Relational Data Concepts

Estimated time needed: 10 minutes

In this lab, you will apply the concepts that you learnt in this module to a relational database schema called Car Dealership, which is designed to keep track of automobile sales in a car dealership.

Objectives:

After completing this lab, you will be able to:

- Evaluate your knowledge of Relational Database Concepts and the Entity-Relationship (ER) Diagram
- Imporve your understanding of terms related to relational models like entity, attribute, and keys.

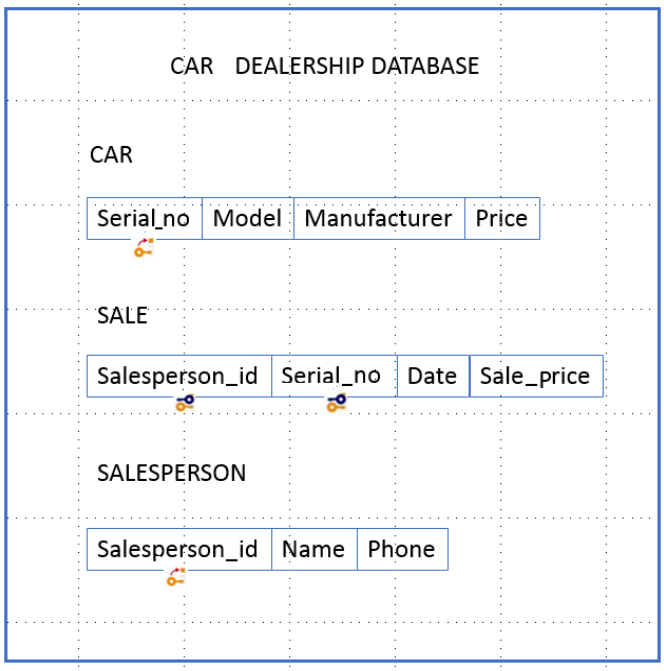
Concepts covered in the lab

1. `Entity`: A noun: person, place, or thing
2. `Attributes`: The data elements that characterize the entity and tell us more about the entity.
3. `Primary key`: Uniquely identifies each tuple or row in a table and provides a way of defining relationships between tables
4. `Foreign key`: Primary keys defined in other tables, creating a link between the tables.
5. `Entity relationship (ER) diagram`: Represents entities called tables, and their relationships. The building blocks of an ER diagram are entities and attributes.

Exercise

In this exercise, we will be working on a relational database schema called Car Dealership. A database has to be designed to keep track of automobile sales in a car dealership.

Schema diagram for the Car Dealership relational database:



Relational instance of SALE:

Salesperson_id	Serial_no	Date	Sale_price
10001	1we4ds87	12/03/2020	$ 10,000.00
10005	d63jw3ty	12/03/2020	$ 5,000.00
10009	sy63bjd1	13/03/2020	$ 25,000.00
10001	k2k4edr8	13/03/2020	$ 49,000.00
10051	w3r334ac	13/03/2020	$ 8,000.00

Now let us go through some questions based on the above database schema of Car Dealership and relational instance of SALE:

1. How many relations does the Car Dealership database schema contain?

▶ Hint
▶ Answer

2. How many columns does the relation Car contain?

▶ Hint
▼ Answer

4. The relation Car contains the following 4 columns: Serial_no, Model, Manufacturer, Price.

3. How many rows does the relation Sale contain?

▶ Hint
▼ Answer

5

4. Identify the attributes of the relation Salesperson.

▶ Hint
▼ Answer

Salesperson_id, Name, Phone

5. Identify which relations of the Car Dealership database have primary keys. Name the primary keys if exist.

▶ Hint
▼ Answer

The relations **CAR** and **SALESPERSON** have primary keys. **Serial_no** is the primary key of the relation CAR. **Salesperson_id** is the primary key of the relation SALESPERSON.

6. Identify which relations of the Car Dealership database have foreign keys. Name the foreign keys if exist.

▶ Hint
▼ Answer

The relation **SALE** has foreign keys. **Serial_no** is a foreign key of the relation SALE which acts as a cross-reference between two relations CAR and SALE as it points to the primary key of the relation CAR. **Salesperson_id** is another foreign key of the relation SALE which acts as a cross-reference between two relations CAR and SALESPERSON as it points to the primary key of the relation SALESPERSON.

Summary

Congratulations!

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