

Laboratory work №4

1.

- a) What are the main phases in the database design? What is done on each development phase?
- b) What is the entity-relationship(ER) data model?

Answer:

- a) **Initial phase** – characterize fully the data needs of the prospective database users.

Second phase – choosing a data model, applying the concepts of the chosen data model, translating these requirements into a conceptual schema of the database., fully developed conceptual schema indicates the functional requirements of the enterprise.

Final Phase – moving from an abstract data model to the implementation of the database:

Logical Design – deciding on the database schema.

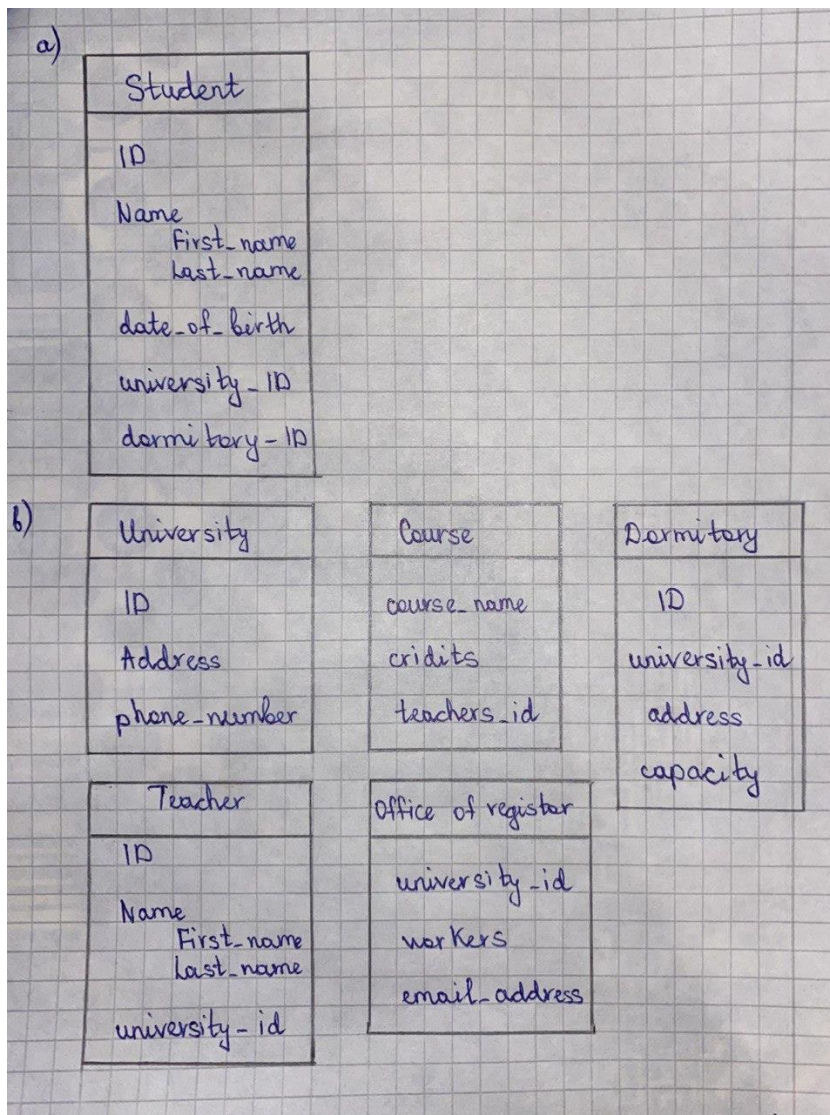
Physical Design – deciding on the physical layout of the database

- b) **Entity Relationship Model (ER Modeling)** is a graphical approach to database design. It is a high-level data model that defines data elements and their relationship for a specified software system. An ER model is used to represent real-world objects.

2.

- a) Create entity “**Student**” with at least 5 attributes (one for each type of attribute: simple, composite, derived, multivalued)
- b) Create entities “**University**”, “**Course**”, “**Dormitory**”, “**Teacher**”, “**Office of theRegistrar**” with at least 3 attributes each. (Entity types should be correct on datamodel)

Answer:



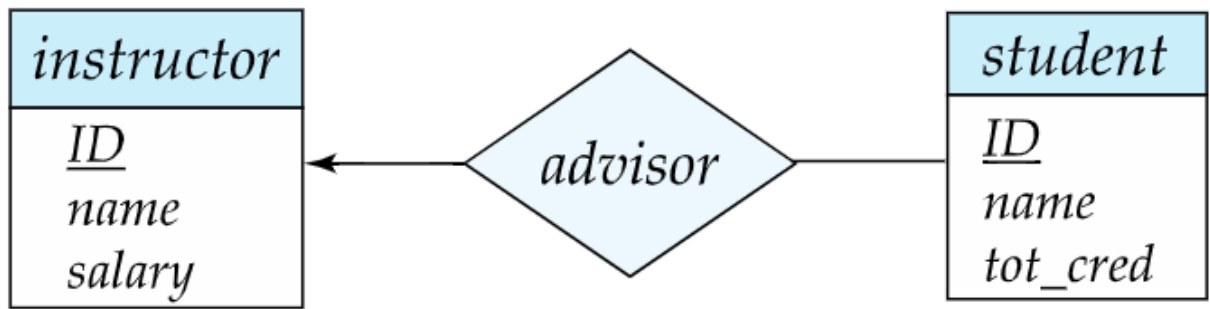
3. Give examples for **one-to-many**, **one-to-one**, **many-to-many**, **many-to-one** relations. (Draw the examples as a scheme)

Answer:

One-to-one



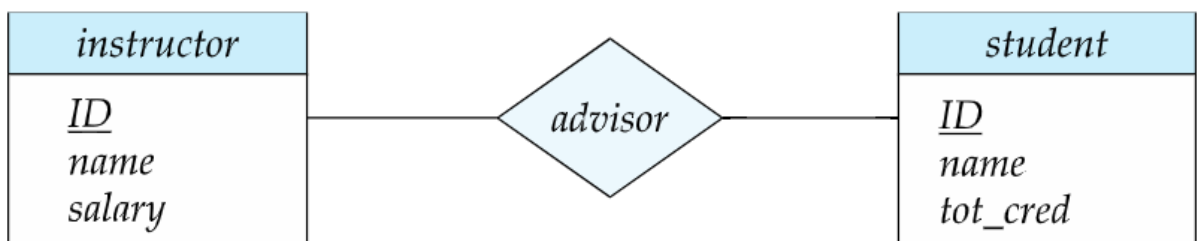
One-to-many



Many-to-one

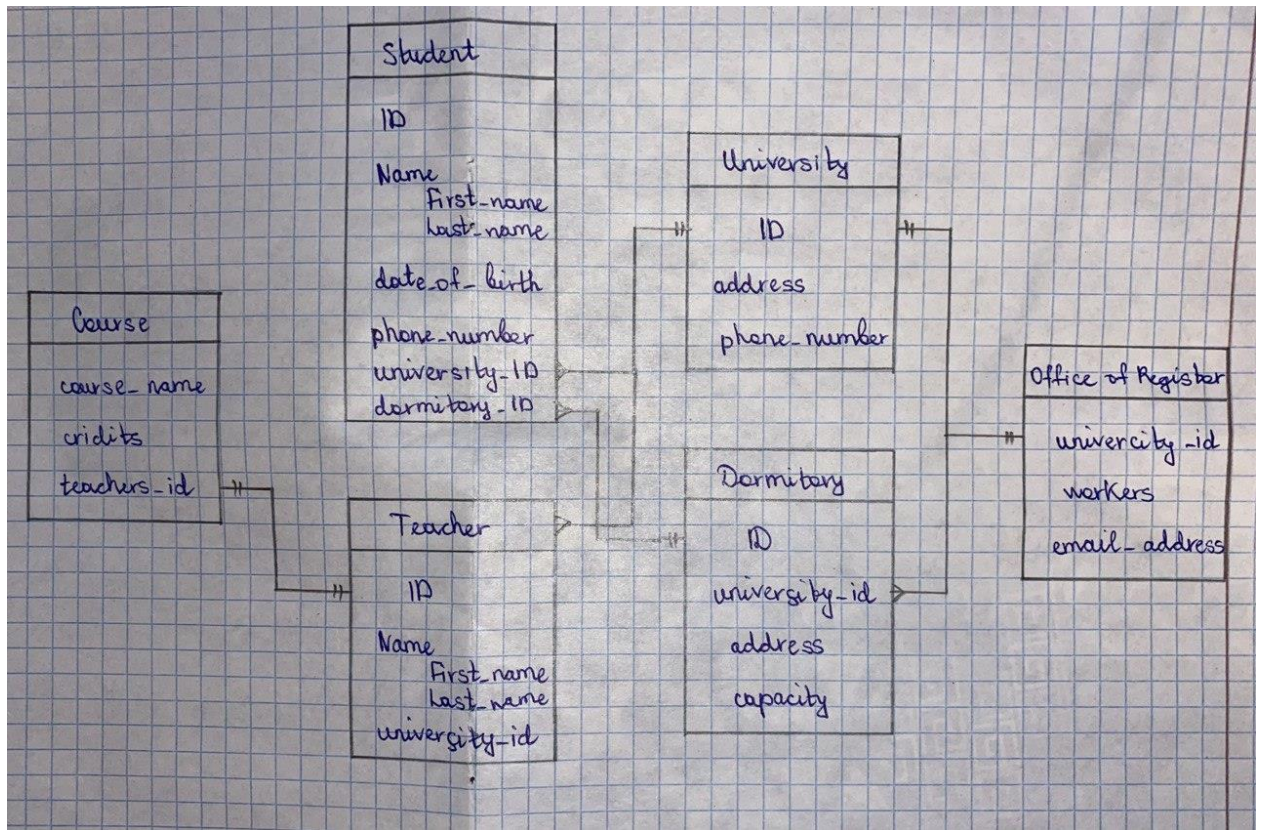


Many-to-many



4. Create ER data model with relations using data from the second task.

Answer:



5. Create ER data model for IT company. (At least 5 entities and 8 relations)

Answer:

