

Study stream : Computer Science
Level: 2nd Year Bachelor's Degree
Module: DataBase
Instructor: Dr. Bouneb M.

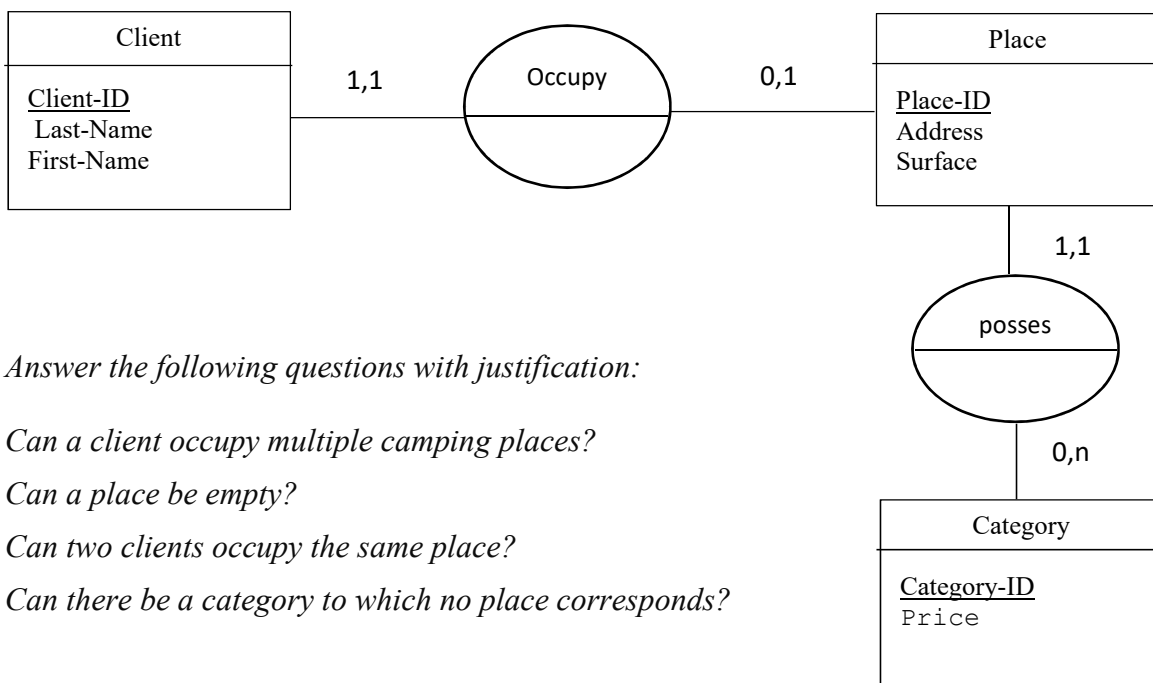
Tutorial N°02

Objectives :

- ☞ Understand what is an entity and know how to define entities.*
- ☞ Understand what is an association and know how to define associations.*
- ☞ Understand the meaning of cardinalities and know how to express cardinalities.*
- ☞ Know how to define the primary key of an entity.*
- ☞ Understand what is a weak entity and know how to identify weak entities.*
- ☞ Practice designing a database using the Entity-Relationship (E/R) model.*

Exercise 01:

A campsite manages the occupancy of its camping places with a **DBMS** (Database Management System). The **E-R model** is presented below:

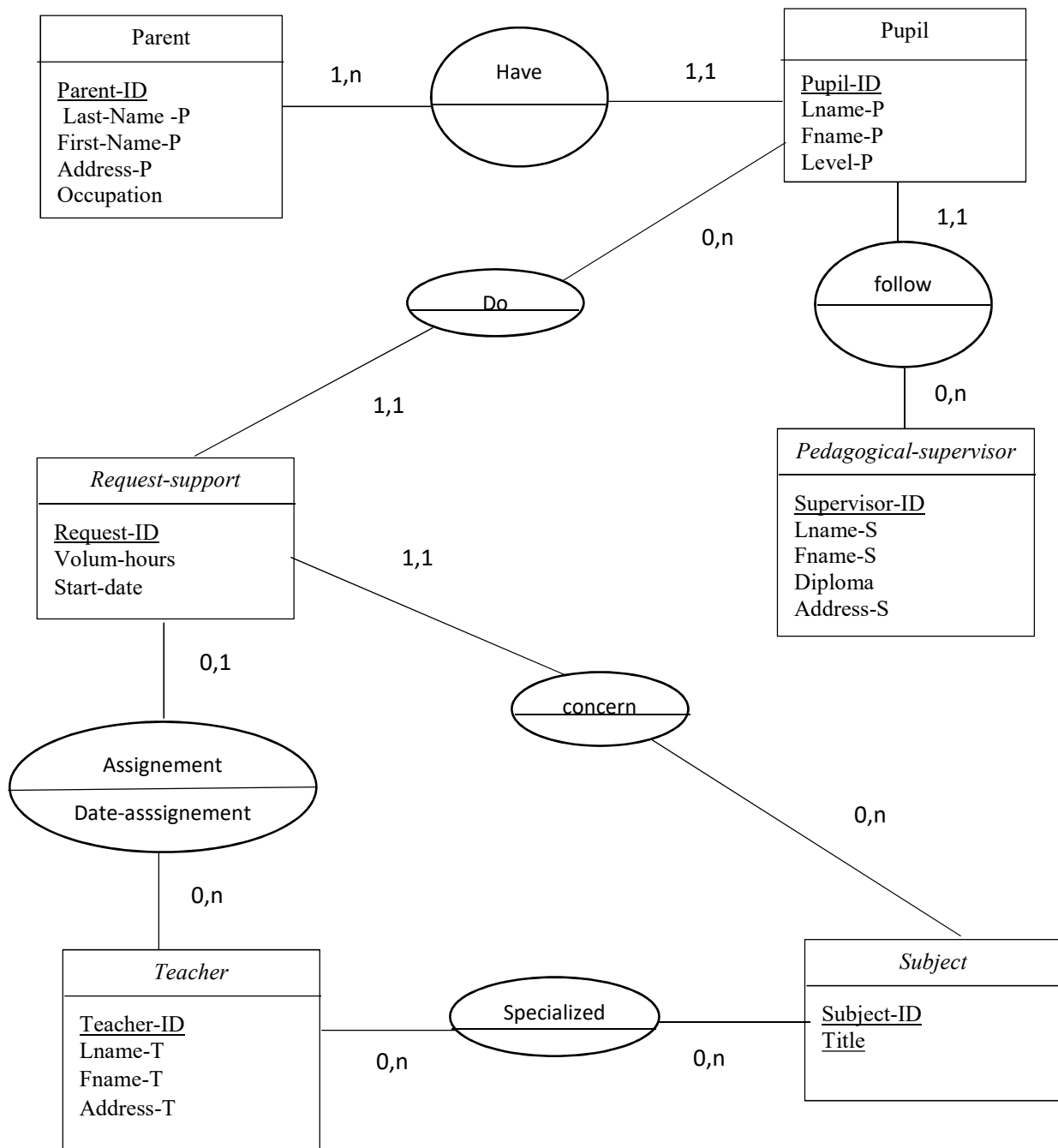


Answer the following questions with justification:

1. Can a client occupy multiple camping places?
2. Can a place be empty?
3. Can two clients occupy the same place?
4. Can there be a category to which no place corresponds?

Exercise 02:

Example of a tutoring course, we consider the E-R model provided below:



Answer the following questions based on the characteristics of this model (indicate if the described situation it is represented with the given model).

1. Can a student follow multiple subjects?
2. Can a request support involve multiple subjects?
3. Can a pedagogical supervisor oversee multiple pupils at the same time?
4. Can a teacher be assigned to more than one support at the same time?
5. Can two pedagogical supervisors oversee a pupil at the same time?
6. Can two different teachers specialize in the same subject?

Exercise 03:

We are considering a vehicle repair company. A repair company has several specialized departments, each comprising a certain number of employees. An employee works in only one department, has a role in the company, and a supervisor called the department head. Their salary depends on their role and their seniority within the company.

The repair company owns large equipment that requires specific qualifications for employees who might use it. Not all employees are qualified to use all equipment; each employee is skilled in operating specific equipment. Equipment is cataloged within the company. Complex equipment consists of multiple components.

A department may be involved in repairing pieces of multiple vehicles. Similarly, the repair of a vehicle may involve multiple departments.

*A repair intervention is always requested by a client and conducted under the supervision of a supervisor. For each repair intervention, a **report** is created. A report includes the name of each department involved, the pieces repaired, and the repair cost. It also contains the total cost of the vehicle repair, the vehicle's check-in date, and the vehicle's check-out date.*

Draw the entity-relationship schema.