Project: Recreational Vehicle Inventory DBMS

System Definition

1. Select a problem that can be solved by developing or improving a database:

Introduction:

RV inventory database

The recreational vehicle industry is always changing in today's fast-paced world, providing new innovations and technologies to satisfy the ever-changing demands and desires of travellers and enthusiasts. Some dealers and manufacturers continue to manage inventory in the outdated manner despite the evolving marketplace, which results in missed business opportunities, and increased expenses.

*Identify major **user views**:*

1. *Identify possible user groups (no more than 3)*
    i. *Employees (consisting of inventory managers and salespersons) : This group is responsible for the daily operations of the business and requires access to a variety of data for decision-making, sales processing, and inventory management.*
    ii. *Customers (the end users): These are individuals or entities that purchase RVs, parts, or require service from the business. They need access to information about products, services, and their transactions with the business.*
    iii. *Suppliers (consisting of parts supplied and RVs supplied by the supplier): These are the businesses or individuals that supply RVs, parts, or other necessary goods to the company. They need to manage their relationship with the company, including orders and inventory levels.*

2. *Describe data and information requirements for each user group.*

1. Employees:

- Inventory Managers: Need detailed inventory data, ability to generate inventory reports, and manage stock levels.

- Salespersons: Require access to sales records, customer details, commission rates, and tools to calculate their earnings.

2. ***Customers****:*

- Personal information management (to create and access their profiles).

- Information on RVs, including make, model and price.
- Order status updates and payment validation.

- Service centre appointment details and service due dates.

3. **Suppliers**:
   - Inventory requirements from the business.
   - Details of parts supplied and supplier performance metrics.
   - Information on orders placed by the business to the suppliers and payment details.

2. Determine the scope of a database application. Describe the ***problem domain*** *clearly articulating basic business rules. The description should be about 1-1.5 page long. All your business rules must be reflected on your class diagram and all parts of your class diagram must be justified by your business rules.*

Overview/Scope : Our Database management system will provide Information about RVs that are available for sale as well as RV servicing. It is intended to simplify the sales process by offering comprehensive information about the wide array of RVs available for sale, making it simpler for buyers to select the ideal RV and for representatives to manage inventory and financial data. The database requires a detailed inventory of new, used and demo models to best match potential customers to their dream vehicle that fits their budget. Additionally, we prioritize post-

purchase comfort by providing comprehensive service center information, guaranteeing a smooth and enjoyable experience for our valued customers.

1. **Recreational Vehicles & RV Inventory:** Our system is meticulously designed to record and manage information concerning both the cumulative inventory and individual vehicles, including their respective attributes. One example of a business rule in this area of the problem domain is that HasRV() should inform the customer if we usually carry an RV that fits their search but is currently out of stock instead of returning an empty search result. Tracking this information is necessary because it helps analyze consumer trends and demands and helps management formulate orders for the suppliers. This business rule ensures as much as possible that even if we can't help the customer today, we can help them tomorrow.

2. **Salesperson, Customer, & Order:** On the other side of the problem domain, our database scope also extends to the relationship between a salesperson, the customer, and the order. Any RV database would be incomplete without this information as this is the core functionality of our product. Some business rules reflected in our class diagram include atomic commissions, these bonuses are not to be split in order to ensure customers get clear one-on-one communication and service from a fully dedicated salesperson. For this reason, an order for a vehicle can only be tendered by one salesperson.

3. **Payment:** The next part of an RV order is payment, which is also reflected in the scope of our database. Our database records the order, payment, and finance information if necessary. One business rule reflected in this part of the diagram is that a payment can not be created without an order information. We implemented this business rule by making the order class have a composition relationship to the payment class which has a boolean method called validatePayment(). Therefore, an order cannot be finalized without first validating payment, this business rule is necessary and a standard at most car dealerships for financial security and stability.

4. **Servicing:** Our database wants to take care of every step of the process when it comes to owning an RV. For that reason our scope also extends to RV servicing and RV part ordering. Once a customer has purchased an RV, their next required servicing date is calculated and if that date goes by unserviced it will trigger a boolean method to inform the customer. This process reflects another business rule we have where we strongly encourage customers to regularly service their RVs as these vehicles require much more maintenance than regular cars. If required, the service center can order parts from a supplier. Based on the make and model of the RV parts can be ordered from the supplier depending on availability.