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ABSENT : 08
CLASS : 1I - IT
TOPIC : JOBSHEET 3 ERD

1.1 Learning Objective

The objective of this job sheet is to master how to design a database in the conceptual model, specifically on Entity-Relationship Diagram (ERD)

1.2 Entity Relationship Diagram

You have to make a job sheet report and submit it in this format “DATABASE_3_TI1I_YOUR NAME.pdf”.

1.2.1 Database Design

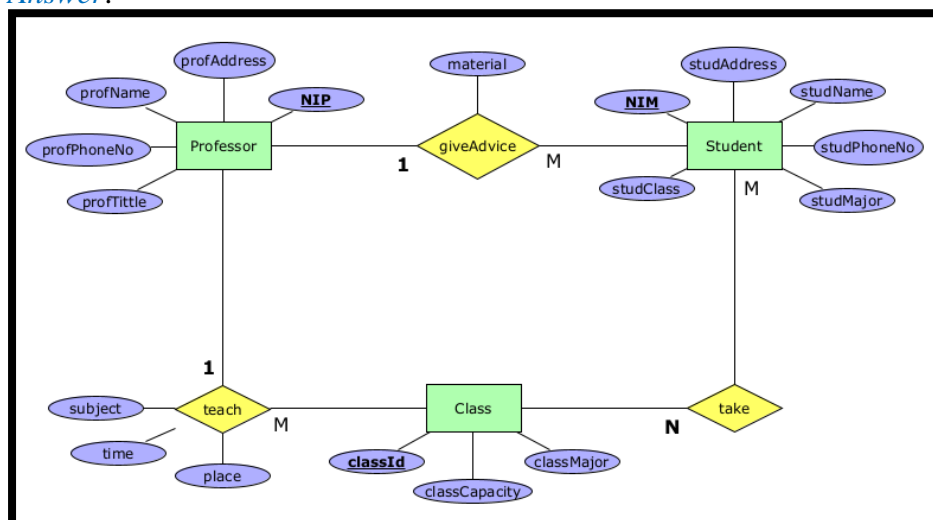
Every system needs to be designed well, especially software systems. It has some requirements analysis, design, coding, testing, and maintenance processes. A system analyst interviews users and stakeholders in the requirement analysis phase, describing data and functional requirements. After the requirements are received, a database designer or system analyst will also design the database based on the needs. Phases of database design can be derived into three parts:

1. Conceptual design This phase transforms data requirements into a conceptual model that describes data entities, relationships, constraints, attributes, and cardinalities. The entity-relationship diagram is a part of this phase.
2. Logical design This phase maps the conceptual data model to the logical data model used by the DBMS (Database Management Systems) as a relational database design model.
3. Physical design This phase creates internal structures needed to store or manage the data efficiently. This phase will define some elements like tablespaces, indexes, etc.

1.3 Exercise

- 1) Please draw ER Diagram for the case study below
 - a. Many students receive advice from a professor (professor to student). One professor advises each student (student to professor).
 - b. A professor is responsible for a large number of classes. A single professor must teach each class.

Answer:



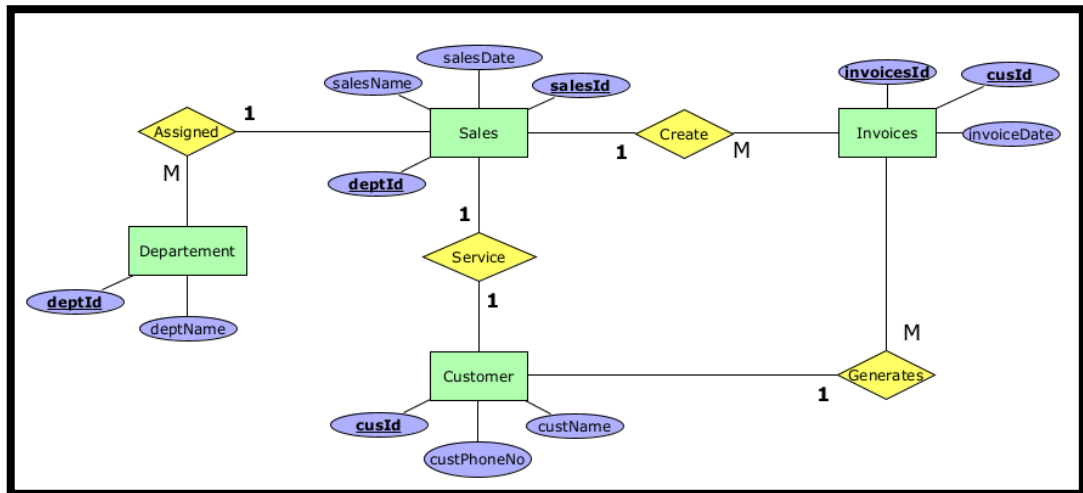


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2) Please draw ER Diagram for the case study below

- A sales representative must create a large number of invoices. A sales representative must write each invoice.
- Each sales representative must be assigned to multiple departments. Each department has only one sales representative. c) A customer must generate numerous invoices. There is only one customer who generates an invoice.

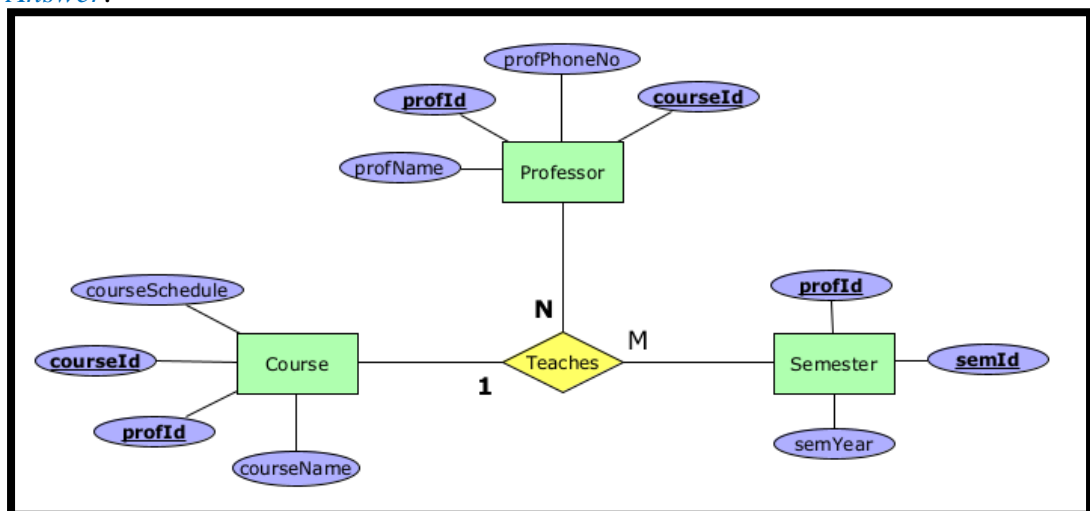
Answer:



3) Please draw ER Diagram for the case study below

- Professors can teach the same course in several semesters, and each offering must be recorded.

Answer:





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4) Please draw ER Diagram for the case study below

- Discounts (Disc-#) are given to customers (Cust-#) on items (Item-#). There can only be one discount rate for each item.
- The items are all part of the same category (Categ-ID).

Answer:

