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# Project Direction Overview

I would like to design a database for a car dealership company “CarMaxDeal” which will have their own website. This company uses an application that can access database to track all the cars they have for sell, cars that were already sold and cars that are in service and not ready yet to be sold. This company also tracks inventory of the car like make, model, year, color etc. of the cars. Similarly, they must track of all sales information like sale date, sold car type, salesperson, customer to whom it was sold etc. Company also tracks the customers and employee who were involved in the transaction for a specific car.

A customer can check all the available cars and their features as well as their price using company web site. While an employee can check the status of car, price and initiate the transaction if a customer likes it and want to buy.

Here are some brief examples of how someone can use the database. Customer uses company’s website to check all the available cars, colors, make, model, and all other features etc. Customer can also check price of car. if they like it, they go nearby company’s dealer. If a customer decided to buy, employee check availability and initiate transaction and customer buy car.

Database stores information about cars’ inventory, sales information, customers information, Employee information, information about the car status, information about car features and information about transactions.

# Use Cases and Fields

*Receiving/ordering new vehicles*

Managing the inventory of new and used vehicles would includes

1. Dealership order/receives vehicles from Venders
2. This cause addition of new or used vehicles in the database inventory.

Significant fields for this use case are listed below

|  |  |  |
| --- | --- | --- |
| Field | What it stores | Why it’s needed |
| VehicleID | Vehicle identification number generated by dealerships ‘application. | This is needed to track the vehicle. This uniquely identify the specific vehicle |
| Make | This field store Car company | This is needed to track the vehicle’s company |
| Model | This field stores Car model | This is needed to know what kind of model of car in the inventory |
| Color | This field Car color | This is needed to know what kind of color of car in the inventory |
| Year | This field stores Car makes year | This is needed to know what year of car in the inventory. |
| VIN | Vehicle Identification Number of the car. | This is needed to uniquely identify car |
| VenderID | Stores the type of service getting from venders | To track whether it is receiving used car, new car, and part for its inventory. |
| Condition | Condition of car received | Track whether it is new or used |
| ReceivedDate | Car received data | Track car received date |

Getting cars/parts from vender use case:

1. When company receives car from vender its database updated with new car
2. When company sell a car, its database updated with one less card in inventory.

|  |  |  |
| --- | --- | --- |
| Field | What it stores | Why it is needed |
| VenderID | Vender Identification Number | Uniquely identify vender |
| VenderName | Vender name | To track Vender |
| VenderAddress | Vender Address | To track the Vender address |
| PhoneNumber | Vender Phone number | To track the vender phone |
| CarType | Type of car received in company | To track whether it receives used or new car |

*Tracking sales use case*

Tracking sell is important for the company to know what kind of car more frequently selling and which dealer is doing best and which need an improvement.

1. Employee long in their account and check for car of customer choice in the system
2. Employees sell the car to customers
3. Selling one car does delete one entity instance from the car inventory.

Significant fields for this use case are

|  |  |  |
| --- | --- | --- |
| Field | What it stores | Why it’s needed |
| Date of sale | The date of care sale | Needed to track when car was sold for report analysis |
| CustomerID | Customer to whom car was sold | Need to track the customer to whom car was sold |
| VehicleID | Type of vehicle it sold | This tracks type of vehicle sold |
| EmployeeID | Employee who involved in selling car (Sale person) | This tracks Employee involved in transaction of the car |
| paymentID | Store Method of payment. And what is payment for | This field tracks the price at which vehicle was sold. It is needed for report generation. |

*Employee management use case*

This use case required ability of database to store employee information.

1. When new employee is hire, their information are stores in the database.
2. When employee left the company, employee information needs to be deleted from database table.
3. Significant field are given below.

|  |  |  |
| --- | --- | --- |
| Field | What it stores | Why it’s Needed |
| EmployeeID | It Stores the Employee identification number | Needed to track the Employee uniquely identify the Employee. |
| FirstName | This is First name of Employee | Need to display Employee who is involved in dealing with customer |
| LastName | This is last name of Employee | Need to display Employee who is involved in dealing with customer |
| Salary | This is salary of employee | This field tracks the salary of the employee. This is needed to determine total cost of the company. |
| Position | This position of employee | Needed for cost analysis |
| DOB | date of birth of employee | Needed to identify employee, also to know how long employee being employed in current company |
| Address | Address of employee | To identify employee, another means of cummumication via mail. |

*Customer Tracking use case:*

This use case would require the ability to store customer information, track customer interactions, and provide customer service.

Managing the relationship with the customers in volved in this use case

1.storing customer information

2.tracking customer interactions and purchase history and providing customer service.

3.Whenever customer come in to buy car, Salesman check whether customer is new to dealerships,

4.employee verify the customer information, if customer is new, new record will be added to database. Significant fields are given below.

|  |  |  |
| --- | --- | --- |
| Field | What it stores | Why it is Needed |
| CustomerID | Customer identification number which is unique | Uniquely identify the customer |
| LastName | Customer Last name | This is needed to address a customer while communicating with them. |
| FirstName | Customer First name | This is needed to address a customer while communicating with them |
| PhoneNumber | Customer Phone number | This is needed to address a customer while communicating via text or call with them |
| Email Address | Customer email address | This is needed to address a customer while communicating via email with them |
| ServiceID | It stores type of services customer received | This is needed to track the type of services receiving by customer |

*Tracking Service use case:*

This use case would require the ability to schedule appointments, track the status of repairs, and record information about the service performed such as the type of service and the parts used. This use case stores information of type of service customer want. It also stores location of dealership, transaction and type of vehicle need service/maintenance. Significant filed includes.

|  |  |  |
| --- | --- | --- |
| Field | What it stores | Why it is needed. |
| ServiceID | Type of Service customer getting | This is needed to track the type of services receiving by customer. this is needed to store customer for report analysis |
| VehicleID | Type of vehicle being serviced | This is needed to track the vehicle type. This uniquely identify the specific vehicle |
| ServiceStartDate | This stores the car service start date | This is needed for service history of car. |
| ServiceEndDate | This stores the car service end date | This is needed for service history of car. |
| Mileage | This stores the Mileage of car | This is needed to determine what type of service need to be performed. |
| paymentID | This stores the total cost for service | This is need for report analysis purpose. |

Tracking Parts use case:

1. Dealership receives parts from vendor
2. database is updated with new inventory parts list.

|  |  |  |
| --- | --- | --- |
| Field | What it Stores | Why it is needed |
| PartsNumber | It stores parts identification number | To track what kind of part being replaced |
| Name | Name of parts | To track what is being changed |
| Description | Description of part | For the report analysis purpose |
| manufacturer | Company that produces parts | To track the vender |
| ServiceID | It stores what kind of service being done | To track what service uses what part |
| VehicleID | It stores vehicle which is receiving parts | Need to track which vehicle receiving what parts |
| Part\_serial\_num | Unique identification number for each part | To uniquely identify the part. |

Transaction use case:

When doing transaction whether it is for selling or buying car for service parts replacement, company must use database to get information like vehicleID, customerID for transaction purpose

Significant fields are

|  |  |  |
| --- | --- | --- |
| Field | What it stores | Why it is needed |
| TransactionID | Uniquely identifies payment type | Needed to track payment type |
| CustomerID | Identify customer | To track who is paying |
| VehicleID | Identify vehicle for purchase for parts replacement | To track for what payment if for |
| PaymentMethod | Type of payment used | To track type of payment |

# Summary and Reflection

My database for car dealership named CarMaxDeal” which stores information about cars inventory, Sales information, Customer information, Service/maintenance information, Employee information, information about the service type customer getting. Customer can use web site to check all available cars and its features to buy. Dealership has their own application to track all the activities involved in car purchase or servicing a car at the dealerships. Database must support a person using website and searching for their favorite car to buy. Also, Database must support generating report for analysis for example daily, weekly, monthly, and yearly report analysis.

Database design for a car dealership itself a complex process as it may involve many other use cases that, I have not mention here. For example, a lot of dealerships also deals with the bank for car loan and other financial activities involved during transaction. They also work with Department of motor vehicle for license plate and all other legal activities. I am not sure whether I should include this section. Also, I have not mention payment method other billing information. Also, I have not mention about mobile app that can be used by customer to check all available car, make appointment, pay their service cost. I am a little daunted by the possible size and complexity of the database and may need some help focusing on the areas I can complete during the course term.

With this concern I am excited to continue developing this project and hope to turn my data design into real and working. Any feedback on making this better is appreciated.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Criterion** | **A** | **B** | **C** | **D** | **F** |  | **Letter Grade** |
| **Project Direction Focus and Completeness (30%)** | The project direction overview completely and clearly explains who the database will be for, how it will be used, and the focus of what kind of data it stores. | The project direction overview mostly explains who the database will be for, how it will be used, and the focus of what kind of data it stores. | The project direction overview partly explains who the database will be for, how it will be used, and the focus of what kind of data it stores. Some aspects of the overview may be unclear or ambiguous. | The project direction overview minimally explains who the database will be for, how it will be used, and the focus of what kind of data it stores. Much of the overview is not clear. | The project direction overview is missing or does not explain who the database will be for, how it will be used, and the focus of what kind of data it stores. |  | A+ |
| **Use Case Quality (30%)** | The use cases are all focused on core uses of the database, and are completely intelligible. Each use case coherently describes one overall activity. At least 5 use cases have been defined. | The use cases are mostly focused on core uses of the database, and are intelligible. Each use case describes one overall activity. 1 use case (out of 5) may be missing. | The use cases are somewhat focused on core uses of the database, and are somewhat intelligible. 2 or 3 use cases (out of 5) may be missing. | The use cases overall are focused on less important uses of the database. They may be hard to understand. Each use case may describe many activities. 4 use cases (out of 5) may be missing. | The use cases are either missing or are entirely focused on unimportant uses of the database. They may be hard to understand. Each use case may describe many activities. |  | B |
| **Field Quality (30%)** | The fields are entirely focused on long-term storage of information. Most significant fields have been identified for every use case. The choice of fields is well justified. Fields have been defined for at least 5 use cases. | The fields are mostly focused on long-term storage of information. Some significant fields have been identified for every use case. The choice of fields is justified. Fields for 1 use case (out of 5) may be missing. | The fields are partly focused on long-term storage of information. A small percentage of significant fields have been identified for every use case. The choice of fields is partially justified. Fields for 2 or 3 use cases (out of 5) may be missing. | The fields are mostly focused on transient information that is not needed long-term. Many significant fields have not been identified. The choice of fields is minimally justified. Fields for 4 use cases (out of 5) may be missing. | The fields are missing, or may be entirely focused on transient information that is not needed long-term. Many significant fields have not been identified. The choice of fields is not justified. |  | B |
| **Summary Quality (10%)** | The summary concisely and clearly summarizes the work for Iteration 1. | The summary largely summarizes the work for Iteration 1 in a clear and concise fashion. | The summary summarizes the work for Iteration 1 in a somewhat clear and concise fashion. | Some significant work for Iteration 1 may not be summarized. The summary may be unnecessarily wordy or unclear. | The summary is missing, or does not summarize virtually any significant work for Iteration 1. The summary may be wordy and unclear. |  | A+ |
|  |  |  |  |  | Preliminary Grade: |  | 91.0 |
|  |  |  |  |  | **Number of Days Late** 5 points per day5 days maximumContact your facilitator for any exceptions |  | 0 |
|  |  |  |  |  | Iteration Grade: |  | 91.0 |