

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
- Improve your understanding of terms related to relational models like entity, attributes, and keys.

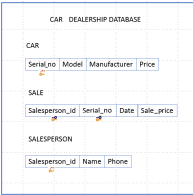
Concepts covered in the lab

1. **Entity**: A real 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          | ds5we3ty  | 12/03/2020 | \$ 5,000.00  |
| 10009          | tye3ljd1  | 13/03/2020 | \$ 25,000.00 |
| 10001          | k2k4edf8  | 13/03/2020 | \$ 49,000.00 |
| 10051          | w3r334qc  | 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  
3. The Car Dealership database schema contains the following 3 relations or tables: CAR, SALE, SALESPERSON.
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
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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