date, and Trip Start Date. A legend on the right side defines the colors for relationships: blue for Lookup Relationship and red for Master-Detail Relationship.

## 7. Lookup vs Master-Detail vs Hierarchical Relationships

- Lookup Relationship → Child record can exist independently (e.g., Travel Approval → Department).
- Master-Detail Relationship → Child depends on parent (e.g., Expense Item → Travel Approval).
- Hierarchical Relationship → Available only for User object (e.g., Manager assigned to Employee).

The screenshot shows the Salesforce Object Manager interface for the 'Travel Approval' object. The left sidebar lists various setup options like Details, Fields & Relationships, Page Layouts, etc. The main area is titled 'Fields & Relationships' and displays a table of 11 items, sorted by Field Label. The columns are FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The table includes fields such as Created By, Department, Destination State, Last Modified By, Out-of-State, Owner, Purpose of Trip, Status, and Travel Approval #.

Fields & Relationships 11 Items, Sorted by Field Label				
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Department	Department__c	Lookup(Department)	✓	
Destination State	Destination_State__c	Text(2)		
Last Modified By	LastModifiedById	Lookup(User)		
Out-of-State	Out_of_State__c	Checkbox		
Owner	OwnerId	Lookup(User,Group)	✓	
Purpose of Trip	Purpose_of_Trip__c	Text Area(255)		
Status	Status__c	Picklist		
Travel Approval #	Name	Auto Number	✓	

## 8. Junction Objects

- Introduced Travel Participant as a junction object (future use case).
- Links multiple employees to one Travel Approval for group/team trips.

## 9. External Objects

- Used External Object (optional use case) for integrating data from outside Salesforce.
- Example: External Booking Object fetches flight/hotel booking details from third-party system.
- Linked external booking details to Travel Approval records.

# Phase 4: Process Automation (Admin)

## 1. Validation Rules

- **Use Case:** Ensure data entered by users meets specific criteria before saving.
  - Example: A travel request cannot be submitted if the travel department does not add travel Organizer name.
- **Implementation:** Create a validation rule on the Travel Request object.

The screenshot shows the 'New Department' creation page in the Salesforce interface. The 'Information' section contains fields for 'Department Name' (set to 'Ai tech'), 'Department Code' (set to '101'), and 'travelorg' (which has a red border and a validation message 'Complete this field.'). The top right corner of the modal window has a red border, indicating it is a validation error.

## 2. Workflow Rules

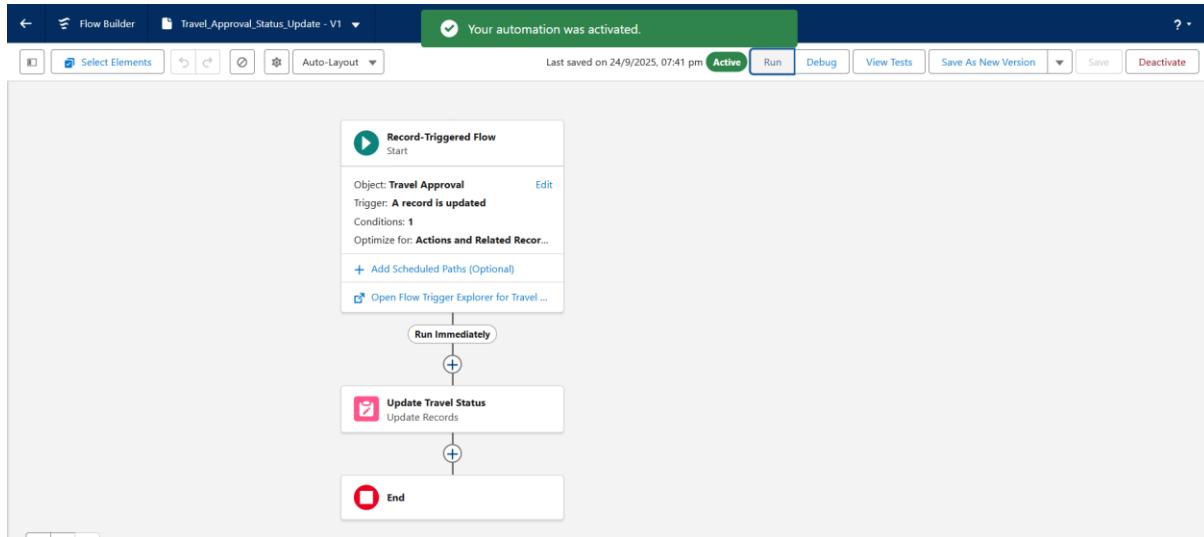
- **Use Case:** Automate standard actions when certain criteria are met.
  - Example: When a travel request is approved, automatically send an email to the employee.
- **Implementation:** Set up a workflow on the Travel Request object, with a condition like Status = Approved.
- **Actions:** Email alerts, field updates, tasks.

The screenshot shows the 'Details' tab for the 'Emp\_trip' object. It displays the following information:

- Related: Department Name (Emp\_trip), Department Code (d105), travelorg (kesari\_tours).
- Owner: Ningaraj Gani.
- Created By: Ningaraj Gani, 10/09/2025, 2:04 pm.
- Last Modified By: Ningaraj Gani, 10/09/2025, 2:04 pm.

### 3. Process Builder

- **Use Case:** Automate complex processes with multiple if-then conditions.
  - Example: If a travel request exceeds \$1000, notify both the manager and finance team.
- **Implementation:** Build a process on the Travel Request object, define criteria and actions.



### 4. Approval Process

- **Use Case:** Route requests for approval based on specific conditions.
  - Example: Travel requests above a certain budget require manager approval before submission.
- **Implementation:** Configure an approval process on the Travel Request object. Define entry criteria, approval steps, and final actions.

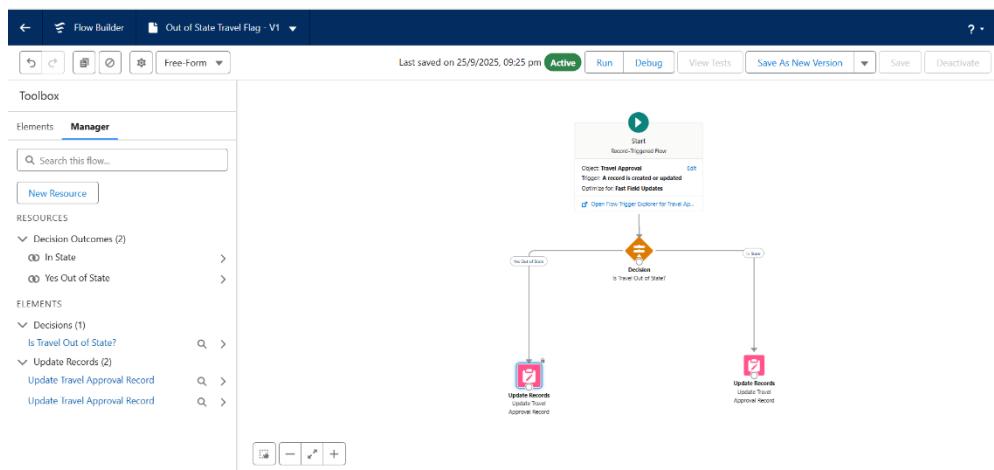
Process Name	Travel Request Approval	Active	<input type="checkbox"/>
Unique Name	Travel_Request_Approval	Next Automated Approver Determined By	Manager of Record Owner
Description			
Entry Criteria	Approval Submission: Status EQUALS Approved		
Record Editability	Administrator OR Current Approver		
Approval Assignment Email Template	Sales.New Customer Email		
Initial Submitters	Approval Submission Owner		
Created By	Ningaraj Gani, 24/09/2025, 7:57 pm		
Modified By	Ningaraj Gani, 24/09/2025, 7:57 pm		

Initial Submission Actions	Add Existing   Add New
Action Type	Description
Record Lock	Lock the record from being edited

Approval Steps	New Approval Step
X You have not yet defined any approval steps	

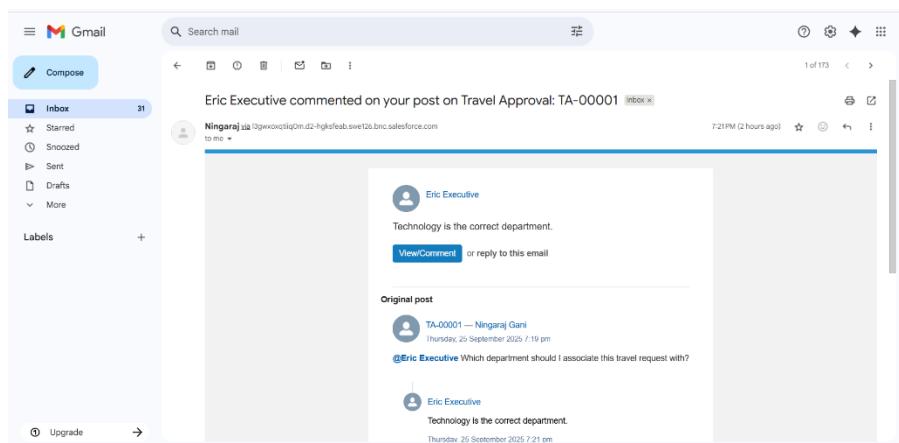
## 5. Flow Builder

- **Use Case:** Automate both simple and complex business processes.
  - **Types of Flows in your project:**
    1. **Screen Flow:** Employee submits a travel request using a guided form.
    2. **Record-Triggered Flow:** Automatically update request status when a manager approves it.
    3. **Scheduled Flow:** Send weekly summary emails of all pending travel requests.
    4. **Auto-launched Flow:** Update related records automatically, e.g., update employee travel balance.



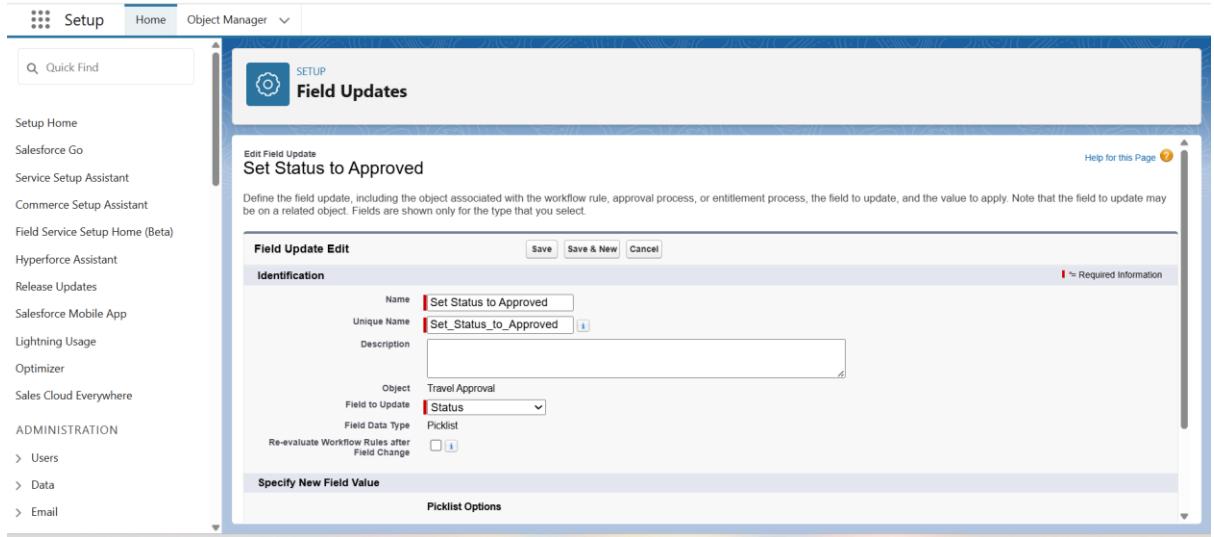
## 6. Email Alerts

- **Use Case:** Notify users automatically via email.
  - Example: Notify the manager when a travel request is submitted.
- **Implementation:** Create an email alert and associate it with workflow, process, or flow.



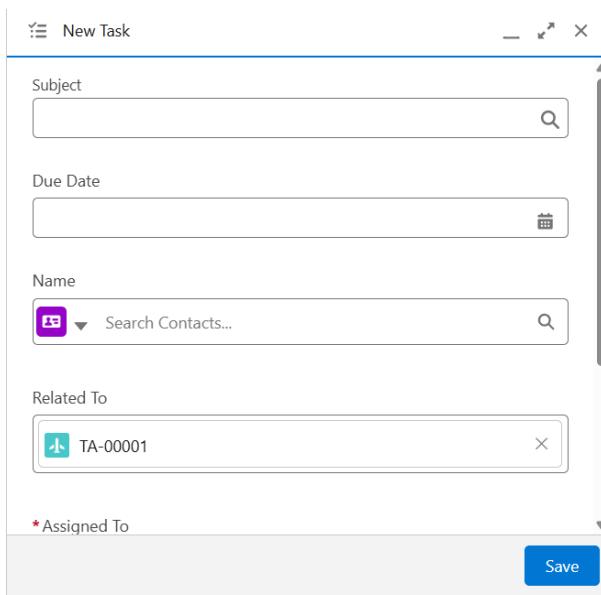
## 7. Field Updates

- **Use Case:** Automatically update fields based on conditions.
  - Example: Change the status of travel request from Submitted to Approved after manager approval.
- **Implementation:** Use workflow or process builder to update the field.



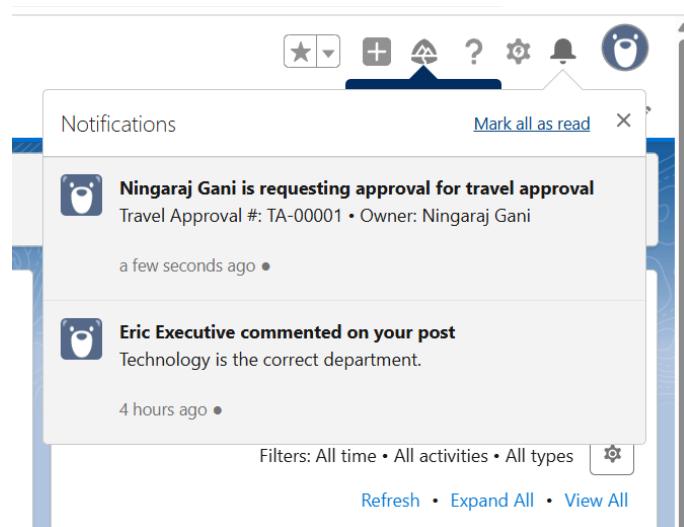
## 8. Tasks

- **Use Case:** Automatically create tasks for users.
  - Example: Assign a follow-up task to the finance team after a travel request is approved.
- **Implementation:** Use workflow or process builder to create a task.



## 9. Custom Notifications

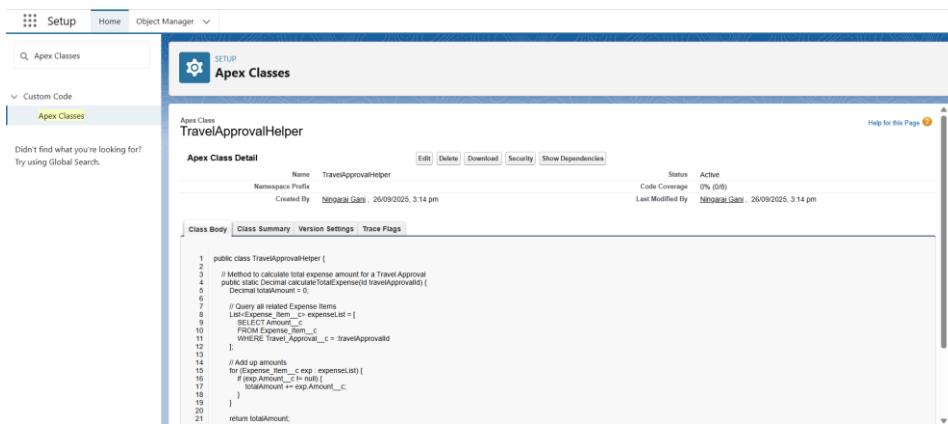
- **Use Case:** Alert users within Salesforce without emails.
  - Example: Notify an employee instantly when their travel request is approved or rejected.
- **Implementation:** Configure custom notifications and trigger them using process builder or flow.



# Phase 5: Apex Programming (Developer)

## 1. Classes & Objects

- **Use Case:** Create a helper class to calculate total travel expenses.
- Apex classes group logic into reusable units.
- Example: TravelApprovalHelper calculates total expense from related expense items.



### Code:

```
public class TravelApprovalHelper {  
  
    // Method to calculate total expense amount for a Travel Approval  
    public static Decimal calculateTotalExpense(Id travelApprovalId) {  
        Decimal totalAmount = 0;  
  
        // Query all related Expense Items  
        List<Expense__c> expenseList = [  
            SELECT Amount__c  
            FROM Expense__c  
            WHERE Travel_Approval__c = :travelApprovalId  
        ];  
  
        // Add up amounts  
        for (Expense__c exp : expenseList) {  
            if (exp.Amount__c != null) {  
                totalAmount += exp.Amount__c;  
            }  
        }  
        return totalAmount;  
    }  
}
```

```

        totalAmount += exp.Amount__c;
    }

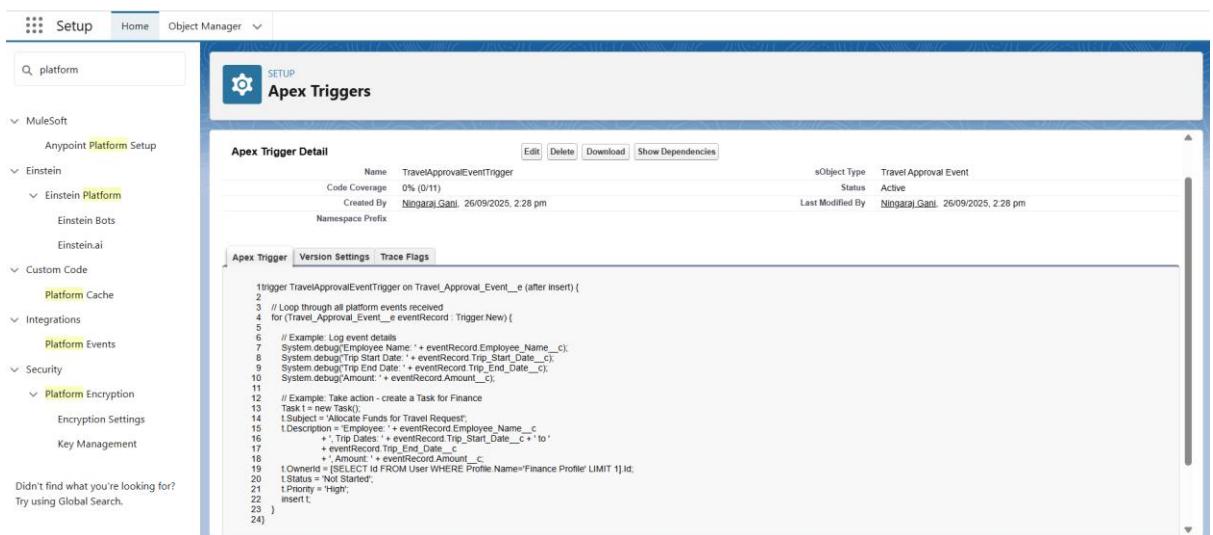
}

return totalAmount;
}

```

## 2. Apex Triggers (before/after insert/update/delete)

- Use Case:** Automatically create a Task when a Travel Request is approved.
- Triggers listen to changes in objects and execute logic.
- Example: On Travel\_Approval\_\_c, when Status\_\_c = Approved, assign a Task to Finance.



### Code:

```

trigger TravelApprovalEventTrigger on Travel_Approval_Event__e (after insert) {

    // Loop through all platform events received
    for (Travel_Approval_Event__e eventRecord : Trigger.New) {

        // Example: Log event details
        System.debug('Employee Name: ' + eventRecord.Employee_Name__c);
        System.debug('Trip Start Date: ' + eventRecord.Trip_Start_Date__c);
        System.debug('Trip End Date: ' + eventRecord.Trip_End_Date__c);
    }
}

```

```

System.debug('Amount: ' + eventRecord.Amount__c);

// Example: Take action - create a Task for Finance
Task t = new Task();
t.Subject = 'Allocate Funds for Travel Request';
t.Description = 'Employee: ' + eventRecord.Employee_Name__c
    + ', Trip Dates: ' + eventRecord.Trip_Start_Date__c + ' to '
    + eventRecord.Trip_End_Date__c
    + ', Amount: ' + eventRecord.Amount__c;
t.OwnerId = [SELECT Id FROM User WHERE Profile.Name='Finance Profile' LIMIT 1].Id;
t.Status = 'Not Started';
t.Priority = 'High';
insert t;
}

```

### 3. Trigger Design Pattern

- **Use Case:** Avoid writing all logic directly inside triggers.
- Instead, call helper classes from the trigger.
- Improves **readability, reusability, and testing.**

### 4. SOQL & SOSL

- **SOQL (Salesforce Object Query Language):** Query records.
  - Example: Fetch all Approved Travel Approvals.
- **SOSL (Salesforce Object Search Language):** Search across multiple objects.
  - Example: Search travel requests by employee name or trip purpose.

#### Code:

```

// Fetch all Approved Travel Approvals
List<Travel_Approval__c> approvedRequests = [
    SELECT Id, Name, Employee_Name__c, Status__c, Total_Expense__c
    FROM Travel_Approval__c
    WHERE Status__c = 'Approved'
];

```

```

for (Travel_Approval__c ta : approvedRequests) {
    System.debug('✓ Approved Travel: ' + ta.Name + ' | Employee: ' + ta.Employee_Name__c + ' | Expense: ' + ta.Total_Expense__c);
}

```

## 5. Collections: List, Set, Map

- **List:** Ordered collection (e.g., list of Travel Approvals).
- **Set:** Unique values (e.g., list of unique employee IDs requesting travel).
- **Map:** Key-value pairs (e.g., Map<EmployeeId, TravelApproval>).

## 6. Control Statements

- **Use Case:** Decision making in code.
- Example:
  - If Status = "Submitted", send for approval.
  - Else if Status = "Approved", notify Finance.

### Code:

```

public class TravelApprovalHelper {

    // Method to categorize travel request by expense amount
    public static String getBudgetCategory(Decimal totalExpense) {
        String category;

        // if-else control
        if (totalExpense > 5000) {
            category = 'High Budget';
        } else if (totalExpense >= 1000 && totalExpense <= 5000) {
            category = 'Medium Budget';
        } else {
            category = 'Low Budget';
        }

        return category;
    }
}

```

```
// for loop example - display employee names in list

public static void printEmployeeNames(List<Travel_Approval__c> requests) {
    for (Travel_Approval__c ta : requests) {
        System.debug('Employee Name: ' + ta.Employee_Name__c);
    }
}
```

## 7. Exception Handling

- **Use Case:** Prevent app crashes and log errors.
- Example: If Expense API call fails, catch the exception and notify Admin.
- Syntax: try { ... } catch(Exception e) { ... } finally { ... }.

### Code:

```
public class TravelApprovalHandler {

    public static void updateApprovalStatus(Id recordId, String newStatus) {
        try {
            // Query the record
            Travel_Approval__c ta = [SELECT Id, Status__c FROM Travel_Approval__c WHERE Id = :recordId
LIMIT 1];

            // Update status
            ta.Status__c = newStatus;
            update ta;

            System.debug(' ✅ Travel Approval updated successfully: ' + recordId);
        }
        catch (QueryException qe) {
            System.debug(' ⚠️ Query failed: ' + qe.getMessage());
        }
        catch (DmlException de) {
            System.debug(' ⚠️ DML failed: ' + de.getMessage());
        }
    }
}
```

```

        catch (Exception e) {
            System.debug('⚠️ Unexpected Error: ' + e.getMessage());
        }
    finally {
        System.debug('Process finished (success or failure).');
    }
}

```

## 8. Test Classes

- **Use Case:** Every Apex class/trigger must have test coverage.
- Example: Create TravelApprovalTest to test approval trigger logic.
- Ensures code works correctly before deployment.

### Code:

```

@isTest
public class TravelApprovalHandlerTest {

    @isTest
    static void testUpdateApprovalStatus() {
        // Step 1: Create test Travel Approval record
        Travel_Approval__c ta = new Travel_Approval__c(
            Name = 'Test Trip',
            Status__c = 'Submitted'
        );
        insert ta;

        // Step 2: Call the handler method
        Test.startTest();
        TravelApprovalHandler.updateApprovalStatus(ta.Id, 'Approved');
        Test.stopTest();

        // Step 3: Query the updated record
    }
}

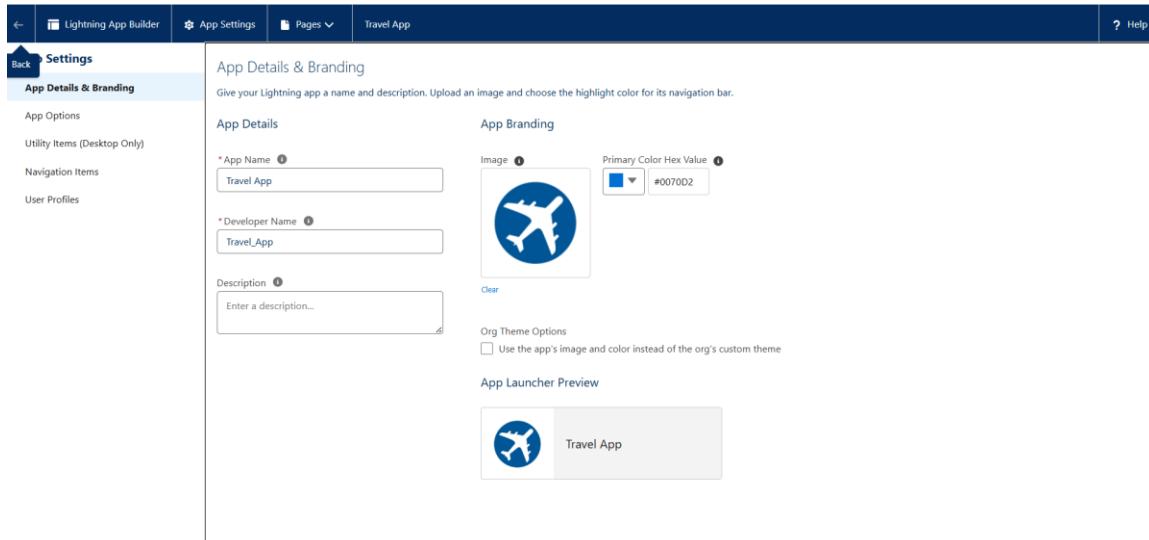
```

```
Travel_Approval__c updatedTa = [SELECT Id, Status__c FROM Travel_Approval__c WHERE Id = :ta.Id  
LIMIT 1];  
  
// Step 4: Assert the expected result  
System.assertEquals('Approved', updatedTa.Status__c, 'Status should be updated to Approved');  
}  
}
```

# Phase 6: User Interface Development

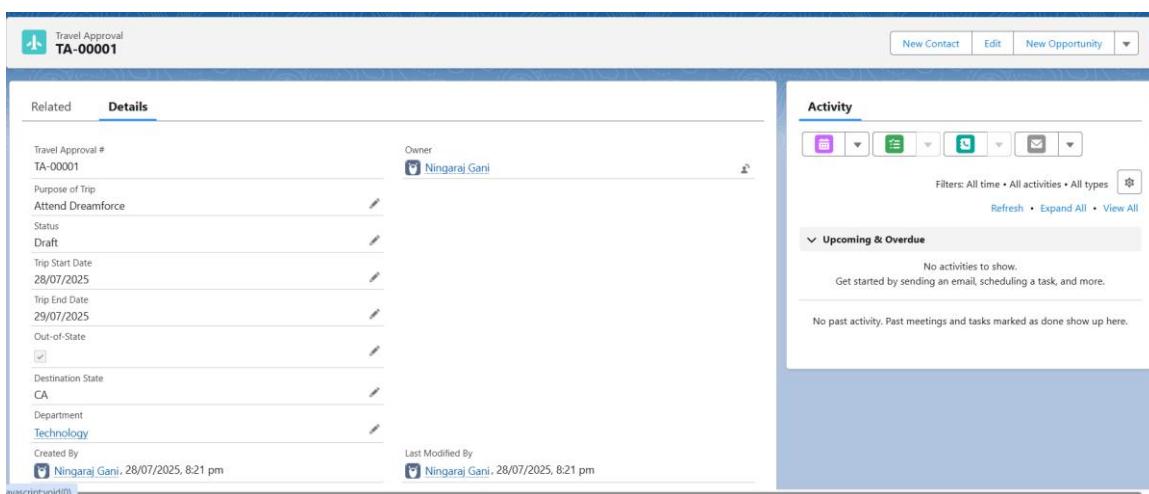
## 1. Lightning App Builder

- Built a Travel Approval Lightning App for streamlined navigation.
- Added custom objects (Department, Travel Approval, Expense Item) as tabs.
- Customized navigation bar for employees, managers, and admins.



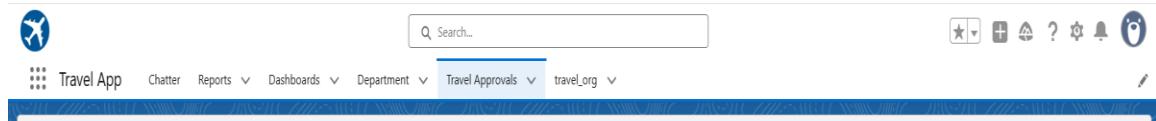
## 2. Record Pages

- Customized record pages for better user experience.
- Travel Approval Record Page: Shows trip details, related expenses, and approval status.
- Expense Item Record Page: Displays expense type, amount, and linked travel approval.
- Managers' record page includes quick approval actions.



### 3. Tabs

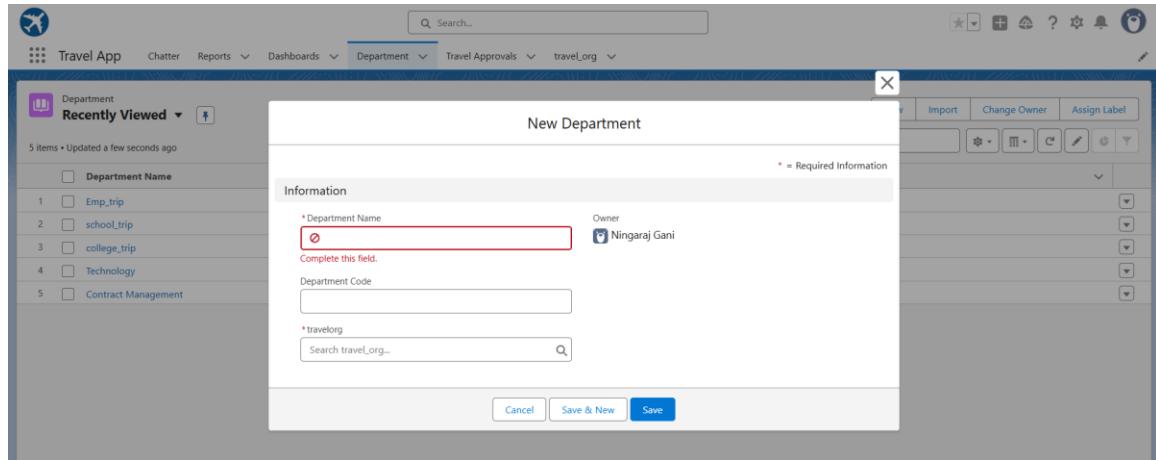
- Created custom tabs for:
    - Department → Manage departments.
    - Travel Approval → Submit/view travel requests.
    - Expense Item → Track and manage expenses.
  - Tabs were added to the app navigation bar for easy access.



## 4. Home Page Layouts

- Customized the home page for different roles.
  - Employees: Quick action to submit new travel request.
  - Managers: Dashboard component showing pending approvals.
  - Admins: Reports & analytics snapshot (department-wise requests, expenses).

## **For Employees:**



### **For Manager:**

Approval History (2)			
Step Name	Date	Status	Assigned To
Step 1	26/09/2025, 12:33 am	Pending	Eric Executive
Approval Request Submitted	26/09/2025, 12:33 am	Submitted	Ningaraj Gani
<a href="#">View All</a>			

## For Admins:

The screenshot shows the Salesforce interface for a 'Travel Requests by Department' report. The top navigation bar includes 'Travel App', 'Chatter', 'Reports', 'Dashboards', 'Department', 'Travel Approvals', and 'travel\_org'. The report title is 'Travel Requests by Department' under the 'Travel Approvals' section. The left sidebar shows 'Fields' and 'Filters' sections. The main area displays a table with columns: 'Travel Approval: Travel Approval #', 'Status', 'Out-of-State', 'Destination State', 'Trip Start Date', and 'Trip End Date'. The table contains data for various departments like 'college\_trip', 'Technology', 'Disability Determination Bureau', 'Division of Aging', 'Division of Disability and Rehabilitative Services', and 'Division of Family Resources'. A note at the top says 'Previewing a limited number of records. Run the report to see everything.' A 'Save & Run' button is visible at the bottom right.

## 5. Utility Bar

- Added a Utility Bar for frequently used tools.
- Included:
  - Notes for managers to add comments.
  - Recent Items to quickly open recent travel approvals.
  - Approval Status Tracker (custom flow).

## 6. LWC (Lightning Web Components)

- Developed simple LWCs for enhanced UI.
- Examples in project:
  - Expense Summary Component: Displays total expenses for a travel request.
  - Approval Button Component: Allows managers to approve/reject directly.

The screenshot shows a Lightning Web Component (LWC) titled 'Travel Approvals'. The top navigation bar includes 'New', 'Import', 'Change Owner', 'Printable View', and 'Assign Label'. Below is a search bar with placeholder 'Search this list...'. The main area is a table with columns: 'Travel Approval', 'Department', 'Created By', 'Status', 'Trip Start Date', and 'Trip End Date'. The table lists 15 travel requests from various departments like 'college\_trip', 'Technology', 'Disability Determination Bureau', etc., with their respective status (Pending Approval, Approved) and dates.

## Expense Item Component:

The screenshot shows the 'Expense Item Component' LWC. At the top, there are two tabs: 'Related' (selected) and 'Details'. Below the tabs is a section titled 'Notes & Attachments (0)' with a button 'Upload Files' and a placeholder 'Or drop files'. Below this is a section titled 'Expense Items (2)' with a 'New' button. A table lists expense items with columns: Expense Item Number, Expense Type, and Amount. The data is as follows:

Expense Item Number	Expense Type	Amount
E-00002	Hotel	₹870.00
E-00001	Airfare	₹450.00

At the bottom of the expense items section is a 'View All' link.

## 7. Apex with LWC:

No Usage of Apex

## 8. Events in LWC

- Used events to communicate between components.
- Use case: When a new expense is added, an event triggers the parent LWC to refresh the total expense summary.

## 9. Navigation Service

- Used to navigate between pages in the app.
- Use case: From the Expense Summary LWC, users can click a button to directly open the related Travel Approval record page.

The screenshot shows the 'Expense Item' details page for record E-00002. At the top, there is a header with a logo and the text 'Expense Item E-00002'. Below the header, there are two tabs: 'Related' (selected) and 'Details'. The 'Related' tab displays a list of travel approvals with one item visible: 'TA-00001'. The 'Details' tab shows the following fields:

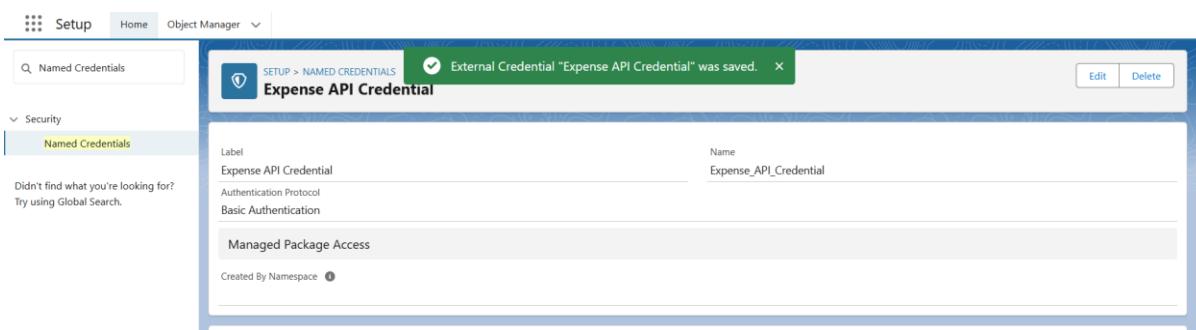
- Expense Item Number: E-00002
- Amount: ₹870.00
- Expense Type: Hotel
- Travel Approval: TA-00001

At the bottom, it shows 'Created By' Ningaraj Gani and 'Last Modified By' Ningaraj Gani, both dated 28/07/2025, 8:22 pm.

# Phase 7: Integration & External Access

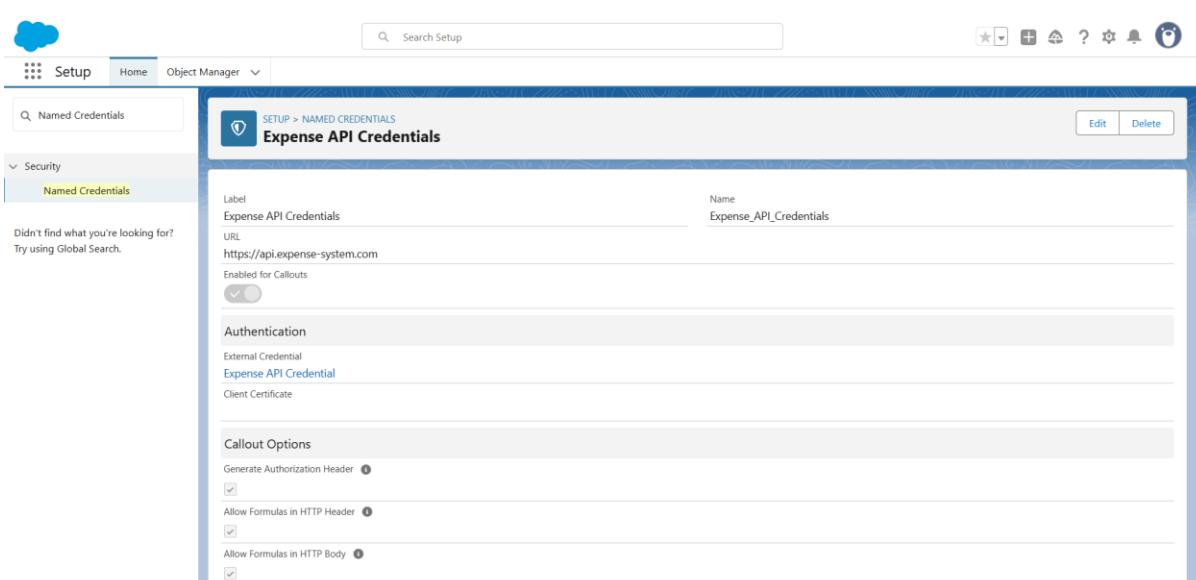
## 1. Named Credentials

- Securely store external API URLs and authentication.
- Avoid hardcoding credentials in Apex or Flows.
- Example: Expense\_API\_Credentials connects Salesforce to Expense Management System.
- Can be used in **Apex callouts**, Flows, or External Services.



## 2. External Services

- Declarative way to integrate REST APIs into Salesforce without code.
- Example: Expose Flight Booking API as a named service; employees select flights directly in Travel Request Flow.
- Generates **invocable actions** usable in Flows.

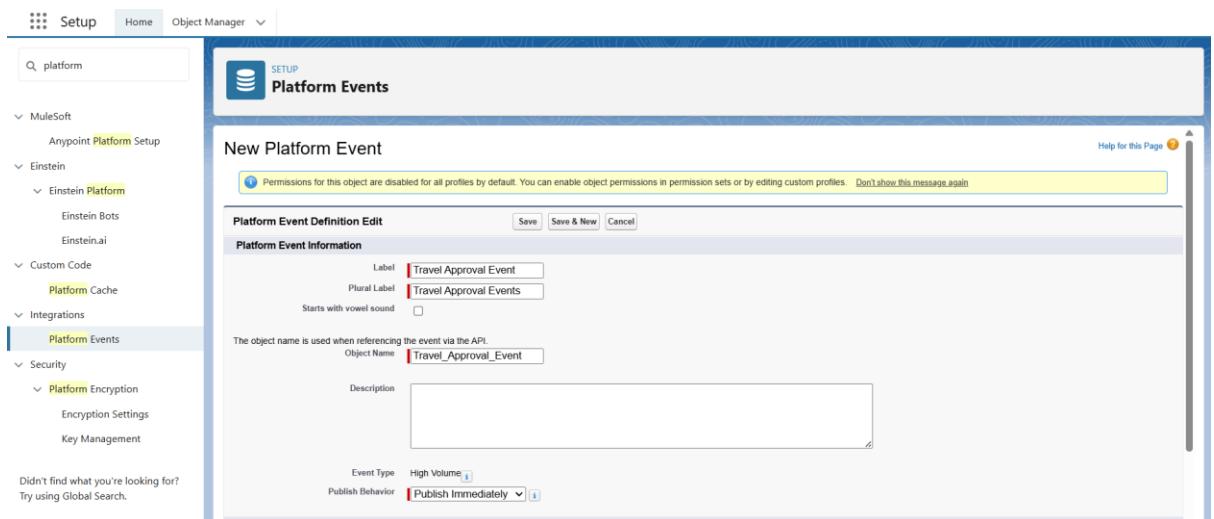


### 3. Web Services (REST/SOAP)

- Provide Travel Approval data to external systems.
- Example: HR portal can **create, update, or fetch Travel Requests** via Salesforce REST API.
- Enables integration with **ERP, Finance, or custom portals**.

### 4. Platform Events

- Asynchronous notifications for real-time integrations.
- Example: `Travel_Approval_Event__e` triggers when a request is submitted, notifying Finance to allocate funds.
- Can be subscribed by **Flows, Apex triggers, or external subscribers**.



### 5. OAuth & Authentication

- Secure, token-based authentication for external apps.
- Example: Finance portal uses OAuth tokens via a **Connected App** to fetch travel approvals.
- Scopes and access can be controlled without sharing passwords.

## 6. Remote Site Settings

- Whitelist external URLs to allow Salesforce callouts.
- Example: Hotel\_API and Expense\_API URLs added in setup.
- Prevents unauthorized connections and ensures security.

The screenshot shows the 'Remote Site Settings' page in the Salesforce Setup interface. The page title is 'Remote Site Settings' under the 'SETUP' tab. Below the title, it says 'Remote Site Details'. There is one record listed:

Remote Site Detail		Actions
Remote Site Name	ApexDevNet	<a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Clone</a>
Remote Site URL	http://www.apexdevnet.com	
Disable Protocol Security	<input type="checkbox"/>	
Description		
Active	<input checked="" type="checkbox"/>	
Created By	Ningaraj_Gani	11/07/2025, 7:17 pm

At the bottom right of the page, there is a link 'Help for this Page' with a question mark icon.

# Phase 8: Data Management & Deployment

## 1. Data Import Wizard

- Used to upload sample data like Departments, Travel Approvals, and Expense Items.
- Example: Import a CSV with 10 department records (HR, IT, Finance, etc.) and 20 travel requests.
- Provides a simple UI for small-scale imports.

The screenshot shows the 'Data Import Wizard' interface. At the top, there's a navigation bar with 'Setup', 'Home', and 'Object Manager'. Below it is a progress bar with three steps: 'Choose data' (highlighted), 'Edit mapping', and 'Start import'. A 'Let's do this' button is above the first step. To the right of the progress bar is a 'Help for this page' link. The main area is titled 'Import your Data into Salesforce' and says 'You can import up to 50,000 records at a time.' It has three sections: 'What kind of data are you importing?' (with tabs for 'Standard objects' and 'Custom objects', showing 'Department', 'Expense Items', and 'Travel Approvals'), 'What do you want to do?' (empty), and 'Where is your data located?' (empty). At the bottom are 'Cancel', 'Previous', and 'Next' buttons, along with a URL: <https://minifield-fry-7euca1-dev-ed.lightning.force.com/datalmporter/datalmporterand>.

## 2. Data Loader

- Used for bulk data import/export when records are large in number.
- Example: Import 1000+ travel expense records for testing scalability.
- Supports scheduling and handling large CSV files

The screenshot shows the 'Bulk Data Load Jobs' interface. At the top, there's a search bar with 'Data Import' and a 'SETUP' button. Below it is a 'Data Import Wizard' section with a 'Back to List: Bulk Data Load Jobs' link. The main area is titled 'Bulk Data Load Job Detail' and shows a table with job details:

Job ID	750d200000NpqAb	Job Type	Bulk V1	Status	Closed
Submitted By	Ningaraj Ganj	Operation	Insert	Total Processing Time (ms)	0
Start Time	25/09/2025, 11:32 pm IST	Queued Batches	1	API Active Processing Time (ms)	0
End Time		In Progress Batches	0	Apex Processing Time (ms)	0
Time to Complete ([hh:]mm:ss)		Completed Batches	0		
Object	Travel Approval	Failed Batches	0		
External ID Field		Progress	0%		
Content Type	CSV	Records Processed	0		
Concurrency Mode	Parallel	Records Failed	0		
API Version	64.0	Retries	0		

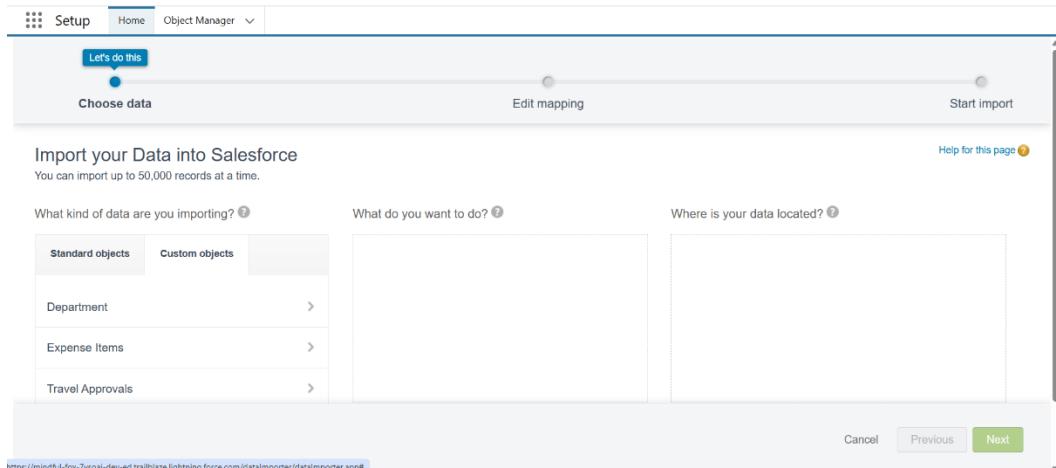
At the bottom are 'Abort' and 'Reload' buttons.

### 3. Duplicate Rules

- Prevents users from creating duplicate records.
- Example: Avoids creating two departments with the same name or two travel requests with the same ID.
- Ensures data integrity in the system.

### 4. Data Export & Backup

- Exports Salesforce data regularly to create backups.
- Example: Weekly export of Travel Approval and Expense Item records for recovery.
- Ensures business continuity and protects against accidental deletions.



### 5. Change Sets

- Used to move custom objects, fields, validation rules, and flows from Sandbox to Production.
- Example: Move Travel Approval object with its fields and approval process from test environment to live system.

### 6. Unmanaged vs Managed Packages

- **Unmanaged Packages:** Used to share project configuration for development/testing.
- **Managed Packages:** Used for distribution (like apps on AppExchange).
- Example: The Travel Approval App could be shared with other orgs via an Unmanaged Package.

# Phase 9: Reporting, Dashboards & Security Review

## 1. Reports (Tabular, Summary, Matrix, Joined)

- **Tabular Report** → Simple list of travel requests.
- **Summary Report** → Grouped by Department for approval insights.
- **Matrix Report** → Expenses by Department vs. Approval Status.
- **Joined Report** → Combine Travel Approvals with Expense Items.

The screenshot shows a report interface for a 'Travel App'. The top navigation bar includes 'Chatter', 'Reports', 'Dashboards', 'Department', 'Travel Approvals', and 'travel\_org'. The report title is 'New Travel Approvals Report' under the 'Travel Approvals' tab. On the left, there's a sidebar with 'Fields' sections for 'Groups' (with 'GROUP ROWS' and 'Add group...'), 'Columns' (with 'Add column...'), and filters for 'Travel Approval: Travel Approval #', 'Department', 'Status', '# Out-of-State', 'Destination State', 'Trip Start Date', and 'Trip End Date'. The main area displays a table with 17 rows of travel approval data:

	Travel Approval: Travel Approval #	Department	Status	Out-of-State	Destination State	Trip Start Date	Trip End Date
1	TA-00001	Technology	Approved	<input checked="" type="checkbox"/>	CA	28/07/2025	29/07/2025
2	TA-00002	Technology	Rejected	<input checked="" type="checkbox"/>	GO	08/08/2025	15/08/2025
3	TA-00003	college_trip	Pending Approval	<input type="checkbox"/>	-	08/08/2025	13/08/2025
4	TA-00004	Disability Determination Bureau	Approved	<input checked="" type="checkbox"/>	OK	10/01/2019	10/01/2019
5	TA-00005	Division of Disability and Rehabilitative Services	Rejected	<input checked="" type="checkbox"/>	OK	04/03/2019	04/06/2019
6	TA-00006	Division of Finance	Rejected	<input checked="" type="checkbox"/>	CA	03/09/2019	03/09/2019
7	TA-00007	Division of Aging	Approved	<input checked="" type="checkbox"/>	GA	11/05/2019	11/11/2019
8	TA-00008	Technology	Approved	<input type="checkbox"/>	TX	03/06/2019	03/09/2019
9	TA-00009	Division of Disability and Rehabilitative Services	Approved	<input checked="" type="checkbox"/>	FL	11/06/2019	11/12/2019
10	TA-00010	Disability Determination Bureau	Rejected	<input checked="" type="checkbox"/>	OK	03/06/2019	03/07/2019
11	TA-00011	Contract Management	Approved	<input checked="" type="checkbox"/>	OK	05/11/2019	05/11/2019
12	TA-00012	Division of Disability and Rehabilitative Services	Approved	<input checked="" type="checkbox"/>	GA	07/07/2019	07/07/2019
13	TA-00013	Office of Communications and Media	Approved	<input checked="" type="checkbox"/>	OK	06/02/2019	06/12/2019
14	TA-00014	Office of Medicaid Policy and Planning	Approved	<input checked="" type="checkbox"/>	CA	11/05/2019	11/11/2019
15	TA-00015	Division of Family Resources	Approved	<input type="checkbox"/>	TX	04/01/2019	04/01/2019
16	TA-00016	Human Resources	Approved	<input checked="" type="checkbox"/>	FL	07/09/2019	07/11/2019
17	TA-00017	Division of Disability and Rehabilitative Services	Approved	<input checked="" type="checkbox"/>	OK	10/11/2019	10/12/2019

## 2. Report Types

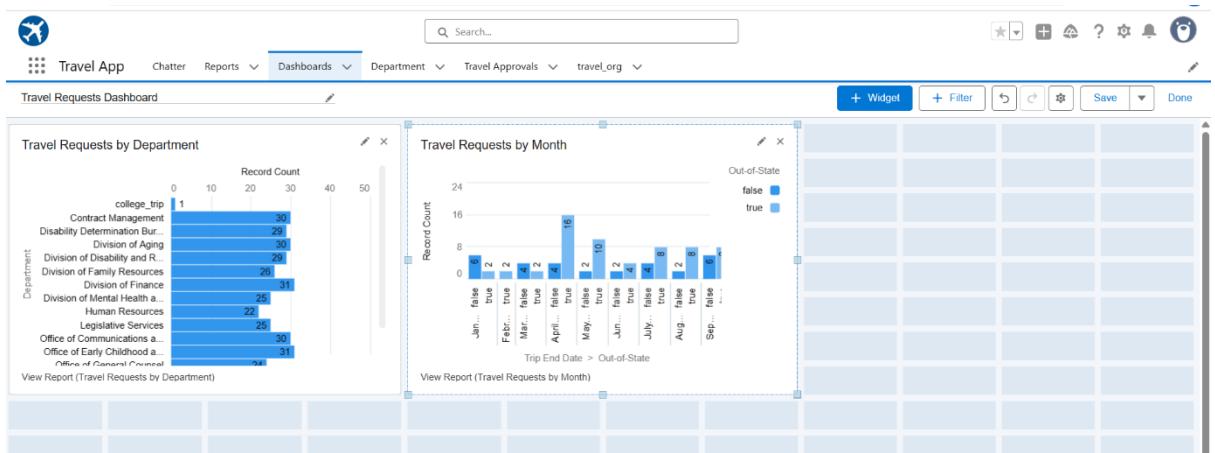
- Custom report types created to link **Travel Approvals with Expense Items**.
- Helps generate department-wise or trip-wise financial reports.

The screenshot shows a report interface for a 'Travel App'. The top navigation bar includes 'Chatter', 'Reports', 'Dashboards', 'Department', 'Travel Approvals', and 'travel\_org'. The report title is 'Travel Requests by Department' under the 'Travel Approvals' tab. On the left, there's a sidebar with 'Fields' sections for 'Groups' (with 'GROUP ROWS' and 'Add group...'), 'Columns' (with 'Add column...'), and filters for 'Travel Approval: Travel Approval #', 'Status', '# Out-of-State', 'Destination State', 'Trip Start Date', and 'Trip End Date'. The main area displays a table with grouped travel approval data:

	Travel Approval: Travel Approval #	Status	Out-of-State	Destination State	Trip Start Date	Trip End Date
college_trip (1)	TA-00003	Pending Approval	<input type="checkbox"/>	-	08/08/2025	13/08/2025
Subtotal			0			
Contract Management (1)	TA-00011	Approved	<input checked="" type="checkbox"/>	OK	05/11/2019	05/11/2019
Subtotal			1			
Disability Determination Bureau (2)	TA-00004	Approved	<input checked="" type="checkbox"/>	OK	10/01/2019	10/01/2019
	TA-00010	Rejected	<input checked="" type="checkbox"/>	OK	03/06/2019	03/07/2019
Subtotal			2			
Division of Aging (1)	TA-00007	Approved	<input checked="" type="checkbox"/>	GA	11/05/2019	11/11/2019
Subtotal			1			
Division of Disability and Rehabilitative Services (4)	TA-00005	Rejected	<input checked="" type="checkbox"/>	OK	04/03/2019	04/06/2019
	TA-00009	Approved	<input checked="" type="checkbox"/>	FL	11/06/2019	11/12/2019
	TA-00012	Approved	<input checked="" type="checkbox"/>	GA	07/07/2019	07/07/2019
	TA-00017	Approved	<input checked="" type="checkbox"/>	OK	10/11/2019	10/12/2019
Subtotal			4			
Division of Family Resources (1)	TA-00015	Approved	<input type="checkbox"/>	TX	04/01/2019	04/01/2019
Subtotal			0			

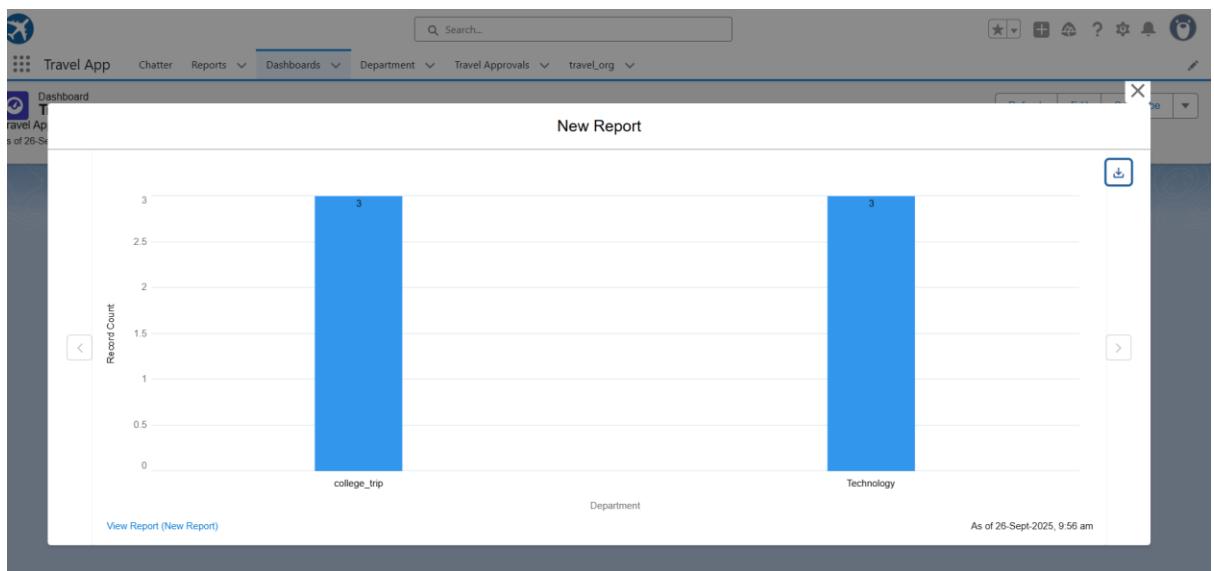
### 3. Dashboards

- Dashboards built for quick visualization:
  - Bar Chart → Pending Approvals by Department.
  - Pie Chart → Expense Breakdown.
  - Line Chart → Monthly Travel Requests.
  - Gauge → Budget Utilization.



### 4. Dynamic Dashboards

- Each user sees only **their own data**.
- Employee → only own requests.
- Manager → requests from team.
- Admin → all requests.



## 5. Profiles

- **Employee Profile** → Create requests, view own.
- **Manager Profile** → Approve/reject requests.
- **Admin Profile** → Full access.

The screenshot shows the Salesforce 'Profiles' page under the 'SETUP' tab. The page title is 'Profiles'. At the top, there are buttons for 'Edit' and 'Create New View'. Below the header is a search bar and a filter dropdown set to 'All Profiles'. The main content is a table listing 41 profiles. The columns are: Action, Profile Name, User License, and Custom. The 'User License' column includes options like 'Work.com Only', 'Salesforce', 'Salesforce Platform', 'Salesforce Integration', and 'Salesforce'. The 'Custom' column contains checkboxes, many of which are checked. At the bottom of the table, there are pagination controls for '1-25 of 41' and '0 Selected'. On the right side, there is a vertical scroll bar and a page number indicator 'Page 1 of 2'.

Action	Profile Name	User License	Custom
<input type="checkbox"/> Edit   Clone	Work.com Only User	Work.com Only	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	System Administrator	Salesforce	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Standard User	Salesforce	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Standard Platform User	Salesforce Platform	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Solution Manager	Salesforce	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Silver Partner User	Silver Partner	<input type="checkbox"/>
<input type="checkbox"/> Edit   Del   ...	Salesforce API Only System Integrations	Salesforce Integration	<input checked="" type="checkbox"/>
<input type="checkbox"/> Edit   Del   ...	ReadOnly	Salesforce	<input checked="" type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Partner Community User	Partner Community	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Partner Community Login User	Partner Community Login	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Partner App Subscription User	Partner App Subscription	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Minimum Access - Salesforce	Salesforce	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Minimum Access - API Only Integrations	Salesforce Integration	<input type="checkbox"/>
<input type="checkbox"/> Edit   Clone	Marketing User	Salesforce	<input type="checkbox"/>

## 6. Roles

- Role hierarchy: Admin → Manager → Employee.
- Ensures managers see subordinates' records automatically.

The screenshot shows the Salesforce 'Roles' page under the 'SETUP' tab. The page title is 'Roles'. Below the header is a search bar and a 'Collapse All' / 'Expand All' button. The main content is titled 'Creating the Role Hierarchy' with the sub-instruction 'You can build on the existing role hierarchy shown on this page. To insert a new role, click **Add Role**'. A section titled 'Your Organization's Role Hierarchy' displays a hierarchical tree of roles. The root node is 'pwc', which has three children: 'Add Role', 'CEO', and 'Admin'. The 'CEO' node has one child: 'Manager'. Each node has 'Edit', 'Del', and 'Assign' buttons. The entire interface is styled with a blue and white color scheme.

### Creating the Role Hierarchy

You can build on the existing role hierarchy shown on this page. To insert a new role, click **Add Role**.

#### Your Organization's Role Hierarchy

[Collapse All](#) [Expand All](#)

- pwc
  - [Add Role](#)
  - CEO [Edit](#) | [Del](#) | [Assign](#)
    - [Add Role](#)
  - Admin [Edit](#) | [Del](#) | [Assign](#)
    - [Add Role](#)
  - Manager [Edit](#) | [Del](#) | [Assign](#)
    - [Add Role](#)

## 7. Permission Sets

- Extra access granted without changing profile.
- Finance Team → Expense Report Access.
- Travel Desk → View All Requests.

The screenshot shows the Salesforce Chatter interface. At the top, there's a navigation bar with links for Chatter, Reports, Dashboards, Department, Travel Approvals, and travel\_org. A search bar is at the top right. On the left, there's a sidebar with sections for 'What I Follow', 'To Me', 'Bookmarked', and 'Company Highlights'. Under 'Company Highlights', it says 'My Drafts' and 'STREAMS' (with a note: 'You don't have any streams yet. Try creating one!'). The main area shows a post creation form with tabs for 'Post', 'Poll', and 'Question', and a text input field 'Share an update...'. Below that is a feed with a search bar 'Search this feed...' and a sort dropdown 'Sort by: Top Posts'. The background has a blue and white topographic map pattern.

## 8. Organization-Wide Defaults (OWD)

- Travel Approval → Private.
- Expense Item → Controlled by Parent.
- Department → Public Read Only.

Department	Public Read/Write	Private	✓
Expense Item	Controlled by Parent	Controlled by Parent	✓
Travel Approval	Public Read/Write	Private	✓
travelorg	Public Read/Write	Private	✓

## 9. Sharing Rules

- Approved Travel Requests shared with Finance.
- International requests shared with Travel Desk.

Travel Approval Sharing Rules		New	Recalculate	Travel Approval Sharing Rules Help	
Action	Criteria			Shared With	Access Level
Edit   Del	Travel Approval: Status EQUALS Approved			Group: Finance Team	Read/Write
Edit   Del	Travel Approval: Out-of-State EQUALS True			Group: Travel Desk	Read/Write

## 10. Sharing Settings

- Enabled manual sharing for Travel Approvals.
- Fine-tuned object-level sharing in Setup.

The screenshot shows the 'Sharing Settings' page in the Salesforce Setup. It consists of five main steps:

- Step 2: Select your rule type**: Shows 'Rule Type' set to 'Based on criteria'.
  - Criteria**: A table with one row: 'Field' (Out-of-State), 'Operator' (equals), 'Value' (True). An 'AND' operator is selected.
- Step 3: Select which records to be shared**: An empty section.
- Step 4: Select the users to share with**: Shows 'Share with' set to 'Public Groups' and 'Travel Desk'.
- Step 5: Select the level of access for the users**: Shows 'Access Level' set to 'ReadWrite'.

At the bottom are 'Save' and 'Cancel' buttons.

## 11. Field Level Security (FLS)

- Employees cannot see Manager Comments.
- Only Finance sees Expense Amount.

The screenshot shows the 'Set Field-Level Security' page for the 'Total Expenses' field. It includes:

- Field Label**: Total Expenses
- Data Type**: Roll-Up Summary (SUM Expense Item)
- Field-Level Security for Profile**: A table mapping profiles to visibility levels:

Profile	Visible	Read-Only
Analytics Cloud Integration User	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Analytics Cloud Security User	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Contract Manager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cross Org Data Proxy User	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom: Marketing Profile	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom: Sales Profile	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom: Support Profile	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Force.com - App Subscription User	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Force.com - Free User	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Gold Partner User	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Identity User	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

## 12. Session Settings

- Auto logout after 2 hours inactivity.
- Restrict multiple device logins.

The screenshot shows the 'Session Settings' page under the 'SETUP' tab. At the top, there's a 'Session Timeout' section with a dropdown set to '4 hours'. Below it are several checkboxes: 'Disable session timeout warning popups' (unchecked), 'Force logout on session timeout' (checked), 'Lock sessions to the IP address from which they originated' (unchecked), 'Lock sessions to the domain in which they were first used' (checked), 'Terminate all of a user's sessions when an admin resets that user's password' (unchecked), 'Force relogin after Login-as-User' (checked), 'Require HttpOnly attribute' (unchecked), 'Use POST requests for cross-domain sessions' (unchecked), 'Enforce login IP ranges on every request' (unchecked), and 'When embedding a Lightning application in a third-party site, use a session token instead of a session cookie' (unchecked). A note at the bottom states: "EXTENDED USE OF IE11 WITH LIGHTNING EXPERIENCE HAS NOW ENDED" and "AS OF DECEMBER 31, THE EXTENDED PERIOD HAS ENDED, AND USE OF INTERNET EXPLORER 11 (IE 11) WITH LIGHTNING EXPERIENCE IS NO LONGER SUPPORTED. ISSUES WITH PERFORMANCE OR FUNCTIONALITY THAT AFFECT ONLY IE 11 WILL NOT BE FIXED. PLEASE SWITCH TO A SUPPORTED BROWSER."

## 13. Login IP Ranges

- Allowed only from corporate VPN/office IPs.
- Blocks unauthorized access.

The screenshot shows a form titled 'Please specify IP range' for defining login IP ranges. It includes fields for 'Start IP Address' (set to '10.10.2.9') and 'End IP Address' (set to '10.10.2.523'), both with red asterisks indicating they are required fields. There is also a 'Description' field, which is currently empty. At the bottom of the form are 'Save' and 'Cancel' buttons.

# Phase 10: Quality Assurance Testing – Travel Approval App

## 1. Test Case Template

Use Case / Scenario	Test Steps (Input)	Expected Result	Actual Result (with Screenshot)
Example: Create Travel Request	<ol style="list-style-type: none"><li>Log in as Employee.</li><li>Go to Travel Approval object.</li><li>Click “New”.</li><li>Enter Employee Name, Start Date, End Date, Travel Type, Status = Submitted.</li><li>Save.</li></ol>	Travel request record is successfully created with Status = Submitted.	Below ScreenShot

### Actual Result (with Screenshot):

The screenshot shows the 'Travel Approval' application interface. At the top, there's a header with a logo, the title 'Travel Approval TA-00001', and navigation buttons for 'New Contact', 'Edit', and 'New Opportunity'. Below the header, the main area has two tabs: 'Related' and 'Details'. The 'Details' tab is selected, displaying various fields for a travel request:

- Travel Approval #: TA-00001
- Purpose of Trip: Attend Dreamforce
- Status: Draft
- Trip Start Date: 28/07/2025
- Trip End Date: 29/07/2025
- Out-of-State:
- Destination State: CA
- Department: Technology
- Created By: Ningaraj Gani, 28/07/2025, 8:21 pm

On the right side of the details tab, there's an 'Owner' section showing 'Ningaraj Gani'. Below the details, a note says 'Last Modified By Ningaraj Gani, 28/07/2025, 8:21 pm'. To the right of the details tab is an 'Activity' sidebar with sections for 'Upcoming & Overdue' and 'Past Activity'. Both sections are currently empty, with a note stating 'No activities to show.' and 'Get started by sending an email, scheduling a task, and more.'

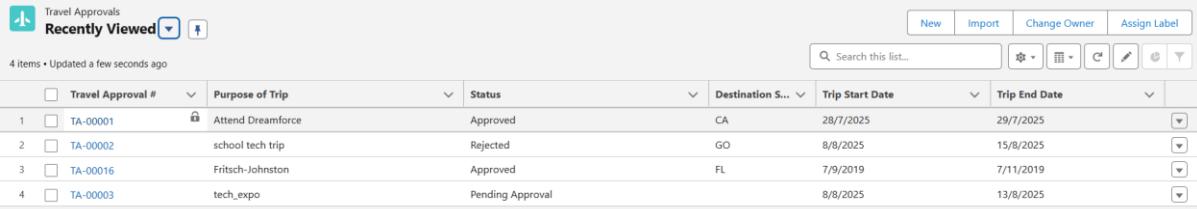
## 2. Sample Test Cases

### A. Record Creation

**Use Case:** Employee submits a new travel request.

Test Steps (Input)	Expected Result	Actual Result (Screenshot)
Fill all required fields (Employee Name, Dates, Travel Type, Status = Submitted) and Save	Travel Request is created; record appears in Travel Approval tab; Status = Submitted	[Attach Screenshot]

**Actual Result (Screenshot):**



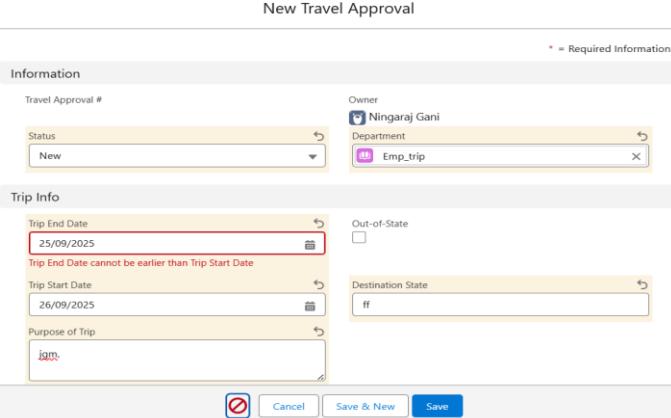
	Travel Approval #	Purpose of Trip	Status	Destination S...	Trip Start Date	Trip End Date	
1	TA-00001	Attend Dreamforce	Approved	CA	28/7/2025	29/7/2025	
2	TA-00002	school tech trip	Rejected	GO	8/8/2025	15/8/2025	
3	TA-00016	Fritsch-Johnston	Approved	FL	7/9/2019	7/11/2019	
4	TA-00003	tech_expo	Pending Approval		8/8/2025	13/8/2025	

### B. Validation Rule

**Use Case:** Prevent travel request submission with End Date earlier than Start Date.

Test Steps (Input)	Expected Result	Actual Result (Screenshot)
Enter Start Date = 26-Sep-2025, End Date = 25-Sep-2025 and Save	Error message: "End Date cannot be earlier than Start Date." Record not saved	[Attach Screenshot]

**Actual Result (Screenshot):**



### C. Approval Process

**Use Case:** Travel request requires manager approval.

Test Steps (Input)	Expected Result	Actual Result (Screenshot)
Submit a travel request with Status = Submitted. Login as Manager → Approve request	Travel request status updates to Approved; Employee receives email notification	[Attach Screenshot]

**Actual Result (Screenshot):**

Step Name	Date	Status	Assigned To
Step 1	26/09/2025, 12:33 am	Pending	Eric Executive
Approval Request Submitted	26/09/2025, 12:33 am	Submitted	Ningaraj Gani

### D. Flow Builder (Record-Triggered Flow)

**Use Case:** Automatically update status when manager approves.

Test Steps (Input)	Expected Result	Actual Result (Screenshot)
Update Status field = Approved	Flow triggers; Status updated to Approved; Email notification sent	[Attach Screenshot]

**Actual Result (Screenshot):**

The screenshot shows a notifications sidebar with two items:

- A comment from "Eric Executive" saying "Technology is the correct department." posted "4 hours ago".
- An notification from "Ningaraj Gani" about a travel approval request, with details: "Ningaraj Gani is requesting approval for travel approval" and "Travel Approval #: TA-00001 • Owner: Ningaraj Gani".

## E. Automatic Task Creation

**Use Case:** Finance needs a task when request is approved.

Test Steps (Input)	Expected Result	Actual Result (Screenshot)
Manager approves request	Task created for Finance user: "Process reimbursement for Travel Request #"	[Attach Screenshot]

**Actual Result (Screenshot):**

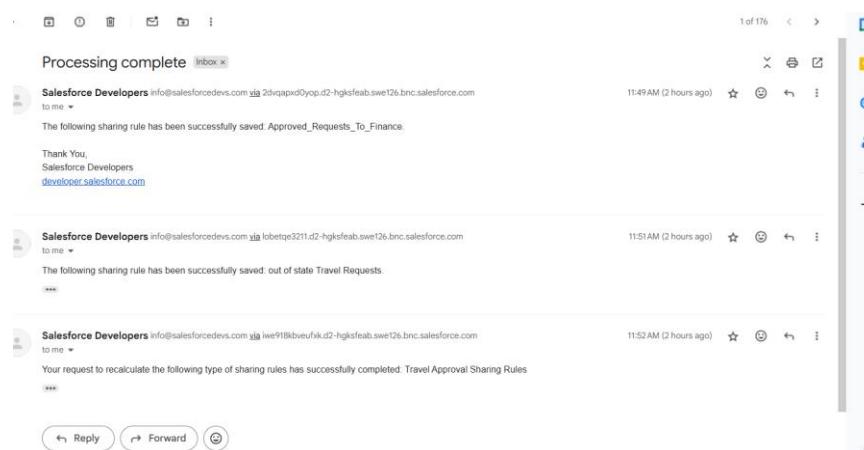
The screenshot shows a 'New Task' creation interface. At the top, there's a header with three icons: a list icon, a search icon, and a close button. Below the header, there are four input fields: 'Subject' (empty), 'Due Date' (empty), 'Name' (with a dropdown menu showing 'Search Contacts...' and a magnifying glass icon), and 'Related To' (with a dropdown menu showing 'TA-00001' and a magnifying glass icon). At the bottom, there's a section labeled '\* Assigned To' (empty) and a blue 'Save' button.

## F. Email Alerts

**Use Case:** Notify employee when travel request is approved.

Test Steps (Input)	Expected Result	Actual Result (Screenshot)
Approve travel request	Employee receives email: "Your Travel Request has been Approved"	[Attach Screenshot]

### Actual Result (Screenshot):

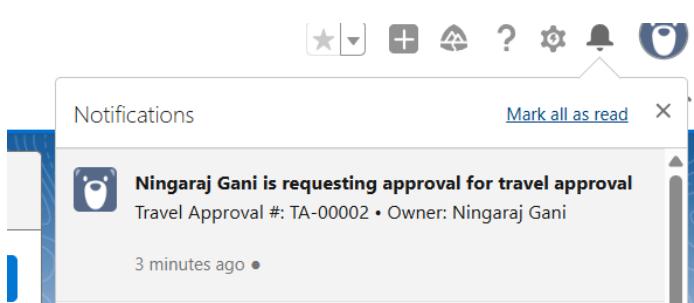


## G. Custom Notifications

**Use Case:** Notify manager of pending approvals.

Test Steps (Input)	Expected Result	Actual Result (Screenshot)
Submit travel request	Manager receives Salesforce notification: "New Travel Request pending approval"	[Attach Screenshot]

### Actual Result (Screenshot):



## H. Reporting & Dashboards:

**Use Case:** Manager views Summary Report of travel requests by department.

Test Steps (Input)	Expected Result	Actual Result (Screenshot)
Go to Reports → Select Summary Report	Report displays grouped travel requests by Department and Status	[Attach Screenshot]

### Actual Result (Screenshot):

The screenshot shows the 'Travel App' interface with the 'Reports' tab selected. On the left, a sidebar lists 'Recent' reports (5 items) and categories like 'Created by Me', 'Private Reports', 'Public Reports', and 'All Reports'. The main area displays a table of recent reports with columns: Report Name, Description, Folder, Created By, Created On, and Subscribed. The table includes the following data:

Report Name	Description	Folder	Created By	Created On	Subscribed
New Report		Private Reports	Ningaraj Gani	10/9/2025, 12:35 am	
Travel Requests by Department		Public Reports	Ningaraj Gani	25/9/2025, 11:57 pm	
Travel Requests by Month		Public Reports	Ningaraj Gani	26/9/2025, 12:04 am	
New Travel Approvals Report		Private Reports	Ningaraj Gani	7/8/2025, 12:59 pm	
Sample Flow Report: Screen Flows	Which flows run, what's the status of each interview, and how long do users take to complete the screens?	Public Reports	Automated Process	11/7/2025, 7:17 pm	