



# **Vehicle Management System Using Salesforce**

## **NAAN MUDHALVAN PROJECT REPORT**

*Submitted by*

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*in partial fulfilment for the award of the degree of*

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## BONAFIDE CERTIFICATE

Certified that this the project report titled “**Build A Vehical Management System using Salesforce**” is the bonafide work of “**RUBIKA P (611420104066), SARANYA L (611420104068), SARANYA S (611420104070) , SHARMILA S (611420104072** ) who carried out the project work under my supervision.

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## LIST OF ABBREVIATION

CRM	Customer Relationship Management
ESP	Email Service Provider
UI	User Interface
UX	User Experience
OWD	Org - Wide Default
CTA	Call To Action
CSV	Comma - Separated Values
SLA	Service Level Agreement
API	Application Programming Interface
SaaS	Software as a Service
PaaS	Platform as a Service

## CHAPTER-1

### PROJECT SPECIFICATION

#### 1.1 Project Goal

Building an Employee Travel Approval Application for corporate use within the Salesforce platform involves a multi-faceted approach, starting with requirements gathering to define user roles and workflows. A well-structured data model captures essential information, and user-friendly interfaces for both employees and managers streamline the travel request and approval process. Workflow automation facilitates efficient routing and notifications, while integrations with external systems like expense management tools enhance data accuracy.

Robust reporting and analytics tools offer insights, and mobile app development ensures accessibility on-the-go. Security and compliance measures safeguard sensitive data, and thorough testing ensures a reliable application. Training and documentation support user adoption, and ongoing maintenance and improvements address evolving needs. Scalability planning and future enhancements cater to growing demands, while comprehensive documentation maintains transparency, ultimately streamlining the travel approval process and enhancing efficiency.

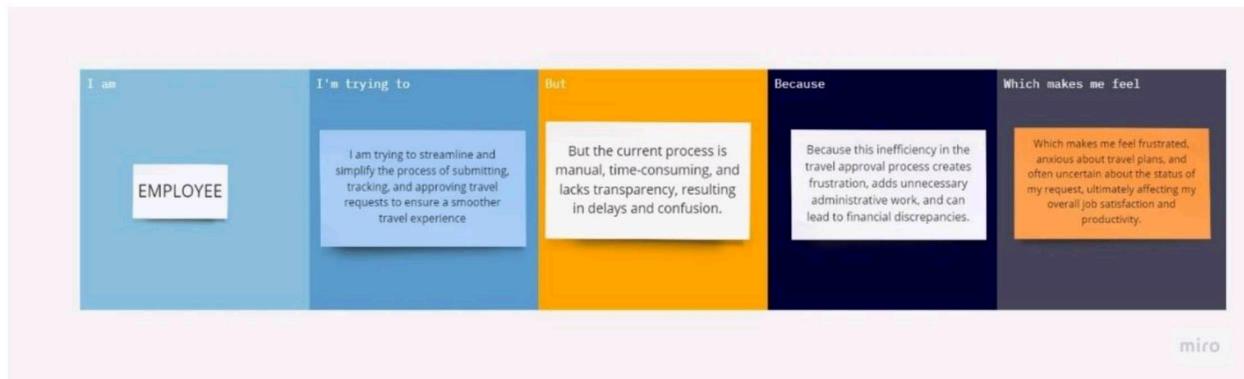
## 1.2 Project Scope

The Employee Travel Approval Application built in Salesforce serves a vital purpose in corporate travel management. Firstly, it streamlines and automates the often complex and time-consuming travel request and approval process. This efficiency results in reduced administrative burdens, faster approval times, and improved communication between employees and managers. With the ability to centralize all travel-related data, the application ensures data accuracy and compliance with corporate policies and regulatory requirements, contributing to better financial management and accountability.

The application fosters transparency throughout the travel approval workflow. Both employees and managers can easily track the status of travel requests, which enhances visibility into the process. By providing a clear overview of approval progress, it minimizes potential delays and miscommunication, ultimately improving the user experience and helping employees plan their travel more effectively.

The Employee Travel Approval Application in Salesforce offers robust security, ensuring that sensitive data is protected while also providing scalability for future growth. The built-in reporting and analytics tools offer insights into travel expenses and approval metrics, supporting data-driven decision-making. By facilitating on-the-go access through mobile app development, the application empowers employees and managers to manage travel efficiently and enhances the organization's overall travel management capabilities. In conclusion, the application optimizes corporate travel management by enhancing efficiency, transparency, and control, ultimately leading to cost savings and a more seamless user experience.

### 1.3 Problem Statement Definition

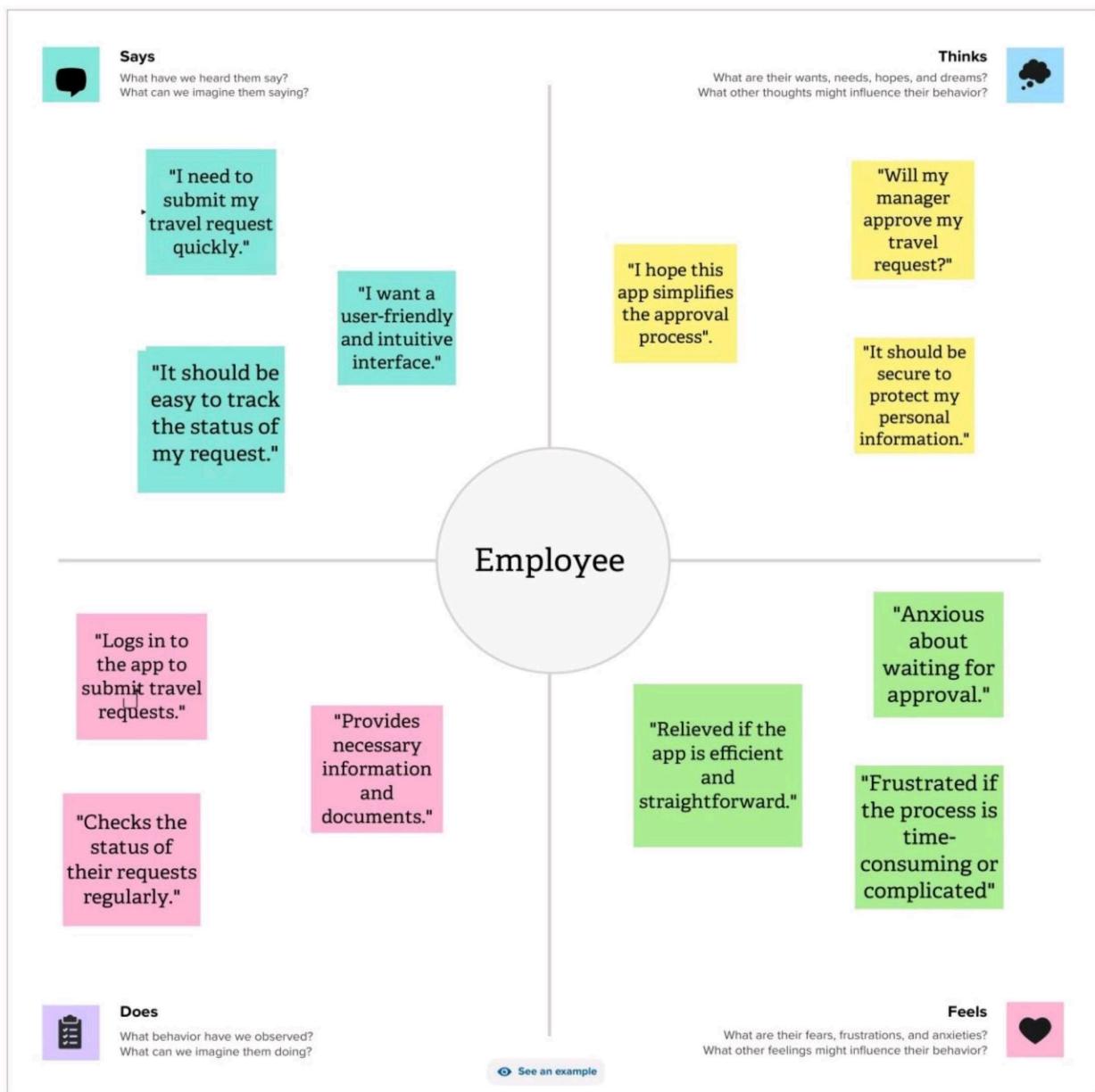


Problem Statement (PS)	I am (Employee)	I'm trying to	But	Because	Which makes me feel
PS	Employee	I am trying to streamline and simplify the process of submitting, tracking, and approving travel requests to ensure a smoother travel experience	But the current process is manual, time-consuming, and lacks transparency, resulting in delays and confusion.	Because this inefficiency in the travel approval process creates frustration, adds unnecessary administrative work, and can lead to financial discrepancies	Which makes me feel frustrated, anxious about travel plans, and often uncertain about the status of my request, ultimately affecting my overall job satisfaction and productivity

## 1.4 Empathy Map Canvas

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behavior and attitudes.

It is a useful tool to help teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.



## 1.5 Ideation & Brainstorming

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

### Step-1: Team Gathering, Collaboration and Select the Problem Statement:

**Define your problem statement**

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

**Before you collaborate**

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

**Team gathering**

Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

**Set the goal**

Think about the problem you'll be focusing on solving in the brainstorming session.

**Learn how to use the facilitation tools**

Use the Facilitation Superpowers to run a happy and productive session.

**Key rules of brainstorming**

To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

Need some inspiration? See a finished version of a brainstorm session and download your own.

Get started →

## Step-2: Brainstorm, Idea Listing and Grouping:

**2 Brainstorm**

Write down any ideas that come to mind that address your problem statement.

⌚ 10 minutes

**3 Group ideas**

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

⌚ 20 minutes

**Person 1**

- User-Friendly Dashboard:** Create an intuitive dashboard for employees to submit travel requests and track their status.

**Person 2**

- Manager Approval Workflow:**
  - Implement a workflow that allows managers to review and approve travel requests easily.
- Travel Policy Integration:**
  - Include the company's travel policy within the app, ensuring employees are aware of guidelines and restrictions.
- Expense Management:**
  - Allow employees to submit expense reports related to their trips and attach receipts.

**Person 3**

- Notification System:**
  - Implement a notification system to keep employees informed about the status of their travel requests.

**Person 4**

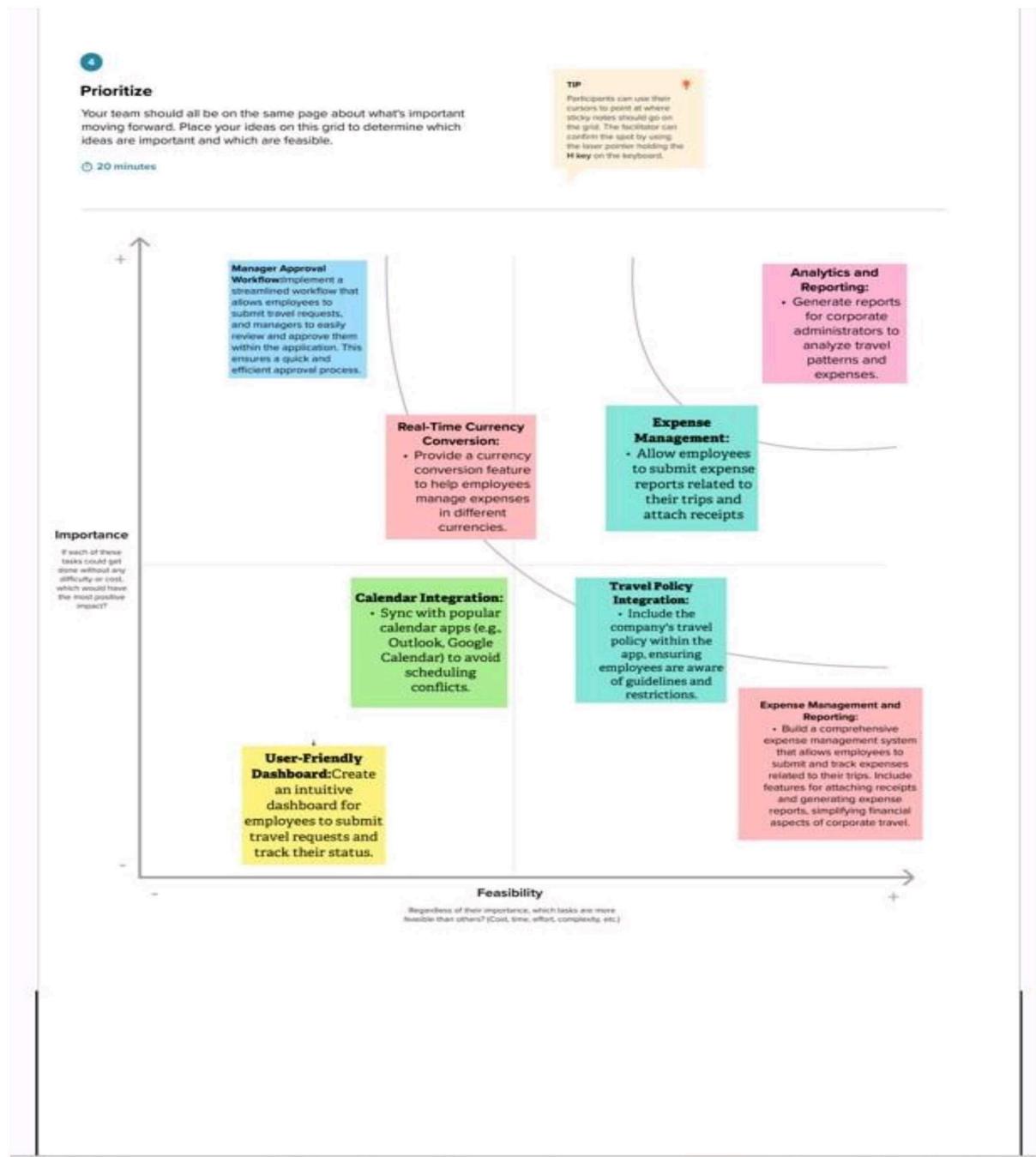
- Real-Time Currency Conversion:**
  - Provide a currency conversion feature to help employees manage expenses in different currencies.
- Analytics and Reporting:**
  - Generate reports for corporate administrators to analyze travel patterns and expenses.

**Manager Approval Workflow:** Implement a streamlined workflow that allows employees to submit travel requests, and managers to easily review and approve them within the application. This ensures a quick and efficient approval process.

**Expense Management and Reporting:**

- Build a comprehensive expense management system that allows employees to submit and track expenses related to their trips. Include features for attaching receipts and generating expense reports, simplifying financial aspects of corporate travel.

### Step-3: Idea Prioritization:



## 1.6 Proposed Solution

S. No	Parameter	Description
1.	Problem Statement (Problem to be solved)	<p>Corporates often grapple with inefficient and manual travel approval processes that involve paperwork and a lack of transparency. These outdated methods lead to delays, increased administrative work, and potential compliance issues. The process is a source of stress for employees who require timely approvals to plan their business trips effectively, and it leaves them dissatisfied with the process. Managers, on the other hand, struggle to review and manage a high volume of travel requests while ensuring compliance. The absence of transparency leads to bottlenecks and a lack of visibility, leaving them overwhelmed and frustrated.</p>
2.	Idea / Solution description	<p>Our proposed solution is to develop an Employee Travel Approval Application within Salesforce, offering automation and centralization. The application will provide a user-friendly and automated system that allows employees to submit travel requests seamlessly. Managers will be able to review and approve them efficiently, while the system offers real-time tracking of request statuses. It will also include integration with external systems for expense management, robust security measures, mobile accessibility and analytics tools for data-driven decision-making. The benefits include reduced administrative burdens, improved communication, cost control, and better compliance with corporate policies and regulations.</p>

3.	Novelty / Uniqueness	<p>What sets our solution apart is the innovative use of Salesforce, a highly customizable and powerful platform, to streamline corporate travel management. The automation of approval workflows and integration with external systems will significantly reduce manual work and errors. The mobile app component will provide users with the flexibility and convenience of on-the-go access. Furthermore, the incorporation of robust reporting and analytics tools will enable data-driven decision-making and offer insights into travel expenses, setting our solution apart from conventional methods.</p>
4.	Social Impact / Customer Satisfaction	<p>Our application will have a substantial social impact by enhancing the user experience in corporate travel management. Employees and managers will benefit from a smoother, more transparent, and efficient travel approval process, reducing frustration and uncertainty. The streamlined process will free up time and resources for more strategic tasks, thereby improving overall workforce productivity. Data-driven decision-making will lead to better cost management, making it easier to control expenses and ensuring financial compliance. The application will also guarantee compliance with corporate policies and regulatory requirements, reducing risks and ensuring data security. Lastly, by optimizing travel planning, our solution can contribute to a more sustainable approach to business travel, aligning with corporate sustainability goals.</p>

## 1.7 Functional & Technical Requirements

### 1.7.1 Functional Requirements

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Management	<p><b>User Registration:</b> Allow employees to register and log into the system.</p> <p><b>User Roles:</b> Define roles (employees, managers, travel administrators) with different permissions.</p> <p><b>User Profiles:</b> Capture and manage user profiles, including contact details.</p>
FR-2	Travel Request Submission	<p><b>Travel Request Form:</b> Provide an intuitive form for employees to submit travel requests.</p> <p><b>Expense Entry:</b> Allow users to enter estimated expenses, including flights, accommodation, meals, and incidentals.</p> <p><b>Travel Dates:</b> Specify departure and return dates, including the option for flexible schedules.</p> <p><b>Attachments:</b> Enable the attachment of supporting documents, such as itineraries or conference detail</p>
FR-3	Approval workflow	<p><b>Workflow Automation:</b> Implement an automated approval process with defined workflows.</p> <p><b>Manager Assignment:</b> Automatically route requests to the appropriate manager based on criteria like department or project.</p> <p><b>Notifications:</b> Send notifications to managers and employees at various stages of the approval process.</p> <p><b>Delegation:</b> Allow managers to delegate their approval authority when they are unavailable.</p>
FR-4	Approval Management	<p><b>Manager Dashboard:</b> Provide managers with a dashboard to view and manage pending travel requests.</p> <p><b>Request Review:</b> Allow managers to review travel details, expense estimates, and supporting documents.</p> <p><b>Approval/Rejection:</b> Enable managers to approve or reject requests with comments.</p> <p><b>Escalation:</b> Implement escalation processes for unattended requests or those exceeding certain thresholds</p>

FR-5	Expense Tracking	<p><b>Expense Tracking:</b> Record actual expenses incurred during the trip.</p> <p><b>Receipt Upload:</b> Allow users to upload expense receipts for verification.</p> <p><b>Expense Categories:</b> Categorize expenses (e.g., transportation, lodging, meals) for reporting.</p> <p><b>Expense Reconciliation:</b> Compare estimated and actual expenses for cost control.</p>
FR-6	Reporting and Analytics	<p><b>Reporting Tools:</b> Develop custom reports and dashboards to monitor travel request status and expenses.</p> <p><b>Analytics:</b> Implement data analytics for insights into travel patterns, expenses, and approval efficiency.</p> <p><b>Export:</b> Allow users to export reports for offline use or sharing</p>

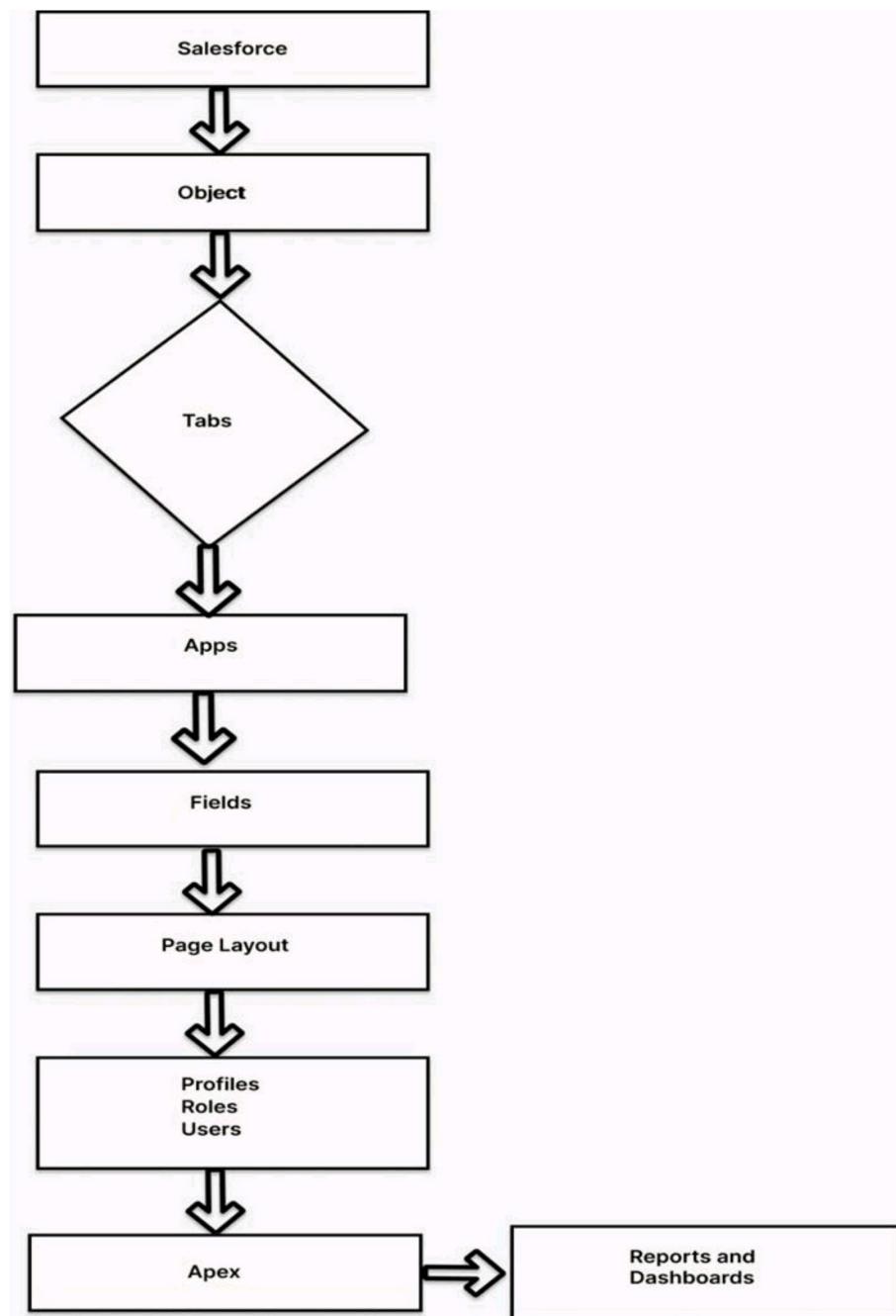
### 1.7.2 Technical Requirements

TR No.	Technical Requirement	Description
TR-1	Salesforce Environment	Utilize Salesforce's Enterprise or Unlimited edition to ensure scalability and access to advanced features.
TR-2	Development language	Develop using Salesforce's proprietary programming language, Apex, for server-side logic.
TR-3	Security	<ul style="list-style-type: none"> <li>• Implement role-based access control (RBAC) to control who can access and modify data.</li> <li>• Encrypt sensitive data both in transit and at rest.</li> <li>• Utilize Salesforce Shield for enhanced security, including event monitoring and field-level encryption.</li> </ul>
TR-4	Integration	<ul style="list-style-type: none"> <li>• Use REST and SOAP APIs for integration with external systems, such as finance and expense management tools.</li> <li>• Implement Single Sign-On (SSO) solutions for seamless and secure access.</li> </ul>
TR-5	Customization	Allow administrators to customize and configure the application, including approval workflows, fields, and user profiles.
TR-6	Mobile Accessibility	<ul style="list-style-type: none"> <li>• Ensure that the application is accessible via the Salesforce mobile app for on-the-go request submission and tracking.</li> <li>• Develop a custom mobile app using Salesforce Mobile SDK for more tailored mobile functionality.</li> </ul>

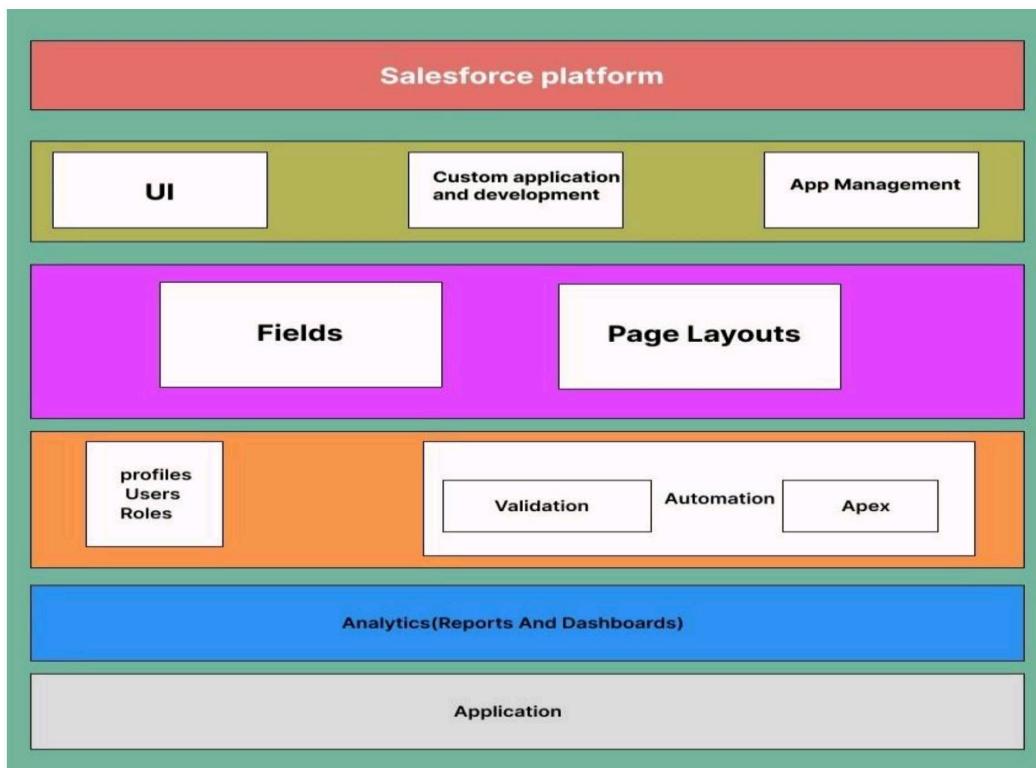
## 1.8 Project Road Map

### 1.8.1 Data Flow Diagram

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



### 1.8.2 Technical Architecture



**TABLE-1: Component and Technologies:**

S.No	Component	Description	Technology
1.	User Interface	<p><b>Lightning Components:</b> Use Salesforce Lightning components to design the user interface for employees, managers, and administrators.</p> <p><b>Custom Pages:</b> Create custom Visualforce pages for more tailored and complex UI elements</p>	Salesforce
2.	Data Model	<p><b>Custom Objects:</b> Define custom objects in Salesforce to represent entities like travel requests, expenses, and approvals.</p> <p><b>Master-Detail and Lookup Relationships:</b> Establish relationships between objects to maintain data integrity.</p> <p>Custom Fields: Create custom fields to capture specific information, such as travel dates, expenses, and approval status.</p>	Salesforce

3.	Workflow Automation	<b>Approval Processes:</b> Implement Salesforce Approval Processes to automate and streamline the travel request approval workflow. <b>Process Builder and Flows:</b> Use Process Builder and Flows to automate routine tasks and send notifications.	Salesforce
4.	Reporting and Analytics	<b>Custom Reports:</b> Create custom reports to track travel request status, expenses, and other relevant metrics.	Salesforce
5.	Security	<b>Role-Based Access Control (RBAC):</b> Configure RBAC to control who can access and modify data. <b>Data Encryption:</b> Encrypt sensitive data both in transit and at rest. <b>Audit Trails:</b> Maintain audit trails to log user activities for security and compliance purposes.	Salesforce
6.	Salesforce Development	<b>Apex:</b> Use Salesforce's proprietary programming language, Apex, for server-side logic and data manipulation. <b>Visualforce:</b> Develop custom user interfaces with Visualforce pages and components. <b>Lightning Web Components:</b> Create modern, component-based UIs using Lightning Web Components for a more responsive and dynamic user experience	Salesforce

**Table-2: Application Characteristics:**

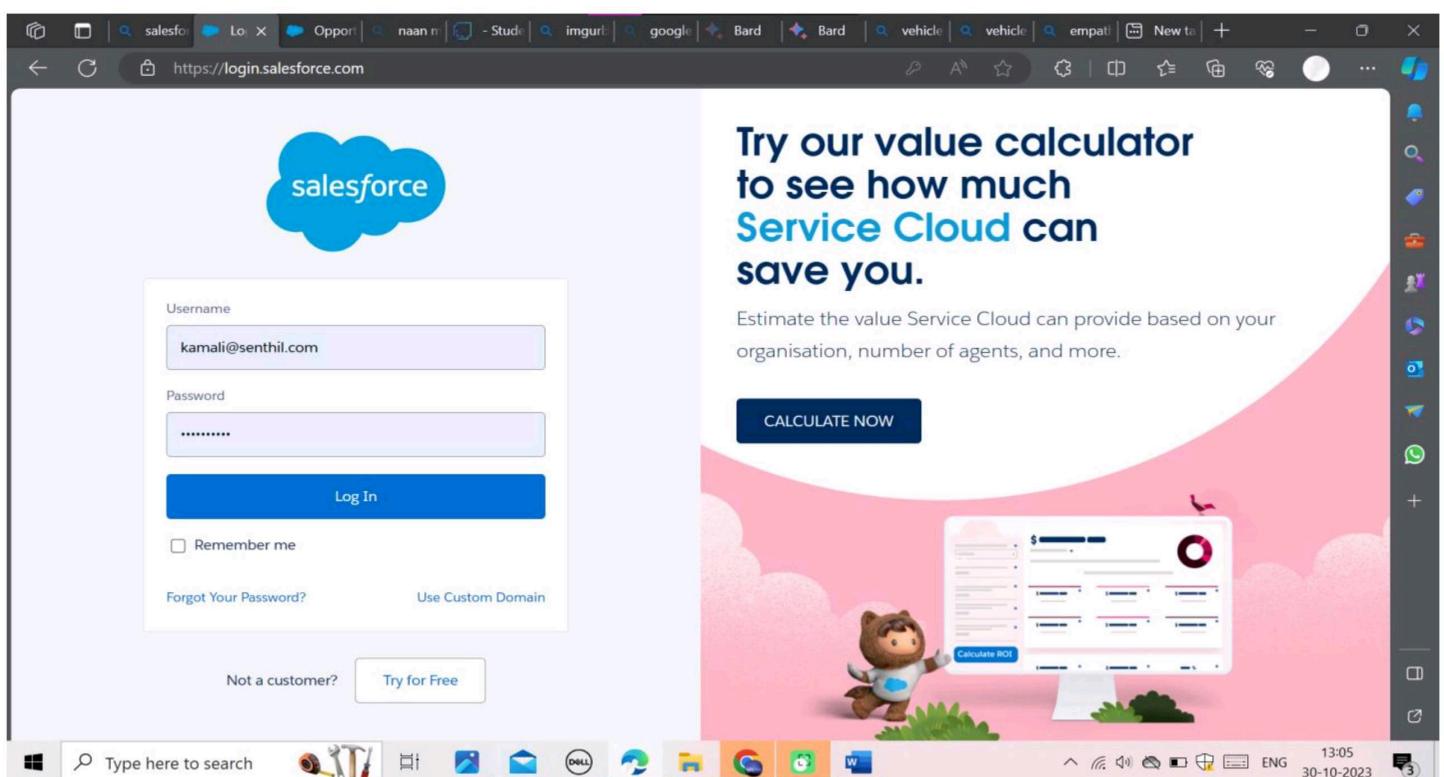
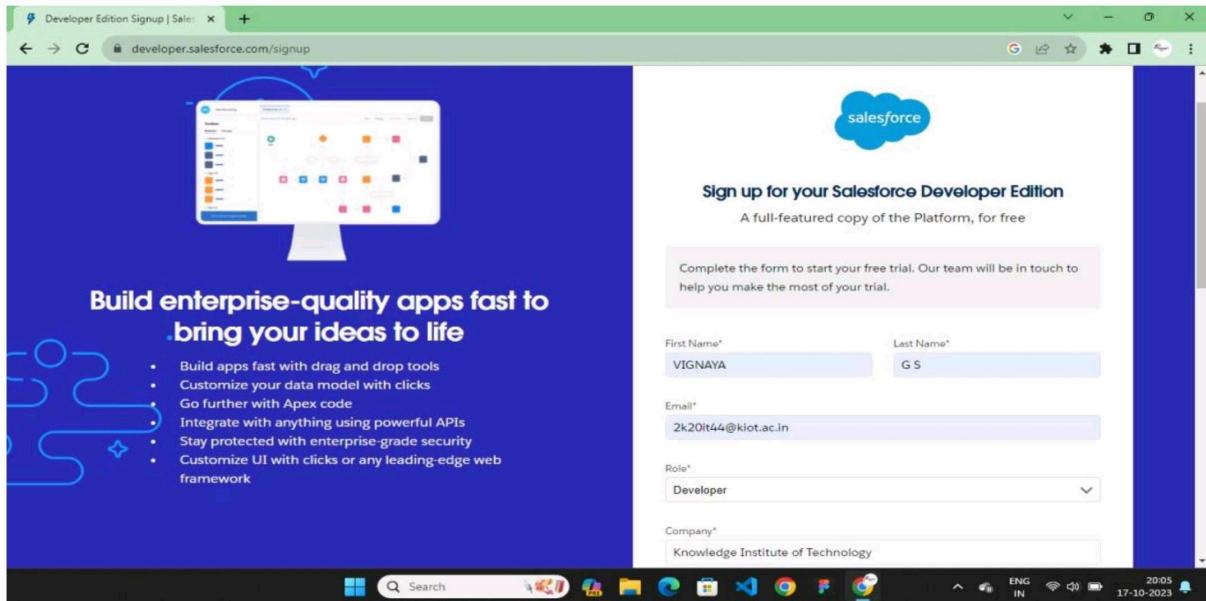
S. No	Characteristics	Description	Technology
1.	Responsive Design	Implement responsive design to adapt to various screen sizes, ensuring a consistent and visually pleasing user experience.	salesforce
2.	Accessibility	Ensure that the application is accessible via multiple devices and browsers, catering to users on desktops, tablets, and mobile devices. This accessibility is crucial for users who need to make or approve travel requests while on the go.	salesforce
3.	User-friendly	The application should have an intuitive and user-friendly interface to make it easy for employees, managers, and administrators to navigate and use the system without extensive training.	Salesforce
4.	Scalability	The application should be able to scale with the growing number of users and data, accommodating increasing demands without significant performance degradation.	salesforce
5.	Performance	Ensure the application's performance meets or exceeds user expectations, with rapid response times for actions such as submitting requests or generating reports.	salesforce
6.	Reporting and Analytics	Enable users to generate custom reports and access analytics tools to gain insights into travel patterns, expenses, and approval efficiency.	salesforce

## CHAPTER-2

### PREPARATION DATA MODELING

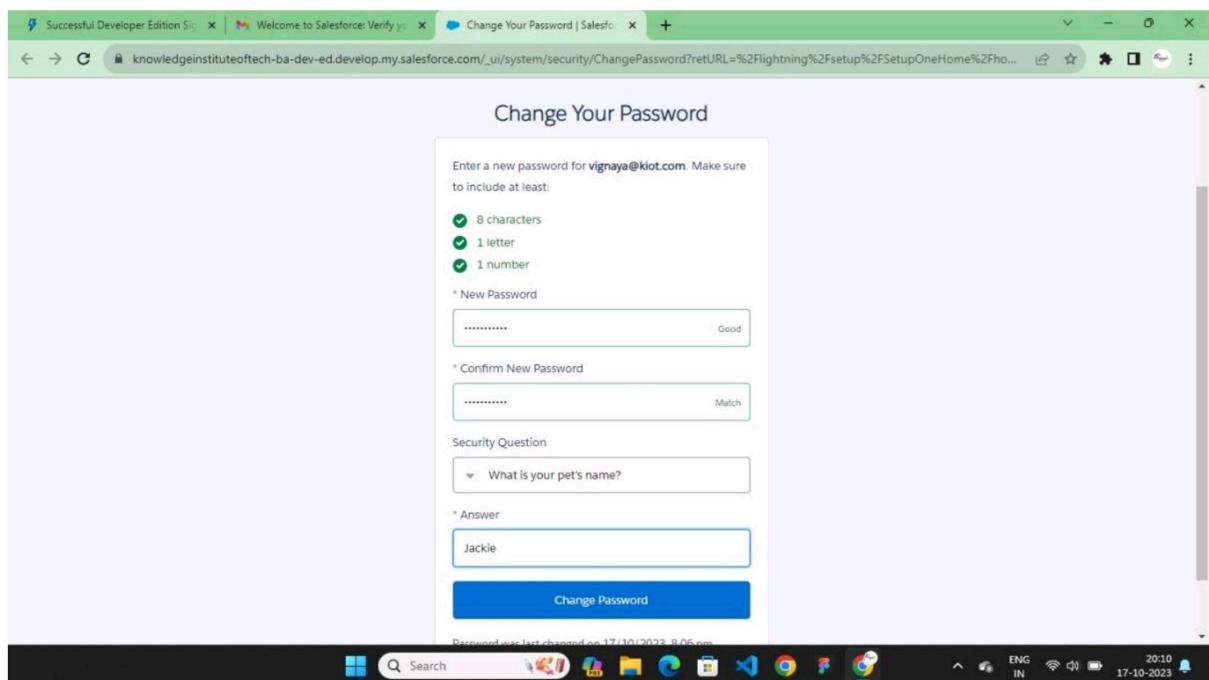
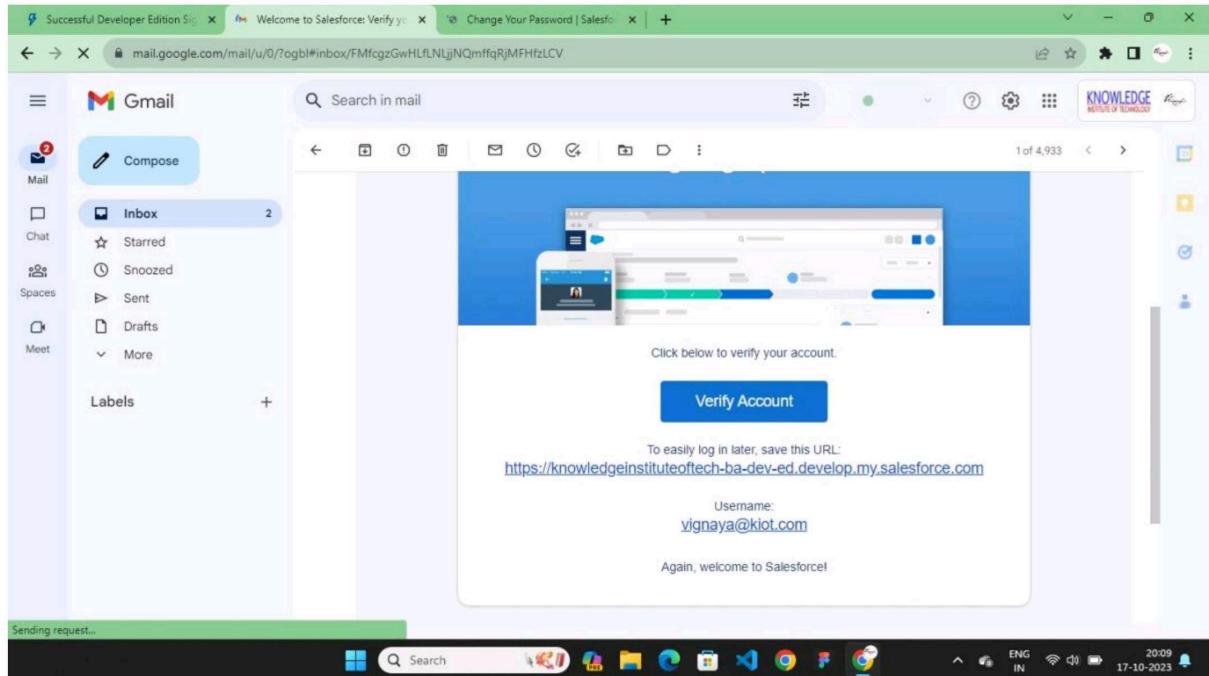
#### 2.1 Salesforce Developer Org

In Salesforce, a Developer Sign Up or Developer Edition is a special type of Salesforce environment that is primarily used for development, testing, and learning purposes.



## Account Activation

Activation tracks information about devices from which users have verified their identity.



## 2.2 Custom Object Creation & Tabs

### Custom Object Creation

Objects are containers for your information, but they also give you special functionality.

Custom objects are created to store information that's specific to your company or industry.

Custom Objects in Travel Approval App:

The screenshot shows the Salesforce Object Manager interface. The top navigation bar includes tabs for 'Recently Viewed' (Travel Approval), 'Object Manager' (Salesforce), and a '+' button. The URL in the address bar is 'knowledgeinstituteoftech-ba-dev-ed.lightning.force.com/lightning/setup/ObjectManager/home'. The main content area displays the 'Object Manager' page for the 'Travel Approval' object. On the left, there is a sidebar with a 'LABEL' section containing items like Account, Activity, Alternative Payment Method, API Anomaly Event Store, Appointment Category, Appointment Invitation, Appointment Invitee, Appointment Topic Time Slot, Asset, Asset Action, Asset Action Source, Asset Relationship, and Contact. The main table lists various fields under the 'Travel Approval' object, including Expense Items, Expense, Department, Employee Detail, PaymentMethod, ApiAnomalyEventStore, AppointmentCategory, AppointmentInvitation, AppointmentInvitee, AppointmentTopicTimeSlot, Asset, AssetAction, AssetActionSource, AssetRelationship, and Contact. The columns are labeled 'TYPE', 'DESCRIPTION', 'LAST MODIFIED', and 'DEPLOYED'. The bottom of the screen shows a Windows taskbar with icons for various applications and system status indicators.

### Fields in Travel Approval Object

The screenshot shows the 'Fields & Relationships' page for the 'Travel Approval' object in the Salesforce setup. The top navigation bar includes tabs for 'Recently Viewed' (Travel Approval), 'Travel Approval' (Salesforce), and a '+' button. The URL in the address bar is 'knowledgeinstituteoftech-ba-dev-ed.lightning.force.com/lightning/setup/ObjectManager/0115j000000288hv/FieldsAndRelationships/view'. The main content area displays the 'Fields & Relationships' table for the 'Travel Approval' object. The table has columns for 'FIELD LABEL', 'FIELD NAME', 'DATA TYPE', 'CONTROLLING FIELD', and 'INDEXED'. The rows listed are: Created By (CreatedById, Lookup(User)), Department (Department\_\_c, Lookup(Department)), Destination State (Destination\_State\_\_c, Text(2)), Employee Name (Employee\_Name\_\_c, Lookup(Employee Detail)), 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)), and Status (Status\_\_c, Picklist). The bottom of the screen shows a Windows taskbar with icons for various applications and system status indicators.

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, Lightning Record Pages, etc. The main content area is titled 'Fields & Relationships' and displays 14 items, sorted by Field Label. The table includes columns for Field Label, Field Name, Data Type, Controlling Field, and Indexed status.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
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		
Status Indicator	Status_Indicator__c	Formula (Text)		
Total Expenses	Total_Expenses__c	Roll-Up Summary (SUM Expense Items)		
Travel Approval	Name	Auto Number		✓
Trip End Date	Trip_End_Date__c	Date		
Trip Start Date	Trip_Start_Date__c	Date		

### Fields in Department Object

The screenshot shows the Salesforce Object Manager interface for the 'Department' object. The left sidebar lists various setup options like Details, Fields & Relationships, Page Layouts, Lightning Record Pages, etc. The main content area is titled 'Fields & Relationships' and displays 8 items, sorted by Field Label. The table includes columns for Field Label, Field Name, Data Type, Controlling Field, and Indexed status.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedBy	Lookup(User)		
Department Code	Department_Code__c	Text(6)		
Department Name	Name	Text(80)		✓
District	District__c	Text(40)		
Last Modified By	LastModifiedBy	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Schoolwebsite	Schoolwebsite__c	URL(255)		
State	State__c	Text(40)		

## Fields in Employee Detail Object

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedBy	Lookup(User)		
Date of Birth	Date_of_Birth__c	Date		
Department	Department_c	Lookup(Department)		
Employee Id	Employee_Id__c	Text(12)		
Employee Name	Name	Text(80)		
Gender	Gender__c	Picklist		
Last Modified By	LastModifiedBy	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		

## Fields in Expense Object

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedBy	Lookup(User)		
Employee	Employee_c	Lookup(Employee Detail)		
Employee Detail	Employee_Detail__c	Lookup(Employee Detail)		
Expense	Name	Auto Number		
Last Modified By	LastModifiedBy	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		

## Fields in Expense Items Object

The screenshot shows the Salesforce Object Manager interface for the 'Expense Items' object. On the left, there's a sidebar with various setup options like Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, etc. The main area is titled 'Fields & Relationships' and lists six items, sorted by Field Label. The table includes columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount_c	Currency(16, 2)		
Created By	CreatedById	Lookup(User)		
Expense Item Name	Name	Text(60)		
Expense Type	Expense_Type__c	Picklist		
Last Modified By	LastModifiedById	Lookup(User)		
Travel Approval	Travel_Approval__c	Master-Detail(Travel Approval)		

## Tabs

Salesforce Tabs are like the menu options in a software application. They allow you to access specific functions, objects, or data.

The screenshot shows the 'Custom Tabs' page in the Salesforce Setup. The sidebar has sections for User Interface, Rename Tabs and Labels, and Tabs. The main area is titled 'Custom Tabs' and contains a table for 'Custom Object Tabs'. It also includes sections for 'Web Tabs' and 'Visualforce Tabs'.

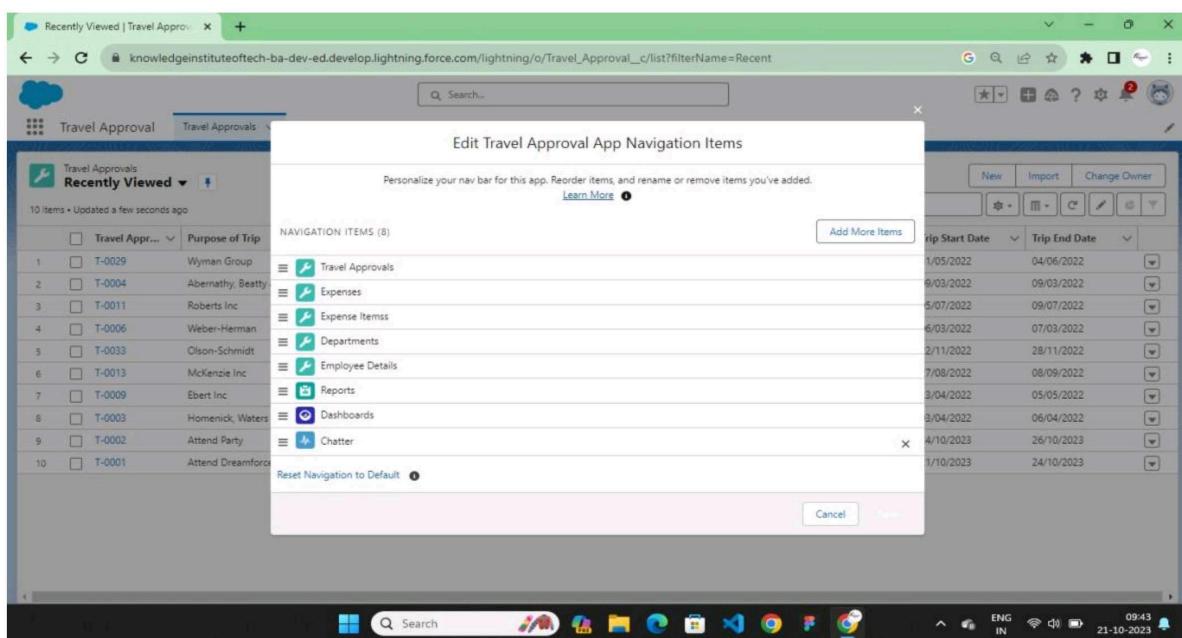
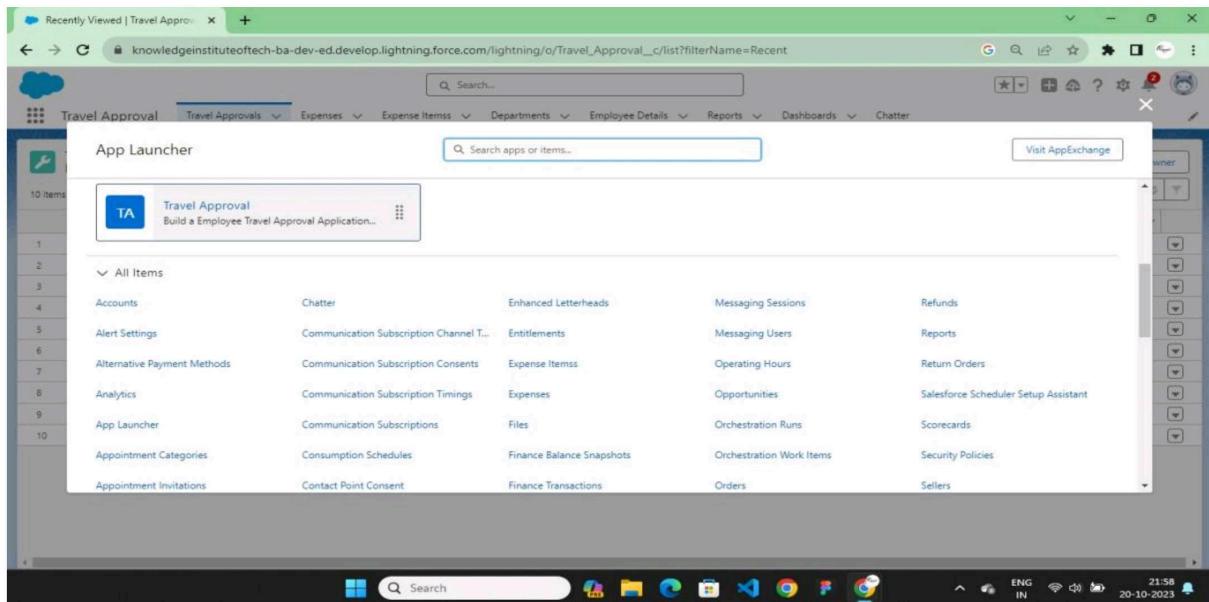
Action	Label	Tab Style	Description
Edit   Del	Departments	Wrench	
Edit   Del	Employee Details	Wrench	
Edit   Del	Expense Items	Wrench	
Edit   Del	Expenses	Wrench	
Edit   Del	Travel Approvals	Wrench	

## 2.3 Lightning App

The Lightning App Builder is a point-and-click tool that makes it easy to create custom pages for the Salesforce mobile app and Lightning Experience, giving your users what they need all in one place.

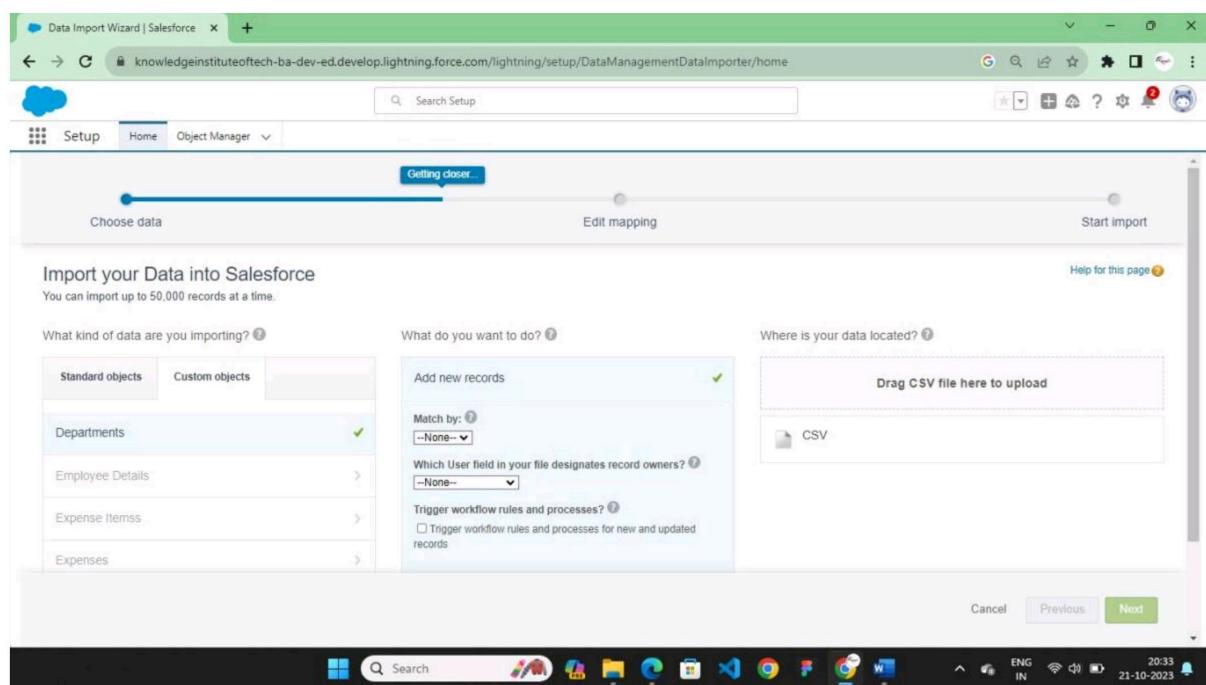
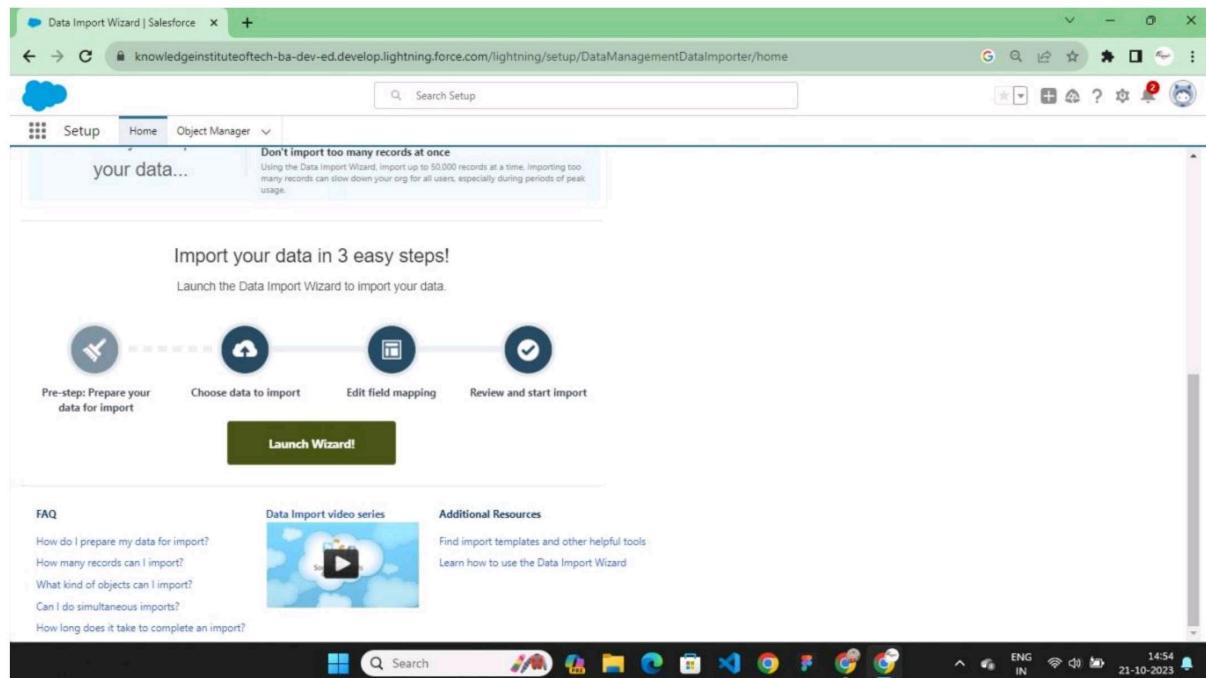
### Create a Travel Approval Lightning App

- Build a Lightning app, add tabs, and customize page layouts.
- Create custom objects and fields for the app.
- Define relationships between objects.
- Import data and test the app.



## Data Import

The Data Import Wizard is one of various tools available to Salesforce users for importing data. The tool is best used when importing data into the Account, Contact, Lead, or Solution objects along with any custom objects within your Salesforce organization.



## 2.4 Relationship between Objects

### Master-Detail Relationship

A master-detail relationship defines the relationship between the parent and the child.

The master table defines the parent relation and the detail defines the child relation.

The screenshot shows the Salesforce Object Manager interface. The left sidebar is titled 'SETUP > OBJECT MANAGER' and lists various options like Details, Fields & Relationships, Page Layouts, etc. The main content area is titled 'Expense Items' and shows a custom field named 'Travel Approval'. The 'Fields & Relationships' tab is selected. Under 'Custom Field Definition Detail', the 'Field Information' section shows the field label 'Travel Approval', field name 'Travel\_Approval', API name 'Travel\_Approval\_\_c', and object name 'Expense Items'. The 'Master-Detail Options' section shows 'Related To' as 'Travel Approval' and 'Child Relationship Name' as 'Expense\_Items'. The status bar at the bottom indicates the page was last modified on 19/10/2023 at 2:09 pm by VIGNAVAS.

### Look up Relationship

Lookup Relationship in Salesforce relates two objects together but does not affect deletion (cascade delete functionality) or security.

The screenshot shows the Salesforce Object Manager interface. The left sidebar is titled 'SETUP > OBJECT MANAGER' and lists various options like Details, Fields & Relationships, Page Layouts, etc. The main content area is titled 'Expense' and shows a custom field named 'Employee Detail'. The 'Fields & Relationships' tab is selected. Under 'Custom Field Definition Detail', the 'Field Information' section shows the field label 'Employee Detail', field name 'Employee\_Detail', API name 'Employee\_Detail\_\_c', and object name 'Expense'. The 'Lookup Options' section shows 'Related To' as 'Employee\_Detail' and 'Child Relationship Name' as 'Expense1'. The status bar at the bottom indicates the page was last modified on 19/10/2023 at 8:26 pm by VIGNAVAS.

## Build A Employee Travel Approval Application For Corporates

The screenshot shows the Salesforce Object Manager interface. On the left, a sidebar lists various setup options like Details, Fields & Relationships, Page Layouts, etc. The main area is titled 'Travel Approval Custom Field' and shows a 'Department' field being defined. The 'Field Information' section includes details such as Field Label: 'Department', Field Name: 'Department', API Name: 'Department\_\_c', Data Type: 'Lookup', and Object Name: 'Travel Approval'. The 'Lookup Options' section indicates it is related to 'Department' and 'Travel Approvals'. The 'Custom Field Definition Detail' tab is selected, along with 'Edit', 'Set Field-Level Security', 'View Field Accessibility', and 'Where is this used?'. A validation rule link is also present.

## Roll-up Summary

Roll-Up Summary Fields in Salesforce summarize data of particular fields from a set of related detail records and automatically display the output on the master record.

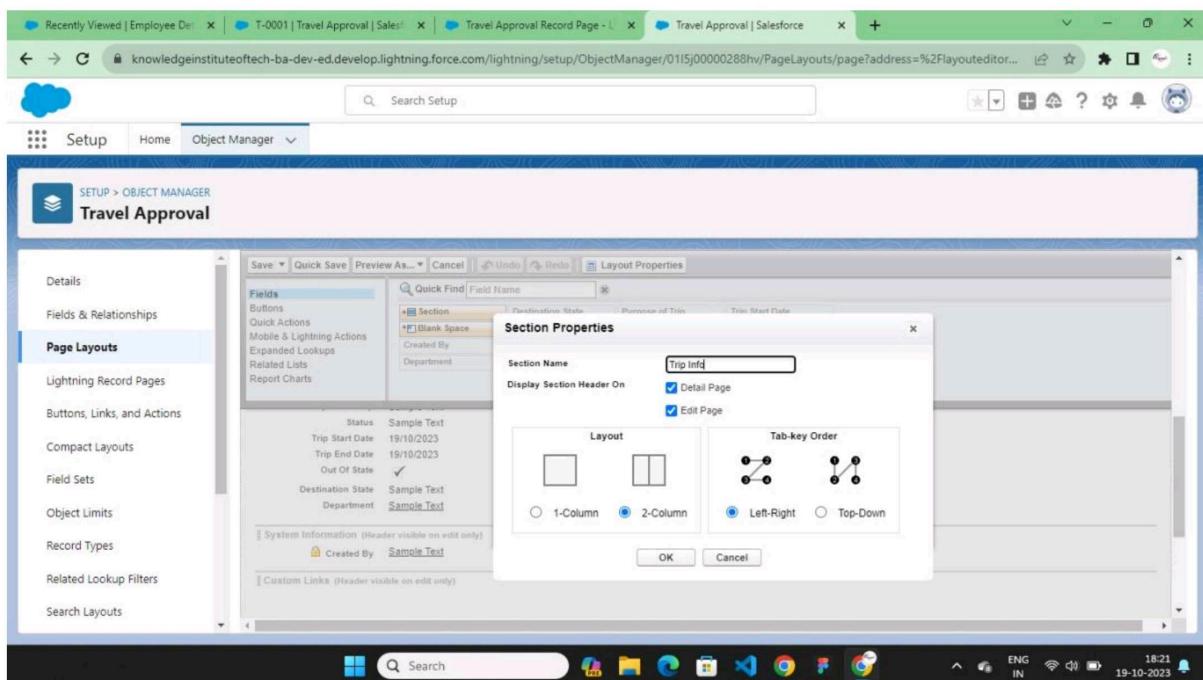
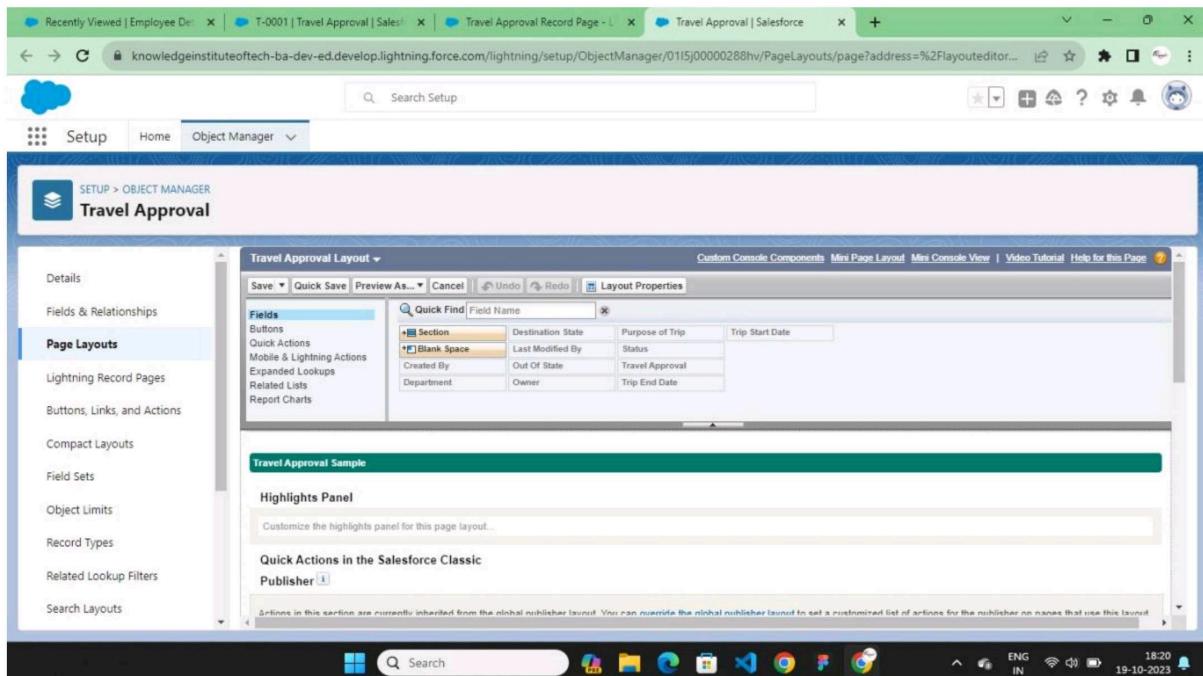
The screenshot shows the Salesforce Object Manager interface. The sidebar and main area are similar to the previous screenshot, but the field being defined is 'Total Expenses'. The 'Field Information' section includes details such as Field Label: 'Total Expenses', Field Name: 'Total\_Expenses', API Name: 'Total\_Expenses\_\_c', Data Type: 'Roll-Up Summary', and Object Name: 'Travel Approval'. The 'Roll-Up Summary Options' section specifies the summarized object as 'Expense Items' and the field to aggregate as 'Expense Items Amount'. The 'Custom Field Definition Detail' tab is selected, along with 'Edit', 'Set Field-Level Security', 'View Field Accessibility', and 'Where is this used?'. A summary type link is also present.

## 2.5 Customize User Interface

Customize your app's page layouts, compact layouts, and actions.

### Page Layout

A page layout determines the fields, sections, related lists, and buttons that appear when users view or edit a record. You can modify an object's default page layout or create a custom page layout.

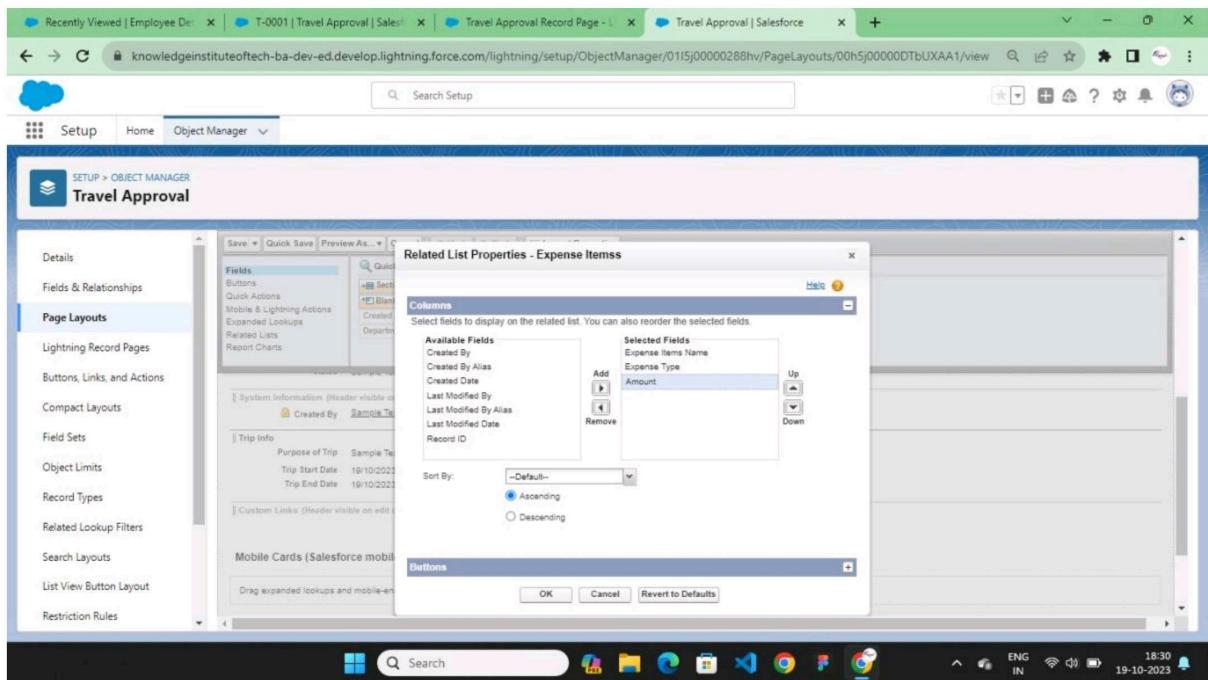


## Build A Employee Travel Approval Application For Corporates

The screenshot shows the Lightning App Builder interface. The top navigation bar includes tabs for 'Recently Viewed | Employee De...', 'T-0001 | Travel Approval | Sales...', and 'Travel Approval Record Page - L...'. Below the navigation is a toolbar with icons for back, forward, search, and refresh. The main area has tabs for 'Components' and 'Fields', with a search bar. On the left, a sidebar lists 'Standard (34)' components: Accordion, Action Launcher, Actions & Recommendations, Assessment List, CRM Analytics Collection, CRM Analytics Dashboard, Dynamic Related List - Single, Einstein Next Best Action, Flow, Flow Orchestration Work Guide, Highlights Panel, and Launchpad. The central workspace displays a 'Travel Approval T-0001' record page with fields like Purpose of Trip, Amount, Destination, and Dates. To the right, a sidebar titled 'Record Detail' provides options to start putting individual fields and sections anywhere on the page, upgrade now, see how it works, set fields in page layouts, assign page layouts, view all layouts, and set component visibility. The bottom status bar shows system information including language (ENG IN), date (19-10-2023), and time (18:19).

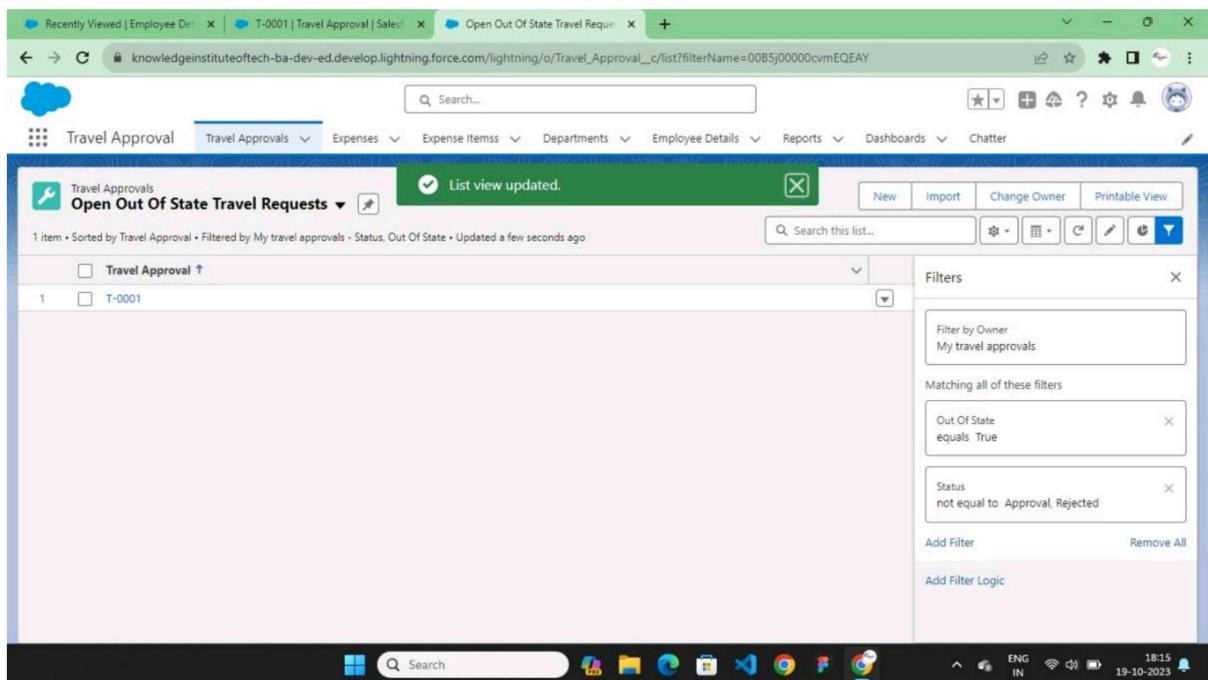
The screenshot shows the Salesforce Setup interface. The top navigation bar includes tabs for 'Recently Viewed | Employee De...', 'T-0001 | Travel Approval | Sales...', 'Travel Approval Record Page - L...', and 'Travel Approval | Salesforce'. Below the navigation is a toolbar with icons for back, forward, search, and refresh. The main area shows the 'Object Manager' for 'Travel Approval'. On the left, a sidebar lists various setup categories: Details, Fields & Relationships, Page Layouts (which is selected and highlighted in blue), Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, and Search Layouts. The central workspace displays a table titled 'Page Layouts' with one item: 'Travel Approval Layout' created by 'VIGNAYA G S' on 17/10/2023 at 8:40 pm, last modified by 'VIGNAYA G S' on 19/10/2023 at 6:26 pm. The bottom status bar shows system information including language (ENG IN), date (19-10-2023), and time (18:26).

## Build A Employee Travel Approval Application For Corporates



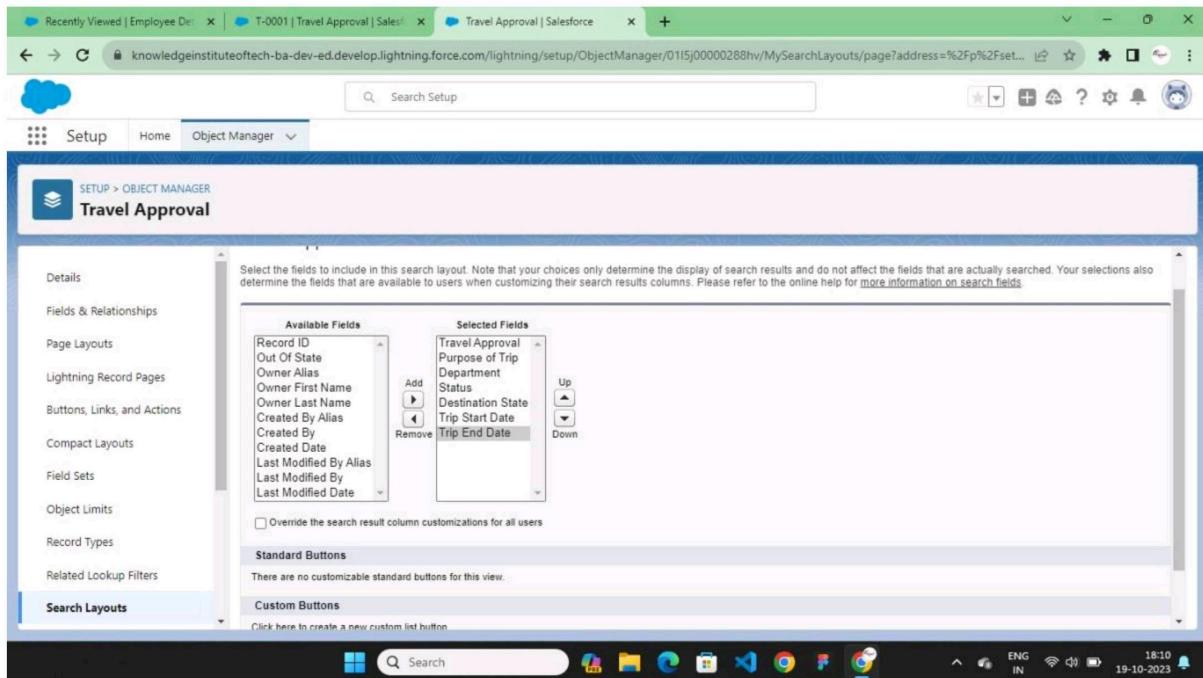
## List View

A list view is a set of search conditions that displays records that match the search conditions.



## Search Layout

Create search layouts for standard and custom objects, ensuring the layout shows users what's most relevant to them.



	Travel Appr...	Purpose of Trip	Department	Status	Destinati...	Trip Start Date	Trip End Date
1	<input type="checkbox"/> T-0004	Abernathy, Beatty and Leffler	Division of Finance	Approved	CA	09/03/2022	09/03/2022
2	<input type="checkbox"/> T-0011	Roberts Inc	Disability Determination Bureau	Submitted	CA	05/07/2022	09/07/2022
3	<input type="checkbox"/> T-0006	Weber-Herman	Disability Determination Bureau	Draft	OK	06/03/2022	07/03/2022
4	<input type="checkbox"/> T-0033	Olson-Schmidt	Audit Services	Approved	CA	22/11/2022	28/11/2022
5	<input type="checkbox"/> T-0029	Wyman Group	Audit Services	Pending Approval	FL	31/05/2022	04/06/2022
6	<input type="checkbox"/> T-0013	McKenzie Inc	Human Resources	Submitted	GA	27/08/2022	08/09/2022
7	<input type="checkbox"/> T-0009	Ebert Inc	Office of Early Childhood and Out-of-School Learning	Pending Approval	OK	23/04/2022	05/05/2022
8	<input type="checkbox"/> T-0003	Homenick, Waters and Gusikowski	Division of Disability and Rehabilitative Services	Approved	OK	03/04/2022	06/04/2022
9	<input type="checkbox"/> T-0002	Attend Party	Technology	Rejected	TN	24/10/2023	26/10/2023
10	<input type="checkbox"/> T-0001	Attend Dreamforce	Technology	Approved	CA	21/10/2023	24/10/2023

## 2.6 Business Logic

### Validation Rules

Validation rules let you set up business-specific criteria to prevent users from saving invalid data in one or more fields.

A validation rule evaluates a formula when a record is saved.

If a rule's criteria aren't met, users see a custom error message and the record doesn't save.

If a rule's criteria are met, the record saves.

Use validation rules to improve data quality by applying conditions, ensuring proper formatting, and enforcing consistency.

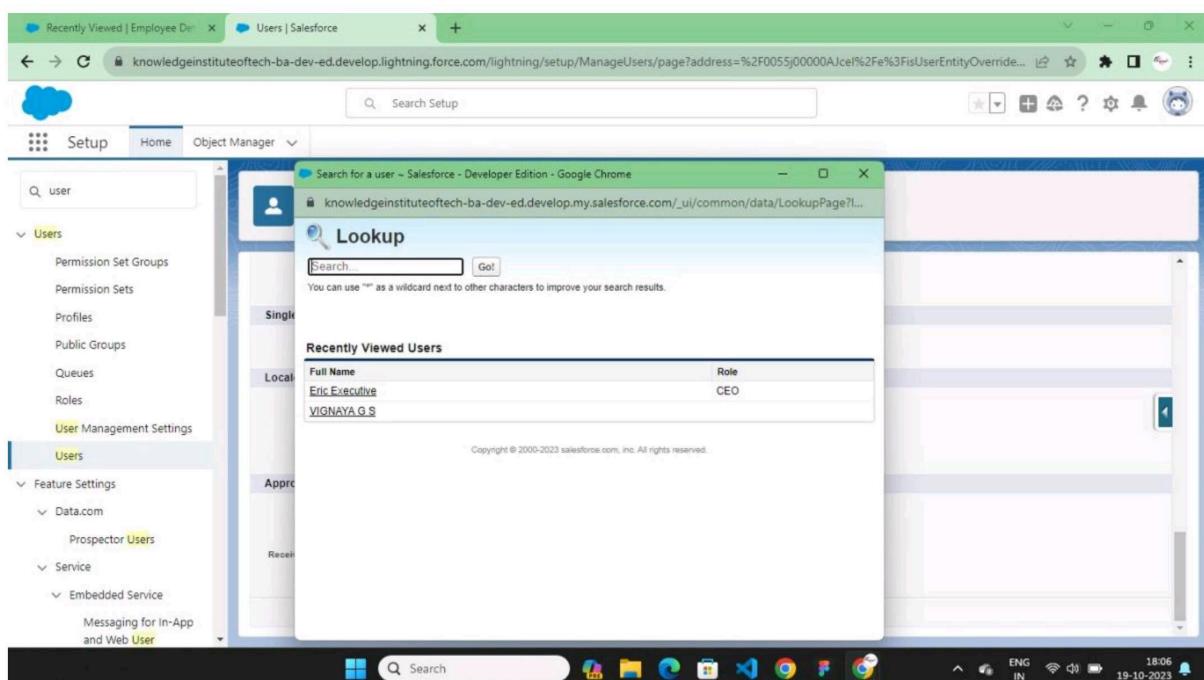
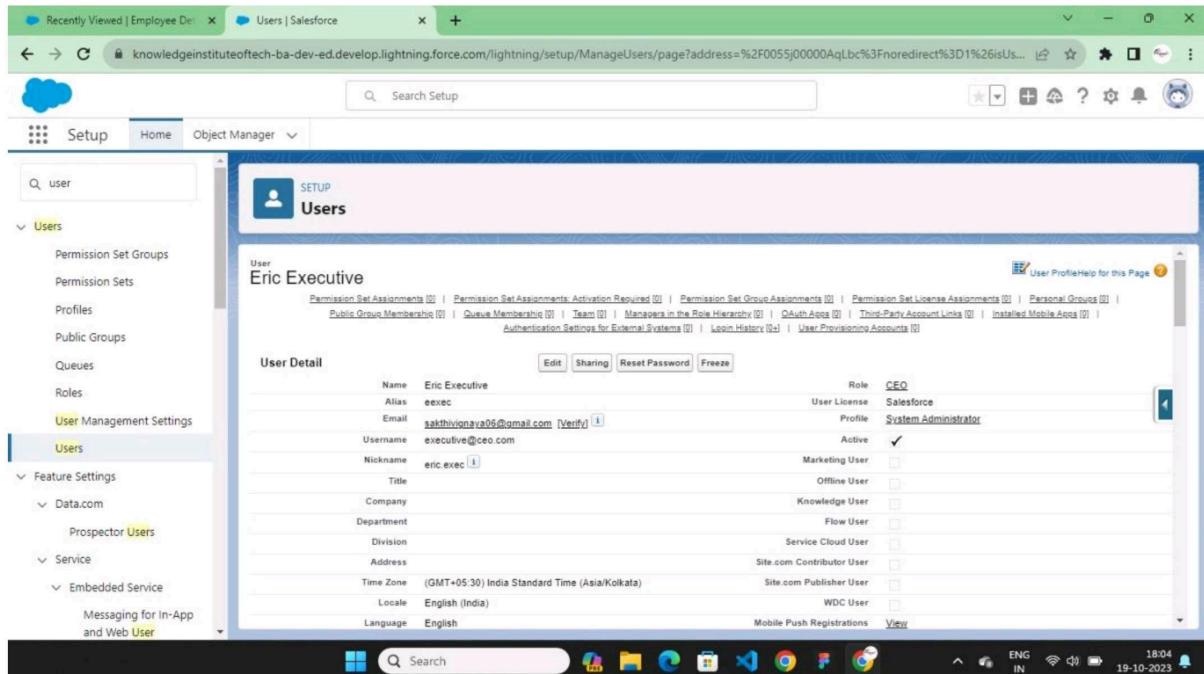
The screenshot shows a Salesforce browser interface. The address bar displays the URL: knowledgeinstituteoftech-ba-dev-ed.lightning.force.com/lightning/setup/ObjectManager/page?address=%2F03d5j000000RGcA. The page title is "Travel Approval Validation Rule". The main content area shows the "Validation Rule Detail" section for a rule named "Trip\_end\_date\_after\_start\_date". The rule is active and has the formula "Trip\_End\_Date\_\_c < Trip\_Start\_Date\_\_c". The error message is "Trip end date must be greater than or equal to start date". The error location is "Trip End Date". The rule was created by "VIGNAYA.G.S" on 19/10/2023, 6:51 pm, and modified by the same user on the same date and time. There are "Edit" and "Clone" buttons at the bottom of the detail section. The top navigation bar includes links for Recently Viewed, Travel Approval Record Page, T-0001 | Travel Approval, Object Manager | Salesforce, and Travel Approval Record Page. The bottom taskbar shows various application icons and system status indicators.

## CHAPTER-3

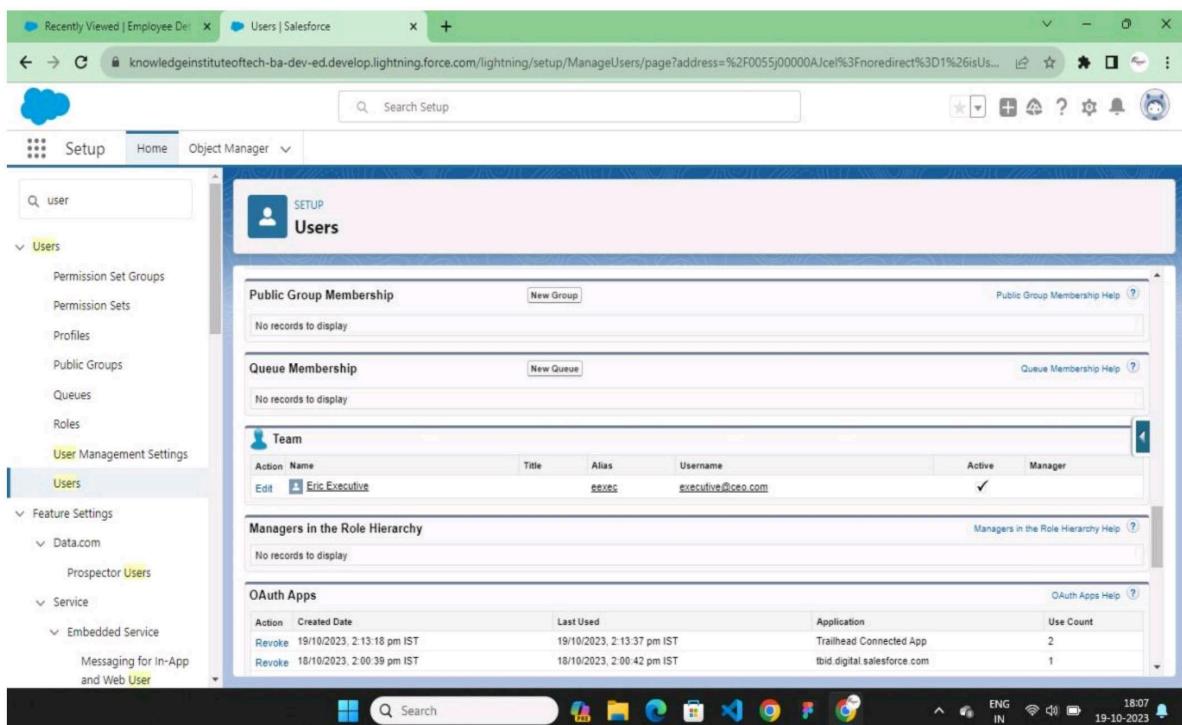
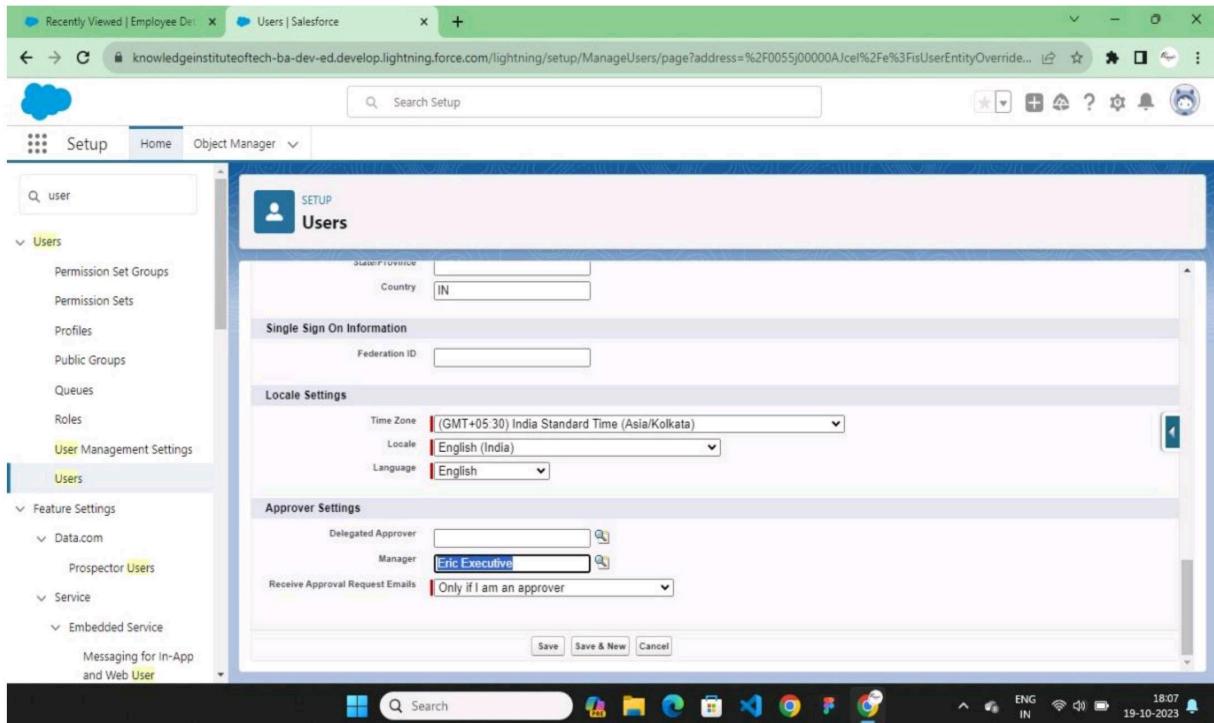
### USERS & DATA SECURITY

#### 3.1 User Creation & Setup Approvals

Before customizing the travel app, first create a new user, Eric Executive, and set him up as manager. This involves assigning roles and profiles so that Eric has the correct permissions to approve travel requests.



## Build A Employee Travel Approval Application For Corporates

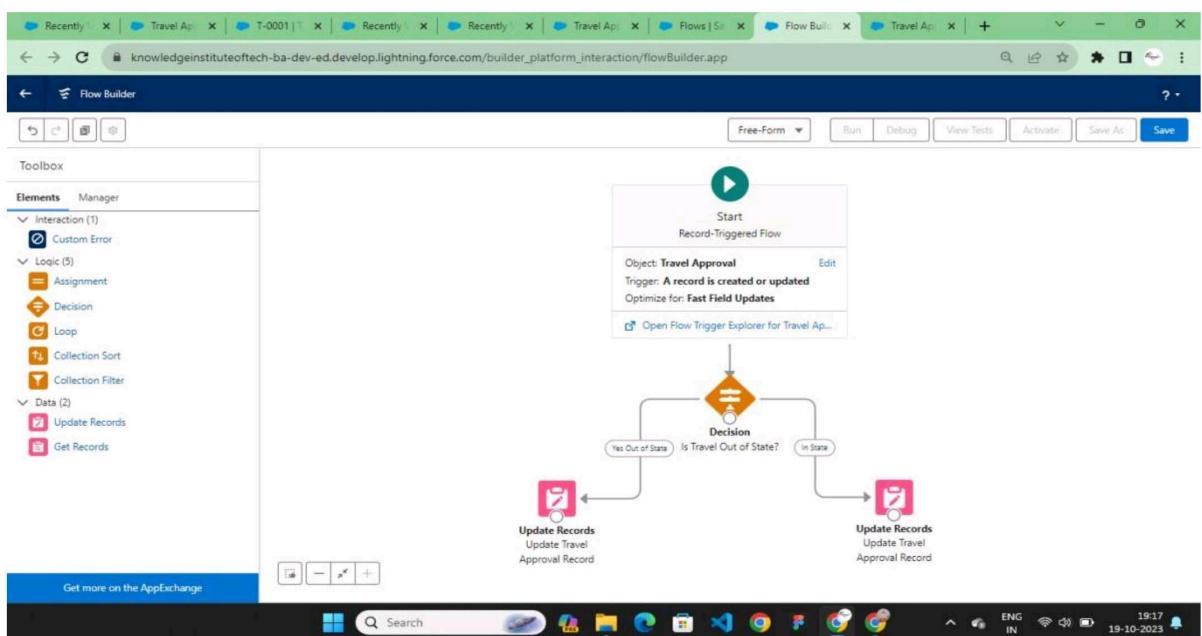
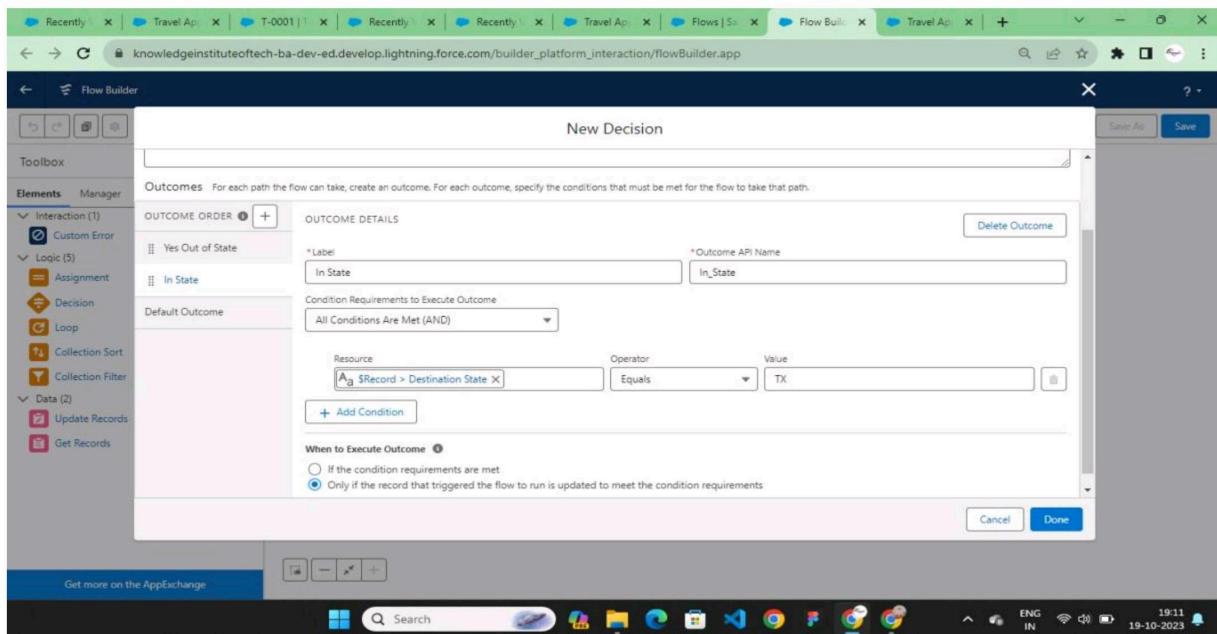


## CHAPTER-4

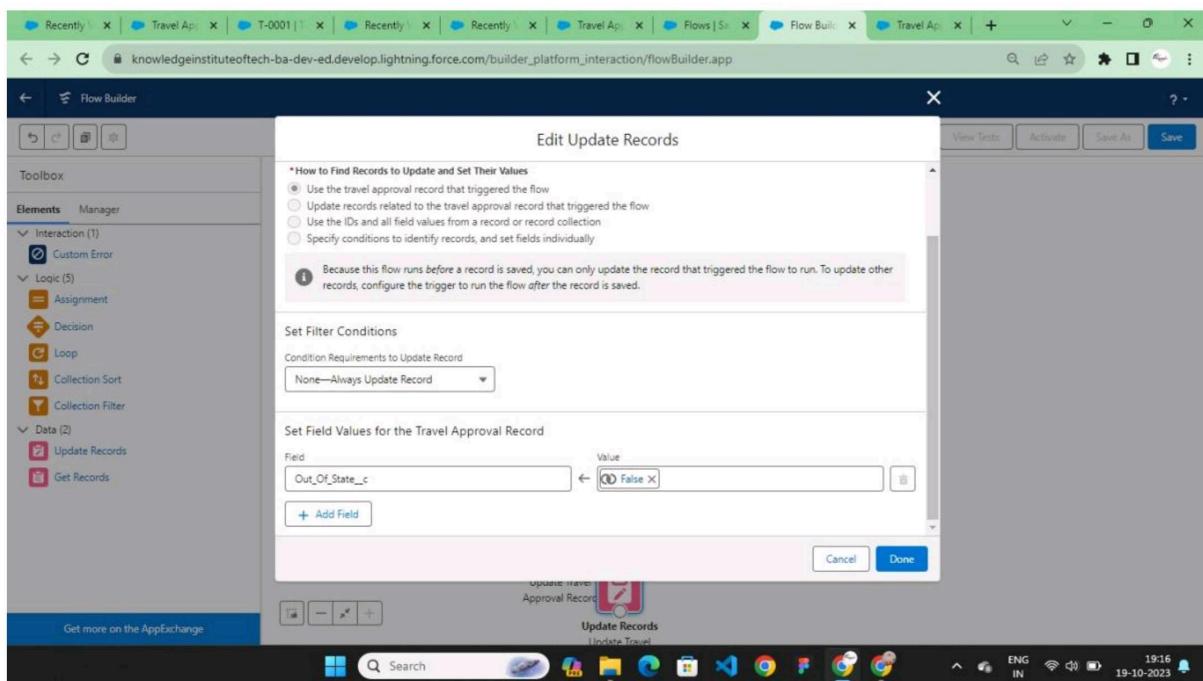
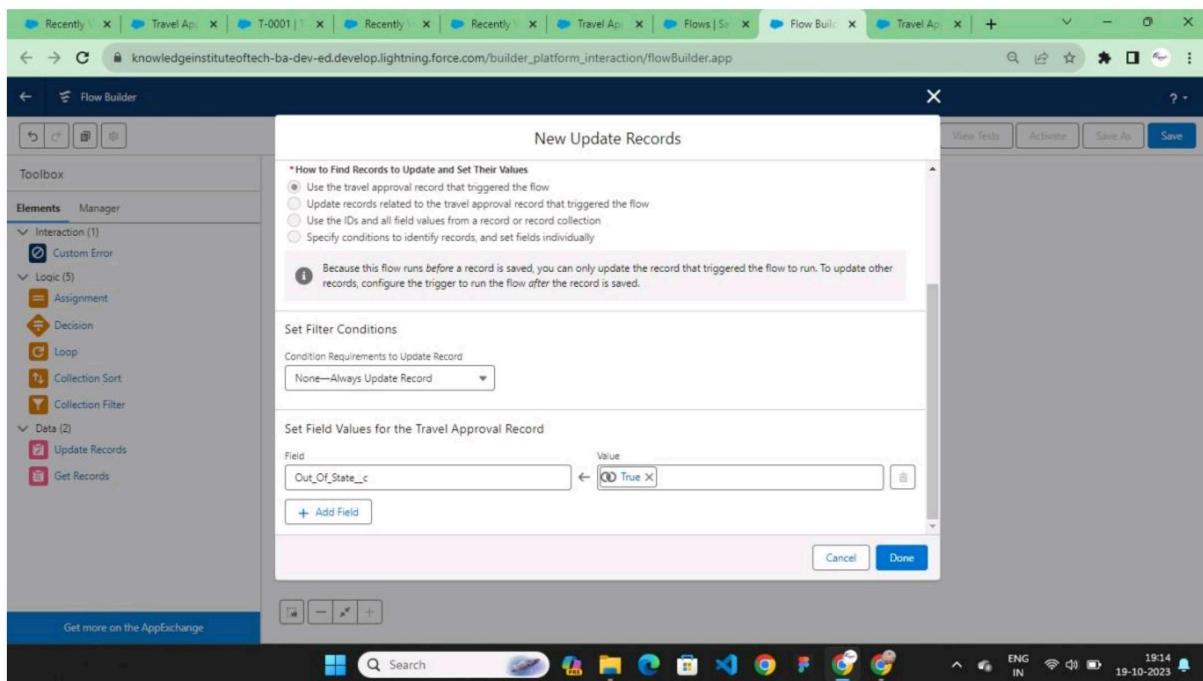
### AUTOMATION

#### 4.1 Flow

The last business rule functionality to implement before testing your application is a rule to set the Out-of-State checkbox field on the Travel Approval object if out-of-state travel has been chosen. Salesforce offers workflow capabilities that provide a declarative, drag-and-drop design environment to build our business process logic.



## Build A Employee Travel Approval Application For Corporates

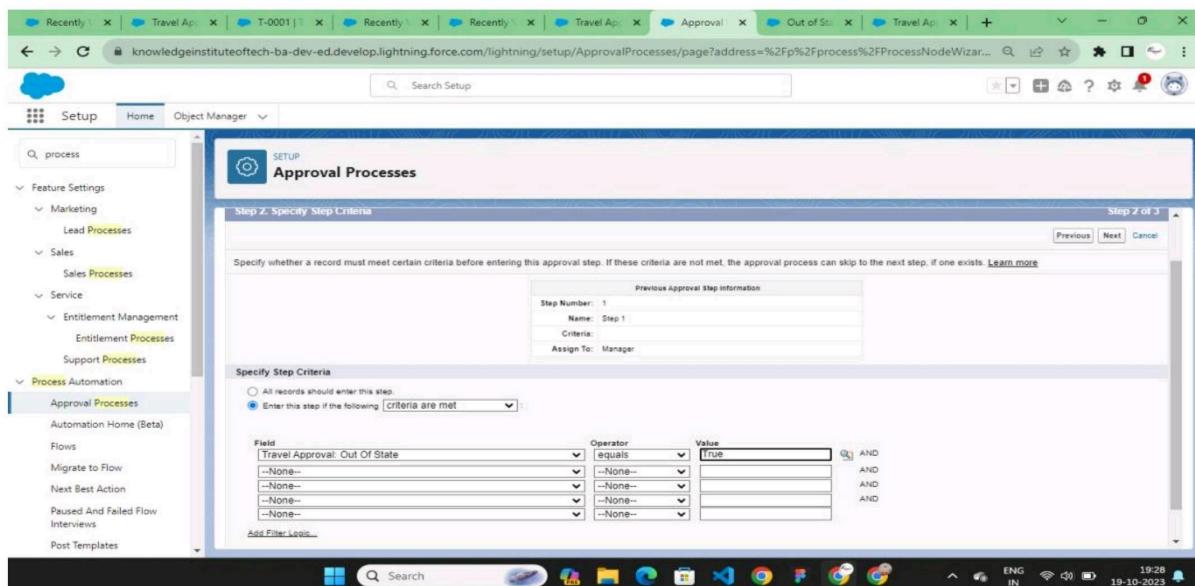
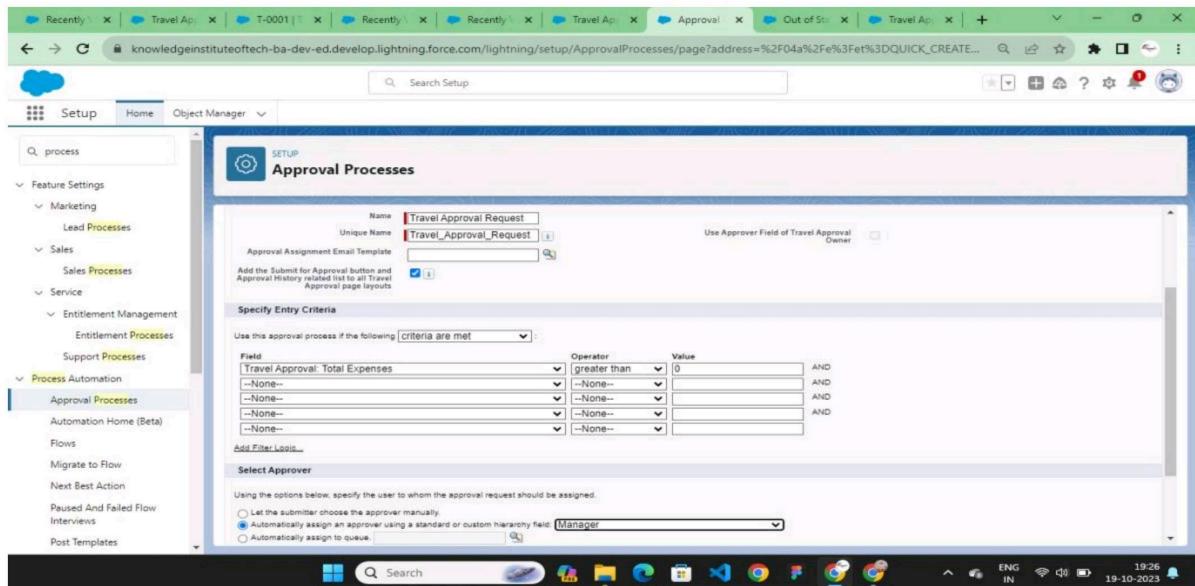


## 4.2 Approval Process

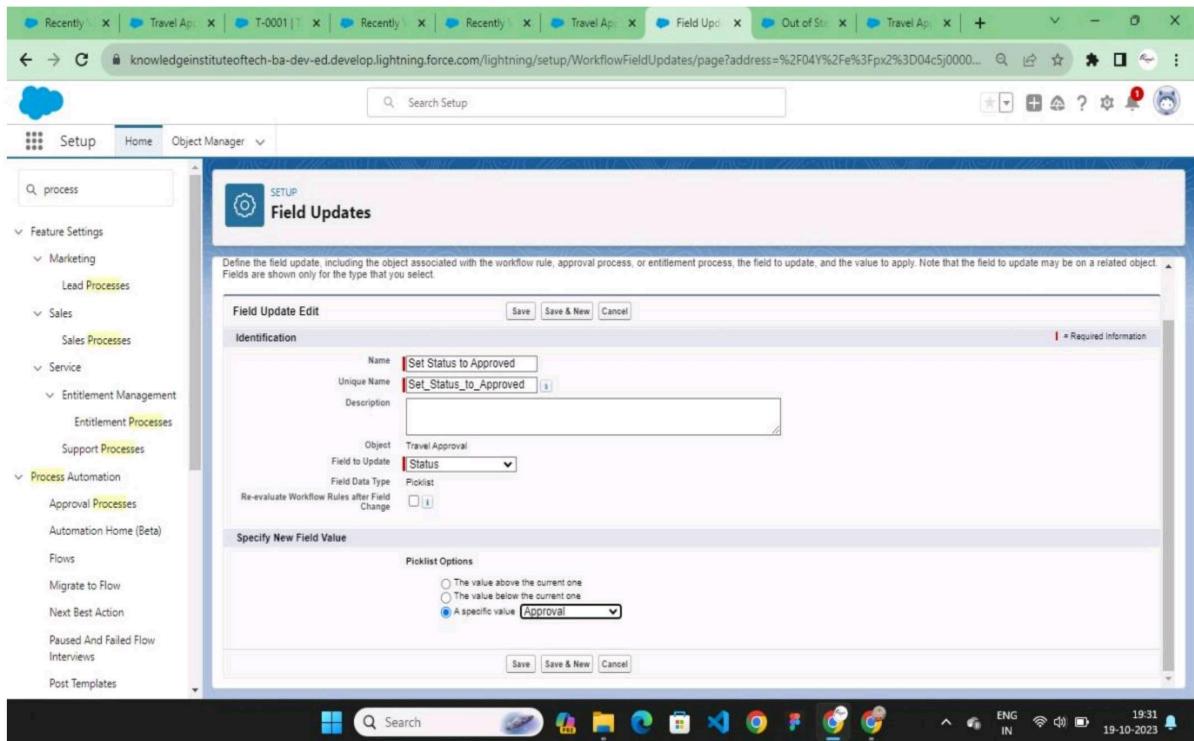
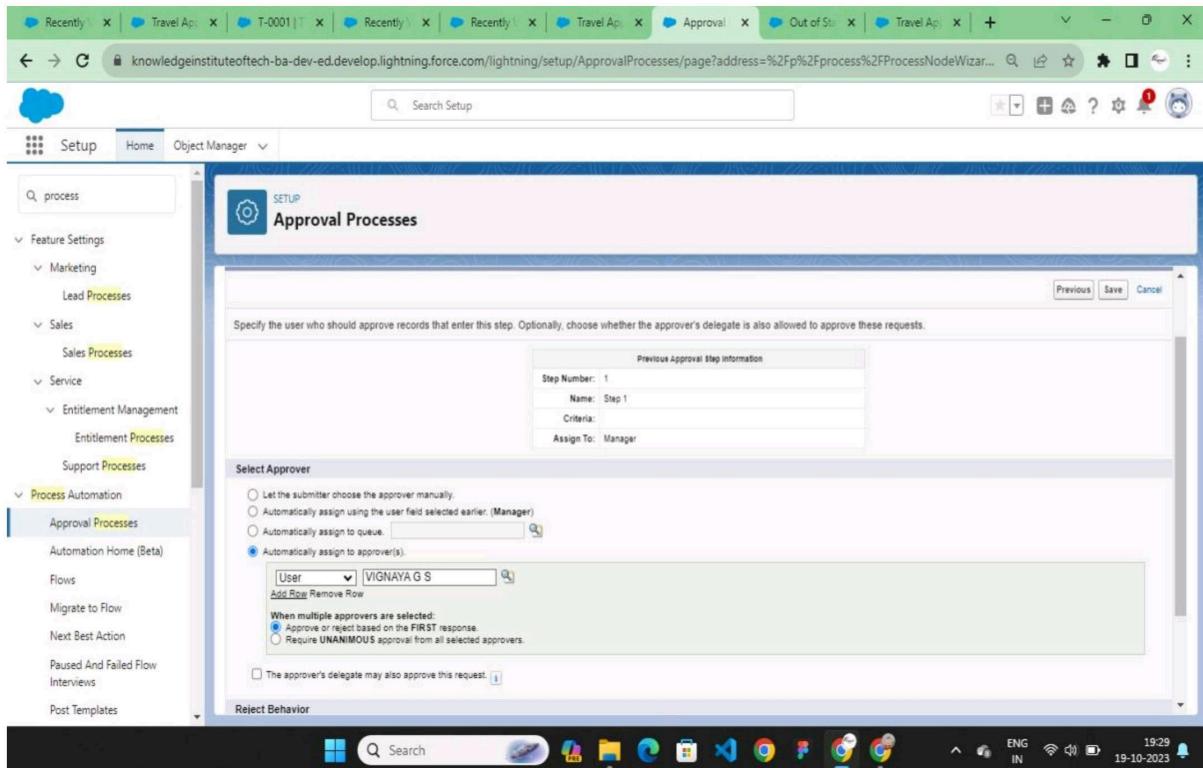
An approval process is an automated process your agency can use to approve records in Salesforce.

An approval process specifies the criteria a record must meet before it can be submitted for approval, the steps necessary for a record to be approved, and who must approve it at each step.

A step can apply to all records included in the process or just records that have certain attributes. An approval process also specifies the actions to take when a record is approved, rejected, recalled, or first submitted for approval.



## Build A Employee Travel Approval Application For Corporates



## Final Views

The screenshot shows a travel approval record for 'T-0001'. The record details are as follows:

- Travel Approval:** T-0001
- Purpose of Trip:** Attend Dreamforce
- Status:** Draft
- Trip Start Date:** 21/10/2023
- Trip End Date:** 24/10/2023
- Out Of State:**
- Destination State:** CA
- Department:** Technology

The record is owned by VIGNAYA G S.

The screenshot shows the expense items for the travel record. There are two entries:

Expense Item Name	Expense Type	Amount
Airfare	Airfare	₹450.00
Hotel	Hotel	₹870.00

A 'View All' link is visible at the bottom of the list.

## Build A Employee Travel Approval Application For Corporates

The screenshot shows a Salesforce Lightning page for a Travel Approval record. The URL in the browser is [knowledgeinstituteoftech-ba-dev-ed.lightning.force.com/lightning/r/Travel\\_Approval\\_\\_c/a045j00000LNcdBAAX/view](knowledgeinstituteoftech-ba-dev-ed.lightning.force.com/lightning/r/Travel_Approval__c/a045j00000LNcdBAAX/view). The page title is "Travel Approval T-0001". The main content area displays the following details:

Field	Value
Travel Approval	T-0001
Status	Draft
Total Expenses	₹1,320.00
Status Indicator	⚙️
Created By	VIGNAYA G S, 19/10/2023, 2:25 pm
Last Modified By	VIGNAYA G S, 19/10/2023, 2:25 pm

Below this, there is a section titled "Trip Info" with fields for Purpose of Trip (Attend Dreamforce), Out Of State (checked), Destination State (CA), Trip Start Date (21/10/2023), and Trip End Date.

The right side of the screen shows the Chatter feed, which includes a post from VIGNAYA G S asking for department association, a like from Eric Executive, and a comment from Eric Executive.

The screenshot shows the same Salesforce Lightning page for the Travel Approval record. A modal window titled "Submit for Approval" is open, displaying the message "successfully submitted". The "Cancel" and "Submit" buttons are visible at the bottom of the modal.

## Build A Employee Travel Approval Application For Corporates

The screenshot shows a travel approval record for T-0001. The main section displays expense items: Airfare (₹450.00) and Hotel (₹870.00). The approval history shows two steps: Step 1 (Pending) assigned to Eric Executive, and Approval Request Submitted (Submitted) by VIGNAYA G S. The right panel features a Chatter feed where Eric Executive asks, "Which department should I associate this travel request with?", followed by a comment from Eric Executive stating, "Technology is the correct department." The status bar at the bottom indicates the date as 19-10-2023 and time as 19:41.

The screenshot shows a travel approval record for T-0002. The details tab indicates the status is Rejected. The Chatter feed shows a post from Eric Executive stating, "Submitted to Rejected." The status bar at the bottom indicates the date as 19-10-2023 and time as 19:50.

## Build A Employee Travel Approval Application For Corporates

The screenshot shows a Salesforce Lightning application window titled "Travel Approvals". The top navigation bar includes links for "Travel Approvals", "Expenses", "Expense Items", "Departments", "Employee Details", "Reports", "Dashboards", and "Chatter". Below the navigation is a search bar and a toolbar with "New", "Import", and "Change Owner" buttons. The main content area displays a table titled "Recently Viewed" with 10 items. The columns are: Purpose of Trip, Department, Status, Destinat..., Trip Start Date, and Trip End Date. The data is as follows:

	Purpose of Trip	Department	Status	Destinat...	Trip Start Date	Trip End Date
1	T-0004 Abernathy, Beatty and Leffler	Division of Finance	Approved	CA	09/03/2022	09/03/2022
2	T-0011 Roberts Inc	Disability Determination Bureau	Submitted	CA	05/07/2022	09/07/2022
3	T-0006 Weber-Herman	Disability Determination Bureau	Draft	OK	06/03/2022	07/03/2022
4	T-0033 Olson-Schmidt	Audit Services	Approved	CA	22/11/2022	28/11/2022
5	T-0029 Wyman Group	Audit Services	Pending Approval	FL	31/05/2022	04/06/2022
6	T-0013 McKenzie Inc	Human Resources	Submitted	GA	27/08/2022	08/09/2022
7	T-0009 Ebert Inc	Office of Early Childhood and Out-of-School Learning	Pending Approval	OK	23/04/2022	05/05/2022
8	T-0003 Homerick, Waters and Gusikowski	Division of Disability and Rehabilitative Services	Approved	OK	03/04/2022	06/04/2022
9	T-0002 Attend Party	Technology	Rejected	TN	24/10/2023	26/10/2023
10	T-0001 Attend Dreamforce	Technology	Approved	CA	21/10/2023	24/10/2023

The screenshot shows a Salesforce Chatter feed. On the left, there's a sidebar with "What I Follow", "To Me", "Bookmarked", "Company Highlights" (which is selected), "My Drafts", "STREAMS" (empty), and "RECENT GROUPS" (empty). The main feed shows a post from user T-0001 (@VIGNAYA GS) asking which department to associate a travel request with. Eric Executive commented, "Technology is the correct department." An Einstein Recommendation sidebar suggests users "Eric Executive Your manager", "Integration User Joined in the last week", and "Security User Joined in the last week". The bottom status bar shows system information like "ENG IN", "20:22", and the date "19-10-2023".

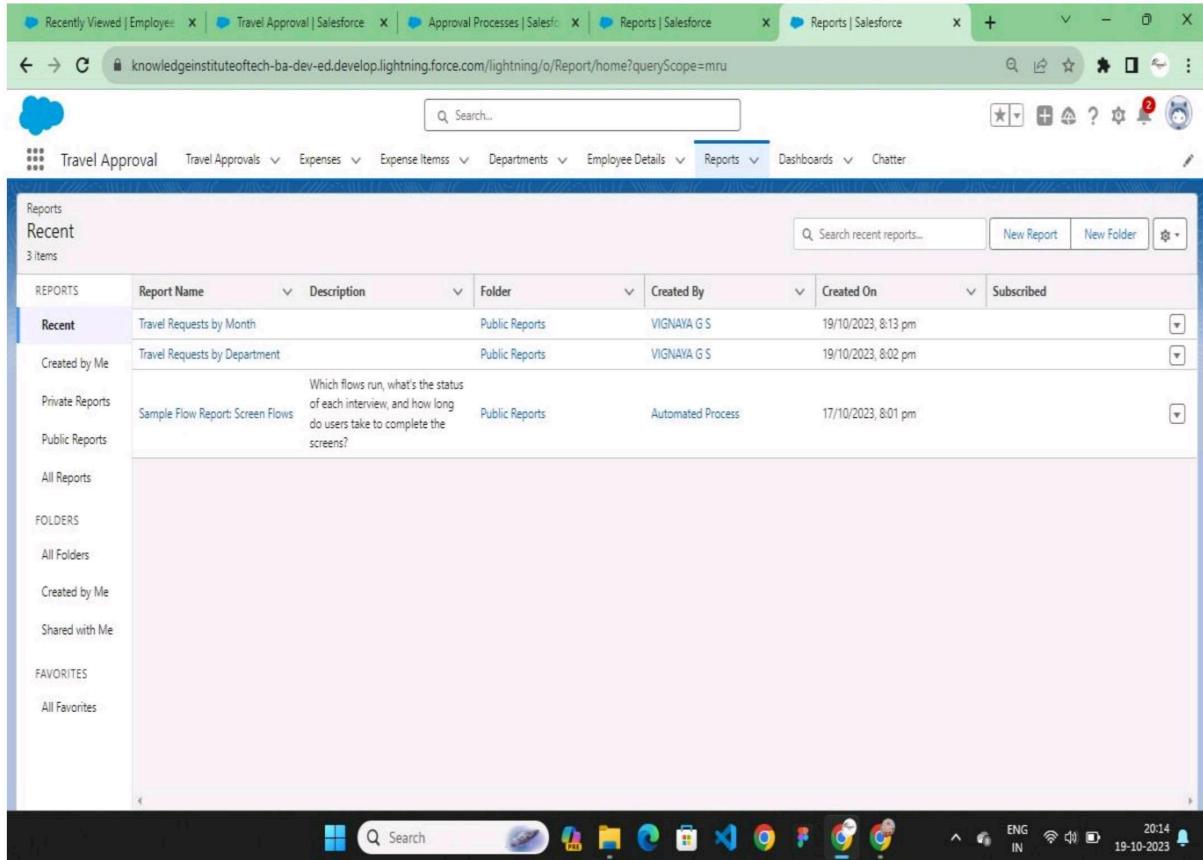
## CHAPTER-5

### REPORTS & DASHBOARD

#### 5.1 Reports

A Salesforce report is a list of data generated based on filter criteria. Salesforce Reports helped us predict trends and gives us the advantage to increase profits.

The report builder provides a drag-and-drop interface to easily build and customize your reports.



The screenshot shows the Salesforce Reports page with the following details:

- Recent Reports:**

Report Name	Description	Folder	Created By	Created On	Subscribed
Travel Requests by Month		Public Reports	VIGNAYA G S	19/10/2023, 8:13 pm	[checkbox]
Travel Requests by Department		Public Reports	VIGNAYA G S	19/10/2023, 8:02 pm	[checkbox]
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	17/10/2023, 8:01 pm	[checkbox]
- Navigation:** Reports, Recent, 3 items, REPORTS, FOLDERS, FAVORITES.
- Search:** Search recent reports... and New Report, New Folder buttons.
- System Information:** Windows taskbar at the bottom showing various icons and the date/time (19-10-2023, 20:14).

## Build A Employee Travel Approval Application For Corporates

The screenshot shows a Salesforce report titled "Travel Requests by Department". The report displays 48 total records, with 40 being "Total Out Of State". The data is grouped by department, with subtotals for each group. The columns include Department, Travel Approval: Travel Approval, Status, Out Of State, Destination State, Trip Start Date, and Trip End Date.

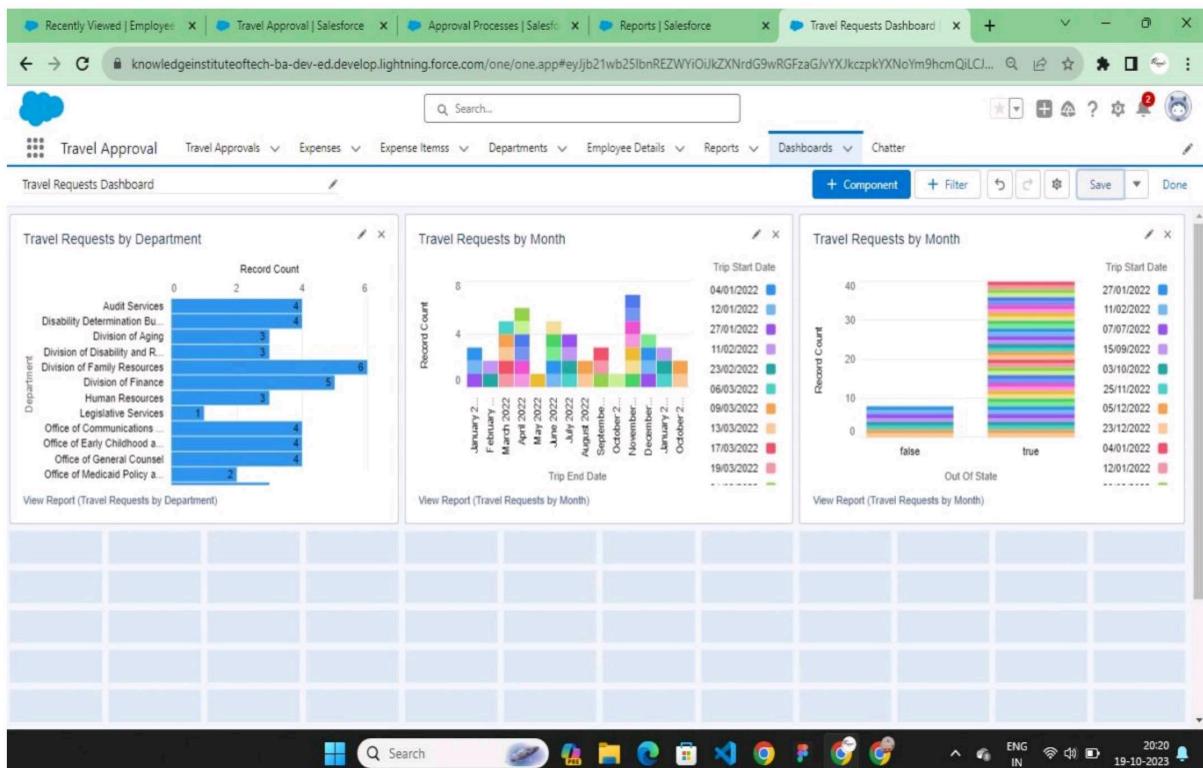
Department	Travel Approval: Travel Approval	Status	Out Of State	Destination State	Trip Start Date	Trip End Date
Audit Services (4)	T-0029	Pending Approval	<input checked="" type="checkbox"/>	FL	31/05/2022	04/06/2022
	T-0033	Approved	<input checked="" type="checkbox"/>	CA	22/11/2022	28/11/2022
	T-0048	Rejected	<input checked="" type="checkbox"/>	CA	07/04/2022	19/04/2022
	T-005	Rejected	<input checked="" type="checkbox"/>	FL	09/08/2022	15/08/2022
<b>Subtotal</b>					4	
Disability Determination Bureau (4)	T-0030	Rejected	<input type="checkbox"/>	TX	15/09/2022	15/09/2022
	T-0041	Rejected	<input checked="" type="checkbox"/>	OK	20/12/2022	20/12/2022
	T-0006	Draft	<input checked="" type="checkbox"/>	OK	06/03/2022	07/03/2022
	T-0011	Submitted	<input checked="" type="checkbox"/>	CA	05/07/2022	09/07/2022
<b>Subtotal</b>					3	
Division of Aging (3)	T-0035	Rejected	<input checked="" type="checkbox"/>	CA	06/06/2022	22/06/2022
	T-0046	Rejected	<input type="checkbox"/>	TX	11/02/2022	11/02/2022
	T-0017	Rejected	<input checked="" type="checkbox"/>	GA	24/12/2022	08/01/2023
<b>Subtotal</b>					2	

The screenshot shows the Report Builder interface for creating a new report titled "New Travel Approvals Report". The report is set to run for "Travel Approvals". The fields section includes "Groups" (with "GROUP ROWS" and "Add group..."), "Trip End Date", "Trip Start Date", "Columns" (with "Add column..."), and "Travel Approval: Travel Approval". The report preview shows data grouped by month, with subtotals for each group. The columns include Trip End Date, Trip Start Date, Travel Approval: Travel Approval, Department, Status, Out Of State, and Destination State.

Trip End Date	Trip Start Date	Travel Approval: Travel Approval	Department	Status	Out Of State	Destination State
January 2022 (1)	04/01/2022 (1)	T-0036	Office of Early Childhood and Out-of-School Learning	Rejected	<input checked="" type="checkbox"/>	OK
		<b>Subtotal</b>				1
<b>Subtotal</b>						1
March 2022 (2)	13/03/2022 (1)	T-0020	Division of Disability and Rehabilitative Services	Rejected	<input checked="" type="checkbox"/>	GA
		<b>Subtotal</b>				1
	19/03/2022 (1)	T-0023	Office of Medicaid Policy and Planning	Rejected	<input checked="" type="checkbox"/>	GA
		<b>Subtotal</b>				1
<b>Subtotal</b>						2
April 2022 (1)	21/04/2022 (1)	T-0031	Human Resources	Rejected	<input checked="" type="checkbox"/>	FL
		<b>Subtotal</b>				1
<b>Subtotal</b>						1
June 2022 (3)	31/05/2022 (1)	T-0029	Audit Services	Pending Approval	<input checked="" type="checkbox"/>	FL
		<b>Subtotal</b>				1
	08/06/2022 (1)	T-0035	Division of Aging	Rejected	<input checked="" type="checkbox"/>	CA
		<b>Subtotal</b>				1

## 5.2 Dashboard

A dashboard provides an interactive visual display of key metrics and trends. Multiple dashboard components can be shown together on a single dashboard layout, creating rich visual displays of multiple reports that have a common theme.



## CHAPTER-6

### CONCLUSION

In conclusion, A vehicle management system using Salesforce can help businesses of all sizes to improve the efficiency and effectiveness of their fleet management operations. By providing a centralized platform for managing all aspects of the vehicle lifecycle, Salesforce can help businesses to:

- Reduce costs by streamlining vehicle maintenance and repair processes
- Improve safety by tracking vehicle performance and identifying potential problems
- Increase efficiency by optimizing vehicle utilization and dispatching
- Enhance compliance by ensuring that vehicles are properly registered and insured

In addition to these specific benefits, a vehicle management system using Salesforce can also help businesses to improve their overall customer service and employee satisfaction. By providing a more efficient and effective way to manage their fleet, businesses can free up time and resources to focus on other important priorities.

## **CHAPTER-7**

### **PROJECT DEMONSTRATION**

**Github:**

<https://github.com/S30HARINI/Naan-Mudhalvan-Salesforces>

**Demo Link:**

<https://youtu.be/mZV5kdVZYf8?si=YTk6CQHfSlt74xOR>