**Project Design Phase**

**Group-1**

**INFO 5707**

**DATA MODELING FOR INFORMATION PROFESSIONALS**

**Spring-2024**

**Integrated Sales and Production Management System for Car Retailers**

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**Objectives:**

* **Integration of Sales and Production Data:** To create a single platform that connects data from the sales and manufacturing divisions, allowing for seamless data flow and removing information gaps.
* **Customer Relationship Management:** To manage customer details effectively, track sales history, and improve the customer experience by providing personalized services.
* **Inventory Management**: To track product stock levels in real time, ensuring effective inventory management and timely restocking.
* **Sales Tracking and Order Fulfillment:** To make order tracking easier from initiation to fulfillment, ensuring accuracy and efficiency in sales operations.
* **Staff and Store Management:** To maximize resource allocation and staff deployment, keep thorough records of employee data, store information, and manage the administrative hierarchy.
* **Product Categorization and Management:** Effective product categorization allows for a complete picture of the available automobiles and related brands, which benefits focused marketing and sales efforts.
* **Production Oversight:** To track the production status of vehicles, linking production output directly to inventory levels and sales demand.
* **Product Catalog Expansion:** Allow for the addition of new automobile models and features to the system when they are available.
* **Sales and Marketing Alignment:** We can use sales data to guide marketing plans and promotions.
* **Efficient Resource Allocation:** Utilize data to improve personnel and inventory allocation among stores.

**Scope:**

* **Car Retailers Industry:** The database system is designed primarily for automotive retailers, including both local dealerships and bigger, multi-location sales organizations.
* **Multi-Store Functionality:** The database system is designed to handle many retail locations, providing corporate management while adapting to each store's specific demands and inventory.
* **User-Level Access Controls:** To establish different degrees of user access to sensitive data, so that employees may only access information relevant to their tasks.
* **Comprehensive Product Data:** To manage a thorough catalog of automobiles, including make, model, year, and pricing, as well as the inventory of these items across many locations.
* **Sales and Production Analytics:** The database will allow for enhanced reporting on sales patterns, production rates, and inventory management, offering vital decision-making information.
* **Dynamic Scaling:** The system is designed to scale with the company, enabling an expanding product line and a rising client base without sacrificing performance.
* **Business Intelligence:** Use the data to inform strategic company planning and operational changes.
* **Adaptability to Market Changes:** Allow the system to respond swiftly to changes in market demand and supply.
* **Support for Expansion:** Allow for the introduction of new product lines and services as the market changes.
* **Data Accuracy and Integrity:** Maintain high standards for data correctness and integrity to provide dependable business insight.

**Business Rules:**

* **Customer Identity Validation:** To ensure authenticity, each customer must present a valid government-issued ID for verification prior to any sales transaction being executed.
* **Real-Time Stock Updates:** To ensure correct stock counts, inventory levels must be dynamically modified in real time when vehicles are sold, returned, or received.
* **Order status Progression:** Sales orders must adhere to a set state progression (e.g., "Pending," "Approved," "In Transit," "Delivered") that cannot be skipped.
* **Sales Attribution:** All sales transactions must be attributed to a salesperson, and commissions should be computed accordingly.
* **Pricing Integrity:** To maintain consistency and profitability, vehicle pricing must correspond to management-defined minimum and maximum permissible margins.
* **Access Control Enforcement:** Employees can only access data relevant to their job function, with access levels determined by job title and department.
* **Sales Target Compliance:** Each salesperson's performance must be reviewed in relation to specified quarterly sales objectives, with performance review records kept.
* **Data Entry Validation:** All data entries, particularly customer and financial information, must be validated for format and accuracy before being stored.
* **Vehicle Data Completeness:** When adding new automobiles to the inventory, all relevant fields (such as VIN, make, model, and year) must be completed.
* **Customer Purchase Limits:** To avoid resale, customers are not permitted to purchase more than a specified number of automobiles within a given term without special clearance.
* **Conflict of Interest Restrictions:** When engaging in a transaction, staff personnel must declare any possible conflicts of interest, particularly if selling to relatives or friends.
* **Return and Exchange Policy:** Vehicle returns or exchanges must be completed within a specific time frame, and the cause must be logged in to the system.

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**User Requirements System will address:**

* **Customer and Sales Management:** The system will hold detailed customer data and follow all phases of sales orders, from creation to status updates to final shipment, ensuring a customer-centric strategy that maximizes sales productivity.
* **Inventory Tracking Across Multiple Locations:** Using the stocks and goods tables, the database will enable precise, real-time tracking of automobile inventories across several retail locations, allowing for effective stock management and quick reaction to inventory demands.
* **Staff and Store Operations:** By handling employee information and linking it with specific retail locations, the system will streamline staff administration and store operations, allowing for performance tracking and operational supervision.
* **Product Cataloging and Brand Association:** The system would provide sophisticated product management features, allowing users to categorize automobiles based on numerous qualities and correlate them with certain brands, improving product searchability and marketing efforts.
* **Dynamic Reporting and Analytics:** Using historical data and current trends from orders and sales, the system will allow dynamic reporting and analytics, offering insights into sales performance, manufacturing requirements, and customer purchasing habits.
* **Secure Transaction Processing:** To protect consumer information, transactions should be processed securely.
* **Multi-Store Reporting**: Create reports that integrate data from all stores.
* **Sales Incentive Tracking:** Monitor and manage sales incentives and commission arrangements.
* **Customer feedback Collection:** Collect and evaluate customer input to help improve products and services.
* **Training and support:** Provide system training and assistance to all users to guarantee optimal performance.

**ERD Diagram:**

![A diagram of a company

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