LONDON METROPOLITAN UNIVERSITY

ITAHARI INTERNATIONAL COLLEGE

Module Code & Module Title

CC4057NT Introduction to Information Systems

Assessment Weightage & Type

30 % Individual Coursework -2

Year and Semester

2020-21 Spring, Semester

Student Name: Sumiran Dahal

College ID:NP05CP4S210117

Assignment Submission Date:30/04/2021

I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a mark of zero will be awarded.

Table of Contents

1. Introduction:..... 1

1.1. Aim:..... 2

1.2. Objectives:..... 2
1.3. Creating Data Model: 2
1.4. Creating Data Dictionary:..... 3
1.5. Creating Database: 3
1.6. XAMPP:..... 3
1.7. MySQL: 4
1.8. Draw-io:..... 4
1.9. Snipping Tool:..... 5
2. Data Model:..... 5
2.1. Entity-Relationship Diagram:..... 9
2.1.1. Relation Between Receptionist and Customer:..... 9 2.1.2.
Relation Between Customer and Vehicle:..... 9 2.1.3.
Relation Between Salesman and Vehicle:..... 10 2.1.4.
Relation Between Dealer and Salesman:..... 10 2.1.5.
Relation Between Manager and Dealer:..... 10 2.2.
Relational Diagram: ..... 10 3. Data
Dictionary:..... 11 3.1. Data
Dictionary of Tables:..... 12 3.1.1.
Dictionary for Customer Table:..... 12 3.1.2.
Dictionary for Receptionist Table: ..... 13 3.1.3.
Dictionary for Vehicle Table: ..... 14 3.1.4.
Dictionary for Manager Table:..... 15
3.1.5. Dictionary for Dealer Table:..... 16 3.1.6.
Dictionary for Salesman Table:..... 17 4.
Populating Database: ..... 18 4.1.
Creating Database: ..... 18 4.2.
Creating Tables:..... 18 4.2.1.
Creating Customer Table:..... 18 4.2.2.

Creating Receptionist Table:..... 18 4.2.3.
Creating Vehicle Table:..... 19 4.2.4.
Creating Manager Table:..... 19 4.2.5.
Creating Dealer Table:..... 19 4.2.6.
Creating Salesman Table:..... 19 4.3.
Inserting Values: ..... 19 4.3.1.
Inserting Values to Customer Table: ..... 19 4.3.2.
Inserting Values to Receptionist Table:..... 19 4.3.3.
Inserting Values to Vehicle Table: ..... 20 4.3.4.
Inserting Values to Manager Table: ..... 20 4.3.5.
Inserting values to Dealer Table: ..... 20 4.3.6.
Inserting values to Salesman Table:..... 20 4.4.
Showing Table:..... 20 4.4.1.
Customer Table: ..... 20 4.4.2.
Receptionist Table:..... 21 4.4.3.
Vehicle Table: ..... 21 4.4.4.
Manager Table: ..... 21 4.4.5.
Dealer Table:..... 22 4.4.6.
Salesman Table: 22
4.5. Description of Tables: 22
4.5.1. Customer Description:..... 23
4.5.2. Receptionist Description: 23
4.5.3. Vehicle Description:..... 24
4.5.4. Manager Description:..... 24
4.5.5. Dealer Description:..... 25
4.5.6. Salesman Description:..... 25
5. Queries: 26
5.1. WHERE..... 26

5.2. Order By..... 26 5.3.

Order By desc..... 27 5.4.

BETWEEN ..... 27 5.5.

NOT BETWEEN..... 28 5.6.

COUNT ..... 28 5.7.

SUM ..... 29 5.8.

AVG ..... 29 5.9.

MIN ..... 30 5.10.

MAX..... 30 5.11.

DISTINCT:..... 31 5.12.

LIKE _% ..... 31 5.13.

LIKE_%_ ..... 32 5.14.

GROUP BY..... 32 5.15.

HAVING Clause:..... 33 5.16.

Join: ..... 33 6.

Conclusion: 34

7. References..... 36

Table of Figures:

Figure 1: XAMPP Control Panel..... 3

Figure 2: MySQL .....

4 *Figure 3: draw.io* .....

4 *Figure 4: Snipping Tool* .....

5 *Figure 5: Entity-Relationship Diagram*.....

9 *Figure 6: Relational Diagram*.....

10 *Figure 7: Creating Database* ..... 18 *Figure 8: Creating table Customer* ..... 18 *Figure 9: Creating Receptionist Table*..... 18 *Figure 10: Creating Table Vehicle*..... 19 *Figure 11: Creating Table Manager* ..... 19 *Figure 12: Creating Table Dealer*..... 19 *Figure*

13:Creating Table Salesman..... 19 *Figure 14: Inserting values to Customer Table*..... 19 *Figure 15:Inserting values to Receptionist Table* ..... 19 *Figure 16:Inserting values to Vehicle Table* ..... 20 *Figure 17:Inserting values to Manager Table* ..... 20 *Figure 18: Inserting values to Dealer Table*..... 20 *Figure 19: Inserting values to Salesman Table* ..... 20 *Figure 20: Customer Table*..... 20 *Figure 21: Receptionist Table* ..... 21 *Figure 22:Vehicle Table* ..... 21 *Figure 23: Manager Table* ..... 21 *Figure 24: Dealer Table*..... 22 *Figure 25: Salesman Table* ..... 22 *Figure 26: Desc Customer* ..... 23 *Figure 27: Desc Receptionist* ..... 23 *Figure 28: Desc Vehicle* ..... 24 *Figure 29: Desc Manager*..... 24 *Figure 30: Desc Dealer* ..... 25 *Figure 31: Desc Salesman* ..... 25 *Figure 32:Using WHERE clause* ..... 26 *Figure 33: ORDER BY keyword* ..... 26 *Figure 34: Order By Desc keyword* ..... 27 *Figure 35: BETWEEN operator*..... 27 *Figure 36: NOT BETWEEN operator*..... 28 *Figure 37: COUNT function*..... 28 *Figure 38: SUM function*..... 29 *Figure 39: AVG function*..... 29 *Figure 40: MIN function*..... 30 *Figure 41: MAX function*..... 30 *Figure 42: DISTINCT*..... 31 *Figure 43: LIKE_% operator*..... 31 *Figure 44: LIKE_%_ operator*..... 32 *Figure 45:*

Group BY ..... 32 *Figure 46: Having Clause*..... 33 *Figure 47: JOIN keyword*..... 33

List of Tables:

Table 1: Table Customer..... 6
Table 2:Table Receptionist..... 6
Table 3: Table Vehicle..... 7
Table 4: Table Manager 7
Table 5: Table Dealer..... 8
Table 6: Table Salesman 8
Table 7: Description of Customer Table..... 12
Table 8: Description of receptionist Table ..... 13 *Table 9:Description of Table Vehicle*..... 15 *Table 10:Description of Table Manager* ..... 15 *Table 11:Description of Table Dealer*..... 16 *Table 12: Description of Table Salesman*..... 17

1. Introduction:

A database is a logically ordered set of structured data that is usually stored electronically in a computer system. A management system is usually in charge of a database (DBMS). The information and therefore the DBMS, as well as the programs that are applied to them, are referred to as a database system, which is often abbreviated to just a database. (Oracle, 2021)

This report describes the database about Vehicle Showroom. A vehicle showroom is a place where customers can buy vehicles like bikes and cars. I will be researching through internet and I will provide proper citation to make my report attractive. This report is about the management and keeping all the records of vehicles. In the traditional approach, the data are stored via paper and there are big stacks of files. Those files can get lost, damaged as they were stored physically without a systematic way. Data redundancy, data insecurity were common problems in the traditional approach. So, this project helps to remove all the manual recording of data and replace

by using DBMS software. The database consists of 6 entities which are Customer, Receptionist, Vehicle, Manager, Dealer, and Salesman. According to the database the company Vehicle_Showroom sells vehicles like bikes and cars. The customers are those who buys vehicles. Receptionist are those who provides details of vehicles to the customers. The company has employed managers, salesmen who are responsible for the smooth flow of an organization.

The modern database approach eliminates these problems easily as compared to the traditional approach. Since there is no data redundancy in the modern database approach, data security and data integrity features are beneficial for the organization. This proposed system stores all the data in a database server which reduced time, cost, and management and it can be easily accessed without any effort. Since the data are stored in the server repetition of data gets eliminated. This system stores data of vehicles, customers, receptionists, dealers, managers, and salesman in the database server.

1.1. Aim:

The main purpose of creating a system for Vehicle Showroom is to avoid data redundancy and the details of each vehicle are described easily. After completing this system, we can easily handle any number of data entries which saves time but also helps to save a large amount of data and information for future uses.

1.2. Objectives:

The database has changed many firms that deal with a large quantity of data as it provides an opportunity to manage it in user wanted way. This project's objectives are to provide details of the vehicle and reduce time and efforts for the user. Some other objectives are mentioned below:

To achieve the aim mentioned above following are the points mentioned below:

- Research on entities and attributes for the database.

- Research on queries.
- Research on the software required.
- Research using books from the library.
- Research on Entity-Relationship Diagram.
- Research on Relational Diagram.

1.3. Creating Data Model:

Creating a data model also helps in understanding the ideas involved in the database while storing data. Data models are explained based on the Entity-Relation diagram and Relational diagram.

1.4. Creating Data Dictionary:

Data Dictionary helps to describe entities, attributes, data types as well as the constraints of the database. Repeatedly used constraints such as PRIMARY KEY and FOREIGN KEY can be easily identified through a data dictionary.

1.5. Creating Database:

The database is created after the creation of a data dictionary. After then, the database is implemented through queries. Queries are work with XAMPP, for drawing different diagrams I used draw.io, and for screenshots Snipping tool is used and MySQL is used for queries to implement database.

1.6. XAMPP:

XAMPP is a free and open-source cross-platform web server, a solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server. MariaDB database server and interpreters for scripts written in the PHP and Perl

programming languages. The whole database-related queries need to be done in the XAMPP console.

(Leasedlayer, 2020)

Figure 1: XAMPP Control Panel

1.7. MySQL:

MySQL is a fast, easy-to-use relational database management system (RDBMS) that is used by many small and large businesses. MySQL AB, a Swedish corporation, is responsible for its growth, marketing, and support. (Tutorialspoint, 2021)

Figure 2: MySQL

Source: https://itsilesia.com/6-tips-that-every-mysql-user-should-know/

1.8. Draw-io:

Draw.io is a proprietary program for creating diagrams and charts created by Seibert Media. We can use the software's automatic layout feature or build your own

custom layout. (Hope, 2020)

Figure 3: draw.io

Source: https://sites.google.com/site/toolsineducation/web-2-0-tools/draw-io

1.9. Snipping Tool:

Snipping Tool was first introduced by Microsoft in Windows 7, and it is now used in Windows 8, and Windows 10. It helps you to save all or part of a screenshot.

Figure 4: Snipping Tool

Source: https://lasvegasempoweredwomensnetwork.org/top-8-reasons-use-snipping-tool/

2. Data Model:

I've established a clear connection to describe the various components of my database in this data model. Similarly, I'll create a detailed overview of my database to describe the table of two components and see where my database's elements and aspects are located. Similarly, the database includes information about all of my organizations as well as the relationships between them. I will provide queries for my database later helping to figure out the agenda of my databases.

PK FK

• **Entity name Customer:**

In this table, there are attributes like CustomerID(Primary Key), Customer_Name, Age, Customer_Email, and Phone_No.

CustomerID	Customer_Name	Age	Customer_Email	Phone_No
1	Raju_Sharma	21	rajusharma01@gmail.com	88481731
2	Sumiran_Dahal	23	sumirandahal02@gmail.com	88471341
3	Binod_Adhikari	25	binodadhikari03@gmail.com	88371431
4	Prakriti_Adhikari	22	prakritiadhikari04@gmail.com	88491537
5	Dipen_Budhathoki	26	dipenbudhathoki05@gmail.com	88481734

Table 1: Table Customer

In the above table, CustomerID(Orange Color) is the Primary Key following them with its information.

• **Entity name Receptionist:**

In this table, there are attributes like ReceptionistID(Primary Key), Receptionist_Name, Receptionist_Email, and CustomerID(Foreign Key).

ReceptionistID	Receptionist_Name	Receptionist_Email	CustomerID
R1	Ranjana_Kafle	ranjanakafle@gmail.com	1
R2	Samiksha_Karki	samikshakarki@gmail.com	2
R3	Barsha_Subedi	barshasubedi@gmail.com	3
R4	Rejina_Dhakal	rejinadhakal@gmail.com	4
R5	Biplove_Nepal	biplovenepal@gmail.com	5

Table 2:Table Receptionist

In the above table, ReceptionistID(Orange Color) is the Primary Key, and CustomerID(Green Color) describes as it is the foreign key referencing Customer(CustomerID).

• **Entity name Vehicle:**

In this table, there are attributes like VehicleID(Primary Key), Vehicle_Name, Mileage, Manufacture_Company, Manufacture_Date, and CustomerID(Foreign Key).

VehicleID	Vehicle_Name	Mileage	Manufacture_Company	Manufactured_Date	Type	CustomerID

V1	Honda_Shine	55	Honda	2019-05-14	Bike	1
V2	Pulsar_150	50	Bajaj	2020-01-10	Bike	2
V3	Ford_Figo	19	Ford	2020-02-16	Car	3
V4	Datsun_Redigo	22	Datsun	2020-06-17	Car	4
V5	Nissan_Magnite	20	Nissan	2021-03-15	Car	5

Table 3: Table Vehicle

In the above VehicleID(Orange Color) defined as it is the Primary Key and CustomerID(Green Color) defined as it is the Foreign Key referencing Customer(CustomerID).

- **Entity name Manager:**

In this table, there are attributes like ManagerID(Primary Key), Manager_Name, and Manager_Email.

ManagerID	Manager_Name	Manager_Email
M1	Keshab_Budhathoki	keshabbudhathoki@gmail.com
M2	Girish_Dangal	girishdangal@gmail.com
M3	Meghraj_Adhikari	meghrajadhikari@gmail.com
M4	Prakash_Subedi	prakashsubedi@gmail.com
M5	Lekhnath_Khatiwada	lekhnathkhatiwada@gmail.com

Table 4: Table Manager

In the above table, ManagerID(Orange Color) defined as it is the Primary Key and following them with its information.

- **Entity name Dealer:**

In this table, there are attributes like DealerID(Primary Key), Dealer_Name, Dealer Address, Dealer_Phone, and ManagerID(Foreign Key).

DealerID	Dealer_Name	Dealer_Address	Dealer_Phone	ManagerID
D1	Pratik_Dhungel	Kathmandu	8848546	M1
D2	Prasanna_Subedi	Lalitpur	8847654	M2
D3	Regan_Poudel	Bhaktapur	8857653	M3
D4	Sailesh_Dahal	Dhulikhel	8867456	M4
D5	Rajat_Sharma	Jhapa	8878435	M5

Table 5: Table Dealer

In the above table, DealerID(Orange Color) is defined as it is the Primary Key and ManagerID(Green Color) defined as it is the Foreign Key referencing Manager(ManagerID).

- **Entity name Salesman:**

In this table, there are attributes like SalesmanID(Primary Key), Name, Address, Phone_No, VehicleID(Foreign Key), and DealerID(Foreign Key).

SalesmanID	Name	Address	Phone_No	VehicleID	DealerID
S1	Rahul_Sharma	Jhapa	8714350	V1	D1
S2	Suman_Subedi	Morang	8654300	V2	D2
S3	Manish_Adhikari	Pokhara	8634561	V3	D3
S4	Nimesh_Khatiwada	Kathmandu	8934231	V4	D4
S5	Biplop_Giri	Illam	8432561	V5	D5

Table 6: Table Salesman

In the above table SalesmanID(Orange Color) is defined as it is the Primary Key and VehicleID(Green Color), DealerID(Green Color) defined as it is the Foreign Key referencing Vehicle(VehicleID) and Dealer(DealerID).

2.1. Entity-Relationship Diagram:

An entity-relationship diagram (ERD) is a data modeling technique that graphically depicts the entities of an information system as well as their relationships. The entity system infrastructure is represented by an ERD, which is a conceptual and representational model of data. For the report manual, the ERD of my database named Vehicle_Showroom is drawn below. (Techopedia, 2021)

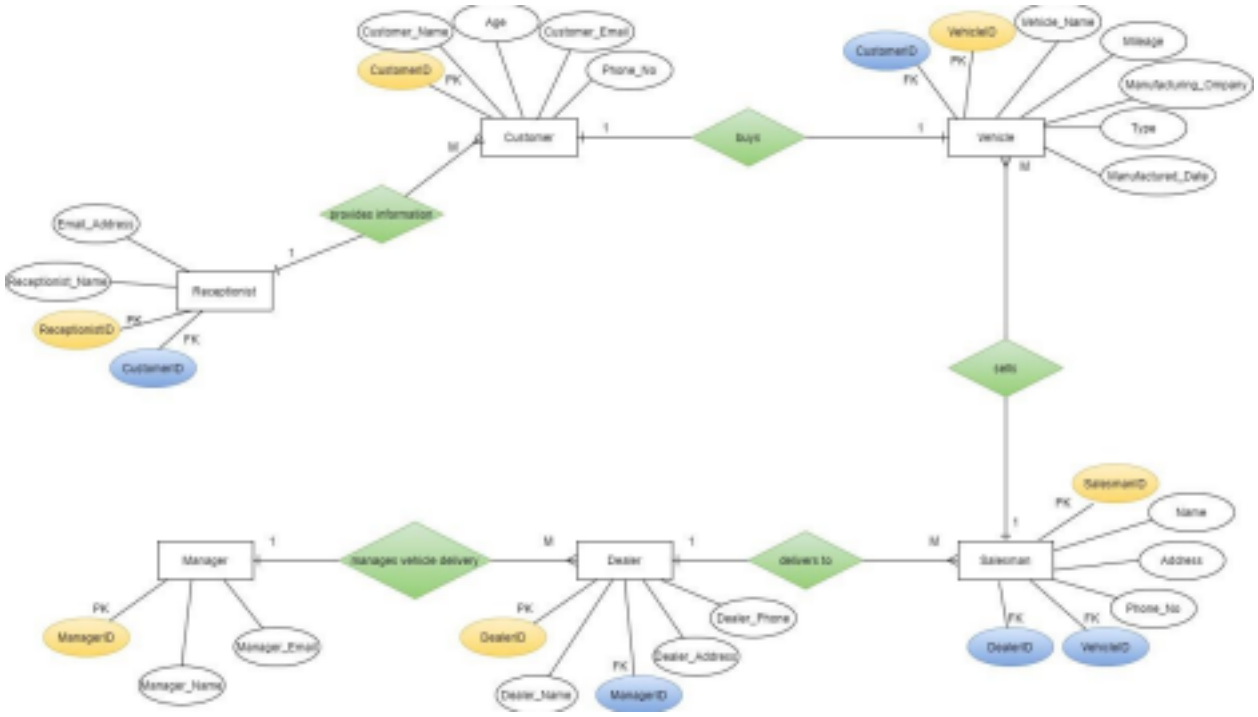

Figure 5: Entity-Relationship Diagram

I have prepared the above diagram according to my view. There are 6 entities in the above diagram i.e. Customer, Receptionist, Vehicle, Manager, and Salesman. Each entity has different attributes. The relation between entities are shown below:

2.1.1. Relation Between Receptionist and Customer: A receptionist can provide information to many customers. So, there are one to many relations.

2.1.2. Relation Between Customer and Vehicle: A customer buys one vehicle. So, there is one to one relation.

2.1.3. Relation Between Salesman and Vehicle: A salesman sells many vehicles. So, there is one to many relations.

2.1.4. Relation Between Dealer and Salesman: One dealer can deliver to many salesmen that is why there is one to many relations.

2.1.5. Relation Between Manager and Dealer: One manager can manage vehicle delivery from many dealers. So, there is one to many relations between them.

2.2. Relational Diagram:

The database is represented as a set of relations in the Relational Model (RM). A table of values is all that relation is. Each table row represents a grouping of related data values. The table's rows represent a real-world person or relationship. (Guru99, 2021) In my module of the database, I have used the given agenda to perform the following activities.

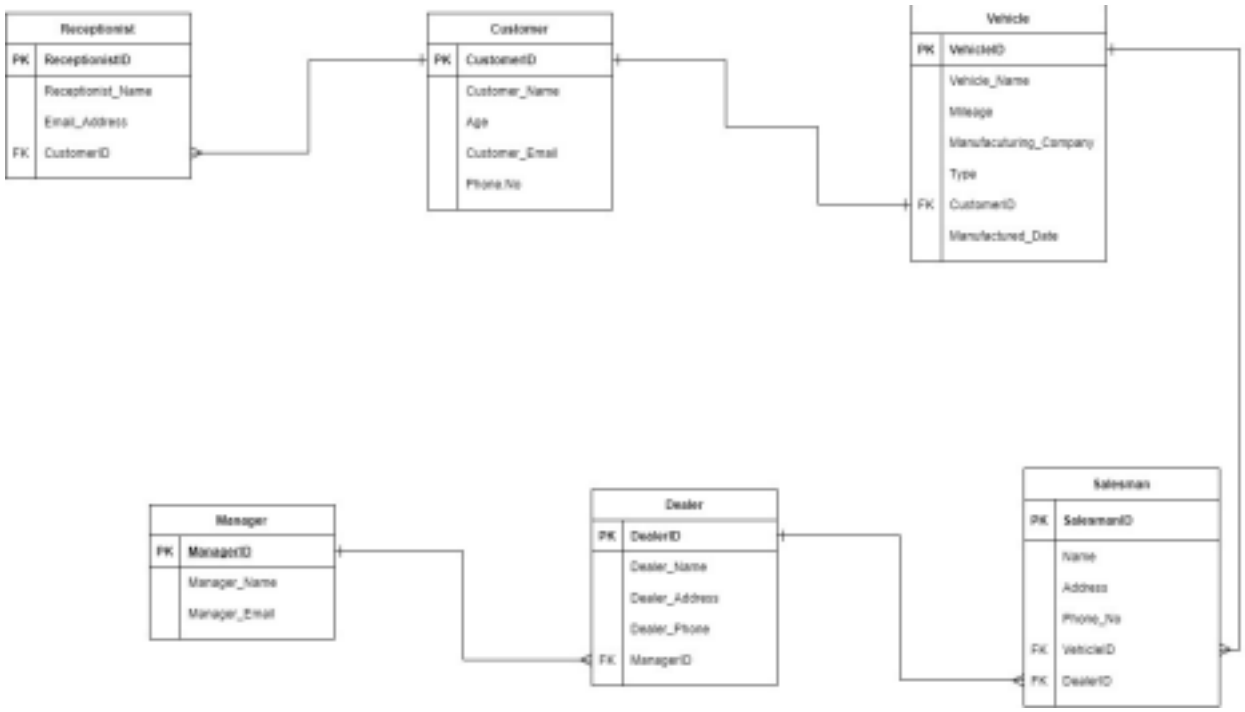

Figure 6: Relational Diagram

Relational diagram is presented in the above figure. A primary key is one which a foreign key can reference to. In this project there is each primary key in each table. Foreign key is which can relate two tables. Receptionist table is referencing Customer(CustomerID), Vehicle table is also referencing Customer(CustomerID), Salesman table is referencing Vehicle (VehicleID) and Dealer(DealerID).Manager table is referencing Dealer(DealerID).

3. Data Dictionary:

A data dictionary is a set of metadata or information about a database. The data dictionary is crucial because it includes details such as what is in the database, who has access to it, and where the database is physically located. The data dictionary is usually not accessed by database users; it is only managed by database administrators. It is typically organized in a spreadsheet format. Each attribute is listed as a row in the spreadsheet and each column labels an element of information that is useful to know about the attribute. (TutorialsPoint, 2018)

In general, the data dictionary contains details about the following:

- The names of all database tables, as well as their schemas.
- Details about all of the tables in the database, including who owns them, what security restrictions they have, when they were developed, and so on. • Physical details about the tables, such as where and how they are kept. • Constraints on tables include primary key attributes, foreign key information, and so on.
- Information about the visible database views. (TutorialsPoint, 2018)

3.1. Data Dictionary of Tables:

Data dictionary for each entity from my database are given below:

3.1.1. Dictionary for Customer Table:

Entity Name	Entity Description	Column Name	Column Description	Data type	Length	Primary key	Foreign key	Not Null	Unique	Notes
Customer	A customer is someone who buys or subscribed to services.	CustomerID	ID of the customer, for the unique identification of each customer.	INT	11	True	False	True	True	Auto incremented
		Customer_Name	Name of the customer	VARCHAR	50	False	False	False	False	
		Age	Age of customer	INT	11	False	False	True	False	

		Customer_Email	Email address of the customer	VARCHAR	50	False	False	False	True	
		Phone_No	Phone number details of customer	INT	11	False	False	False	True	

Table 7: Description of Customer Table

3.1.2. Dictionary for Receptionist Table:

Entity Name	Entity Description	Column Name	Column Description	Data type	Length	Primary key	Foreign key	Not Null	Unique	Notes
Reception ist	A receptionist is someone who interacts with a customer	ReceptionistID	ID of the reception ist, for the unique identification of each reception ist.	VARCHAR	50	True	False	True	True	

		Receptionist_Name	Name of the receptionis t.	VARCHAR	50	False	False	False	False	
		Receptionist_Email	Email address of the receptionis t.	VARCHAR	50	False	False	False	False	
		CustomerID	ID of the customer	INT	11	False	True	False	False	Auto increment/ References to CustomerID of Customer table

Table 8: Description of receptionist Table

3.1.3. Dictionary for Vehicle Table:

Entity Name	Entity Description	Column Name	Column Description	Data type	Length	Primary key	Foreign key	Not Null	Unique	Notes

Vehicle	A vehicle is a thing which is used for transporting people.	VehicleID	ID of the vehicle, for the unique identification of each vehicle.	VARCHAR	50	True	False	True	True	
		Vehicle_Name	Name of the vehicle	VARCHAR	50	False	False	False	False	
		Mileage	mileage of vehicle	INT	11	False	False	false	False	
		Manufacture_Company	The company name which manufactures vehicle	VARCHAR	50	False	False	False	False	
		Manufactured_Date	Date of vehicles when they are manufactured	DATE		False	False	False	False	
		Type	Type of vehicle	VARCHAR	50	False	False	False	False	

		Cust om erID	ID of the customer	INT	11	Fals e	True	False	False	Auto increment/

			who buys the vehicle							Referen ce s to Custome rI D of Custome r table

Table 9:Description of Table Vehicle

3.1.4. Dictionary for Manager Table:

Entity Name	Entity Descri pti on	Colum n Name	Column Descrip tio n	Data type	Len gth	Prima ry key	Forei gn key	Not Null	Unique	Notes
Mana ger	A manager is someo ne who manag es vehicle delivery	Mana ge rID	ID of the Manager, for the unique identificat i on of each manager.	VARC HAR	50	True	False	True	True	
		Mana ge r_Na me	Name of the manager	VARC HAR	50	Fals e	False	False	False	

		Manager_Email	Email address of the manager	VARCHAR	50	False	False	False	True	

Table 10:Description of Table Manager

3.1.5. Dictionary for Dealer Table:

Entity Name	Entity Description	Column Name	Column Description	Data type	Length	Primary key	Foreign key	Not Null	Unique	Notes
Dealer	A customer is someone who buys or subscribed to services.	DealerID	ID of the customer, for the unique identification of each customer.	VARCHAR	50	True	False	True	True	
		Dealer_Name	Name of the dealer	VARCHAR	50	False	False	False	False	

		Dealer_Address	Address of dealer	VARCHAR	50	False	False	False	False	
		Dealer_Phone	Phone number of dealers	INT	11	False	False	False	True	
		ManagerID	ID of the manager who manages vehicle delivery	VARCHAR	50	False	True	False	False	Reference to ManagerID of Manager table

Table 11:Description of Table Dealer

3.1.6. Dictionary for Salesman Table:

Entity Name	Entity Description	Column Name	Column Description	Data type	Length	Primary key	Foreign key	Not Null	Unique	Notes

Salesman	A salesman is someone who sells the vehicle to many customers.	SalesmanID	ID of the salesman for the unique identification of each salesman	VARCHAR	50	True	False	True	True	
		Name	Name of the salesman	VARCHAR	50	False	False	False	False	
		Address	Address of salesman	VARCHAR	50	False	False	False	False	
		Phone_No	Phone number details of a salesman	INT	11	False	False	False	True	
		VehicleID	ID of the vehicle which is sold by Salesman	VARCHAR	50	False	True	False	False	Referencing VehicleID of table Vehicle

		DealerID	ID of the dealer who deals with salesman	VARCHAR	50	False	True	False	False	Referenci ng table Dealer(DealerID)

Table 12: Description of Table Salesman

4. Populating Database:

In this section, I will be creating a database, creating tables, inserting values into them and I will carry out different queries through the XAMPP console. I will be using the MariaDB server for my database implementation.

4.1. Creating Database:

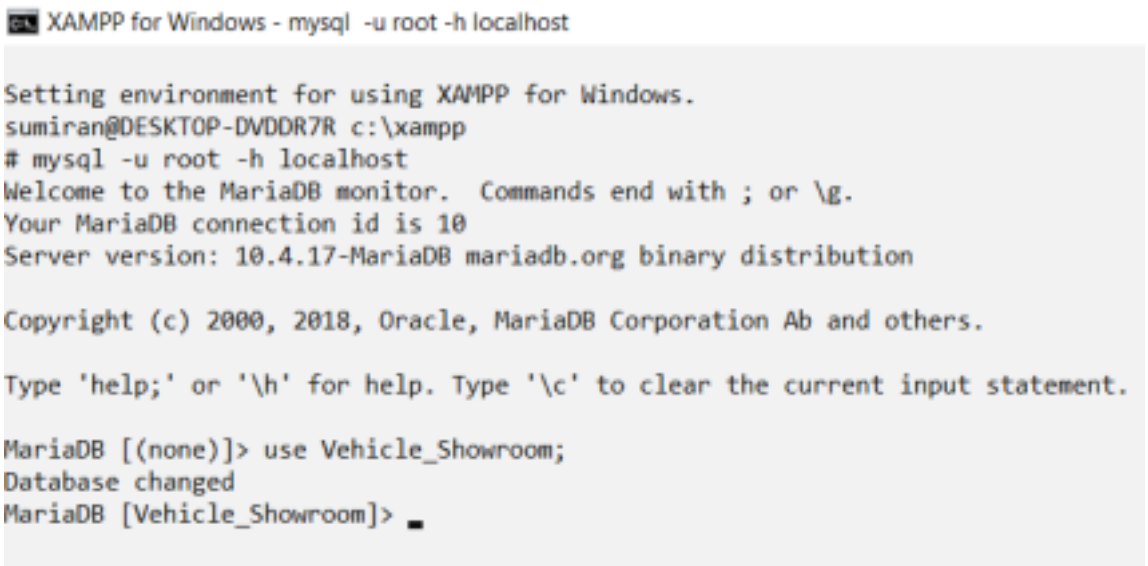

Figure 7: Creating Database

In the above figure, I have created a database named Vehicle_Showroom.

4.2. Creating Tables:

I am going to create the table of each entity for my database.

4.2.1. Creating Customer Table:

Figure 8: Creating table Customer

4.2.2. Creating Receptionist Table:

Figure 9: Creating Receptionist Table

4.2.3. Creating Vehicle Table:

Figure 10: Creating Table Vehicle

4.2.4. Creating Manager Table:

Figure 11: Creating Table Manager

4.2.5. Creating Dealer Table:

Figure 12: Creating Table Dealer

4.2.6. Creating Salesman Table:

Figure 13:Creating Table Salesman

4.3. Inserting Values:

After creating the table, I will be inserting values to the table that I just created.

4.3.1. Inserting Values to Customer Table:

Figure 14: Inserting values to Customer Table

4.3.2. Inserting Values to Receptionist Table:

Figure 15:Inserting values to Receptionist Table

4.3.3. Inserting Values to Vehicle Table:

Figure 16:Inserting values to Vehicle Table

4.3.4. Inserting Values to Manager Table:

Figure 17:Inserting values to Manager Table

4.3.5. Inserting values to Dealer Table:

Figure 18: Inserting values to Dealer Table

4.3.6. Inserting values to Salesman Table:

Figure 19: Inserting values to Salesman Table

4.4. Showing Table:

I inserted values; I will show each table which is presented below.

4.4.1. Customer Table:

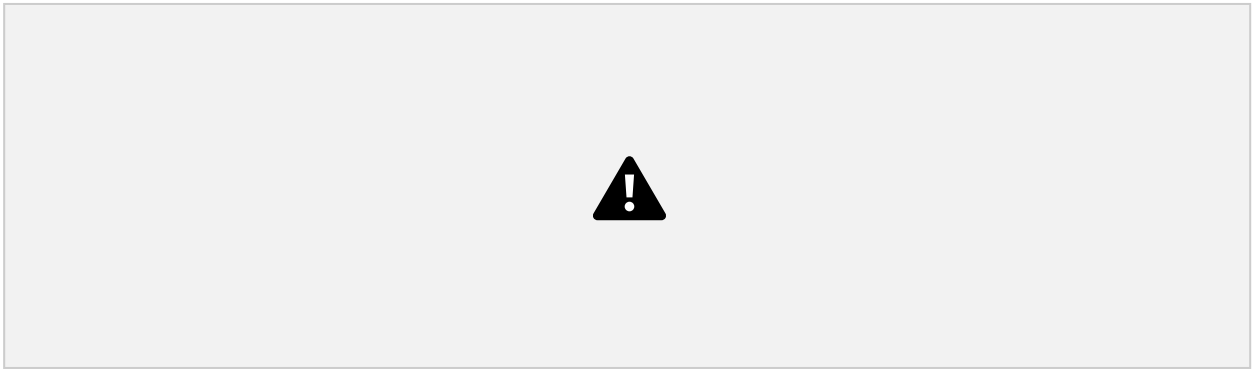

Figure 20: Customer Table

4.4.2. Receptionist Table:

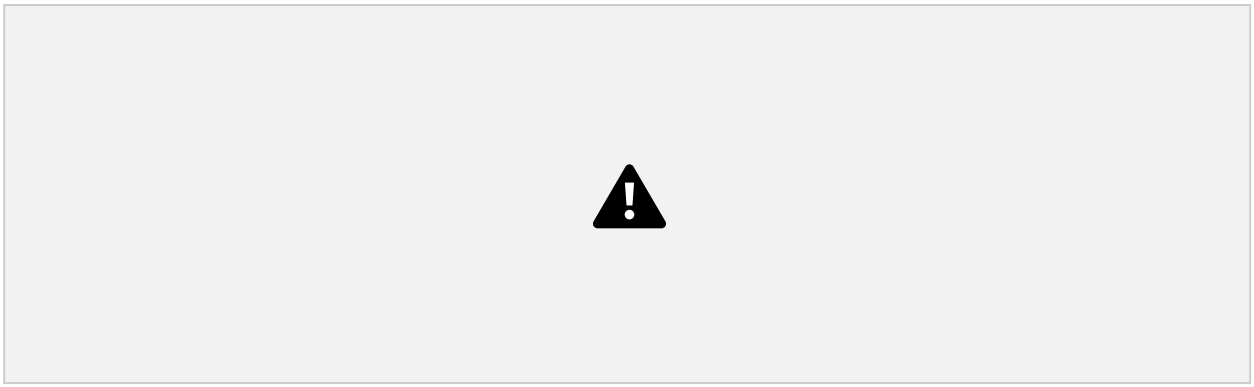

Figure 21: Receptionist Table

4.4.3. Vehicle Table:

Figure 22:Vehicle Table

4.4.4. Manager Table:

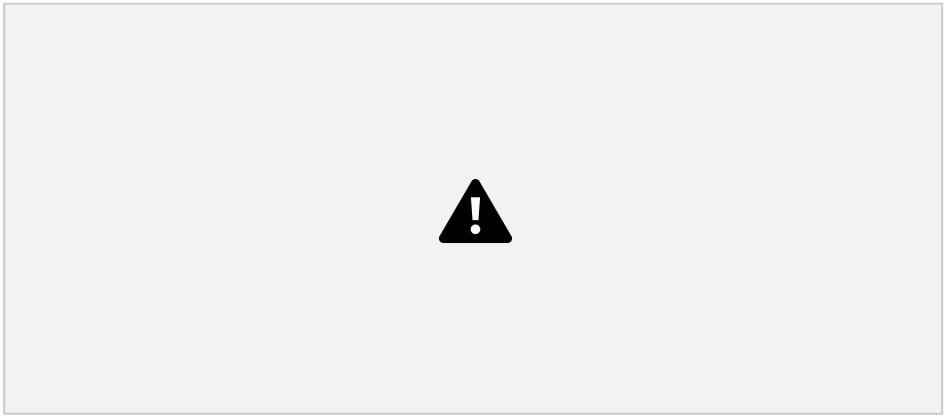

Figure 23: Manager Table

4.4.5. Dealer Table:

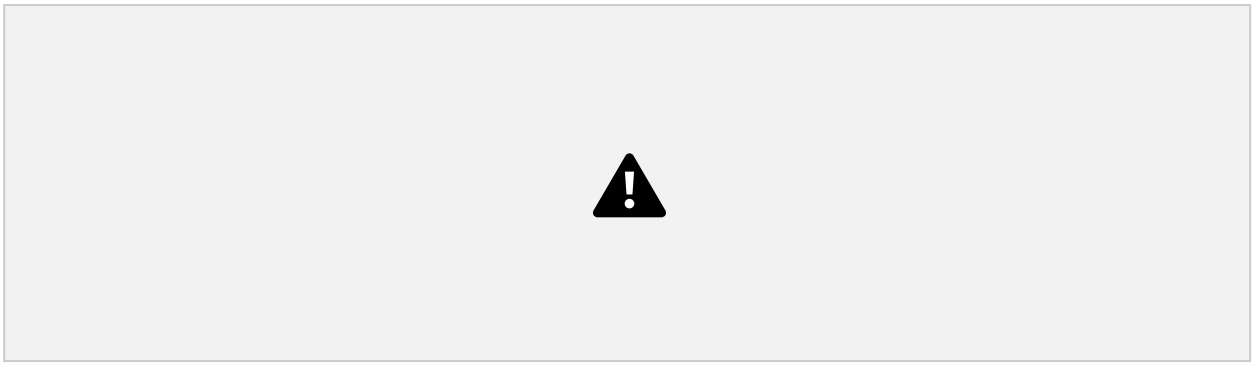

Figure 24: Dealer Table

4.4.6. Salesman Table:

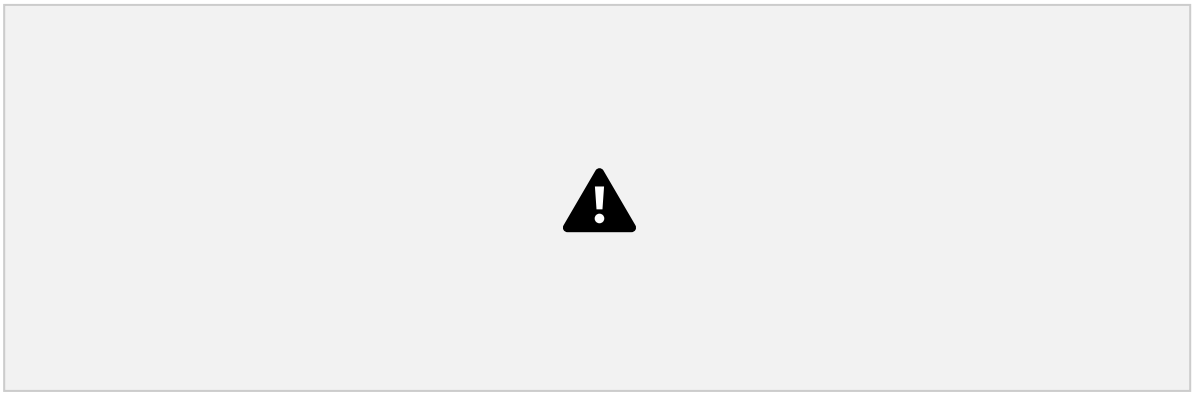

Figure 25: Salesman Table

4.5. Description of Tables:

I finished showing each table, I would like to describe each table.

4.5.1. Customer Description:

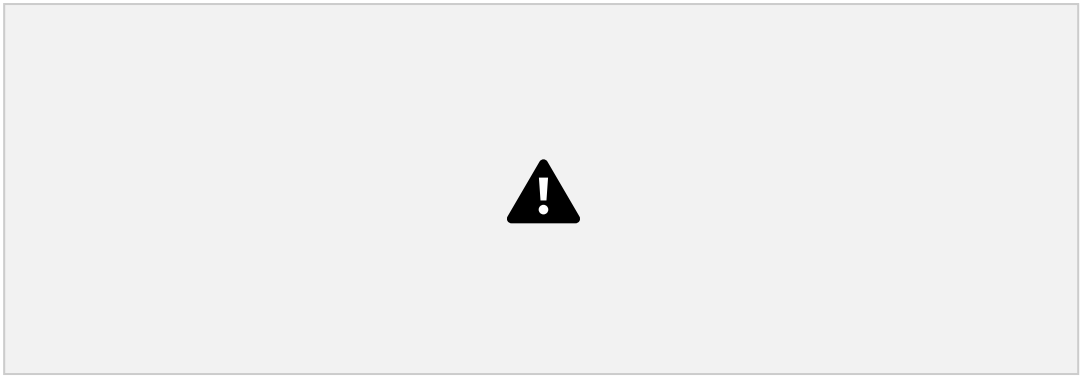

Figure 26: Desc Customer

In the above table, CustomerID is the Primary Key which is auto increment and stored in int data type. Customer_Name, Customer_Email are stored in varchar data type with UNIQUE constraint and a maximum of up to 50 characters. Age is stored in int data type with NOT NULL constraint and Phone_No is also stored in int data type with a UNIQUE constraint.

4.5.2. Receptionist Description:

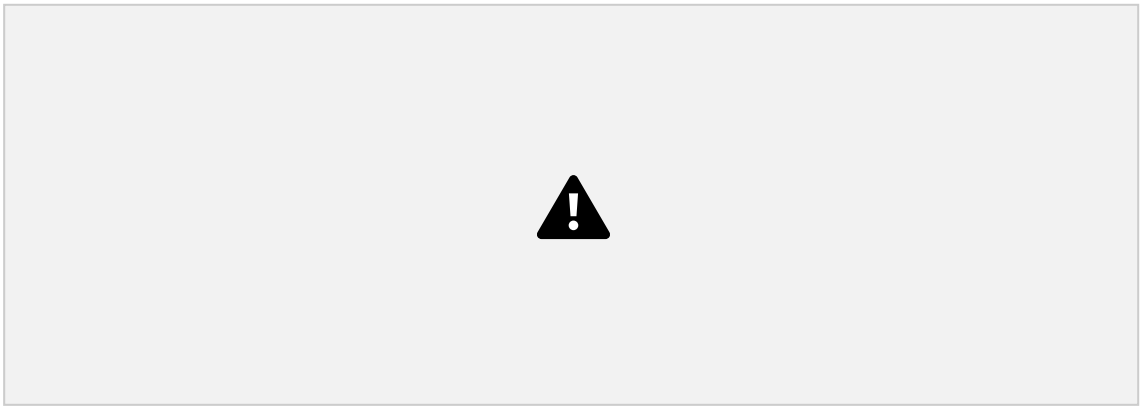

Figure 27: Desc Receptionist

In the above table, ReceptionistID is the Primary Key and stored in varchar data type with a maximum of up to 50 characters. Receptionist_Name and Receptionist_Email are also stored in varchar data type with a maximum of up to 50 characters. CustomerID is the Foreign key of the table which is auto increment and stored in int data type and it a reference to table Customer(CustomerID).

4.5.3. Vehicle Description:

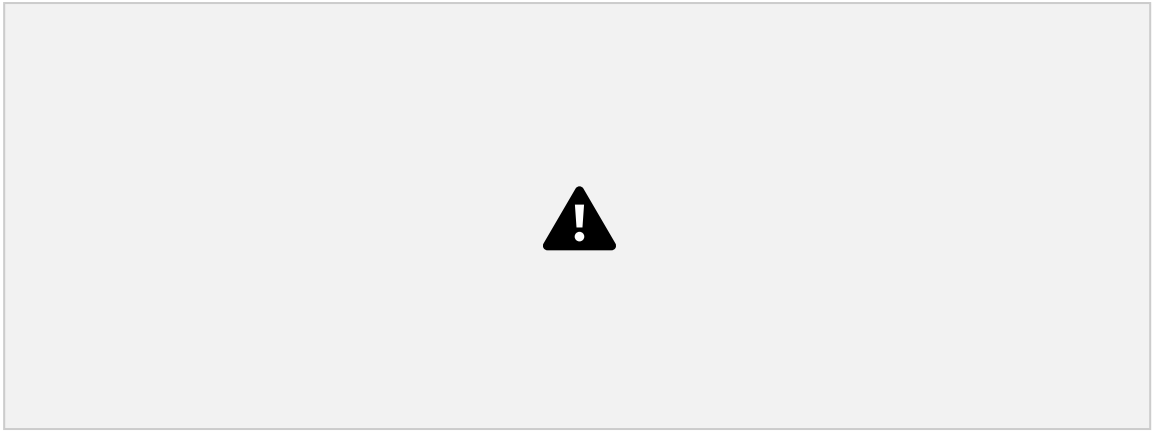

Figure 28: Desc Vehicle

In the above table VehicleID is the Primary key which is stored in varchar data type, Vehicle_Name, Manufacture_Company, Type these all are stored in varchar data type with max up to 50 characters. Mileage is stored with the int data type, Manufactured_Date is stored with DATE data type because in SQL there is a specific data type that can store data. CustomerID is the Foreign Key auto increment which is stored in int data type referencing Customer(CustomerID)

4.5.4. Manager Description:

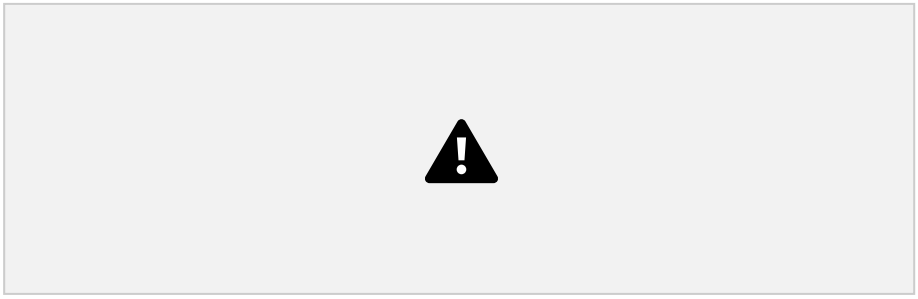

Figure 29: Desc Manager

In the above table, ManagerID is the Primary Key which is stored in varchar data

type max up to 50 characters. Manager_Email has UNIQUE and Manager_Name is stored in varchar data type following Manager_Email max up to 50 characters.

4.5.5. Dealer Description:

Figure 30: Desc Dealer

In the above table DealerID is the Primary Key, Dealer_Address, Dealer_Name these all are stored in varchar data type max. up to 50 characters. Dealer_Phone is stored in int data type with a UNIQUE constraint. ManagerID is the Foreign key referencing table Manager(ManagerID).

4.5.6. Salesman Description:

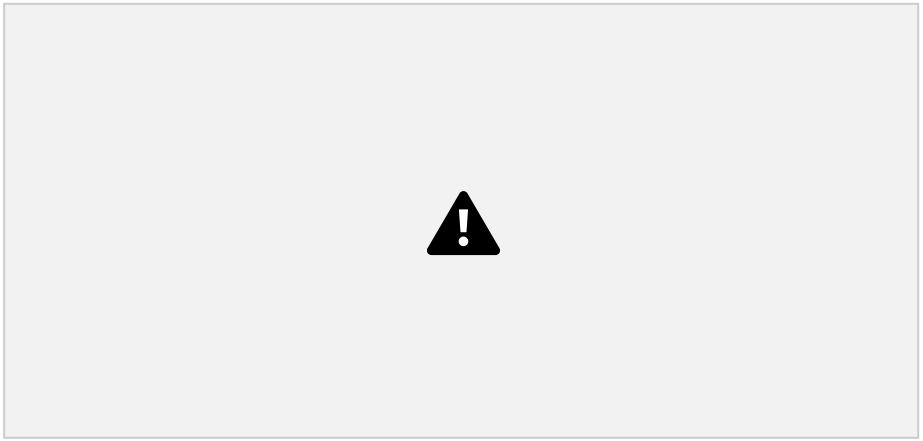

Figure 31: Desc Salesman

In the above table SalesmanID is the Primary Key, Name, Address these are stored in varchar data type with max. up to 50 characters. Phone_No has a UNIQUE

constraint and is stored in the int data type. VehicleID and DealerID both are Foreign key referencing Vehicle(VehicleID) and Dealer(DealerID) respectively.

5. Queries:

A database query is a request to access or manipulate data from a database. Similarly, for this report, I am going to perform some queries. Some queries are given below:

5.1. WHERE

Figure 32:Using WHERE clause

In the above syntax, the WHERE clause is used in a query. The WHERE clause is used to filter records. It is used to extract only those records when a certain condition gets fulfilled. In the table Customer, customer whose age is 21 is only shown.

5.2. Order By

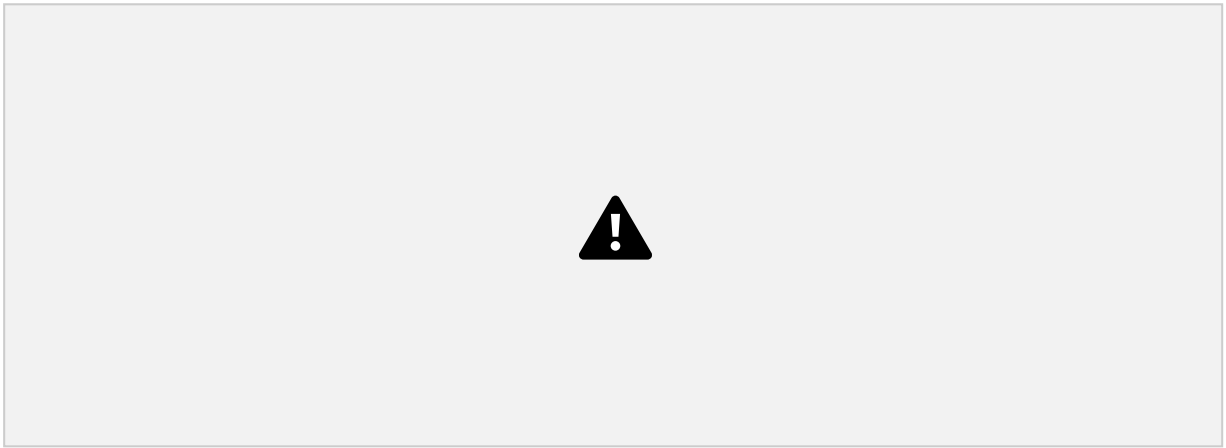

Figure 33: ORDER BY keyword

In the above syntax, the ORDER By keyword is used. It is used to sort result in ascending order. In the above table Column(Name) is sort out in ascending order. Name of the salesmen are sorted out in ascending order at above table.

5.3. Order By desc

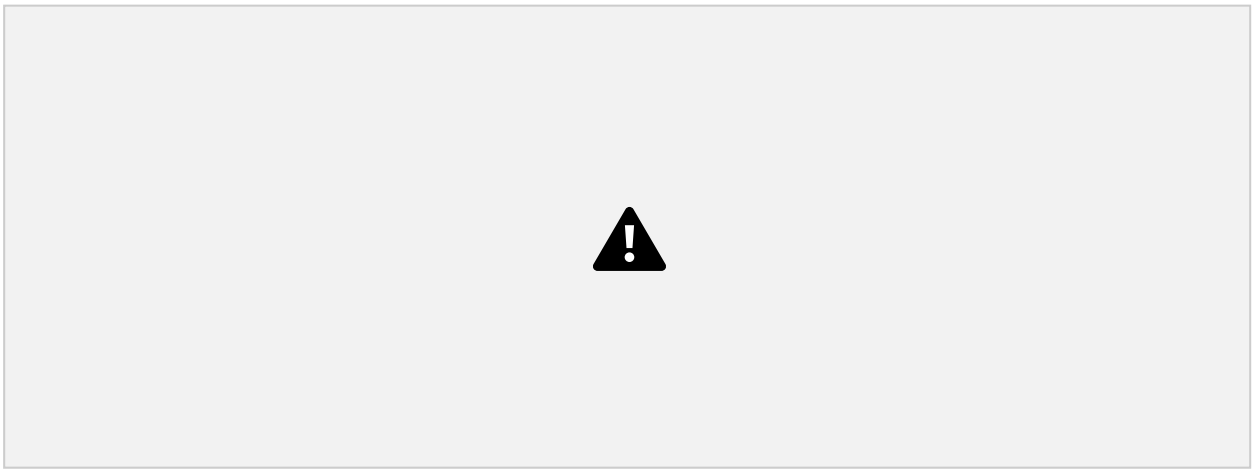

Figure 34: Order By Desc keyword

In the above syntax Order By Desc keyword is used in a query. Order By Desc is used to sort out results in descending order. In the above table Column(Manager_Name) is sort out in descending order. Manager_Name is sorted out in descending order.

5.4. BETWEEN

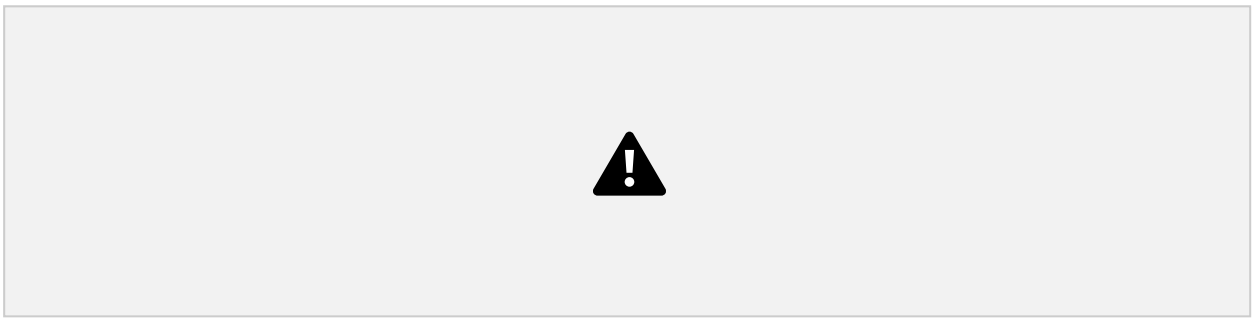

Figure 35: BETWEEN operator

In the above syntax BETWEEN operator is used in a query. It is used to show values within a given range. In the above table Mileage from 19 to 22 is shown with BETWEEN operator.

5.5. NOT BETWEEN

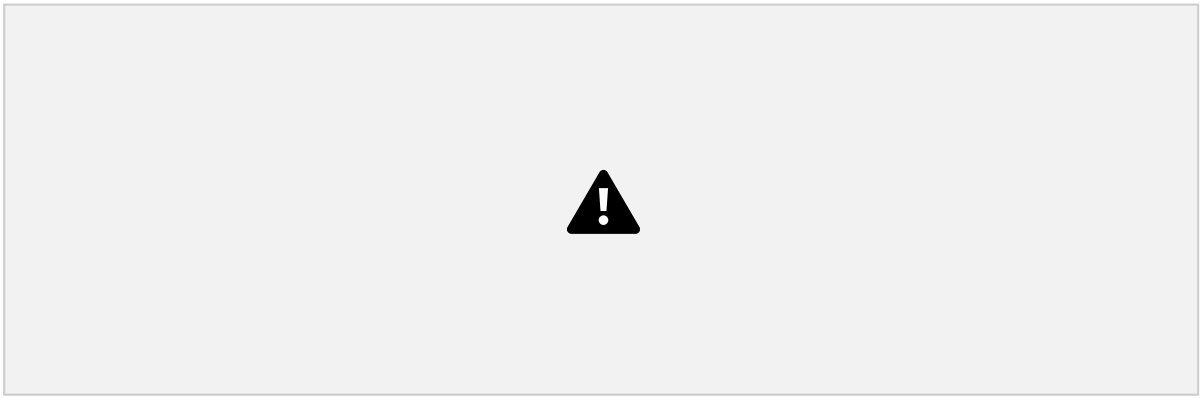

Figure 36: NOT BETWEEN operator

In the above syntax NOT BETWEEN operator is used in a query. It does not show values within a range. In the above table age between 21 and 23 are not shown with NOT BETWEEN operator.

5.6. COUNT

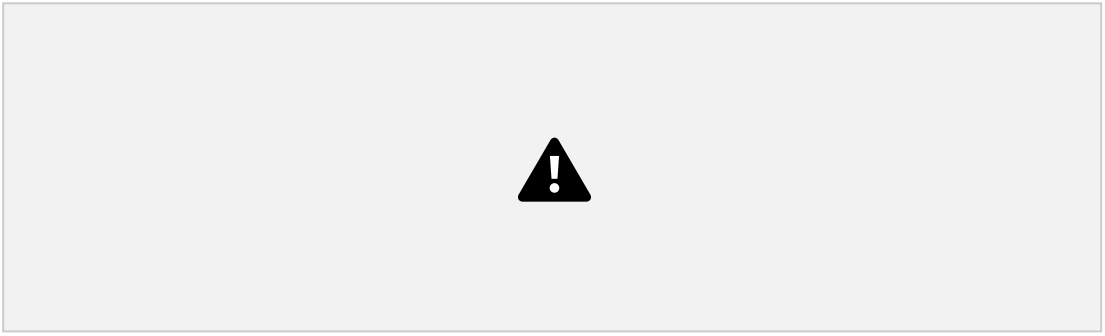

Figure 37: COUNT function

In the above syntax, the COUNT function is used in a query. The use of the count function is to show the number of rows that match a specified criterion. I used the COUNT function in ReceptionistID and there is a total of 5 rows.

5.7. SUM

Figure 38: SUM function

In the above syntax, the SUM function is used. The sum function returns the total sum of the numeric column. In the above table, I summed up column Age.

5.8. AVG

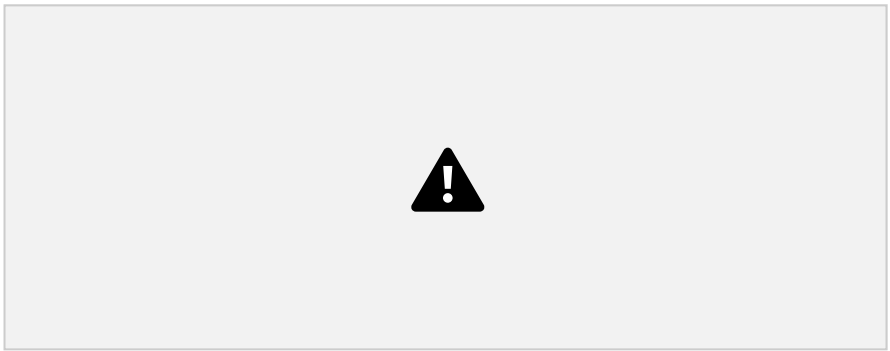

Figure 39: AVG function

In the above syntax AVG function is used. The avg function returns the average value of a numeric column. In my table, I showed up average of column Age.

5.9. MIN

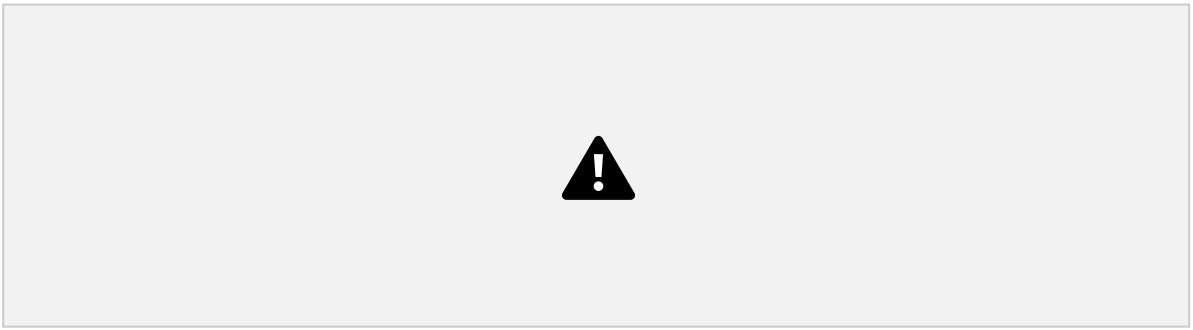

Figure 40: MIN function

In the above syntax MIN function is used. The MIN function shows least value of a numeric column and it store that value in temporary column SmallestAge because of AS keyword. AS keyword is used to rename a column temporarily.

5.10. MAX

Figure 41: MAX function

In the above syntax MAX function is used. The MAX function shows maximum value of a numeric column and it store value temporarily in column name HighestAge because of AS keyword.

5.11. DISTINCT:

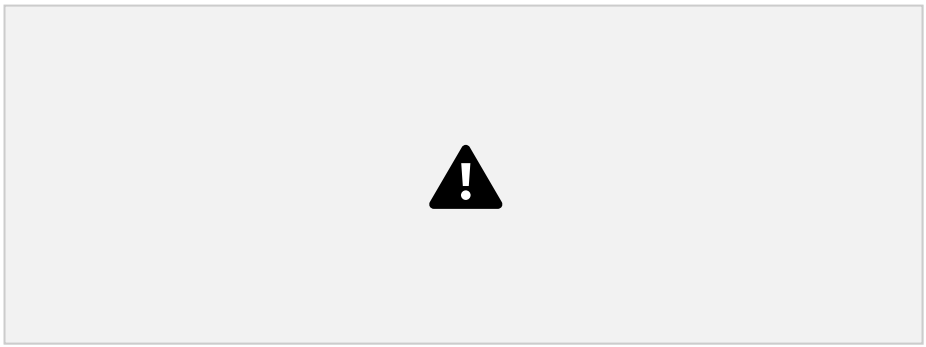

Figure 42: DISTINCT

In the above syntax DISTINCT is used. The use of DISTINCT is to return only different values. If there are duplicate values in the table then it only shows different values.

5.12. LIKE _%

Figure 43: LIKE_% operator

In the above syntax LIKE_% is used. It lets us know and see the letter starting with ‘P’ only. We can see the result on the table above.

5.13. LIKE_%_

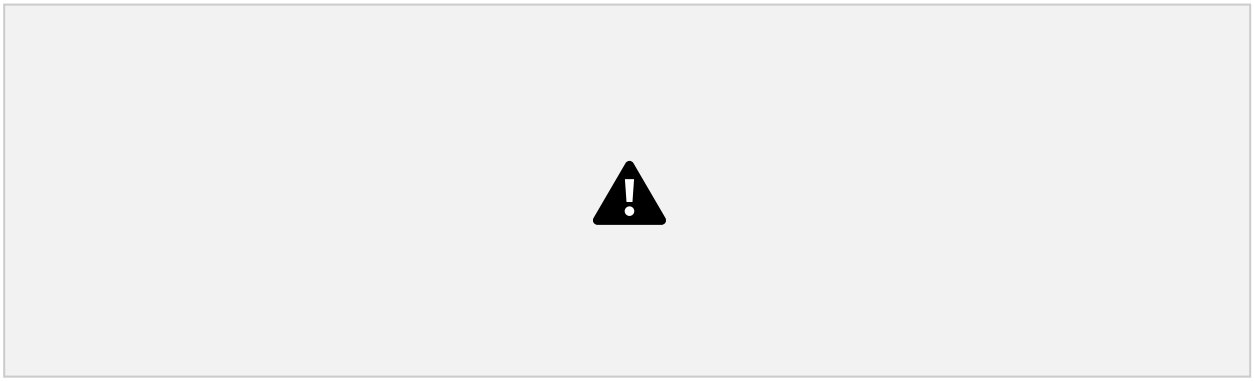

Figure 44: LIKE_%_ operator

In this syntax LIKE_%_ is used. In this query since the percent is back and forth of the letter 'I'. Thus, it shows the result of Receptionist_Name whose name contains 'I' in the middle.

5.14. GROUP BY

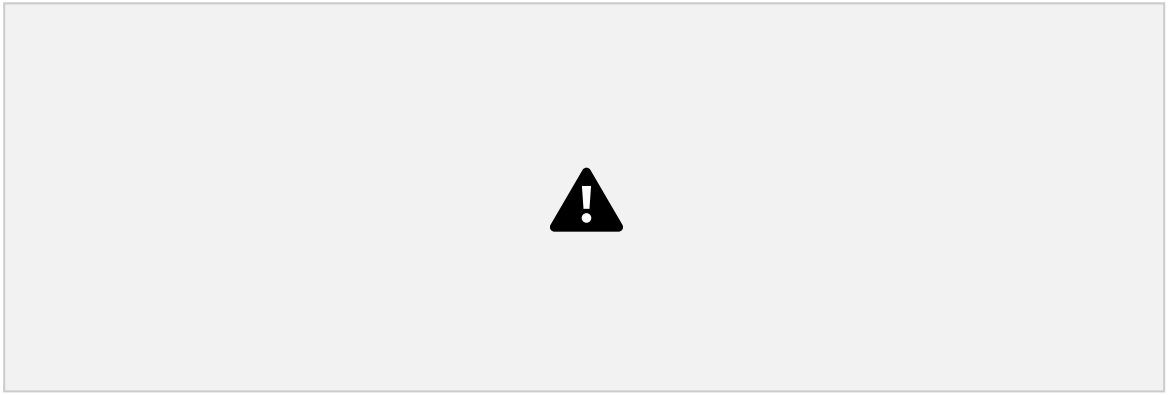

Figure 45: Group BY

In this syntax Group By is used. In this query we are counting the VehicleID from the Vehicle and grouping the Manufacture_Company which helps us to make the database look simpler and more familiar. The table is presented above.

5.15. HAVING Clause:

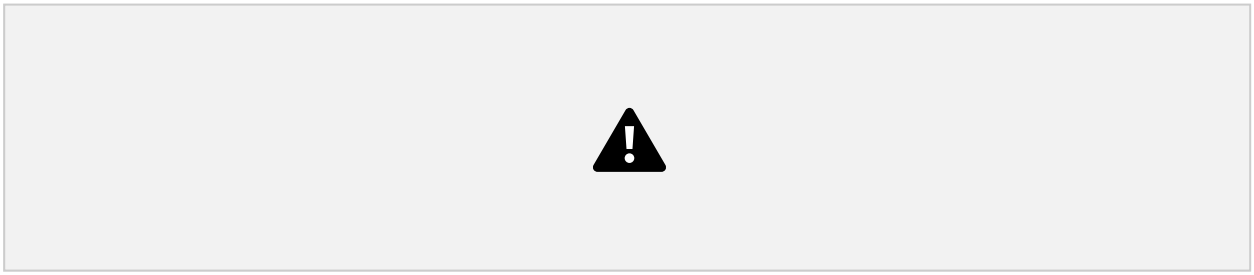

Figure 46: Having Clause

In the above syntax HAVING clause is used. HAVING clause is used in aggregate functions instead of WHERE clause. It helps in the specification of conditions that filter group results appear in the results. In the above table HAVING clause filtered the Receptionist_Email from the table Receptionist.

5.16. Join:

Figure 47: JOIN keyword

In the above syntax JOIN keyword is used. It helps to selects records that have matching values in both tables. In the above figure CustomerID have same values in both tables. Join keyword shows the values which are common in two tables. The joined tables are related using Primary and Foreign key and the respective columns are specified in the ON clause.

6. Conclusion:

This project was quite tough as well as thrilling for me as I was focused on this project. I started researching on various subjects, related to database and thanks to our tutor for providing specific guidelines to complete this project on time. As the main objective of this project was to create database for an organization. I had to take an organization for my reference so I took Vehicle_Showroom as an organization. I researched about its entities, relationships and so on. I started collecting details about each entity. I have given proper citation and provided references of the website which helped me for my report.

This project is mainly focused on storing database in modern approach overriding traditional approach. It makes easier to get the concept of database details and other specific item which is important for the database. At the beginning, I research through internet and clear the concept and I started creating database for my organization. I created tables inside MS Word for my database. It helps me to be clearer about my database and I created data models like Entity-Relationship diagram and Relational diagram with the help of draw.io. I briefly described about data model in the report.

Data Dictionary part is done after I finished creating data models. A data dictionary is the metadata or the information of the database. It includes entity description, field name description, data type, length, constraints like Primary Key, Foreign Key, unique, not null, auto increment. I elaborated data dictionary and I moved on implementing database.

I implemented my database using XAMPP console. I created table of each entity and inserted values into them. After I finished creating table and inserted values into them, I showed table of each entity. Then I gave database description of each table.

Data description defines as it describes the entire table referencing Columns, data type, constraints and notes. At last, I used SQL queries to access and manipulate database. I showed about 16 queries which all are different.

As my project is now completed, the organization can easily insert, update or modify data whenever required. I learned about most of the basics of database management system. This project gave me an opportunity and encouraged me to learn deeply about database management system. I knew how database management system works and how it can help an organization growth's and reach organization to its maximum potential.

7. References

Guru99, 2021. *Relational Data Model in DBMS.* [Online] Available at: https://www.guru99.com/relational-data-model-dbms.html [Accessed 25 April 2021].

Hope, C., 2020. *Draw.io.* [Online] Available at: https://www.computerhope.com/jargon/d/drawio.htm [Accessed 28 April 2021].

Leasedlayer, 2020. *XAMPP.* [Online] Available at: https://www.quora.com/What-is-a-XAMPP-server [Accessed 28 April 2021].

Oracle, 2021. *Database defined.* [Online] Available at: https://www.oracle.com/database/what-is-database/ [Accessed 24 April 2021].

Techopedia, 2021. *Entity_Relationship Diagram(ERD).* [Online] Available at: https://www.techopedia.com/definition/1200/entity-relationship-diagram-erd [Accessed 24 April 2021].

TutorialsPoint, 2018. *What is Data Dictionary ?.* [Online] Available at: https://www.tutorialspoint.com/What-is-Data-Dictionary [Accessed 25 April 2021].

Tutorialspoint, 2021. *MySQL Introduction.* [Online] Available at: https://www.tutorialspoint.com/mysql/mysql-introduction.htm [Accessed 28 April 2021].