

Project: Vehicle Management System Using Salesforce

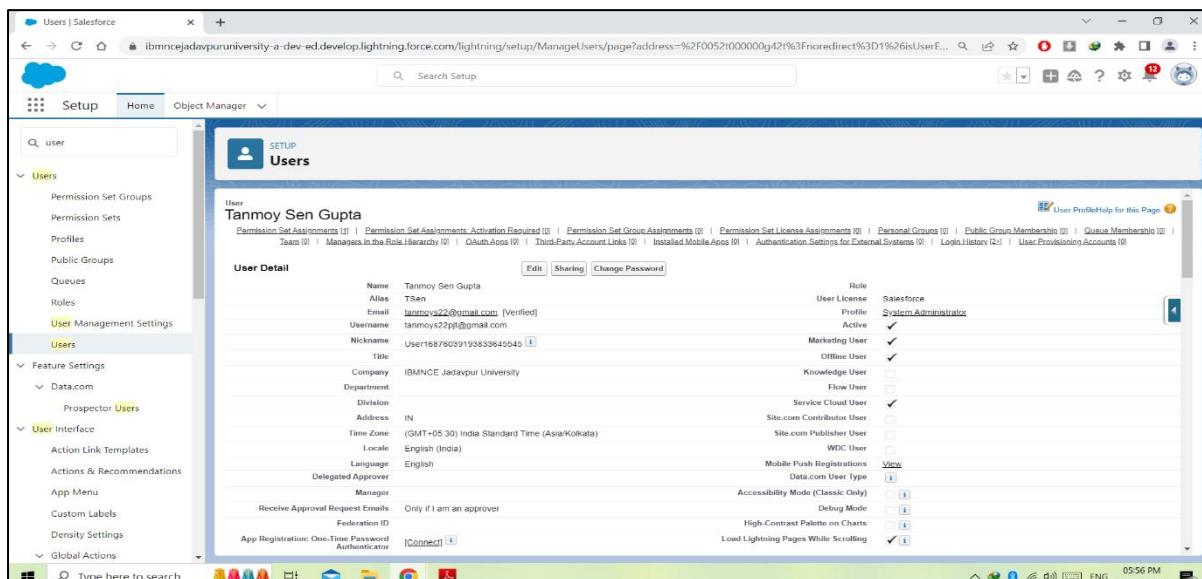
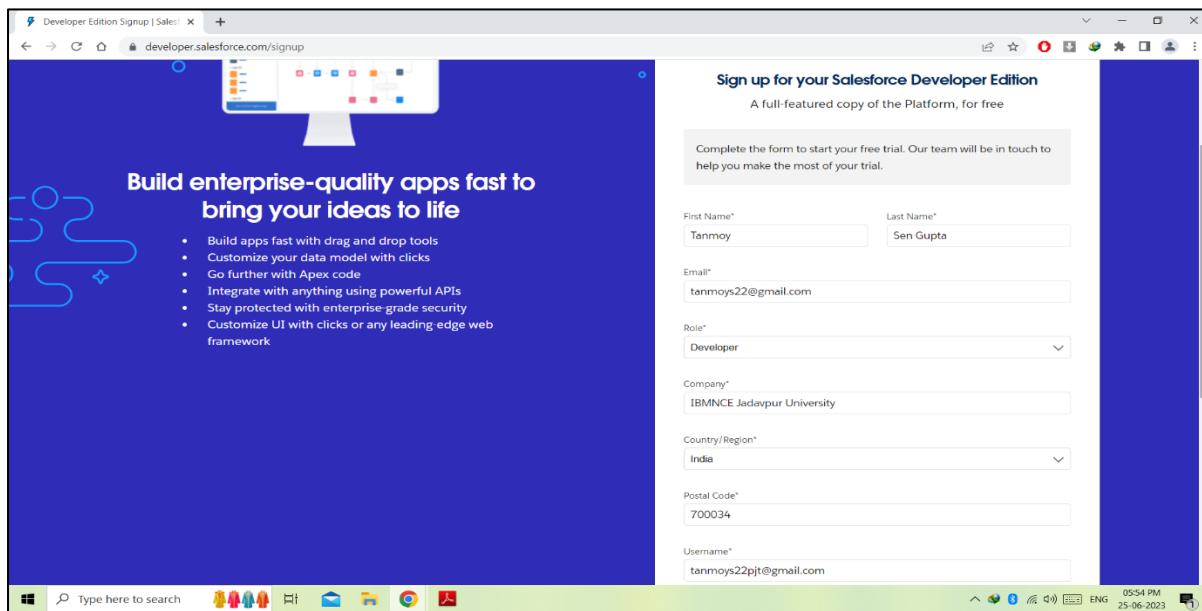
Vehicle Management System Using Salesforce

1 Introduction

Vehicle Management is an application where a customer Details are stored in order to choose cars, bikes and commercial vehicles for travel within the city. The data that is stored here, further used to remind them if any offers provided during the seasons and any updates regarding vehicles are send to them in the form of messages and mails.

1.1 Creating Developer Account

The first thing that I need to do is to make a developer account. To create a developer Org I had visited developers.salesforce.com/



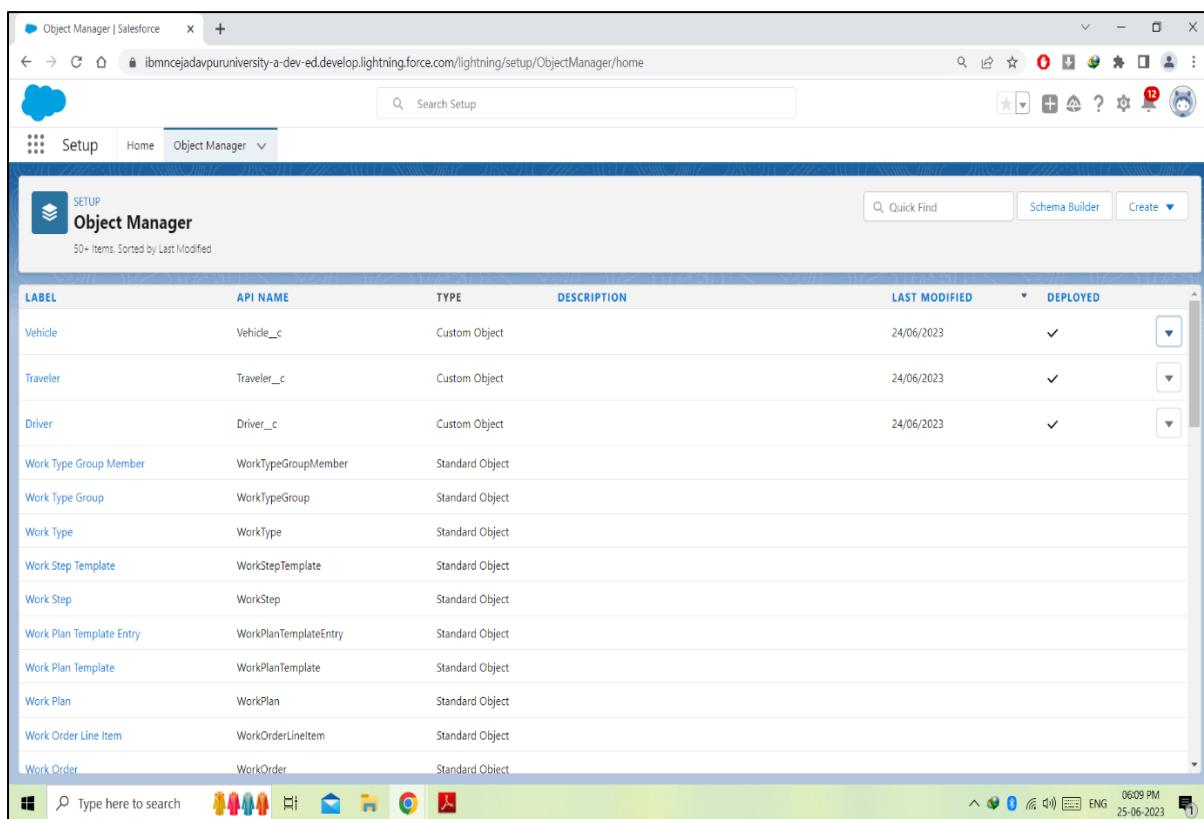
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2 Object

Salesforce objects are database tables that permit you to store data that is specific to an organization. Salesforce objects are of two types:

- Standard Objects:** Standard objects are objects that are provided by salesforce.com such as users, contracts, reports, dashboards, etc.
Standard Objects: Account, Contact, Opportunity.
- Custom Objects:** Custom objects are objects that you create to store information that's specific to the company or industry.
Custom objects: Vehicle, Driver, Traveler.

I created three custom objects i.e. Vehicles, Driver and Traveler.



The screenshot shows the Salesforce Object Manager page. The URL is ibmncejadavpuruniversity-a-dev-ed.lightning.force.com/lightning/setup/ObjectManager/home. The page displays a table of objects with columns: LABEL, API NAME, TYPE, DESCRIPTION, LAST MODIFIED, and DEPLOYED. The objects listed are:

LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
Vehicle	Vehicle_c	Custom Object		24/06/2023	✓
Traveler	Traveler_c	Custom Object		24/06/2023	✓
Driver	Driver_c	Custom Object		24/06/2023	✓
Work Type Group Member	WorkTypeGroupMember	Standard Object			
Work Type Group	WorkTypeGroup	Standard Object			
Work Type	WorkType	Standard Object			
Work Step Template	WorkStepTemplate	Standard Object			
Work Step	WorkStep	Standard Object			
Work Plan Template Entry	WorkPlanTemplateEntry	Standard Object			
Work Plan Template	WorkPlanTemplate	Standard Object			
Work Plan	WorkPlan	Standard Object			
Work Order Line Item	WorkOrderLineitem	Standard Object			
Work Order	WorkOrder	Standard Object			

3 Fields And Relationship

Fields in Salesforce represent what the columns represent in relational databases. 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.

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3.1 Creation Of Fields in Vehicle Object

Fields in **Vehicles objects** follow below data types:

Sl. No.	Field Names	Type	Data Type
1	Vehicle Name	Standard	Text
2	Vehicle Type i) 2 Wheeler ii) 4 Wheeler	Custom	Picklist
3	2 Wheeler i) HERO ii) HONDA iii) BAJAJ iv) ROYAL ENFIELD v) TVS vi) KINETIC vii) OLA viii) JAWA ix) SD x) BATTERY	Custom	Picklist
4	4 Wheeler i) RENAULT ii) SKODA iii) HONDA iv) HYUNDAI v) SUZUKI vi) MAHINDRA vii) VOLVO viii) AUDI ix) VOLKSWAGEN	Custom	Picklist
5	Vehicle No	Custom	Text (20)
6	Chassic No	Custom	Text (30)
7	Colour	Custom	Text (20)
8	Body Type	Custom	Text (20)
9	Vehicle Includes <ul style="list-style-type: none">• Fire Extinguisher• First Aid Kit• Multi• Charger Kit• Stepney• Stereo• Tool Kit• Tracking Device• Tyre• Jack	Custom	Multi Picklist
10	Condition i) Good ii) Medium iii) Least	Custom	Picklist
11	Mileage	Custom	Text (3)
12	Seats	Custom	Number (2)

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3.2 Dependency Fields In Vehicle Object

Create a dependency between these two picklists, so that when a Vehicle type is selected, only respective 2 Wheeler Brands are available in the 2 Wheeler field, similarly for 4 Wheelers.

The screenshot shows the Salesforce Object Manager interface for the 'Vehicle' object. The left sidebar lists various configuration options like Details, Fields & Relationships, Page Layouts, etc. The main content area displays the 'Fields & Relationships' section with 15 items. A table shows the relationship between fields and their types:

Field Label	Field Name	Type	Object
Created by	CreatedById	Lookup(User)	
4 Wheelers	Four_Wheelers__c	Picklist	Vehicle Type
2 Wheelers	Two_Wheelers__c	Picklist	Vehicle Type
Vehicle Includes	Vehicle_Includes__c	Picklist (Multi-Select)	
Seats	Seats__c	Number(2, 0)	
Mileage	Mileage__c	Text(3)	
Body Type	Body_Type__c	Text(20)	
Condition	Condition__c	Picklist	
Colour	Colour__c	Text(20)	
Chassis No	Chassis_No__c	Text(30)	
Vehicle No	Vehicle_No__c	Text(20)	
Vehicle Type	Vehicle_Type__c	Picklist	

3.3 Creation Of Fields in Driver Objects

Fields in **Driver objects** follow below data types:

Sl. No.	Field Names	Type	Data Type
1	Driver Name	Standard	Text
2	License No	Custom	Text (30)
3	Mobile No	Custom	Phone
4	Fair Per Hour	Custom	Text (10)
5	Vehicle	Custom	Lookup (Vehicle)

The screenshot shows the Salesforce Object Manager interface for the 'Driver' object. The left sidebar lists various configuration options like Details, Fields & Relationships, Page Layouts, etc. The main content area displays the 'Fields & Relationships' section with 8 items. A table shows the relationship between fields and their types:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Owner	OwnerId	Lookup(User/Group)		✓
Driver Name	Name	Text(80)		✓
Vehicle	Vehicle__c	Lookup(Vehicle)		✓
Last Modified By	LastModifiedById	Lookup(User)		
Created By	CreatedById	Lookup(User)		
Fair Per Hour	Fair_Per_Hour__c	Text(10)		
Mobile No	Mobile_No__c	Phone		
License No	License_No__c	Text(30)		

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3.4 Creation Of Fields in Traveler Objects

Fields in **Traveler objects** follow below data types:

S1. No.	Field Names	Type	Data Type
1	Traveler Name	Standard	Text
2	Traveler Contact No	Custom	Phone
3	Traveler Email	Custom	Email

The screenshot shows the Salesforce Object Manager interface for the 'Traveler' object. The left sidebar contains navigation links for Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, List View Button Layout, Restriction Rules, Scoping Rules, Triggers, and Flow Triggers. The main content area is titled 'Fields & Relationships' and displays a table with 6 items. The columns are FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The data includes:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Owner	OwnerId	Lookup(User/Group)		✓
Traveler Name	Name	Text(50)		✓
Last Modified By	LastModifiedById	Lookup(User)		
Created By	CreatedById	Lookup(User)		
Traveler Email	Traveler_Email__c	Email		
Traveler Contact No	Traveler_Contact_No__c	Phone		

3.5 Creation Of Fields in Opportunity Objects

Fields in **Opportunity objects** follow below data types:

S1. No.	Field Names	Type	Data Type
1	Vehicle	Custom	Lookup (Vehicle)
2	Journey Start Date	Custom	Date/Time
3	Journey End Date	Custom	Date/Time
4	Total Fair	Custom	Currency (8)
5	Route	Custom	Text (Long)

The screenshot shows the Salesforce Object Manager interface for the 'Opportunity' object. The left sidebar contains navigation links for Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, List View Button Layout, Restriction Rules, Scoping Rules, Triggers, and Flow Triggers. The main content area is titled 'Fields & Relationships' and displays a table with 31 items. The columns are FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The data includes:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Description	Description	Long Text Area(32000)		
Created By	CreatedById	Lookup(User)		
Amount	Amount	Currency(16, 2)		
Tracking Number	TrackingNumber__c	Text(12)		
Order Number	OrderNumber__c	Text(8)		
Main Competitor(s)	MainCompetitors__c	Text(100)		
Delivery/Installation Status	DeliveryInstallationStatus__c	Picklist		
Current Generator(s)	CurrentGenerators__c	Text(100)		
Total Fair	Total_Fair__c	Currency(8, 0)		
Journey End Date	Journey_End_Date__c	Date/Time		
Journey Start Date	Journey_Start_Date__c	Date/Time		
Route	Route__c	Long Text Area(32768)		

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The screenshot shows the Salesforce Object Manager interface for the Opportunity object. The left sidebar lists various setup categories like Page Layouts, Lightning Record Pages, Buttons, etc. The main content area is titled 'Fields & Relationships' and displays a table of fields. The columns include FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. Key fields shown include Price Book, Opportunity Owner, Opportunity Name, Contract, Close Date, Primary Campaign Source, Account Name, Vehicle, Type, Quantity, Stage, Probability (%), and Next Step.

4 Page Layout Setup

4.1 Organize Opportunity Layout

The screenshot shows the Salesforce Object Manager interface for the Opportunity object, specifically the Page Layout section. The left sidebar lists various setup categories. The main content area shows the 'Opportunity Detail' page layout. It includes sections for Opportunity Information (with fields like Opportunity Owner, Account Name, Journey Start Date, etc.), Other Information, and Additional Information. Buttons for actions like Edit, Delete, Clone, Change Owner, etc., are also present.

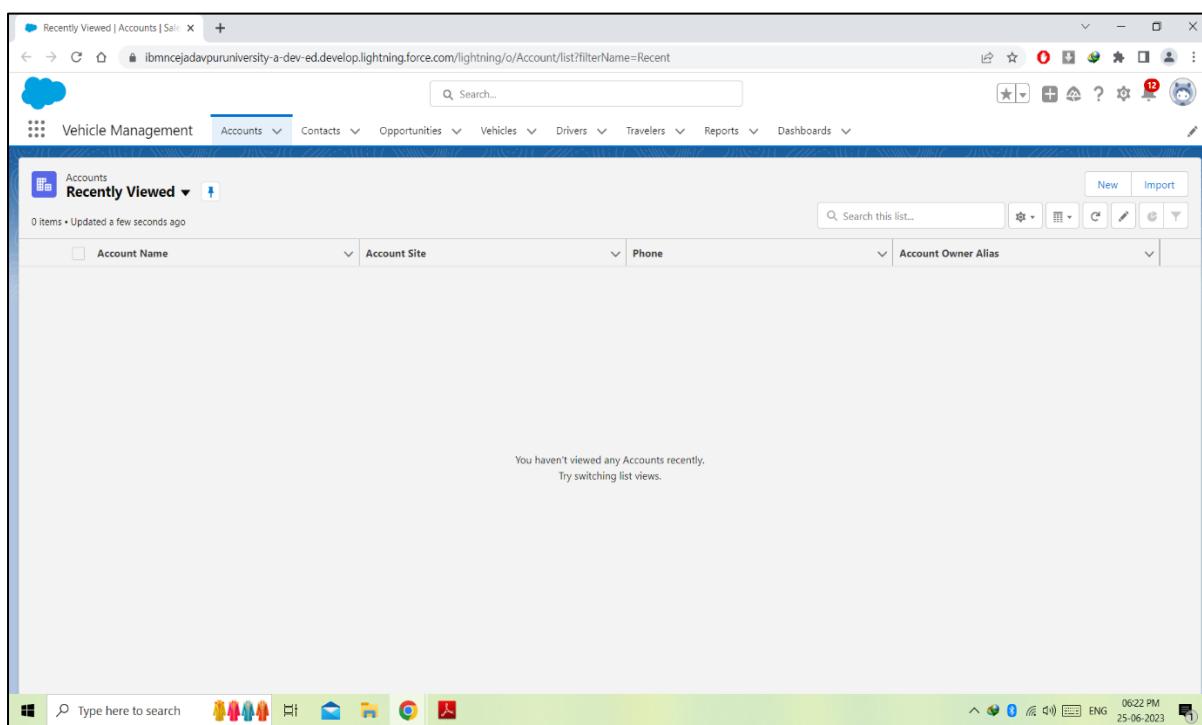
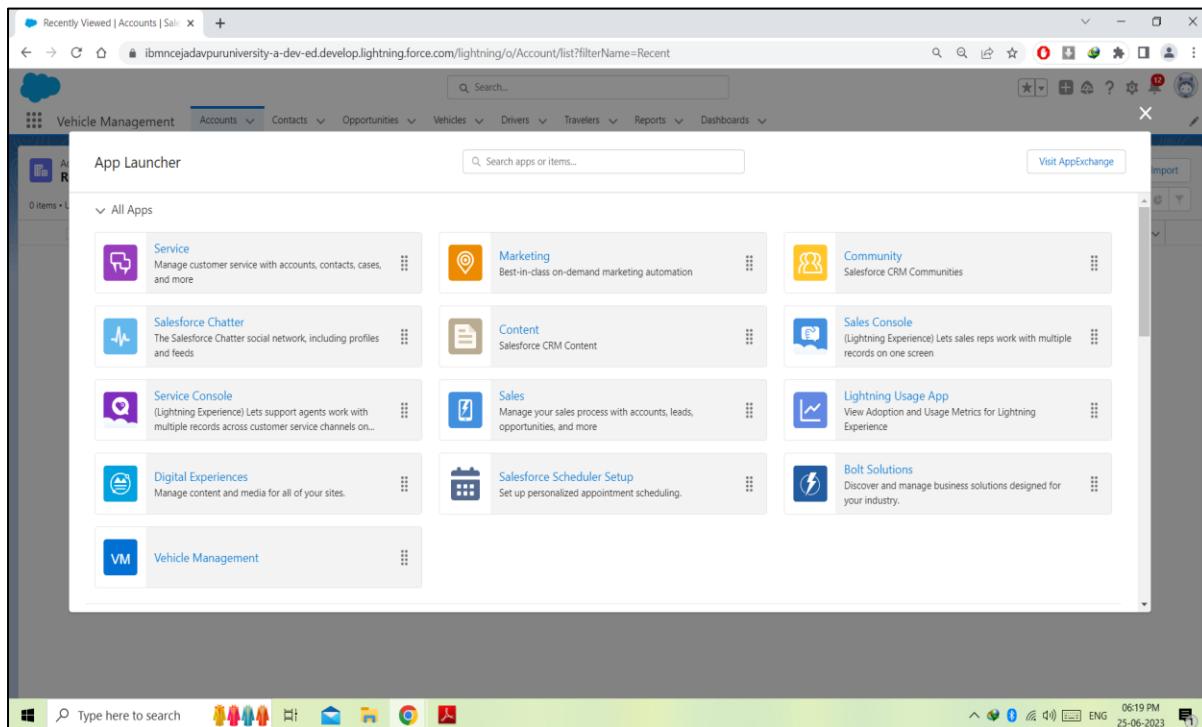
5 Lightning App

Salesforce Lightning is a component-based framework for Salesforce app development, for business users, who do not have programming experience.

Lightning apps give the users access to sets of objects, tabs, and other items all in one convenient bundle in the navigation bar. Lightning apps let you brand the apps with a custom color and logo. You can even include a utility bar and Lightning page tabs in the Lightning app.

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5.1 Create The Vehicle Management App



6 Profile

A profile is a group/collection of settings and permissions that define what a user can do in salesforce. A profile controls “Object permissions, Field permissions, User permissions, Tab settings, App settings, Apex class access, Visualforce page access, Page layouts, Record Types, Login hours & Login IP ranges.

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6.1 Creating A Profile

Now create two profile: Vehicle Manager, Operator and then I set its object permissions.

The screenshot shows the Salesforce Setup interface with the URL ibmncejadavpuruniversity-a-dev-ed.lightning.force.com/lightning/setup/EnhancedProfiles/page?address=%2F00e2t000000kxt1. The left sidebar is expanded to show 'Users' and 'Profiles'. The main content area displays the 'Vehicle Manager' profile details. The profile name is 'Vehicle Manager', user license is 'Salesforce', and it is a 'Custom Profile'. The 'Profile Detail' section includes fields for Name, User License, Description, Created By, and Modified By. The 'Page Layouts' section shows 'Standard Object Layouts' for 'Global' and 'Global Layout'. The bottom status bar shows the date and time as 25-06-2023 06:29 PM.

The screenshot shows the Salesforce Setup interface with the URL ibmncejadavpuruniversity-a-dev-ed.lightning.force.com/lightning/setup/EnhancedProfiles/page?address=%2F00e2t000000kou4. The left sidebar is expanded to show 'Users' and 'Profiles'. The main content area displays the 'Operator' profile details. The profile name is 'Operator', user license is 'Salesforce', and it is a 'Custom Profile'. The 'Profile Detail' section includes fields for Name, User License, Description, Created By, and Modified By. The 'Page Layouts' section shows 'Standard Object Layouts' for 'Global' and 'Global Layout'. The bottom status bar shows the date and time as 25-06-2023 06:29 PM.

The screenshot shows the Salesforce Setup interface with the URL ibmncejadavpuruniversity-a-dev-ed.lightning.force.com/lightning/setup/ObjectPermissions/page?address=%2F00e2t000000kxw1. The left sidebar is expanded to show 'Profiles'. The main content area displays 'Custom Object Permissions' for 'Drivers', 'Travelers', and 'Vehicles'. For 'Drivers', both 'Read' and 'Create' are checked. For 'Travelers', 'Read', 'Create', and 'Edit' are checked. For 'Vehicles', all permissions (Read, Create, Edit, Delete, View All, Modify All) are checked. The 'Session Settings' section shows 'Session Times Out After' as '2 hours of inactivity' and 'Session Security Level' as 'Normal'. The bottom status bar shows the date and time as 25-06-2023 06:29 PM.

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6.2 Setup Roles

Roles in Salesforce are record-level access controls that determine the visibility access of specific users. Conversely, Salesforce profiles provide object and field-level access controls determining whether issuers can create, read, edit, or delete records.

Firstly, I created a role under CEO as Vehicle Manager Role, which will report to the CEO.

Similarly, I created Two Roles under Vehicle Manager as Operator 1 and Operator 2 Roles, which will report to the Vehicle manager.

The screenshot shows the Salesforce Setup Roles page titled "Creating the Role Hierarchy". The sidebar on the left lists various setup categories like Users, Feature Settings, and User Interface. The main pane displays a hierarchical tree of roles under "Your Organization's Role Hierarchy". The hierarchy starts with "IBMNCE Jadavpur University", which contains "CEO", "CFO", "COO", "SVP, Customer Service & Support", "SVP, Human Resources", "SVP, Sales & Marketing", and "Vehicle Manager". "Vehicle Manager" has two children: "Operator_1" and "Operator_2". Each role node has "Edit", "Del", and "Assign" buttons. A search bar at the bottom left and a status bar at the bottom right are also visible.

7 Users

A user is anyone who logs in to Salesforce. Users are employees at the 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.

NOTE: - As Salesforce license can only be used by 2 Users at a time in Dev Org, so if you cannot find salesforce license then deactivate a user who has salesforce license or change the license type from Salesforce to any other.

7.1 Creating A User

Firstly, I created a user for Vehicle Manager Profile, with Salesforce License and assigned the Vehicle Manager role.

Similarly, I created two users for Operator profile, with Salesforce License and assigned the Operator 1 and Operator 2 role.

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The screenshot shows the Salesforce Setup interface with the 'Users' tab selected in the sidebar. The main area displays the 'User Detail' page for 'John Teddy'. The user's name is listed as 'John Teddy' with an alias 'jtedd'. His email is 'tanmoy22@gmail.com' (verified), and his username is 'johnteddy95@gmail.com'. He has a nickname 'teddy5john' and a title 'Vehicle Manager'. The 'Role' section shows he is assigned to 'Vehicle Manager' and 'Salesforce'. The 'User License' section indicates he is active. The 'Profile' section lists 'Vehicle Manager' as his profile. Other tabs like 'Sharing', 'Reset Password', and 'Freeze' are visible at the top of the detail page.

This screenshot shows the 'User Detail' page for 'Emili Jones'. Her name is listed as 'Emili Jones' with an alias 'ejone'. Her email is 'tanmoy22@gmail.com' (verified), and her username is 'jonesemilli951@gmail.com'. She has a nickname 'jones5emilli' and a title 'Operator 1'. The 'Role' section shows she is assigned to 'Operator_1' and 'Salesforce'. The 'User License' section indicates she is active. The 'Profile' section lists 'Operator' as her profile. Other tabs like 'Sharing', 'Reset Password', and 'Freeze' are visible at the top of the detail page.

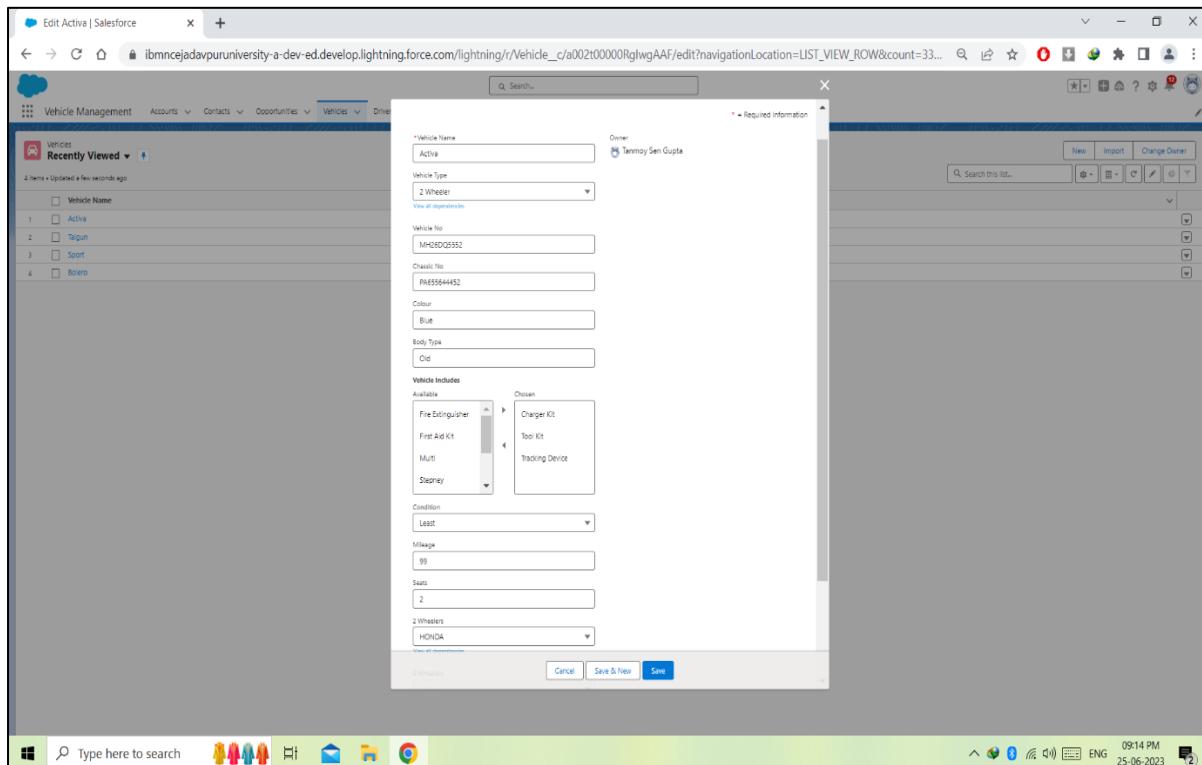
This screenshot shows the 'User Detail' page for 'Ramesh Sen'. His name is listed as 'Ramesh Sen' with an alias 'rsen'. His email is 'tanmoy22@gmail.com' (verified), and his username is 'senramesh051@gmail.com'. He has a nickname 'ramesh5sen' and a title 'Operator 2'. The 'Role' section shows he is assigned to 'Operator_2' and 'Salesforce'. The 'User License' section indicates he is active. The 'Profile' section lists 'Operator' as his profile. Other tabs like 'Sharing', 'Reset Password', and 'Freeze' are visible at the top of the detail page.

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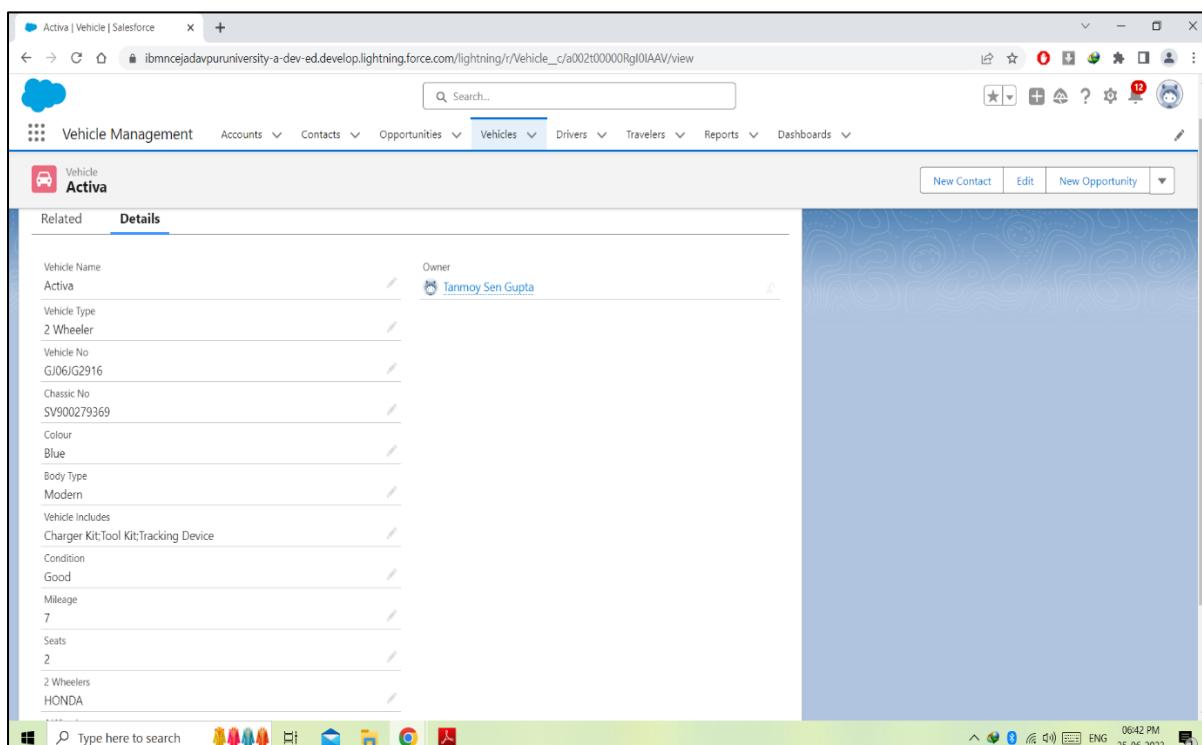
8 User Adoption

I need to understand user adoption and navigation. How to interact with database and their records.

8.1 Create Vehicle Record

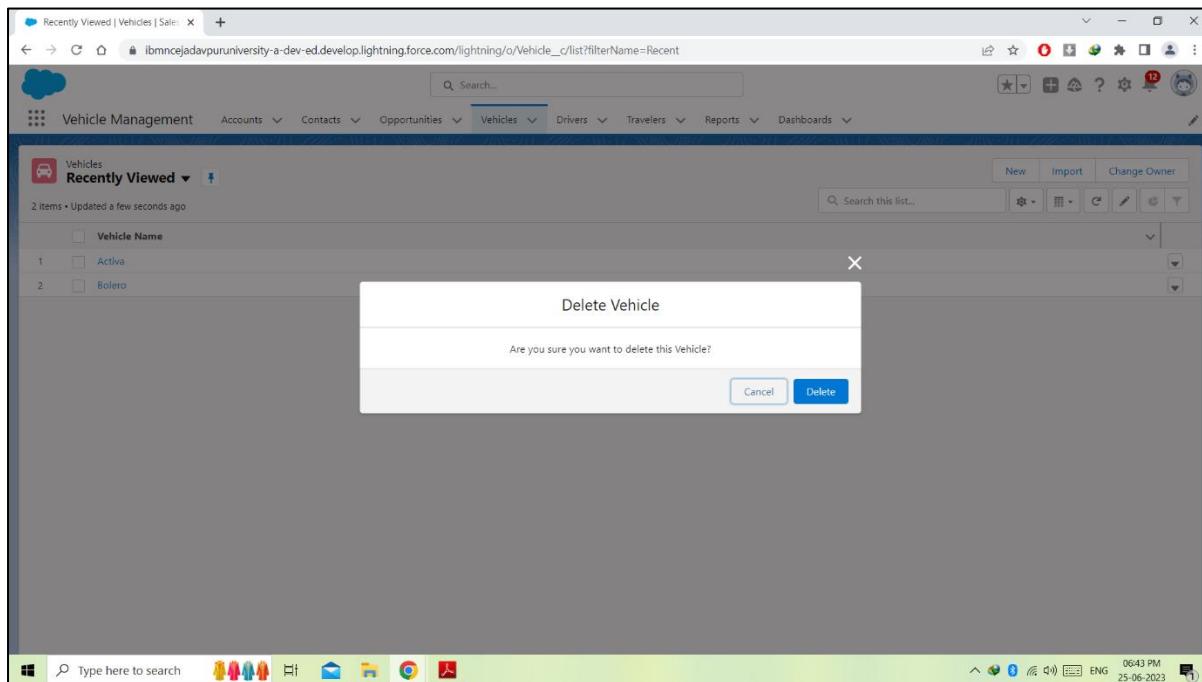


8.2 View Record (Vehicle)



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8.3 Delete Record (Vehicle)

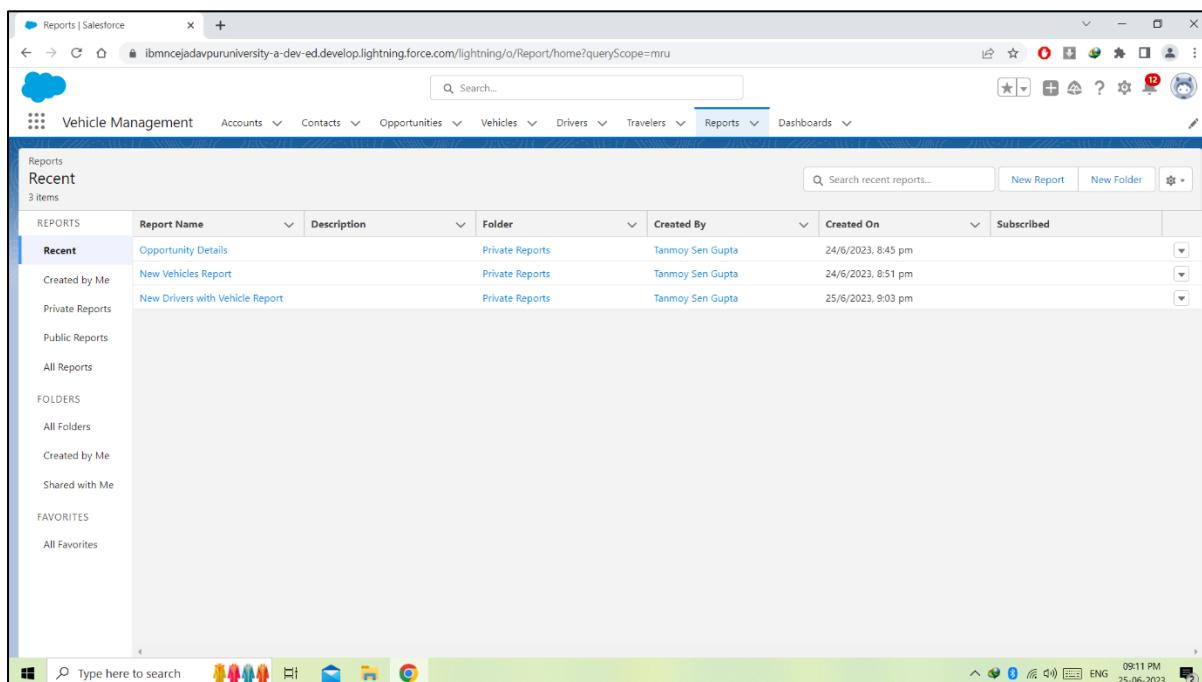


9 Report & Dashboards

A report is a list of records that meet the criteria you define. It's displayed in Salesforce in rows and columns, and can be filtered, grouped, or displayed in a graphical chart. Every report is stored in a folder. Folders can be public, hidden, or shared, and can be set to read-only or read/write.

9.1 Report

I created here three relevant reports.



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This screenshot shows the 'Opportunity Details' report in Salesforce. The report displays 4 records with a total fair of ₹13,193. The data is presented in a table with columns: Vehicle, Journey Start Date, Journey End Date, Total Fair, and Route.

Vehicle	Journey Start Date	Journey End Date	Total Fair	Route
1 Activa	12/11/2022, 12:00 pm	01/01/2023, 12:00 pm	₹1,445	Office - Home Drop
2 Bolero	02/06/2023, 12:00 pm	17/06/2023, 12:00 pm	₹1,560	Office 1 - Office 2
3 Taigun	04/10/2022, 12:00 pm	25/03/2023, 12:00 pm	₹6,543	Site - Head Office
4 Sport	03/01/2023, 12:00 pm	09/03/2023, 12:00 pm	₹3,645	Office 4 - Head Office
5			₹13,193	

This screenshot shows the 'New Vehicles Report' in Salesforce. The report displays 4 vehicles with a total of 16 seats. The data is presented in a table with columns: Vehicle, Vehicle Name, Vehicle Type, 2 Wheelers, 4 Wheelers, Body Type, Chassis No, Colour, Condition, Mileage, and Seats.

Vehicle: Vehicle Name	Vehicle Type	2 Wheelers	4 Wheelers	Body Type	Chassis No	Colour	Condition	Mileage	Seats
1 Bolero	4 Wheeler	-	MAHINDRA	Modem	SV300169266	White	Medium	60	7
2 Activa	2 Wheeler	HONDA	-	Old	PA655644452	Blue	Least	99	2
3 Sport	2 Wheeler	TVS	-	Old	KD924545662	Green	Good	5	2
4 Taigun	4 Wheeler	-	VOLKSWAGON	Modem	RE763566541	Yellow	Medium	23	5
5									16

This screenshot shows the 'New Drivers with Vehicle Report' in Salesforce. The report displays 4 drivers assigned to 4 different vehicles. The data is presented in a table with columns: Driver: Driver Name and Vehicle: Vehicle Name.

Driver: Driver Name	Vehicle: Vehicle Name
1 Ramesh Thakur	Bolero
2 Parvinder Singh	Activa
3 MD. Ahmed Khan	Sport
4 Liza Dones	Taigun

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9.2 Dashboard

I created here one relevant dashboard with three components from three reports that I had prepared.

The screenshot shows a Salesforce Lightning dashboard titled "Opportunity and Dashboard". The dashboard consists of three main sections:

- New Vehicles Report:** A table showing vehicle details by owner. The data is as follows:

Vehicle: Owner Name	Vehicle: Vehicle Name	Vehicle Type	2 Wheelers	4 Wheelers
Tanmoy Sen Gupta	Bolero	4 Wheeler	-	MAHINDRA
Tanmoy Sen Gupta	Activa	2 Wheeler	HONDA	-
Tanmoy Sen Gupta	Sport	2 Wheeler	TVS	-
Tanmoy Sen Gupta	Taigun	4 Wheeler	-	VOLKSWAGEN

- New Drivers with Vehicle Report:** A table showing drivers with their vehicles. The data is as follows:

Driver: Driver Name	Vehicle: Vehicle Name
Liza Dones	Taigun
MD. Ahmed Khan	Sport
Pavinder Singh	Activa
Ramesh Thakur	Bolero

- Opportunity Details:** A table showing journeys with their details. The data is as follows:

Vehicle	Journey Start Date	Journey End Date	Total Fair	Route
Activa	12/11/2022, 12:00 pm	01/01/2023, 12:00 pm	₹1k	Office - Home Drop
Bolero	02/06/2023, 12:00 pm	17/06/2023, 12:00 pm	₹2k	Office 1 - Office 2
Sport	03/01/2023, 12:00 pm	09/03/2023, 12:00 pm	₹4k	Office 4 - Head Office
Taigun	04/10/2022, 12:00 pm	25/03/2023, 12:00 pm	₹7k	Site - Head Office

10 Conclusion

In conclusion, the Vehicle Management System using Salesforce is a powerful tool that can be used to manage a fleet of vehicles within a city. The system allows businesses to store customer details, track vehicle usage, and send reminders and updates to customers. This information can be used to improve customer service, increase sales, and reduce costs.

The system is also highly scalable, so it can be easily adapted to the needs of businesses of any size. Additionally, the system is integrated with Salesforce's other CRM modules, which allows businesses to seamlessly track vehicle-related data alongside other customer data.

Overall, the Vehicle Management System using Salesforce is a valuable tool that can help businesses to improve their vehicle fleet management and achieve their business goals.

Here are some specific benefits of using Salesforce for vehicle management in a city:

- **Improved customer service:** The system can be used to store customer details, such as their contact information, vehicle preferences, and purchase history. This information can be used to provide personalized customer service, such as sending reminders about upcoming maintenance appointments or offering discounts on vehicles that the customer has shown an interest in.

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- **Increased sales:** The system can be used to track vehicle usage and identify customers who are likely to be interested in purchasing a new vehicle. This information can be used to target these customers with marketing campaigns.
- **Reduced costs:** The system can be used to track vehicle maintenance costs and identify areas where costs can be reduced. For example, businesses can use the system to identify vehicles that are due for maintenance and to schedule maintenance appointments in advance.

If you are a business that manages a fleet of vehicles within a city, then I encourage you to consider using Salesforce for vehicle management. Salesforce is a powerful tool that can help you to improve your vehicle fleet management and achieve your business goals.