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

Abstract:

In the rapidly evolving automotive industry, "WhatNext Vision Motors" has implemented a transformative Salesforce solution to redefine mobility through technological innovation and a strong customer focus. This report details the development and implementation of a Salesforce-based system designed to streamline vehicle ordering, stock management, and customer communication. The project addresses key challenges by automating processes such as dealer allocation, preventing out-of-stock orders, and sending automated test drive reminders. We discuss the design of the Salesforce schema using custom objects, the application of Record-Triggered Flows for workflow automation, the implementation of Apex best practices with handler classes, and the development of scalable solutions using Batch and Scheduled Apex. The successful deployment of this system demonstrates Salesforce's potent ability to integrate intelligent data management and automation, significantly enhancing operational efficiency and customer experience in the automotive sector.

1.Introduction:

The automotive industry is experiencing rapid technological change and increasing demand for sustainability. WhatNext Vision Motors is at the forefront of this shift, aiming not just to build cars, but to redefine the entire mobility experience through digital technology, creative solutions, and an unwavering focus on the customer. This project, developed during an internship with Smart Bridge, involved a deep dive into how technology can reshape the automotive industry. The core objective was to tackle vehicle ordering, stock management, and customer communication processes using Salesforce, moving beyond manual tasks to build an efficient, intelligent, and data-driven system. This initiative represents more than a technical upgrade; it lays the foundation for a smarter, more customer-focused future.

2. Project Objectives and Purpose:

The project's central objective was to streamline and automate vehicle ordering, dealership allocation, and stock management by leveraging Salesforce CRM features. Specific aims included:

- Suggesting the nearest vehicle dealer based on customer location.
- Preventing orders for vehicles that are out of stock.
- Sending scheduled email reminders for test drives.

To achieve these, the project focused on three key areas:

- **Salesforce CRM Implementation**:

  Enabling the storage and organization of vehicle information, stock status, dealer information, customer orders, test drives, and service requests. It also facilitated assigning requests and orders to the nearest dealer.

- **Process Automation**:

  Automating tasks such as preventing out-of-stock orders, auto-assigning customers to the nearest dealer, and sending automatic email reminders for test drives.

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- **Apex and Triggers**:

  Utilizing Apex triggers to enforce business rules like stock approval and automatic dealer assignment, while employing trigger handlers for modular and manageable code.

- **Batch Jobs**:

  Developing an Apex batch job to regularly update vehicle stock status and schedule individual emails for stock and order notifications.

3. Implementation of Objectives

3.1. Salesforce CRM Implementation & Data Modelling:

A custom data model was created within a Salesforce Developer Account using several custom objects. The following custom objects were created to manage core data:

- **Vehicle__c**: Stores vehicle details, with lookup relationships to Dealer and Vehicle Orders. Fields include Vehicle Name, Vehicle Model, Stock Quantity, Status, Price, and Dealer.
- **Vehicle_Dealer__c**: Stores authorized dealership information, related to Orders. Fields include Dealer Name, Dealer Code, Dealer Location, Phone, Email.
- **Vehicle_Customer__c**: Stores customer details, related to Orders & Test Drives. Fields include Vehicle Customer Name, Preferred Vehicle Type, Phone, Email, Customer Name.
- **Vehicle_Order__c**: Tracks vehicle purchase orders, with lookup relationships to Customer & Vehicle. Fields include Vehicle, Vehicle Order Name, Status, Order Date, Customer.
- **Vehicle_Test_Drive__c**: Tracks test drive appointments, with lookup relationships to Customer & Vehicle. Fields include Vehicle, Test Drive Date, Status, Customer.
- **Vehicle_Service_Request__c**: Tracks service requests, with lookup relationships to Customer & Vehicle. Fields include Vehicle, Vehicle Service Request Name, Status, Service Date, Customer, Issue Description.

Custom Objects Created:

Object Name	Purpose	Relationships
Vehicle__c	Stores vehicle details	Lookup to Dealer & Vehicle Orders
Vehicle_Dealer__c	Stores authorized dealership information	Related to Orders
Vehicle_Customer__c	Stores customer details	Related to Orders & Test Drives
Vehicle_Order__c	Tracks vehicle purchase orders	Lookup to Customer & Vehicle
Vehicle_Test_Drive__c	Tracks test drive appointments	Lookup to Customer & Vehicle

Vehicle_Service_Request__c	Tracks service requests	Lookup to Customer & Vehicle

These custom objects were organized with custom tabs and integrated into a new Lightning App named "WhatNext Vision Motors".

Fields and Relationships:

Custom Objects	**Fields and Relationships**
Vehicle	**Vehicle name, Vehicle Model, Stock Quantity, Status, Price, Dealer**
Vehicle Dealer	**Dealer Name, Dealer Code, Dealer Location, Phone, Email**
Vehicle Customer	**Vehicle Customer Name, Preferred Vehicle Type, Phone, Email, Customer Name**
Vehicle Order	**Vehicle, Vehicle Order Name, Status, Order Date, Customer**
Vehicle Service Request	**Vehicle, Vehicle Service Request Name, Status, Service Date, Customer, Issue Description**
Vehicle Test Drive	**Vehicle, Test Drive Date, Status, Customer**

3.2. Process Automation:

Process automation was critical for efficiency and customer experience.

- **Auto-assign orders to the nearest dealer**: A flow retrieves the customer's location (e.g., city, pin code) from the associated customer record, searches for the nearest dealer, and updates the Vehicle_Order__c to auto-assign the most appropriate dealer. This ensures faster assignment without manual intervention, improves customer experience, and consistently applies business logic.
- **Send reminders for scheduled test drives automatically via email**: A Record-Triggered Flow runs whenever a new Vehicle_Test_Drive__c record is created or updated. This automation provides timely customer reminders, reduces missed appointments, saves sales team time by eliminating manual follow-up, and ensures consistency in test drive reminders.

3.3. Apex and Triggers:

Apex was used for custom business logic beyond declarative tools. Apex Triggers, combined with Handler Classes, automated key operations like stock validation and automatic dealer assignment.

- **Trigger: VehicleOrderTrigger**: Defined on Vehicle_Order__c, this trigger prevents customers from placing orders if the selected vehicle is out of stock and automatically assigns the nearest available dealer. It operates on before insert and before update events and delegates processing to a handler class for modularity.
- **Trigger Handler: VehicleOrderTriggerHandler**: This Apex class contains the actual logic.
    - **Stock Validation**: Before an order is saved, it checks the stock level. If stock is 0 or less, an error is thrown, preventing the order.
    - **Stock Decrement on Confirmation**: If the order is confirmed, the vehicle's stock is automatically reduced by 1.
    - **Separation of Concerns**: Each method handles a specific function, ensuring clean and maintainable code.

3.4. Batch Apex Job: Stock Re-Evaluation:

A Batch Apex job was implemented to handle large volumes of order records and ensure real-time accuracy of stock and order status.

- **Class: VehicleOrderBatch**: This class implements Database.Batchable and identifies Vehicle_Order__c records with "Pending" status, checks if the requested vehicle is back in stock, updates the order status to "Confirmed" if stock is available, and decrements the vehicle stock by 1 upon confirmation.
- **Core Logic Flow**: The start method collects all "Pending" Vehicle_Order__c records. The execute method iterates through each pending order, retrieves associated vehicle stock, and updates the order status to "Confirmed" and reduces stock if available. The finish method can be extended for notifications or logging.

3.5. Scheduled Apex Class:

VehicleOrderBatchScheduler:

To ensure daily execution, the VehicleOrderBatchScheduler class implements the Schedulable interface. It uses System.schedule() to invoke the batch class daily at 12:00 PM.

4. Learning Outcomes:

During this project, the following key skills and knowledge were acquired:

- Designing Salesforce schema using custom objects and relationships.
- Automating workflows with Record-Triggered Flows.
- Applying Apex best practices using handler classes and reusable logic.
- Building scalable solutions using Batch and Scheduled Apex.

5. Conclusion:

The successful adoption of Salesforce CRM by WhatNext Vision Motors has revolutionized key business operations in the automotive industry. This project automated dealer assignment, expedited vehicle order placement, and guaranteed precise stock validation, directly increasing operational efficiency and enhancing overall customer experience. It demonstrates Salesforce's potent ability to connect intelligent data management and automation, establishing the groundwork for a robust dealership management system that can grow with the company while addressing current operational difficulties.

Key takeaways:

Include the elimination of manual dealer assignment using customer geolocation data, avoidance of stock-related errors through Apex-based order validation, timely customer reminders for test drives using Flows, and maintenance of system performance and integrity through planned batch jobs. This project serves as a prime illustration of how Salesforce can support digital transformation in the automotive sector, offering intelligent, effective, and customer-focused CRM solutions, significantly impacting future-readiness and business process optimization.

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