

Optimizing the Automotive Customer Journey

through Salesforce Automation and Geolocation

ABSTRACT:

This project presents the implementation of a tailored Salesforce CRM solution for WhatNext Vision Motors, a pioneering automotive leader dedicated to transforming the mobility sector through customer-centric technology. The primary objective was to modernize the vehicle procurement journey by streamlining the customer ordering process and optimizing inventory management through advanced automation.

The solution features a geolocation-aware system designed to automatically assign the nearest dealership to customers based on their address, significantly enhancing convenience and reducing friction during the purchase phase. To maintain operational integrity, a robust inventory validation mechanism was established to prevent the placement of orders for out-of-stock vehicles, thereby ensuring data accuracy and proactive communication.

Furthermore, the project leverages Scheduled Flows and Apex to manage bulk order record updates. This automated logic dynamically adjusts order statuses to 'Confirmed' or 'Pending' based on real-time stock availability. By digitizing these critical touchpoints, the system eliminates manual administrative burdens, allowing staff to focus on strategic growth rather than routine data entry.

This end-to-end implementation provides WhatsNext Vision Motors with a scalable, high-performance platform that ensures transparent order fulfillment, minimizes human error, and fosters long-term customer loyalty through a sophisticated and efficient digital experience.

OBJECTIVE:

The main objective of this project is to develop and implement a customized Salesforce CRM solution for WhatsNext Vision Motors to streamline core business operations, maintain data integrity, and enhance customer satisfaction.

By building a centralized system to manage customers, vehicle orders, inventory, and dealer locations, the project aims to:

- Automate key processes such as dealer assignments based on geolocation and automated order status updates.
- Ensure accurate and consistent data entry by preventing orders for vehicles that are currently out of stock.
- Enable real-time visibility of vehicle availability and fulfilment status for both staff and customers.
- Improve operational efficiency by automating bulk record updates, allowing staff to focus on strategic, high-value tasks.
- Deliver personalized customer experiences through efficient ordering, reduced errors, and transparent communication regarding order confirmation.

TECHNOLOGY DESCRIPTION:

Salesforce

Salesforce is a cloud-based Customer Relationship Management (CRM) platform that helps businesses manage customer data, automate processes, and improve service, marketing, and sales operations. It provides point-and-click tools as well as programmatic capabilities (like Apex and Flows) to build custom business solutions.

Custom Objects

Objects in Salesforce are like tables in a database. Custom Objects are created to store specific business data.

Example:

- Vehicle__c – Stores details about car models and specifications.
- Order__c – Stores customer purchase records.
- Dealer__c – Stores information about showroom locations.

Tabs

Tabs are used to display object data in the Salesforce UI.

Example: A tab for Order__c allows dealership staff to easily view and manage pending vehicle deliveries.

Custom App

An App in Salesforce is a collection of tabs grouped together for a specific business purpose, such as a "Vehicle Management App" for the sales team.

Profiles

Define what a user can see and do (e.g., Sales Reps can create orders, but only Managers can delete them).

Roles

Control data visibility based on a hierarchy, ensuring regional managers can see data for all dealerships in their territory.

Validation Rules

Validation Rules ensure data entered meets business criteria.

Example: An order cannot be saved if the vehicle's Stock Quantity is zero.

Flows

Flows automate business logic without code.

Example: Record-Triggered Flow: Automatically finds the nearest dealer when a new order is created.

- Scheduled Flow: Runs nightly to check inventory and update bulk order statuses to "Confirmed" or "Pending".

Apex

Apex is Salesforce's object-oriented programming language used for complex custom logic.

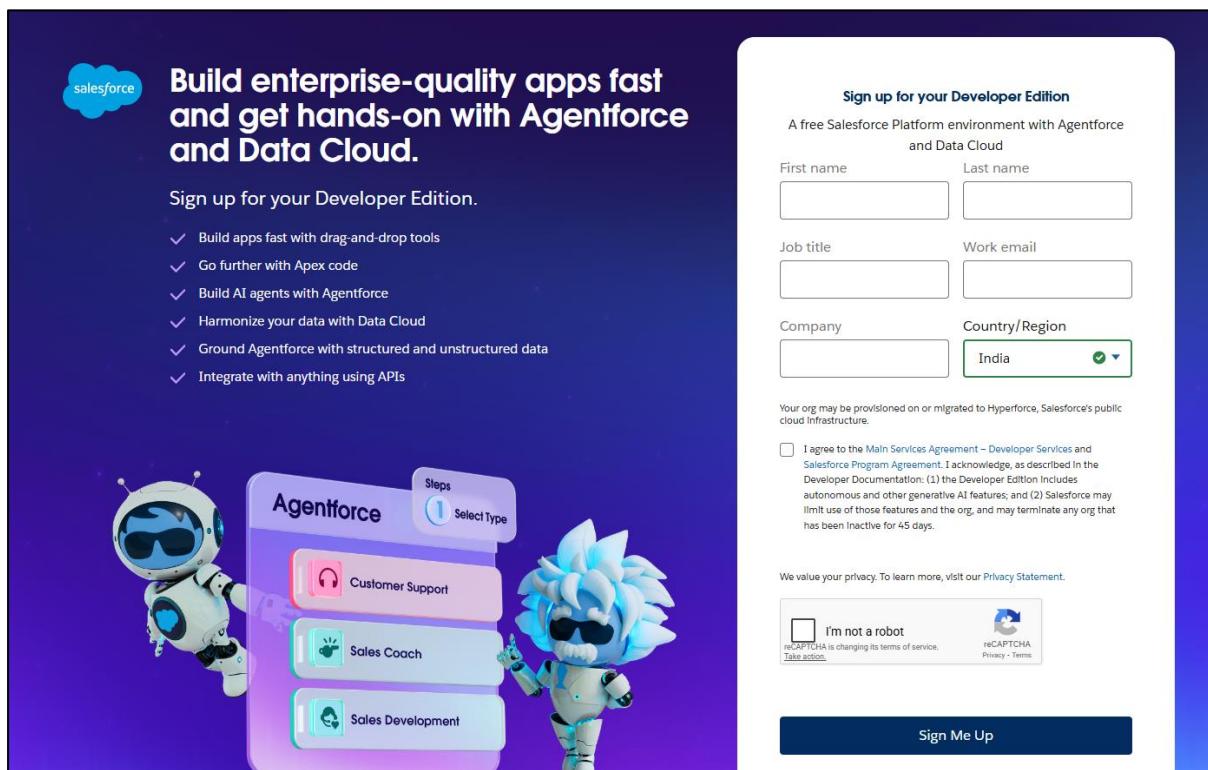
Example Trigger: Automatically recalculate regional tax and shipping fees on an order.

- Update real-time inventory counts across multiple dealership locations.

DETAILED EXECUTION OF PROJECT PHASE

1. Developer Setup Org:

- A Salesforce developer org was created using
<https://developer.salesforce.com/signup>
- The account was verified, password set and access was granted to the Salesforce set up page.



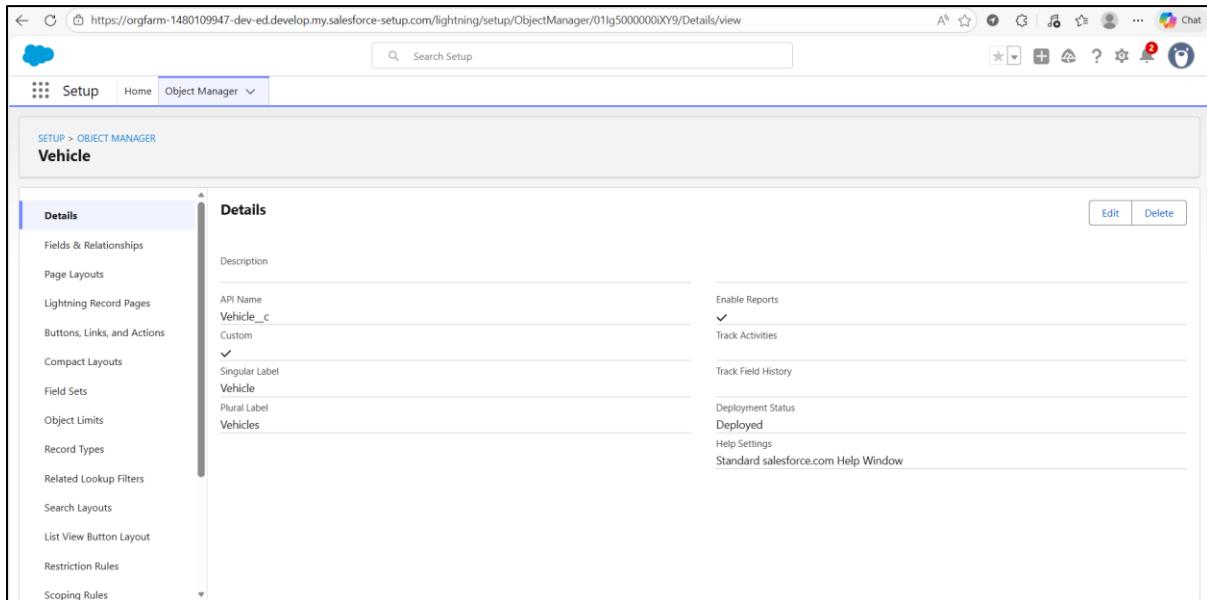
2. Custom Object Creation

Six custom objects were created to store business critical data:

Object Name	Purpose	Relationships
Vehicle_c	Stores vehicle details	Related to Dealer & Orders
Vehicle_Dealer_c	Stores authorized dealer info	Related to Orders
Vehicle_Customer_c	Stores customer details	Related to Orders & Test Drives
Vehicle_Order_c	Tracks vehicle purchases	Related to Customer & Vehicle
Vehicle_Test_Drive_c	Tracks test drive bookings	Related to Customer & Vehicle
Vehicle_Service_Request_c	Tracks vehicle servicing requests	Related to Customer & Vehicle

Steps Followed:

- Navigated to setup → Object manager → Create → Custom object
- Provided label, name and enabled reports/search
- Saved and created Tabs for each object



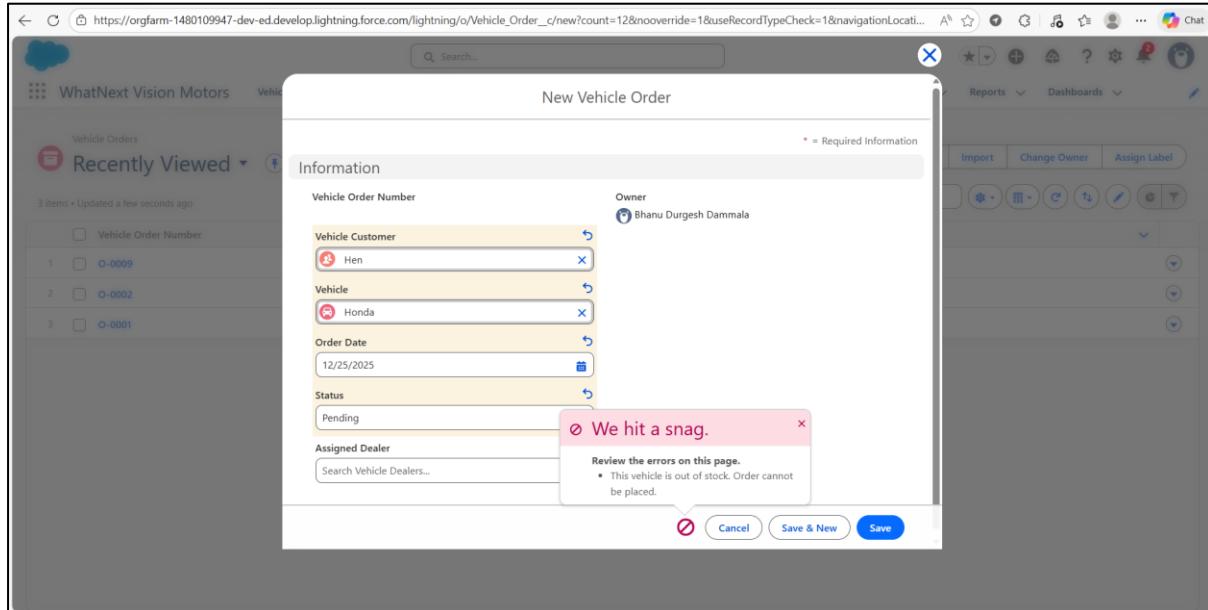
3. Creating the lightning app

- A custom lightning App named **WhatNext Vision Motors** was created.
- Included tabs: Vehicle Customers, Vehicle Dealers, Vehicle Orders, Vehicle Test Drives, Vehicles, Reports, Dashboards, etc.,
- Assigned to System Administrator profile.

4. Validation Rules

To ensure accurate data entry and enforce business logic, the following validation rules were applied:

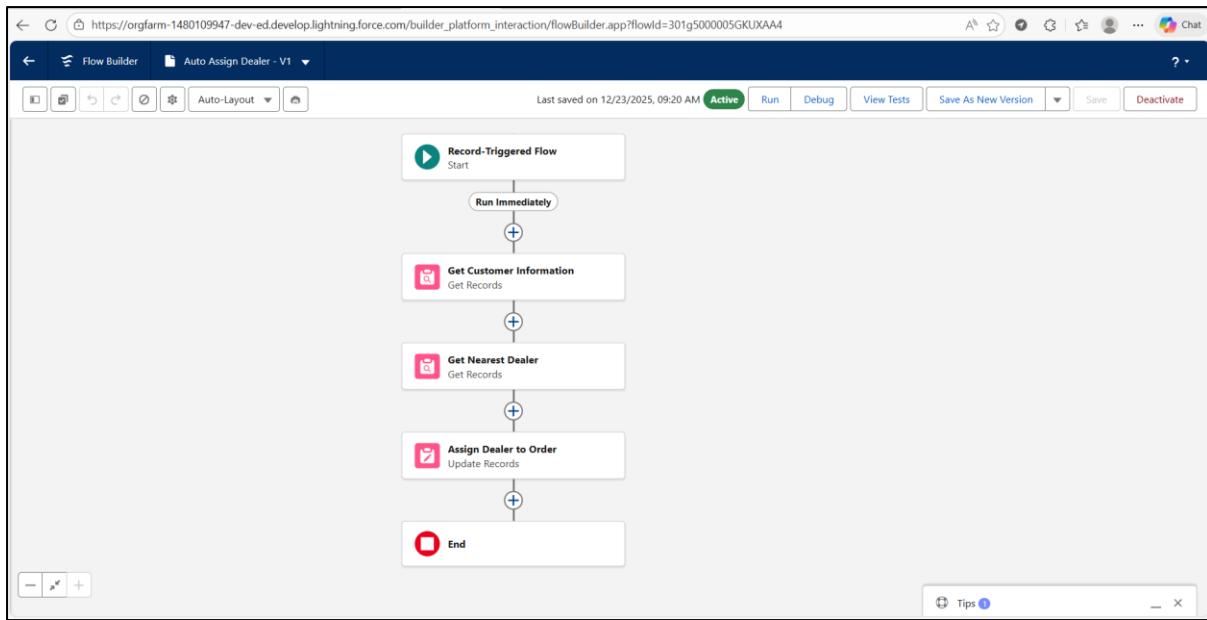
- Order Object: Prevents saving if Stock_Quantity<=0
Error: "This vehicle is out of stock. Order cannot be placed."



5. Flows

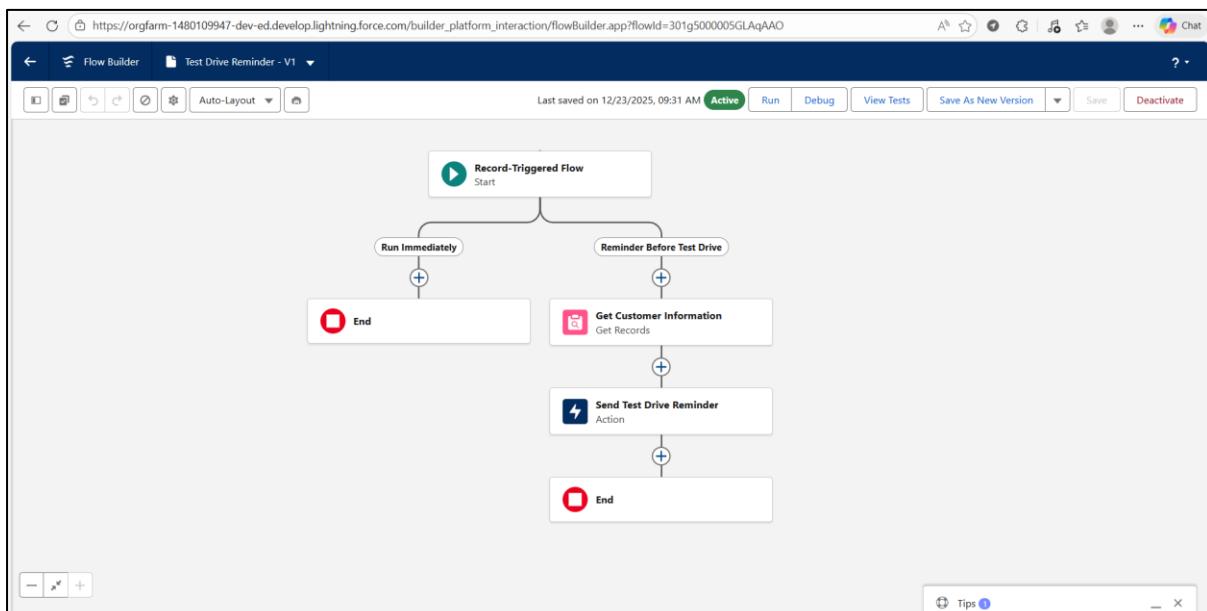
Automated Test Drive Notification Flow

- The Test Drive Reminder Notification flow is a vital customer engagement tool designed to reduce "no-shows" and maintain professional communication standards.
- This flow monitors the Vehicle Test Drive object for records marked with a 'Scheduled' status. By utilizing a Scheduled Path within the flow, the system can automatically trigger an email alert to the customer exactly 24 hours before their appointment date.
- This proactive approach ensures that customers are well-informed and provides them with the necessary details, such as the vehicle model and showroom location, directly in their inbox.



Test Drive Remainder Flow

- Enhancing Customer Experience through Timely Alerts By automating the communication loop, WhatsNext Vision Motors ensures a consistent and reliable experience for every potential buyer.
- The flow leverages the relationship between the Test Drive, Customer, and Vehicle objects to dynamically pull relevant data into a predefined email template.
- This automation not only saves significant manual effort for the dealership staff but also reinforces the brand's commitment to high-tech, customer-centric service.
- The result is a more organized scheduling system that directly contributes to higher conversion rates from test drives to vehicle sales.



6. User Creation

- User Creation section to your report is essential to demonstrate how security and access are managed within WhatsNext Vision Motors.
- This section details the process of onboarding team members and assigning them the appropriate levels of authority.

a. New Vehicle Customer:

- The new data must be entered by a customer for their required actions in the application.
- Every field must be filled for the sake of processing the allocation of dealer to the customer.

The screenshot shows a Salesforce Lightning interface for creating a new vehicle customer. The main title is "New Vehicle Customer". The "Information" section contains the following fields:

- "*Vehicle Customer Name": A required field with a placeholder value.
- "Owner": Bhau Durgesh Dammala, with a small profile icon.
- "Email": An empty input field.
- "Phone": An empty input field.
- "Address": An empty input field.
- "Preferred Vehicle Type": A dropdown menu showing "--None--".

At the bottom of the form are three buttons: "Cancel", "Save & New", and "Save".

b. New Vehicle Dealer:

- Vehicle dealer form is a form used to create a new vehicle dealer record, where the Vehicle Dealer Name is a required field.
- It allows users to enter important details such as dealer location, dealer code, phone number, and email address.
- The owner field is auto-assigned to the logged-in user, ensuring record accountability.

New Vehicle Dealer

* = Required Information

Information

*Vehicle Dealer Name

Owner Bhanu Durgesh Dammala

Dealer Location

Dealer Code

Phone

Email

Cancel Save & New Save

c. New Vehicle Order

- It is a form used to create a new Vehicle Order record, where the Vehicle Order Number is system-generated.
- It allows users to select a Vehicle Customer and a Vehicle using searchable lookup fields.
- The form includes fields for order date and status to track the progress of the order.
- An assigned dealer can be selected, and action buttons like Save, Save & New, and Cancel are provided to complete the process.

New Vehicle Order

* = Required Information

Information

Vehicle Order Number *O-0001

Owner Bhanu Durgesh Dammala

Vehicle Customer Search Vehicle Customers...

Vehicle Search Vehicles...

Order Date

Status --None--

Assigned Dealer Search Vehicle Dealers...

Cancel Save & New Save

d. New Vehicle Test Drive

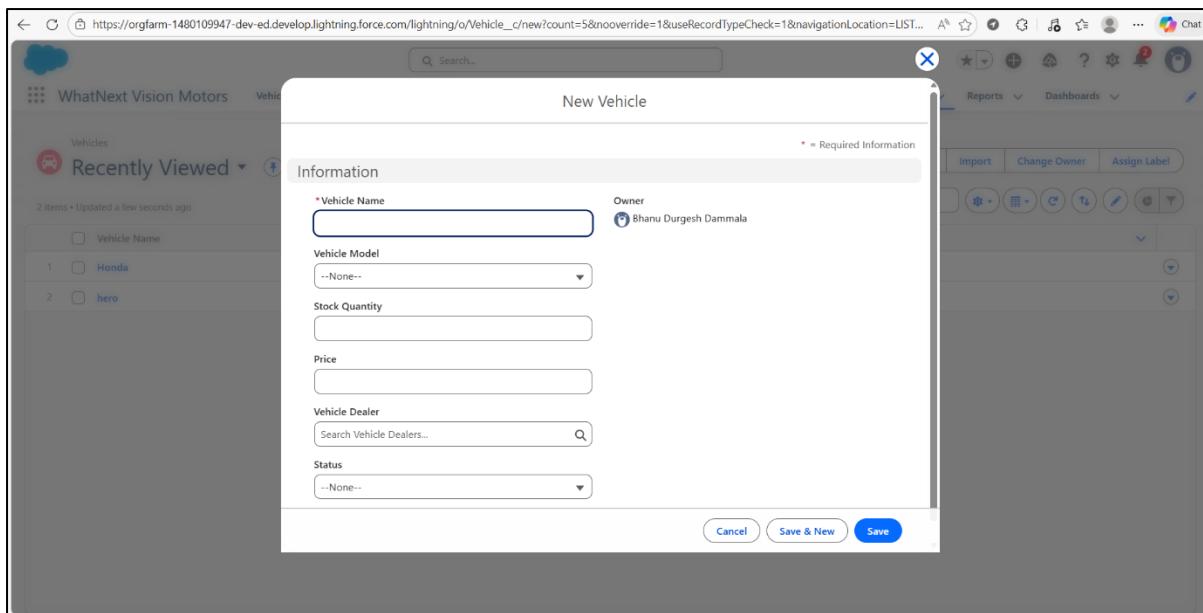
- It is a form used to create a new Vehicle Test Drive record, where the Vehicle Test Name is a required field.
- It allows users to select a vehicle customer and a vehicle using searchable lookup fields.
- The form includes a test drive date and status to track the progress of the test drive.
- The owner is automatically assigned, and options like Save, Save & New, and Cancel are provided to manage the record.

The screenshot shows a Salesforce Lightning interface for creating a new Vehicle Test Drive record. The page title is "New Vehicle Test Drive". The form contains the following fields:

- Information** section:
 - *Vehicle Test Name: A required input field.
 - Owner: Set to "Bhanu Durgesh Dammala".
 - Vehicle Customer: A search bar labeled "Search Vehicle Customers..." with a magnifying glass icon.
 - Vehicle: A search bar labeled "Search Vehicles..." with a magnifying glass icon.
 - Test Drive Date: A date input field.
 - Status: A dropdown menu with the option "--None--".
- Buttons at the bottom: "Cancel", "Save & New" (highlighted in blue), and "Save".

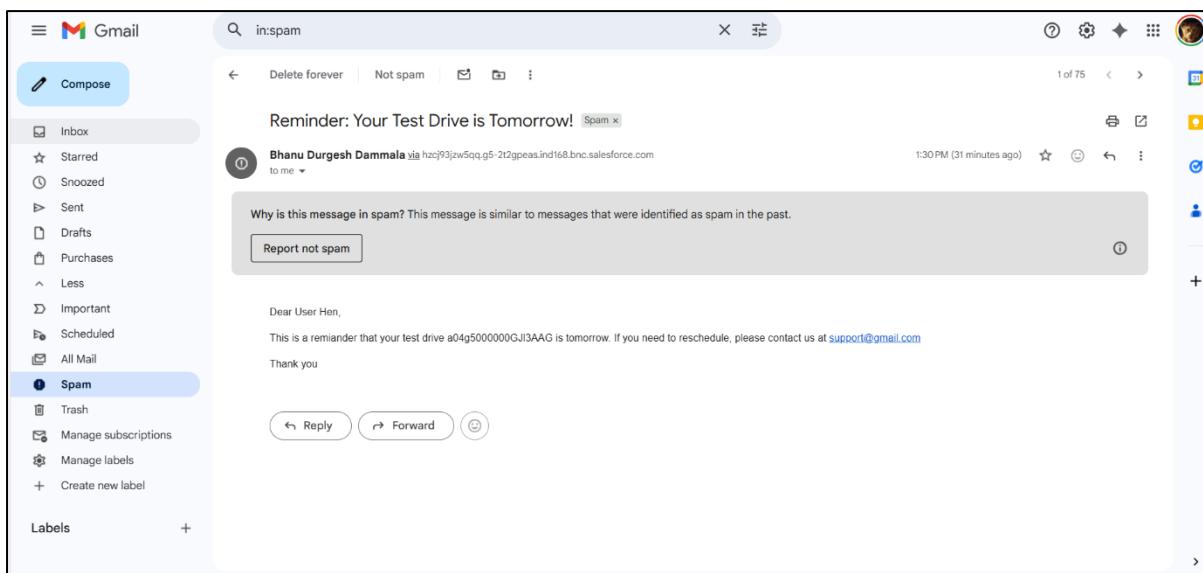
e. New Vehicle Form

- It is a form used to create a new Vehicle record, where the Vehicle Name is a required field.
- It allows users to select the vehicle model and enter details such as stock quantity and price.
- The form includes a lookup to assign a vehicle dealer and a status to track availability.
- The owner is auto-assigned, and users can finalize the record using Save, Save & New, or Cancel options.



7. Email Template and Alerts

- This email is a reminder generated automatically through a Salesforce Flow execution.
- The flow is triggered based on predefined conditions, such as a scheduled vehicle test drive date approaching.
- Once the criteria are met, the flow sends an automated notification email to the customer.
- The purpose of this reminder is to inform the user that their test drive is scheduled for the next day.
- It helps improve customer communication and reduces the chances of missed appointments.



- The email includes essential details like the test drive reference ID for identification.
- A support email address is provided in case the customer needs to reschedule or ask for assistance.
- Since the email is system-generated, Gmail may sometimes classify it as spam.
- This can happen if similar automated messages were previously marked as spam.
- Overall, the flow ensures timely reminders and enhances the efficiency of the test drive management process.

8. APEX Triggers

1. Trigger 1: VehicleOrderTrigger (Before Insert / Before Update)

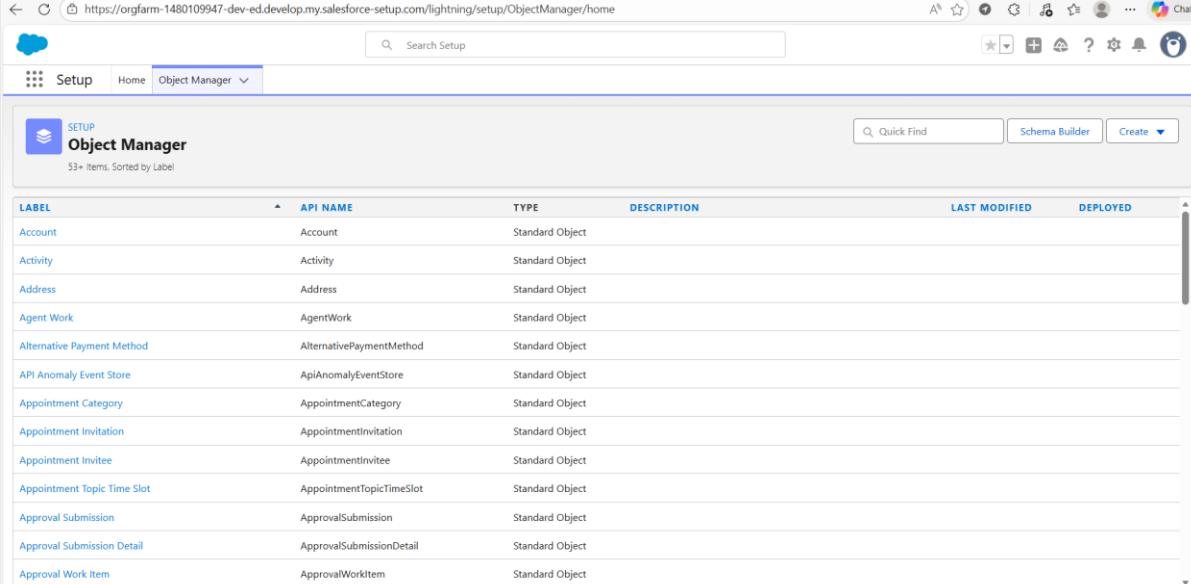
- This trigger validates vehicle availability before an order is saved into the system.
- It prevents users from placing or updating an order when the vehicle stock quantity is zero.
- By using addError, it ensures data integrity and avoids invalid orders at the database level.

2. Trigger 2: VehicleOrderTrigger (After Insert / After Update)

- This trigger executes after the order is successfully saved in Salesforce.
- It automatically reduces the vehicle stock quantity when an order status is marked as Confirmed.
- It keeps vehicle inventory synchronized with confirmed orders, ensuring real-time stock updates.

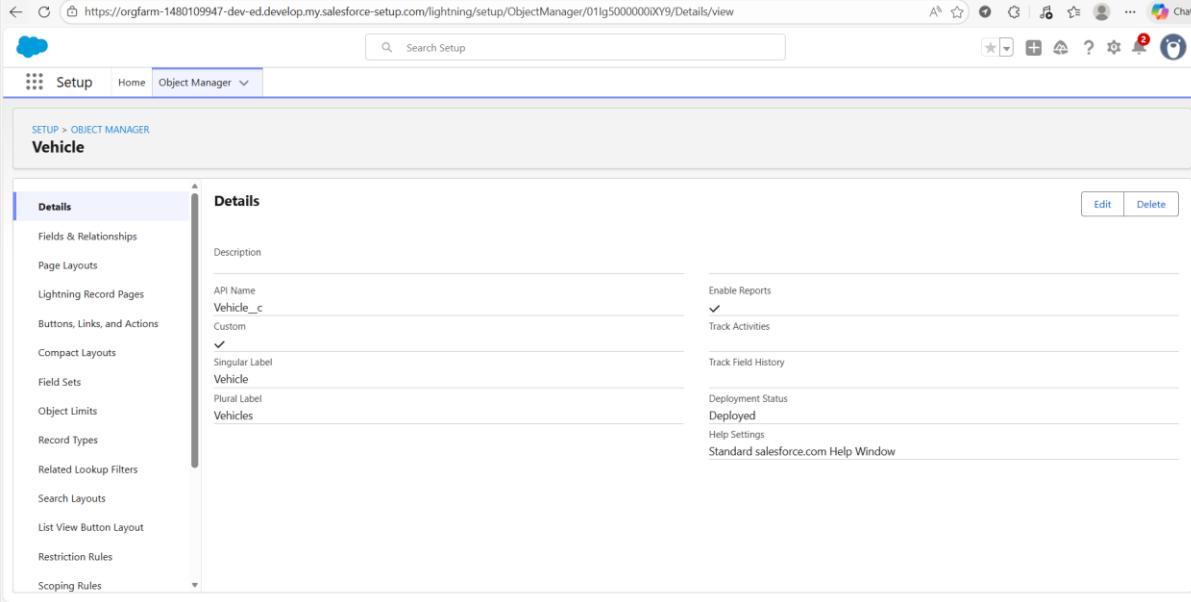
Process of Creation:

Creation of Objects:



The screenshot shows the Salesforce Object Manager page. At the top, there are tabs for Setup, Home, and Object Manager. The main area is titled "Object Manager" and displays a list of 53+ items sorted by Label. The columns in the table are: LABEL, API NAME, TYPE, DESCRIPTION, LAST MODIFIED, and DEPLOYED. The table lists various standard objects such as Account, Activity, Address, Agent Work, Alternative Payment Method, API Anomaly Event Store, Appointment Category, Appointment Invitation, Appointment Invitee, Appointment Topic Time Slot, Approval Submission, Approval Submission Detail, and Approval Work Item. All objects are listed as Standard Object.

1. Vehicle



The screenshot shows the details page for the Vehicle object in the Object Manager. The left sidebar lists various configuration options: Fields & Relationships, 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, and Scoping Rules. The main panel is titled "Vehicle" and contains two tabs: "Details" and "Fields & Relationships". The "Details" tab shows the following fields: Description (empty), API Name (Vehicle__c), Singular Label (Vehicle), and Plural Label (Vehicles). On the right side, there are sections for Reports (Enable Reports checked, Track Activities), Field History (Track Field History), Deployment Status (Deployed), Help Settings (Standard salesforce.com Help Window), and Edit and Delete buttons.

2. Vehicle Customer

The screenshot shows the Salesforce Object Manager interface. The top navigation bar includes links for Setup, Home, and Object Manager. The main title is "Vehicle Customer". On the left, a sidebar lists various configuration options: Fields & Relationships, 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, and Scoping Rules. The right panel displays the "Details" section for the Vehicle Customer object. It includes fields for Description, API Name (Vehicle_Customer__c), Singular Label (Vehicle Customer), Plural Label (Vehicle Customers), and several checkboxes for reporting and tracking. At the bottom right of the details panel are "Edit" and "Delete" buttons.

3. Vehicle Dealer

The screenshot shows the Salesforce Object Manager interface. The top navigation bar includes links for Setup, Home, and Object Manager. The main title is "Vehicle Dealer". The left sidebar lists the same configuration options as the previous screenshot. The right panel displays the "Details" section for the Vehicle Dealer object. It includes fields for Description, API Name (Vehicle_Dealer__c), Singular Label (Vehicle Dealer), Plural Label (Vehicle Dealers), and several checkboxes for reporting and tracking. At the bottom right of the details panel are "Edit" and "Delete" buttons.

4. Vehicle Order

The screenshot shows the Salesforce Object Manager interface. The URL is https://orgfarm-1480109947-dev-ed.develop.my.salesforce-setup.com/lightning/setup/ObjectManager/01lg5000000iYnZ/Details/view. The page title is "Vehicle Order". The left sidebar has a "Details" section with links to Fields & Relationships, 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, and Scoping Rules. The main content area has a "Details" section with fields for Description, API Name (Vehicle_Order_c), Custom (✓), Singular Label (Vehicle Order), Plural Label (Vehicle Orders), Enable Reports (✓), Track Activities, Track Field History, Deployment Status (Deployed), and Help Settings (Standard salesforce.com Help Window). There are "Edit" and "Delete" buttons at the top right.

5. Vehicle Test Drive

The screenshot shows the Salesforce Object Manager interface. The URL is https://orgfarm-1480109947-dev-ed.develop.my.salesforce-setup.com/lightning/setup/ObjectManager/01lg5000000iYpB/Details/view. The page title is "Vehicle Test Drive". The left sidebar has a "Details" section with links to Fields & Relationships, 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, and Restriction Rules. The main content area has a "Details" section with fields for Description, API Name (Vehicle_Test_c), Custom (✓), Singular Label (Vehicle Test Drive), Plural Label (Vehicle Test Drives), Enable Reports (✓), Track Activities, Track Field History, Deployment Status (Deployed), and Help Settings (Standard salesforce.com Help Window). There are "Edit" and "Delete" buttons at the top right.

6. Vehicle Service Request

The screenshot shows the Salesforce Object Manager interface. The left sidebar is titled 'Details' and lists various configuration options: Fields & Relationships, 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, and Scoping Rules. The main content area is titled 'Vehicle Service Request' and shows the 'Details' tab. It contains fields for Description, API Name (Vehicle_Service_Request__c), Custom (✓), Singular Label (Vehicle Service Request), Plural Label (Vehicle Service Requests), Enable Reports (✓), Track Activities, Track Field History, Deployment Status (Deployed), Help Settings (Standard salesforce.com Help Window), and a 'Search Setup' bar at the top.

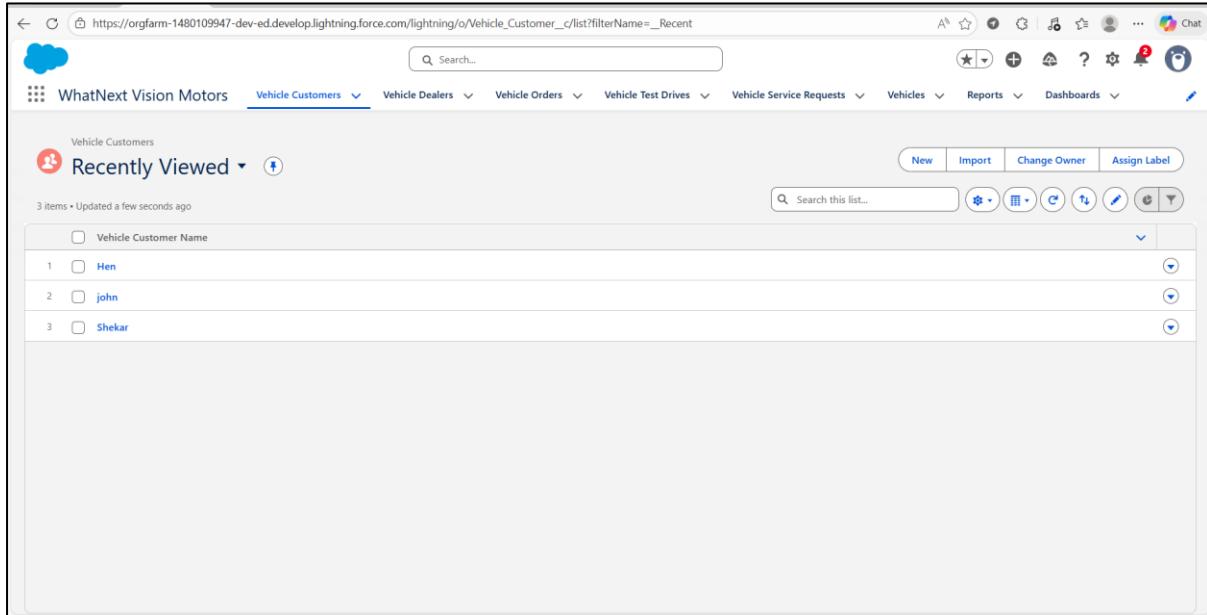
Creation of Tabs

The screenshot shows the Salesforce Custom Tabs setup page. The left sidebar has a search bar and sections for 'User Interface' (Rename Tabs and Labels) and 'Tabs'. The main content area is titled 'Custom Tabs' and includes a help link 'Help for this Page'. It states: 'You can create new custom tabs to extend Salesforce functionality or to build new application functionality. Custom Object tabs look and behave like the standard tabs provided with Salesforce. Web tabs allow you to embed external web applications and content within the Salesforce window. Visualforce tabs allow you to add Lightning components to the navigation menu in Lightning Experience and the mobile app. Lightning Page tabs allow you to add Lightning Pages to Lightning Experience and the mobile app.' Below this, there are three sections: 'Custom Object Tabs', 'Web Tabs', and 'Visualforce Tabs'. The 'Custom Object Tabs' section shows a table with columns for Action, Label, Tab Style, and Description. The table contains the following data:

Action	Label	Tab Style	Description
Edit Del	Vehicle Customers	People	
Edit Del	Vehicle Dealers	Building	
Edit Del	Vehicle Orders	Box	
Edit Del	Vehicles	Car	
Edit Del	Vehicle Service Requests	Form	
Edit Del	Vehicle Test Drives	Gears	

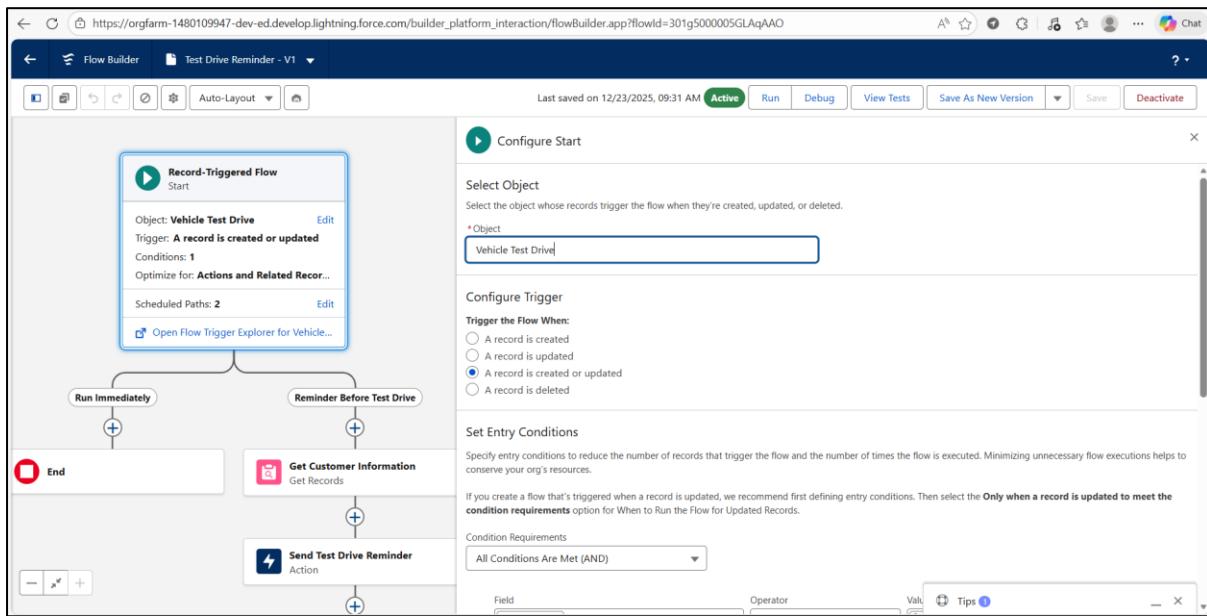
The 'Web Tabs' section says 'No Web Tabs have been defined'. The 'Visualforce Tabs' section also says 'No Visualforce Tabs have been defined'. At the bottom, there is a URL: <https://orgfarm-1480109947-dev-ed.develop.my.salesforce-setup.com/lightning/setup/CustomTabs/home>.

Creating a Lightning APP

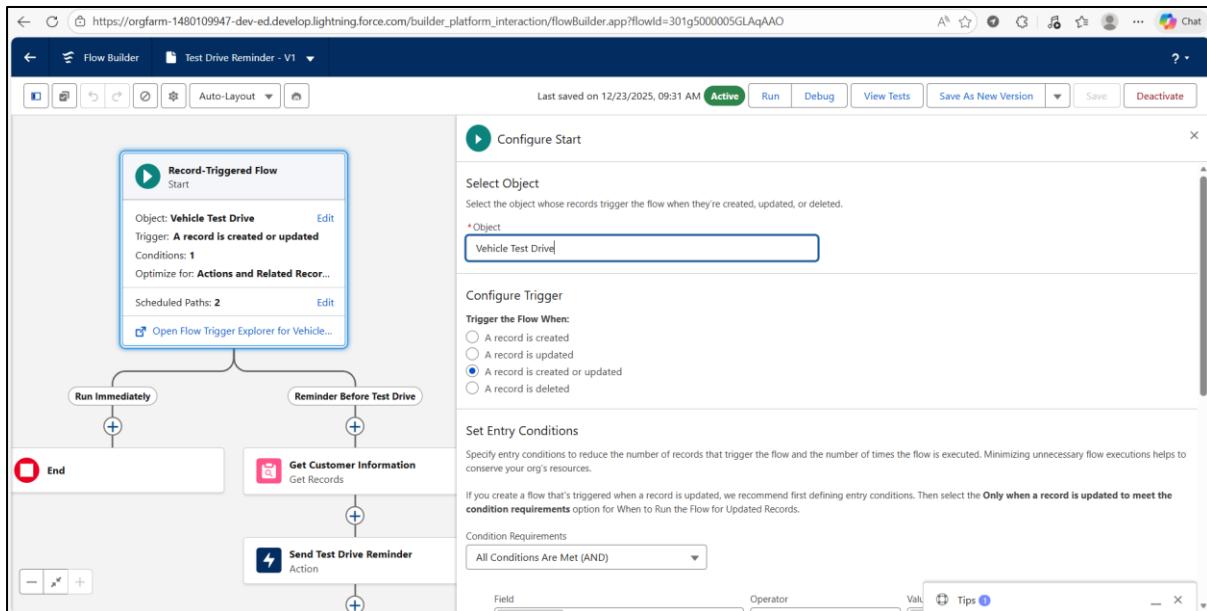


Automation

- **Test Drive Remainder Flow**



• Auto Assign Dealer Flow



Apex and Trigger Batch Jobs

The screenshot shows the Apex Debugger interface with the following details:

- File Menu:** New, Open, Open Resource, Open Lightning Resources, Open Log, Open Raw Log, Download Log, Save, Save All, Delete, Close, Close All.
- Code Editor:**

```

public class VehicleOrderBatch {
    @handler
    public void handle(List<Vehicle_Order__c> newOrders, Map<Id, Vehicle_Order__c> oldOrders, Boolean isBefore, Boolean isAfter, Boolean isFirstBatch, Boolean isLastBatch) {
        if(newOrders != null && !newOrders.isEmpty()) {
            for(Vehicle_Order__c order : newOrders) {
                if(order.Vehicle__c != null) {
                    vehicleIds.add(order.Vehicle__c);
                }
            }
        }
        // Prevent placing an order if stock is zero
        private static void preventOrderIfOutOfStock(List<Vehicle_Order__c> orders) {
            Set<Id> vehicleIds = new Set<Id>();
            for(Vehicle_Order__c order : orders) {
                if(order.Vehicle__c != null) {
                    vehicleIds.add(order.Vehicle__c);
                }
            }
            if(vehicleIds.size() > 0) {
                Map<Id, Vehicle_Order__c> oldOrders = Database.getMapForUpdate(vehicleIds);
                for(Vehicle_Order__c order : orders) {
                    if(order.Vehicle__c != null && vehicleIds.contains(order.Vehicle__c)) {
                        if(order.Quantity > oldOrders.get(order.Id).Quantity) {
                            order.Quantity = oldOrders.get(order.Id).Quantity;
                        }
                    }
                }
            }
        }
    }
}

```
- Logs Tab:**

User	Application	Operation	Time	Status	Read	Size
Bhanu Durgesh Dammala	Unknown	common.api.soap.DirectSoap	23/12/2025, 11:58:30 am	Success	Unread	529 bytes
Bhanu Durgesh Dammala	Unknown	common.api.soap.DirectSoap	23/12/2025, 11:58:30 am	Success	Unread	527 bytes
Bhanu Durgesh Dammala	Unknown	common.api.soap.DirectSoap	23/12/2025, 11:58:30 am	Success	Unread	527 bytes
Bhanu Durgesh Dammala	Browser	/aura	23/12/2025, 11:57:44 am	Success	Unread	28.28 KB
Bhanu Durgesh Dammala	Unknown	common.api.soap.DirectSoap	23/12/2025, 11:57:44 am	Success	Unread	532 bytes
Bhanu Durgesh Dammala	Unknown	common.api.soap.DirectSoap	23/12/2025, 10:50:11 am	Success	Unread	532 bytes

Summary

WhatsNext Vision Motors, a pioneering force in the automotive industry, is dedicated to transforming the mobility sector with innovative technology and solutions that prioritize customer needs. The company has embarked on an ambitious Salesforce project with the core objective of enhancing the customer experience and streamlining its operational processes.

At the heart of this project is the improvement of the customer ordering process. The system is designed to automatically suggest the nearest dealer location to customers based on their address. This feature is intended to significantly enhance the convenience and efficiency of the ordering experience, making it more customer-friendly and reducing the time and effort required from the customer's end.

The project also addresses a common issue in the automotive industry: stock availability. The system includes a mechanism that prevents customers from placing orders for vehicles that are out of stock. This proactive approach ensures that customers can only create orders for vehicles that are currently available, thus avoiding potential confusion and disappointment that may arise from stock unavailability. This feature not only enhances customer satisfaction but also improves the accuracy of the company's order fulfilment process.

Furthermore, the project incorporates a scheduled process for updating the status of bulk order records. This automated process is designed to update the order status based on stock availability. If a vehicle is out of stock at the time of order placement, the system will update the order status to 'Pending.' On the other hand, if the vehicle is in stock, the system will update the status to 'Confirmed.' This ensures that all orders are accurately reflected in terms of their fulfilment status, providing clear and transparent communication to customers regarding the status of their orders.

The implementation of this Salesforce project at WhatsNext Vision Motors is expected to yield several benefits. It aims to create a more efficient ordering system that reduces the potential for errors and improves the overall service provided to customers. By streamlining the ordering process and ensuring accurate stock availability, the company can enhance customer satisfaction and loyalty.

Moreover, the project is expected to contribute to operational efficiency by reducing the administrative burden on staff. By automating certain processes, employees can focus on more strategic tasks that require human intervention and expertise. This not only improves the overall productivity of the company but also allows for a more agile response to market demands and customer needs.

----- * * * * -----