GOVERNMENT OF TAMILNADU

Naan Muthalvan - Project-Based Experiential Learning

Build an employee travel approval application for corporates

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M.V.MUTHIAH GOVERNMENT ARTS COLLEGE FOR WOMEN

(Affiliated To Mother Teresa Women's University, Kodaikanal)

Reaccredited with "A" Grade by NAAC

DINDIGUL-624001.

APRIL - 2023

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PG & RESEARCH DEPARTMENT OF MATHEMATICS

BONAFIDE CERTIFICATE

This is to certify that this is a bonafide record of the project entitled, **"BUILD AN EMPLOYEE TRAVEL APPROVAL APPLICATION FOR CORPORATES"** done **by Ms.D.SIVARANJANI (20321ER024),Ms.M.SOUNDARIYA(20321ER025), Ms.M.SWATHI (20321ER026) and Ms.S.SWATHI (20321ER027)**. This is submitted in partial fulfillment for the award of the degree of **Bachelor of Science in Mathematics in M.V.MUTHIAH GOVERNMENT ARTS COLLEGE FOR WOMEN,DINDIGUL** during the period of December 2022 to April 2023.

Project Mentor(s) **Head of the Department**

Submitted for viva-voce Examination held on 12.04.2023.

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BUILD AN EMPLOYEE TRAVEL APPROVAL APPLICATION FOR CORPORATES

1 INTRODUCTION

Salesforce is a customer success platform, designed to help sell, service, market, analyze, and connect with the customers. Salesforce has everything that need to run your business from anywhere. Using standard products and features, that can manage relationships with prospects and customers, collaborate and engage with employees and partners, and store the data securely in the cloud.

1.1.Overview

Travel planning app is an application for booking travel reservations, tracking loyalty points, and browsing travel packages. A travel planning software package can be used by travel agencies, travel suppliers and consumers. Travel approval request app will help user quickly send a travel request through mobile using powers apps. A travel app is a single place for all bookings related to travel. Most travel apps have features to make all their bookings under one roof, be it flights, hotel, cabs or buses, which makes these very handy for making all the travel arrangements.

1.2.Purpose

Purpose of the online travel apps to help customers to make the same type of bookings but without going to any websites and at the same time online travel agencies also focuses by doing specific promotions through these apps to louver more customers on their apps.

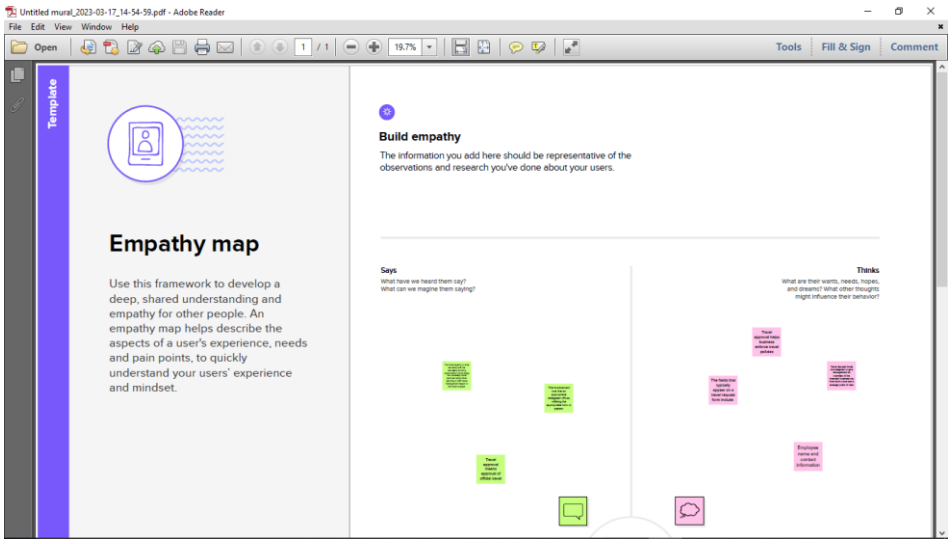
- Travel application is one place to get every service regarding traveling.
- Travel mobile application improves and shows the best available trip packages for the destination.
- The purpose of travel sites is to make it easier for people to plan and book their trips.
- They provide a wide range of services, from helping you find the best deals on flights and hotels, to providing detailed information about destinations around the world.

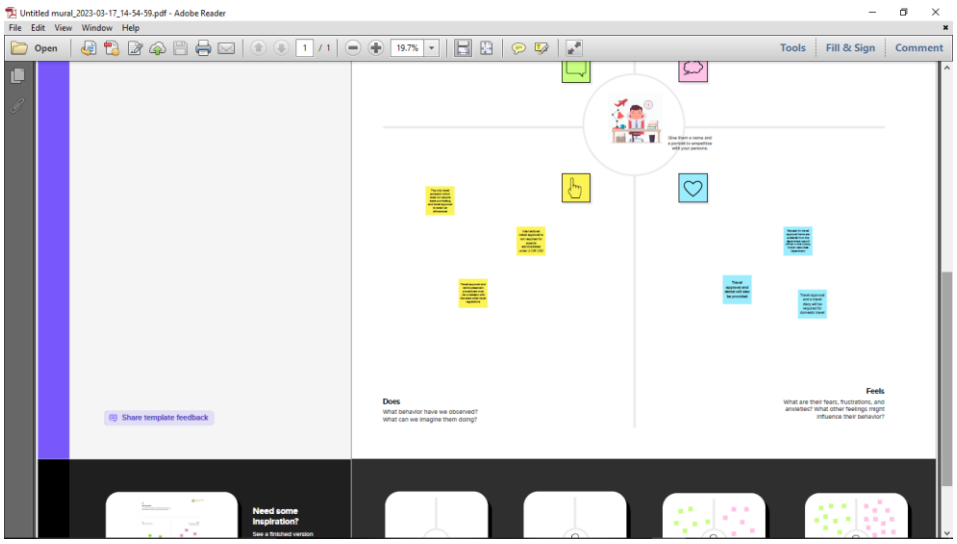
2 PROBLEM DEFINITION & DESIGN THINKING

2.1. Empathy Map

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

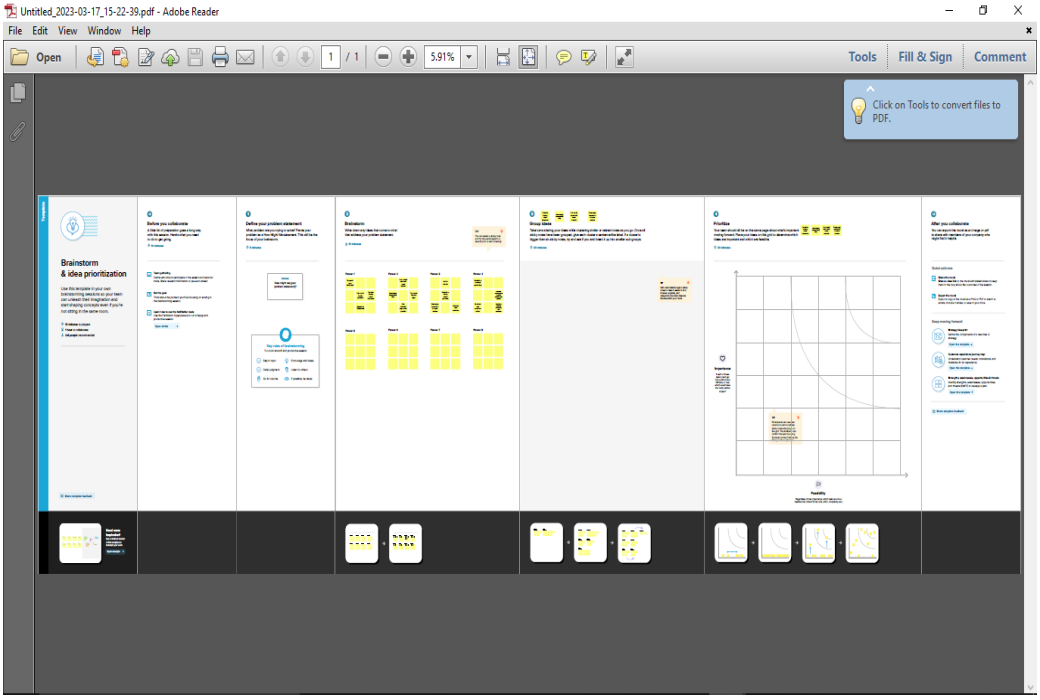
It is a useful tool to helps teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it.





2.2 Ideation & Brainstorming Map

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.



3 RESULT

3.1.Data Model

t

<table>
<tr><th>Object Name</th><th>Field in the object</th></tr>
<tr><td>Department</td><td>
<table>
<tr><th>Field label</th><th>Data Type</th></tr>
<tr><td>Amount</td><td>Currency</td></tr>
</table>
</td></tr>
<tr><td>Expense Items</td><td>
<table>
<tr><th>Field label</th><th>Data Type</th></tr>
<tr><td>Amount</td><td>Picklist</td></tr>
</table>
</td></tr>
<tr><td>Travel Approval</td><td>
<table>
<tr><th>Field Label</th><th>Data Type</th></tr>
<tr><td>Travel Approval</td><td>Master-Detail Relationship</td></tr>
<tr><td>Trip Start Date</td><td>Date</td></tr>
<tr><td>Trip End Date</td><td>Date</td></tr>
<tr><td>Out of State</td><td>Checkbox</td></tr>
<tr><td>Destination State</td><td>Text</td></tr>
<tr><td>Department</td><td>Look up relationship</td></tr>
</table>
</td></tr>
</table>

3.2 Activity & Screenshot

Milestone 1 - Create Salesforce Org:

Activity-1:

Creating Developer Account

Creating a developer org in salesforce.

1. Go to developers.salesforce.com/

2. Click on sign up.

3. On the sign-up form, enter the following details: 1. First name & Last name

2. Email

3. Role: Developer

4. Company: College Name

5. County: India

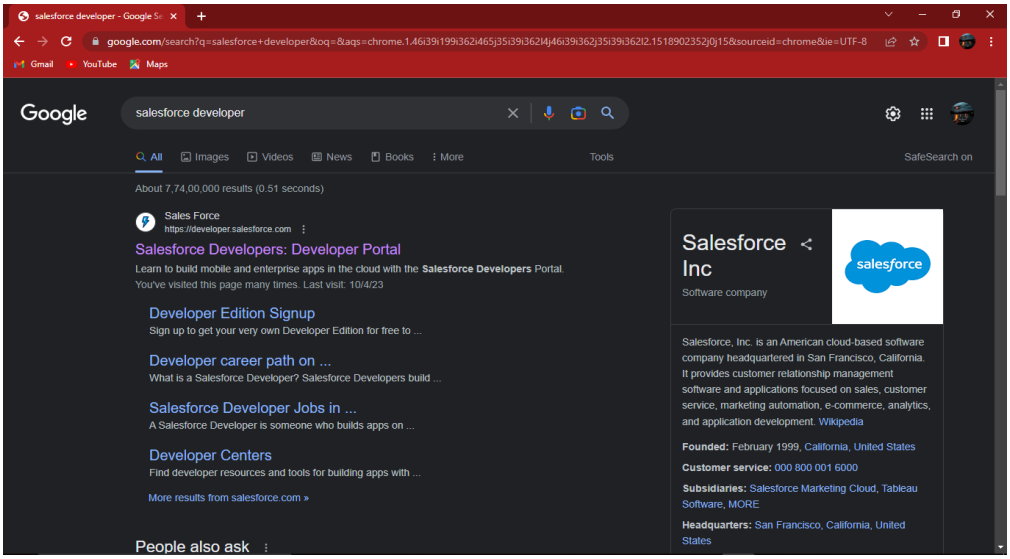
6. Postal Code: pin code

7. Username: should be a combination of your name and company

This need not be an actual email id, you can give anything in the format:

username@organization.com

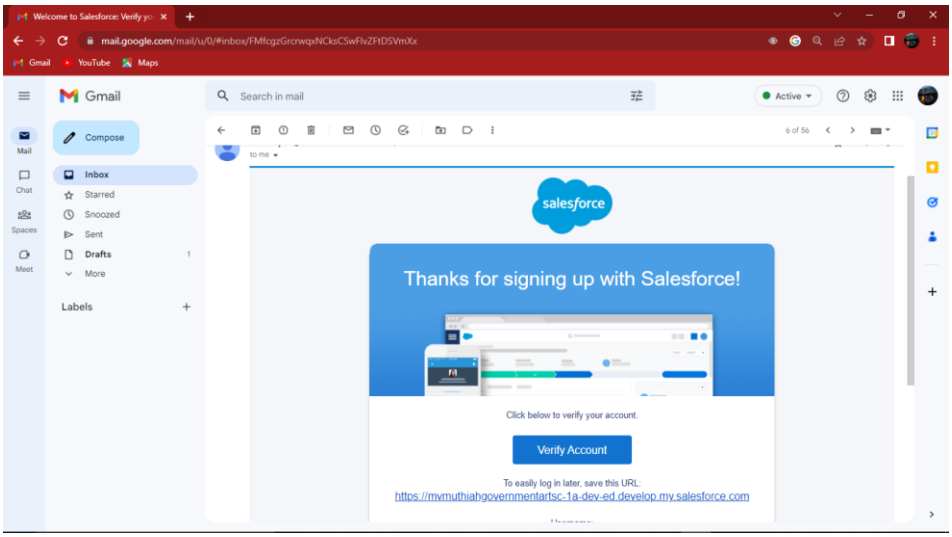
Click on sign up after filling these.



Activity-2:

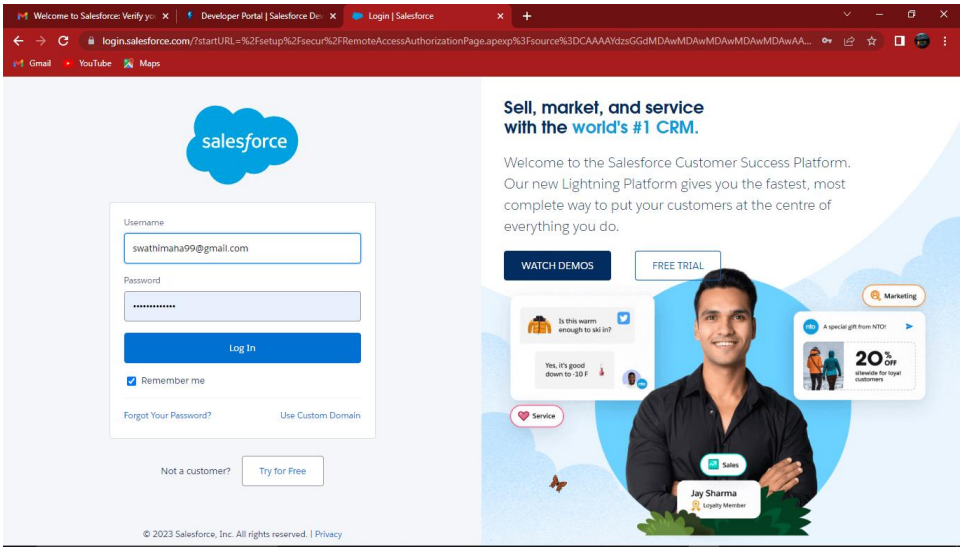
Account Activation

Go to the inbox of the email that you used while signing up. Click on the verify account to activate your account. The email may take 5-10mins, as



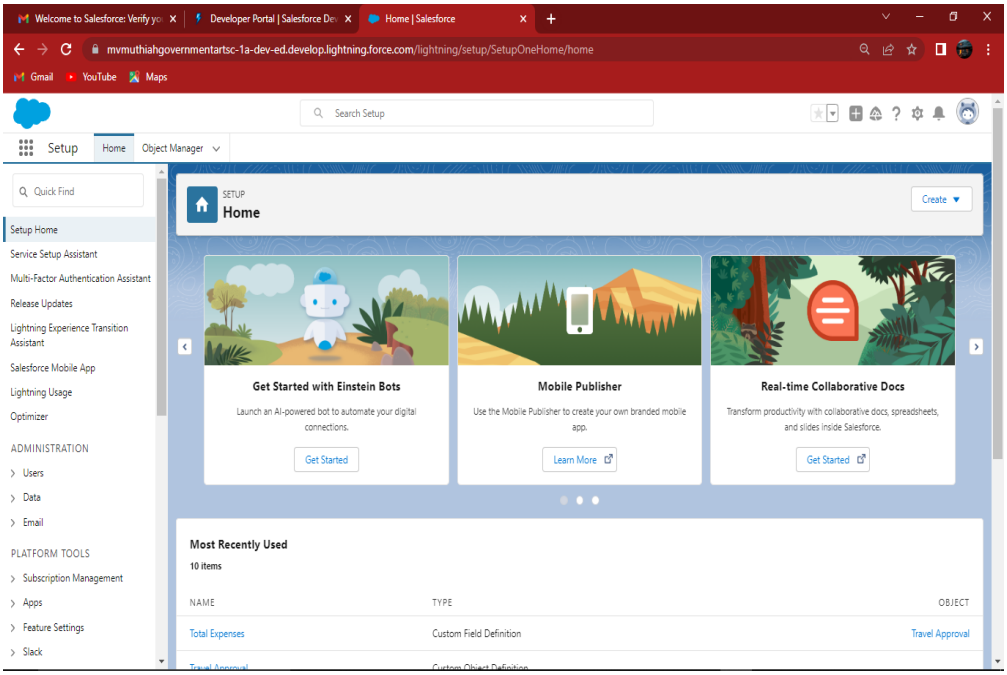
Login To Salesforce Account

1. Go to salesforce.com and click on login.
2. Enter the username and password that just created.
3. After login this is the home page which will see.



Salesforce Login

htttps://login.salesforce.com



Milestone 2 - Creating the Application:

The AppManager is the go to place for managing apps for lightning experience. It shows all the connected apps and salesforce apps. Use the lightning experience app manager to view all the salesforce apps.

https://youtu.be/GR61sx2Kdis

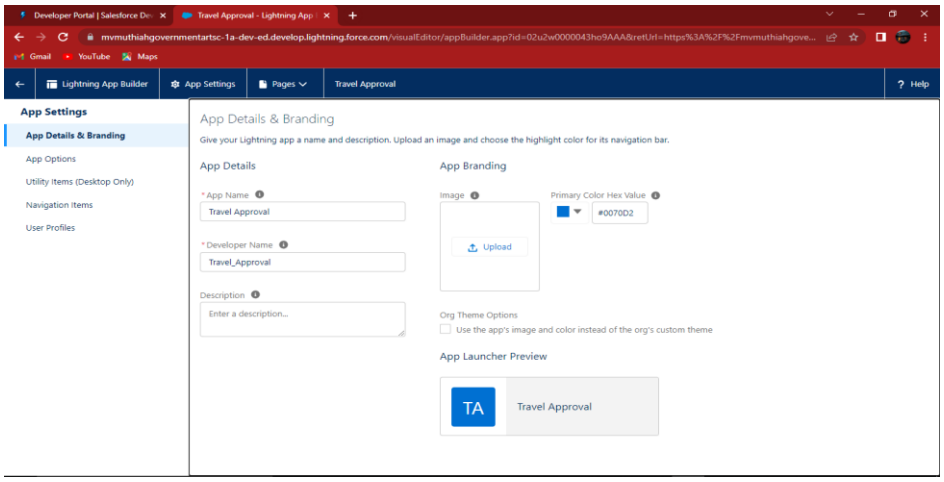
Activity-1:

Create the Travel Application

Search AppManager in quick find box, click on new lightning app. Before creating the application download this zip file and extract it. https://developer.salesforce.com/files/TravelAppWorkshopFiles.zip

Steps

- From Setup, enter App Manager in the Quick Find and select App Manager
- Click New Lightning App. Enter Travel Approval as the App Name, then click Next
- Under App Options, leave the default selections and click Next.
- Under Utility Items, leave as is and click Next.
- From Available Items, select Department, Travel Approval, Expense Item, Reports, and Dashboards and move them to Selected Items. Click Next.
- From Available Profiles, select System Administrator and move it to Selected Profiles. Click Save & Finish.
- To verify the changes, click the App Launcher, type Travel Approval and select the Travel Application app.



Milestone 3 - Object:

Salesforce objects are database tables that permit to store data that is specific to an organization. It consists of fields (columns) and records (rows).

Salesforce objects are of two types:

Standard Objects: Standard objects are the kind of objects that are provided by salesforce.com such as users, contracts, reports, dashboards, etc.

Custom Objects: Custom objects are those objects that are created by users. They supply information that is unique and essential to their organization. They are the heart of any application and provide a structure for sharing data.

In this Travel Approval application we will be creating 3 objects:

- Department
- Travel approval
- Expense Item

Activity-1:

Custom Object Creation

After Login to your org, click create on the right side of the page and select custom object.

To create an object:

From the setup page → Click on Object Manager → Click on Create → Click on Custom Object.

On Custom object defining page:

Enter the label name, plural label name, click on Allow reports, Allow search → Save

Activity-2:

Create 3 custom objects and tabs

a) Department

b) Travel Approval

c) Expense Item

Create Department Object

1. From Setup, click Object Manager.
2. Click Create, then select Custom Object.
3. Give the name as Department.

To Navigate to Setup page:

Click on gear icon → click setup.

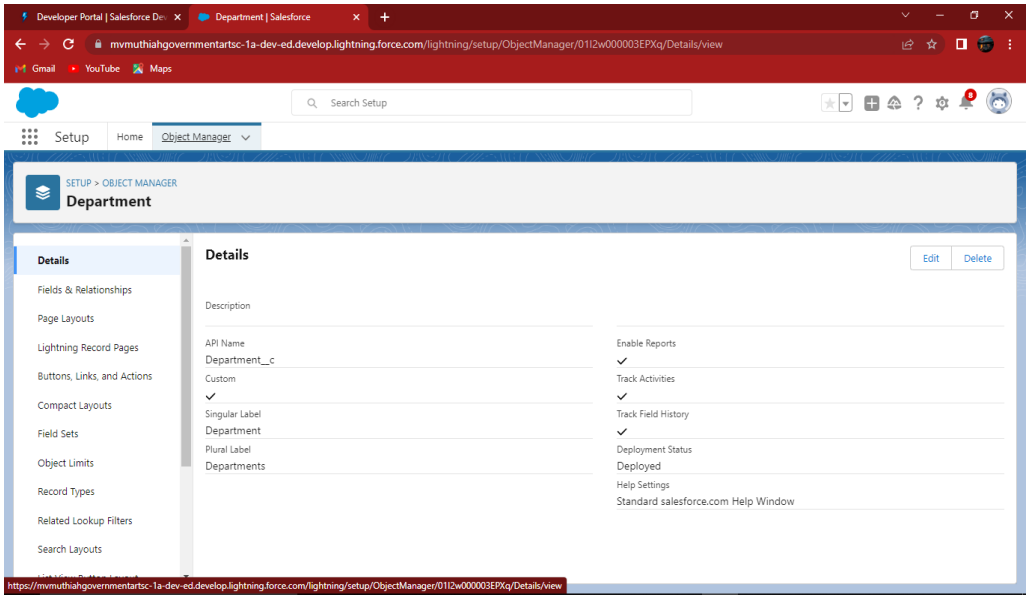
To create an object:

From the setup page → Click on Object Manager → Click on Create → Click on Custom Object.

On Custom object defining page:

Enter the label name, plural label name, click on Allow reports, Allow search → Save.

4. Now the tabs section opens, add this tab to the travel app.

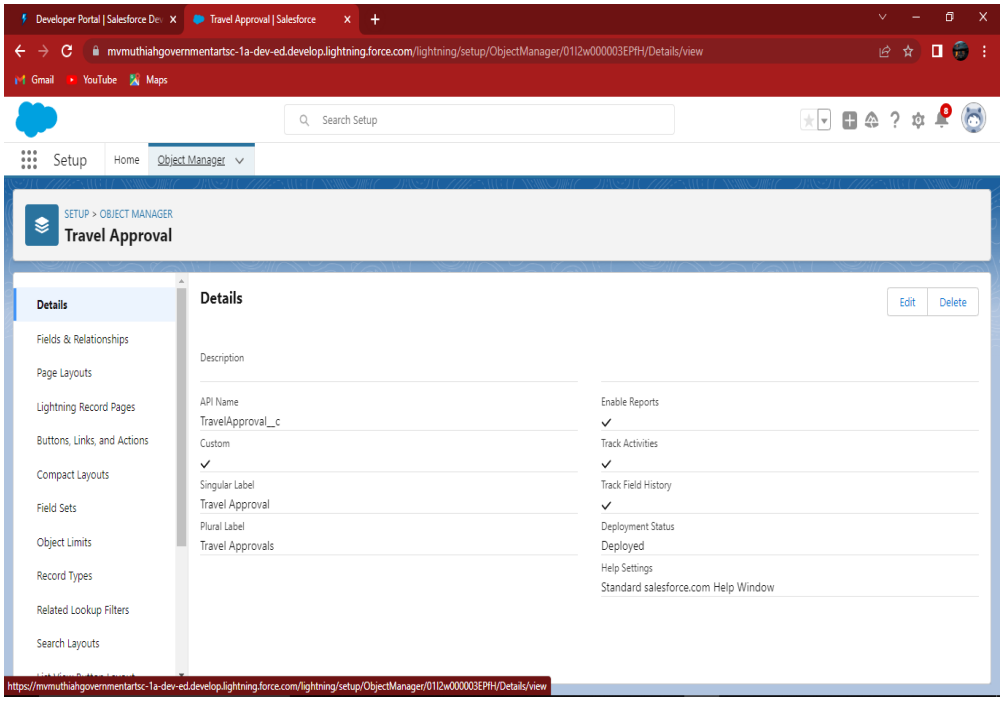


Create Travel Approval Object

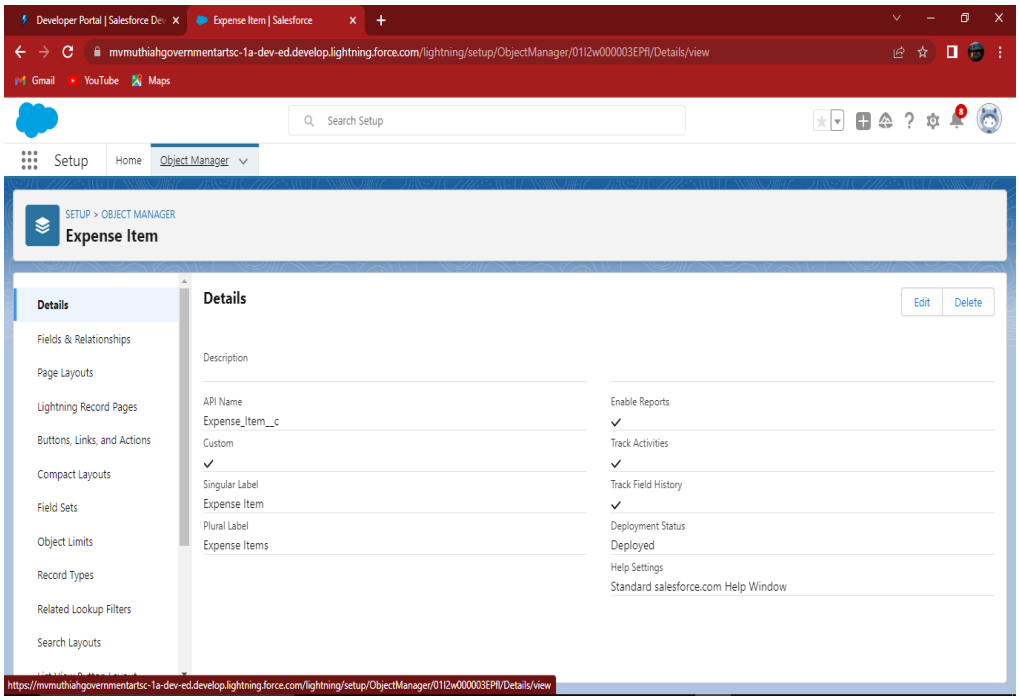
1. Navigate back to Object Manager

2. Click Create then select Custom Object.

Enter these details	Value
Parameter	
Label	TravelApproval
Plural Label	TravelApprovals
Object Name	Travel_Approval (this field auto-populates)
Record Name	Travel Approval #
Datatype	Auto Number
DisplayFormat	TA-{00000}
Starting Number	1



Create Expence Item Object



Milestone 4-Tab

Tabs in Salesforce help users view the information at a glance. It displays the data of objects and other web content in the application.

There are mainly 4 types of tabs:

Standard Object Tabs: Standard object tabs displays data related to standard objects.

Custom Object Tabs: Custom object tabs displays data related to custom objects. These tabs look and function just like standard tabs.

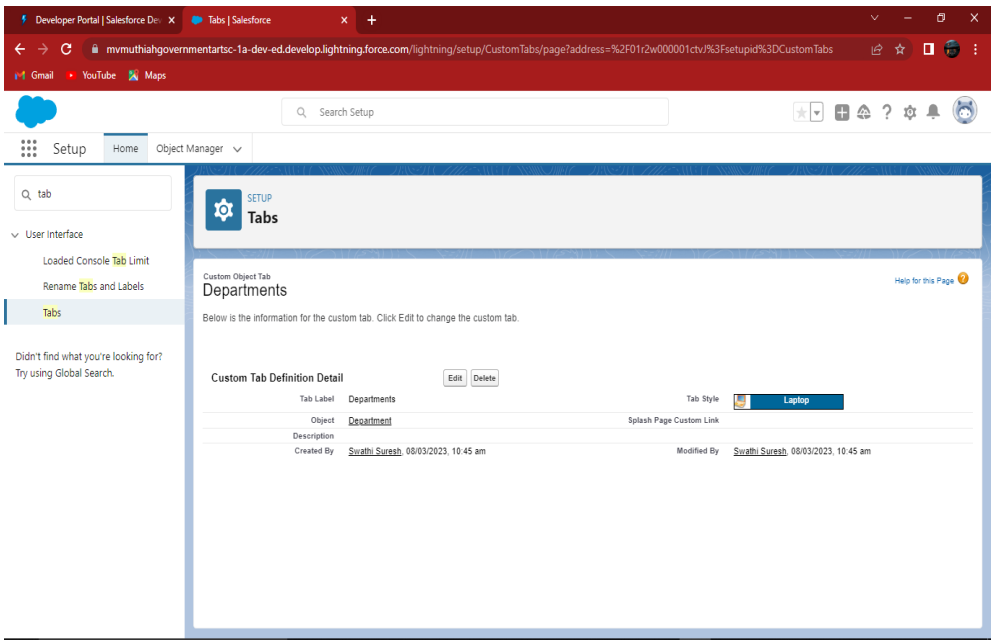
Web Tabs: Web Tabs display any external Web-based application or Web page in a Salesforce tab.

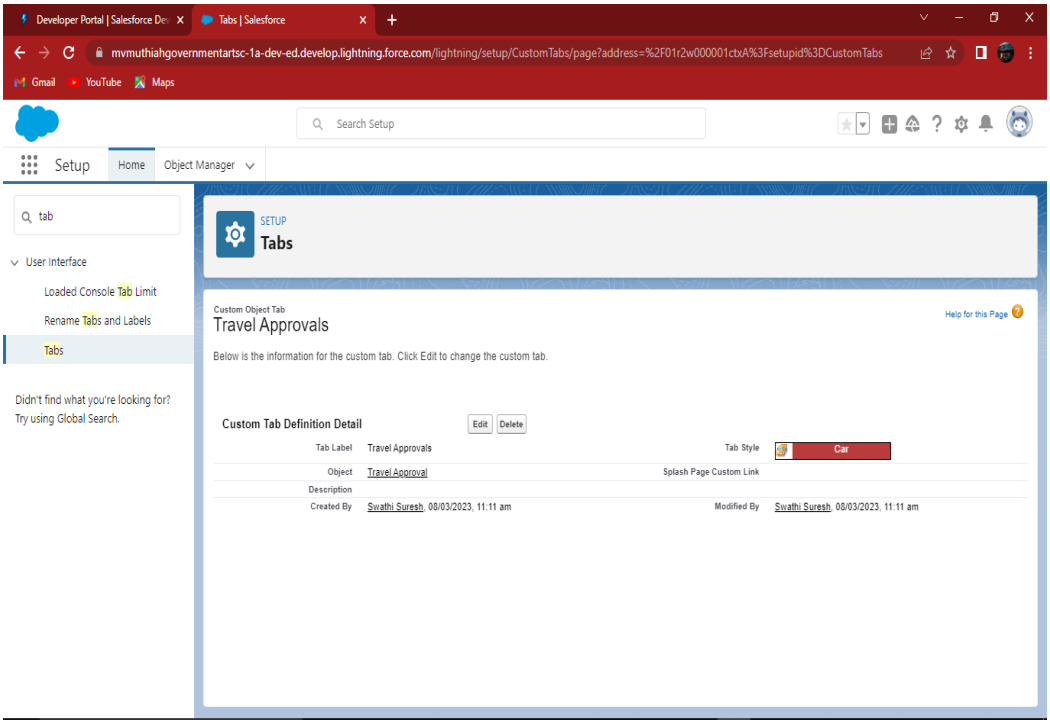
Visualforce Tabs: Visualforce Tabs display data from a Visualforce Page.

Activity-1:

Now create a custom tab. Click the Home tab, enter Tabs in Quick Find and select Tabs. Under Custom Object Tabs, click New.

1. For Object, select Event.
2. For Tab Style, select any icon.
3. Leave all defaults as is. Click Next, Next, and Save.

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Tabs | Salesforce
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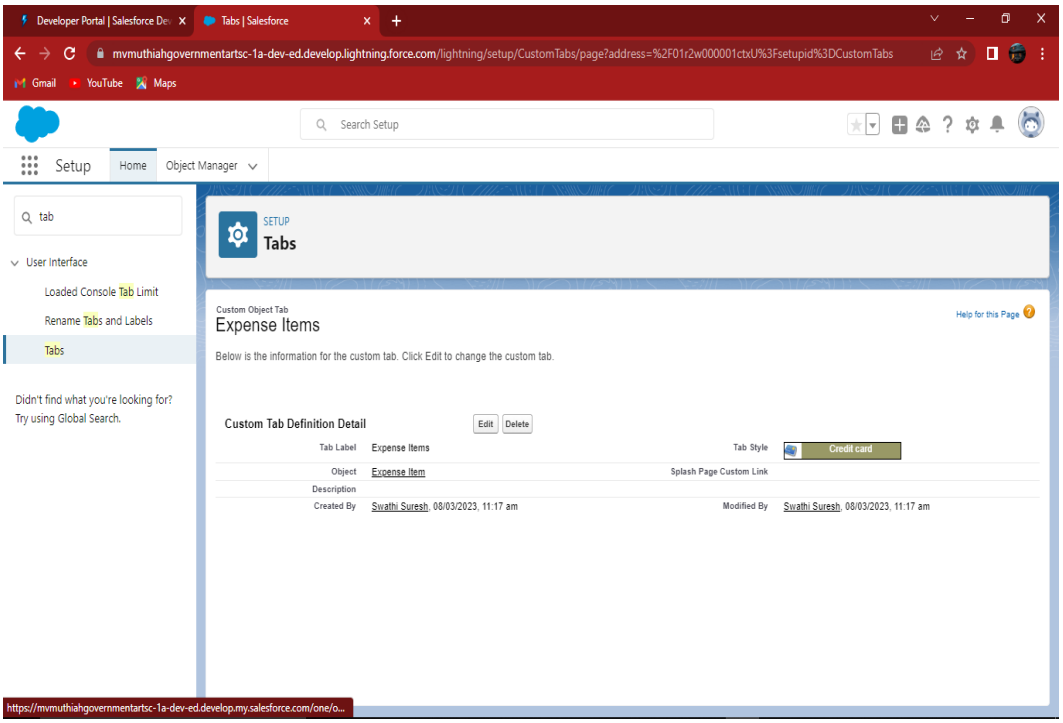
Gmail
YouTube
Maps
Search Setup
Setup
Home
Object Manager
tab
User Interface
Loaded Console Tab Limit
Rename Tabs and Labels
Tabs
Didn't find what you're looking for?
Try using Global Search.
SETUP
Tabs
Custom Object Tab
Travel Approvals
Help for this Page
Below is the information for the custom tab. Click Edit to change the custom tab.
Custom Tab Definition Detail
Edit
Delete
Tab Label
Travel Approvals
Tab Style
Car
Object
Travel Approval
Splash Page Custom Link
Description
Created By
Swathi Suresh, 08/03/2023, 11:11 am
Modified By
Swathi Suresh, 08/03/2023, 11:11 am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Gmail
YouTube
Maps
Search Setup
Setup
Home
Object Manager
tab
User Interface
Loaded Console Tab Limit
Rename Tabs and Labels
Tabs
Didn't find what you're looking for?
Try using Global Search.
SETUP
Tabs
Custom Object Tab
Expense Items
Help for this Page
Below is the information for the custom tab. Click Edit to change the custom tab.
Custom Tab Definition Detail
Edit
Delete
Tab Label
Expense Items
Tab Style
Credit card
Object
Expense Item
Splash Page Custom Link
Description
Created By
Swathi Suresh, 08/03/2023, 11:17 am
Modified By
Swathi Suresh, 08/03/2023, 11:17 am
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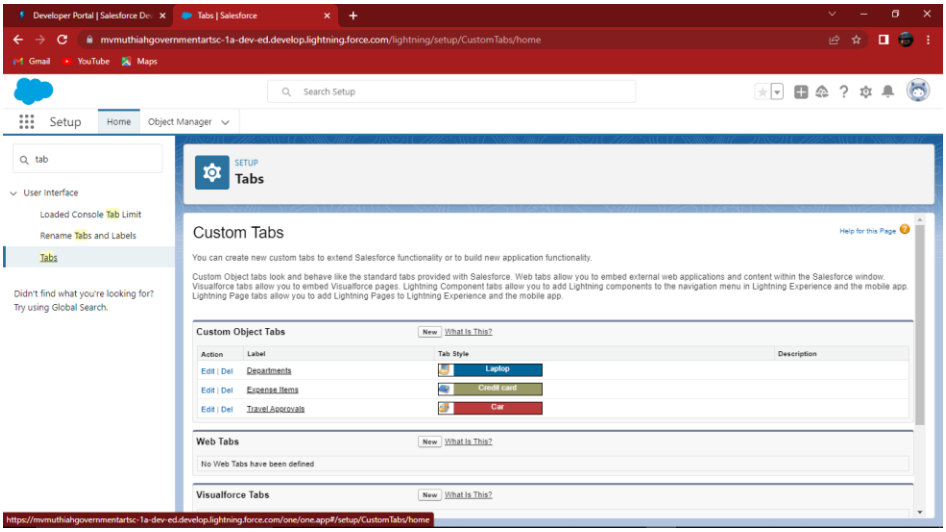


Milestone 5 - Create- Fields& Relationships :

Fields in Salesforce represents what the columns represent in relational databases. It can store data values which are required for a particular object in a record. There are 2 types of fields in salesforce:

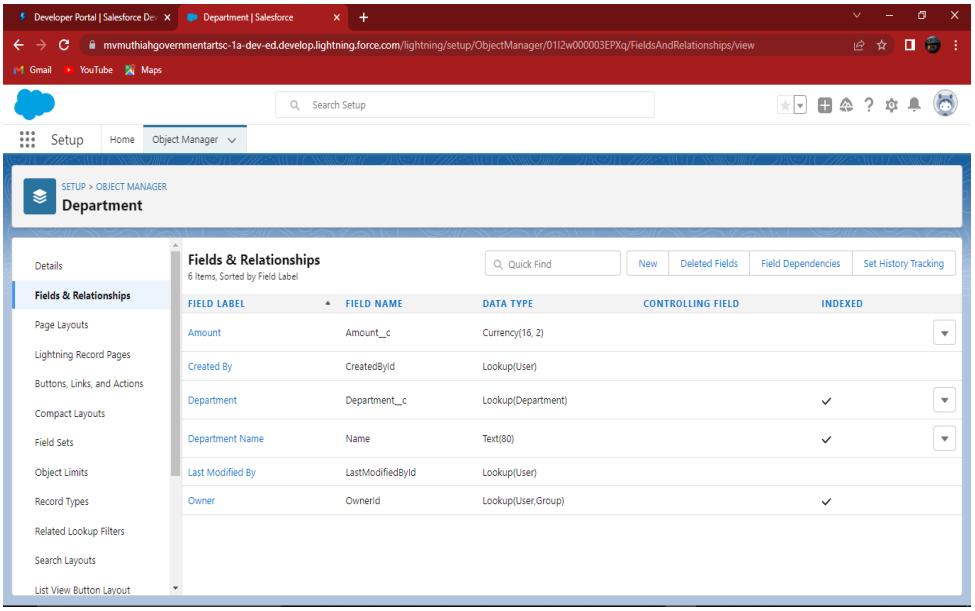
• **Standard fields**: There are four standard fields in every custom object that are Created By, Last Modified By, Owner, and the field created at the time of the creation of an object.

These fields cannot be deleted or edited and they are always required. For standard objects, the fields which are present by default in them and cannot be deleted from standard objects are standard fields.

• **Custom fields:** The Custom fields which are added by the administrator/developer to meet the business requirements of any organization. They may or may not be required.

Activity-1:

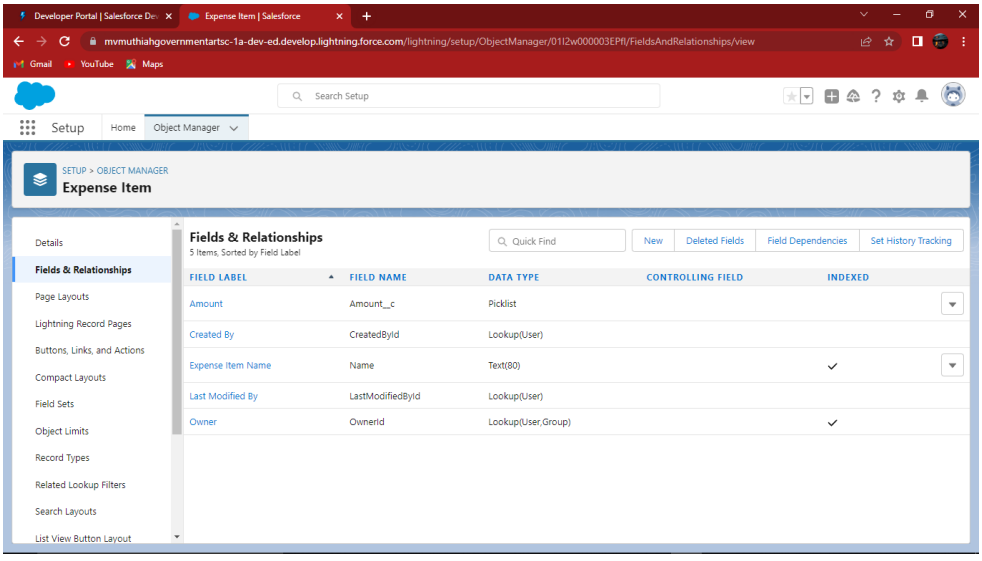
1. Click Fields & Relationships, and click New.
2. For data type, select Currency.
3. Enter these details.
    a. For Field Label, enter Amount
    b. For Length, enter 16
    c. For Decimal places, enter 2
    d. Select Required
4. Click Next, Next, then Save & New.



Activit-2:

Create the Expense Type field:

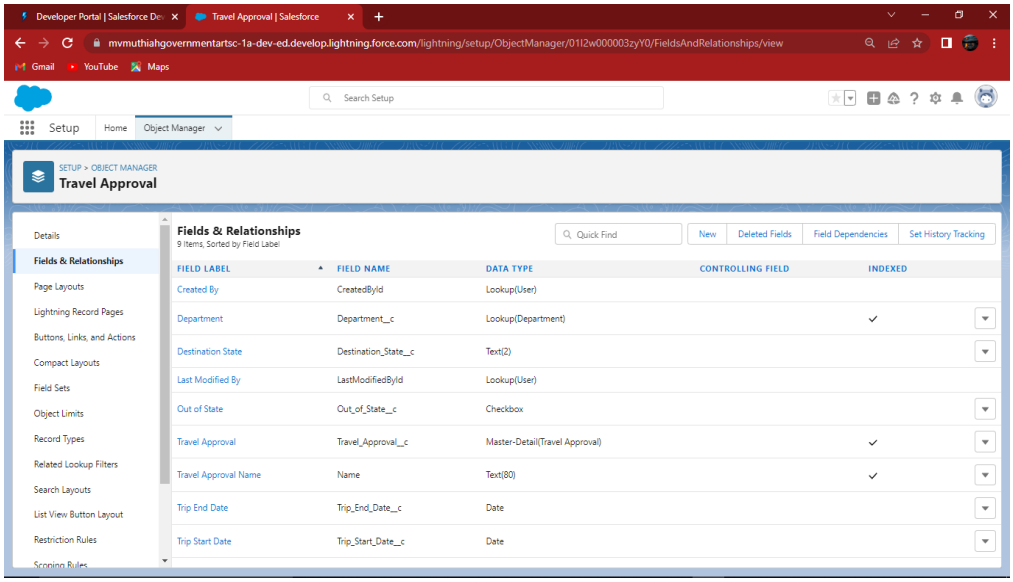
- Select Picklist as the data type.
- Select Enter values, with each value separated by a new line.
- Add these values: (Airfare, Hotel, RentalCars, Meals, Others)
- Select Required.
- Click Next, Next, then Save & New.



Activit-3:

Create the Travel Approval field.

- Select Master-Detail Relationship data type, click Next.
- Select Travel Approval from the Related To menu.
- Click Next four times, then click Save.



Milestone 6 - Import Departments

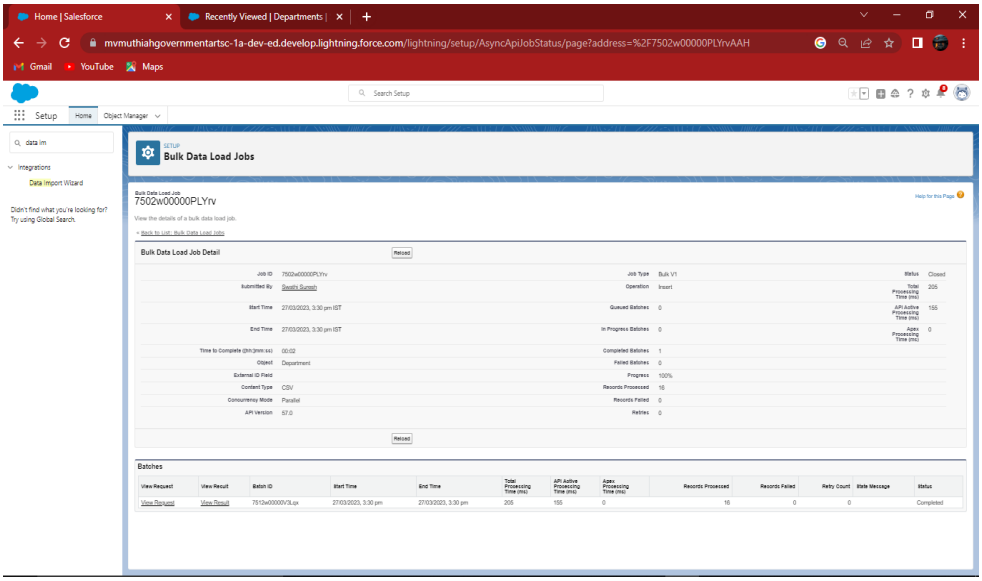
In order to complete this milestone, need to download the reference file https://developer.salesforce.com/files/TravelAppWorkshopFiles.zip?_ga=2.108173638.597564088.1674441525-733189446.1673935386

Activity-1:

From Setup, click the Home tab.

1. In the Quick Find box, enter Data Import and select Data Import Wizard.
2. Click Launch Wizard ! . Click the Custom Objects tab and select the Departments object.
3. Next, select Add new records.
4. Drag and drop the Departments.csv file downloaded using zip file or click the CSV icon and browse to select the file. Select Next.

5. Since the field names in the CSV file (CSV Header) are the same as the field names in the object (Mapped Salesforce Object), the fields are automatically mapped. Click Next.
6. The next screen give a summary of the data import. Click Start Import.
7. Click OK on the popup.
8. This takes to the bulk import summary window that shows that the process has completed and 16 records have been successfully imported or processed.



Milestone 7 - Customize User Interface

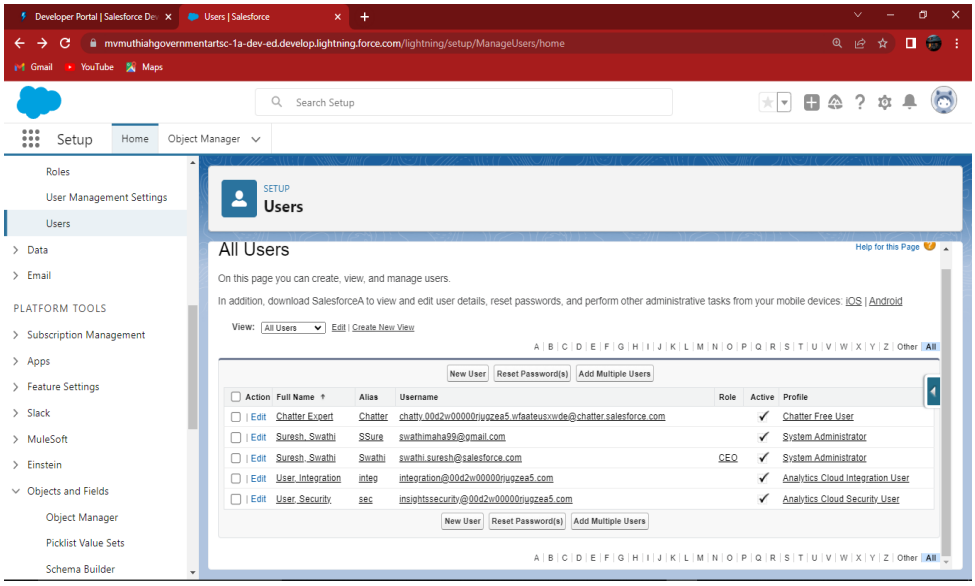
In this Milestone we are going to setup the users, customizing the page layouts.

Activity-1:

Create User and Setup Approvals

1. Enter users in the quick find box and select users.
2. Click new user .
3. Now give the name as our wish but the email must be real email address.
4. For username field follow the instructions.
   - Firstname.<yourlastname>@<yourcompany>.com
   - …or create a username of our choice that should be unique.
5. Give the role as CEO, Profile as System Administrator and license as Salesforce.
6. From Setup, enter Users in the Quick Find box and select Users.
7. Select the user account in the list provided. (Click on the name in the All Users list.)

8. Click Edit.
9. Scroll down to Approver Settings. Set manager as the user that have created recently.
10. Click Save.



Milestone 8 - Use customization

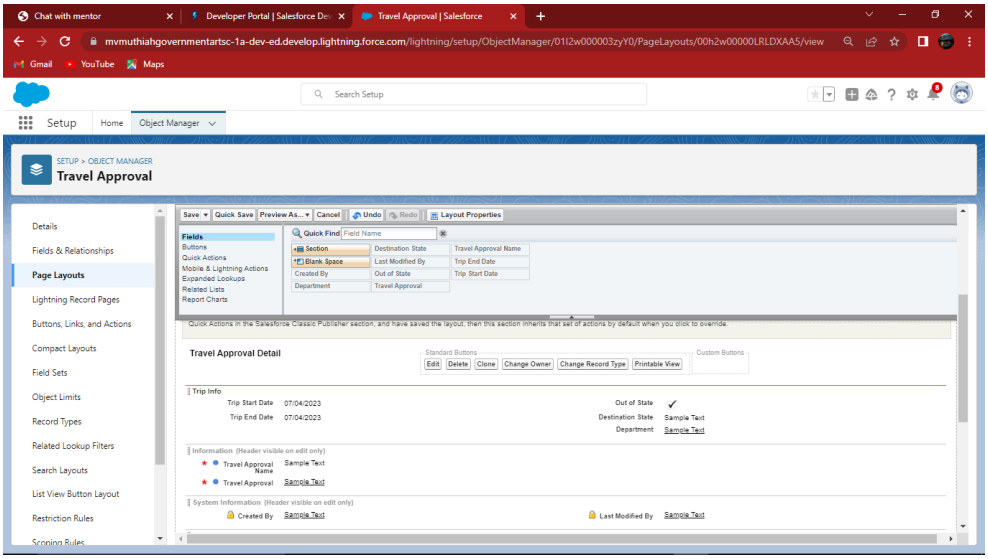
Customization refers to custom software development and coding to add robust features to the CRM platform. These features can be integrated with the business to have a scalable impact.

Activity -1:

Customize Travel Approval Object Page layout

1. From the Object Manager, search for the travel approval object and click on page layouts and click edit.
2. Drag Section from the top pane to the lower pane directly below the Information section. When dragging over the page, then get a visual indicator of where to drop the new section.
3. Name the section Trip Info, leave the rest of the settings at their default values, then click OK.
4. Drag the Purpose of Trip field from the Information section to the Trip Info section.
5. Drag Trip Start Date and Trip End Date from the top pane into the left-hand column of the Trip Info section.

6. Drag Out-of-State and Destination State from the top pane into the right-hand column of the Trip Info section.
7. Drag the Department field from the left-hand column of the Trip Info section to the right-hand column.
8. Click Save.

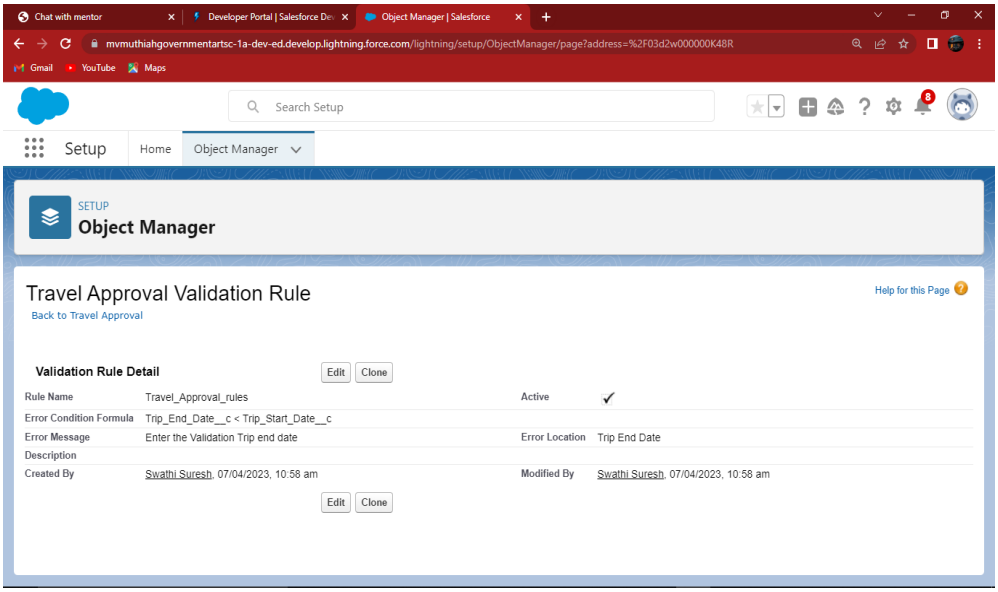


Milestone 9 - Add Business Logic to Travel App

Activity-1:

Create Validation Rule

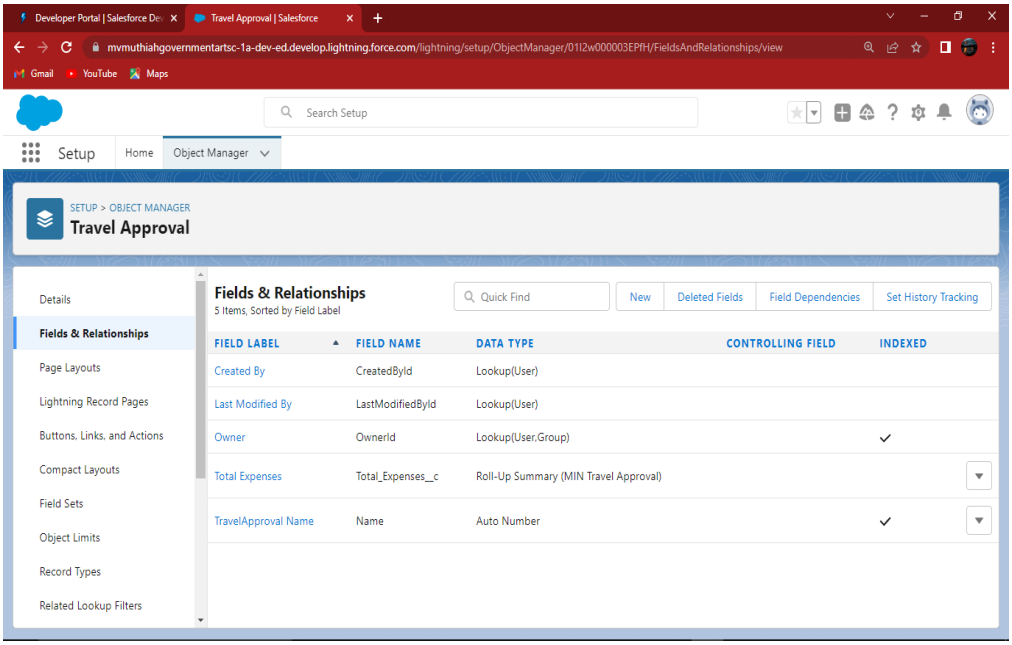
1. Search for the travel approval object from the object manager and open the object.
2. Click on validation rules and give your rule a name and make sure that the rule is set to active.
3. In the error condition formula enter Trip_End_Date__c < Trip_Start_Date__c.
4. For error location select field and pick trip end date as the location for error.



Activity-2:

Create RollUp Summary Fields

1. From the Travel Approval object, select Fields & Relationships.
2. Click New.
3. Select the Roll-Up Summary data type.
4. Click Next.
5. Enter the following values for the field details
   - Field Label: Total Expenses
   - Field Name: Total_Expenses (this automatically gets set when the tab out of the Field Label field).
6. Click Next.
7. Configure the roll-up calculation.
   - Summarized Object: Expense Items
   - Roll-Up Type: SUM
   - Field to Aggregate: Amount
   - Filter Criteria: All records should be included in the calculation.
8. Click Next, Next, Save.



Activity-3:

Create Formula Fields

1. First, we need to upload a zip file to the Salesforce environment that contains all the images we use. We should have a file titled StatusImages.zip .
2. Click the Home tab to navigate back to the main setup page.
3. Click Custom Code | Static Resources (or enter Static in the Quick Find to filter down the options).
4. Click New.
5. Enter the following values for the static resource.

Parameter	Value
Name	StatusImages
File	StatusImages.zip
Cache Control	Private

6. Now select the travel approval object.
7. Select Fields & Relationships.
8. Click New.
9. Select Formula data type.
10. Click Next.
11. Enter the following values:
    - Field Label: Status Indicator

Field Name: Status_Indicator (This automatically gets sent when the tab out of the Field Label field) .

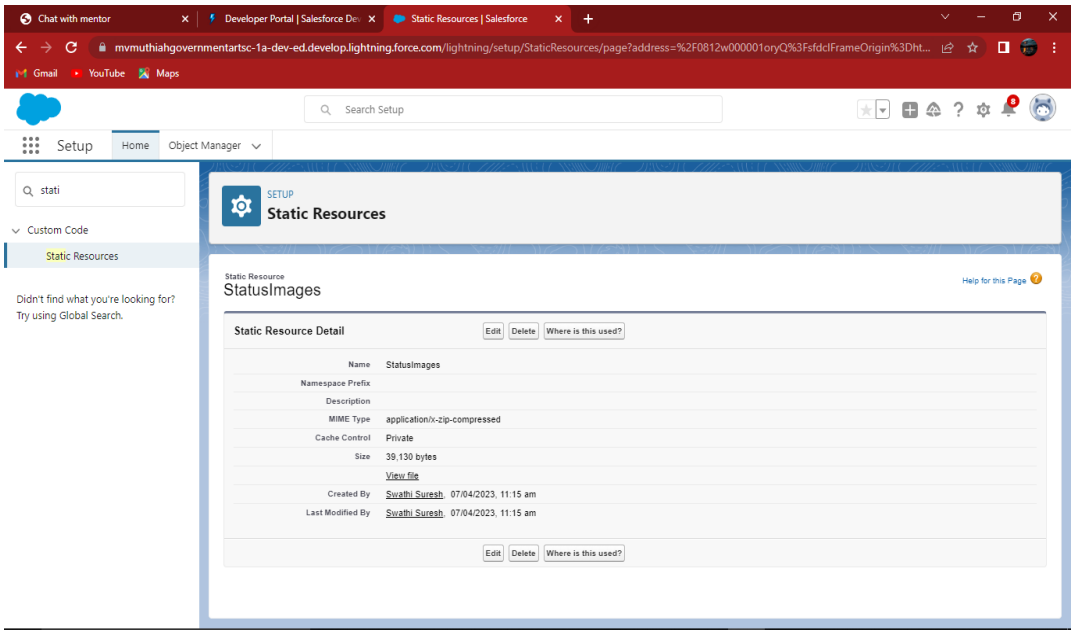
- Formula Return Type: Text

12. Click Next.
13. Copy and paste the following formula into the formula editor.

IF(ISPICKVAL(Status__c , 'Approved'), IMAGE("/resource/StatusImages/thumbs-up.png", "Accepted", 20, 20),

IF (ISPICKVAL(Status__c , 'Rejected'), IMAGE("/resource/StatusImages/thumbs-down.png", "Rejected", 20, 20),IMAGE("/resource/StatusImages/draft.png", "In-Process", 20, 20)))

14. Click Next, Next, Save.



Milestone 10 - Reports

Reports in Salesforce is a list of records that meet a particular criterion which gives an answer to a particular question. These records are displayed as a table that can be filtered or grouped based on any field.

There are 4 types of report formats in Salesforce:

1. Tabular Reports:

This is the most basic report format. It just displays the row of records in a table with a grand total. While easy to set up they can't be used to create groups of data or charts and also cannot be used in Dashboards. They are mainly used to generate a simple list or a list with a grand total.

2. Summary Reports:

It is the most commonly used type of report. It allows grouping of rows of data, view subtotal, and create charts.

3. Matrix Report:

It is the most complex report format. Matrix report summarizes information in a grid format. It allows records to be grouped by both columns and rows. It can also be used to generate dashboards. Charts can be added to this type of report.

4. Joined Reports:

These types of reports let us create different views of data from multiple report types. The data is joined reports are organized in blocks. Each block acts as a subreport with its own fields, columns, sorting, and filtering. They are used to group and show data from multiple report types in different views.

Report types:

Report type determines which set of records will be available in a report. Every report is based on a particular report type. The report type is selected first when we create a report. Every report type has a primary object and one or more related objects. All these objects must be linked together either directly or indirectly.

- A report type cannot include more than 4 objects.
- Once a report is created its report type cannot be changed.

There are 2 types of reports:

1. Standard Report Types:

Standard Report Types are automatically included with standard objects and also with custom objects where “Allow Reports” is checked.

Standard report types cannot be customized and automatically include standard and custom fields for each object within the report type. Standard report types get created when an object is created, also when a relationship is created.

2. Custom Report Types:

Custom report types are reporting templates created to streamline the reporting process. Custom Reports are created by an administrator or User with “Manage Custom Report Types” permission. Custom report types are created when standard report types cannot specify which records will be available on reports.

In custom report types we can specify objects which will be available in a particular report. The primary object must have a relationship with other objects present in a report type either directly or indirectly.

There are 3 types of access levels of folders:

1. Viewer:

With this access level, users can see the data in a report but cannot make any changes except cloning it into a new report.

2. Editor:

With this access level, users can view and modify the reports it contains and can also move them to/from any other folders they have access level as Editor or Manager.

3. Manager:

With this access level, users can do everything Viewers & Editors can do, plus they can also control other user’s access levels to this folder. Also, users with Manager Access levels can delete the report.

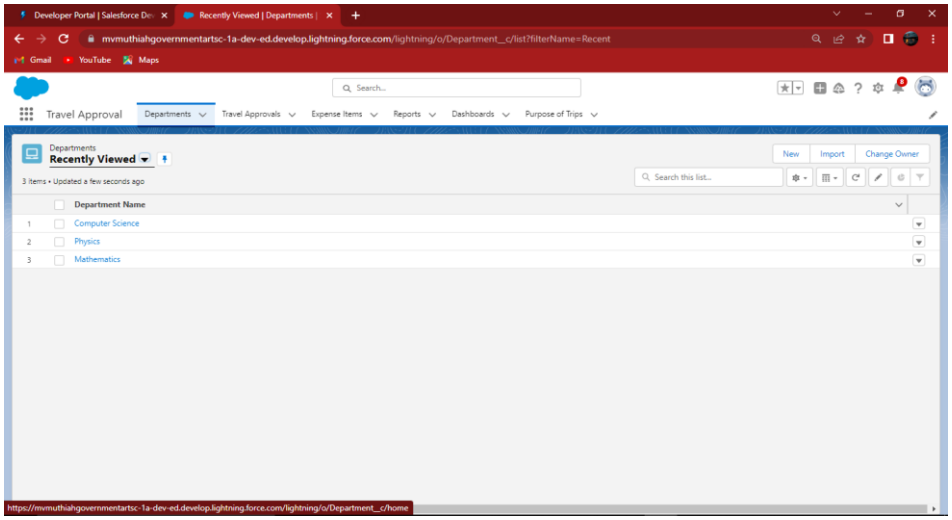
From this milestone we are going to import the data and create the reports and dashboards for data visualization in the application.

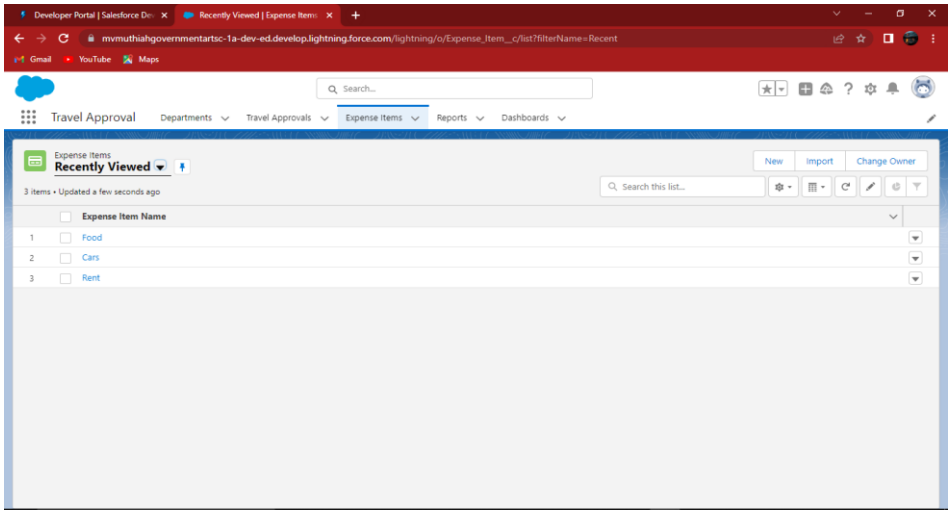
Activity

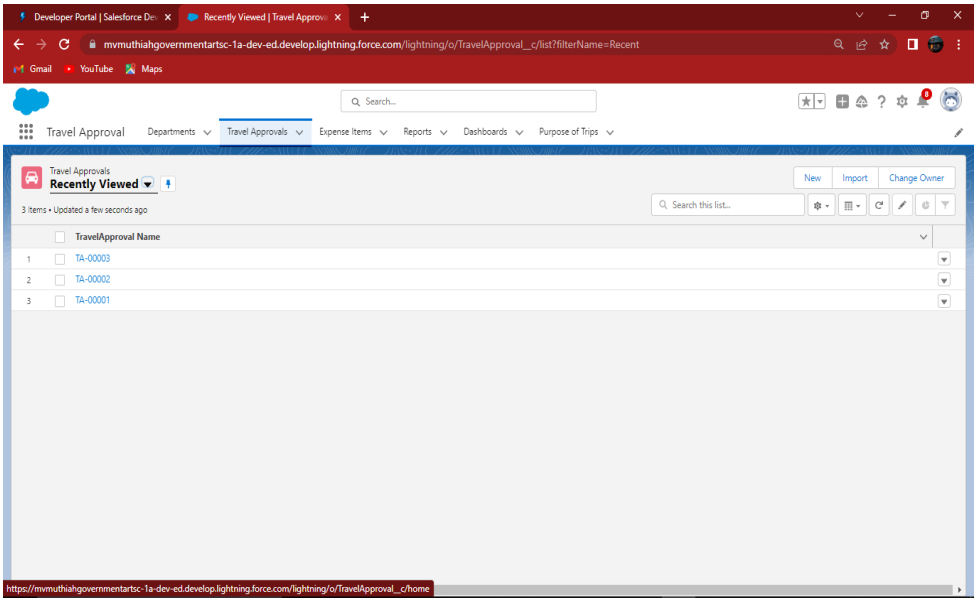
Add Report

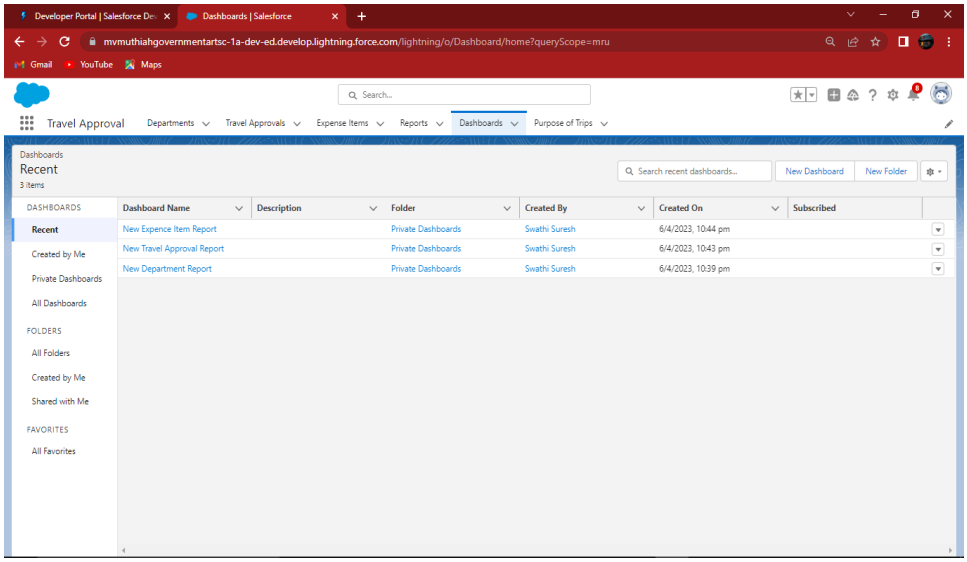
To create a report:

1. Go to the app → click on the reports tab.
2. Click New Report.
3. Select report type from category or from report type panel or from search panel → click on start report.
4. Customize the report, then save or run it.









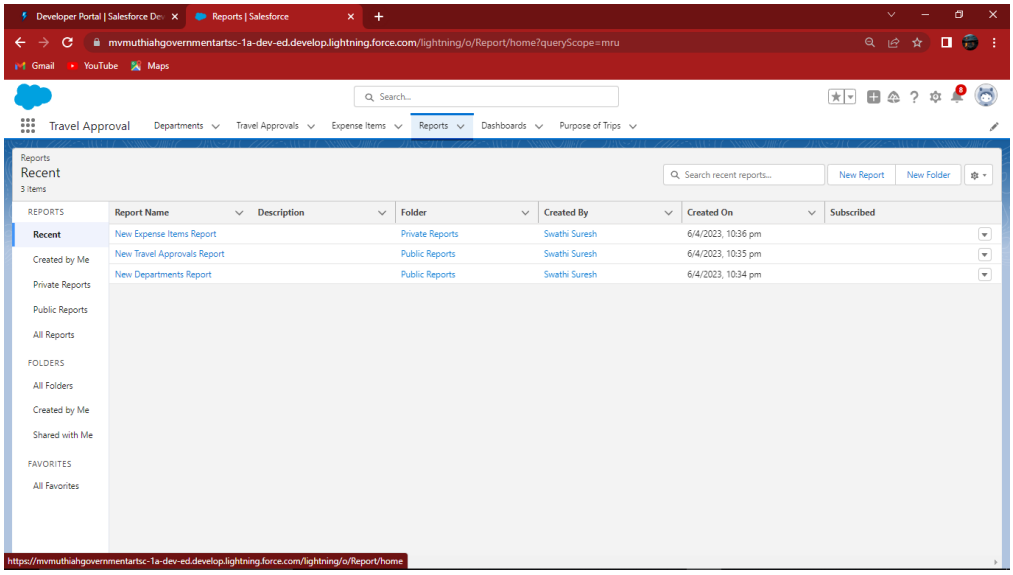
Milestone 11- Dashboards:

Dashboards **that curate data from reports using charts, tables, and metrics**. If the colleagues need more information, then they're able to view the dashboard's data-supplying reports. Dashboard filters make it easy for users to apply different data perspectives to a single dashboard.

Activity:

Create Travel Approvals Dashboard

1. Click on Dashboards tab from the travel approval application,click on new dashboard.
2. Give the dashboard a name and click on +component , select the report which created .
3. For the data visualization select any of the chart, table etc.



4 TRAILHEAD PROFILE PUBLIC URL

Team Lead: S. Swathi (20321ER027) - https://trailblazer.me/id/esuresh2

Team Member 1:D. Sivaranjani (20321ER024)

Team Member 2: M. Soundariya (20321ER025)

Team Member 3: M. Swathi (20321ER026)

5 ADVANTAGES AND DISADVANTAGES

Advantages

- ✓ Online travel sites still provide cost savings and convenience that makes the sometimes convoluted experience worth it.
- ✓ Travel application is one place to get every service regarding traveling.
- ✓ Easy Transaction.
- ✓ Easy to Spread Information
- ✓ Digital Customer, Digital Services.
- ✓ Constant Reminder.
- ✓ Recent travel apps and websites have completely changed the travelling experience of the traveler.
- ✓ By using these apps find best deals, booking trip and simply plan your travel with just a few click.
- ✓ Travel Apps Ease Payment Methods.
- ✓ Travel Apps Provide Easy of Booking.
- ✓ Developing a travel app that helps people plan delightful travel experiences and easily fulfill them can help you build a sustainable and highly profitable business model.
- ✓ Much like some of the most successful companies of our time have done.

Disadvantages

- o A recent survey found that 59 percent of respondents had travel issues caused by technology, from fluctuating prices to incorrect bookings
- o The biggest issue for many travelers was price.
- o Travel booking sites aggregate flight, lodging, and other costs in real time across countless airline carriers and hotels.
- o The apps and websites sometimes aren't the best, either.
- o Assuming always-on data connection.
- o Assuming high speed network access.
- o Poor data synchronization with the cloud.
- o Requesting too many permissions.

6 APPLICATIONS

- Booking system.
- In-app translation functionality.
- Travel itinerary generator.
- User ratings and trip reviews.
- Weather forecasting.
- Emergency services
- Most of the time is saved.
- Helps Better Plan Trip.

7 CONCLUSION

Travel applications simplify the management processing in traveling. Fast processing and immediate results with high security. Minimizing human efforts and cost efficient databases. Navigation through the site is easy.

8 FUTURE SCOPE

Technology is continuously evolving and will continue to do so in the coming era. The change in the technology is also impacting the industries like cosmetic industry, health industry, education, entertainment, the travel industry and many more.

Travel and tourism industry is no longer hidden and gone are the days when travelling the world was like an unknown step. It has transformed and technology has reinvented the different ways to explore travelling for you so that you will find places easily.Now travel agencies and physical booking are diminishing due to the travel mobile app.

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