Project Report

INFO6210 – Data Management and Database Design

Relational Database for Lamborghini Car Dealership

Submitted By

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1. Problem Statement

The purpose of this project is to design an efficient relational database that will deal with the problems that occur in the database and will cover all the scenarios of a car company using Relational database management system.

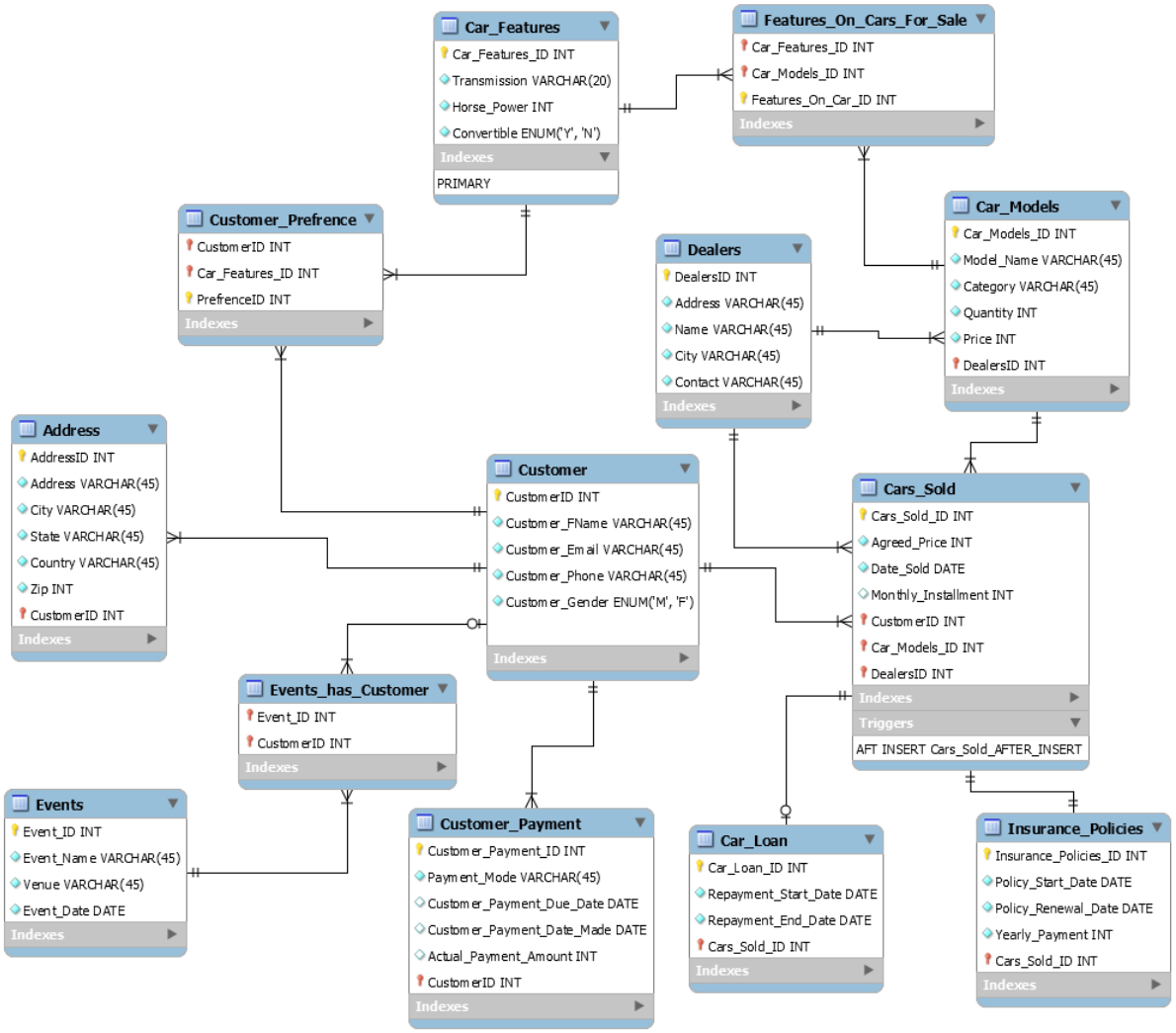
2. Design Approach

MySQL Workbench is used to design the database for Lamborghini which will keep the track of its customers, dealers, products, events. A customer can purchase more than one cars from the dealership and one dealer and a can be purchased by many customers.

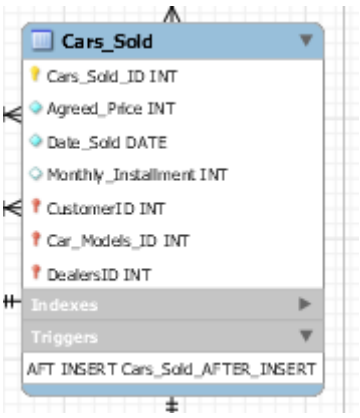
Tables are created for storing the data for customers, dealers, products, events, customer preference, car features.

Stored procedures, views and triggers are used to perform complex operations and to perform checks at runtime.

E-R Model



Trigger Table



Trigger

1. **Cars_Sold_AFTER_INSERT** - If any record is inserted into Cars_Sold table then it will take DealersID as a foreign key then car quantity will get reduced from dealers stock and if stock is less than 2 then car will not get sold. And it will display a message that 'Quantity Not Available'.

```
CREATE DEFINER = CURRENT_USER TRIGGER `Lamborghini`.`Cars_Sold_AFTER_INSERT`
AFTER INSERT ON `Cars_Sold` FOR EACH ROW
BEGIN
declare qty int;
SELECT
    Quantity
INTO qty FROM
    Car_Models
WHERE
    DealersID = new.DealersID
        AND Car_Models_ID = new.Car_Models_ID;
if qty <2

then
signal sqlstate '45000' set message_text = 'Quantity not available';
elseif qty>2
then
Update Car_Models
SET Quantity=Quantity-1
where DealersID = new.DealersID
        AND Car_Models_ID = new.Car_Models_ID;
end if;
END
```

Stored Procedures

1. **Customer_Details :** It is used to display the details of the customer with the modelID of the car, its name and its price. With number of cars brought from different dealers.

```
CREATE DEFINER=`root`@`localhost` PROCEDURE `Customer_Details`(in cus_ID int)
BEGIN
declare cust_ID int;
set @cust_ID = cus_ID;
SELECT
    customer.CustomerID,
    customer.Customer_FName AS `Name`,
    cars_sold.Cars_Sold_ID,
    dealers.`Name`,
    dealers.Address,
    dealers.Contact,
    car_models.Car_Models_ID,
    car_models.Model_Name AS Model,
    car_models.Price
FROM
    customer
        INNER JOIN
    cars_sold ON customer.CustomerID = cars_sold.CustomerID
        INNER JOIN
    car_models ON cars_sold.Car_Models_ID = car_models.Car_Models_ID
        INNER JOIN
    dealers ON dealers.DealersID = car_models.DealersID
WHERE
    customer.CustomerID = @cust_ID;
END
```

output

```
call lamborghini.Customer_Details(101);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

CustomerID	Name	Cars_Sold_ID	Name	Address	Contact	Car_Models_ID	Model	Price
101	Yaqqesh Likhar	98	Lamborghini Boston	531 Boston Post Rd	1234567	501	Aventador	399500
101	Yaqqesh Likhar	98	Lamborghini Long Island	115 S Service Rd	5162033000	501	Aventador	399500
101	Yaqqesh Likhar	98	Lamborghini Palmyra	100 NJ-73	8775529718	501	Aventador	399500

2. **Dealer's Stock –** It is used to find out the amount of cars any dealer has.

```
CREATE DEFINER=`root`@`localhost` PROCEDURE `Dealers Stock`(in deal_ID int)
BEGIN
declare dealer_ID int;
set @dealer_ID = deal_ID;
SELECT
    dealers.DealersID,
    dealers.`Name`,
    dealers.Address,
    dealers.City,
    dealers.Contact,
    car_models.Model_Name,
    car_models.Quantity,
    car_models.Price
FROM
    dealers
        INNER JOIN
    car_models ON dealers.DealersID = car_models.DealersID
WHERE
    dealers.DealersID = @dealer_ID;
END
```

Output

```
1 • call lamborghini.`Dealers Stock`(03);
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

DealersID	Name	Address	City	Contact	Model_Name	Quantity	Price
3	Lamborghini Paramus	401 NJ-17	New Jersey	2012678850	Huracan	2	456789
3	Lamborghini Paramus	401 NJ-17	New Jersey	2012678850	Centenario	2	499000
3	Lamborghini Paramus	401 NJ-17	New Jersey	2012678850	Urus	2	399500

Views

1. **Revenue –** It is used to calculate the revenue of each dealer.

```
CREATE
    ALGORITHM = UNDEFINED
    DEFINER = `root`@`localhost`
    SQL SECURITY DEFINER
VIEW `revenue` AS
    SELECT
        `dealers`.`DealersID` AS `DealersID`,
        `dealers`.`Name` AS `Name`,
        SUM(`cars_sold`.`Agreed_Price`) AS `Total Sales`
    FROM
        (`dealers`
        JOIN `cars_sold` ON ((`dealers`.`DealersID` = `cars_sold`.`DealersID`)))
    GROUP BY `dealers`.`DealersID` , `dealers`.`Name` WITH ROLLUP
```

Output

```
1 •  SELECT * FROM lamborghini.revenue;
```

Result Grid | Filter Rows: | Export:

DealersID	Name	Total Sales
1	Lamborghini Boston	1668000
1	NULL	1668000
2	Lamborghini Long Island	854000
2	NULL	854000
3	Lamborghini Paramus	1360000
3	NULL	1360000
4	Lamborghini Palmyra	1224000
4	NULL	1224000
5	Lamborghini Carolinas	841000
5	NULL	841000
NULL	NULL	5947000

2. Cars available – It is used to view all the cars every dealers has.

```
CREATE
    ALGORITHM = UNDEFINED
    DEFINER = `root`@`localhost`
    SQL SECURITY DEFINER
VIEW `cars available` AS
    SELECT
        `cm`.`Model_Name` AS `Model_Name`,
        `d`.`Name` AS `Name`,
        `d`.`Address` AS `Address`,
        `d`.`Contact` AS `Contact`,
        `cm`.`Price` AS `Price`,
        `cm`.`Quantity` AS `Quantity`
    FROM
        (`car_models` `cm`
        JOIN `dealers` `d` ON ((`cm`.`DealersID` = `d`.`DealersID`)))
```

Output

```
1 •  SELECT * FROM lamborghini.`cars available`;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Model_Name	Name	Address	Contact	Price	Quantity
Aventador	Lamborghini Boston	531 Boston Post Rd	1234567	399500	2
Huracan	Lamborghini Boston	531 Boston Post Rd	1234567	456789	2
Centenario	Lamborghini Boston	531 Boston Post Rd	1234567	499000	2
Urus	Lamborghini Boston	531 Boston Post Rd	1234567	399500	5
Aventador	Lamborghini Long Island	115 S Service Rd	5162033000	399500	2
Huracan	Lamborghini Paramus	401 NJ-17	2012678850	456789	2
Centenario	Lamborghini Paramus	401 NJ-17	2012678850	499000	2
Urus	Lamborghini Paramus	401 NJ-17	2012678850	399500	2
Aventador	Lamborghini Palmyra	100 NJ-73	8775529718	399500	2
Urus	Lamborghini Palmyra	100 NJ-73	8775529718	399500	2
Huracan	Lamborghini Carolinas	1310 W Wendover ...	8884452626	456789	2
Urus	Lamborghini Carolinas	1310 W Wendover ...	8884452626	399500	2