Project Report On

Build An Employee Travel Approval Application For Corporates - (Developer)

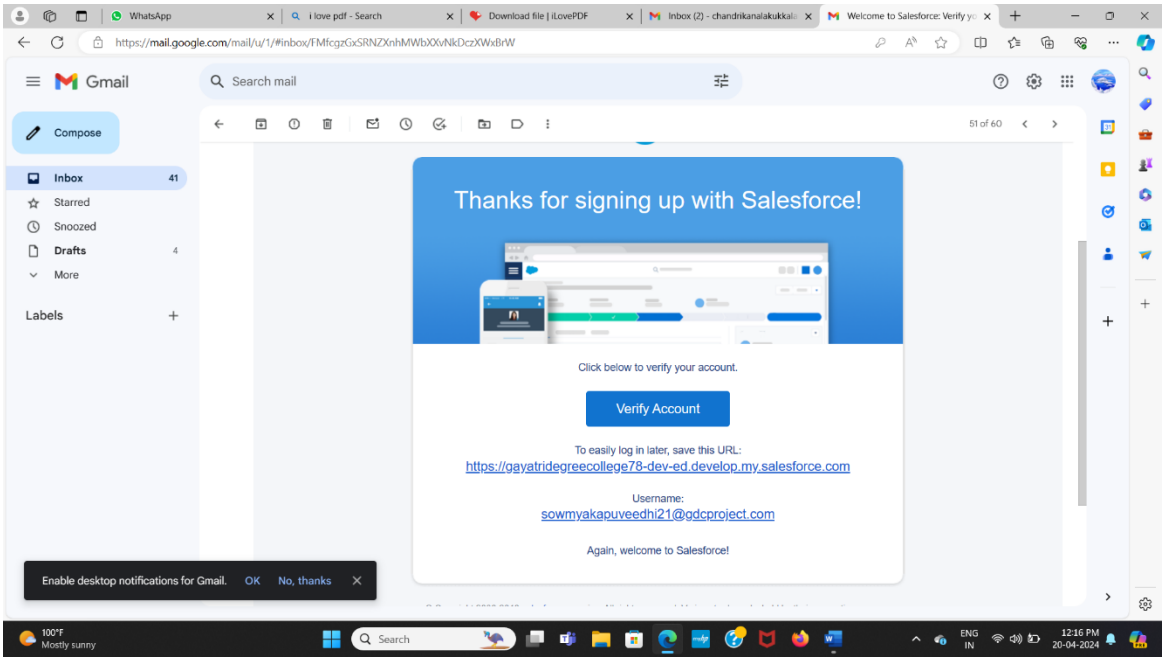
Milestone – 01 : Creating Developer Org

Go to developers.salesforce.com/
Click on sign up.
On the sign-up form, enter the following details:

1. *First name & Last name :* **Kathi & Chandana**
2. *Email :* **kathichandana07@gmail.com**
3. *Role:* **Developer**
4. *Company:* **GAYATRI DEGREE COLLEGE - TIRUPATHI**
5. *Country:* **India**
6. *Postal Code:* **517501**
7. *Username:* **kathichandana07 @gdcproject.com**

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.

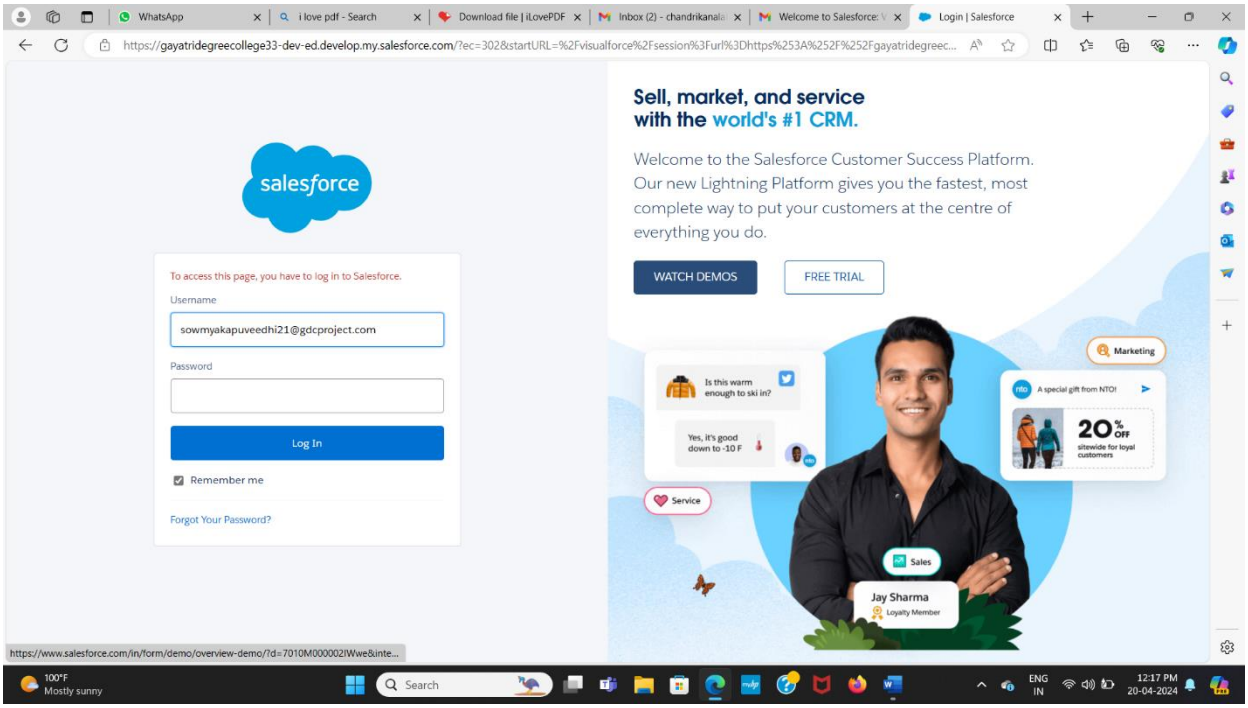


Login to your Salesforce Org

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

Salesforce Login:

https://login.salesforce.com



Milestone – 02 : Object In Salesforce

Creation Of Department Object For Travel Approval App

For this Travel Approval we need to create 5 objects ***Department, Employee Detail, Expense, Expense Items,*** *and* ***Travel Approval****. The below steps will assist you in creating those objects.*

Create Department Object:

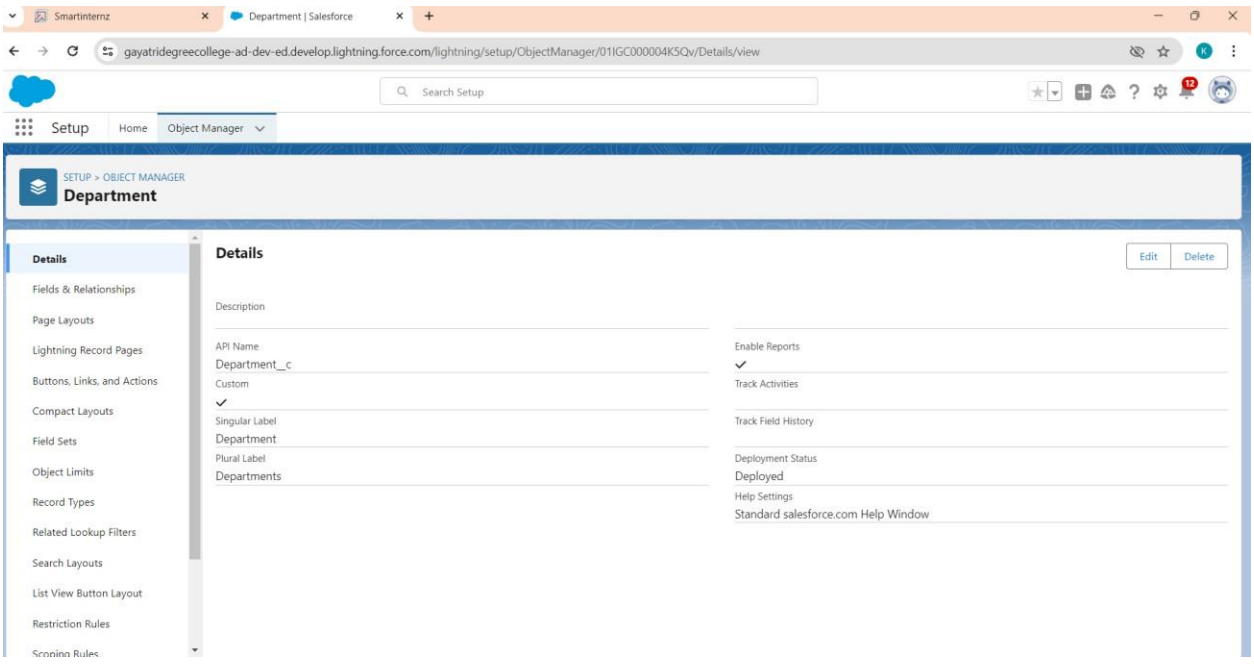
1. *Click on the gear icon and then select Setup.*
2. *Click on the object manager tab just beside the home tab.*
3. *After the above steps, have a look on the extreme right you will find a Create Dropdown* click on that and select Custom Object.
4. *On the Custom Object Definition page, create the object as follows:*
5. *Label:* ***Department***
6. *Plural Label:* ***Departments***
7. *Record Name:* ***Department Name***
8. *Check the Allow Reports checkbox*
9. *Check the Allow Search checkbox*
10. *Click Save.*

In the same way create 4 more objects ***Employee Detail, Expense, Expense Items****, and* ***Travel Approval***

Note –

1. While making Expense Object select data type "Auto Number" in "Enter Record Name Label and Format" section.

2. While making Employee Detail Object put "Employee Name" in "Enter Record Name Label and Format" section.



Milestone – 03 : What Is A 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:

(A) Standard Object Tabs: Standard object tabs display data related to standard objects

(B) Custom Object Tabs: Custom object tabs displays data related to custom objects.

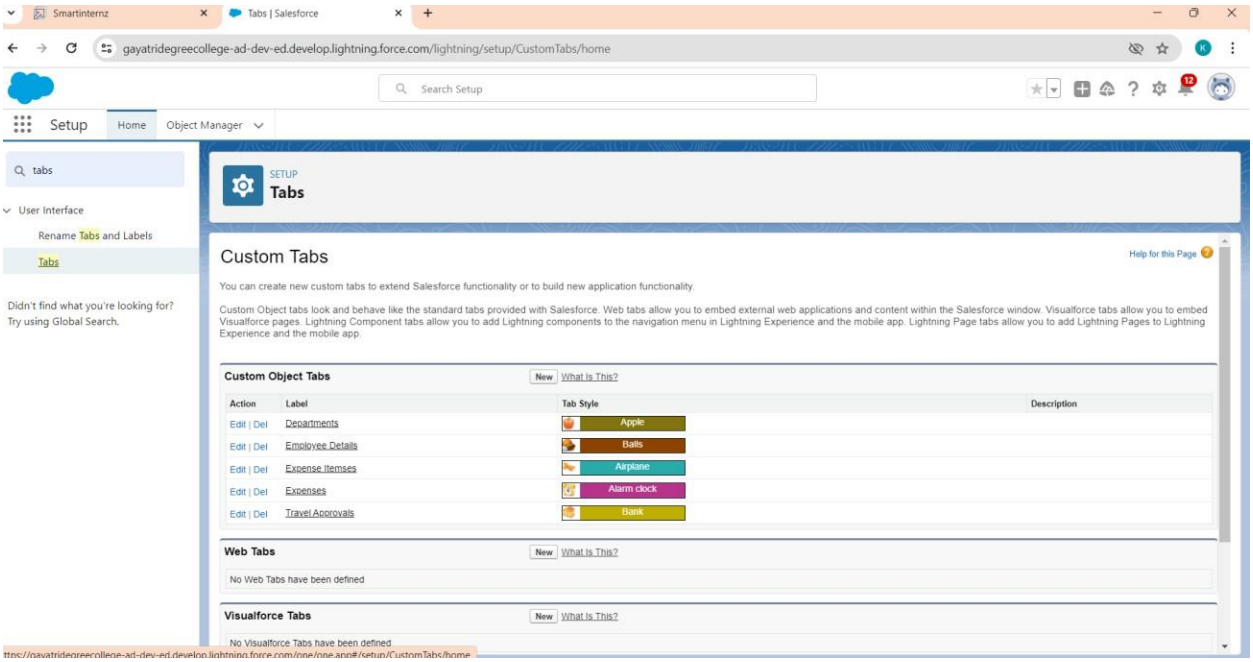
(C) Web Tabs: Web Tabs display any external Web-based application or Web page in Salesforce tabs.

(D) Visualforce Tabs: Visualforce Tabs display data from a Visualforce Page.

Custom Tab Creation

Now create a custom tab. Click the Home tab.

1. *Enter Tabs in Quick Find and select Tabs.*
2. *Under Custom Object Tabs, click New.*
3. *For Object, select **Department.***
4. *For Tab Style, select any icon.*
5. *Leave all defaults as is. Click Next, Next, and Save*
6. *In the same way create Tabs for all Custom Objects - **Employee Detail, Expense, Expense Items, Travel Approval.***



Milestone – 04 : Lightning App

Apps in Salesforce are a group of tabs that help the application function by working together as a unit. It has a name, a logo, and a particular set of tabs. The simplest app usually has just two tabs.
There are two types of apps -

1. Standard App: Standard apps come with every occurrence of Salesforce as default. Many features like Sales, Marketing, Community, call center, content, Salesforce Chatter, App Launcher, etc are present in it.
Note: The description, Logo, and Label of the standard app cannot be altered.

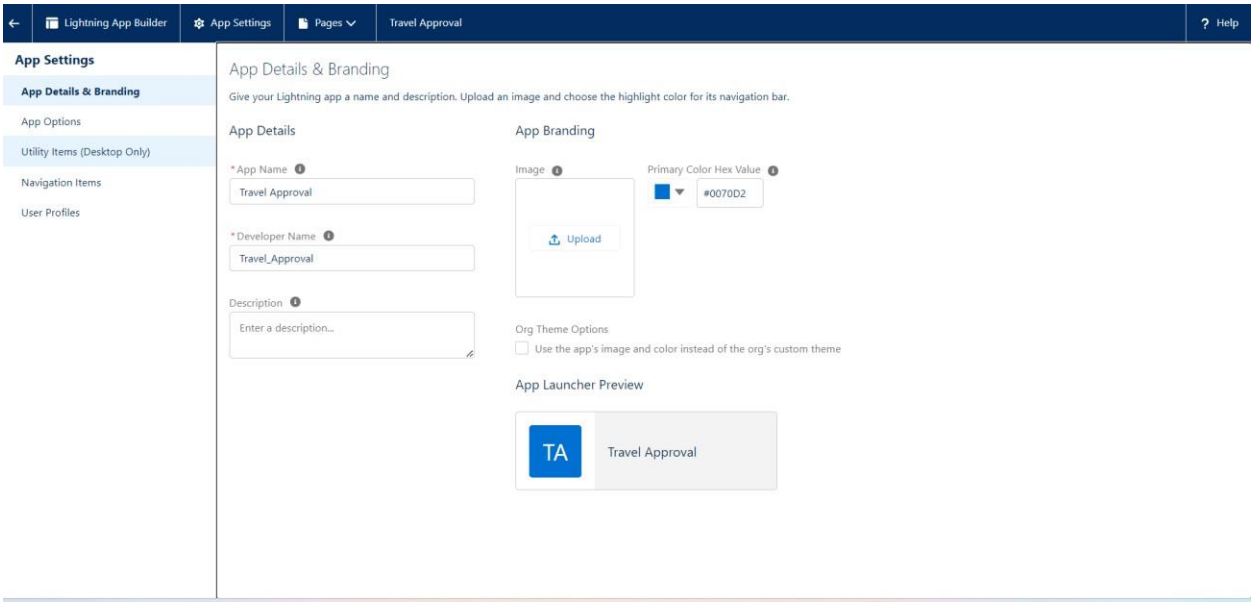
2. Custom Apps: Custom apps are created according to the needs of the user. Custom Apps are made by using standard and custom tabs together.

Note: Logos for Custom Apps can be changed.

Create Travel Approval App

Create the Travel Approval app

1. *From Setup, enter App Manager in the Quick Find and select App Manager.*
2. *Click New Lightning App.*
3. *Enter **Travel Approval** as the App Name, then click Next*
4. *Under App Options, leave the default selections and click Next.*
5. *Under Utility Items, leave as is and click Next.*
6. *From Available Items, select **Department, Employee Detail, Expense, Expense Items, Travel Approval, Reports, and Dashboards** and move them to Selected Items. Click Next.*
7. *From Available Profiles, select System Administrator and move it to Selected Profiles.Click Save & Finish.*



Milestone – 05 : Fields And Relationships

Fields - *Fields store data values that are required for a particular object in a record.*

An object relationship in Salesforce is a two-way association between two objects. Relationships are created by creating custom relationship fields on an object. This is done so that when users view records, they can also see and access related data.

Creation Of Fields For The Department Object:

Click the gear icon and select Setup. This launches Setup in a new tab.
2. Click the Object Manager tab next to Home.
*3. Select **Department***
4. Select Fields & Relationships from the left navigation
5. Click New
*6. Select the **Text** as the Data Type, click Next.*
*7. For Field Label, enter **Department Code** and enter 5 in Length.*
8. Click Next, Next, then Save & New.
9. Follow above steps and create two more Text type field - District & State.
10. Also, Provide Length 40 for both District and State field.
11. Create URL type field & give "School website" as the field label.

Now let's create the other fields and we must choose the data types of the fields carefully. Let's have a look at it.

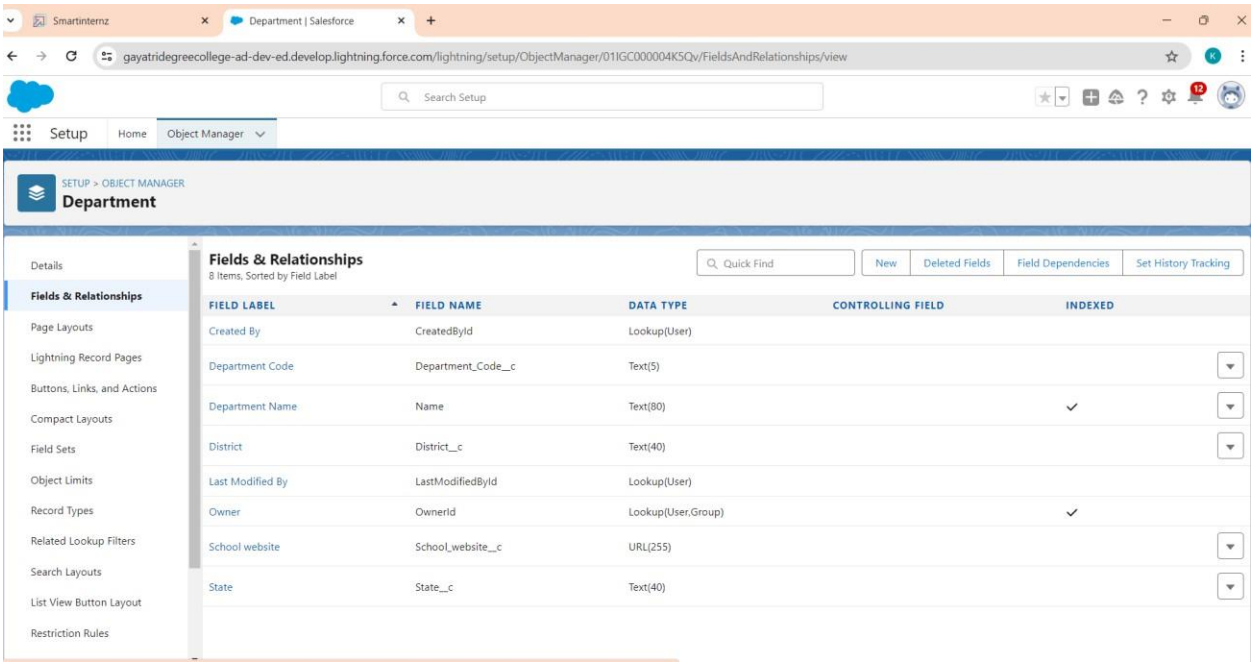
These are fields and their data types we need to create and make one by one –

NOTE- See activity 2, 3, 4 below to create a lookup field, Roll-up summary field & Picklist field

Object Name	*Field Name*	*Data Type*
1. Employee Detail-	*Date of Birth*	*Date*
	Gender	*Picklist (Male, Female)*
	Department	*Lookup (Department)(See activity 2 to create lookup)*
	Employee Id	*Text (Length - 12)*
2. Expense-	*Employee*	*Lookup (Employee Detail)*
	Total Item	*Rollup summary (Expense Item)*
3. Expense Item -	*Expense*	*Master Detail (Expense)*
	Expense Type	*Pick List (Values are- Transport, Hotel, Meal, Others)*
	Amount	*Currency*
4. Travel Approval-	*Employee Name*	*Lookup (Employee Detail)*
	Department	*Lookup (Department)*
	Destination state	*Text (Length – 40)*
	Purpose of trip	*Text (Length – 256)*
	Trip start date	*Date*

Trip End date *Date*
Status *Picklist (Values are- Approved, Rejected)*

NOTE- Make Trip Start Date and Trip End Date field required when making these field



Roll Up Summary Fields On Expense Object

Let's create Roll-up summary fields on Expense Object to calculate the expense

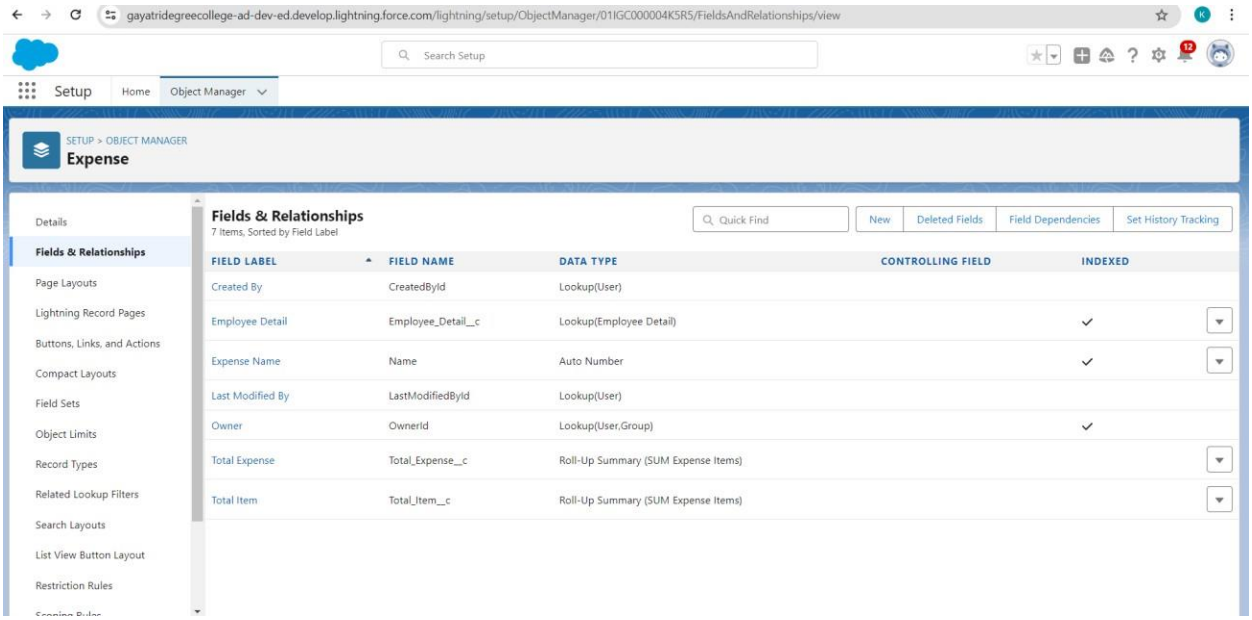
1. *Click the gear icon Select Setup, This launches Setup in a new tab.*
2. *click Object Manager*
3. *Select **Expense**.*
4. *Click Fields & Relationships*
5. *Click New.*

Select the Roll-up summary field as the data type
Enter the field label as Total Expense

Click Next

Then select the master object summarized as Expense items

Select Sum as roll-up and Field to aggregate Amount then click Next, Next and save.



Milestone – 06 : Import Departments

NOTE- *Before creating the application download this zip file from URL given below*

https://developer.salesforce.com/files/TravelAppWorkshopFiles.zip

Data Import lets you upload data from external sources and combine it with data you collect via Analytics. You can then use Analytics to organize and analyze all of your data in ways that better reflect your business.

The Data Import Wizard is a Tool that makes it easy to import data for many standard Salesforce objects, including accounts, contacts, leads, solutions, campaign members, and person accounts. You can also import data for custom objects.

In order to complete this milestone, you need to create a CSV file and give them the data given in the picture below. After that from these CSV files we will import data for Department & Travel Approval (Custom Object)

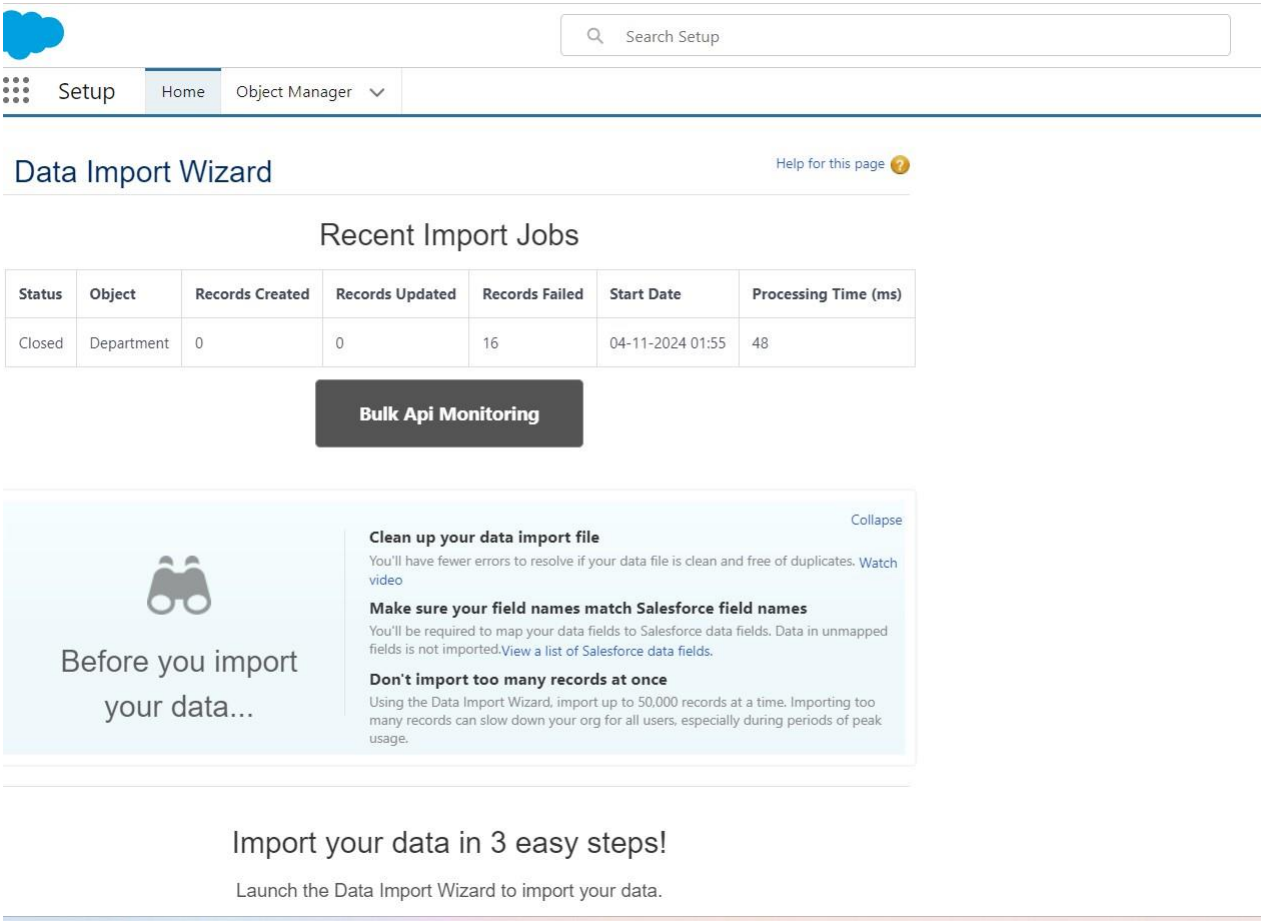
1. CSV file Name- Department_CSV

	A	B
1	Department Name	Department code
2	Office of Communications and Media	O001
3	Disability Determination Bureau	D001
4	Division of Disability and Rehabilitative Services	D002
5	Technology	T001

Data Import

From Setup, click the Home tab.
*1) In the Quick Find box, enter Data Import and select **Data Import Wizard**.*
*2) Click **Launch Wizard**!*
3) Click the Custom Objects tab and select the Departments object.
4) Select Add new records.
5) Click CSV and choose file Department_CSV which we made earlier. Click Next.
6) Since the field names in the CSV file (CSV Header) are the same as the field names in your object (Mapped Salesforce Object), the fields are automatically mapped. Click Next.

The next screen gives you a summary of your data import. Click Start Import.
Click OK on the popup.



Milestone – 07 : Users

A user is anyone who logs into Salesforce.

Users are employees at your company, such as sales reps, managers, and IT specialists, who need access to the company's records. Every user in Salesforce has a user account.

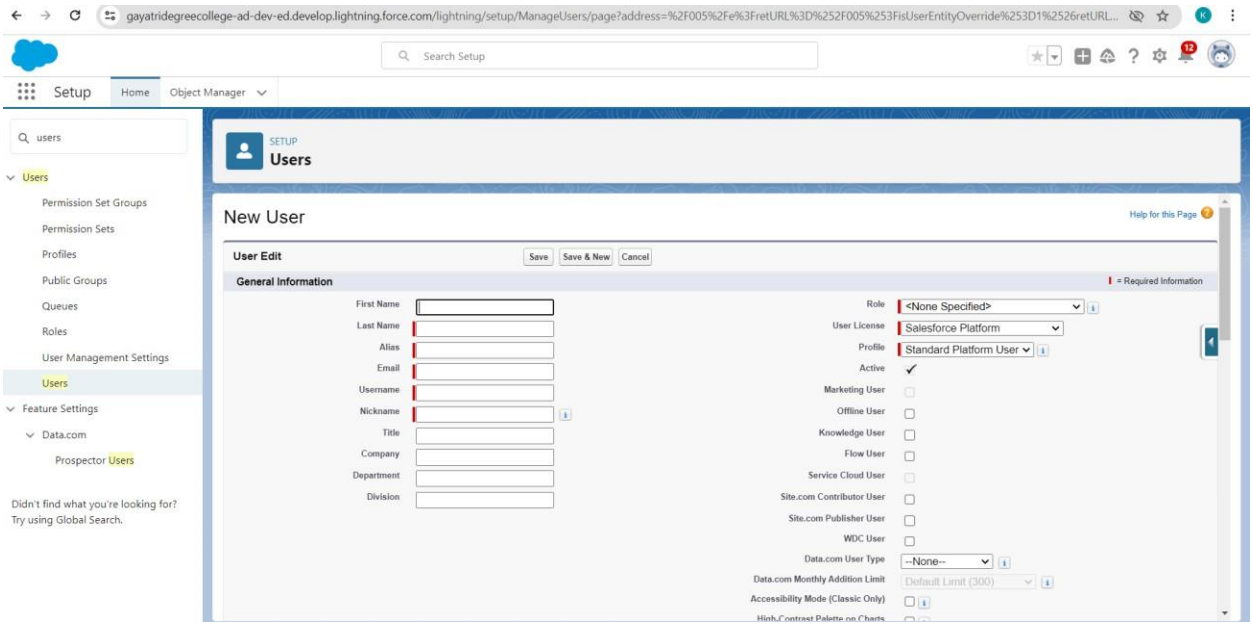
Creating A User In Salesforce

1. *From Setup, in the Quick Find box, enter **Users.***
2. *Select **Users.***
3. *Click New User.*
4. *Enter the First Name Travel Approval and Last Name manager and (Your) email address and*

a unique username in the
form of an email address. By default, the username is the same as the email address.
5. Select a User License as Salesforce.

***NOTE**- In the Developer edition Salesforce license can only be used by 2 Users at a time in Dev Org, If you don't find Salesforce*
license then deactivate a user who has Salesforce license Or change the license type from Salesforce to any other.

6. Select a profile as Standard user.
7. Check Generate new password and notify the user immediately to have the user's login name and a temporary password
emailed to your email.



Milestone – 08 : Use Customization

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

Customize Travel Approval Object Page Layout

*From the Object Manager, search for the **Travel approval object***

*2. click **on page layouts** and click Travel Approval Layout*

3. Drag the Section from the top pane to the lower pane directly below the Information section. When dragging over the page, you get a visual indicator of where you can drop the new section.

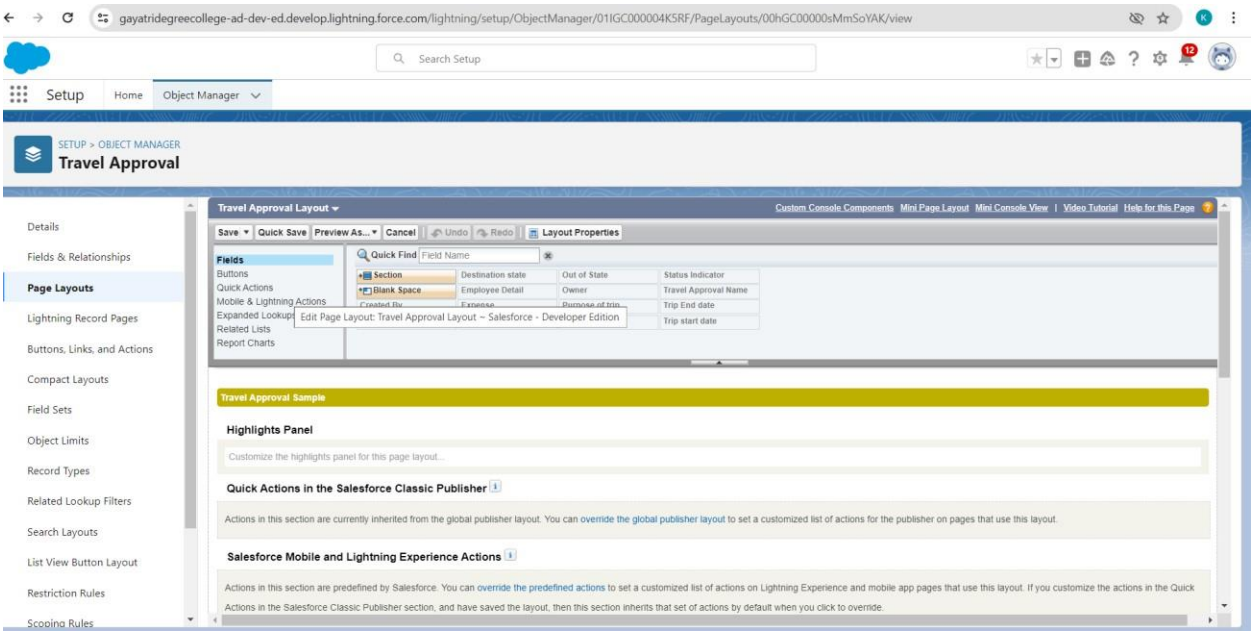
4. Name the section Trip Info, leave the rest of the settings at their default values, and

5. Then click on OK.

6. Drag Trip Start Date and Trip End Date, Status from the top pane into the left-hand column of the Trip Info section.

7. Drag the Destination State and Purpose of a trip from, department the top pane into the right-hand column of the Trip Info section.

8. Click Save.



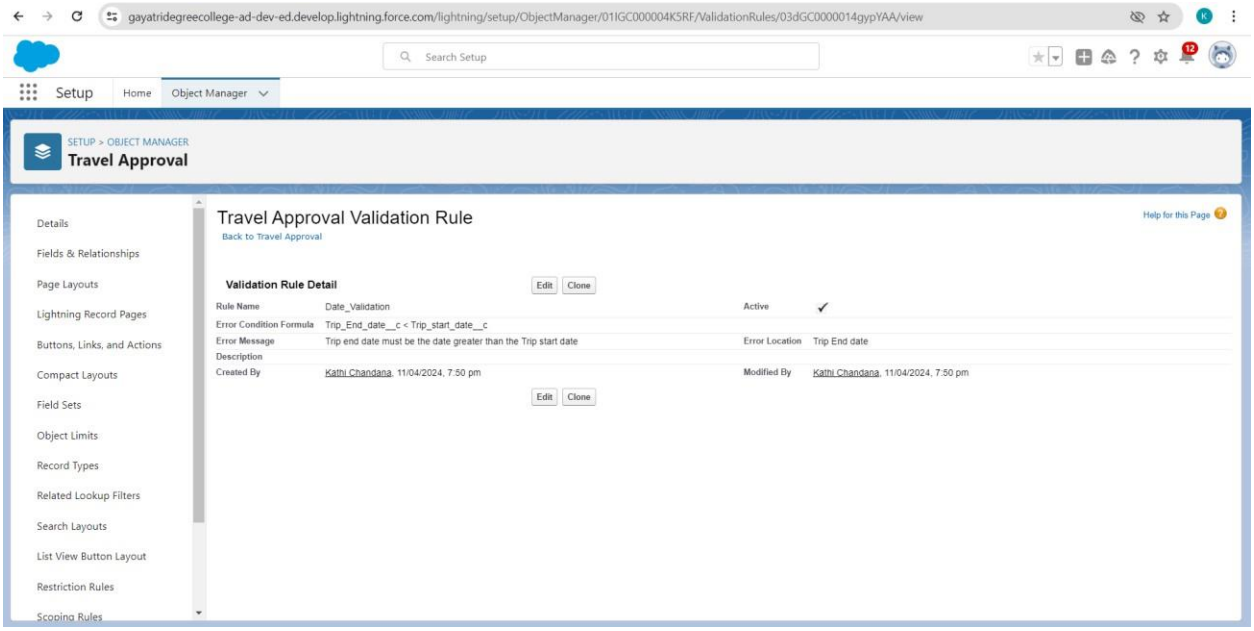
Milestone – 09 : Add Business Logic To Travel App

Validation Rule - *It can contain a formula or expression that evaluates the data in one or more fields & returns a value of true or false. Validation Rules also include an error message to display to the user when the rule returns a value true due to an invalid value/data.*

Create Validation Rule

Search for the travel approval object from the object manager and open the object.
*1) Click on **validation rules** and click new on the left corner*
2) Give your rule name Date _Validation 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
NOTE- Make sure that there is no syntax error after you input this error condition

Give the Error message – "Trip end date must be the date greater than the Trip start date" &
For error location select the field and pick the Trip end date as the location for error.
Click save



Create Formulae Fields

Create Formula Fields
1) First, we need to upload a zip file to your Salesforce environment that contains all the images we use. You should have 2)a file titled StatusImages.zip.
3) Click the setup
4) Click Static Resources in Quick Find & Click New.
5) Enter the following values for your static resource

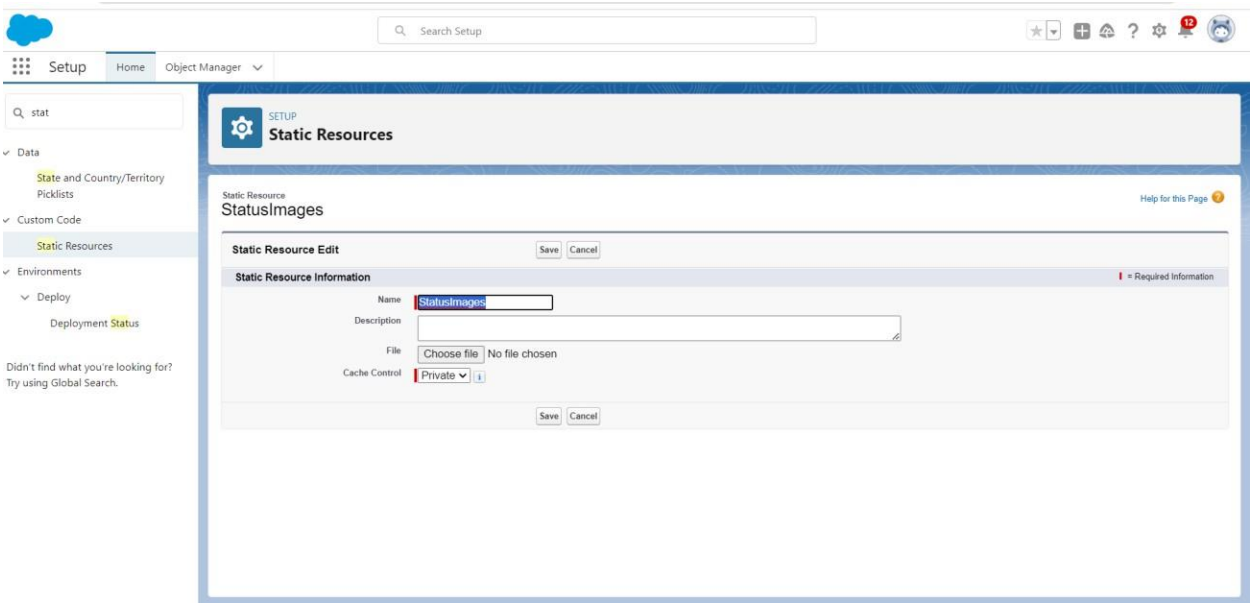
Parameter	*Value*
Name	*StatusImages*
File	*StatusImages.zip*
Cache-Control	*Private*

Now select the travel approval object.
Select Fields & Relationships, Click New
Select Formula data type, and Click Next.
Enter the following values:
Field Label: Status Indicator
Field Name: Status_Indicator (This automatically gets sent when you tab out of the Field Label field)
Formula Return Type: Tex

Click next & Copy and paste the following formula into the formula editor.

IF(ISPICKVAL(Status c c, 'Approved'), IMAGE("/resource/StatusImages/thumbs-up.png", "Accepted", 20, 20),
IF (ISPICKVAL(Status c c, 'Rejected'), IMAGE("/resource/StatusImages/thumbs-down.png", "Rejected", 20, 20), IMAGE("/resource/StatusImages/draft.png", "In-Process", 20, 20)))

Click Next, Next, Save.

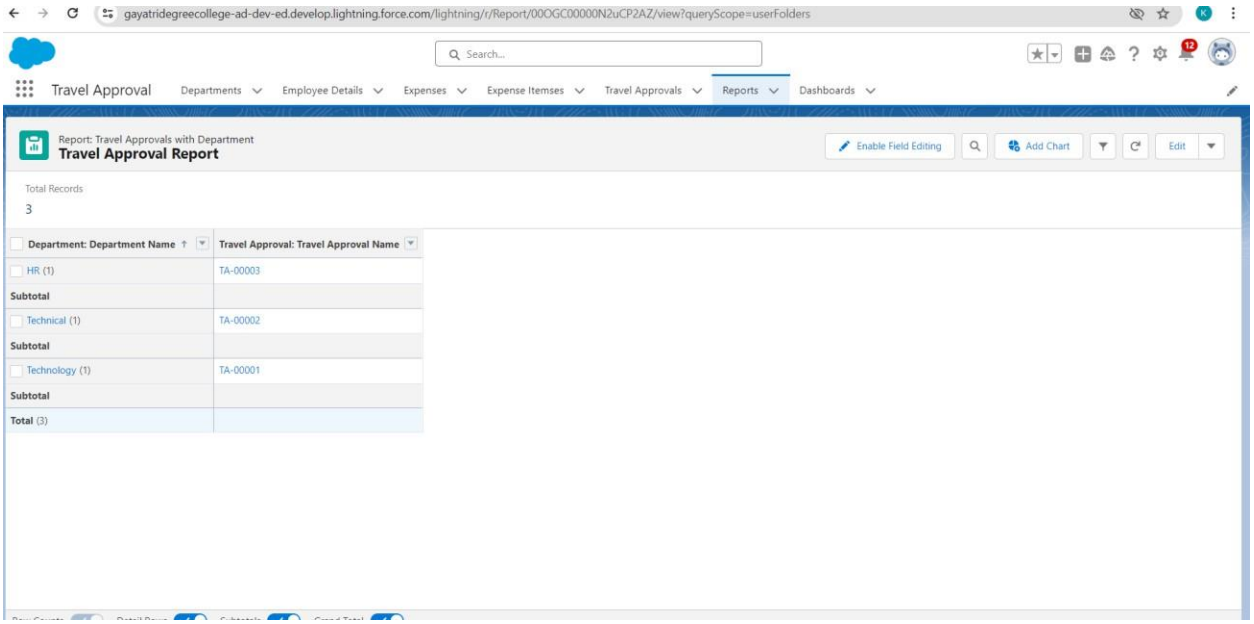


Milestone – 10 : User Adoption - Create Record

Create Record

Click App Launcher and select Travel Approval App

*1) Click **reports tab***
2) Click New Report.
3) Click the report type as Travel approval with Departments Click Start report.
4) Customize your report, in group rows select - Department Name
5) Click refresh
6) Click save and run
*7) Give report name – **Travel Approval Report***
8) Click Save



Milestone – 11 : What Are 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 report types:

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.

Note: Standard report types always have inner joins.

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.

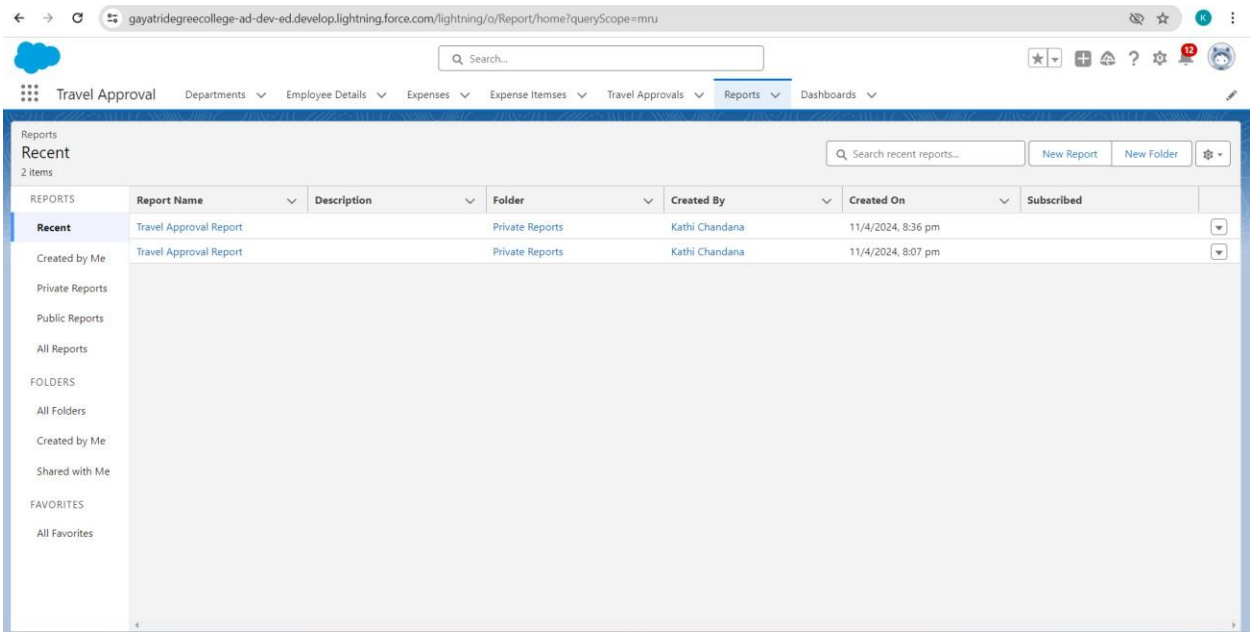
3. *Manager:*

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

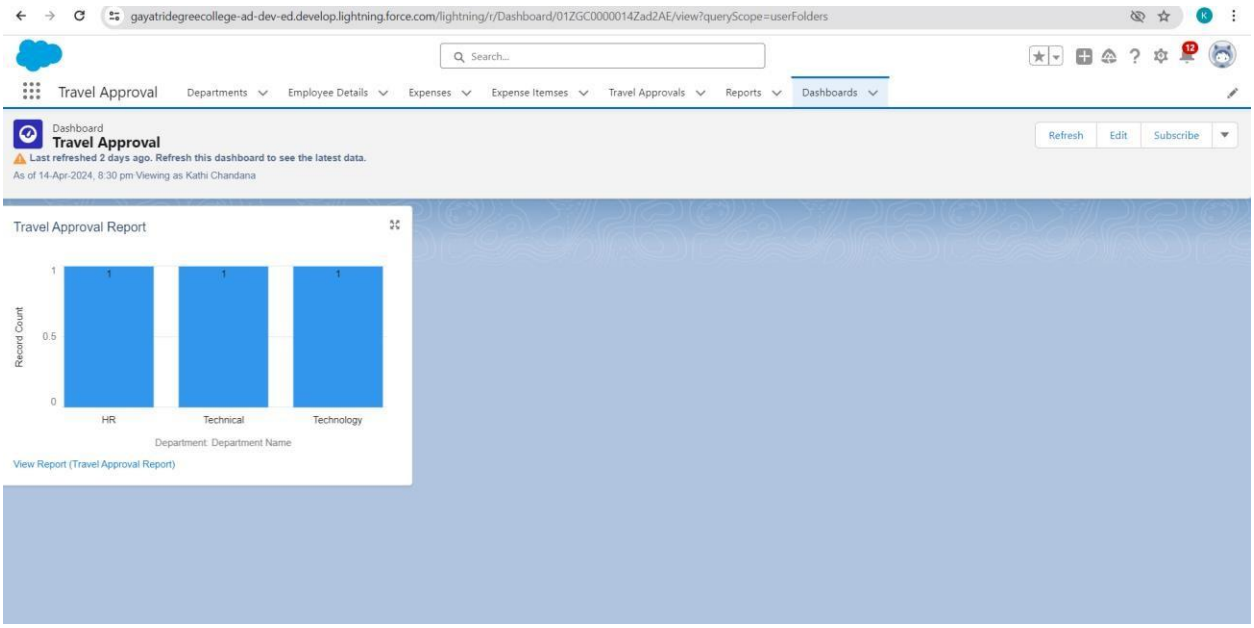
Create Report

1. *Click App Launcher and select **Travel Approval App***
2. *Click reports tab*
3. *Click New Report.*
4. *Click the report type as Travel Approval with Departments Click Start Report.*
5. *Customize your report, in group rows select - Department Name*
6. *Click Refresh*
7. *Click save and run*
8. *Give report name – **Travel Approval Report***
9. *Click Save*



Milestone – 12 : Create Dashboard

Click on the Dashboards tab from the travel approval application,
Click on a new dashboard
Give name- Travel Approval
Click Create
Give your dashboard a name and click on +component,
select the Travel Approval Report that you created.
For the data visualization select any of the chart, table etc as your wish.
Click add
Click save.



Milestone – 12 : Flows

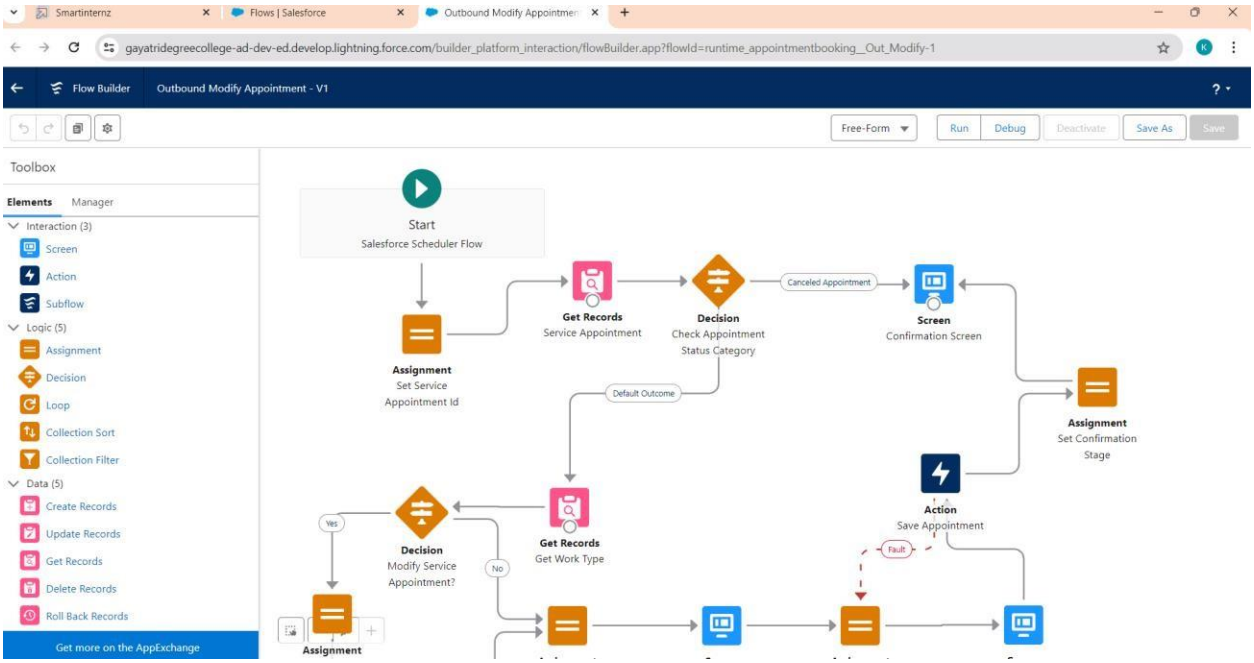
Create A Flow

Now, create a flow that uses the update record node to set the out-of-state flag.

1. From Setup, click the Home tab.
2. Select Process Automation | Flows (or use the Quick Find and search for flows

Click New Flow.
4. Select Record-Triggered Flow then click Create.
5. Enter these values:

Click Done.

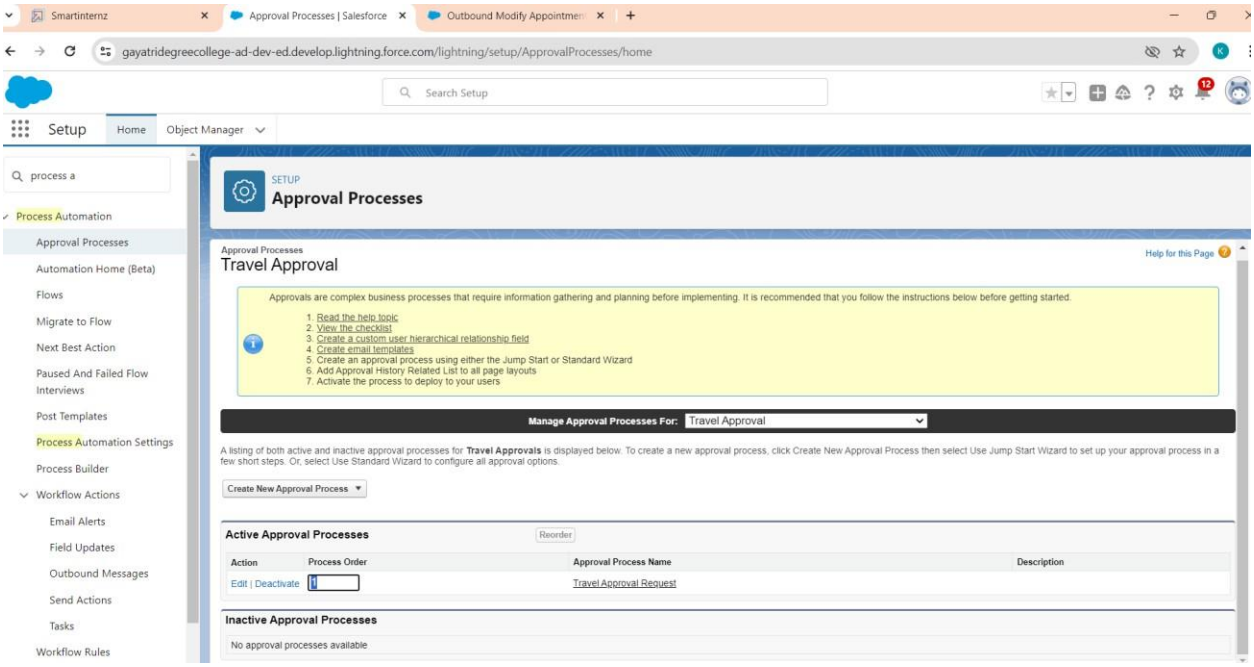


Milestone – 13 : Approval Process

Create A Approval Process

Let's get started.

1. Click and select Setup.
2. Select Process Automation | Approval Processes (or use the Quick Find and search for Approval Processes).
3. Click Next.
4. Ensure Enter this step if the following is selected and the criteria are met option is selected.
5. Enter the following formula criteria
Field: Travel Approval: Out-of-State
Operator: equals
Value: True
6. Click Next.
7. Select the Automatically assign to the approver(s) option.
8. Select User from the dropdown and select your name as the travel coordinator. NOTE: In the real world, a user would not be selected as an approver of their own request. Salesforce demo orgs are limited to two Salesforce users. For this project, just use your user account for the travel coordinator.
9. Click Save.
10. Select No, I'll do this later. Take me to the approval process detail page to review what I've created and then click Go!



Test Your Approval Process

Time to Test
Now that you've created your approval process, let's test it out.

1. Using the App Launcher, navigate to the Travel App and click the Travel Approvals tab..
2. Select a record from the list. Make sure this is a travel approval record that has at least one expense item and a total expense amount greater than $0.

3. Click the down arrow next to the New Opportunity button and select Submit for Approval..
4. Enter a comment and click Submit.
5. You should receive an email alert like the following that lets Eric Executive know that he has a travel approval to process. Notice that it provides a link to directly access the Travel Approval record so that Eric could review it. Also, the email includes the option to just respond to the email and reply with text like APPROVE, YES, REJECT, NO.

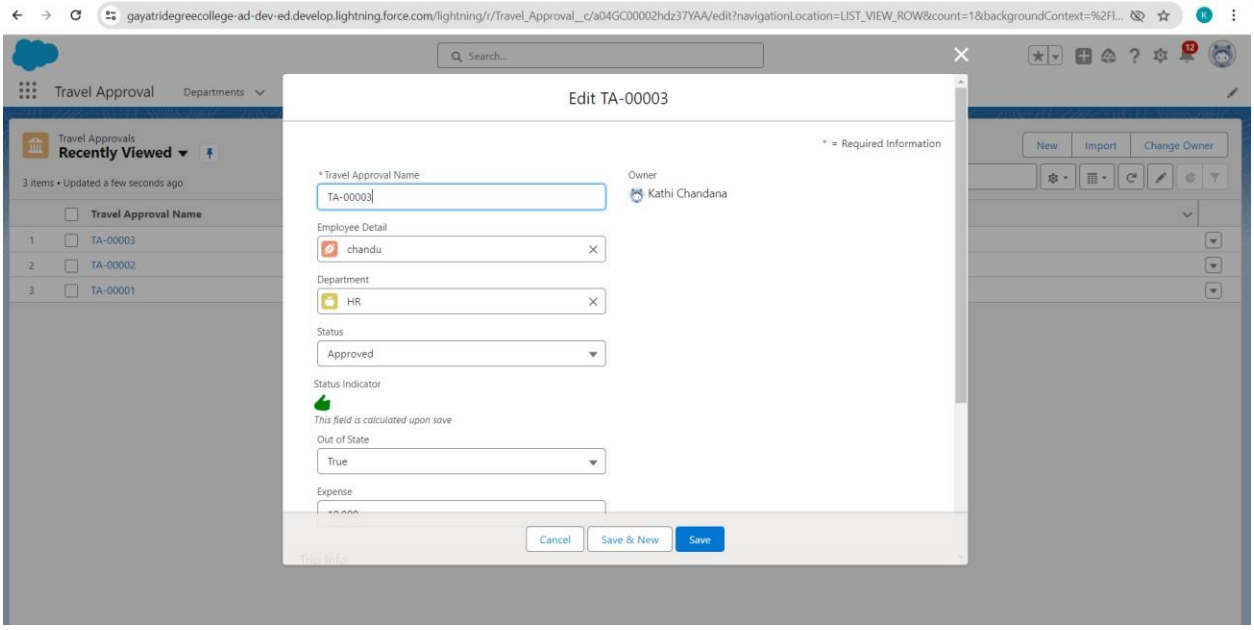
6. On your Travel Approval record, click the Related tab and you can see the new section titled Approval History that has details of your approval submission. Its status is Pending and it's assigned to Eric Executive.
7. At this point you could log out of Salesforce and log back in as Eric Executive. You can find this travel approval record (or click the link in the email) and see the same view as above. Since you are a System Administrator, you have the authority to approve any requests even if they are pending on other users.

8. Click Approve in the Approval History section.
9. In the popup window, enter a comment and click the Approve button once again.

10. Since this was for out-of-town travel, the approval was sent to the Travel Coordinator (remember, this is the logic we defined for the Approval Process). The approval is actually pending on yourself since you are acting as the travel coordinator (obviously, this wouldn't be the case in a real-world implementation).
11. Click Approve in the Approval History section to finish the approval.
12. Enter a comment in the popup window and click Approve.
13. The Approval History section should now look like the following:
14. Click the Details tab for your travel approval record. You should also notice the status value has been updated to Approved and the Status Indicator field now shows a green thumbs-up icon.

15. Pick or create another travel request record and submit it for approval. Check your email and respond to the email with Reject. Navigate back to this travel approval record (or just click the link in the email). You should get the status value of Rejected and a red thumbs-down icon. Congratulations! You have added automation to your application using point and click tools such as:

- *Validations Rules*
- *Formula Fields*
- *Roll-Up Summary Fields*
- *Flow Builder*
- *Approval Processes*



THE END