

WhatNext Vision Motors: Shaping the Future of Mobility with Innovation and Excellence

ABSTRACT

WhatNext Vision Motors, a rising company in the automotive industry, sought to modernize its customer interactions and operational processes by implementing a custom **Salesforce CRM** solution. The project's main goal was to **streamline vehicle order management**, ensure accurate **dealer assignment**, and improve **** customer engagement**** through automation.

The company's prior **manual processes** frequently caused delays, issues with stock management, and customer dissatisfaction. To resolve these problems, the new CRM system was designed with features like **real-time stock validation**, automatic dealer assignment based on a customer's location, email reminders for test drives, and backend automation using **Apex triggers and batch classes**. The platform also offers a user-friendly experience for internal staff via **Lightning Apps** and **Dynamic Forms**. Ultimately, this solution boosts efficiency, minimizes errors, and establishes a scalable foundation for future improvements, such as AI-based vehicle recommendations or chatbot support.

Objective

The core objectives for the **WhatsNext Vision Motors Salesforce** project were:

- **Improve Customer Satisfaction:** Create mechanisms to automatically suggest the nearest authorized dealer to a customer based on their location for a smooth ordering experience.
- **Ensure Order Accuracy and Fulfillment:** Implement real-time stock validation to prevent customers from placing orders for vehicles that are currently out of stock.
- **Streamline Operations with Automation:** Develop advanced automation using Apex and Flows to efficiently manage customer orders, test drives, and internal data processes.
- **Maintain Data Integrity and Scalability:** Utilize Batch Apex to periodically and reliably update vehicle stock data, ensuring the system's information remains current and is scalable for large volumes of data.
- **Proactive Customer Communication:** Automate email reminders for scheduled test drives to reduce no-shows and enhance customer engagement.

Technology Description

The project is built entirely on the **Salesforce platform**, leveraging its CRM and customization features:

- **Salesforce CRM:** Serves as the central platform for storing and managing vehicle details, stock availability, dealer information, customer details, and tracking customer orders, test drives, and service requests.
- **Apex and Apex Triggers:** Used to enforce complex business rules, such as **stock validation** upon order creation and **automatic dealer assignment** based on customer location. **Trigger handlers** are used for code modularity and maintainability.
- **Batch Apex and Scheduled Apex:** Employed to periodically process large data volumes, specifically to check vehicle stock levels and update availability in Salesforce, in addition to handling scheduled order processing and notifications.

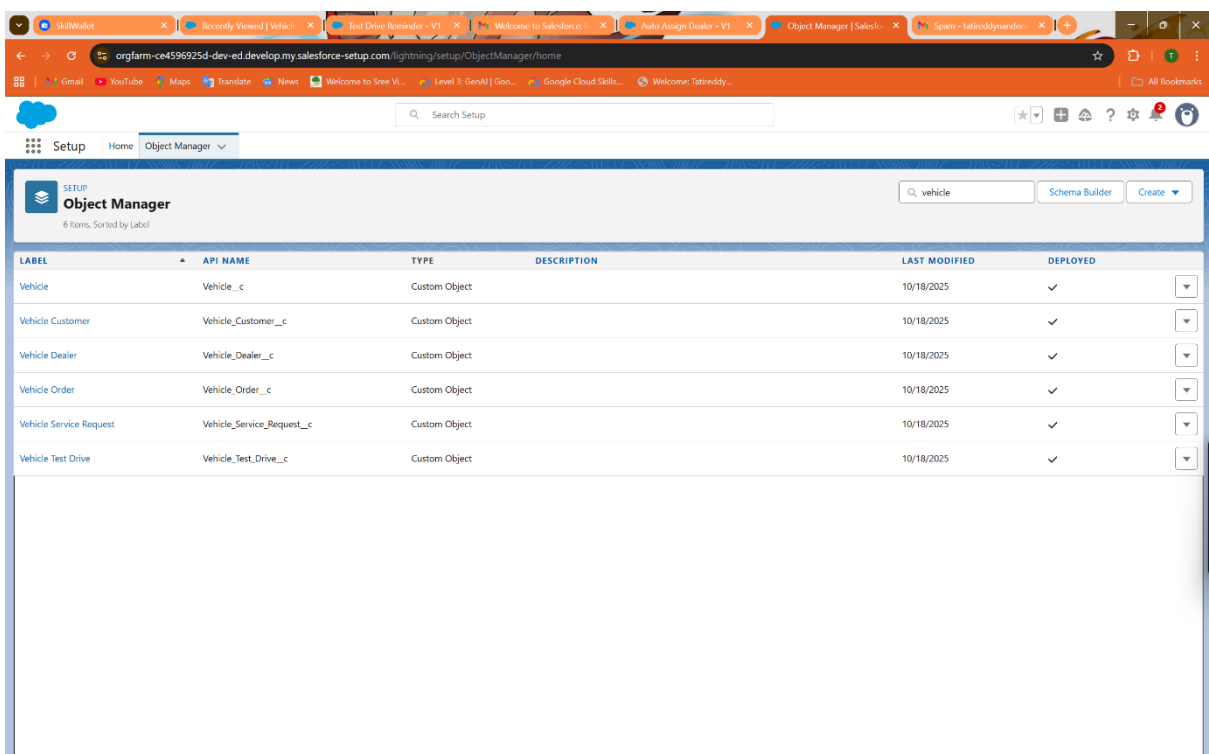
- **Data Modelling:** Custom objects and fields were created for efficient data structuring.
- **Process Automation (Flows): Record-Triggered Flows** and other automation tools are used for sending automated email reminders.
- **Lightning App Builder:** Used to create a dedicated **Lightning App** to provide a modern, consolidated user interface for internal users.

Detailed Execution of Project Phases

The project followed a structured approach, from foundational data architecture to advanced programmatic and declarative automation:

1. Data Management and Modeling

- **Custom Objects:** Six custom objects were created to manage the vehicle lifecycle: **Vehicle__c**, **Vehicle_Dealer__c**, **Vehicle_Customer__c**, **Vehicle_Order__c**, **Vehicle_Test_Drive__c**, and **Vehicle_Service_Request__c**.



The screenshot shows the Salesforce Setup Object Manager interface. The browser address bar indicates the URL: `orgfarm-ce4596925d-dev-ed.develop.my.salesforce-setup.com/lightning/setup/ObjectManager/home`. The page title is "Object Manager" with a subtitle "6 Items, Sorted by Label". A search bar contains the text "vehicle". Below the search bar is a table listing the custom objects.

LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
Vehicle	Vehicle__c	Custom Object		10/18/2025	✓
Vehicle Customer	Vehicle_Customer__c	Custom Object		10/18/2025	✓
Vehicle Dealer	Vehicle_Dealer__c	Custom Object		10/18/2025	✓
Vehicle Order	Vehicle_Order__c	Custom Object		10/18/2025	✓
Vehicle Service Request	Vehicle_Service_Request__c	Custom Object		10/18/2025	✓
Vehicle Test Drive	Vehicle_Test_Drive__c	Custom Object		10/18/2025	✓

- **Fields and Relationships:** The foundation of an effective **Customer Relationship Management (CRM)** system lies in meticulously defined fields and strong record relationships. Essential fields such as **Stock_Quantity__c** for inventory tracking, **Dealer_Location__c** for geographical segmentation, and **Status__c** to manage workflow states (e.g., *New*, *In Progress*, *Closed*) are crucial for business operations and reporting.
- These core data points are then logically connected using **Lookup** or **Master-Detail** relationships. A **Lookup relationship**, such as linking an **Order** record to a **Customer** record, allows you to associate two objects while maintaining independent ownership and security rules. Conversely, a **Master-Detail relationship** between **Order** and **Vehicle** often indicates a tighter, required association where the detail record (Vehicle) is conceptually a child of the master record (Order), inheriting its security and deletion behavior. Establishing

these links ensures data integrity, enables powerful cross-object reporting, and provides users with a comprehensive **360-degree view** of the customer and their interactions.

- **VEHICLE CUSTOMER FIELDS AND RELATIONSHIPS**

The screenshot shows the Salesforce Setup interface for the 'Vehicle Customer' object. The left sidebar contains a navigation menu with options like Details, 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, Scoping Rules, Object Access, Triggers, Flow Triggers, Validation Rules, and Conditional Field Formatting. The main content area is titled 'Vehicle Customer' and 'Fields & Relationships' with 8 items. It includes a search bar and buttons for 'New', 'Deleted Fields', 'Field Dependencies', and 'Set History Tracking'. The table below lists the fields and their relationships.

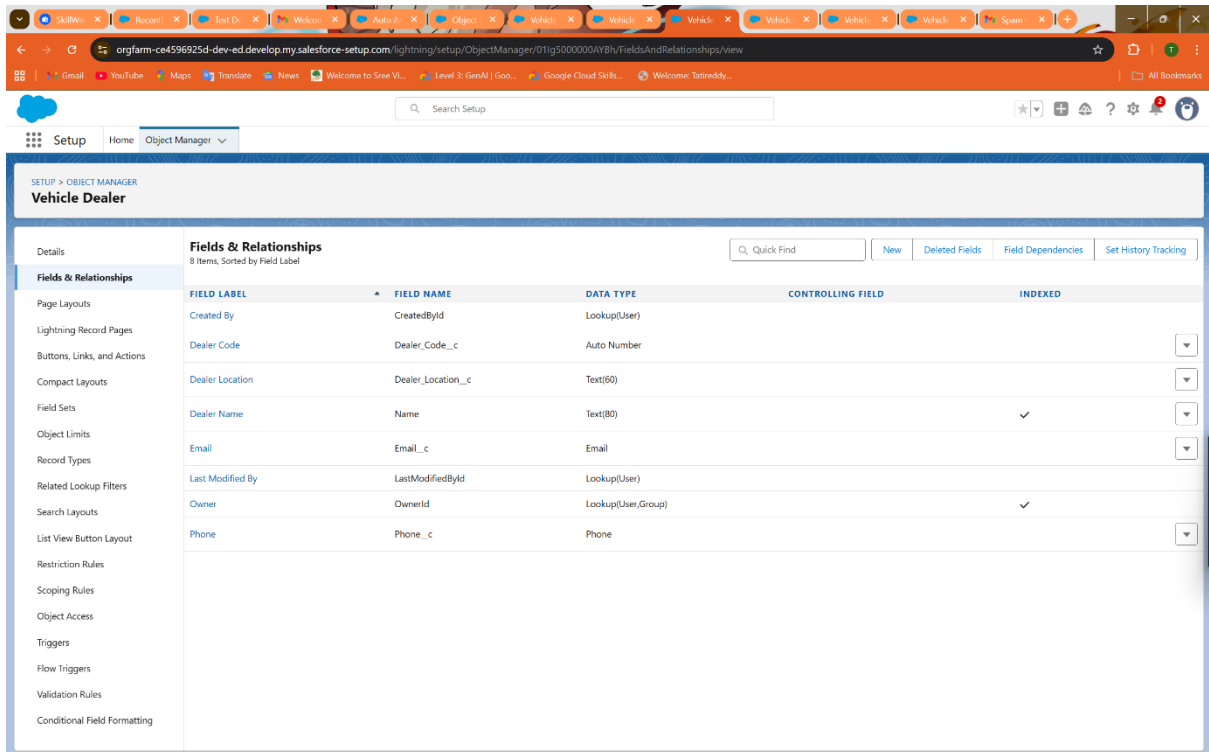
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Address	Address_c	Text(60)		
Created By	CreatedById	Lookup(User)		
Email	Email_c	Email		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Phone	Phone_c	Phone		
Preferred Vehicle Type	Preferred_Vehicle_Type_c	Picklist		
Vehicle Customer Name	Name	Text(80)		✓

- **VEHICLE FIELD AND RELATIONSHIPS**

The screenshot shows the Salesforce Setup interface for the 'Vehicle' object. The left sidebar contains a navigation menu with options like Details, 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, Scoping Rules, Object Access, Triggers, Flow Triggers, Validation Rules, and Conditional Field Formatting. The main content area is titled 'Vehicle' and 'Fields & Relationships' with 9 items. It includes a search bar and buttons for 'New', 'Deleted Fields', 'Field Dependencies', and 'Set History Tracking'. The table below lists the fields and their relationships.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Price	Price_c	Currency(18, 0)		
Status	Status_c	Picklist		
Stock Quantity	Stock_Quantity_c	Number(18, 0)		
Vehicle Dealer	Vehicle_Dealer_c	Lookup(Vehicle Dealer)		✓
Vehicle Model	Vehicle_Model_c	Picklist		
Vehicle Name	Name	Text(80)		✓

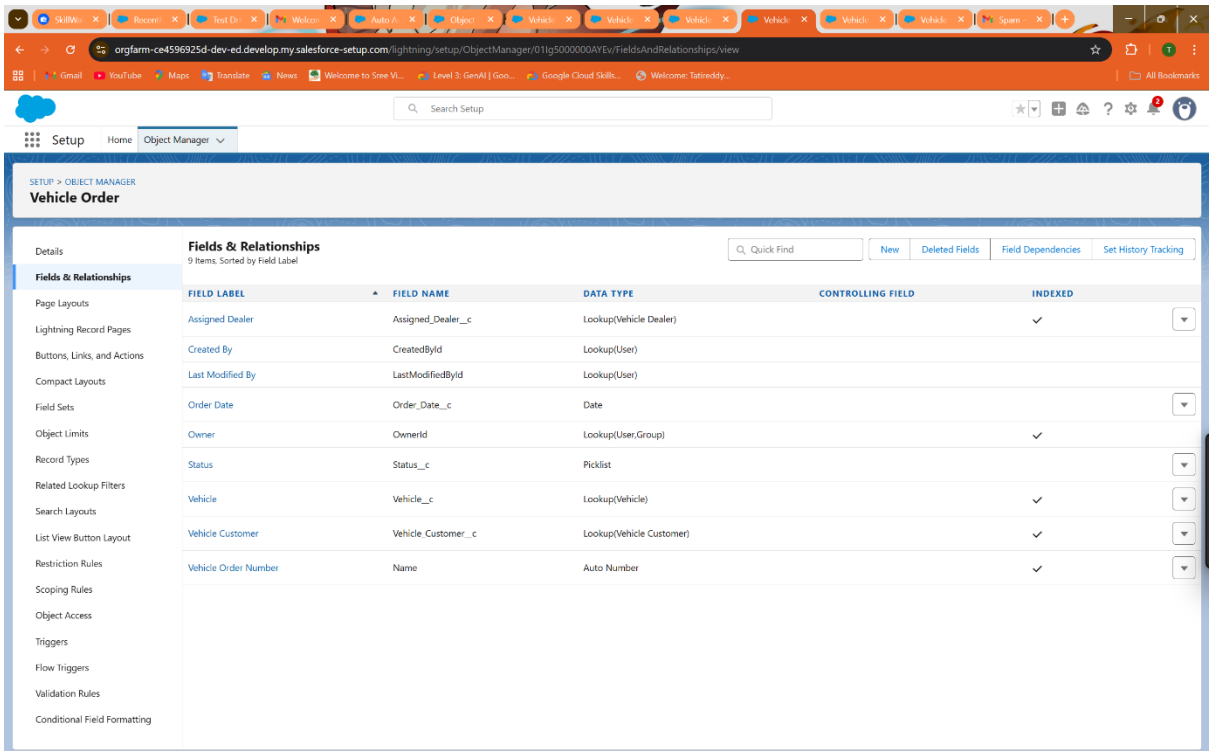
• VEHICLE DEALER FIELD AND RELATIONSHIPS



The screenshot shows the Salesforce Setup interface for the 'Vehicle Dealer' object. The left sidebar contains a navigation menu with options like Details, 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, Scoping Rules, Object Access, Triggers, Flow Triggers, Validation Rules, and Conditional Field Formatting. The main content area is titled 'Vehicle Dealer' and shows 'Fields & Relationships' with 8 items, sorted by Field Label. A search bar and links for 'New', 'Deleted Fields', 'Field Dependencies', and 'Set History Tracking' are at the top right. The table below lists the fields with their labels, names, data types, controlling fields, and indexed status.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedBy	Lookup(User)		
Dealer Code	Dealer_Code__c	Auto Number		
Dealer Location	Dealer_Location__c	Text(60)		
Dealer Name	Name	Text(80)		✓
Email	Email__c	Email		
Last Modified By	LastModifiedBy	Lookup(User)		
Owner	OwnerId	Lookup(User, Group)		✓
Phone	Phone__c	Phone		

• VEHICLE ORDER FIELDS AND RELATIONSHIPS



The screenshot shows the Salesforce Setup interface for the 'Vehicle Order' object. The left sidebar contains a navigation menu with options like Details, 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, Scoping Rules, Object Access, Triggers, Flow Triggers, Validation Rules, and Conditional Field Formatting. The main content area is titled 'Vehicle Order' and shows 'Fields & Relationships' with 9 items, sorted by Field Label. A search bar and links for 'New', 'Deleted Fields', 'Field Dependencies', and 'Set History Tracking' are at the top right. The table below lists the fields with their labels, names, data types, controlling fields, and indexed status.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Assigned Dealer	Assigned_Dealer__c	Lookup(Vehicle Dealer)		✓
Created By	CreatedBy	Lookup(User)		
Last Modified By	LastModifiedBy	Lookup(User)		
Order Date	Order_Date__c	Date		
Owner	OwnerId	Lookup(User, Group)		✓
Status	Status__c	Picklist		
Vehicle	Vehicle__c	Lookup(Vehicle)		✓
Vehicle Customer	Vehicle_Customer__c	Lookup(Vehicle Customer)		✓
Vehicle Order Number	Name	Auto Number		✓

- **VEHICLE SERVICE REQUEST FIELDS AND RELATIONSHIPS**

Vehicle Service Request

9 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Issue Description	Issue_Description__c	Text(50)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Service Date	Service_Date__c	Date		
Status	Status__c	Picklist		
Vehicle	Vehicle__c	Lookup(Vehicle)		✓
Vehicle Customer	Vehicle_Customer__c	Lookup(Vehicle Customer)		✓
Vehicle Name	Name	Text(80)		✓

- **VEHICLE TEST DRIVE FIELDS AND RELATIONSHIPS**

Vehicle Test Drive

8 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Status	Status__c	Picklist		
Test Drive Date	Test_Drive_Date__c	Date		
Vehicle	Vehicle__c	Lookup(Vehicle)		✓
Vehicle Customer	Vehicle_Customer__c	Lookup(Vehicle Customer)		✓
Vehicle Name	Name	Text(80)		✓

2. User Interface Setup

- **Custom Tab Creation:** A custom tab for the Vehicle__c object was created to allow user access to vehicle data.

Custom Tabs

Help for this Page

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 embed Visualforce pages. Lightning Component 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.

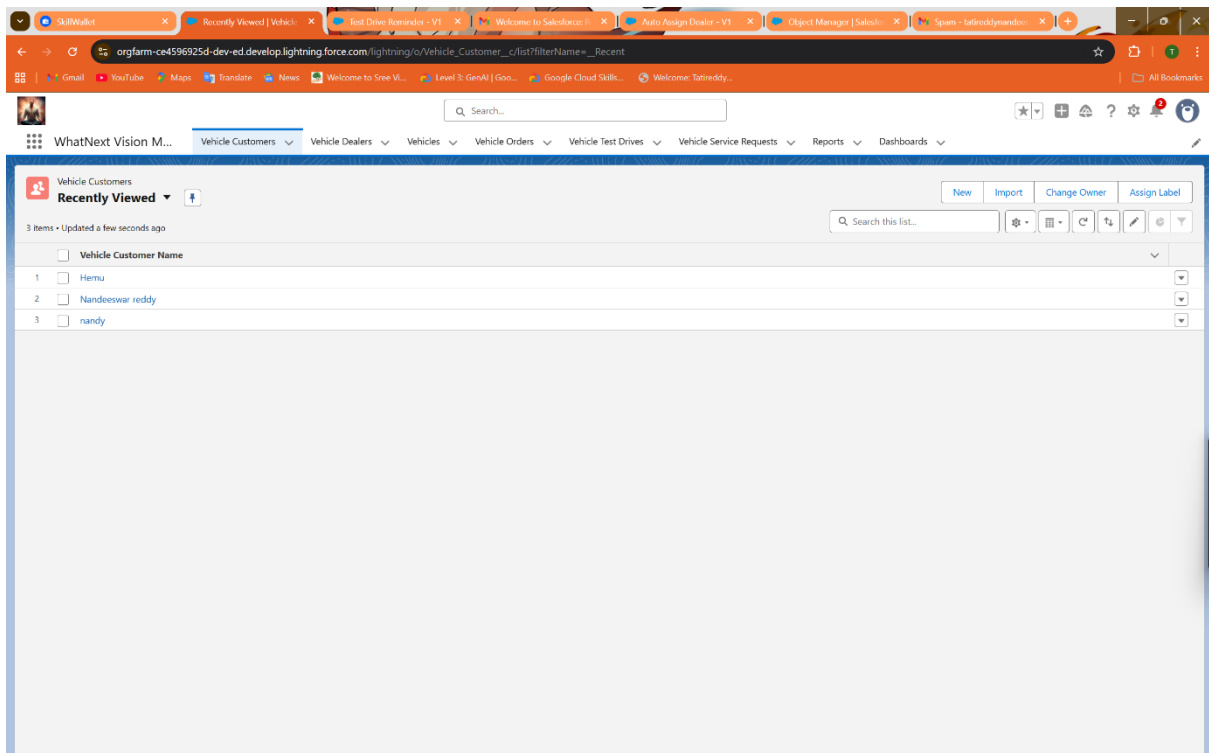
Custom Object Tabs			
New What Is This?			
Action	Label	Tab Style	Description
Edit Del	Vehicle Customers	People	
Edit Del	Vehicle Dealers	Building	
Edit Del	Vehicle Orders	Box	
Edit Del	Vehicles	Car	
Edit Del	Vehicle Service Requests	Form	
Edit Del	Vehicle Test Drives	Games	

Web Tabs			
New What Is This?			
No Web Tabs have been defined			

Visualforce Tabs			
New What Is This?			
No Visualforce Tabs have been defined			

Lightning Component Tabs			
New What Is This?			
Action	Label	Tab Style	Description
Edit	Get Started with Agentforce	Heart	
Edit	Get Started with Data Cloud	Map	
Edit	Get Started with MuleSoft	Heart	
Edit	Get Started with Salesforce DX	Building Block	
Edit	Welcome	Cours	

- **Lightning App Creation:** A dedicated WhatsNext Vision Motors Lightning App was configured, integrating all relevant custom object tabs into the navigation bar for centralized user access.



3. Apex and Trigger Framework

- A modular Apex architecture was implemented using a handler class (VehicleOrderTriggerHandler) invoked by a simple trigger (VehicleOrderTrigger) to manage all events on the Vehicle_Order__c object.
- **Stock Validation Logic:** The handler class includes logic to perform real-time stock validation *before* a Vehicle_Order__c record is inserted. This logic prevents the order from being created if the selected vehicle's Stock_Quantity__c is zero or less.

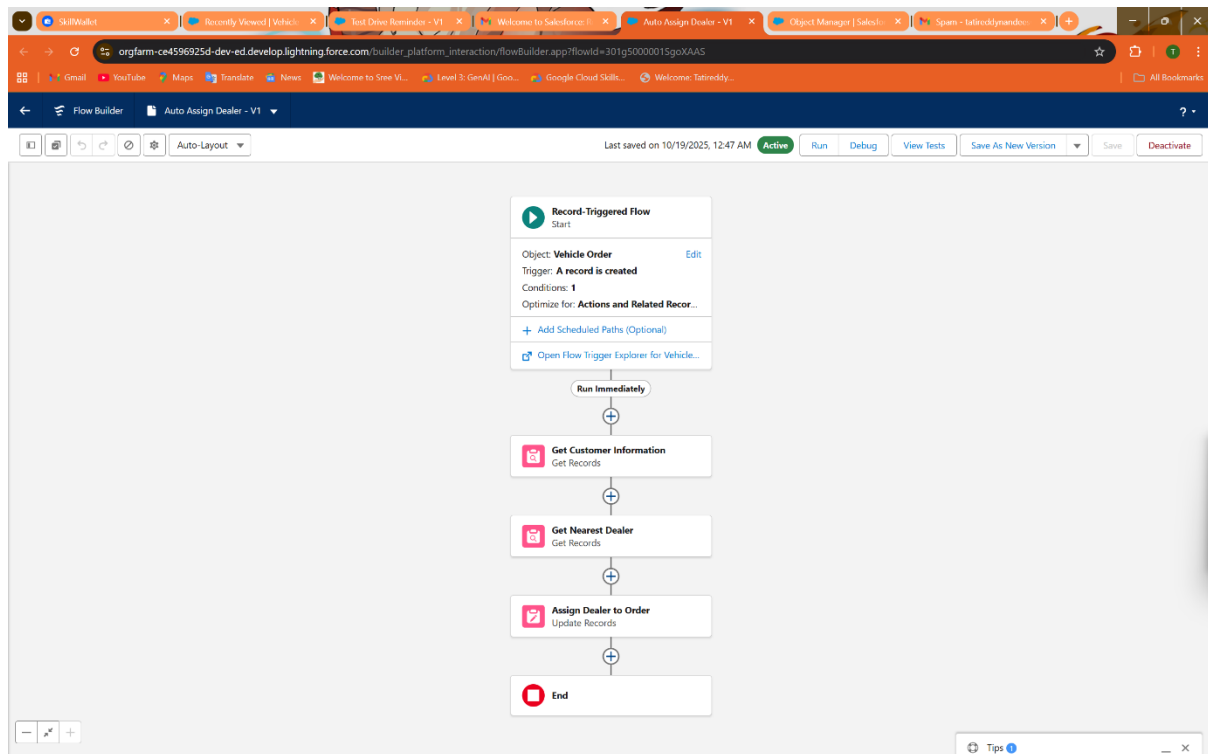
The screenshot displays the 'New Vehicle Order' form. At the top right, a legend indicates that an asterisk (*) denotes 'Required Information'. The form is divided into sections: 'Information' (Vehicle Order Number, Owner: Tatireddy Nandeewar Reddy), 'Vehicle Customer' (nandy), 'Vehicle' (lamborghini), 'Order Date' (10/19/2025), 'Status' (Pending), and 'Assigned Dealer' (Search Vehicle). A red error message box is overlaid on the form, stating 'We hit a snag.' and 'Review the errors on this page.' with a bullet point: 'This vehicle is out of stock. Order cannot be placed.' At the bottom, there are three buttons: 'Cancel', 'Save & New', and 'Save'.

4. Process Automation (Flows)

Two key business processes were automated using Record-Triggered Flows:

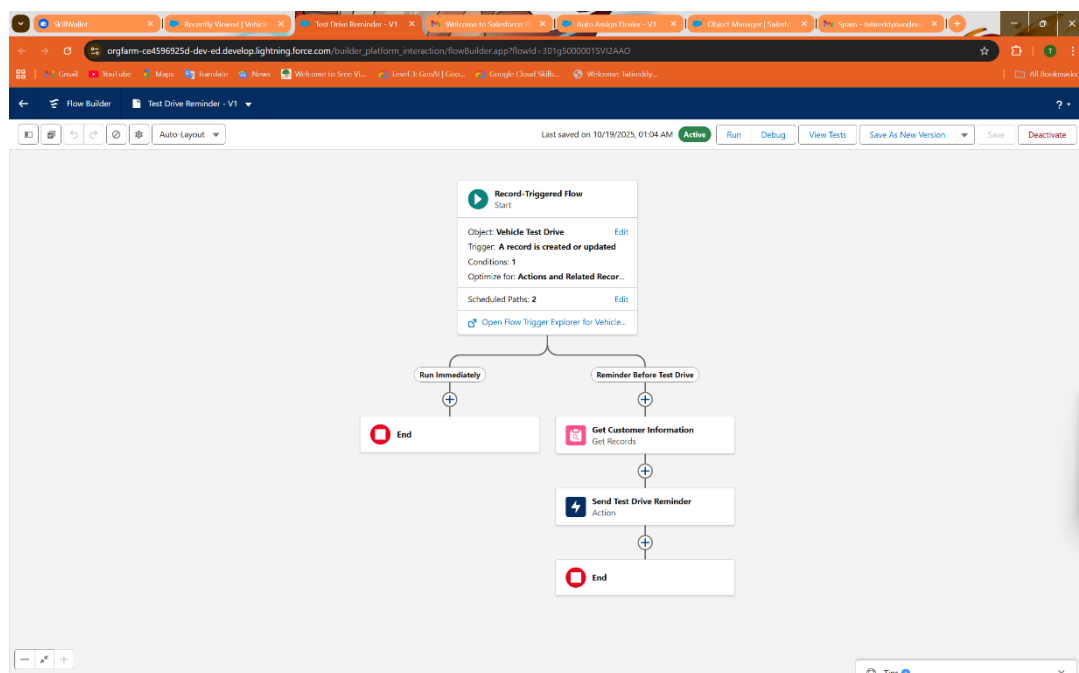
A. Auto Assign Dealer Flow

- **Type:** A Record-Triggered Flow that fires when a Vehicle_Order__c record is Created and its Status__c is 'Pending'.
- **Steps:**
 1. Retrieves the related Vehicle_Customer__c record.
 2. Finds the nearest dealer by retrieving the Vehicle_Dealer__c record where the Dealer_Location__c Equals the customer's address.
 3. Updates the Order record to assign the ID of the retrieved dealer.



B. Test Drive Reminder Flow

- **Type:** A Record-Triggered Flow that fires when a Vehicle_Test_Drive__c record is Created or Updated.
- **Scheduling:** Uses a Scheduled Path to run 1 Day Before the Test_Drive_Date__c.
- **Steps:**
 1. Retrieves the related Vehicle_Customer__c record.
 2. Sends a reminder email to the customer's Email__c address with the subject "Reminder: Your Test Drive is Tomorrow!".



5. Batch and Scheduled Apex

A nightly job was implemented for consistent stock availability and order processing:

- **Batch Apex (VehicleOrderBatch):** Contains the logic to periodically check for vehicles whose stock has been replenished and update the status of any associated Vehicle_Order__c records from 'Pending' to 'Confirmed'.
- **Scheduled Apex (VehicleOrderBatchScheduler):** Implements the Schedulable interface to execute the Batch job.
- **Scheduling:** The job is scheduled to run daily at 12:00 PM.

Project Explanation with Real-World Example

Scenario: Processing an Order for an Out-of-Stock Vehicle

The system's integrity is demonstrated by how it handles a critical edge case:

1. **Order Placement:** A customer attempts to place a new Vehicle_Order__c for a **WhatsNext X1 SUV**.
2. **Stock Validation (Apex):** The VehicleOrderTrigger fires before insert. The code checks the Vehicle__c.Stock_Quantity__c for the X1 SUV, which is currently **0**. The Apex logic **prevents the insertion** of the Order record, notifying the user that the vehicle is out of stock. *Result: Customer disappointment is mitigated, and no unfulfillable order enters the system.*
3. **Stock Replenishment (Batch Apex):** The next day, a new shipment of X1 SUVs arrives, and the external inventory system updates. The **VehicleOrderBatchScheduler** runs the **VehicleOrderBatch** job at 12:00 PM. The batch job finds all pending orders (e.g., if a prior order was made when stock was 0) and, upon confirming stock is now available, **updates the Order Status__c from 'Pending' to 'Confirmed'**.
4. **Dealer Assignment (Flow):** As a new, fulfillable order is confirmed, the **Auto Assign Dealer Flow** is initiated. It uses the customer's location to query the Vehicle_Dealer__c object and finds the nearest authorized dealer (e.g., "WhatsNext Motors Dallas"). The flow then automatically populates the Dealer lookup field on the Order. *Result: The order is instantly ready for fulfillment by the correct dealer.*
5. **Proactive Communication (Flow):** If the customer simultaneously books a test drive for a different model, the **Test Drive Reminder Flow** schedules an email to be sent exactly 24 hours before the appointment. *Result: Reduced logistical errors and enhanced customer service.*

Conclusion

The WhatsNext Vision Motors Salesforce implementation represents a significant advancement in leveraging CRM technology to address core business needs in the automotive sector. By seamlessly integrating **Apex triggers for real-time validation**, **Flows for operational automation**, and **Batch/Scheduled Apex for scalable data management**, the project has successfully built a system that is efficient, accurate, and customer-centric. This robust solution not only meets all defined requirements—from automated dealer assignment to guaranteed stock accuracy—but also positions WhatsNext Vision Motors for enhanced customer loyalty and sustained operational excellence in the future.