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

Project Overview

WhatNext Vision Motors, a rising innovator in the automotive industry, sought to modernize its customer interactions and operational workflows through a tailored Salesforce CRM implementation. The project's main objective was to optimize vehicle order management, enable accurate dealer assignments, and strengthen customer engagement through automation.

Previously, manual processes caused delays, inventory discrepancies, and reduced customer satisfaction. To address these challenges, the customized CRM solution introduced key features such as real-time stock validation, automatic dealer assignment based on customer location, automated test drive reminders via email, and backend automation using Apex triggers and batch classes.

Additionally, the system leverages Salesforce Lightning Apps and Dynamic Forms to deliver a streamlined and intuitive interface for internal users. Overall, this solution enhances operational efficiency, minimizes errors, and establishes a scalable foundation for future innovations such as AI-driven vehicle recommendations and chatbot-assisted customer support.

Objectives

The key objectives of this Salesforce CRM implementation are

1. Automate Order and Dealer Assignment

Automatically assign the nearest dealer based on the customer's city at the time of order placement.

2. Prevent Out-of-Stock Orders

Ensure customers can only place orders for vehicles currently in stock using validation rules and Apex triggers.

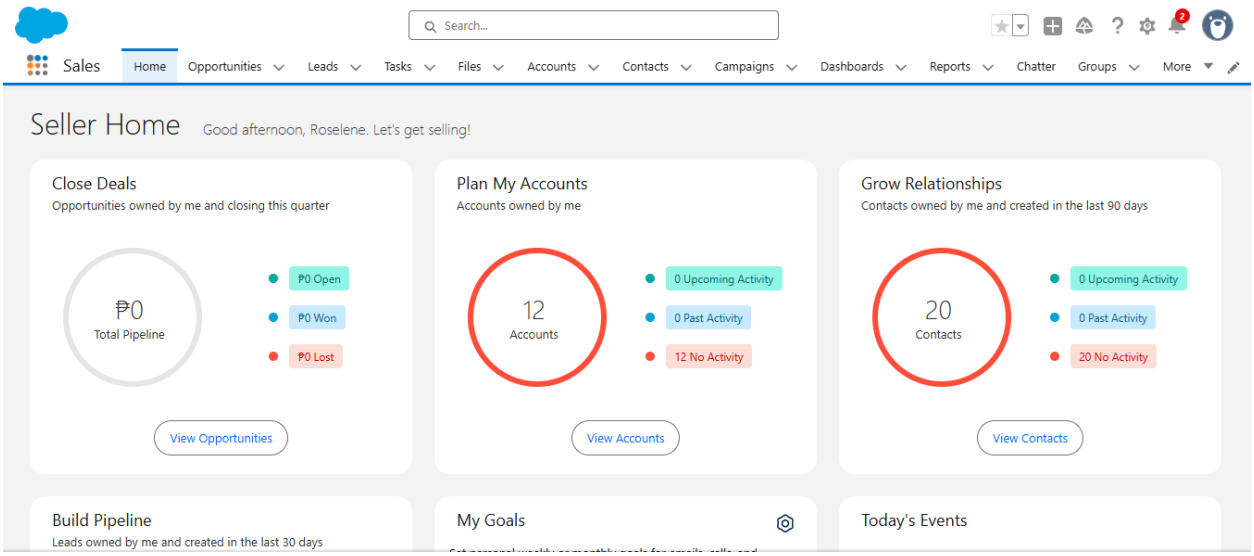
3. Send Test Drive Reminders

Use scheduled email flows to remind customers of their upcoming test drives, reducing missed appointments.

4. Improve User Experience

Implement Lightning Apps and Dynamic Forms to provide a clean, responsive interface for managing records

5. Maintain a Scalable Backend



Use modular Apex classes and scheduled batch jobs to automate stock updates and order confirmations in bulk.

Phase 1: Requirement Analysis & Planning

The initial phase of the project focused on gaining a deep understanding of WhatNext Vision Motors' business goals and converting them into well-defined system requirements tailored for the Salesforce platform. The goal was to design a **Customer Relationship Management (CRM)** solution capable of supporting the **entire vehicle management lifecycle** — from **inventory tracking** and **customer orders** to **post-sales services** and **customer engagement**.

Business Requirements

The following core requirements were identified:

- Centralized storage and management of vehicle, dealer, and customer data.
- Real-time validation of vehicle stock at the time of order placement.
- Automatic assignment of the nearest dealer based on customer address.
- Tracking of test drives and vehicle service requests.
- Automation of key workflows to reduce manual intervention.

Defining Project Scope

To meet the business objectives, the system was designed to include:

Custom objects for managing vehicles, orders, dealers, customers, test drives, and service requests.

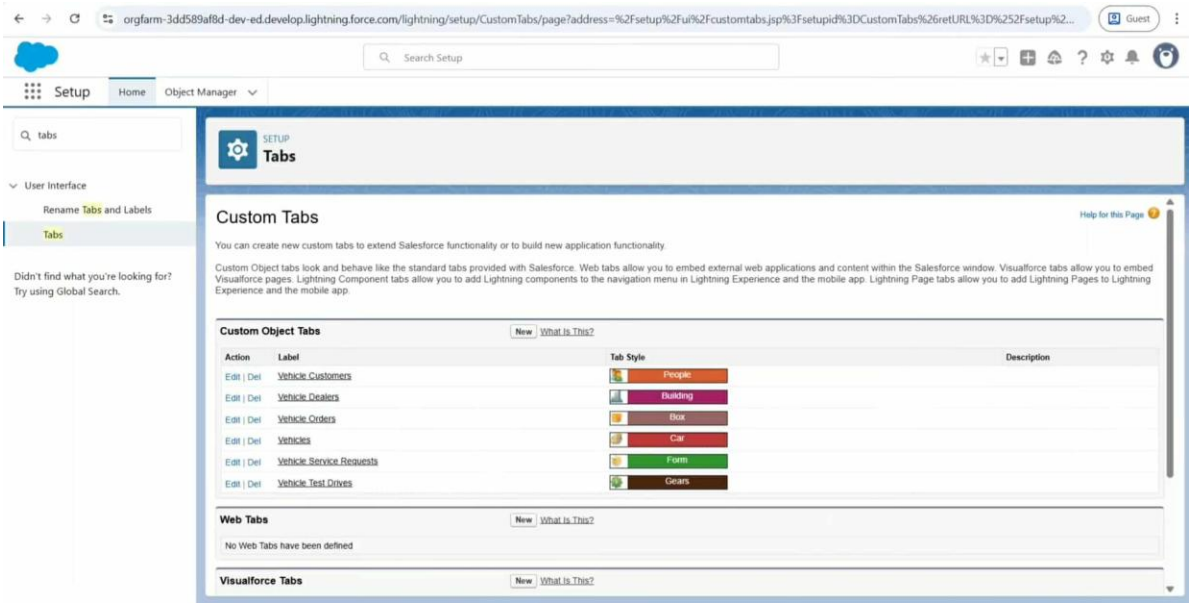
- Record-triggered flows to assign dealers and send email notifications.

- Apex triggers to validate stock availability and update inventory levels.
- Batch Apex to process pending orders based on stock replenishment.

Data Model

Six custom objects were created to reflect the business structure

Object Name	Purpose
Vehicle__c	Stores vehicle details and stock info
Vehicle_Dealer__c	Contains dealer information
Vehicle_Customer__c	Stores customer details
Vehicle_Order__c	Tracks vehicle orders
Vehicle_Test_Drive__c	Schedules and tracks test drives
Vehicle_Service_Request__c	Manages service history and issues



Security Model

- Standard Salesforce profiles were used with additional Permission Sets to grant access to custom objects.
- Field-Level Security and Role Hierarchy ensured that users could only view or edit data relevant to their responsibilities.
- Field History Tracking was enabled on critical fields such as Stock Quantity c (Vehicle) and Status c (Order) for audit purposes.

Phase 2: Salesforce Development - Backend & Configurations

- **Setup Environment & DevOps Workflow**

To begin the development process, a Salesforce Developer Org was set up for building and testing all customizations and automation features.

- Environment: Salesforce Lightning Experience (Developer Edition)
- User Profiles/Roles: Standard profiles were used for testing. No custom profiles were created
- Deployment Method: Metadata was deployed using Change Sets from the sandbox to production.

- **Customization of Objects, Fields, Validation Rules and Automation**

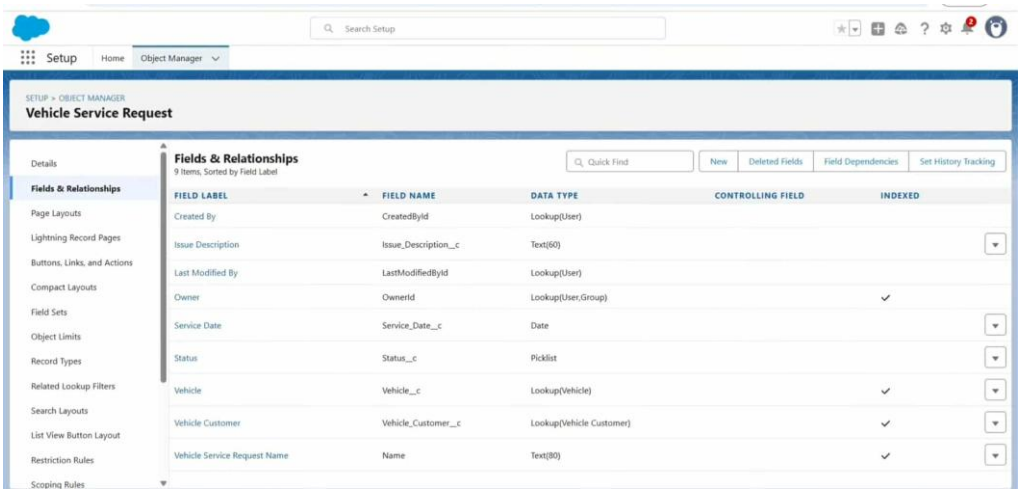
Custom Objects and Fields

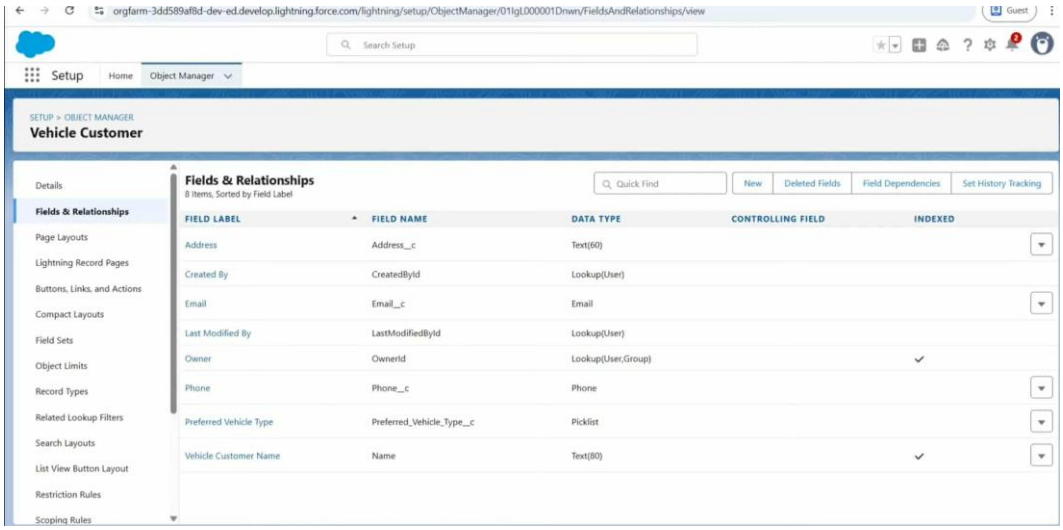
The following custom objects were created and configured to support the business flow:

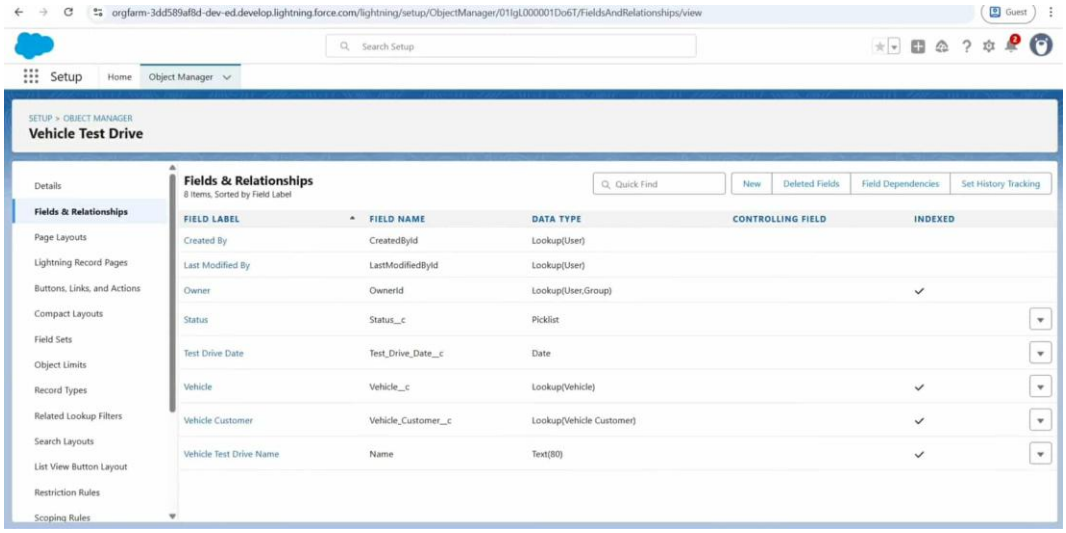
- Vehicle-Stores vehicle name, stock count, model, etc.
- Dealer - Stores dealer location and vehicle availability
- Customer-Stores customer details and address
- Order - Captures vehicle orders and order status

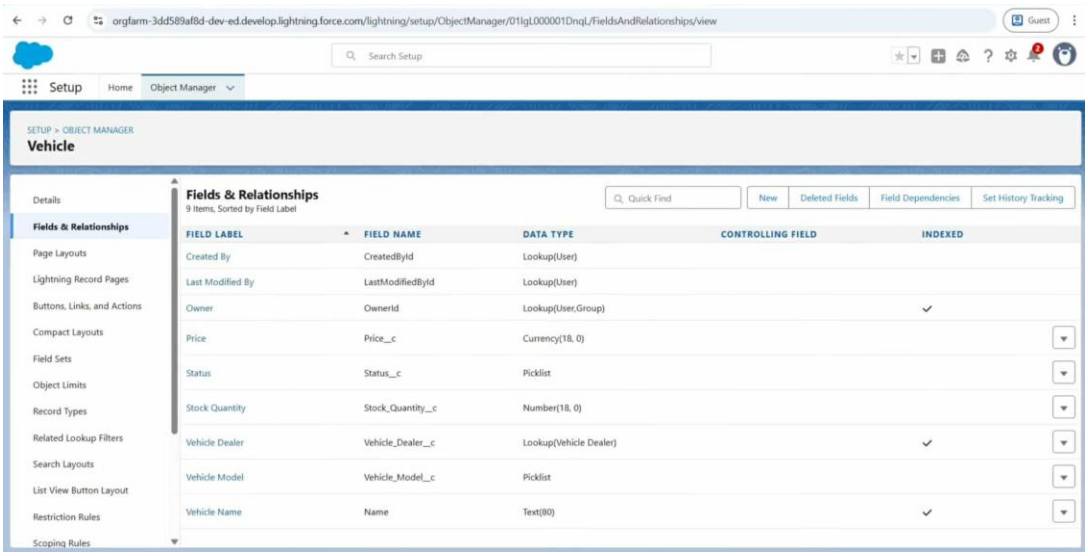
Relationships:

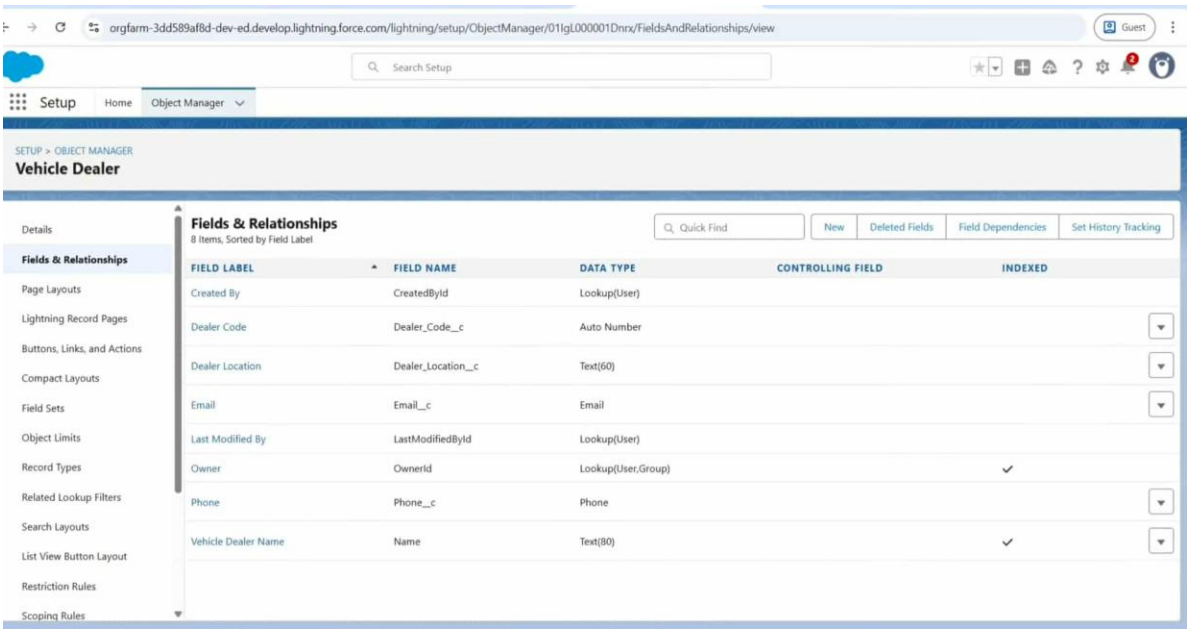
- Order → Vehicle: Lookup
- Order → Dealer: Lookup
- Order → Customer: Master-Detail or Lookup (based on implementation)

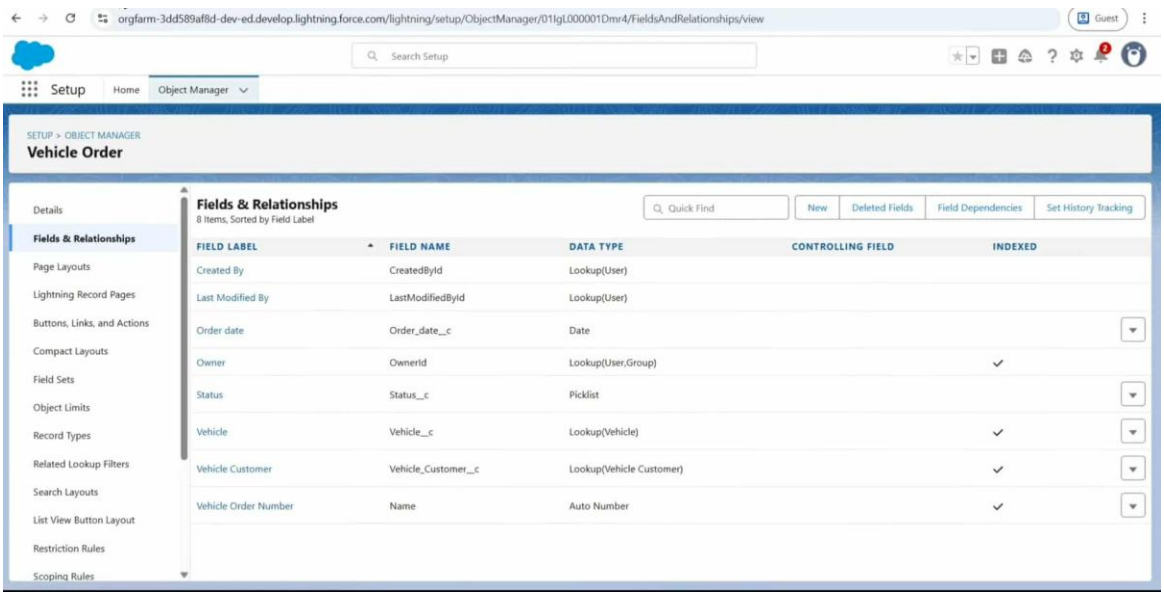



orgfarm-3dd589af8d-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgL000001Dnwn/FieldsAndRelationships/view
Search Setup
Setup
Home
Object Manager
SETUP > OBJECT MANAGER
Vehicle Customer
Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules
Fields & Relationships
8 Items, Sorted by Field Label
Quick Find
New
Deleted Fields
Field Dependencies
Set History Tracking
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)


orgfarm-3dd589af8d-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgL000001Do6T/FieldsAndRelationships/view
Search Setup
Setup
Home
Object Manager
SETUP > OBJECT MANAGER
Vehicle Test Drive
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
Fields & Relationships
8 Items, Sorted by Field Label
Quick Find
New
Deleted Fields
Field Dependencies
Set History Tracking
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 Test Drive Name
Name
Text(80)


orgfarm-3dd589af8d-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgL000001DnqL/FieldsAndRelationships/view
Search Setup
Setup
Home
Object Manager
SETUP > OBJECT MANAGER
Vehicle
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
Fields & Relationships
9 Items, Sorted by Field Label
Quick Find
New
Deleted Fields
Field Dependencies
Set History Tracking
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)





Validation Rules

- **Out-of-Stock Order Blocker:**

Prevents the creation of an order if the selected vehicle has zero stock.

Automation: Workflow Tools

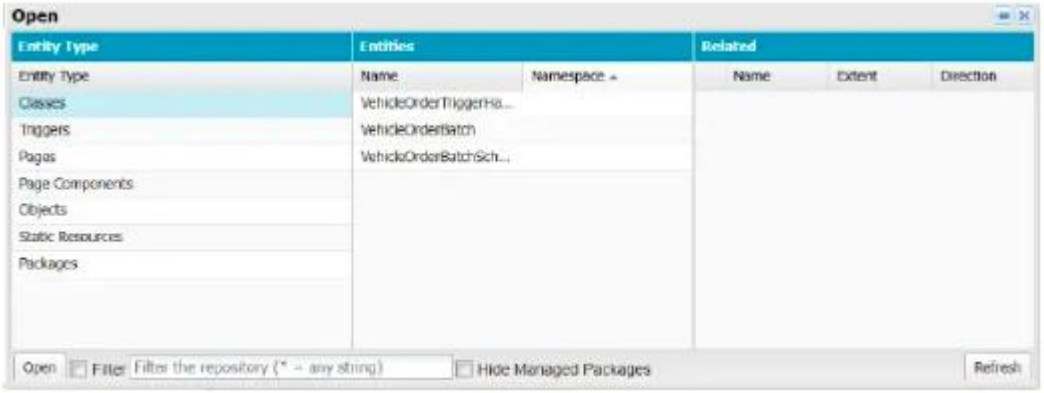
- Flows (Record-Triggered):

- Auto-assign the nearest dealer based on the customer's address using a Record-Triggered Flow on Order object.
- Send test drive reminders via Scheduled Flows

Apex Classes and Triggers

Apex Classes

- Apex Classes were written to modularize the trigger logic and support backend automation:
- VehideOrderTriggerHandler handles stock checks and updates in the trigger.
- VehideOrderBatch checks for pending orders and confirms them if stock is available.
- VehideOrderBatchScheduler schedules the batch job to run daily at 12 PM. All classes follow best practices using bulk-safe operations and reusable methods.

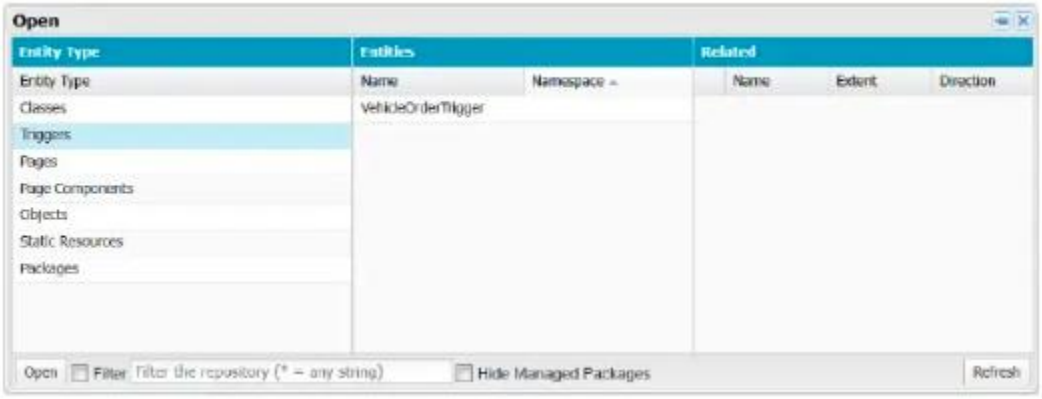


Apex Trigger:

Apex Trigger was written on the **Order** object to perform:

- Stock availability validation
- Auto-dealer assignment. (if not handled by Flow)
- Order status update logic (Pending or Confirmed)

Trigger follows best practices using a Trigger Handler pattern.



Phase 3 UI/UX Development & Customization

Lightning App Setup via App Manager

A custom Lightning App named "WhatNext Vision Motors" was created using App Manager. This app includes relevant custom tahs like Vehicles, Dealers, Orders, Customers, Test Drives, and Service Requests for easy navigation.

- Lightning App created: What Next Vision Motors
- Tabs: Vehicles, Dealers, Customers, Orders, Test Drives, Services
- Used Dynamic Forms for fields based on status & availability
- Highlight panels, related lists added to Lightning Pages

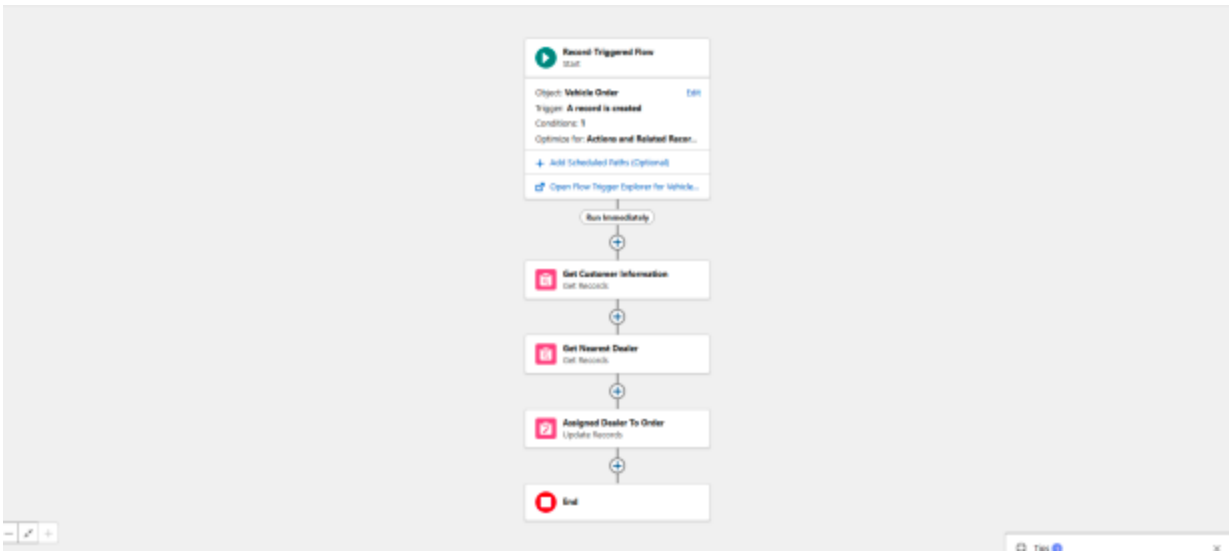
Page Layouts and Dynamic Forms:

Page layouts were customized for key objects such as Vehicle c, Vehicle Order c, and Vehicle Test Drive c to ensure clean UI and contextual field visibility. Dynamic Forms were used to place fields directly on the Lightning Record Page and conditionally show fields based on values like order status or vehicle availability.

Flow 1: Auto Dealer Assignment

This flow runs on Vehicle Order c creation and:

- Fetches customer's address
- Finds a dealer in the same city
- Assigns that dealer to the order



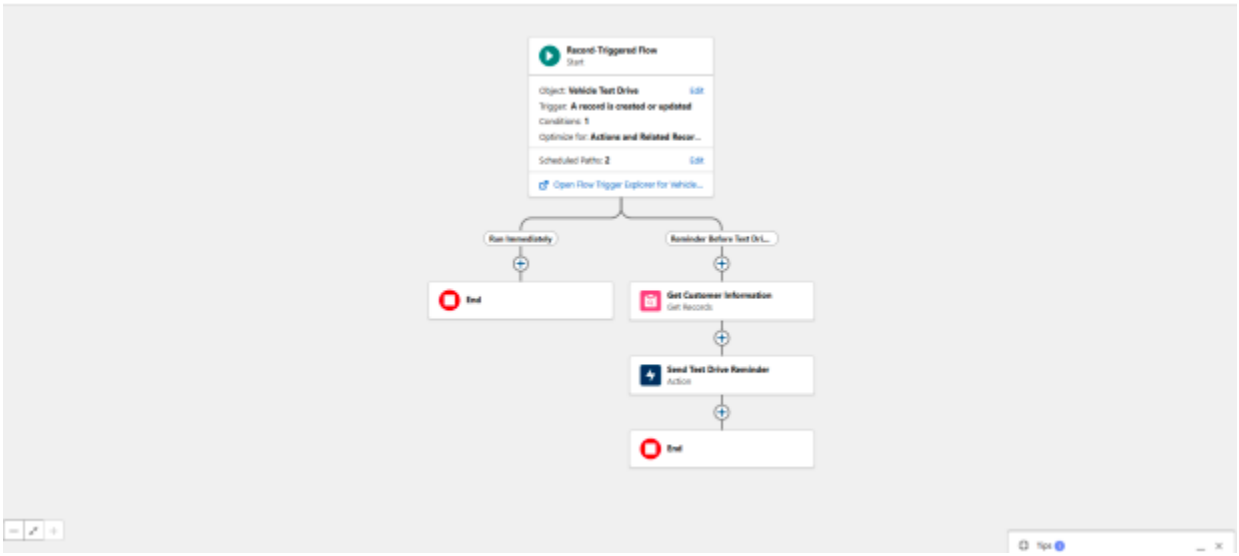
-

Flow 2: Test Drive Reminder

This Record-Triggered Flow:

Runs on Vehicle Test Drive c creation/update

Sends email 1 day before scheduled test drive



Apex Trigger & Handler

- Trigger: VehicleOrder Trigger
- Handler: VehicleOrder TriggerHandler
  - Prevents out-of-stock orders
  - Updates stock when order is confirmed

Apex Batch Class

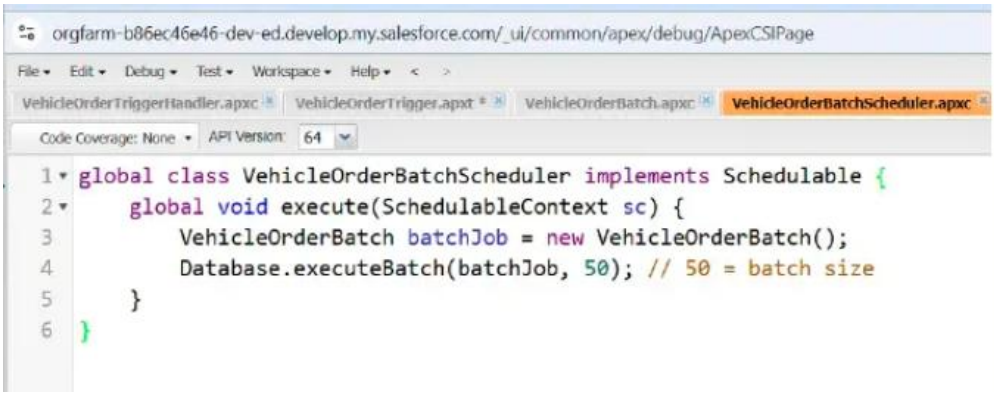
- Class: VehicleOrderBatch
- Runs daily
- Checks for pending orders and available stock
- Updates status to Confirmed and adjusts stock

Scheduled Apex

Class: VehicleOrderBatchScheduler

Cron job runs daily at 12 PM

Executes batch class automatically



Phase 4: Data Migration, Testing & Security

Data Loading Process

To load initial data into Salesforce (such as vehicles, dealers, and customers), the following tools were used:

Tools Used:

- Data Import Wizard:

  Used for importing standard object data (like Accounts, Contacts).

- Data Loader:

  Used for large volumes and for custom objects like Vehicle c, Dealer c, Order c.

Steps:

1. Exported CSV files with sample records.

2. Mapped columns to corresponding Salesforce fields.

3. Used Data Loader to insert records for:

  - Vehicle c
  - Dealer c
  - Customer C
  - Order c (with valid relationships)

Field History Tracking, Duplicate Rules, and Matching Rules

Field History Tracking:

Enabled for the following objects to track changes:

- Vehide c: Stock c field
- Order_c: Status cand Dealer c fields

Duplicate & Matching Rules:

- Matching Rule: Custom rule defined on Customer c based on email cand Phone c
- Duplicate Rule: Prevents duplicate customers from being inserted

Profiles, Roles, Permission Sets, and Sharing Rules

Profiles and Roles

- Standard profiles like Standard User and System Administrator were used.
- Role Hierarchy established:

CEO

-Sales Manager

- Sales Rep

Permission Sets:

Created Order Management Access permission set

Assigned to users who need create/read access to Orders and Vehicles

Sharing Rules

- Public Read/Write for most custom objects
- Manual Sharing allowed for sensitive customer records

Preparation of test cases for each and every salesforce features like booking creation, Approval Process, Automatic Task creation, flows triggers etc.

1. Create a Vehicle:

INPUT:

Vehicle Name: Test Car

Vehicle Model: Sedan

Stock Quantity: 1

Price: 1020000

Status: Available

Dealer: Select existing Vehicle Dealer

2. Test Stock=0 (Error Case):

INPUT:

Edit the Stock Quantity of the above vehicle → Set it to 0.

Go to Vehicle Orders tab→ Click New.

Vehicle: Test Car

Status: Confirmed

Customer: Select any existing customer OUTPUT

3. Test Stock>0 (Confirmed Order)

INPUT:

Steps:

1. Set vehicle Stock Quantity back to 1.

2. Create a Vehicle Order:

- Status: Confirmed
- Vehicle: Test Car
- Vehicle stock should reduce from 21 automatically.

4. Test Drive Reminder Email:

Customer: Select any customer with email

Status: Scheduled Test Drive Date: Tomorrow (pick tomorrow's date)

Test Batch Job for Pending Orders:

INPUT:

Create a Pending Order when stock is 0:

1. Set Test Car stock to 0.

2. Create a Vehicle Order:

- Status: Pending

Update stock:

- Set Stock Quantity = 1

Run batch manually:

VehicleOrderBatch job = new VehicleOrderBatch(); Database.executeBatch(job, 50);

OUTPUT:

Expected Result:

Your Pending Order should become Confirmed.

To ensure Apex code is deployable and functional, Test Classes were created for:

- Order TriggerHandler
- Dealer AssignmentService
- StockValidationTrigger

Test Class Features:

- Minimum 75% coverage
- Positive and negative test cases
- Used @isTest annotation with test data setup

Phase 5: Deployment, Documentation & Maintenance

Deployment Strategy

To deploy the developed features from the Developer Org to the live/production environment, the Change Set deployment method was used.

Deployment Steps:

1. Created an Outbound Change Set in the source org.

2. Added all custom components:

   - Custom objects, fields, flows, validation rules, triggers, and Apex classes.

3. Uploaded the Change Set to the Target Org (production/sandbox).

4. Validated and deployed it from Inbound Change Sets in the target org.

5. Post-deployment manual verification was done to ensure everything works as expected.

Testing & Sample Scenarios

Test Cases:

Create vehicle and order with 0 stock error

Set stock2 place order stock becomes 1

Create pending order update stock batch job confirms order

Testing & Sample Scenarios

Test Cases:

- Create vehicle and order with 0 stock → error
- Set stock = 2 place order→ stock becomes 1
- Create pending order → update stock → batch job confirms order

System Maintenance and Monitoring

To ensure smooth system performance after deployment, the following basic maintenance strategy was defined:

1. Monitoring

Use Apex Jobs to monitor scheduled jobs or batch classes.

Use Debug Logs to trace errors or unexpected behavior.

Enable Email Alerts for test drive reminders or failed processes.

2. User Feedback Loop

Sales and operations team were asked to use the system for a few days post-deployment.

Collected feedback via manual walkthroughs to identify any missing features or issues.

3. Updates and Fixes

Minor updates (like adding help text or updating field labels) were handled in sandbox and redeployed via Change Sets.

Scheduled quarterly reviews for enhancements or Ul improvements.

Troubleshooting Approach

If any issues arise in the production environment, the following steps will be followed:

Step 1: Reproduce the Issue

- Try to replicate the problem in a sandbox or developer org.

Step 2: Enable Debug Logs

- Set debug logs for the impacted user and analyze the flow or Apex execution.

Step 3: Check Apex Jobs or Flows

- If it's related to background processing, check Apex Job failures or Flow error emails.

Step 4: Fix and Retest

- Modify the logic (Flow or Apex).
- Retest in sandbox and re-deploy using Change Set.

Conclusion

The Salesforce implementation at WhatsNext Vision Motors successfully achieved its objective of streamlining the customer ordering process and improving operational workflows. Key achievements include:

- Automated nearest dealer assignment using Flows or Triggers
- Stock validation to prevent out-of-stock orders
- Scheduled logic to update order statuses (if Batch Apex was implemented)
- Enhanced customer experience through automation
- Reduced manual intervention for intimal teams

This project not only improves the company’s customer-facing operations but also lays a solid foundation for future Salesforce growth and automation. Through this initiative, WhatNext Vision Motors has taken a significant step toward achieving its vision of innovation and excellence in mobility.