A CRM Application For Public Transport Management

Introduction: -

The Public Transport (RTC - Regional Transport corporation) Management System is a comprehensive Salesforce application designed to streamline and manage various operational aspects of the Public Transport. This system will enable the Transport department to efficiently maintain details of employees, their roles, bus stations, buses, ticket fares, daily bus trips, passenger counts, and the total ticket fare amount. By leveraging Salesforce's robust platform, the Transport Department can improve operational efficiency, data accuracy, and reporting capabilities.

Project Overview:

This project is to Consolidate all Transport-related data into a single Salesforce application to ensure easy access, management, and reporting. Enable real-time insights and reports on various operational metrics such as passenger count and revenue. Maintain detailed records of all Transport employees, including personal details, contact information. Define and assign roles and responsibilities to each employee. Schedule and manage employee shifts, especially for drivers and conductors. Maintain information on all bus stations, including location, facilities. Maintain detailed records of all buses, including model, capacity. Manage bus schedules and assign buses to specific routes and trips. Define and manage ticket fares for different routes and bus types. Track daily trips for each bus, including start and end times, routes, and driver details. Record the number of passengers on each trip. Calculate and track the total ticket fare amount collected from each trip. Provide real-time dashboards for quick insights into key metrics such as passenger count, trip efficiency, and revenue.

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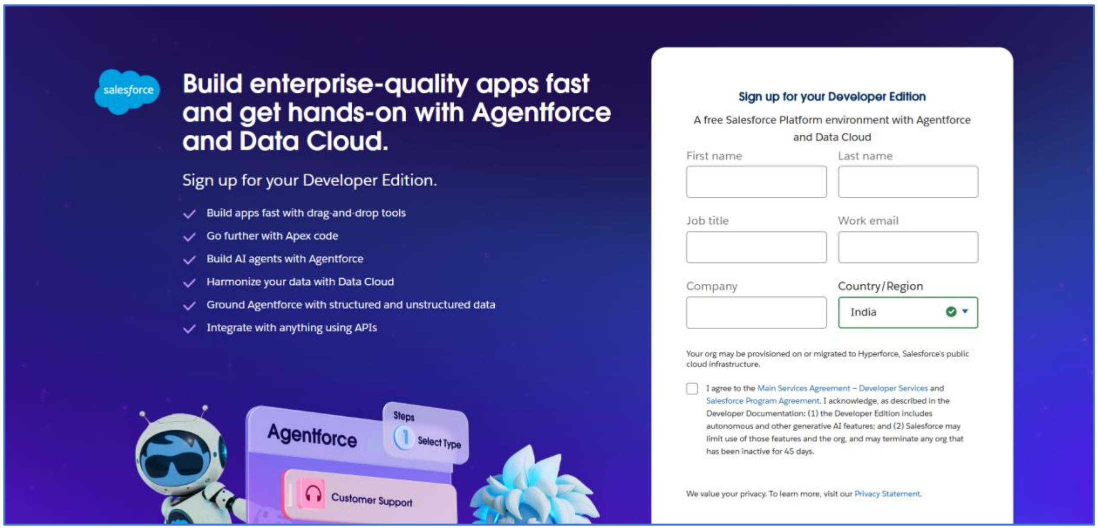
Milestone 1
Salesforce

Activity 1: Creating Developer Account

Creating a developer org in Salesforce

1. Go to https://developer.salesforce.com/signup
2. On the sign up form, enter the following details :



1. First name – Rajitha
2. Last name - S
3. Email – rajithareddy91455@gmail.com
4. Role : Developer
5. Company : Gayatri Degree College Tirupati
6. County : India

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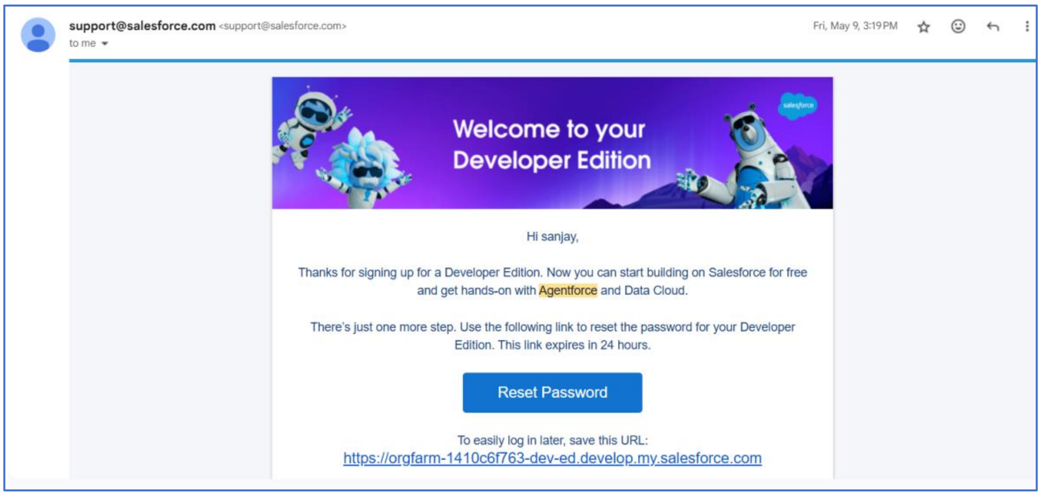
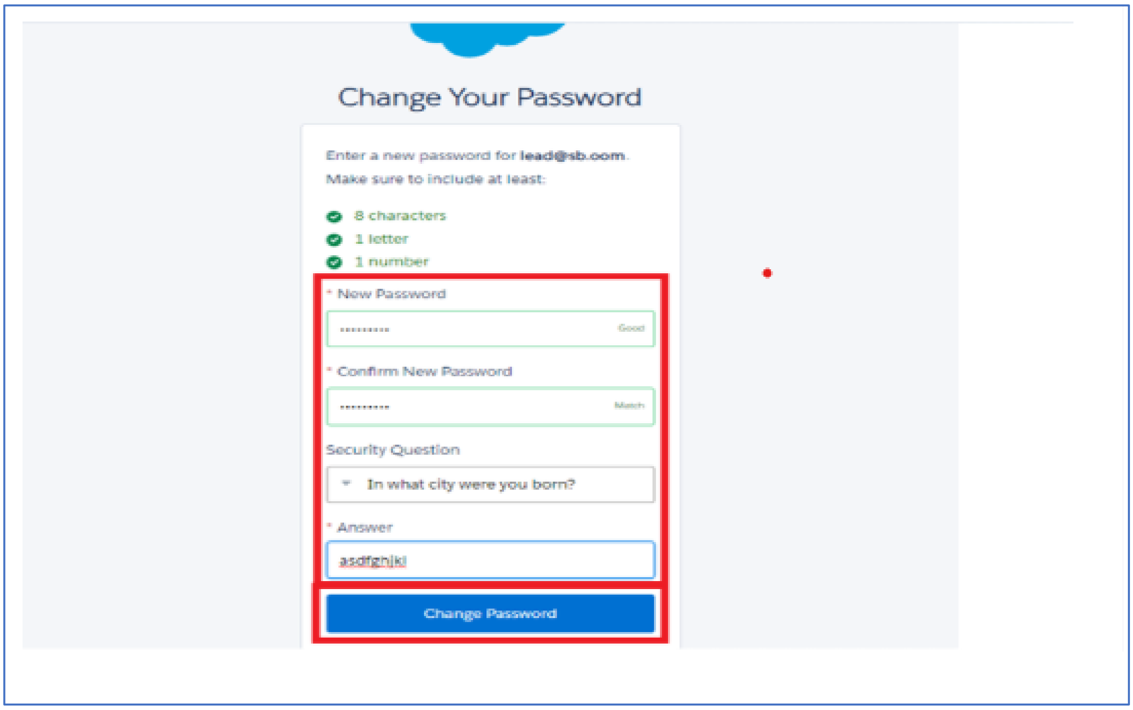
Activity 2: Account Activation

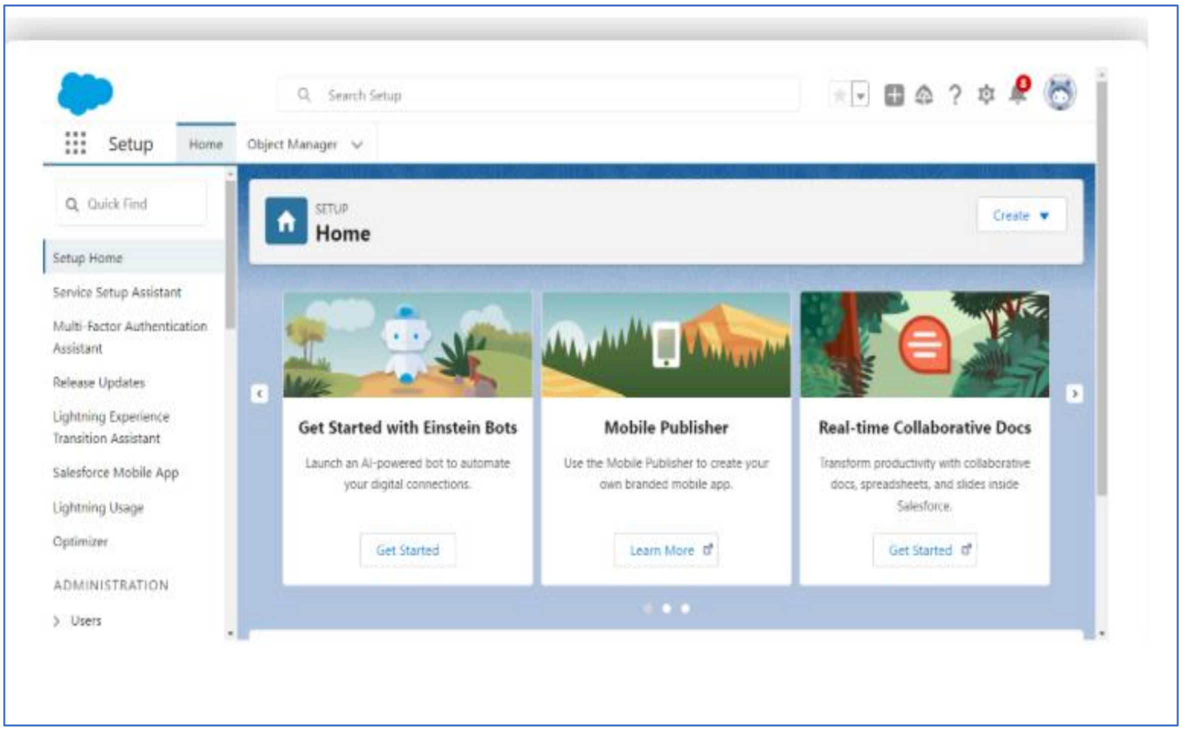
1. Go to the inbox of the email that you used while signing up. Click on the verify account to activate your account. The email may take 5-10mins.



2. Click on Verify Account
3. Give a password and answer a security question and click on change password.



4. Then you will redirect to your Salesforce setup page.


Search Setup
Setup
Home
Object Manager
Quick Find
Setup Home
Service Setup Assistant
Multi-Factor Authentication Assistant
Release Updates
Lightning Experience Transition Assistant
Salesforce Mobile App
Lightning Usage
Optimizer
ADMINISTRATION
Users
SETUP
Home
Create
Get Started with Einstein Bots
Launch an AI-powered bot to automate your digital connections.
Get Started
Mobile Publisher
Use the Mobile Publisher to create your own branded mobile app.
Learn More
Real-time Collaborative Docs
Transform productivity with collaborative docs, spreadsheets, and slides inside Salesforce.
Get Started

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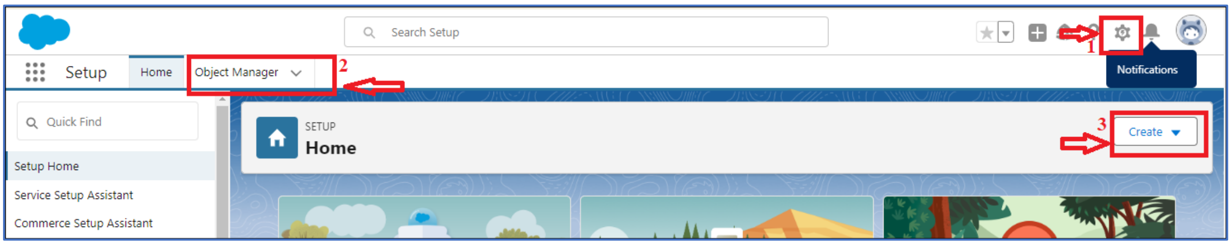
Milestone 2
Objects

Activity 1: Creating a Bus Station Object

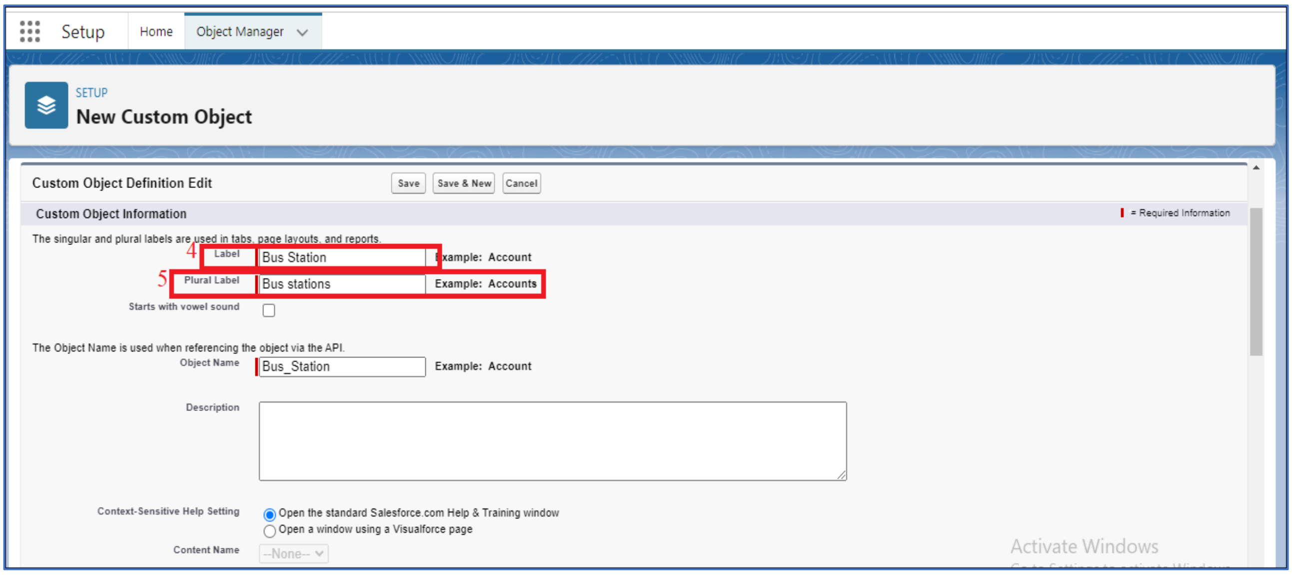
The purpose of creating a Bus Station custom object is to store and manage information about Bus Stops.

To create an object:

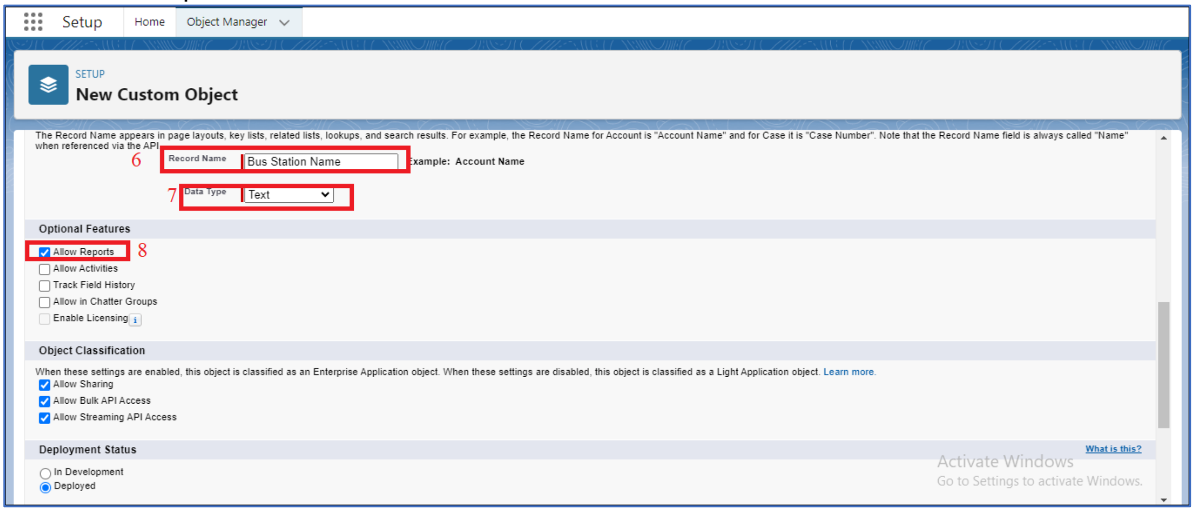
1. From the setup page
2. Click on Object Manager
3. Click on Create >> Click on Custom Object.



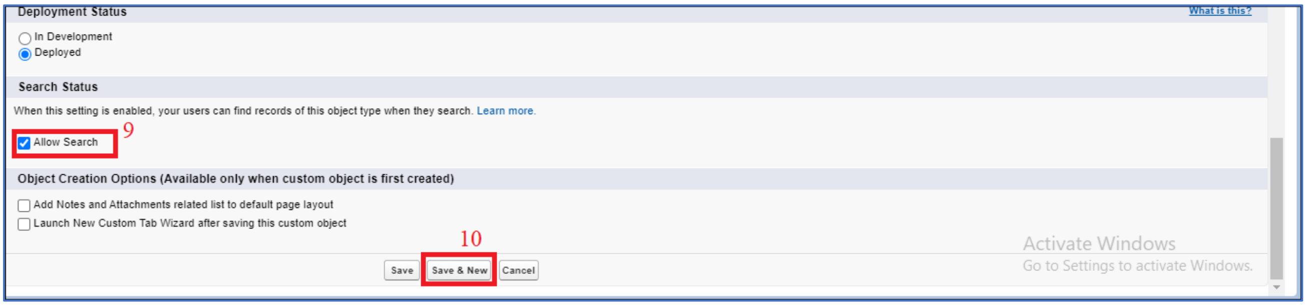
4. Enter the label name as Bus Station
5. Enter Plural label name as Bus Stations
6. Enter Record Name as Bus Station Name



7. Select Data Type as Text.
8. Select Allow reports.



9. Select Allow search.
10. Click on Save and New

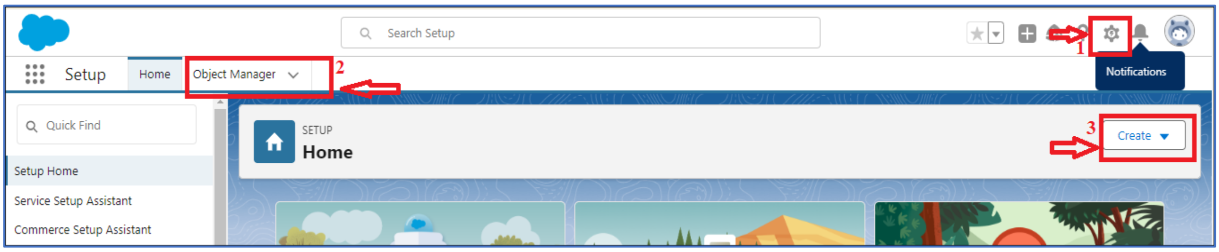


In the same way Create Bus, Trip, Ticket Fare and Employee objects.

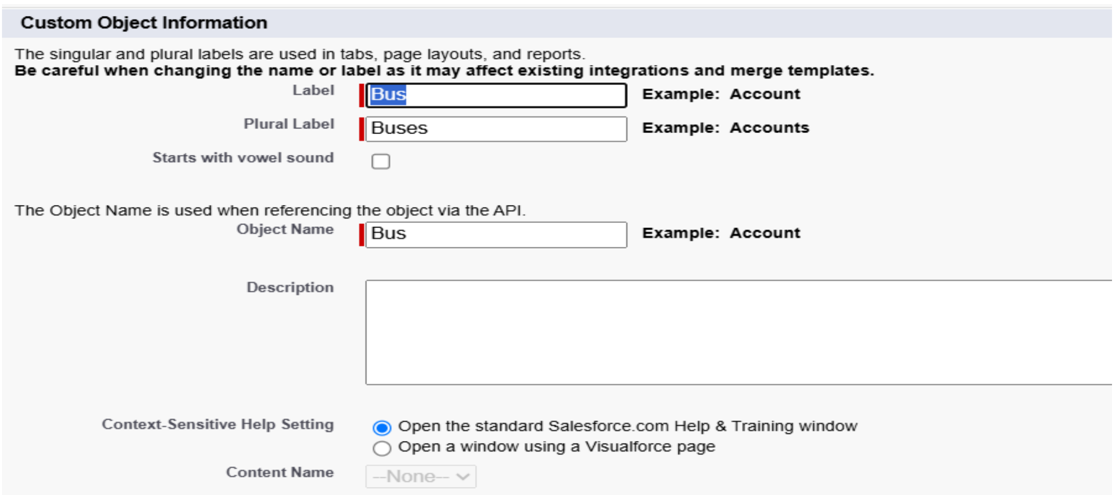
Activity 2: Creating a Bus Object

The purpose of creating a Bus custom object is to store and manage information about Bus Stops. To create an object:

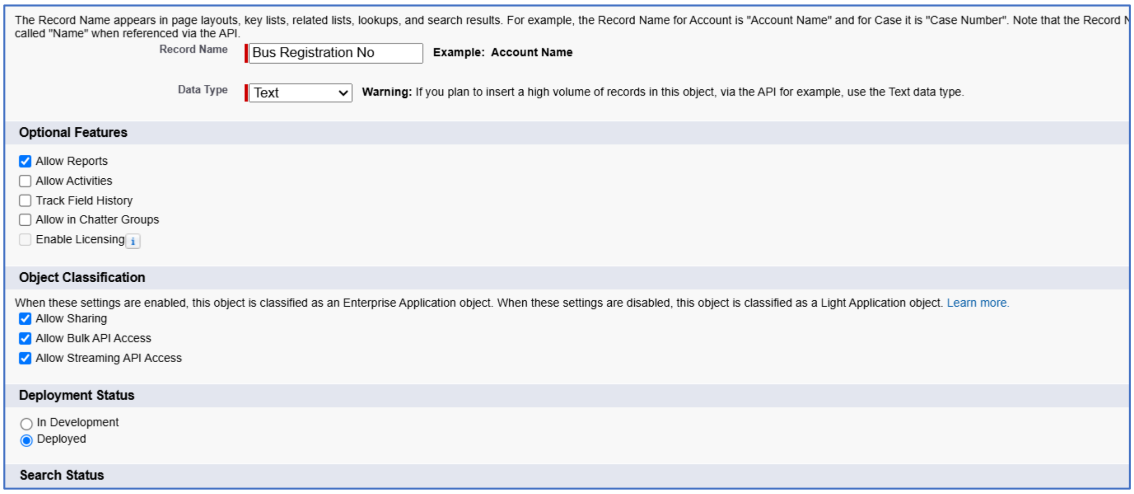
1. From the setup page
2. Click on Object Manager
3. Click on Create >> Click on Custom Object.



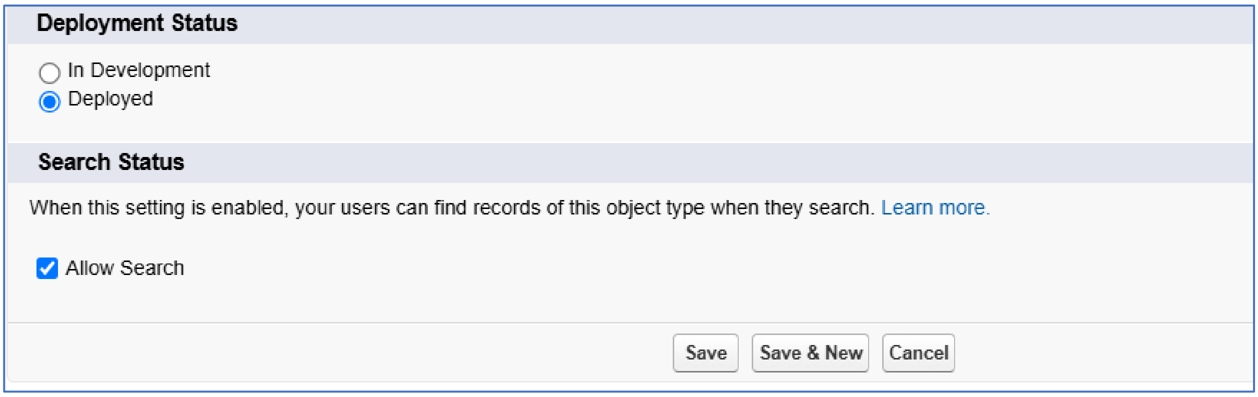
4. Enter the label name as Bus
5. Enter Plural label name as Buses
6. Enter Record Name as Bus Registration Number



7. Select Data Type as Text.
8. Select Allow reports.



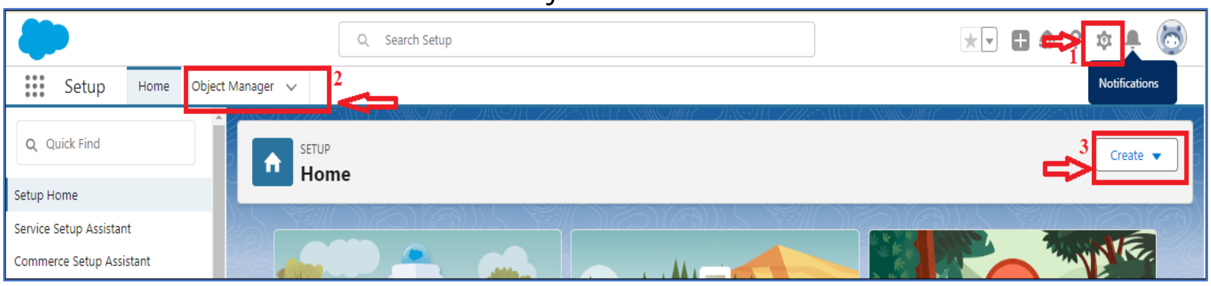
9. Select Allow search.
10. Click on Save and New



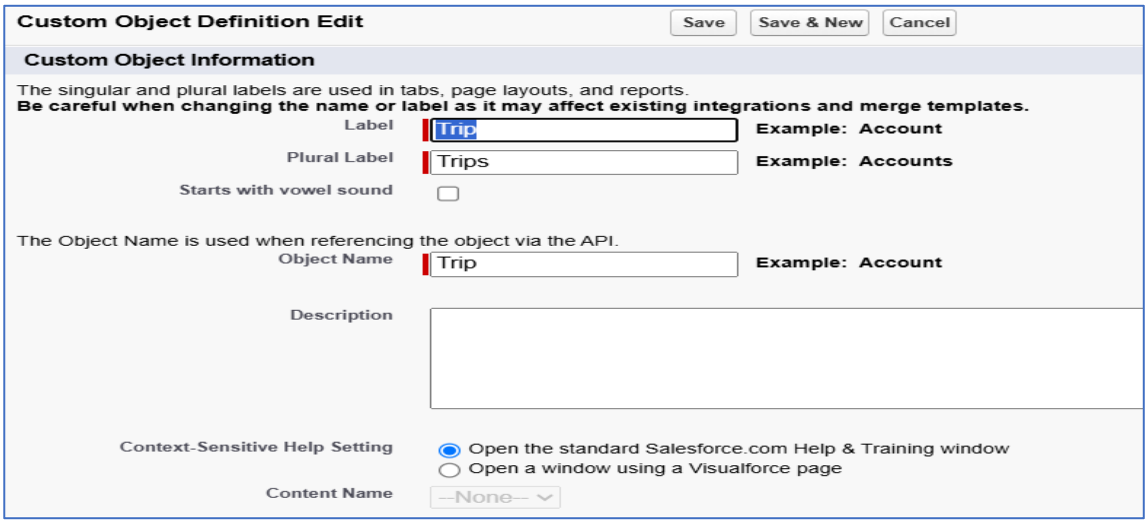
Activity 3: Creating a Trip Object

The purpose of creating a Trip custom object is to store and manage information about Bus Stops. To create an object:

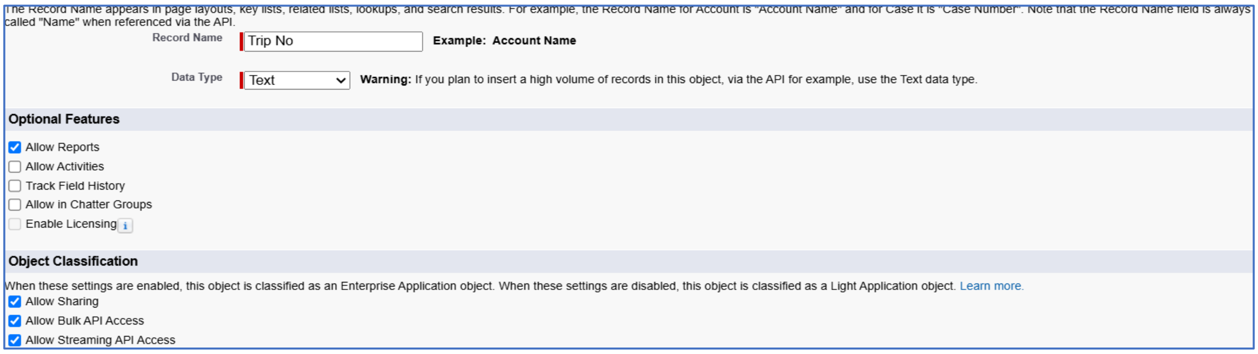
1. From the setup page
2. Click on Object Manager
3. Click on Create >> Click on Custom Object.



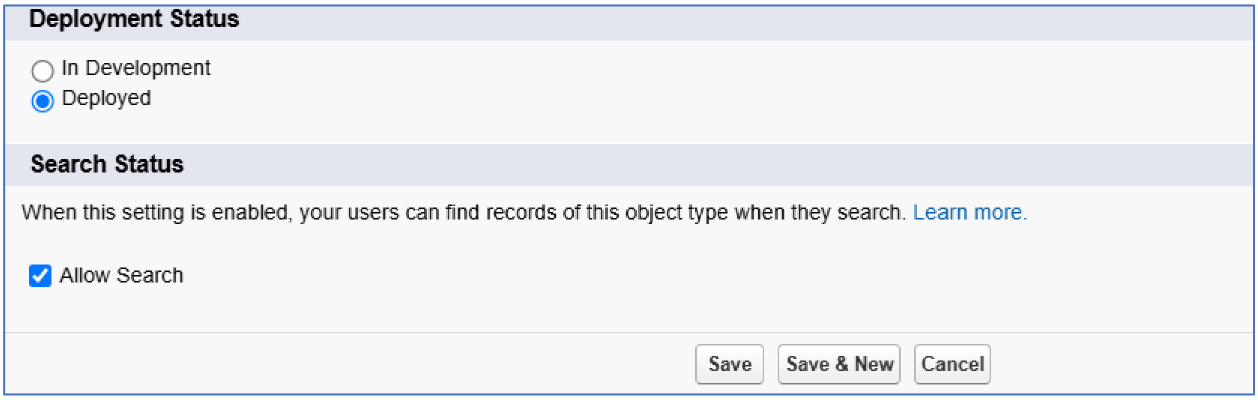
4. Enter the label name as Trip
5. Enter Plural label name as Trips
6. Enter Record Name as Trip No



7. Select Data Type as Text.
8. Select Allow reports.



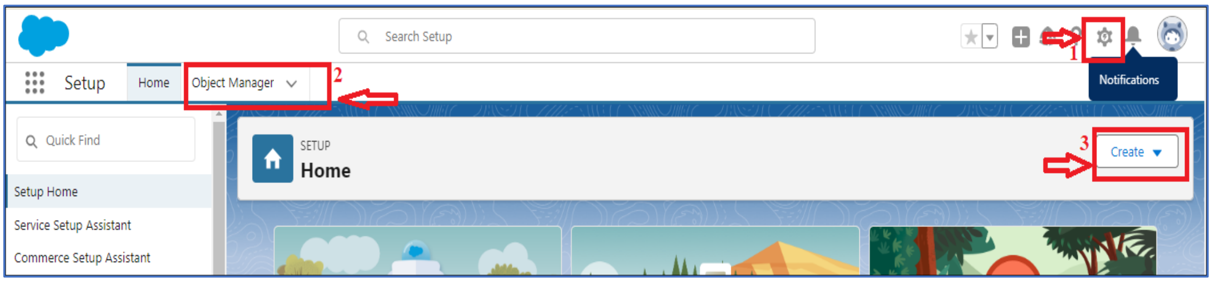
9. Select Allow search.
10. Click on Save and New



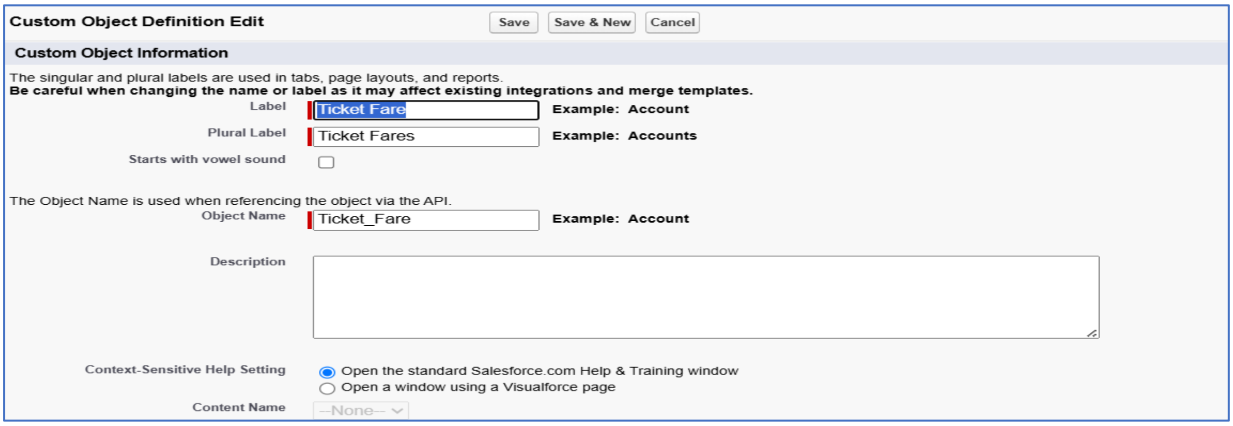
Activity 4: Creating a Ticket Fare Object

The purpose of creating a Ticket Fare custom object is to store and manage information about Bus Stops.
To create an object:

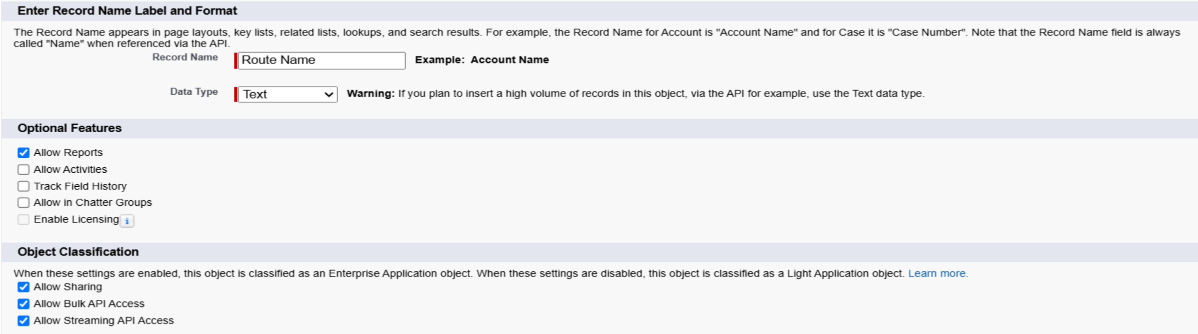
1. From the setup page
2. Click on Object Manager
3. Click on Create >> Click on Custom Object.



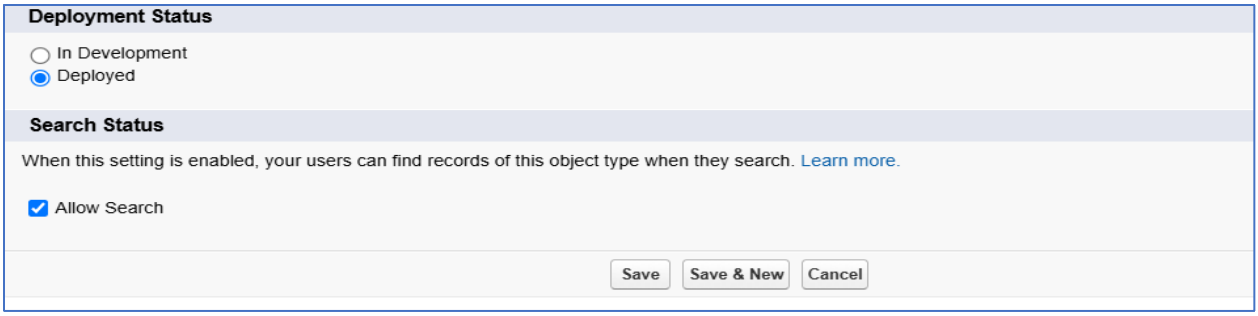
4. Enter the label name as Ticket Fare
5. Enter Plural label name as Ticket Fares
6. Enter Record Name as Route Name



7. Select Data Type as Text.
8. Select Allow reports.



9. Select Allow search.
10. Click on Save and New

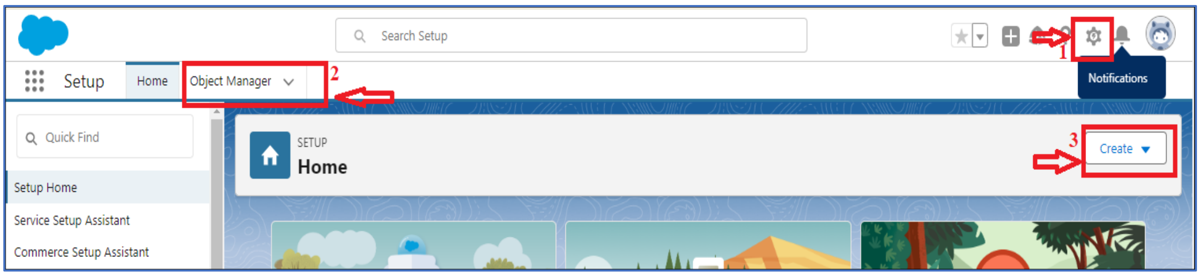


Activity 5: Creating a Employee Object

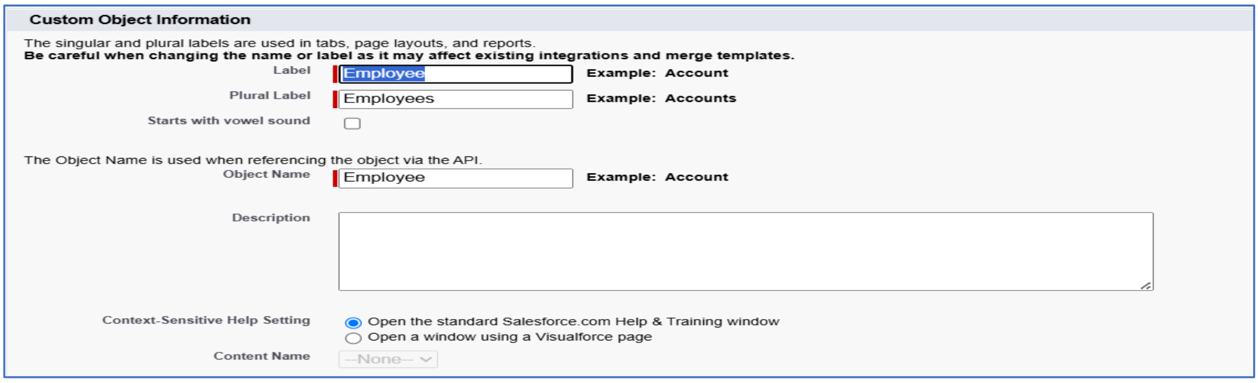
The purpose of creating a Employee custom object is to store and manage information about Bus Stops.

To create an object:

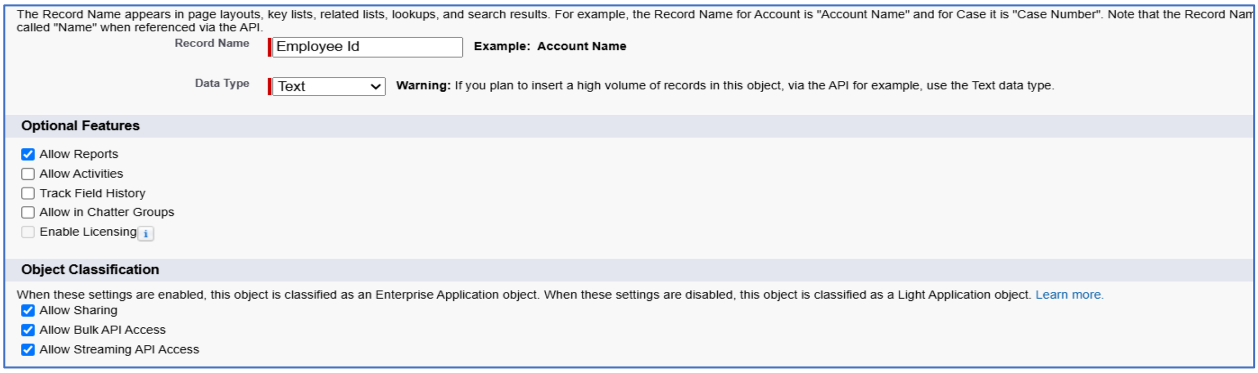
1. From the setup page
2. Click on Object Manager
3. Click on Create >> Click on Custom Object.



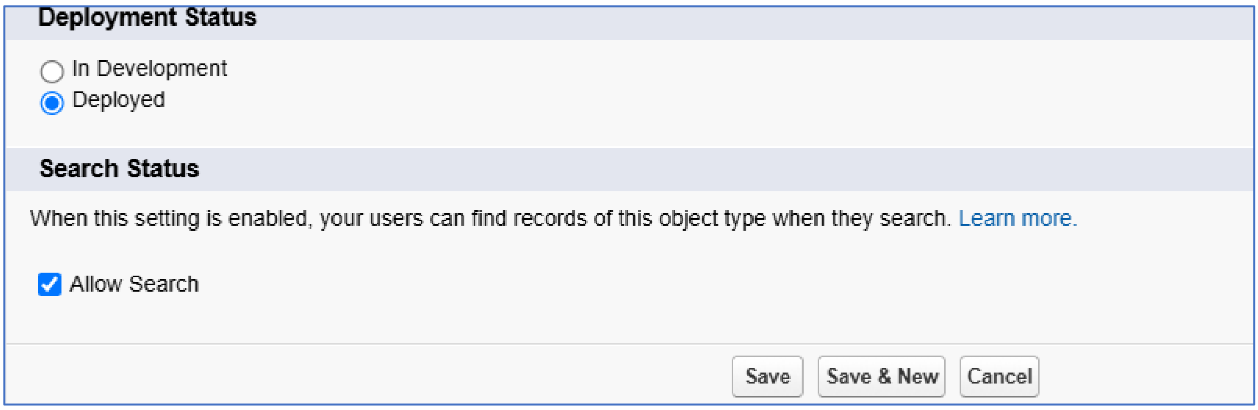
4. Enter the label name as Employee
5. Enter Plural label name as Employees
6. Enter Record Name as Employee Id



7. Select Data Type as Text.
8. Select Allow reports.



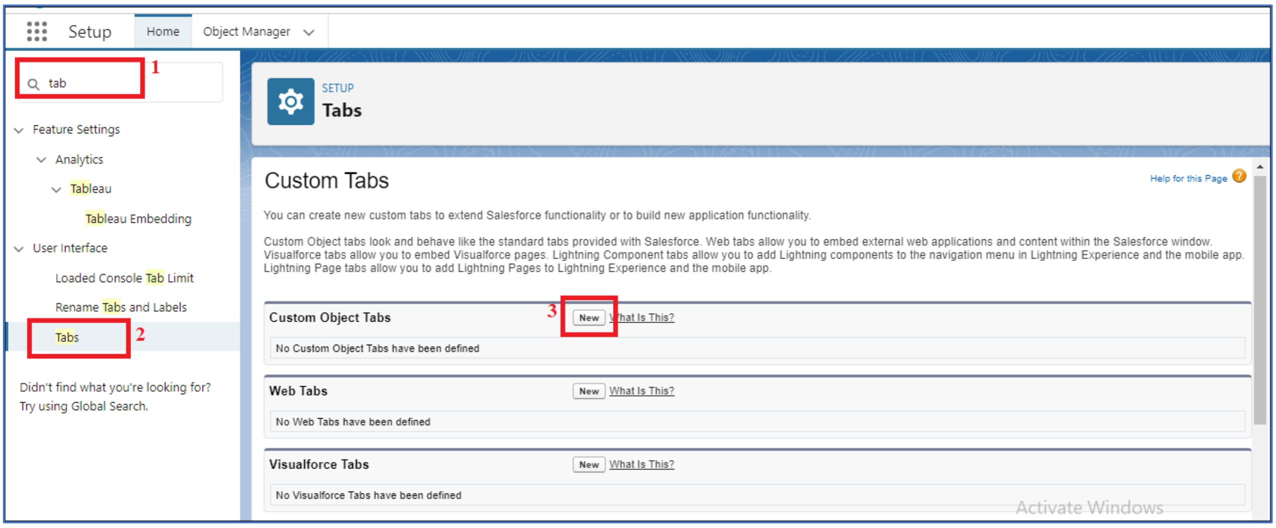
9. Select Allow search.
10. Click on Save and New



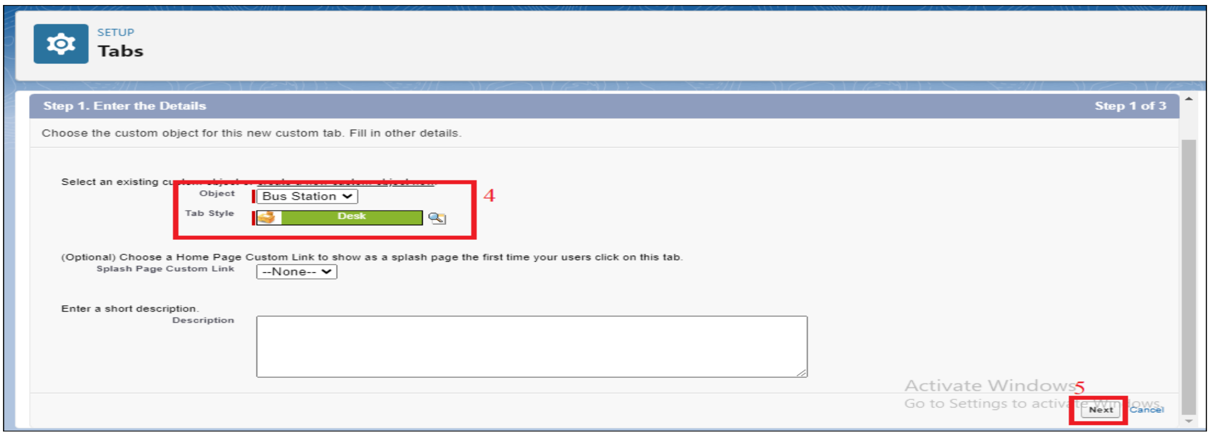
Milestone 3
Tabs

Activity 1: Creating a tab for Bus Station Object

1. Go to the setup page >> type Tabs in Quick Find bar
2. Click on tabs
3. Click on New (under custom object tab).



4. Select Object(Bus Station) >> Select the tab style
5. Click on Next >>(Add to profiles page) keep it as default >>Click on Next (Add to Custom App) uncheck the include tab .



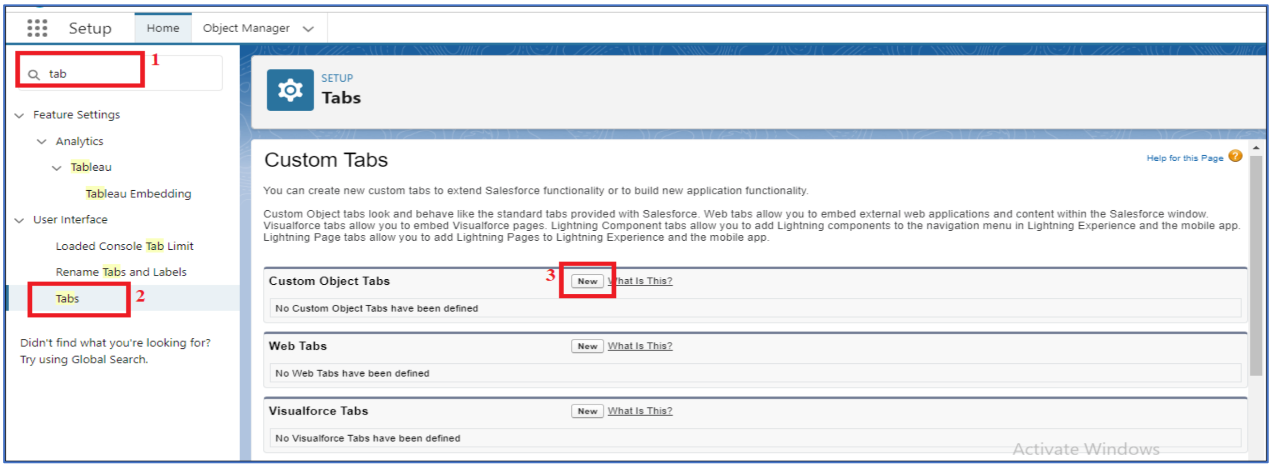
6. Make sure that the Append tab to user's existing personal customizations is checked

7. Click on Save.

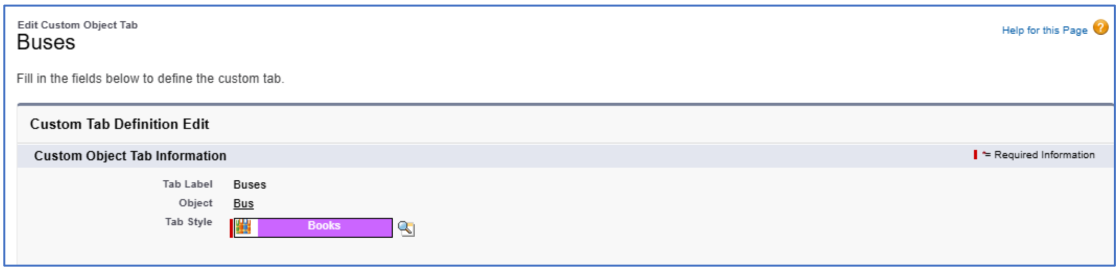
1. **Now create the Tabs for the remaining Objects, they are "Bus, Trip, Ticket Fare, Employee".**
2. **Follow the same steps as mentioned in Activity -1**

Activity 2: Creating Tabs for Bus Object

1. Go to the setup page >> type Tabs in Quick Find bar
2. Click on tabs
3. Click on New (under custom object tab).



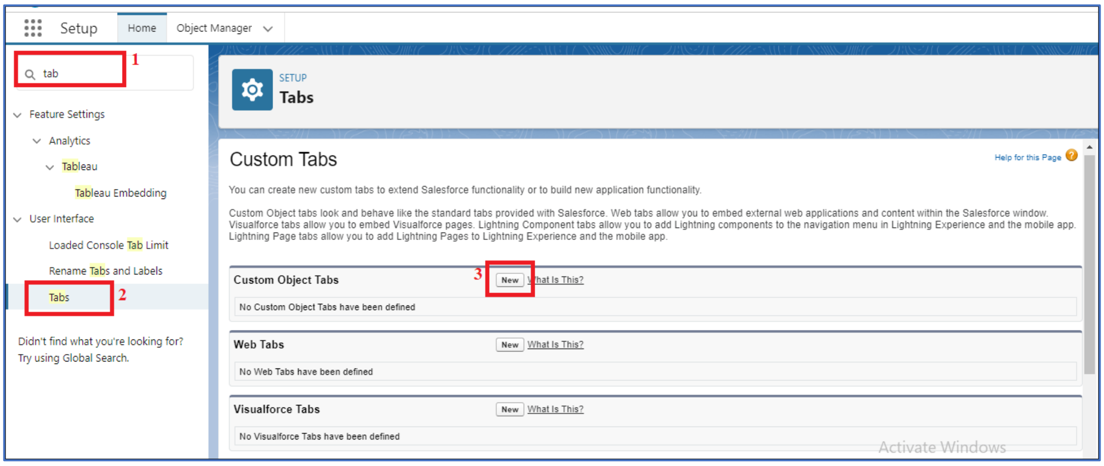
4. Select Object (Bus) >> Select the tab style
5. Click on Next >> (Add to profiles page) keep it as default >>Click on Next (Add to Custom App) uncheck the include tab .



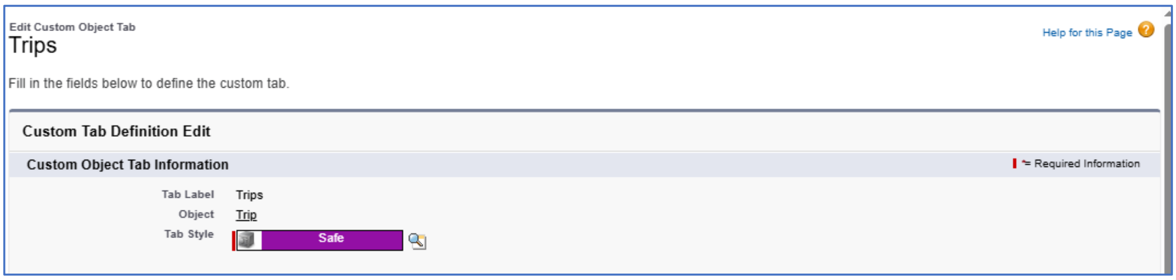
6. Make sure that the Append tab to user's existing personal customizations is checked
7. Click on Save.

Activity 3: Creating Tabs for Trip Object

1. Go to the setup page >> type Tabs in Quick Find bar
2. Click on tabs
3. Click on New (under custom object tab).



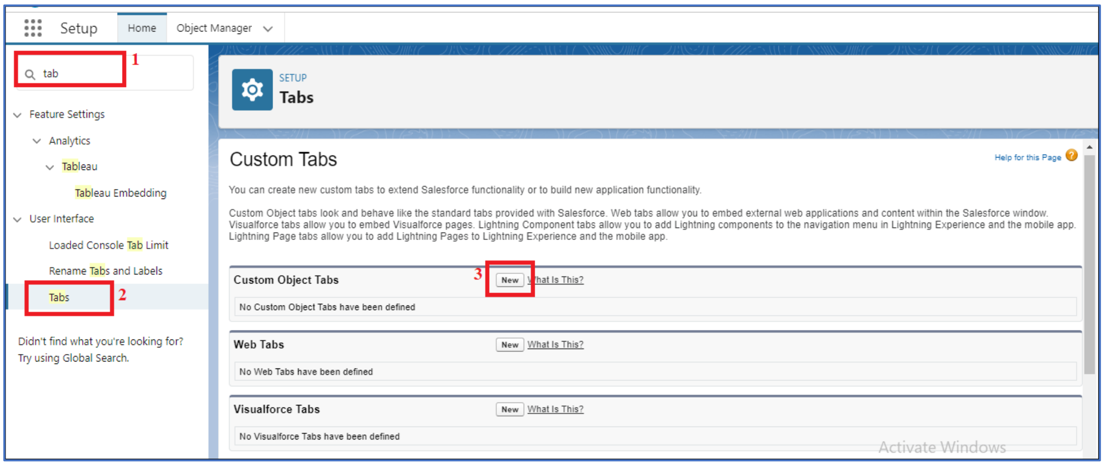
4. Select Object(Trip) >> Select the tab style
5. Click on Next >> (Add to profiles page) keep it as default >>Click on Next (Add to Custom App) uncheck the include tab .



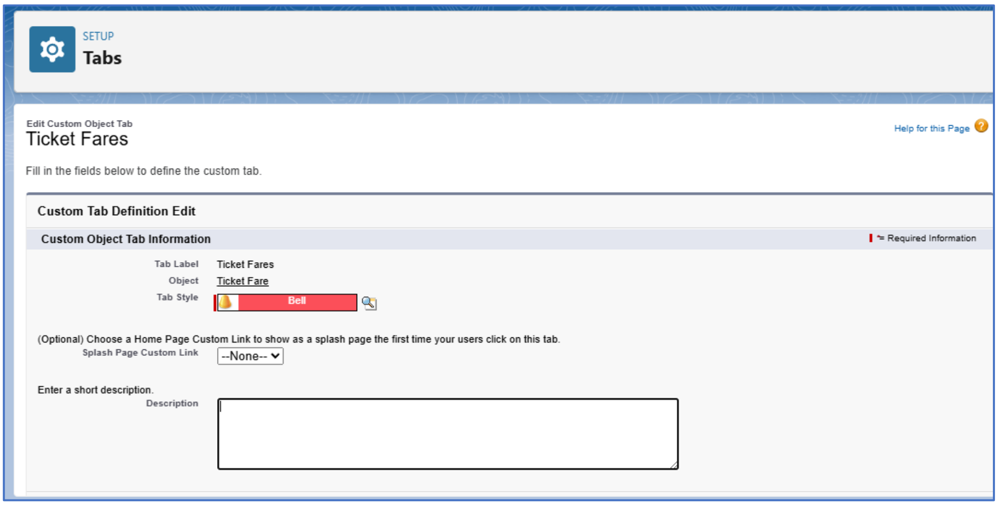
6. Make sure that the Append tab to user's existing personal customizations is checked
7. Click on Save.

Activity 4: Creating Tabs for Ticket Fare Object

1. Go to the setup page >> type Tabs in Quick Find bar
2. Click on tabs
3. Click on New (under custom object tab).



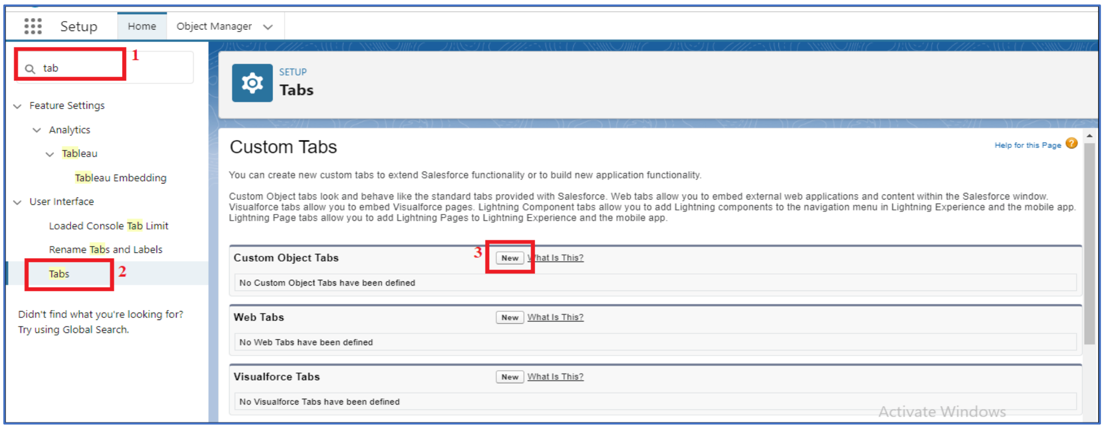
4. Select Object (Ticket Fare) >> Select the tab style
5. Click on Next >>(Add to profiles page) keep it as default >>Click on Next (Add to Custom App) uncheck the include tab .



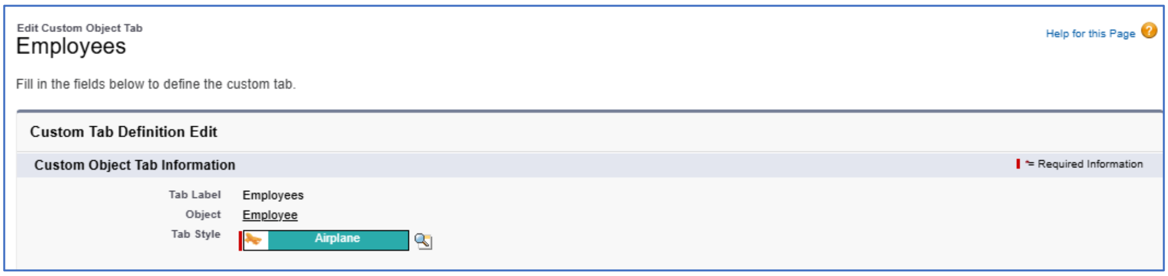
6. Make sure that the Append tab to user's existing personal customizations is checked
7. Click on Save.

Activity 5: Creating Tabs for Employee Object

1. Go to the setup page >> type Tabs in Quick Find bar
2. Click on tabs
3. Click on New (under custom object tab).



4. Select Object(Ticket Fare) >> Select the tab style
5. Click on Next >>(Add to profiles page) keep it as default >>Click on Next (Add to Custom App) uncheck the include tab .



6. Make sure that the Append tab to user’s existing personal customizations is checked
7. Click on Save

Milestone 4

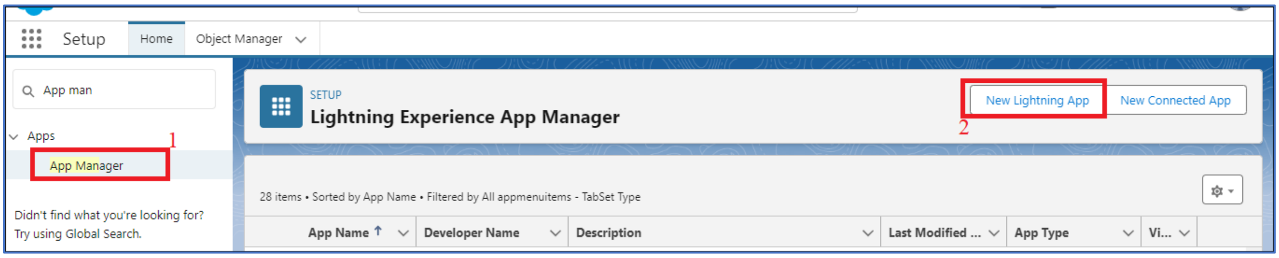
The Lightning App

A Lightning App in Salesforce refers to an application built using the Lightning framework, which is a modern user interface framework for developing dynamic web applications for mobile and desktop devices. Lightning apps provide a more responsive and interactive user experience compared to traditional Visualforce pages.

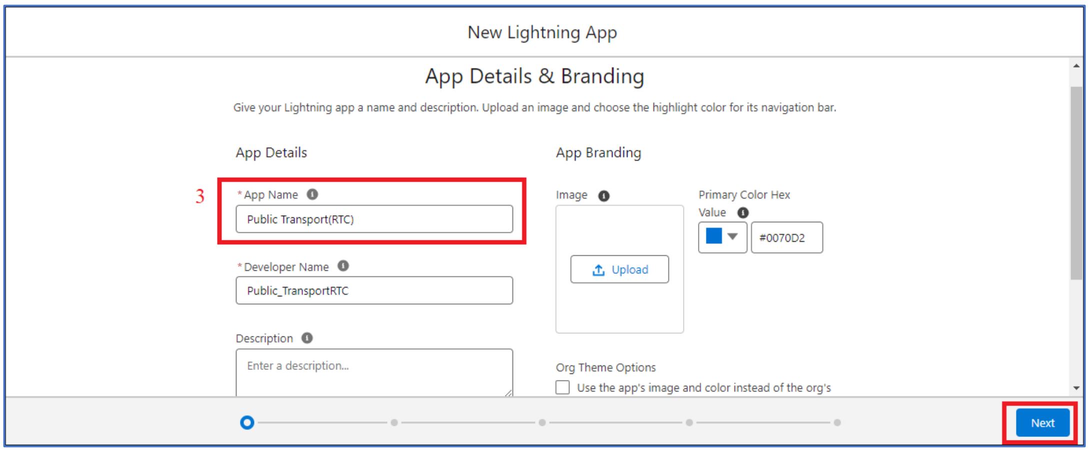
A CRM Application For Public Transport Management

Activity 1: Create a Lightning App for Banquet Hall Booking

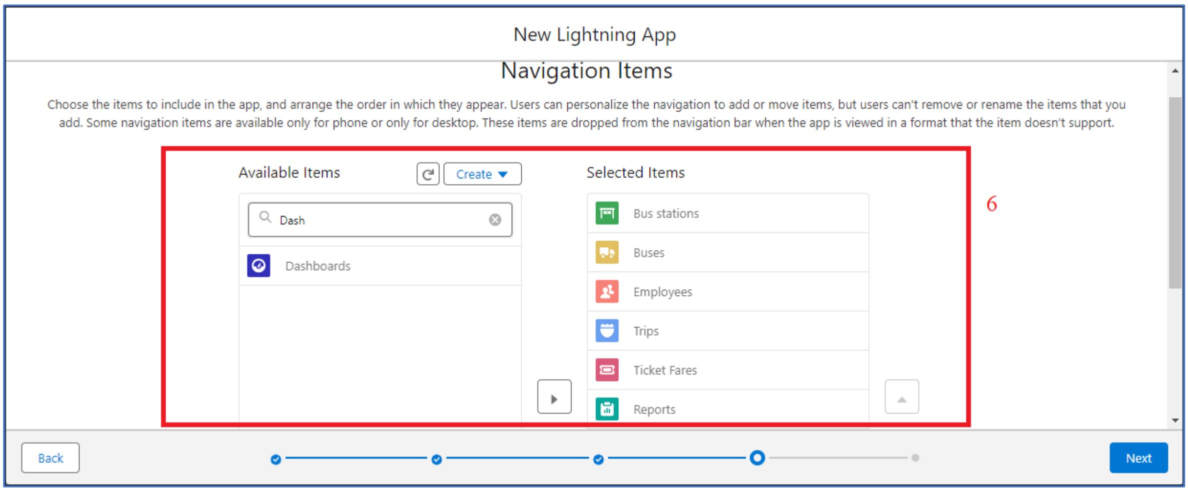
1. From Setup, enter App Manager in the Quick Find and select App Manager.
2. Click New Lightning App.



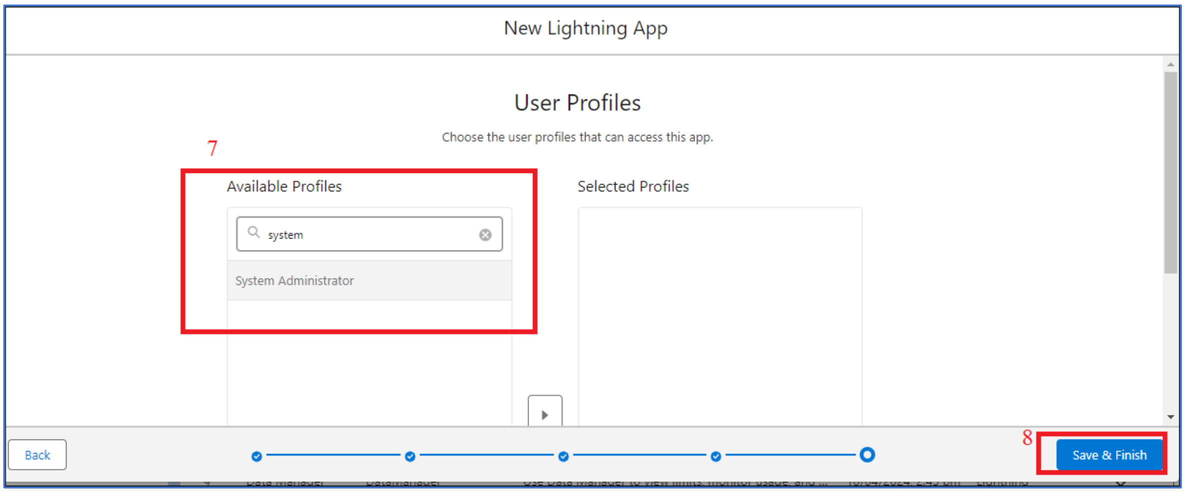
3. Enter Public Transport as the App Name, then click next



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 Bus Stations, Buses, Trips, Ticket Fares, Employees, Reports, and Dashboards and move them to Selected Item and Click Next.



7. From Available Profiles, select System Administrator and move it to Selected Profiles.
8. Click Save & Finish



Milestone 5
Fields

Object	Field Name	Data Type
Bus Station	Bus Station Name(Standard)	Text
	Bus Stop Category	Picklist(Unmanaged Bus Stop, Managed Bus Stop)
	Last Updated	Formula(Date)
	Amenities	Picklist (Multi-select)
	City	Text(40)
	Street	TextArea
	State/Province	Text(25)
	Zip/PostalCode	Text(10)
	Shelter Available	Checkbox
	Bench	Checkbox
Bus	Bus Registration No (Standard)	Text
	Bus Station Name	Lookup(Bus Station)
	Capacity	Number(4,0)
	Category	Picklist

	Model	Picklist(Dependent on Category)
Trip	Trip No(Standard)	Text
	Trip Date	Date
	Bus No	Lookup(Bus)
	Route Name	Lookup(Ticket Fare)
	Arrival Time	Picklist
	Departure Time	Picklist
	Bus Starting Terminal	Text
	Destination Terminal	Text
	Driver Id	Lookup(Employee)
	Driver	Formula
	Conductor Id	Lookup(Employee)
	Conductor	Formula
	Estimated Travel Time	Number
	Frequency Per Day	Number(2,0)
	No. of Stops	Number(2,0)
	Passenger Count	Number(4,0)
	Ticket Fare	Currency(16,2)
	Total Amount	Formula

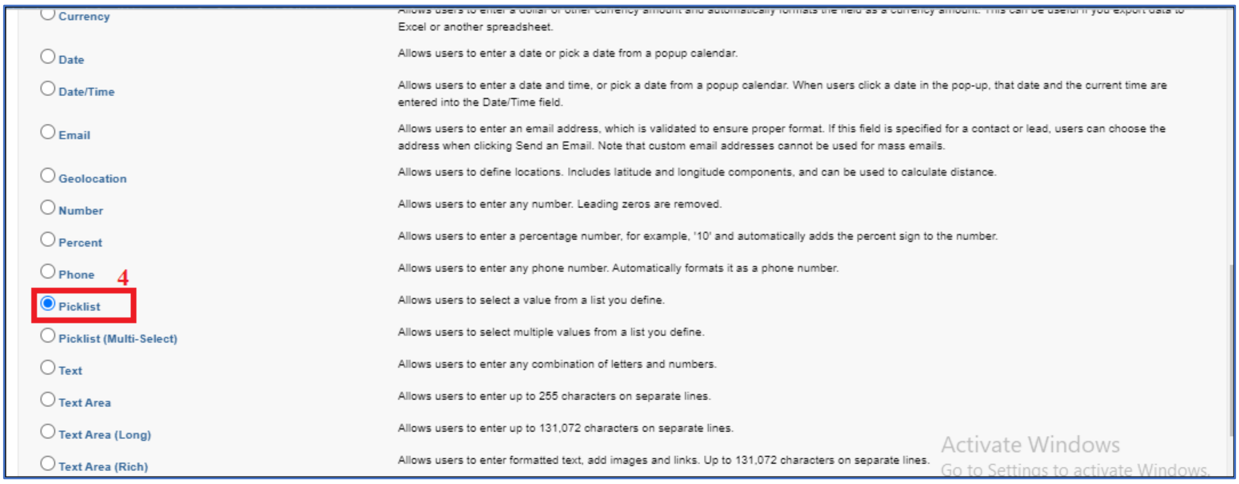
Ticket Fare	Route Name(Standard)	Text
	Bus Model	Picklist
	Ticket Fare	Currency(10,2)
Employee	Employee Id(Standard)	Text
	Bus Station Name	Lookup(Bus Station)
	Employee Name	Text
	Role	Picklist
	Date of Birth	Date
	Age	Formula(Number)
	Work Place	Text
	Salary	Currency(18,0)
	Phone	Phone
	Date of Joining	Date
	Date of Retirement	Formula(Date)
	Experience	Formula(Number)
	Street	TextArea
	City	Text
	State/Province	Text
	Country	Text

	Zip/PostalCode	Text

Activity 1: Creating a Role Picklist Field in Employee Object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Employee) in quick find box>> click on the Employee Object.
2. Now click on "Fields & Relationships" .
3. Click on New.
4. Select Data type as "Picklist" and click Next.



5. Enter Field Label as "Role".
6. In values select "Enter values, with each value separated by a new line" and enter values as shown below.

Administrative Assistant

Cleaner

Conductor

Customer Service Representative

Driver

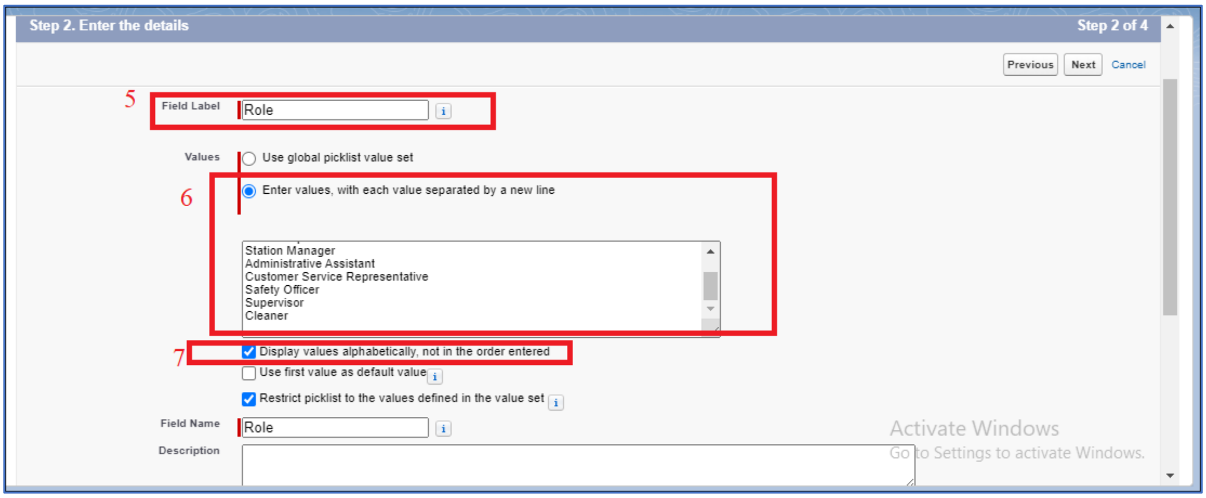
Safety Officer

Station Manager

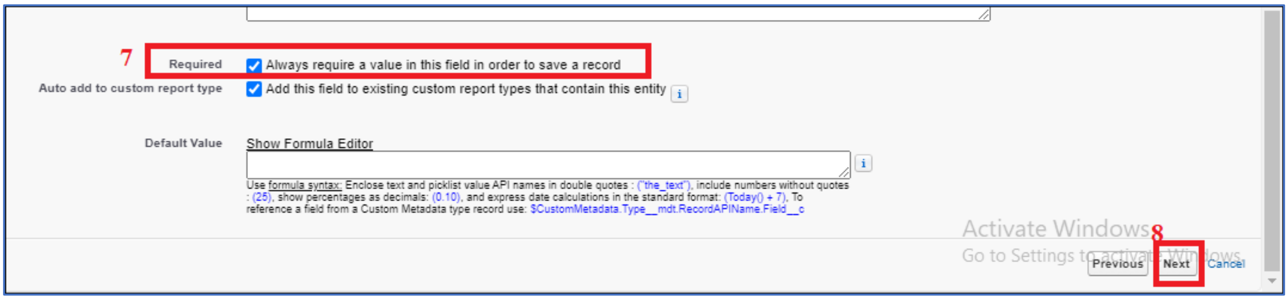
Supervisor

Ticket Inspector

7. Select Display values alphabetically, not in the order entered .



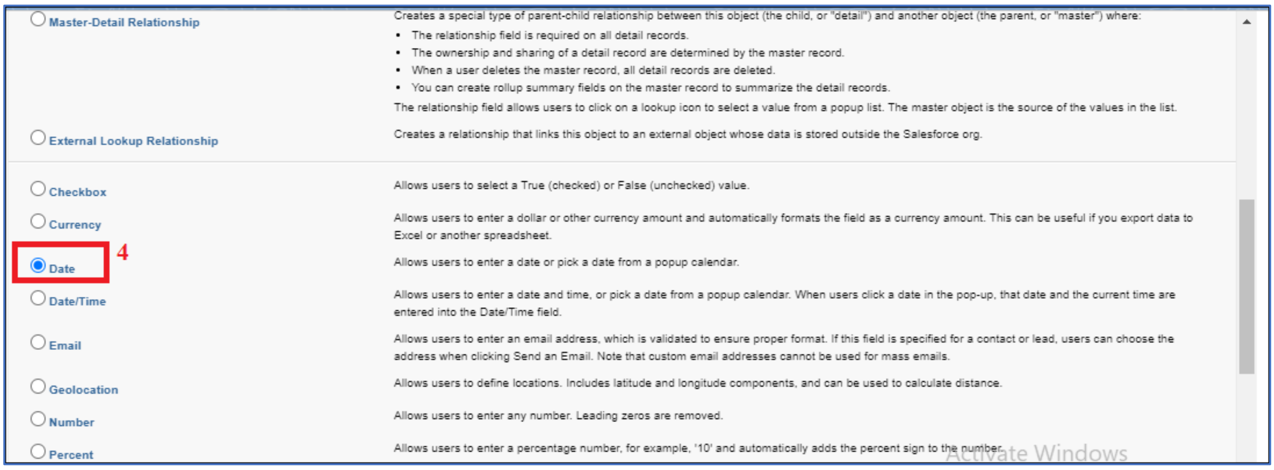
8. Select Required, Always require a value in this field in order to save a record .
9. Click on Next, Next and Save.



Activity 2: Creating a Trip Date Field in Trip object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Trip) in quick find box>> click on the Trip object.
2. Now click on "Fields & Relationships"
3. Click on New.
4. Select Data type as "Date" and click Next.



5. Enter Field Label as " Trip Date".
6. Select Required, Always require a value in this field in order to save a record .
7. Click on Next, Next and Save.

Activity 3: Creating a Number Field in Bus object

To create fields in an object:

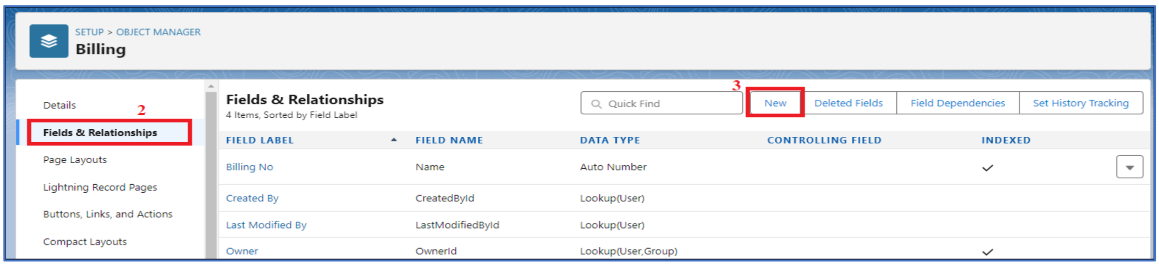
1. Go to setup >> click on Object Manager >> type object name(Bus) in quick find box >> click on the Bus object.
2. Now click on "Fields & Relationships"
3. Click on New.
4. Select Data type as "Number" and click Next.
5. Enter Field Label as "Capacity".
6. Length - 4, Decimal Places - 0.
7. Select Required, Always require a value in this field in order to save a record .
8. Click on Next, Next and Save.

Activity 4 : Creating Lookup Relationship

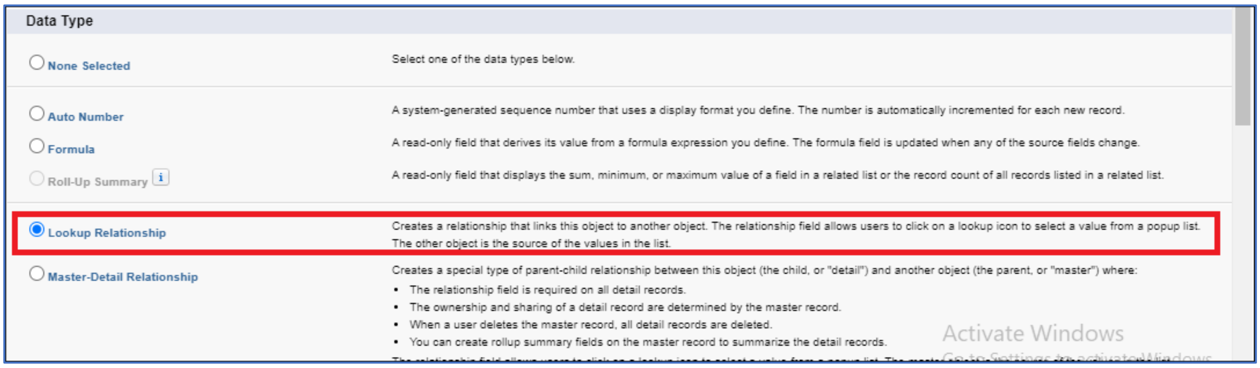
A Lookup relationship is a type of relationship in Salesforce that connects two objects together based on a field known as the Lookup field. It establishes a relationship between a child object and a parent object, allowing the child object to reference the parent object.

To Create a relationship from Employee to Bus Station .

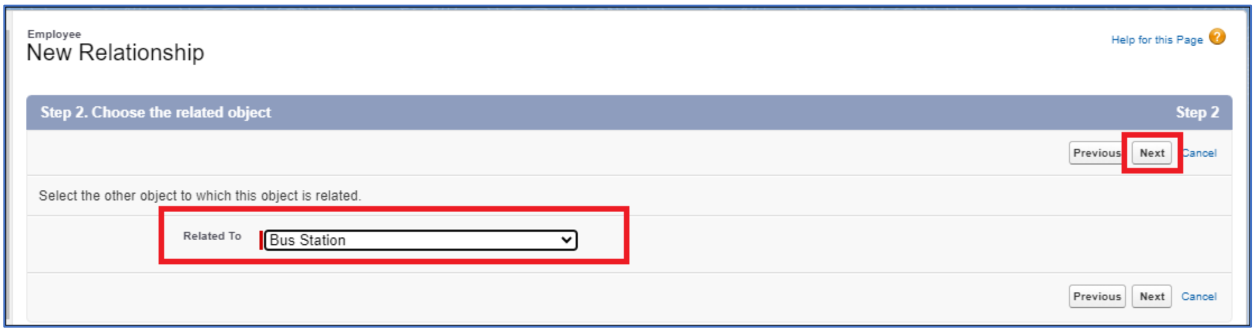
1. Go to the Setup page >> click on Object manager >> type object name(Employee) in the quick find bar >> click on the Employee object.
2. Click on fields & relationship
3. Click on New.



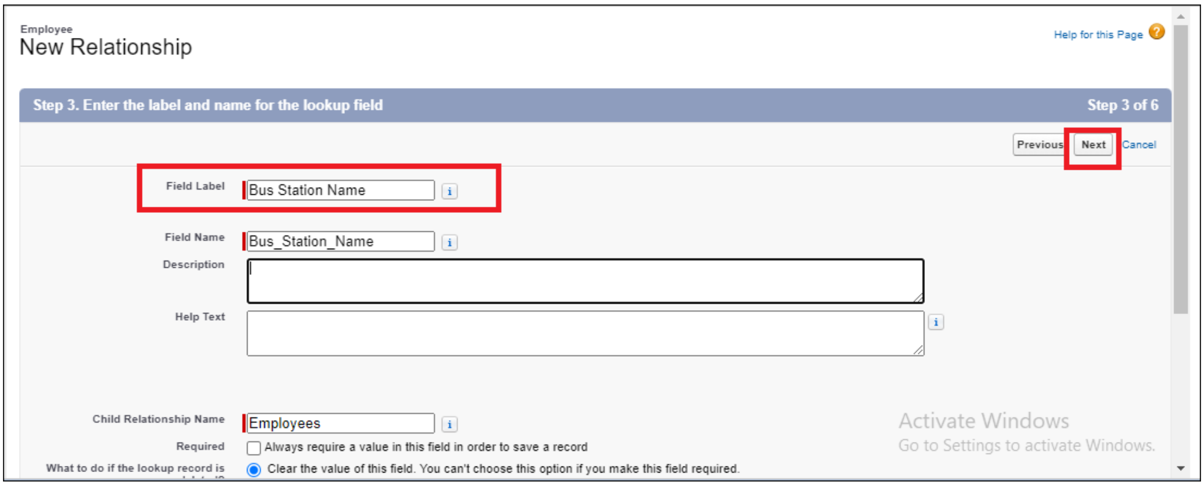
4. Select "Lookup relationship" as data type and click Next.



5. Select the related object “ Bus Station”.



6. Click on Next
7. Give Field Label as “Bus Station Name” .

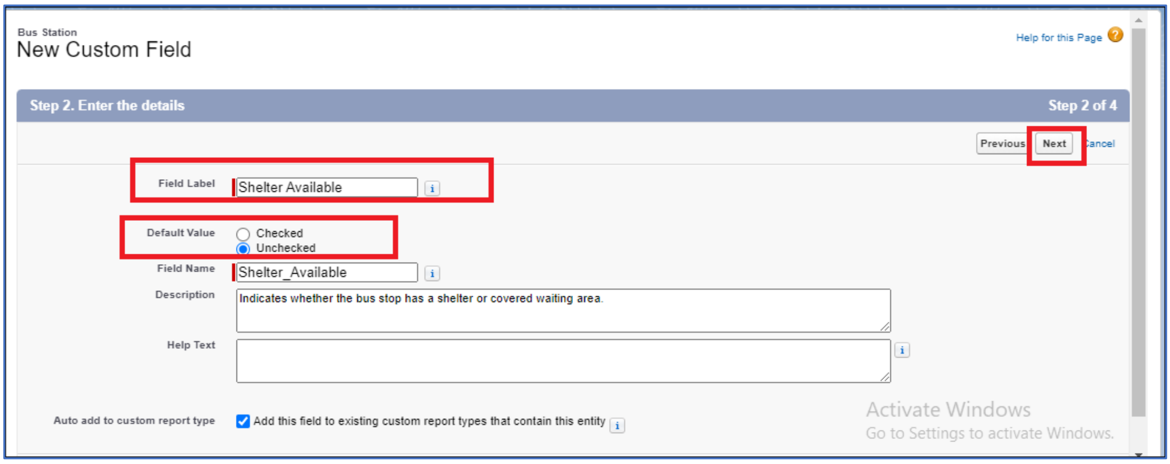


8. Click on Next , Next, Next , Save.

Activity 5: Creating a Checkbox Field in Bus Station object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Bus Station) in quick find box>> click on the Bus Station object.
2. Now click on "Fields & Relationships"
3. Click on New.
4. Select Data type as "Checkbox" and click Next.
5. Enter Field Label as " Shelter available".

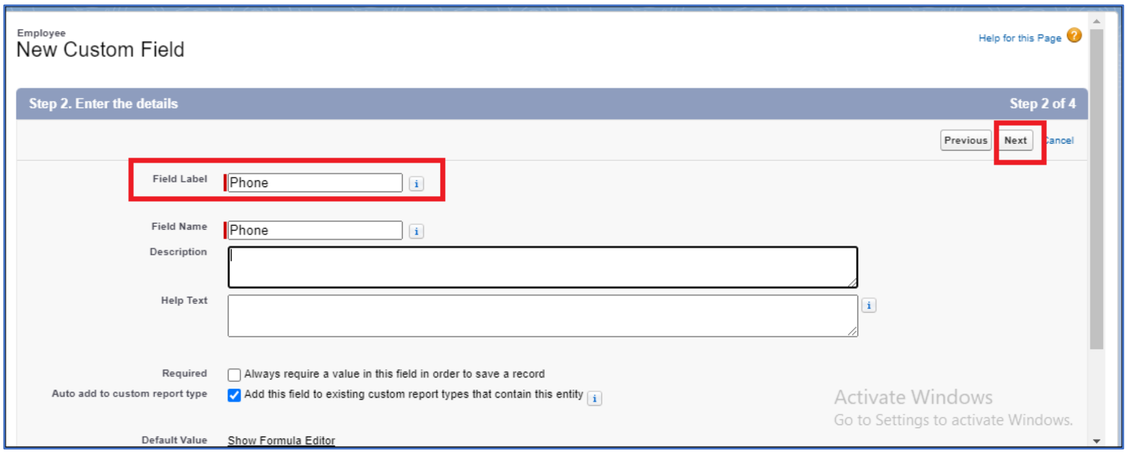


6. Select Default value : Unchecked .
7. Click on Next, Next and Save.

Activity 6: Creating a Phone Field in Employee object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Employee) in quick find box>> click on the Employee object.
2. Now click on "Fields & Relationships"
3. Click on New.
4. Select Data type as "Phone" and click Next.
5. Enter Field Label as " Phone No".

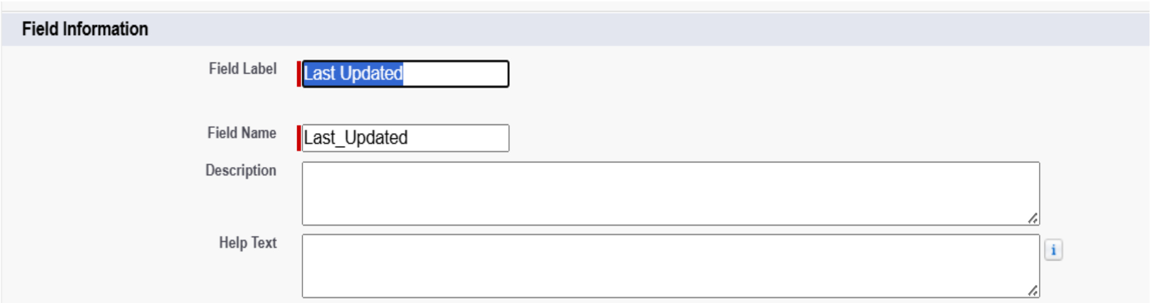


6. Click on Next, Next and Save.

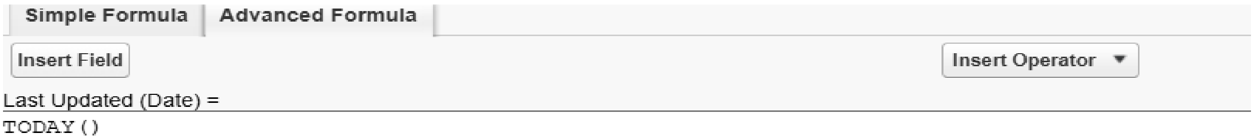
Activity 7: Creating a Last Updated Formula Field in Bus Station object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Bus Station) in quick find box >> click on the Bus Station object.
2. Now click on "Fields & Relationships"
3. Click on New.
4. Select Data type as "Formula" and click Next.
5. Enter field label Last Updated



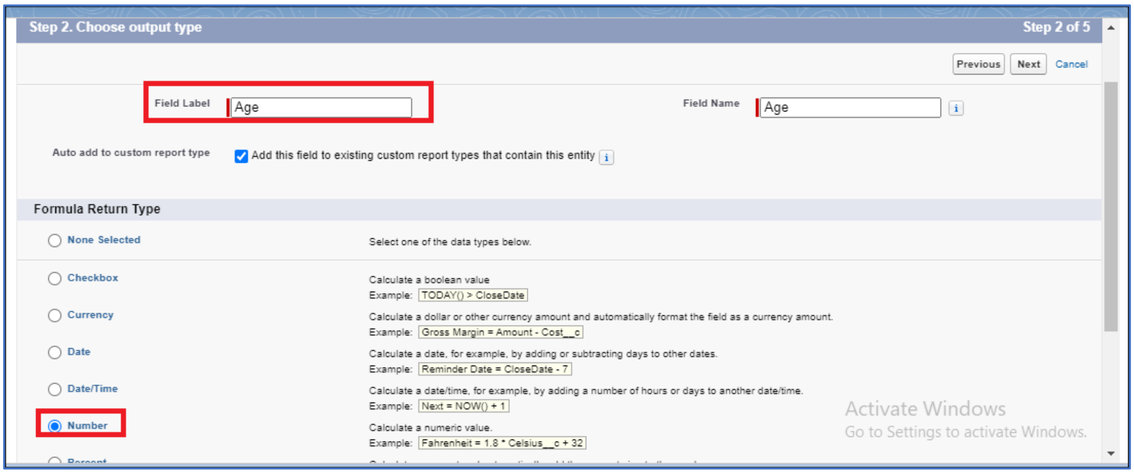
6. Select formula return type Date, Click Next
7. Create and insert Advance formula: TODAY()



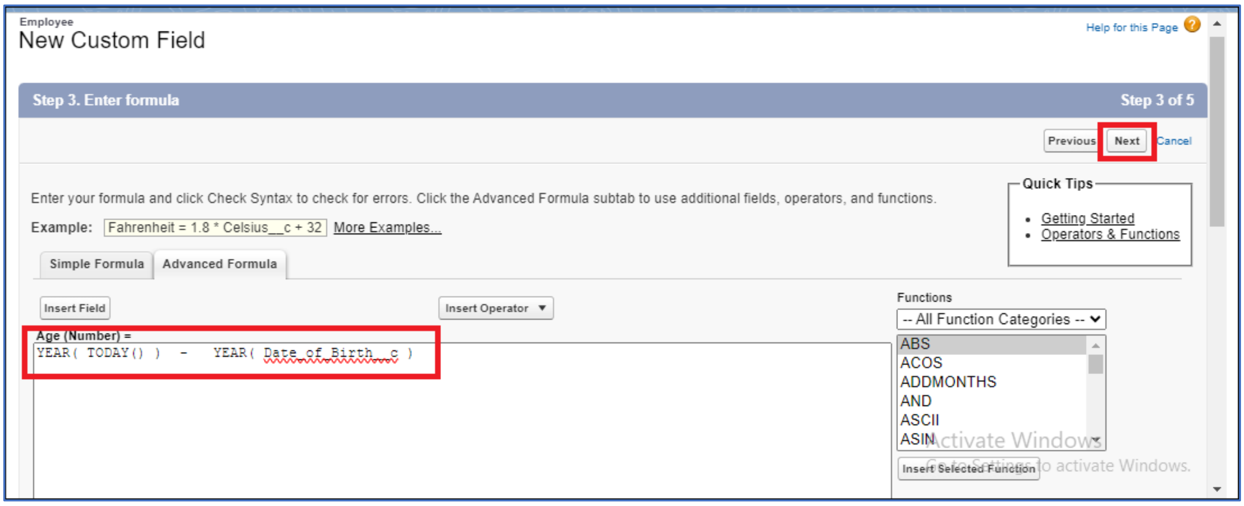
8. Click Next, Next, then Save.

Activity 8: Creating a Age Formula Field in Employee object

1. Go to setup >> click on Object Manager >> type object name(Employee) in quick find box >> click on the Employee object.
2. Now click on “Fields & Relationships”
3. Click on New.
4. Select Data type as “Formula” and click Next.
5. Enter field label Age



6. Select formula return type Number, Click Next
7. Create and insert Advance formula: YEAR(TODAY()) - YEAR(Date_of_Birth__c)

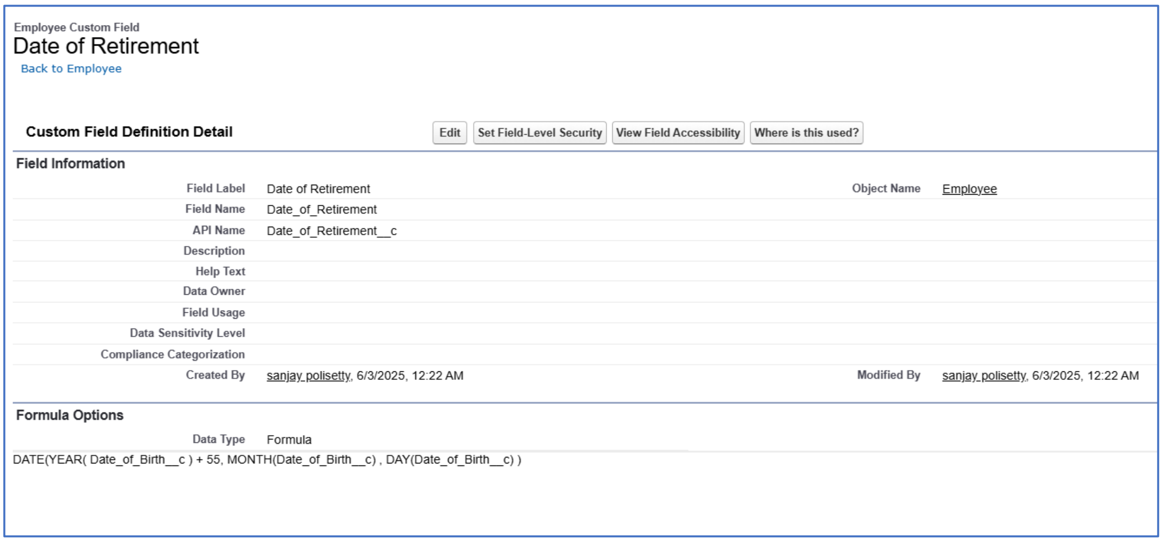


8. Click Next, Next, then Save.

Activity 9: Creating a Date of Retirement Formula Field in Employee object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Employee) in quick find box >> click on the Employee object.
2. Now click on “Fields & Relationships”
3. Click on New.
4. Select Data type as “Formula” and click Next.
5. Enter field label Date of Retirement
6. Select formula return type Date, Click Next
7. Create and insert Advance formula: DATE(YEAR(Date_of_Birth__c) + 55, MONTH(Date_of_Birth__c) , DAY(Date_of_Birth__c))
8. Click Next, Next, then Save.

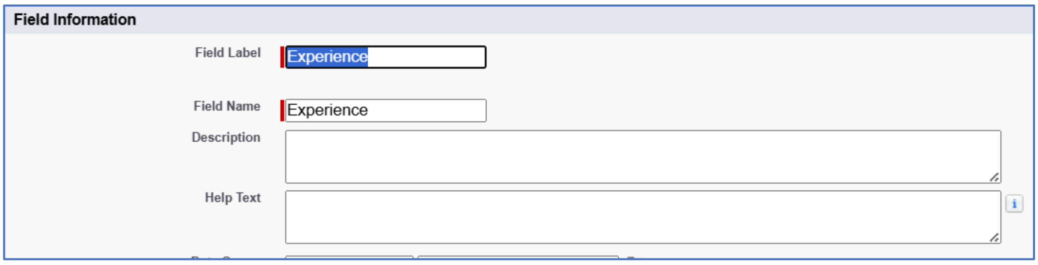


Activity 10: Creating Experience Formula Field in Employee object

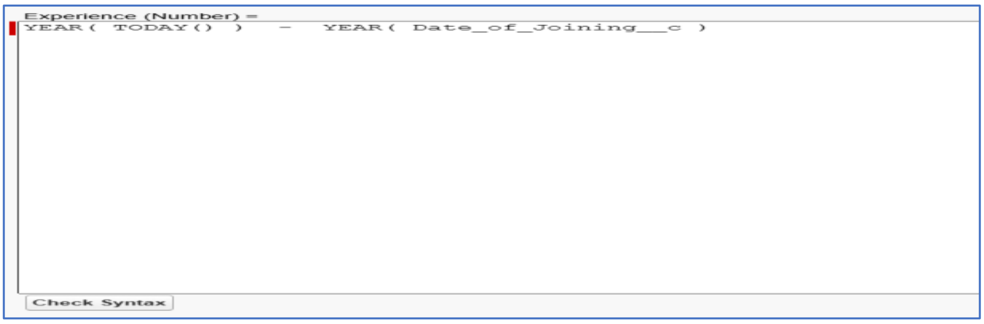
To create fields in an object:

1. Go to setup >> click on Object Manager type object name(Employee) in quick find box >> click on the Employee object.
2. Now click on “Fields & Relationships”

3. Click on New.
4. Select Data type as “Formula” and click Next.
5. Enter field label Experience



6. Select formula return type Number, Click Next
7. Create and insert Advance formula: YEAR(TODAY()) - YEAR(Date_of_joining__c)



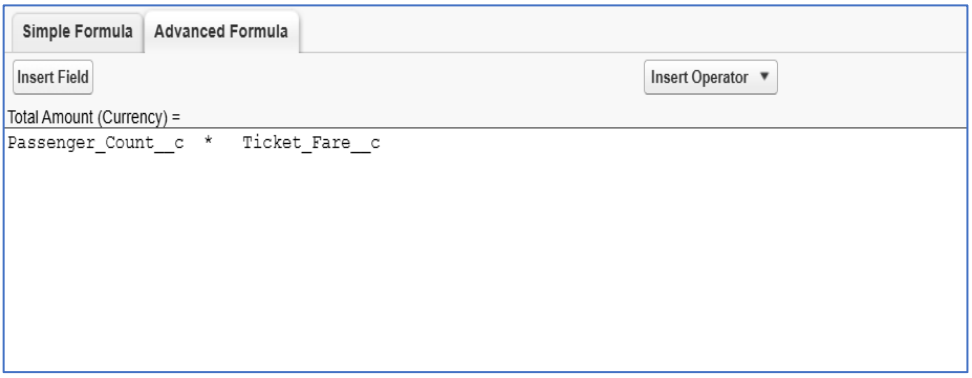
8. Click Next, Next, then Save.

Activity 11: Creating a Total Amount Formula Field in Trip object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Trip) in quick find box >> click on the Trip object.
2. Now click on “Fields & Relationships”
3. Click on New.
4. Select Data type as “Formula” and click Next.
5. Enter field label Total Amount.

6. Select formula return type Currency, Click Next.
7. Create and insert Advance formula: Passenger_Count__c * Ticket_Fare__c

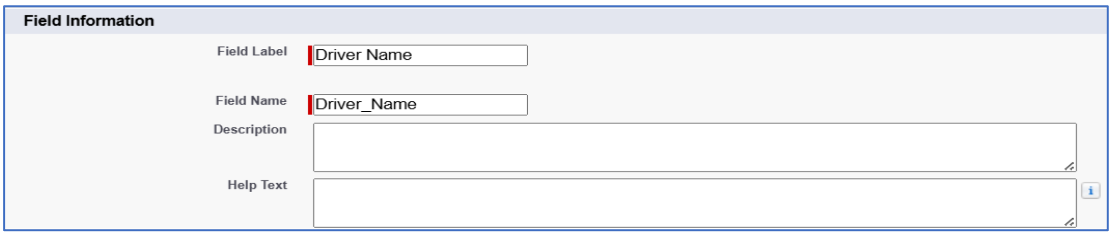


8. Click Next, Next, then Save.

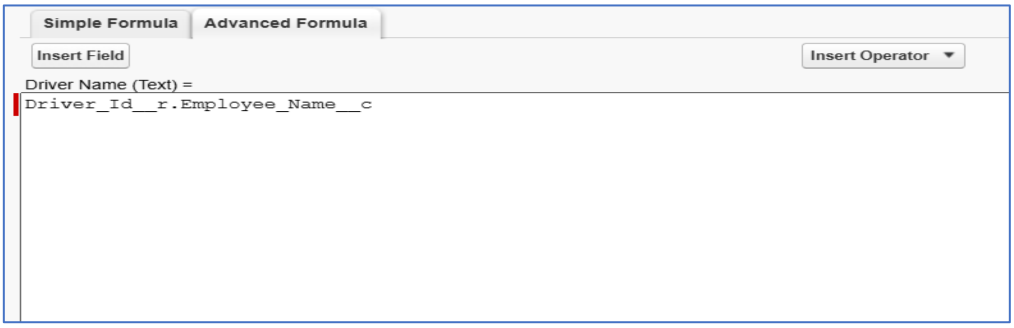
Activity 12: Creating a Driver Name Formula Field in Trip object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Trip) in quick find box>> click on the Trip object.
2. Now click on "Fields & Relationships"
3. Click on New.
4. Select Data type as "Formula" and click Next.
5. Enter field label Driver Name.



6. Select formula return type Text, Click Next.
7. Create and insert Advance formula: Driver_Id__r.Employee_Name__c

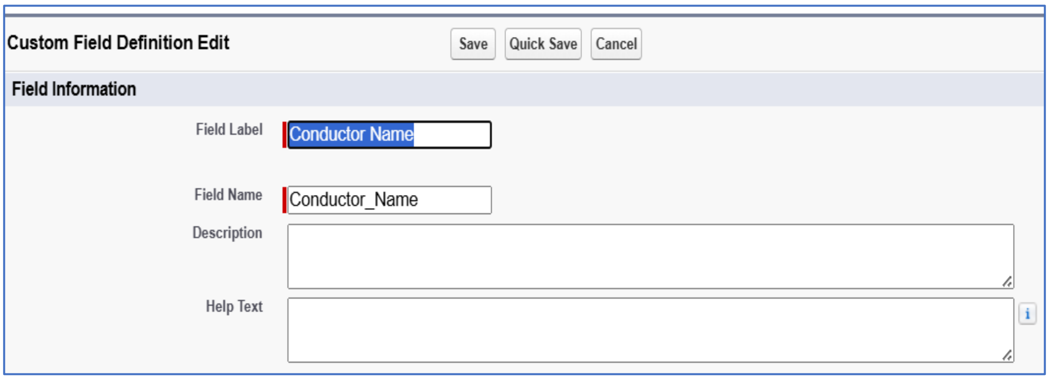


8. Click Next, Next, then Save.

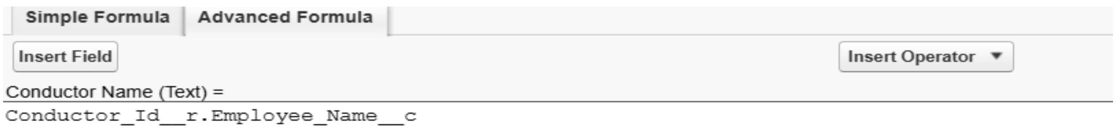
Activity 13: Creating a Conductor Name Formula Field in Trip object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Trip) in quick find box >> click on the Trip object.
2. Now click on "Fields & Relationships"
3. Click on New.
4. Select Data type as "Formula" and click Next.
5. Enter field label Conductor Name.



6. Select formula return type Text, Click Next.
7. Create and insert Advance formula: Conductor_Id__r.Employee_Name__c

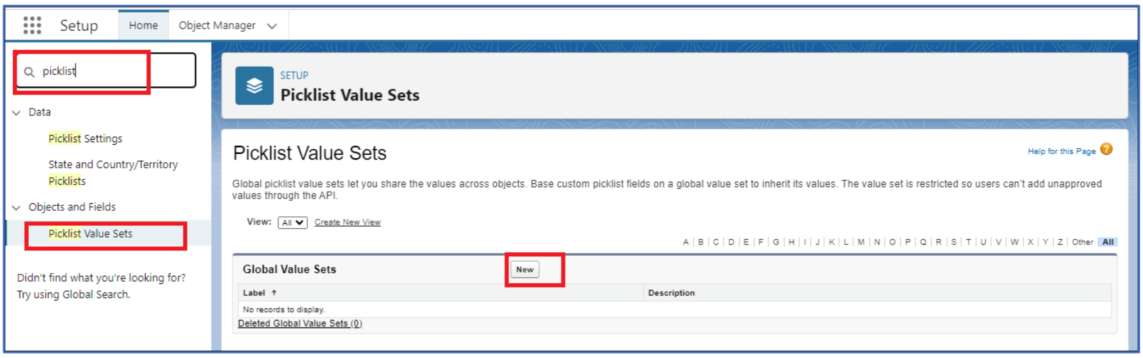


8. Click Next, Next, then Save.

Activity 14: Create a Global Value Set

1.

1. From the Setup menu, enter "Picklist Value Sets" in the Quick Find box and select it.
2. Click on "New" to create a new global value set.



3. Enter the label Bus Time.
4. In values select “Enter values, with each value separated by a new line" and enter values as shown below.

6:00 AM

7:00 AM

8:00 AM

9:00 AM

10:00 AM

11:00 AM

12:00 PM

1:00 PM

2:00 PM

3:00 PM

4:00 PM

5:00 PM

6:00 PM

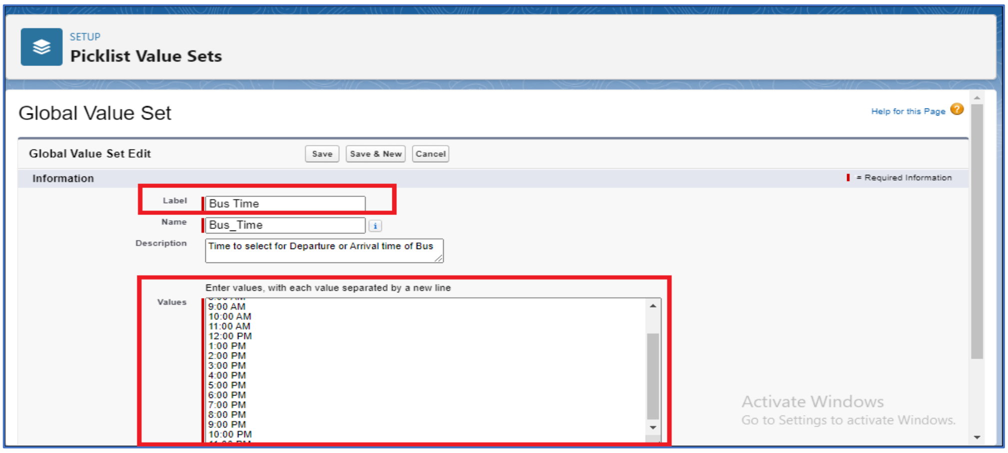
7:00 PM

8:00 PM

9:00 PM

10:00 PM

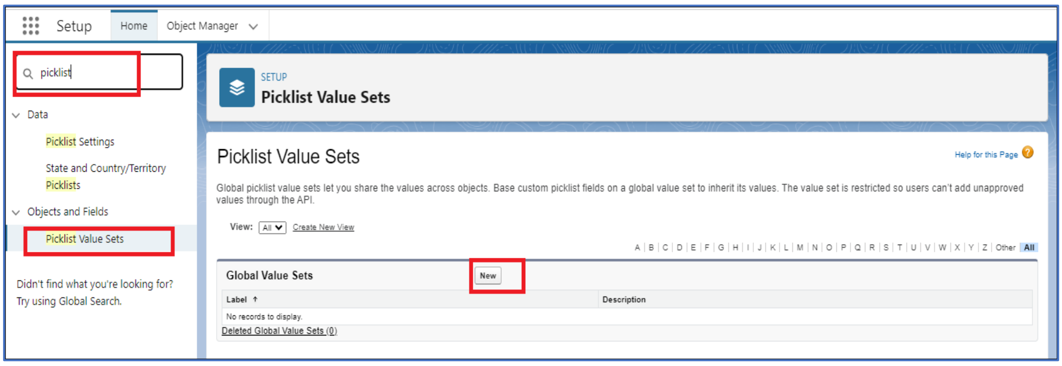
11:00 Pm



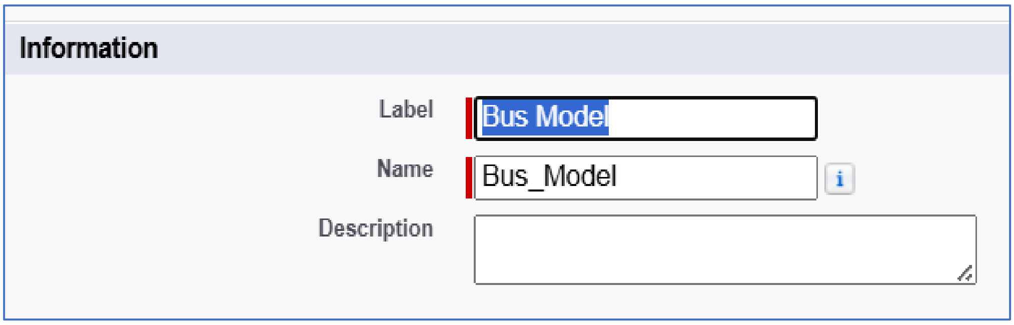
5. Click "Save" to create the global value set

Activity 15: Create a Global Value Set for bus model

1. From the Setup menu, enter "Picklist Value Sets" in the Quick Find box and select it.
2. Click on "New" to create a new global value set.



3.Enter the label Bus Model.



4.In values select “Enter values, with each value separated by a new line" and enter values as shown below

Regular

Metro

A/C

Express

Deluxe

Super Deluxe

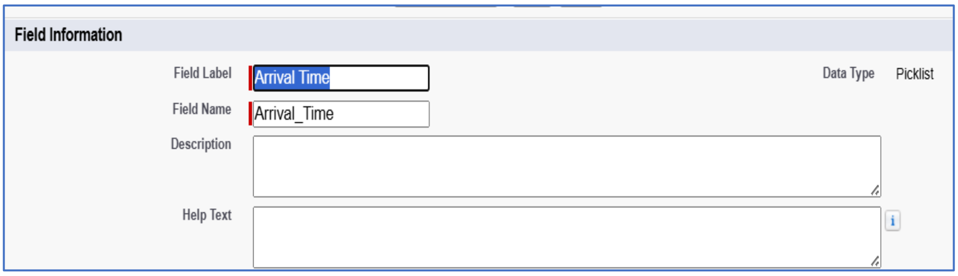
Semi Sleeper

Sleeper

Activity 16: Creating a Picklist Field using global picklist value set in Trip Object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Employee) in quick find box>> click on the Employee Object.
2. Now click on “Fields & Relationships” .
3. Click on New.
4. Select Data type as “Picklist” and click Next.
5. Enter Field Label as “Arrival Time”.

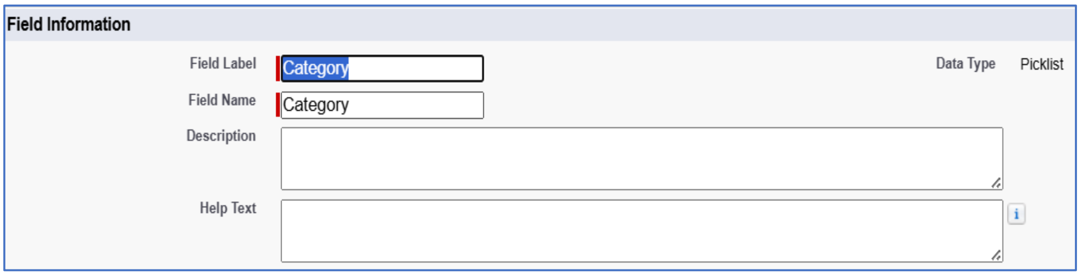


6. Select "Use global picklist value set" and choose the global value set “Bus Time”.
7. Click on Next, Next and Save.

Activity 17: Creating a Controlled and Dependent Picklists in Bus object

Creating Controlling picklist field in Bus object:

1. Go to setup >> click on Object Manager >> type object name(Bus) in quick find box >> click on the Bus Object.
2. Now click on “Fields & Relationships” .
3. Click on New.
4. Select Data type as “Pickliest” and click Next.
5. Enter Field Label as “Category”.

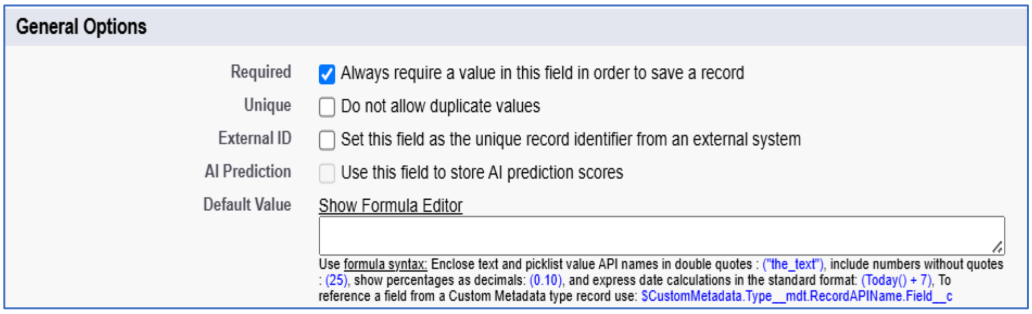


6. In values select “Enter values, with each value separated by a new line" and enter values as shown below.

   Local

   Intercity

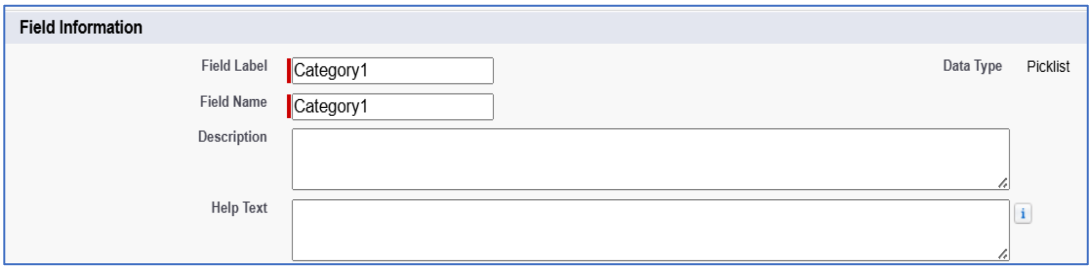
   InterState
7. Select Required, Always require a value in this field in order to save a record .



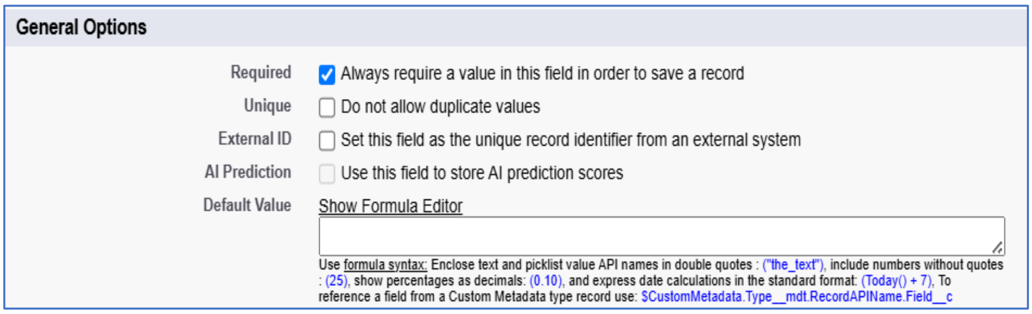
8. Click on Next, Next and Save.

Creating Dependent pickliest field in Bus object:

1. Go to setup >> click on Object Manager >> type object name(Bus) in quick find box >> click on the Bus Object.
2. Now click on “Fields & Relationships” .
3. Click on New.
4. Select Data type as “Picklist” and click Next.
5. Enter Field Label as “Category”.



6. Select "Use global picklist value set" and choose the global value set “Bus Time”.
7. Select Required, Always require a value in this field in order to save a record .

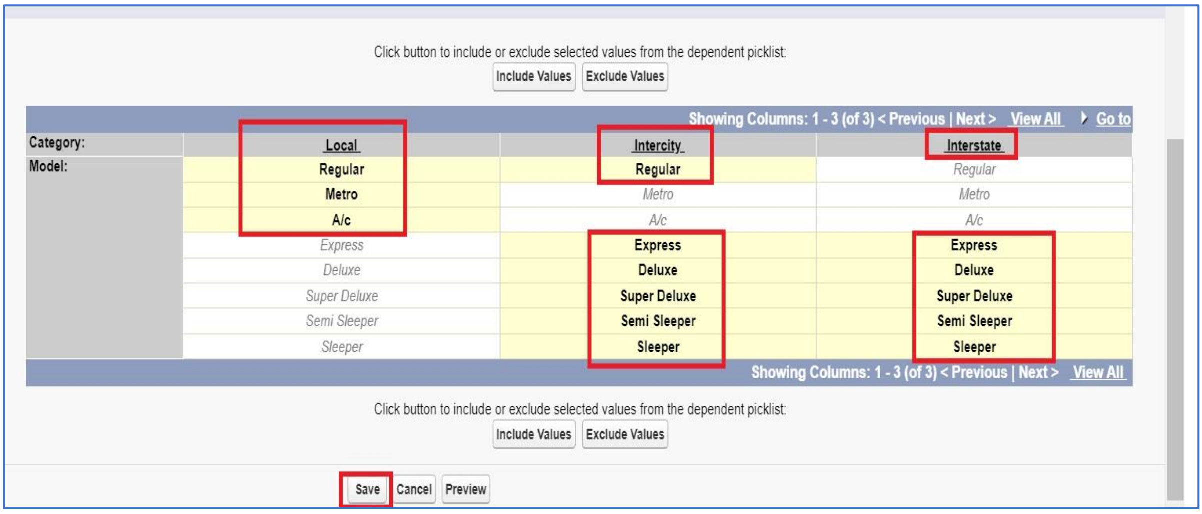


8. Click on Next, Next and Save.

Establish the Dependency

1. Go to setup >> click on Object Manager >> type object name(Bus) in quick find box >> click on the Bus Object
2. Now click on “Fields & Relationships” .
3. Now click on “Field Dependencies” .
4. Click on New.

5. Enter Controlling Field : Category
6. Enter Dependent field : Model
7. Click "Continue".
8. Matrix with the controlling field values on the top and the dependent field values on the side. Check the boxes to define which dependent picklist values should be available for each controlling picklist value.
9. Click Save



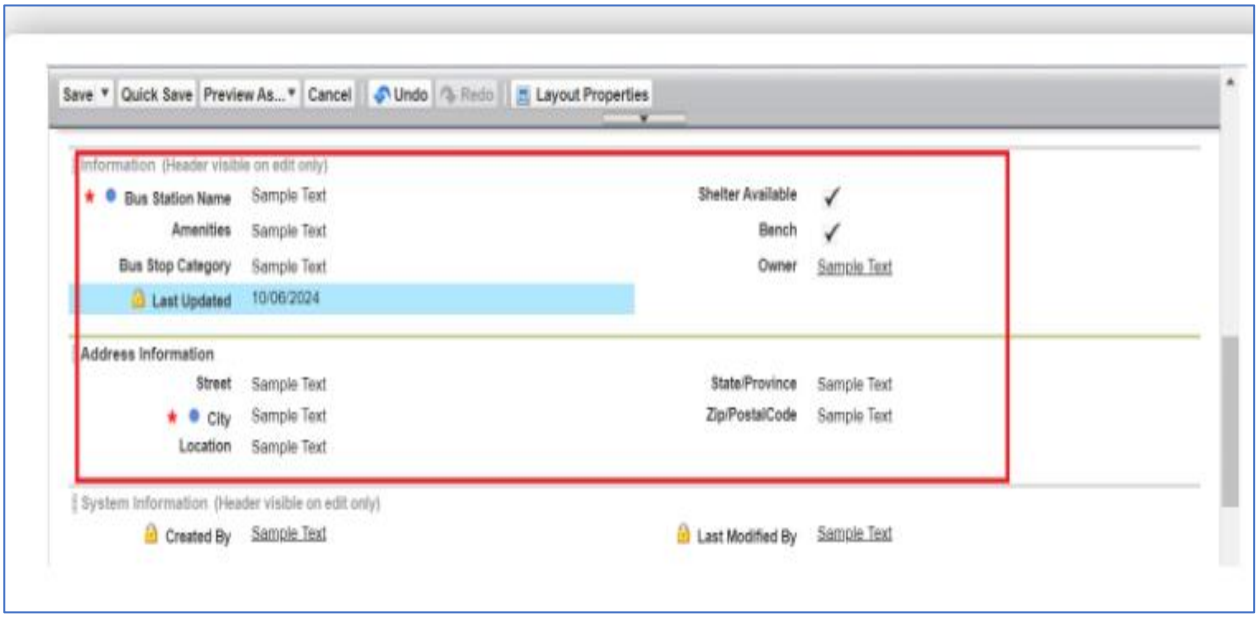
Milestone 6

Editing of Page Layouts

Page layouts in Salesforce control the layout and organization of fields, related lists, custom links, and other elements on a record detail or edit page. They are essential for managing how data is presented to users and can vary based on user roles and profiles.

Activity 1: To edit a Page Layout in Bus Station Object

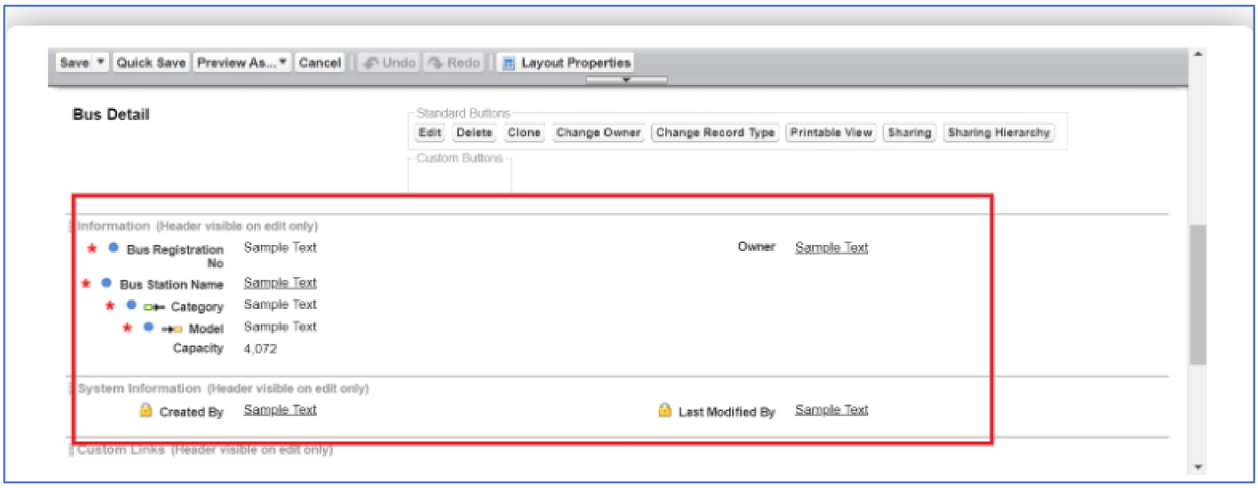
1. Go to setup >> click on Object Manager >> type object name(Bus Station) in quick find box >> click on the Bus Station object >> Page Layouts .
2. Click on the Bus Station Layout.
3. Drag and Arrange the field as shown below.



4. Click on field Last Updated >> click on settings >> select Read Only and save it.
5. Click on Save.

Activity 2: To create a Page Layout in Bus Object

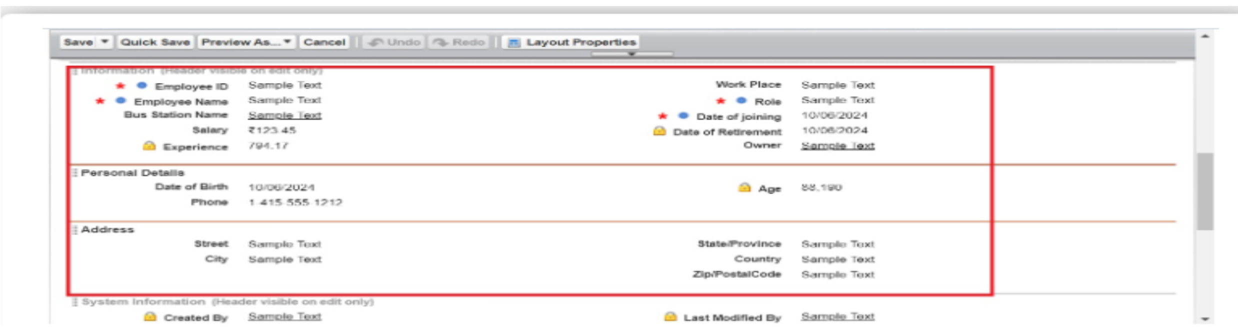
1. Go to setup >> click on Object Manager >> type object name(Bus) in quick find box >> click on the Bus object >> Page Layouts.
2. Click on the Bus Layout
3. Drag and Arrange the field as shown below



4. Click Save

Activity 3: To create a Page Layout in Employee Object

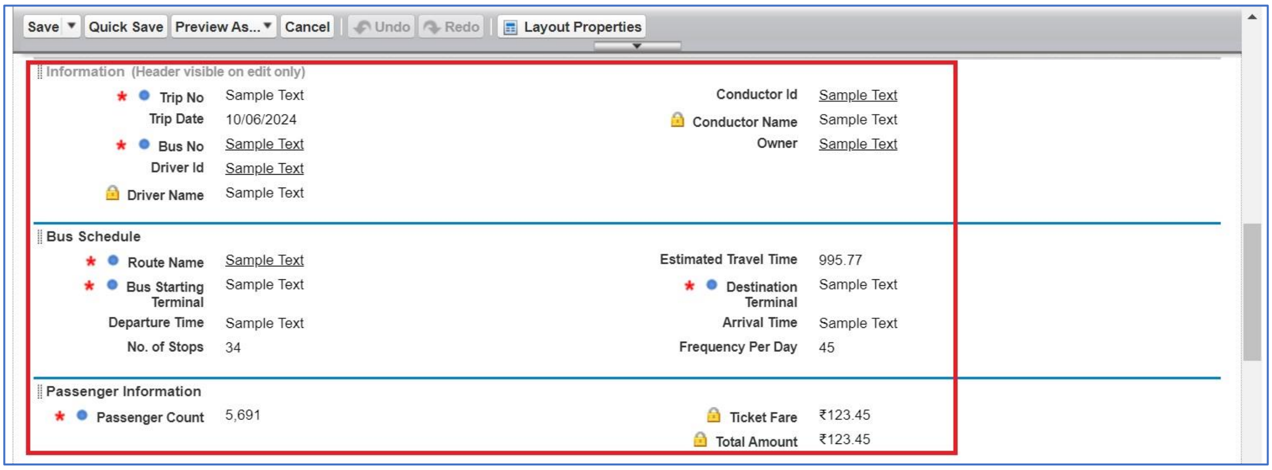
1. Go to setup >> click on Object Manager >> type object name (Employee) in quick find box >> click on the Employee object >> Page Layouts.
2. Click on the Employee Layout
3. Drag and Arrange the field as shown below



4. Click Save.

Activity 4: To create a Page Layout in Trip Object

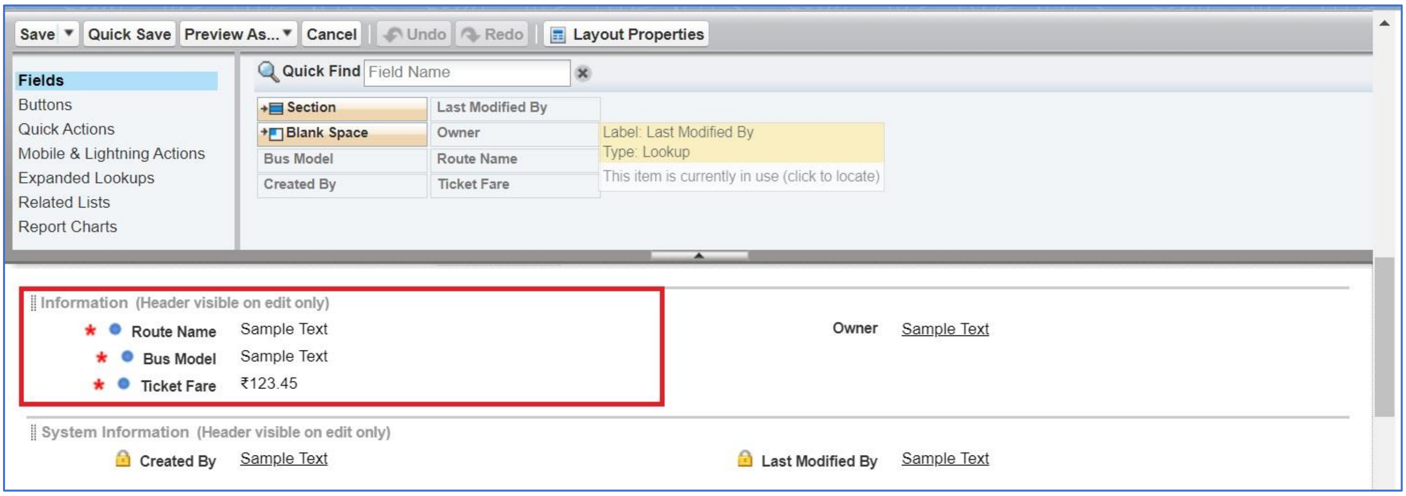
1. Go to setup >> click on Object Manager >> type object name(Trip) in quick find box >> click on the Trip object >> Page Layouts.
2. Click on the Trip Layout
3. Drag and Arrange the field as shown below



4. lick on field Ticket Fare >> click on settings >> select Read Only and save it.
5. Click Save.

Activity 5: To create a Page Layout in Ticket Fare Object

1. Go to setup >> click on Object Manager >> type object name(Ticket Fare) in quick find box >> click on the Ticket Fare object >> Page Layouts.
2. Click on the Ticket Layout
3. Drag and Arrange the field as shown below


Save
Quick Save
Preview As...
Cancel
Undo
Redo
Layout Properties
Fields
Buttons
Quick Actions
Mobile & Lightning Actions
Expanded Lookups
Related Lists
Report Charts
Quick Find
Field Name
Section
Last Modified By
Blank Space
Owner
Label: Last Modified By
Type: Lookup
This item is currently in use (click to locate)
Bus Model
Route Name
Created By
Ticket Fare
Information (Header visible on edit only)
Route Name
Sample Text
Bus Model
Sample Text
Ticket Fare
₹123.45
Owner
Sample Text
System Information (Header visible on edit only)
Created By
Sample Text
Last Modified By
Sample Text

4. Click Save.

A CRM Application For Public Transport Management

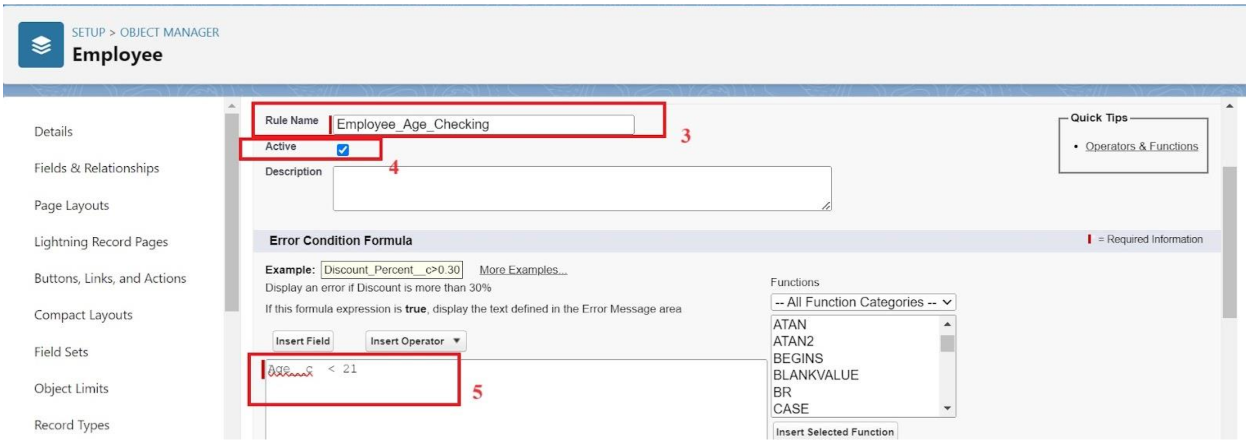
Milestone 7
Validation Rules

Validation rules in Salesforce are used to ensure data integrity by preventing users from entering invalid data into fields. They consist of a logical formula or expression that evaluates the data in one or more fields and returns true or false. If the rule returns true, an error message is displayed, and the record is not saved.

Activity 1: To create a validation rule to a Employee Object

1. Go to setup >> click on Object Manager >> type object name(Employee) in quick find box >> click on the Employee object
2. Click on the validation rule >> click on New.
3. Enter the Rule name as "Employee_Age_Checking".
4. Select Active
5. 5.Insert the Error Condition Formula as :

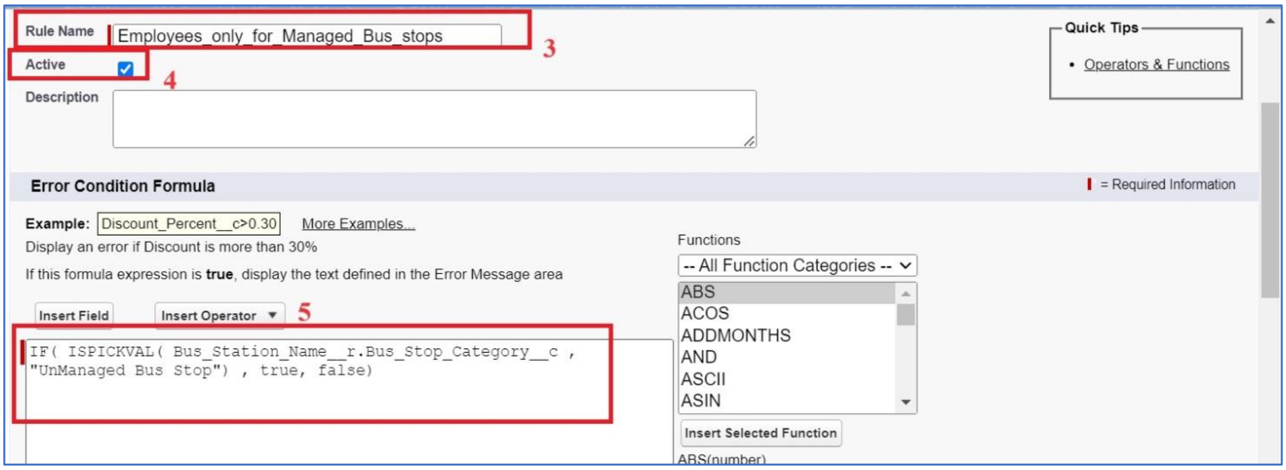
   Age__c < 21



6. Enter the Error Message as "Employee Age Must be Greater than or equal to 21".
7. Select the Error location as Top of Page
8. Click Save.

Activity 2: To create a validation rule to a Bus Station on Employee Object

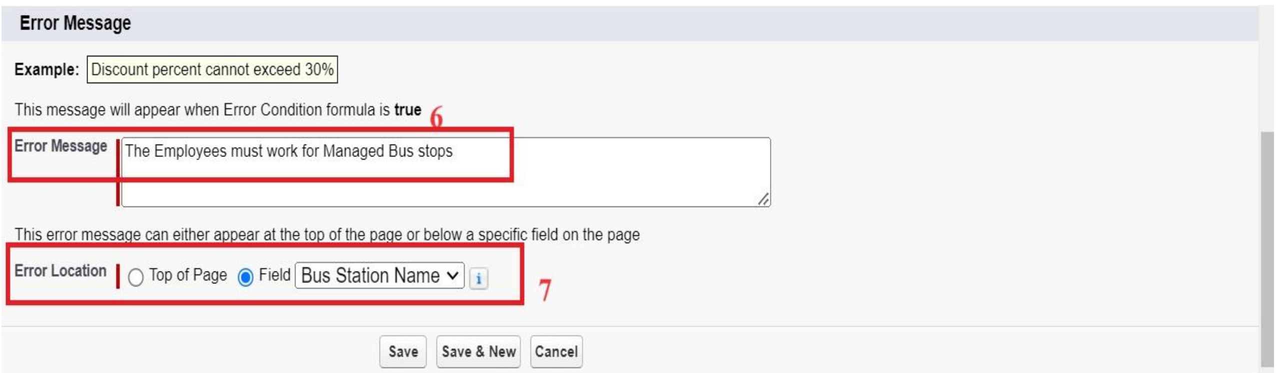
1. Go to setup >> click on Object Manager >> type object name(Employee) in quick find box >> click on the Banquet Hall object
2. Click on the validation rule >> click on New.
3. Enter the Rule name as "Employees_only_for_Managed_Bus_stops".



4. Select Active
5. Insert the Error Condition Formula as :

   IF(ISPICKVAL(Bus_Station_Name__r.Bus_Stop_Category__c , "UnManaged Bus Stop") , true, false)

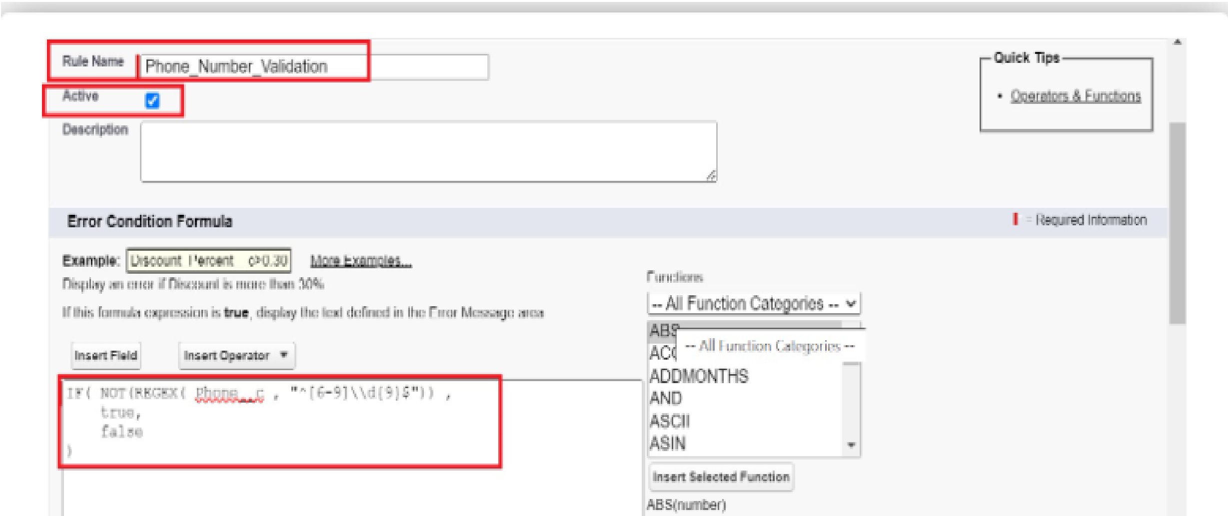
6. Enter the Error Message as "The Employees must work for Managed Bus stops".
7. Select the Error location as Field and as Bus Station Name and click Save.



Activity 3: To create a validation rule to a Phone No on Employee Object

1. Go to setup >> click on Object Manager >> type object name(Employee) in quick find box>> click on the Employee object
2. Click on the validation rule >> click on New.
3. Enter the Rule name as “Phone_Number_Validation”.
4. Select Active
5. Insert the Error Condition Formula as :

   IF(NOT(REGEX(Phone__c , "^[6-9]\\d{9}$")) ,   true, false)



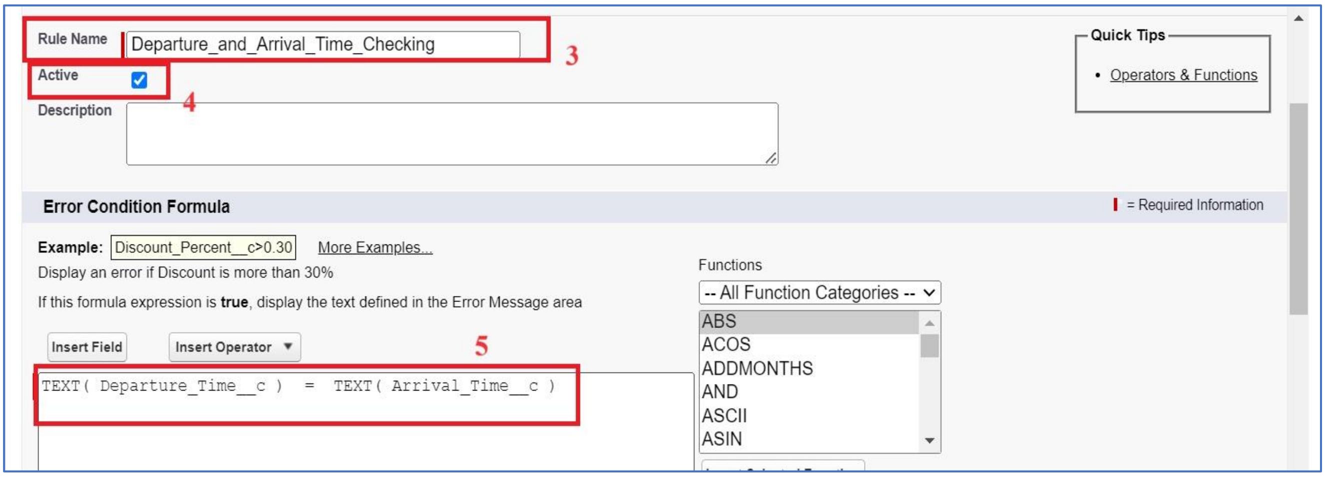
6. Enter the Error Message as “Phone no must be 10 digits and starts with 6 or 7 or 8or9”.
7. Select the Error location as Top of Page and click Save.

Activity 4: To create a validation rule to a Trip Object

1. Go to setup >> click on Object Manager >> type object name(Trip) in quick find box >> click on the Trip object
2. Click on the validation rule >> click on New.

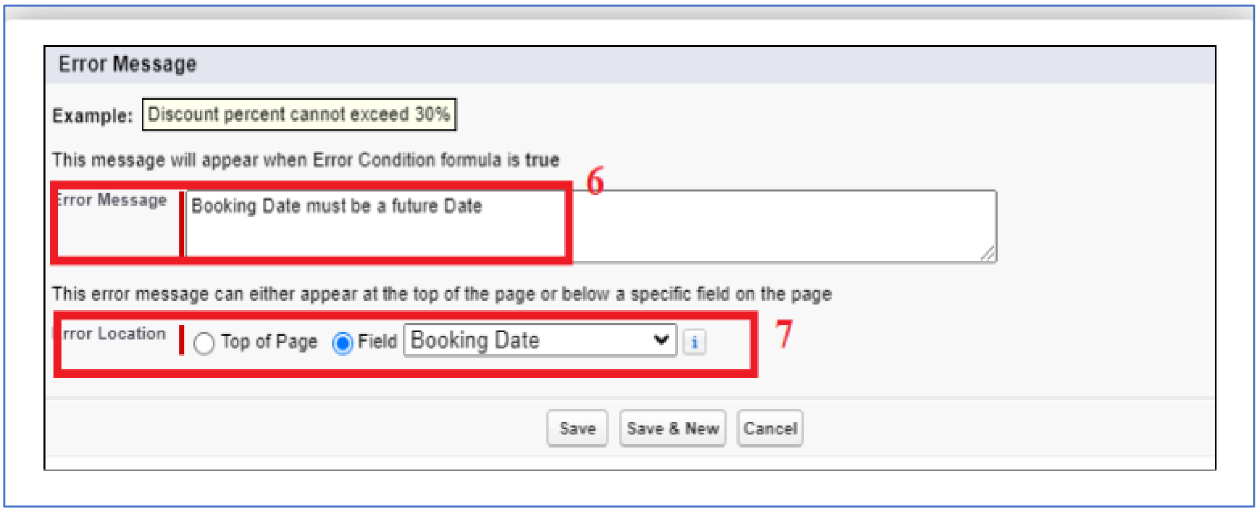
3. Enter the Rule name as "Departure_and_Arrival_Time_Checking".
4. Select Active
5. Insert the Error Condition Formula as :

   TEXT(Departure_Time__c) = TEXT(Arrival_Time__c)



6. Enter the Error Message as "The Departure Time and Arrival Time Should not be the same".

7. Select the Error location as Top of Page and click Save.



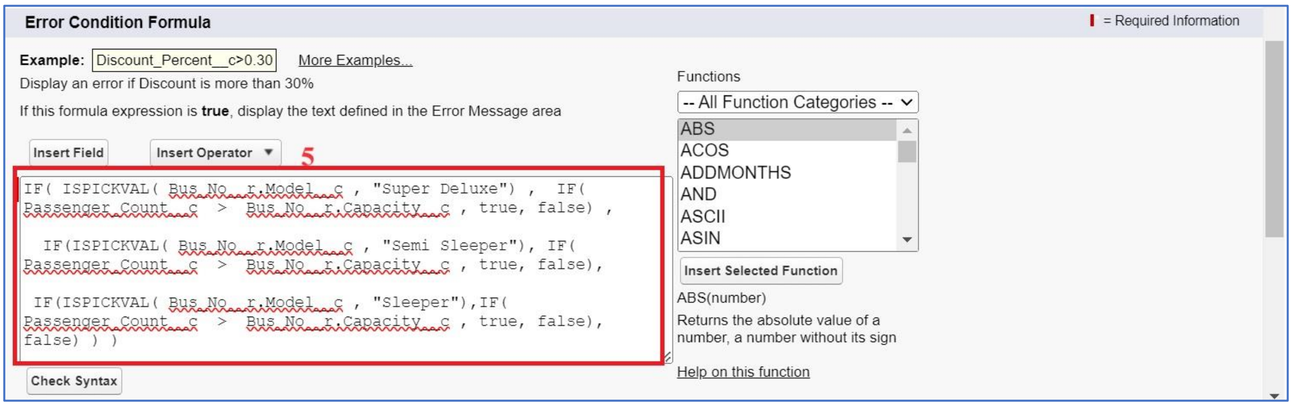
Activity 5: To create a second validation rule to a Trip Object

1. Go to setup >> click on Object Manager >> type object name(Trip) in quick find box >> click on the Trip object
2. Click on the validation rule >> click on New.
3. Enter the Rule name as "Passenger_Count_Checking_for_Few_Buses".
4. Select Active
5. Insert the Error Condition Formula as :

   IF(ISPICKVAL(Bus_No__r.Model__c , "Super Deluxe") , IF(Passenger_Count__c > Bus_No__r.Capacity__c , true, false) ,

   IF(ISPICKVAL(Bus_No__r.Model__c , "Semi Sleeper"), IF(Passenger_Count__c > Bus_No__r.Capacity__c , true, false),

   IF(ISPICKVAL(Bus_No__r.Model__c , "Sleeper"),IF(Passenger_Count__c > Bus_No__r.Capacity__c , true, false), false)))

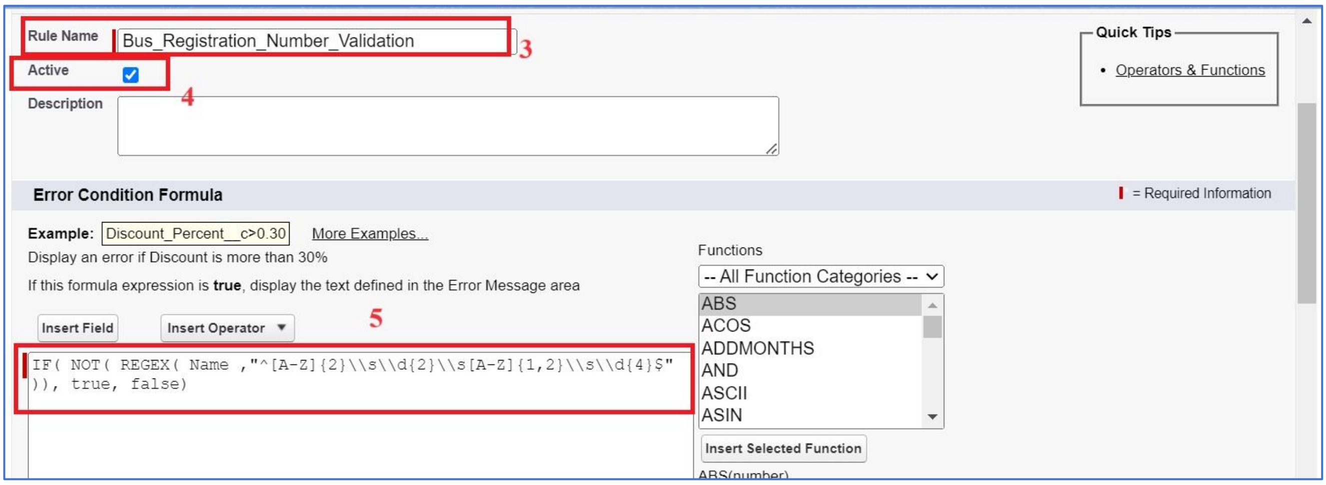


6. Enter the Error Message as "For Super Deluxe, Semi Sleeper and Sleeper Buses ,the Passenger Count must be less than or equal to the Capacity of the Bus".
7. Select the Error location as Field and as Passenger Count and click Save.

Activity 6: To create a validation rule to a Bus Object

1. Go to setup >> click on Object Manager >> type object name(Bus) in quick find box >> click on the Bus Hall object
2. Click on the validation rule >> click on New.
3. Enter the Rule name as “Bus_Registration_Number_Validation”.
4. Select Active
5. Insert the Error Condition Formula as :

   IF(NOT(REGEX(Name ,"^[A-Z]{2}\\s\\d{2}\\s[A-Z]{1,2}\\s\\d{4}$")), true, false)



6. Enter the Error Message as “The bus Registration Number must be in the format of 2 Capital Letters(State Code), space, 2 Numbers (District Code), space 1 or 2 Capital Letters(Series), space and 4 Numbers (Number).”.
7. Select the Error location as Field and as Bus Registration No and click Save.

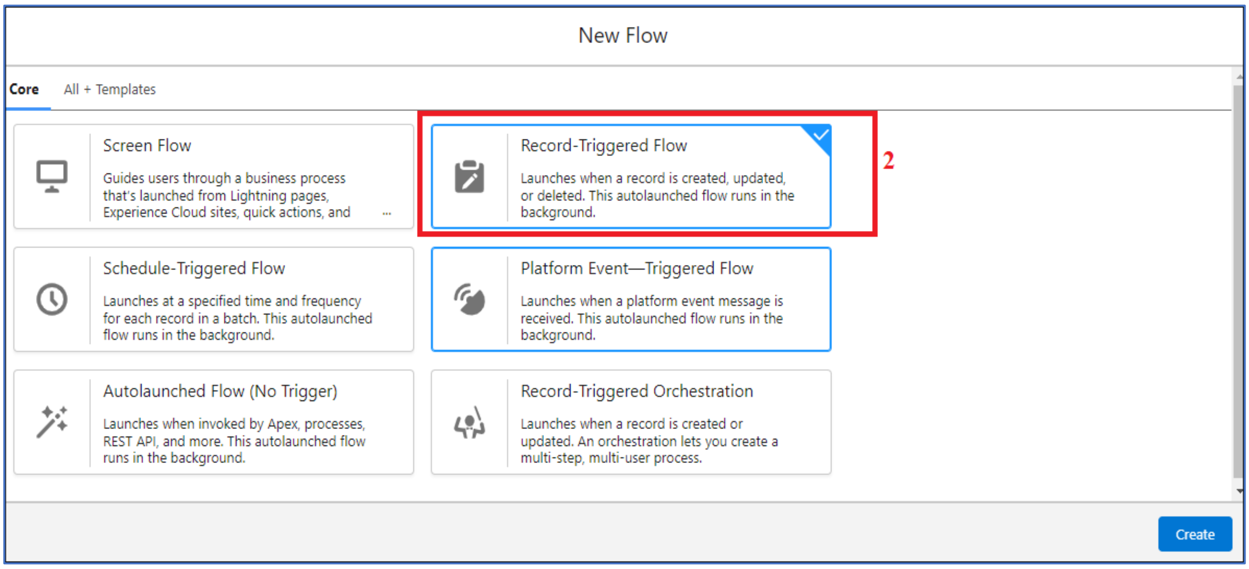
Milestone 8
Flows

In Salesforce, a Flow is an automation tool that allows you to create complex business processes using a visual interface. Flows can be used to collect, update, delete, and create records, as well as to guide users through a series of screens to complete a process.

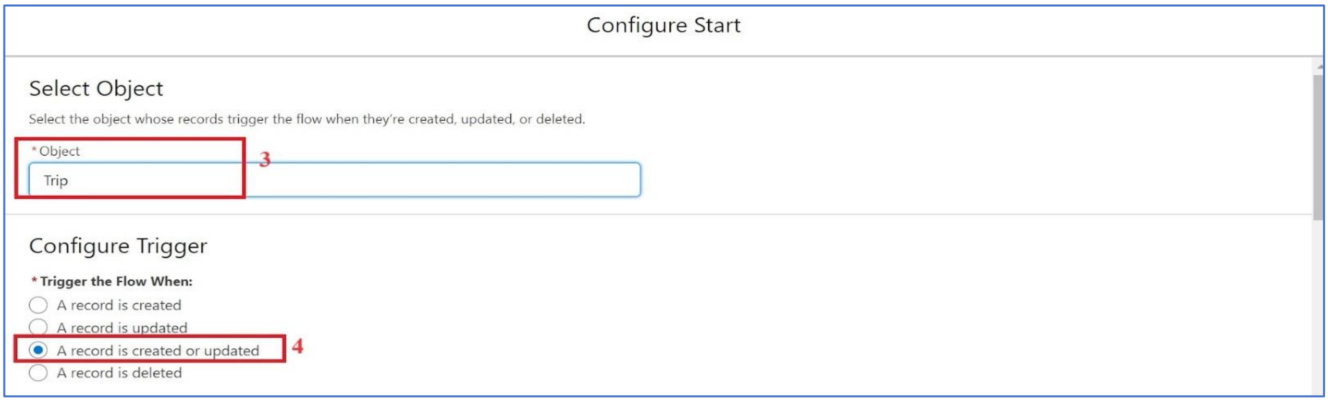
Activity 1 : Create Flow to Fetch Ticket Fare for Bus.

Note: Please enter Route Name in Ticket Fare object as Hyderabad-Warangal(Express) , Hyderabad-Warangal(Deluxe), ...

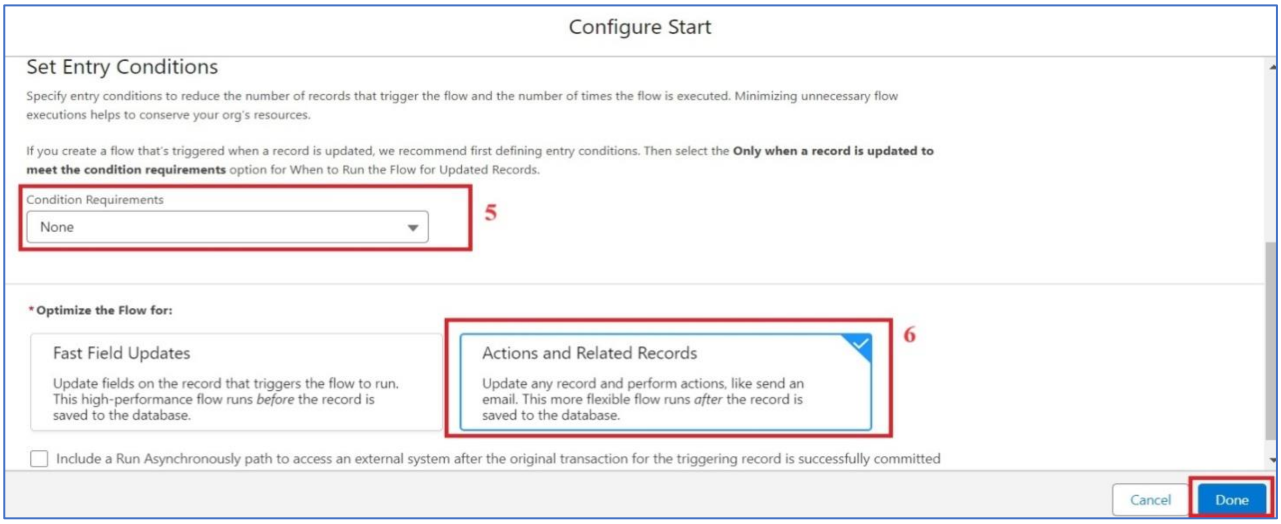
1. Go to setup ?type Flow in quick find box ? Click on the Flow and Select the New Flow.
2. Select the record Triggered flow.Click on create.



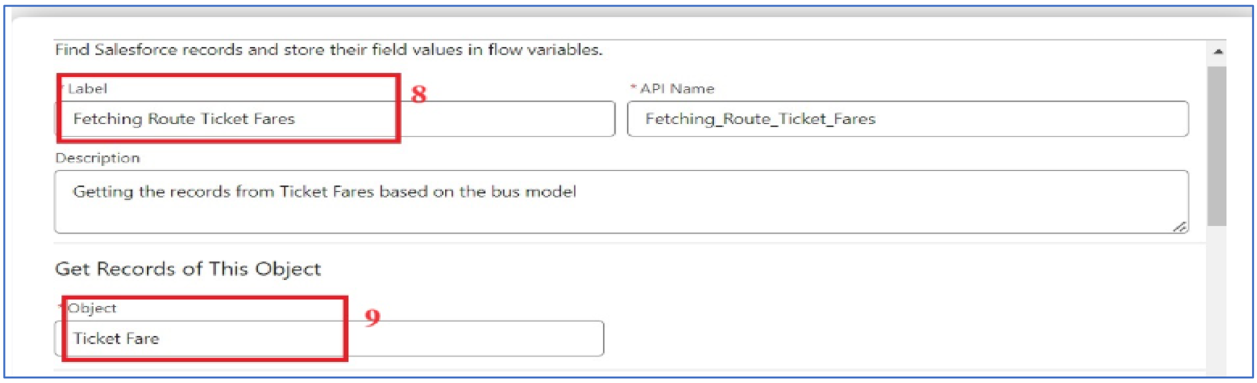
3. Under Object select “Trip”
4. Select A record is created or updated



5. Set Entry Conditions : None
6. Select Actions and Related Records and click on Don



7. Under the record trigger flow click on the "+" icon and select Get Records.
8. Enter Label as " Fetching Route Ticket Fares ".
9. For Object select Ticket Fare



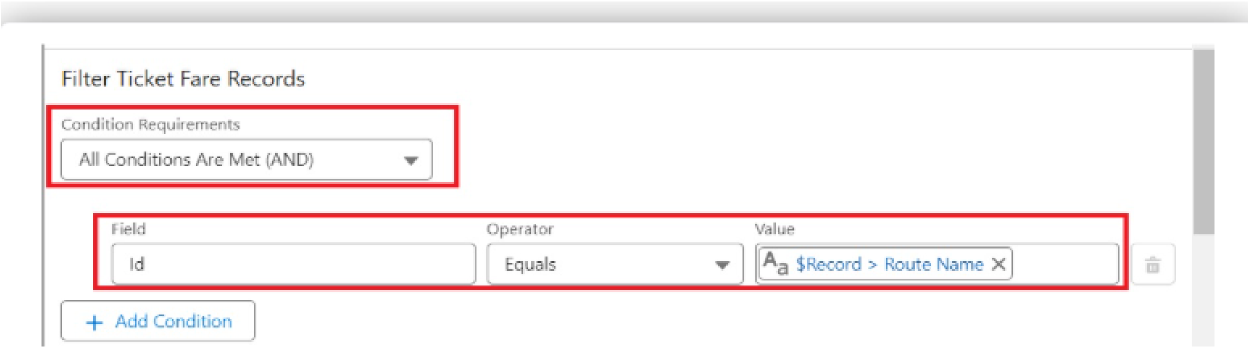
10. For Condition Requirements , select All Conditions are Met(AND)

    For the first condition select as follows:

    Field: Id

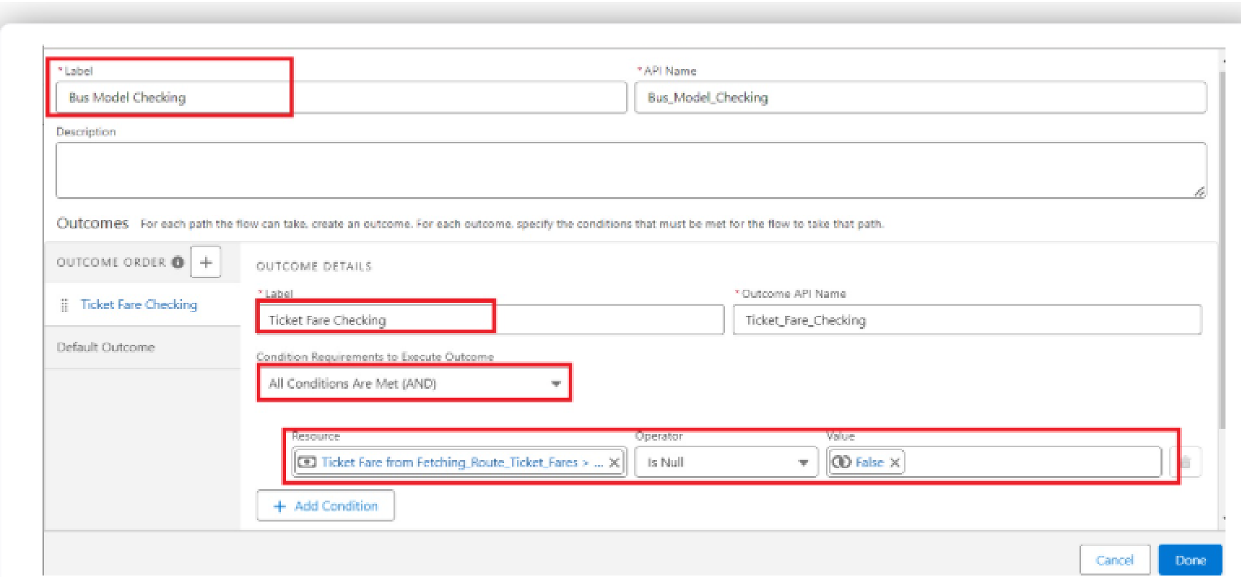
    Operator: Equals

    Value: {!$Record.Route_Name__c}



11. For How many Records to store Select Only the First Record.
12. For How to Store Record Data select Choose fields and let Salesforce do the rest. Select Field: Ticket_Fare__c. Click on Done.

13. From the Toolbox drag and drop Decision element.
14. Enter the Decision label as "Bus Model Checking".
15. For Outcome Details:
    - Label : Ticket Fare Checking
    - Outcome API Name : Ticket_Fare_Checking
    - Condition Requirements to Execute Outcome : All Conditions are Met (AND)
    - Resource : {!Fetching_Route_Ticket_Fares.Ticket_Fare__c}
    - Operator : Is Null
    - Value : {!$GlobalConstant.False}

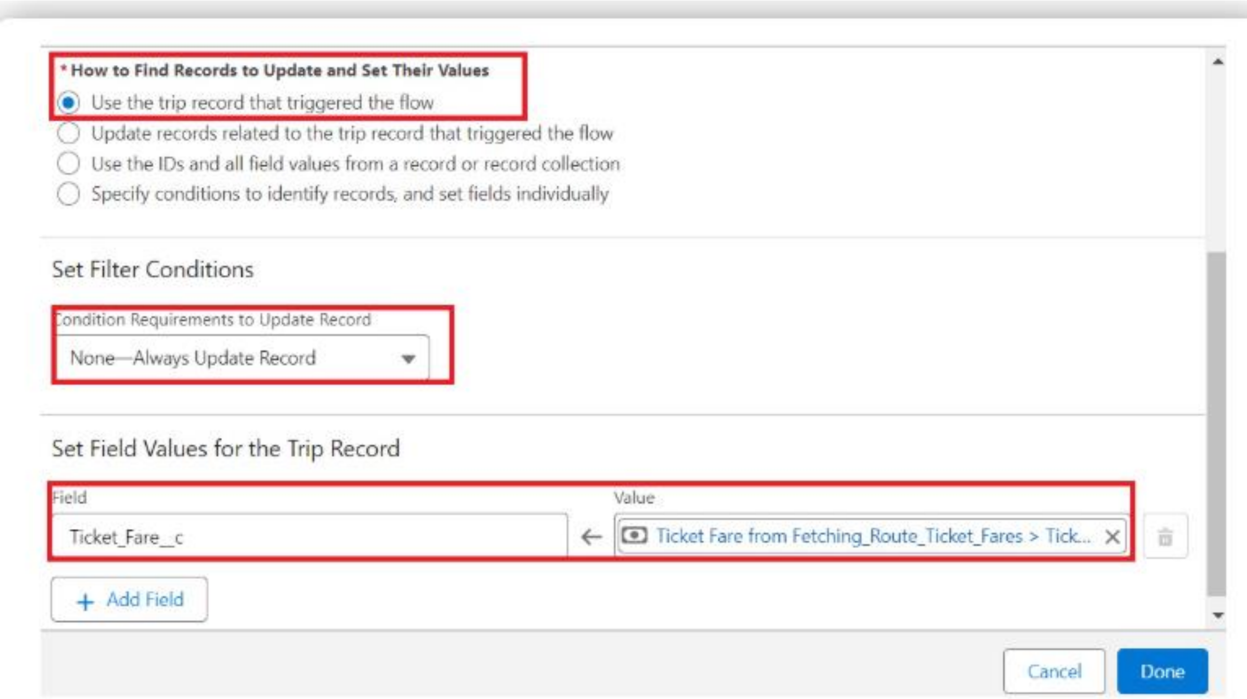


16. Click Done
17. From the Toolbox drag and drop Update Records element and connect to Decision element for Ticket Fare Fetching Output.
18. Enter the label as "Updating Trip Object Ticket Fare Field".
19. How to Find Records to Update and Set Their Values : Use the trip record that triggered the flow
20. Set Filter Conditions : None -Always Update Record

21. Field : Ticket_Fare__c

    Value : {!Fetching_Route_Ticket_Fares.Ticket_Fare__c}

    And click Done

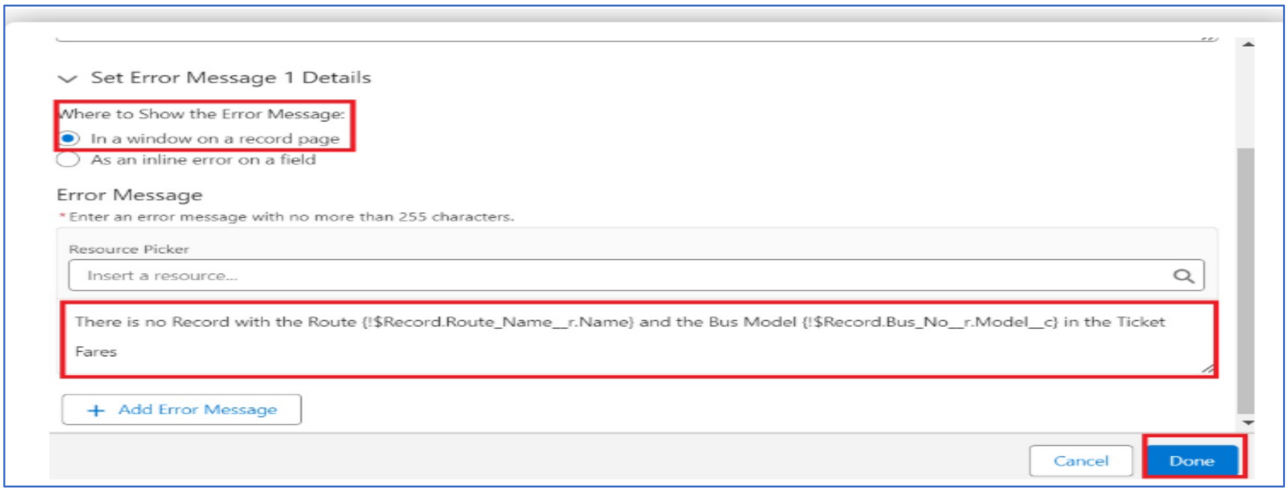


22. From the Toolbox drag and drop Custom Error Message element and connect to Default Outcome of Decision element..

23. Enter the label as "Route with Bus Model Does not Exists".

24. For Where to Show the Error Message: Select In a window on a record page

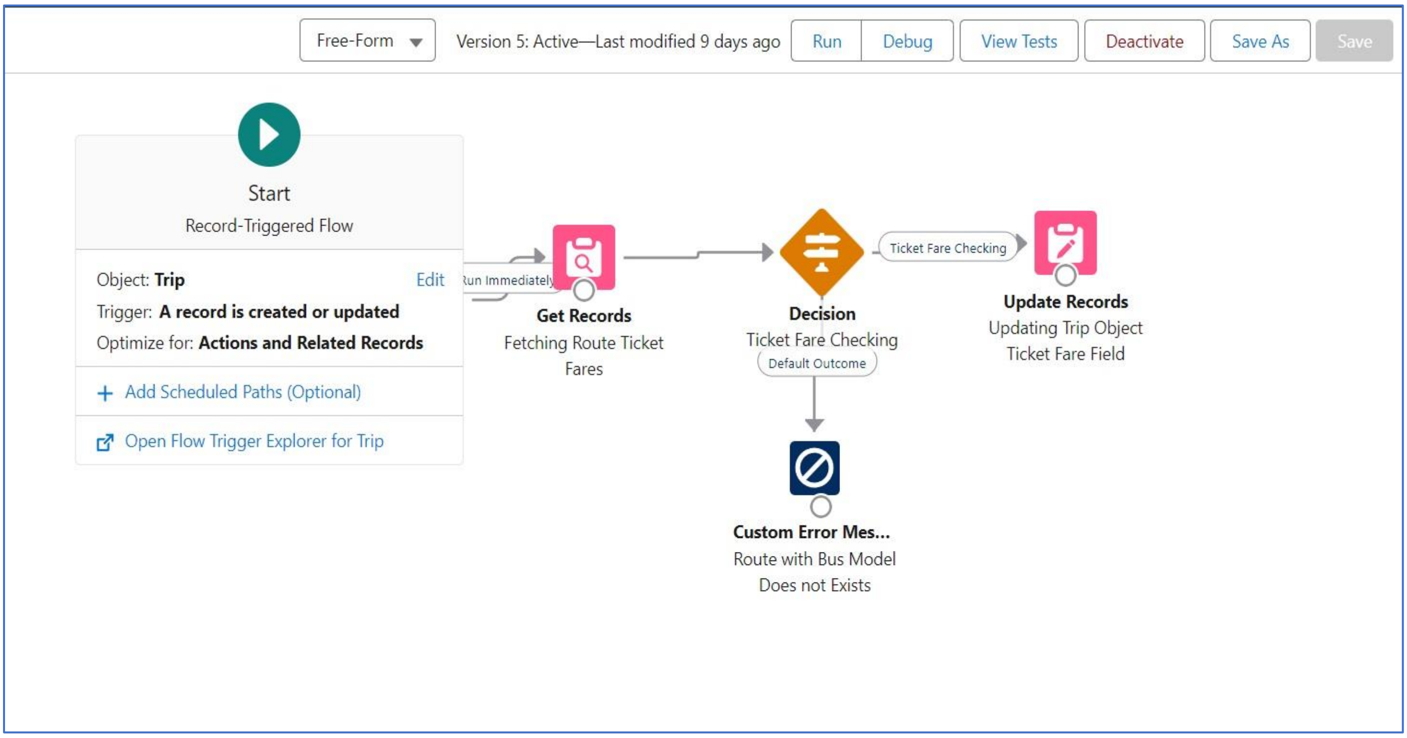
Error Message: There is no Record with the Route {!$Record.Route_Name__r.Name} and Bus Model {!$Record.Bus_No__r.Model__c} in the Ticket Fares



26. Click Done

27. Save the flow as “Fetching Ticket Fare For Bus”

28. Activate the flow.



Milestone 9
Triggers

Triggers in Salesforce are pieces of Apex code that execute before or after specific database operations, such as insert, update, delete, or undelete. They allow you to perform custom actions on records in Salesforce when certain events occur. Triggers are particularly powerful for enforcing business logic and automating workflows.

Activity 1 : Create a Trigger to validate whether the Driver Id and Conductor Id are correct or not.

Step 1:Login to salesforce
Log in to your Salesforce account with administrative privileges.

Step 2:

i)Navigate to Setup: Once logged in, click on the gear icon ?? (Setup) located at the top-right corner of the page. This will open the Setup menu.

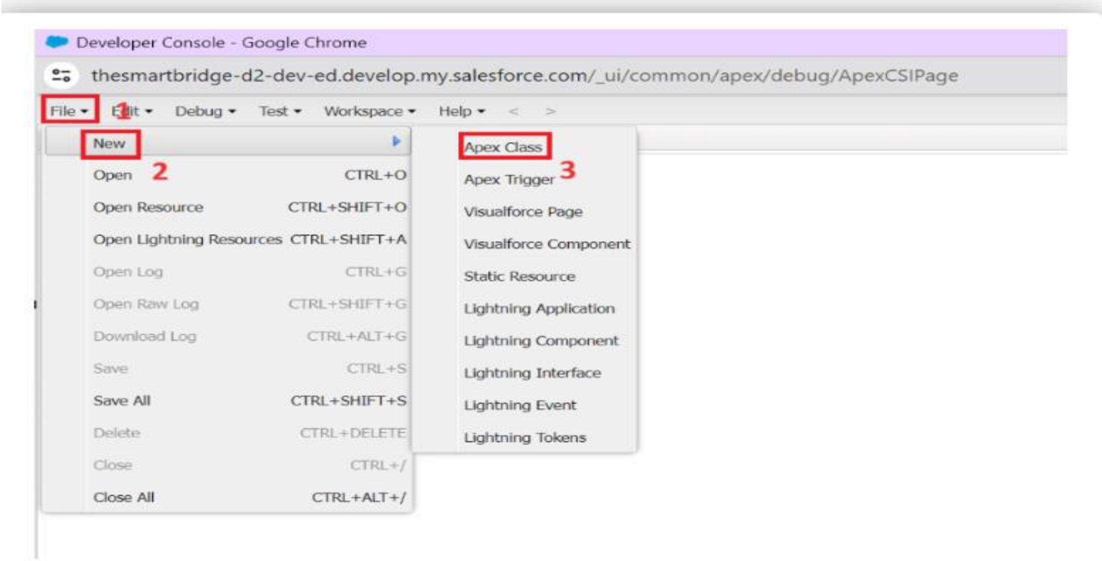
ii)Click on Developer Console: Click on the "Developer Console" option from the Setup menu. This will open the Developer Console in a new browser tab or window.

Step 3:

1) In the Developer Console window, go to the top menu and click on "File".

2)Select New: From the dropdown menu under "File", select "New".

3)Choose Apex Class: In the submenu that appears, select "Apex Class". This will open a new Apex Class editor tab.

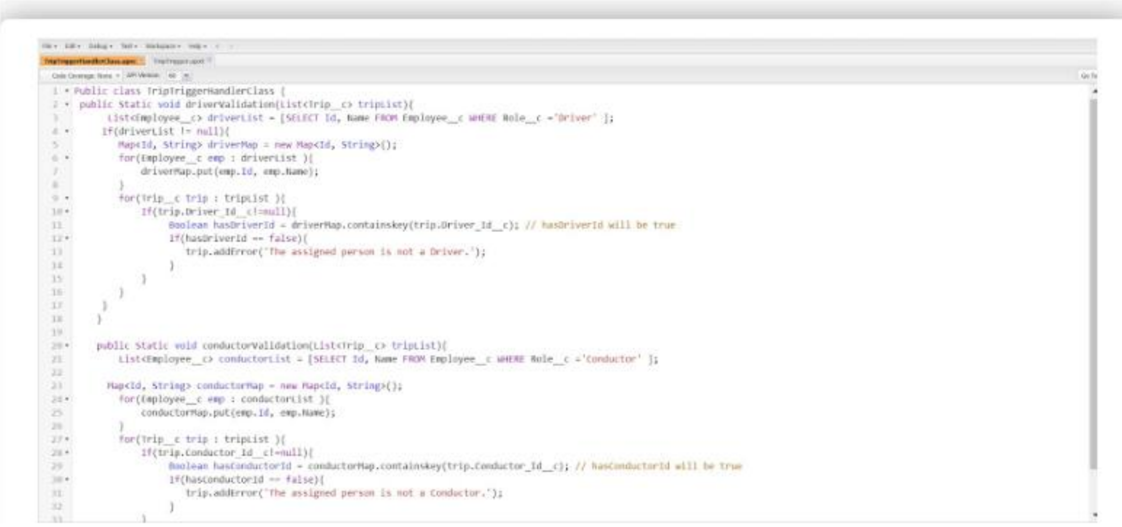


Give Class Name : TripTriggerHandlerClass

Create an Apex Class:

```
Public class TripTriggerHandlerClass {
// Checking whether the entered Driver Id belongs to a Driver or not
 public Static void driverValidation(List<Trip__c> tripList){
      List<Employee__c> driverList = [SELECT Id, Name FROM Employee__c WHERE Role__c ='Driver'
];
     If(driverList != null){
        Map<Id, String> driverMap = new Map<Id, String>();
        for(Employee__c emp : driverList ){
            driverMap.put(emp.Id, emp.Name);
        }
        for(Trip__c trip : tripList ){
            If(trip.Driver_Id__c!=null){
                Boolean hasDriverId = driverMap.containskey(trip.Driver_Id__c); // hasDriverId will be
true
                If(hasDriverId == false){
                  trip.addError('The assigned person is not a Driver.');
```

```
            }
         }
      }
    }
   }

// Checking whether the entered conductor Id belongs to a Conductor or not
   public Static void conductorValidation(List<Trip__c> tripList){
      List<Employee__c> conductorList = [SELECT Id, Name FROM Employee__c WHERE Role__c
='Conductor' ];

     Map<Id, String> conductorMap = new Map<Id, String>();
      for(Employee__c emp : conductorList ){
         conductorMap.put(emp.Id, emp.Name);
      }
      for(Trip__c trip : tripList ){
         If(trip.Conductor_Id__c!=null){
            Boolean hasConductorId = conductorMap.containskey(trip.Conductor_Id__c); //
hasConductorId will be true
            If(hasConductorId == false){
              trip.addError('The assigned person is not a Conductor.');
            }
         }
      }
   }
}
```



Step 4:

i) In the Developer Console window, go to the top menu and click on "File".

ii)Select New: From the dropdown menu under "File", select "New".

iii)Choose Apex Class: In the submenu that appears, select "Apex Trigger". This will open a new Apex Trigger editor tab.

Create an Apex Trigger:

```
trigger TripTrigger on Trip__c (before insert, before update) {
  if(trigger.isBefore){
        if(trigger.isInsert || trigger.isUpdate){
            // Validating the Conductor Id in Trip is really a Conductor or not
            TripTriggerHandlerClass.driverValidation(trigger.new);
            // Validating the Conductor Id in Trip is really a Conductor or not
            TripTriggerHandlerClass.conductorValidation(trigger.new);
        }
    }
}
```

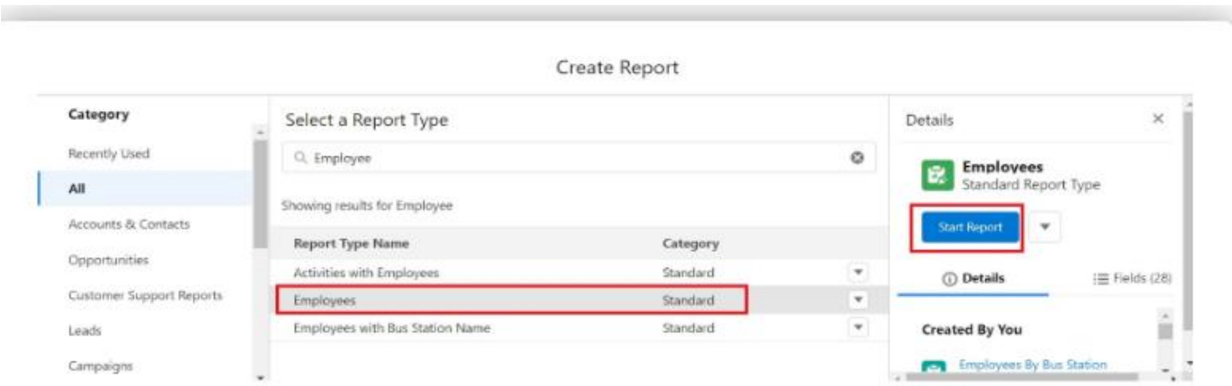
```
trigger TripTrigger on Trip__c (before insert, before update) {

    if(trigger.isBefore){
        if(trigger.isInsert || trigger.isUpdate){
            // Validating the Conductor Id in Trip is really a Conductor or not
            TripTriggerHandlerClass.driverValidation(trigger.new);

            // Validating the Conductor Id in Trip is really a Conductor or not
            TripTriggerHandlerClass.conductorValidation(trigger.new);
        }
    }
}
```

Milestone 10
Reports

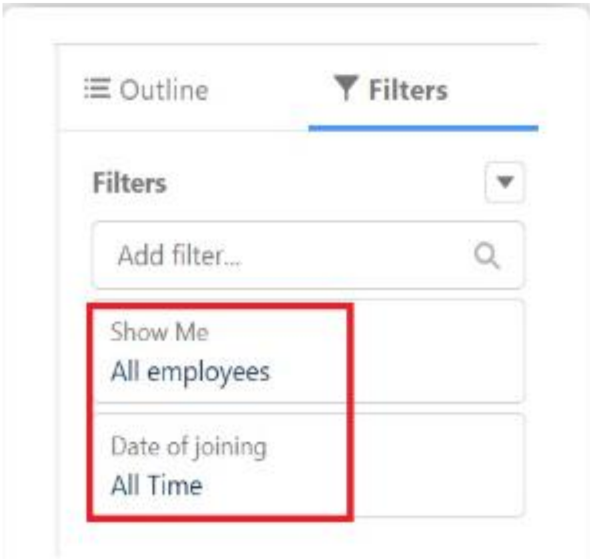
Reports in Salesforce are tools that allow you to analyze and present your Salesforce data in a structured format. They help you understand and monitor key metrics and trends, providing insights into your business operations. Salesforce reports are highly customizable and can be tailored to meet specific business requirements.

Activity 1: Create a Employees By Bus Station(Summary) Report

1.Click App Launcher
2. Select Public Transport(RTC) App
3. Click on Reports tab
4. Click on New Report.
5. Click the report type as Employees Click Start report.

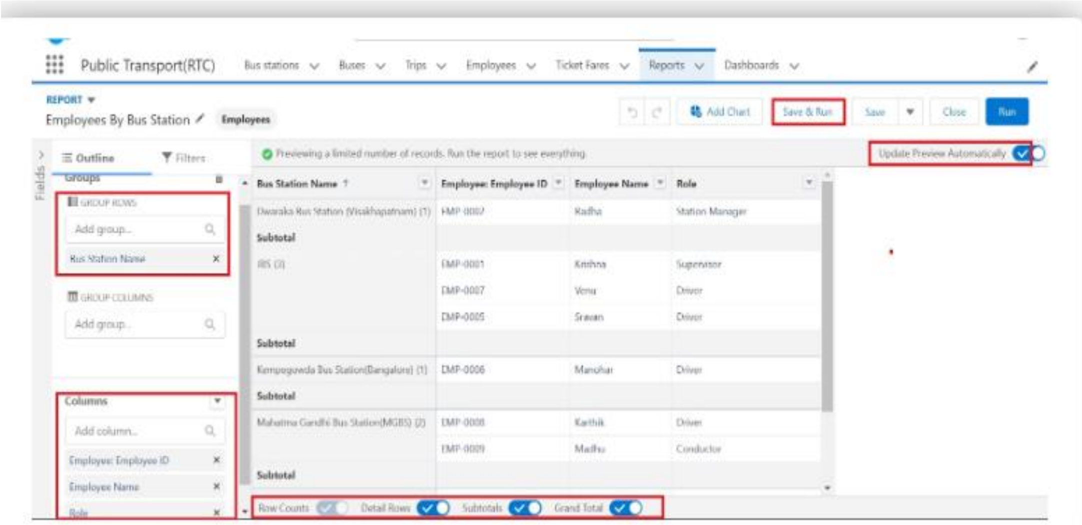


6. Click on Filters and select as follows and click on Apply



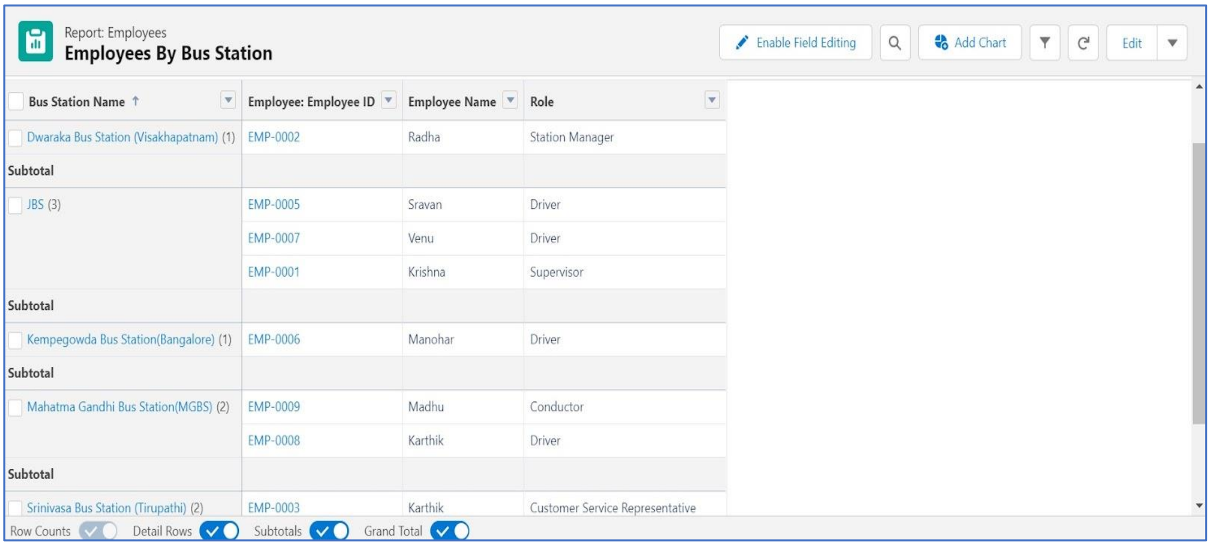
7. Customize your report, in group rows select – Bus Station Name, for columns Employee ID, Employee Name, Role (In this way we are making a Summary Report).
8. Click save and run
9. Give report name – Employees By Bus Station
10. Click Save

NOTE: In this report you can see your all record of the object you selected for reporting (What you selects in "Select a report type option")



View Report

1. Click on App Launcher on the left side of the screen.
2. Search Public Transport(RTC) App & click on it.
3. Click on Reports Tab.
4. Click on Employees By Bus Station and see records.



Activity 2: Create a Drivers and Conductors Information Report

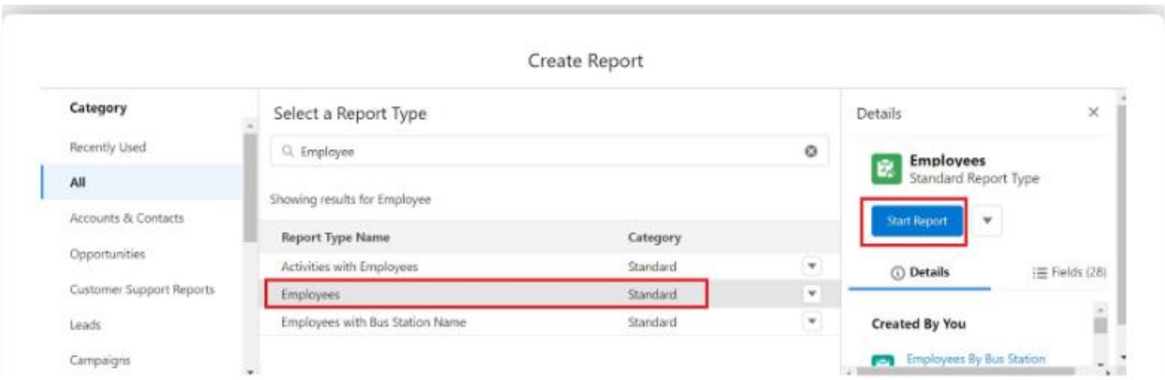
1.Click App Launcher

2. Select Public Transport(RTC) App

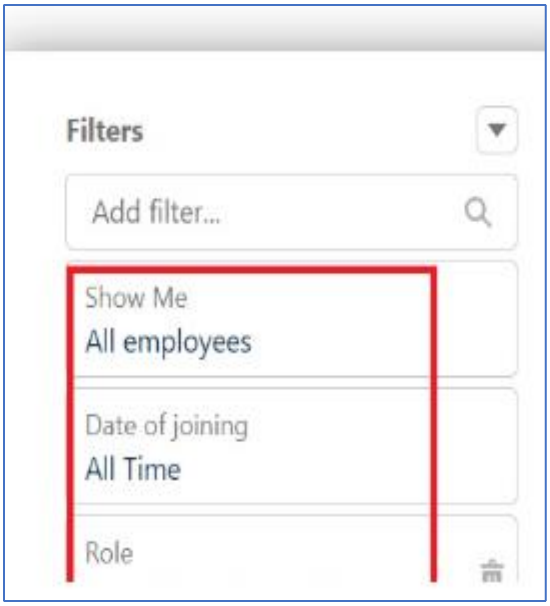
3. Click on Reports tab

4. Click on New Report.

5. Click the report type as Employees Click Start report.



6. Click on Filters and select as follows and click on Apply

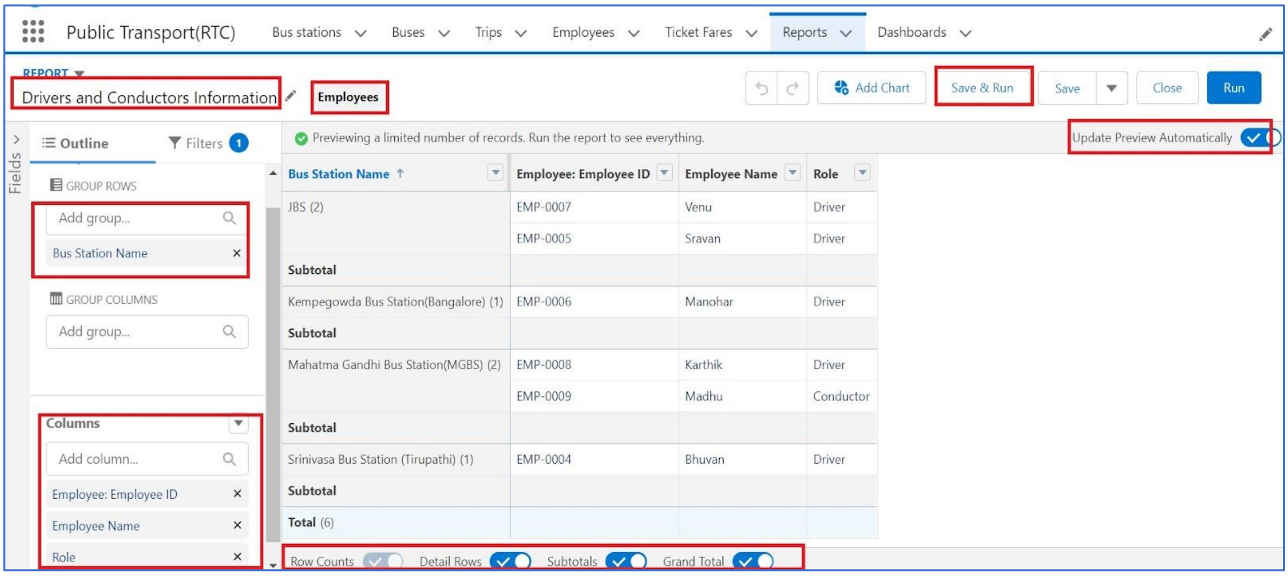


7.Customize your report, in group rows select – Bus Station Name, for columns Employee ID, Employee Name, Role (In this way we are making a Summary Report).

8. Click save and run

9. Give report name – Drivers And Conductors Information

10. Click Save



Activity 3: Create a Previous and Current Month Trip Details Report

1.Click App Launcher

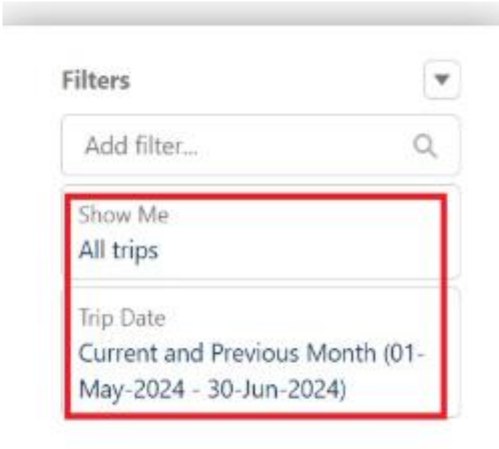
2. Select Public Transport(RTC) App

3. Click on Reports tab

4. Click on New Report.

5. Click the report type as Trips Click Start report.

6. Click on Filters and select as follows and click on Apply

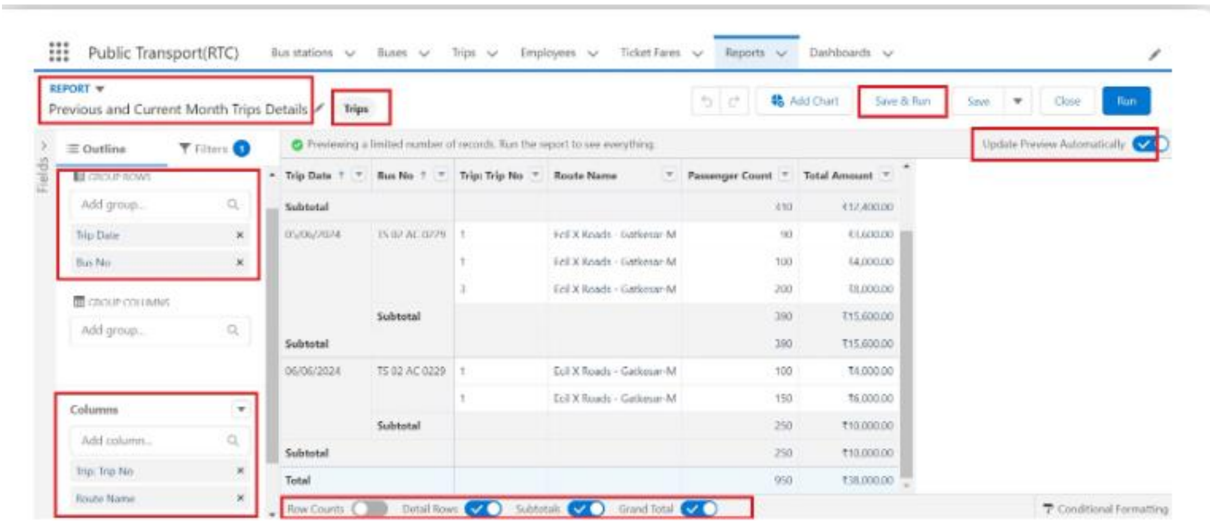


7.Customize your report, in group rows select – Trip Date, Bus No , for columns Trip No, Route Name, Passenger Count, Total Amount (In this way we are making a Summary Report).

8. Click save and run

9. Give report name – Previous And Current Month Trips Details

10. Click Save

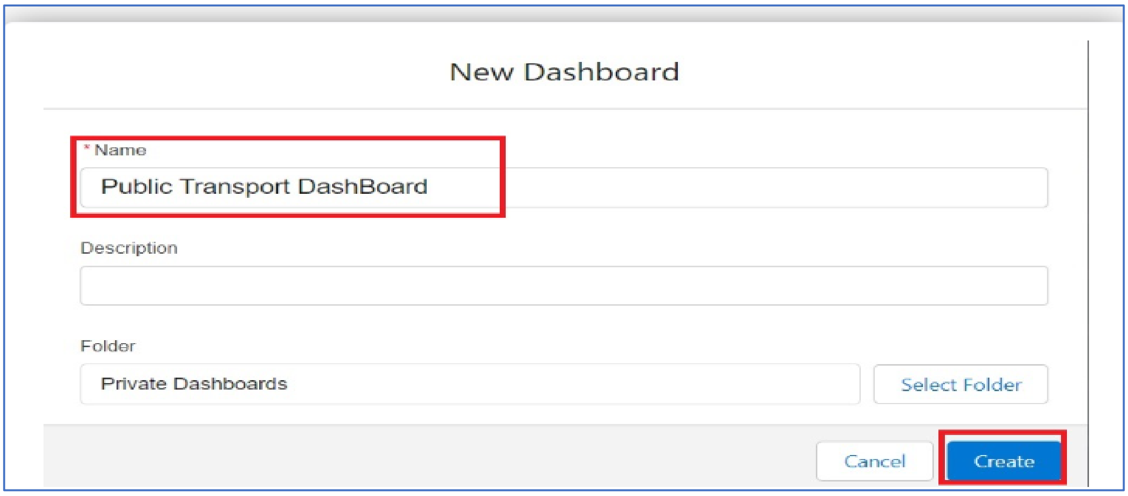


Milestone 11
Dashboards

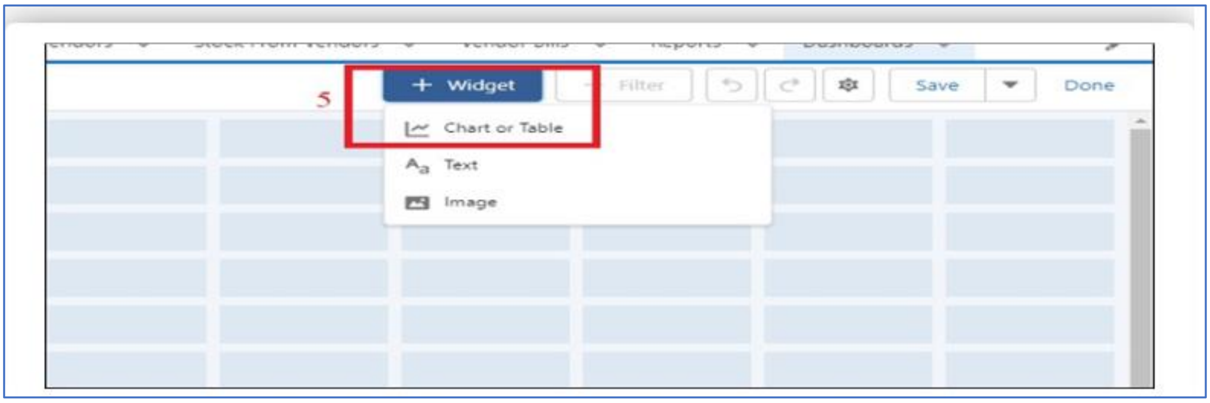
Dashboards in Salesforce are visual representations of your reports and key metrics, providing a consolidated view of your data. They allow you to monitor performance, track progress, and make informed decisions at a glance. Dashboards are composed of various components such as charts, tables, gauges, and metrics, each displaying data from one or more reports.

Activity 1: - Create Dashboard

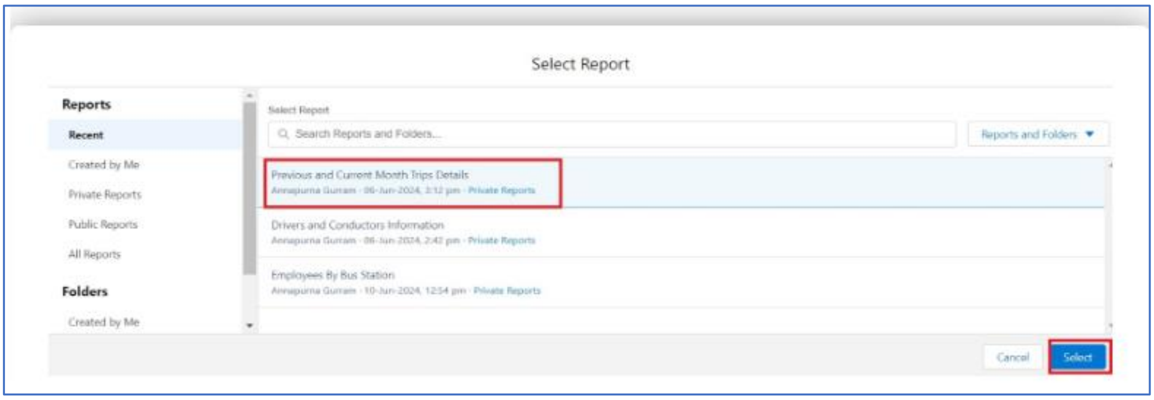
1. Click on the Dashboards tab from the Public Transport(RTC) application.
2. Click on the new dashboard.



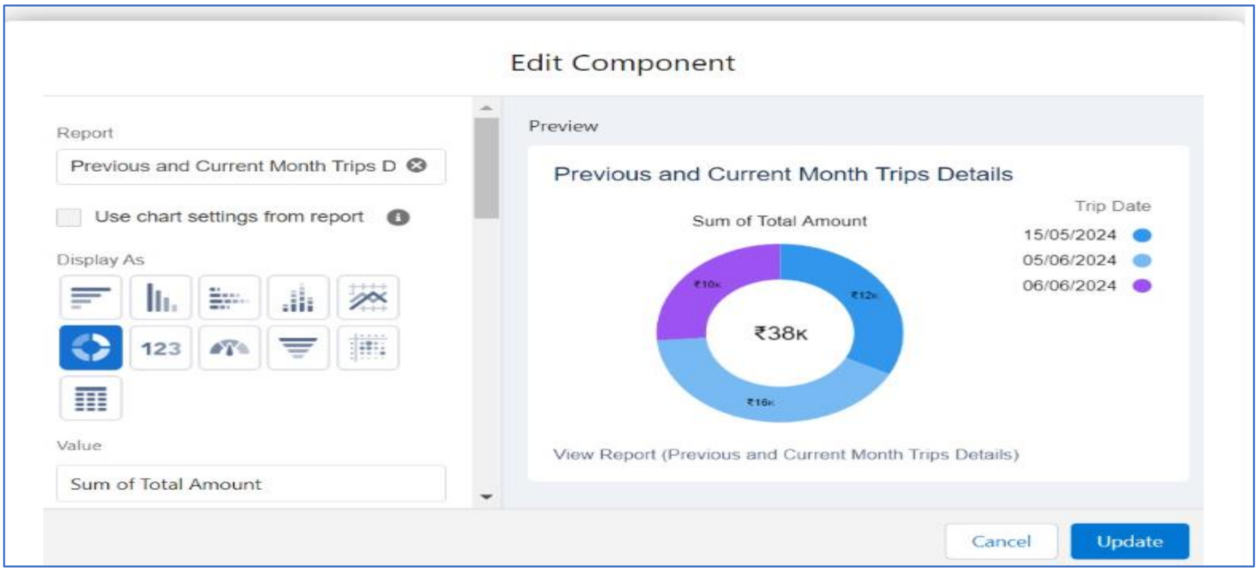
3. Give name - Public Transport DashBoard
4. Click create
5. Click on +widget
6. Select the Previous and Current Month Trips Details Report
7. For the data visualization select any of the charts, tables etc. as per your choice/requirement
8. Click add.
9. Click on +widget



10. Select the Drivers and Conductors Information Report



11. For the data visualization select any of the charts, tables etc. as per your choice/requirement
12. Click add.
13. Click save.



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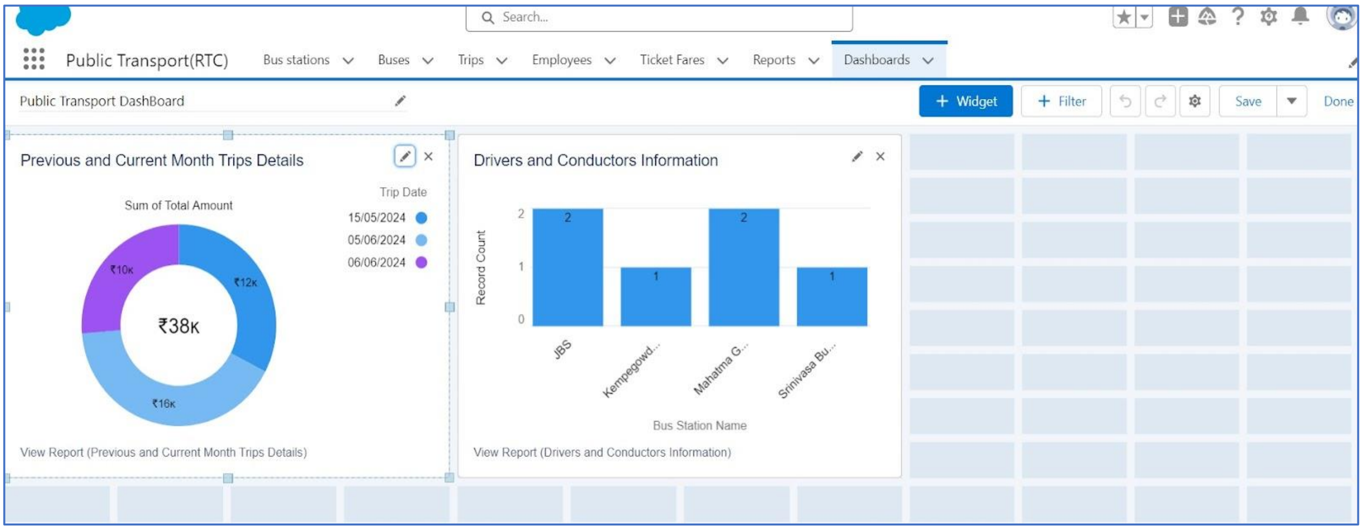
Activity 2: View Dashboard

1.Click on App Launcher on the left side of the screen.

2. Search Public Transport(RTC) & click on it.

3. Click on Dashboard Tab.

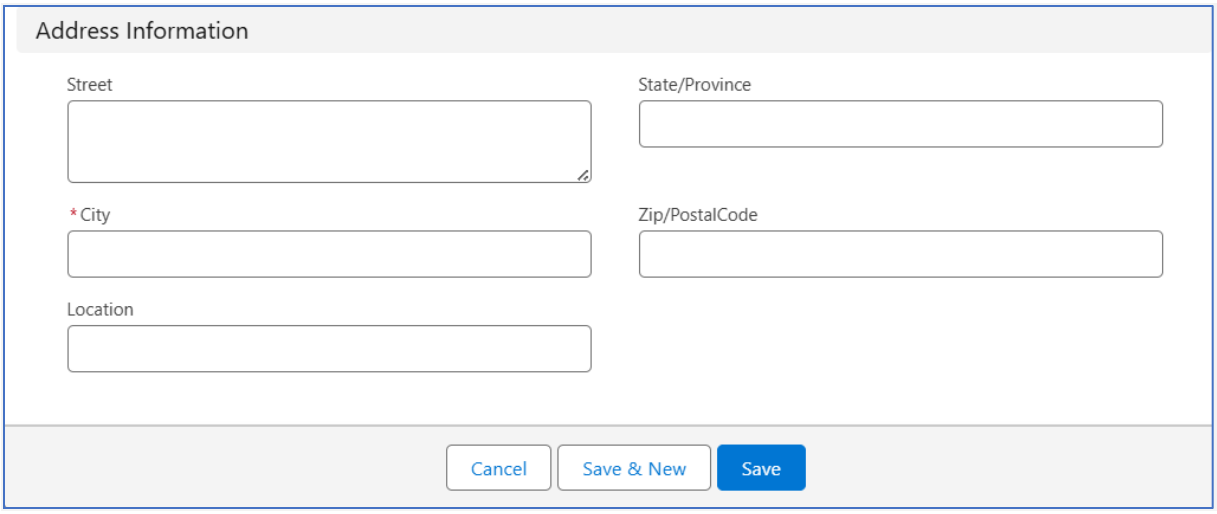
4. Click on Public Transport DashBoard see graph view of records



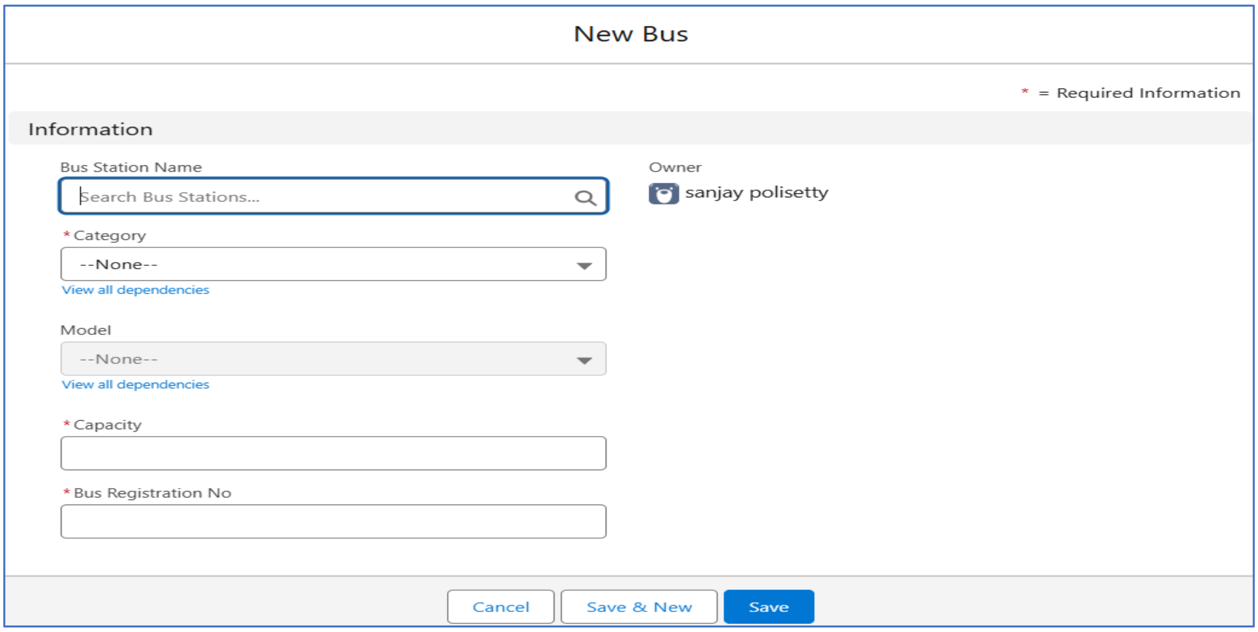
OUT PUTS:

Bus station:-

- Address Information:

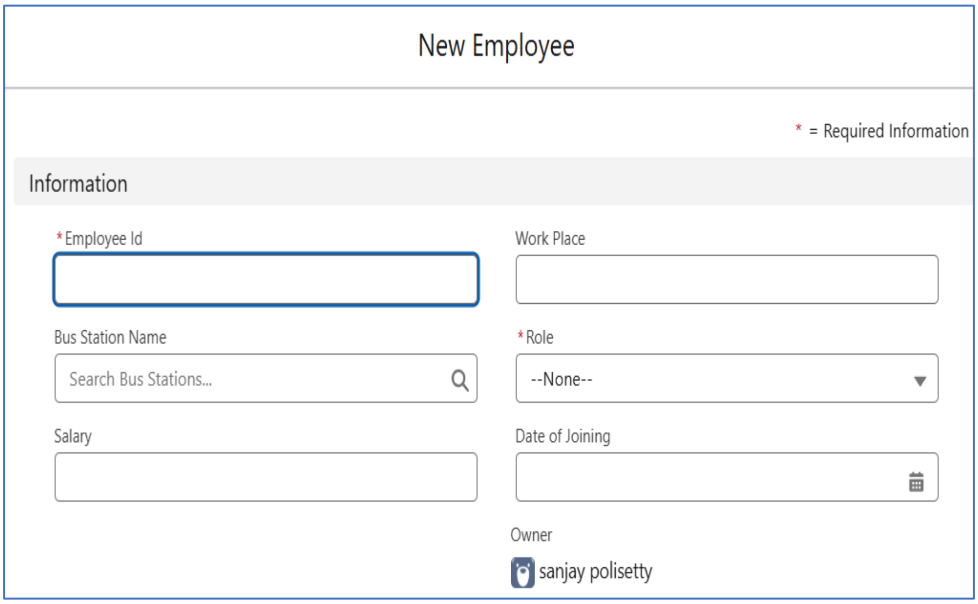


Buses:

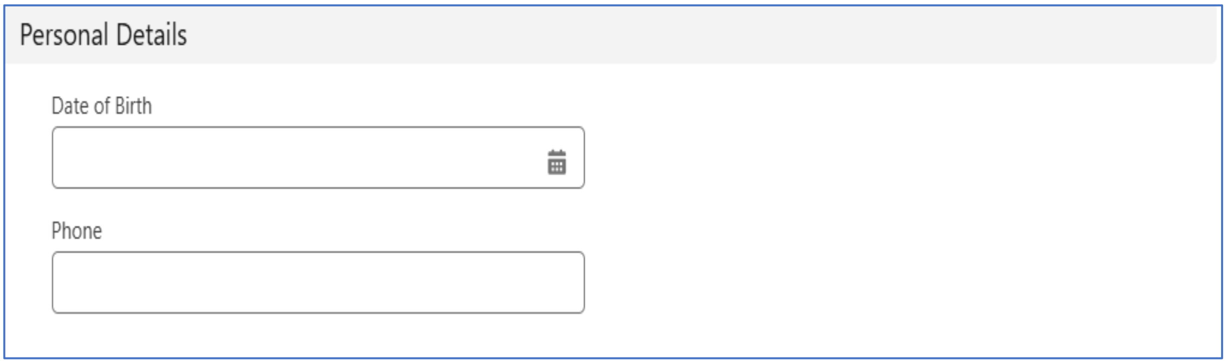


Employees:

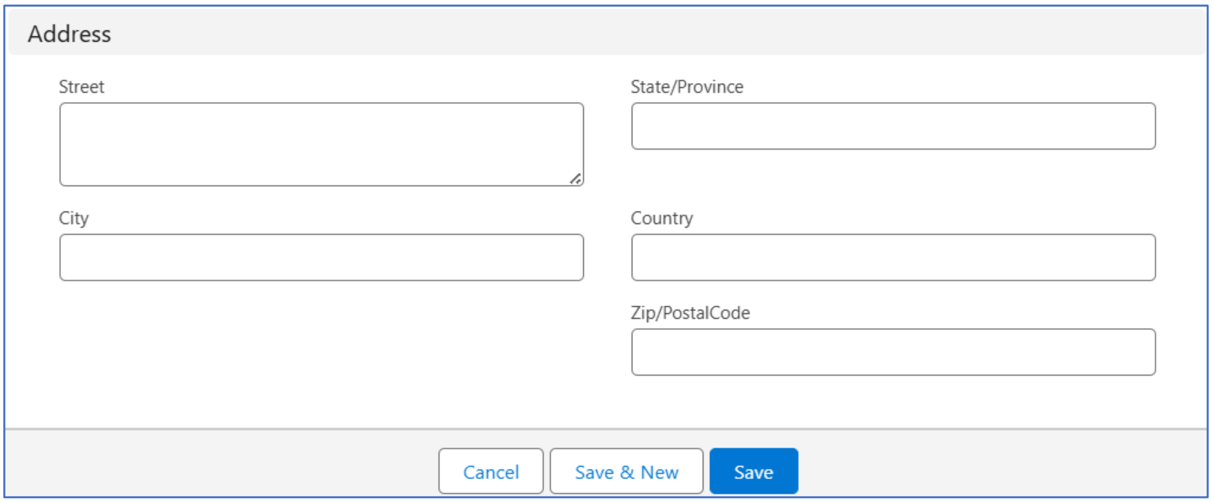
- Information:



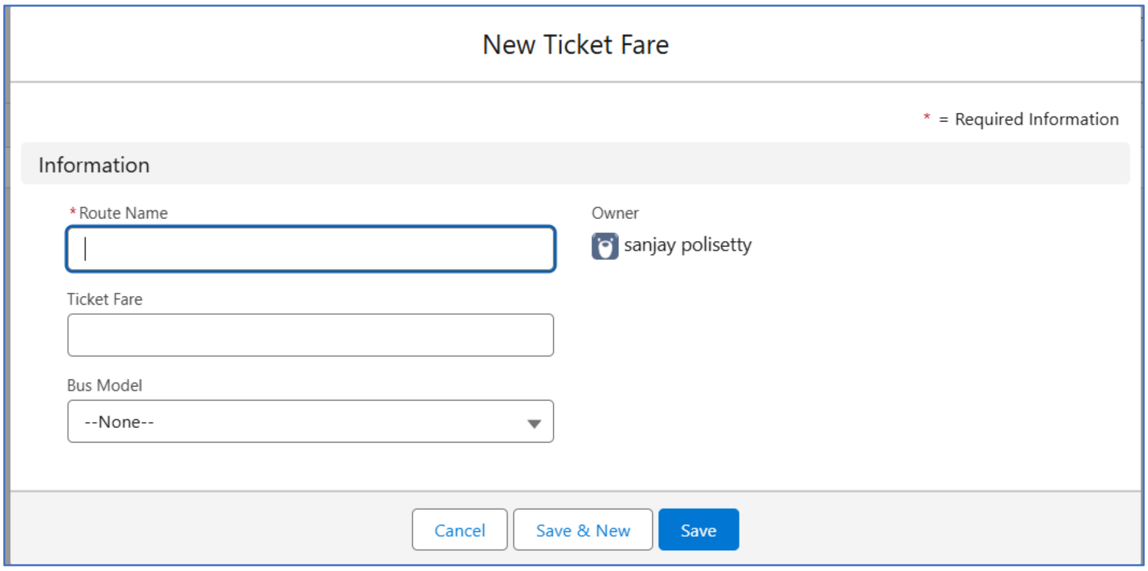
- Personal Details:



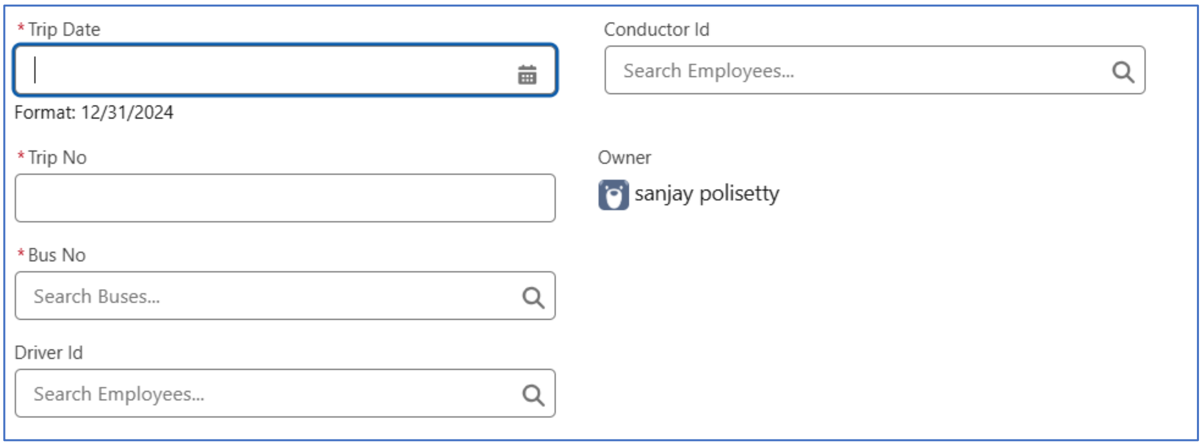
- Address:



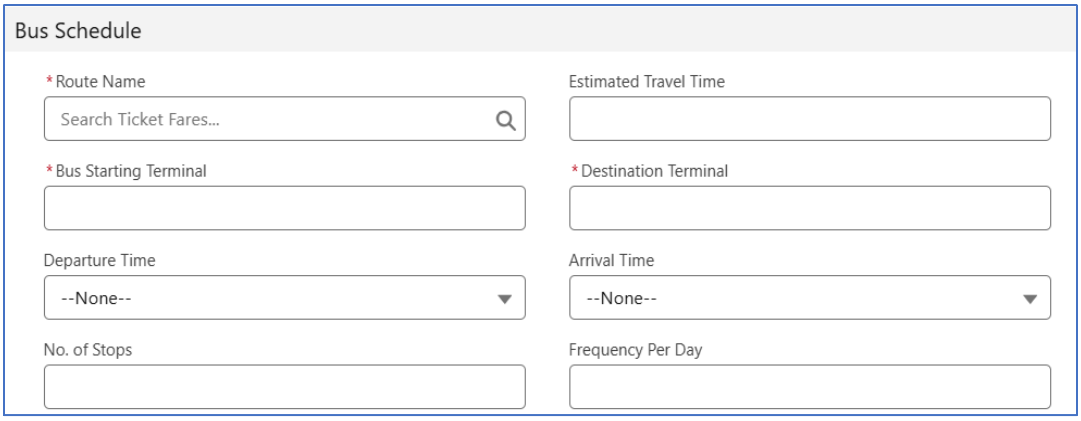
Ticket fares:



- Information:



- Bus Schedule:



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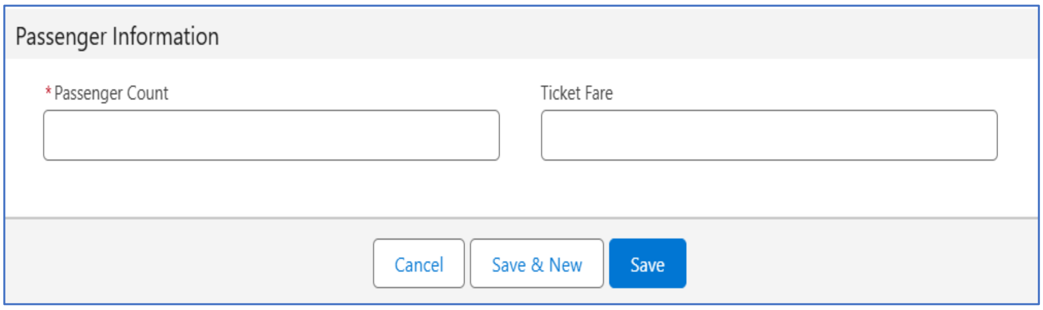
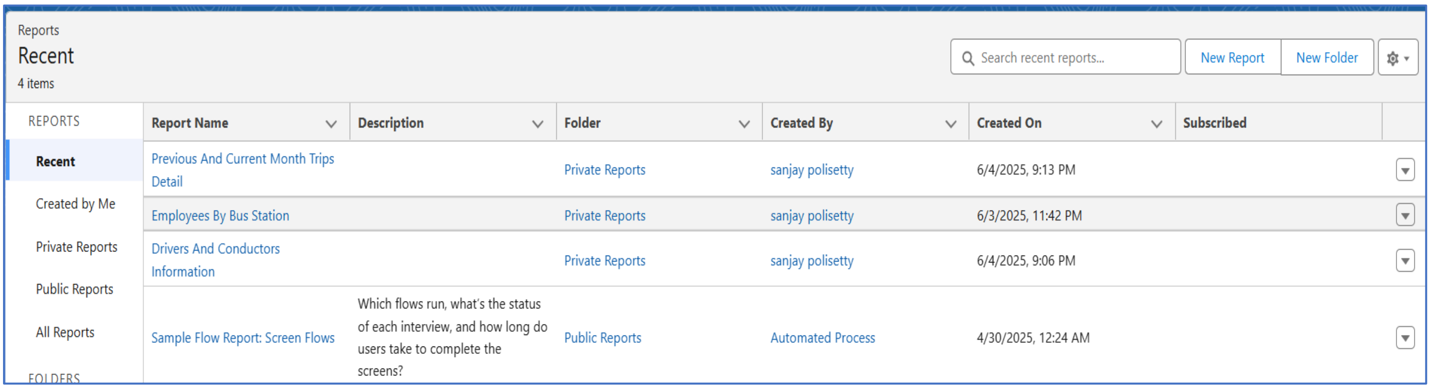
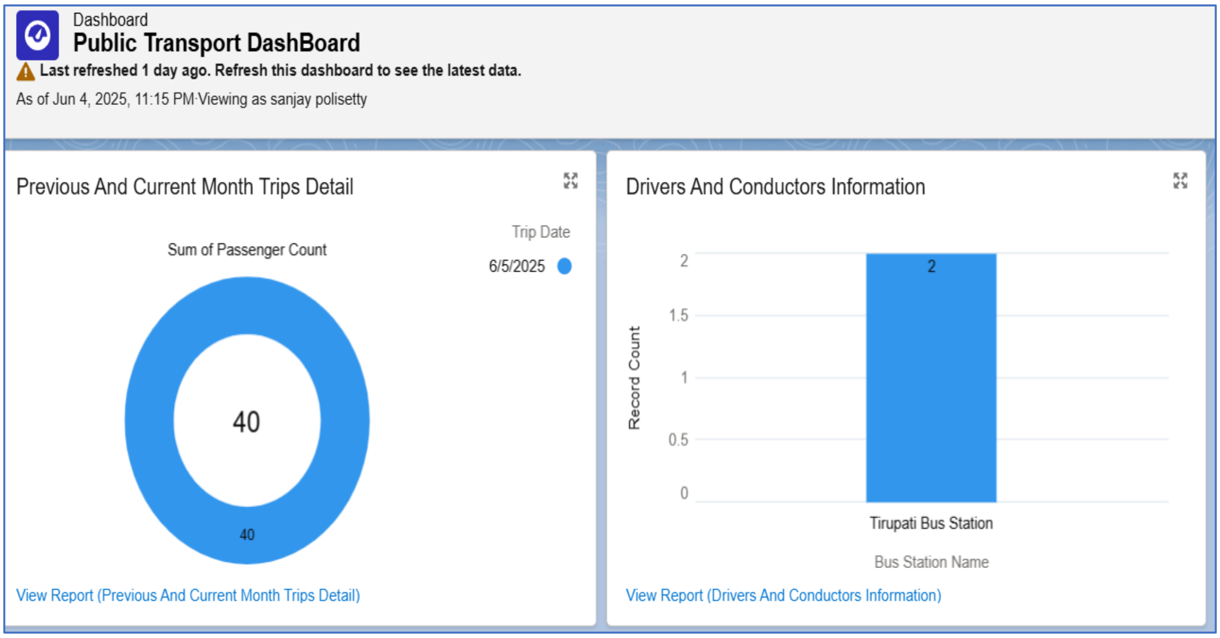
- Passenger Information:



Reports:



Dashboards:



Milestone 12

Conclusion

By implementing this Salesforce-based Public Transport(RTC) Management System, the RTC department can significantly improve its operational efficiency, data management, and overall service quality to passengers. Data-driven decision-making capabilities for management.Accurate and up-to-date records of all operational data.