Hands-on Lab : Relational Model Concepts

Estimated time needed: 10 minutes

In this module, you have learned the concepts of a relational model including the terms entity, attribute, relation, degree, and cardinality.

Now in this lab, let us try and apply the concepts we have learned in this module to a real-world example of a database.

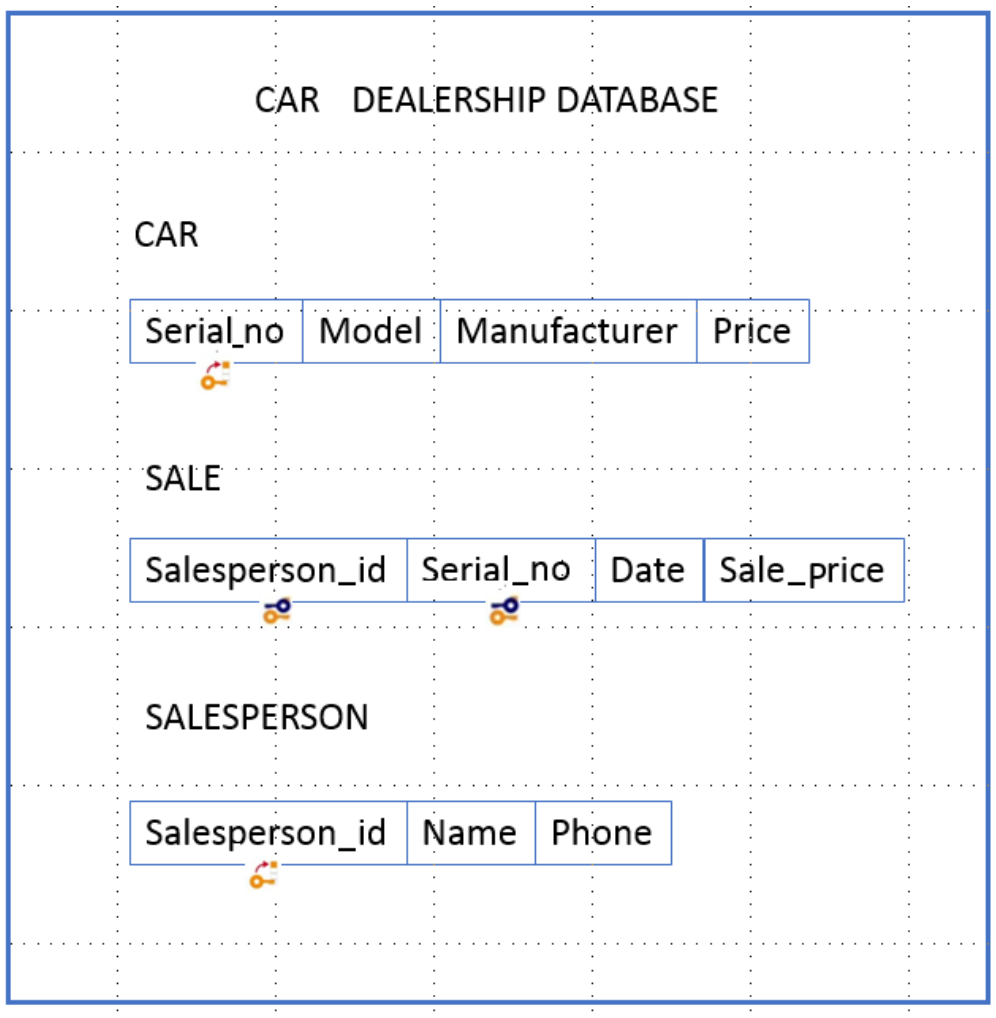
Objectives

After completing this lab, you will be able to evaluate your knowledge of relational model concepts.

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

> A relation is also the mathematical term for a table.

▼ Answer

> Three. 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

> A relation is also the mathematical term for a table. A table is a combination of rows and columns. The columns are the attributes, or fields.

▼ Answer

> Four. The relation Car contains the following 4 columns: Serial No, Model, Manufacturer, Price.

3. How many rows does the relation Sale contain?

▼ Hint

> A relation is also the mathematical term for a table. A table is a combination of rows and columns. The rows are the tuples.

▼ Answer

> Five

4. What is the degree of the relation Salesperson?

▼ Hint

> Degree refers to the number of attributes, or columns, in a relation.

▼ Answer

> Three

5. Identify the cardinality of the relation Sale.

▼ Hint

> Cardinality refers to the number of tuples, or rows, in a relation.

▼ Answer

> Five

6. Identify the attributes of the relation Salesperson.

▼ Hint

> A relational schema specifies the relation name and type of each of the columns, which are the attributes.

▼ Answer

> Salesperson_id, Name, Phone

Congratulations! You have completed this lab, and you are ready for the next topic.

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Changelog

Date	Version	Changed by	Change Description
2020-12-23	2.1	Steve Ryan	ID Review
2020-12-03	2.0	Sandip Saha Joy	Created revised md version
2018	1.0	Rav Ahuja	Created initial version