Laboratory work #4 **Beisenova Fariza**

#1

a) What are the main phases in the database design? What is done on each development phase?

1. Initial phase - characterize fully the data needs of the prospective database users.
2. Second phase - choosing a data model:

Applying the concepts of the chosen data model. -> Translating these requirements into a conceptual schema of the database. -> A fully developed conceptual schema indicates the functional requirements of the enterprise.

3. 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

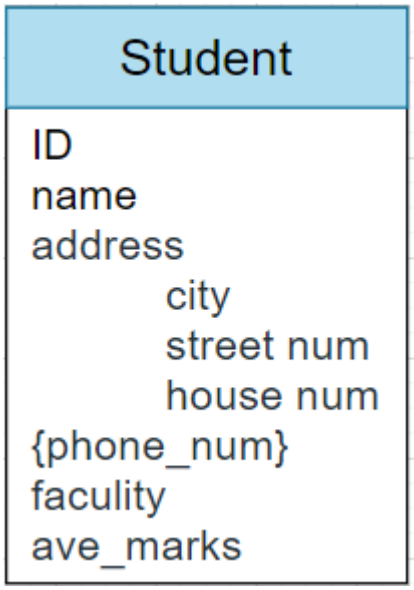
b) What is the entity-relationship (ER) data model?

Entity-relationship data model is a high-level conceptual data model diagram. ER helps to systematically analyze data requirements to produce a well-designed database. ER modelling is based on two concepts:

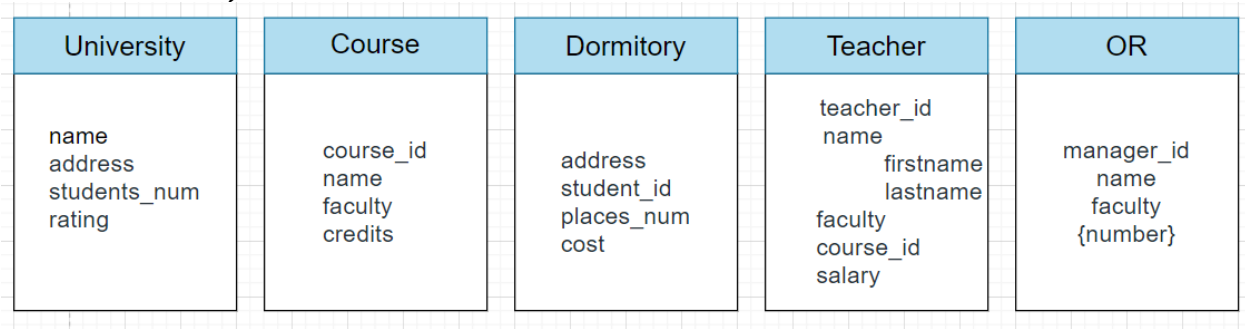
- Entities, defined as tables that hold specific information (data)
- Relationships, defined as the associations or interactions between entities

#2

a) Create entity "Student" with at least 5 attributes (One for each type of attribute:simple, composite, derived, multivalue



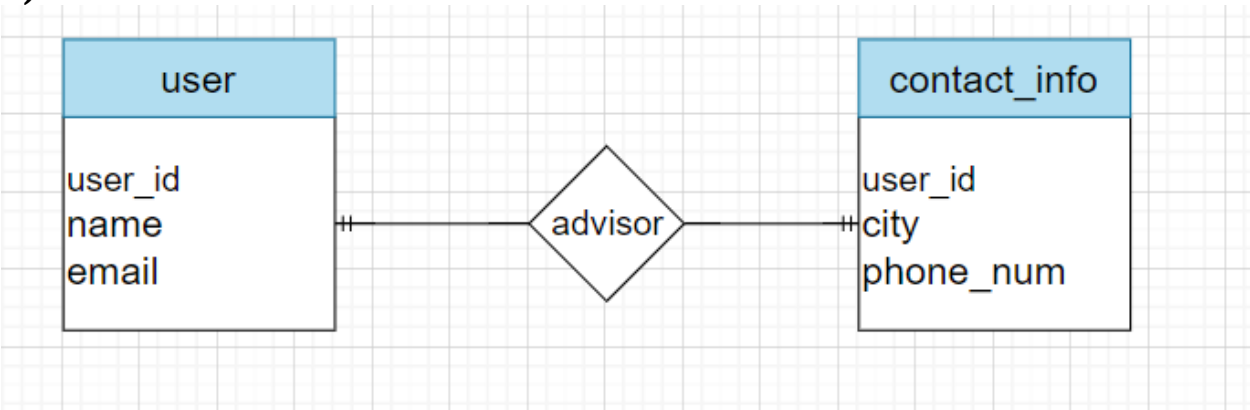
b)Create entities “University”, “Course”, “Dormitory”, “Teacher”, “Office of the Registrar” with at least 3 attributes each. (Entity types should be correct on data model)



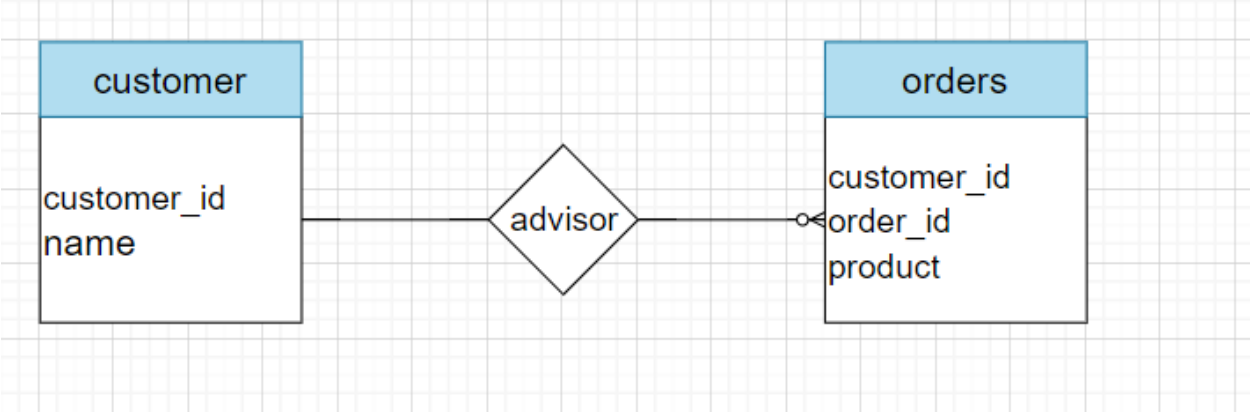
#3

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

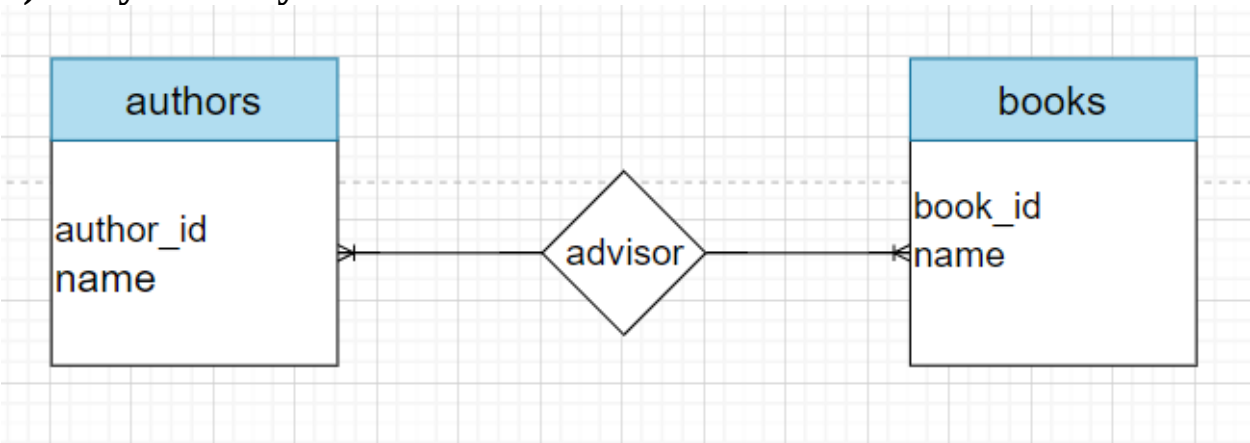
1)one to one relation:



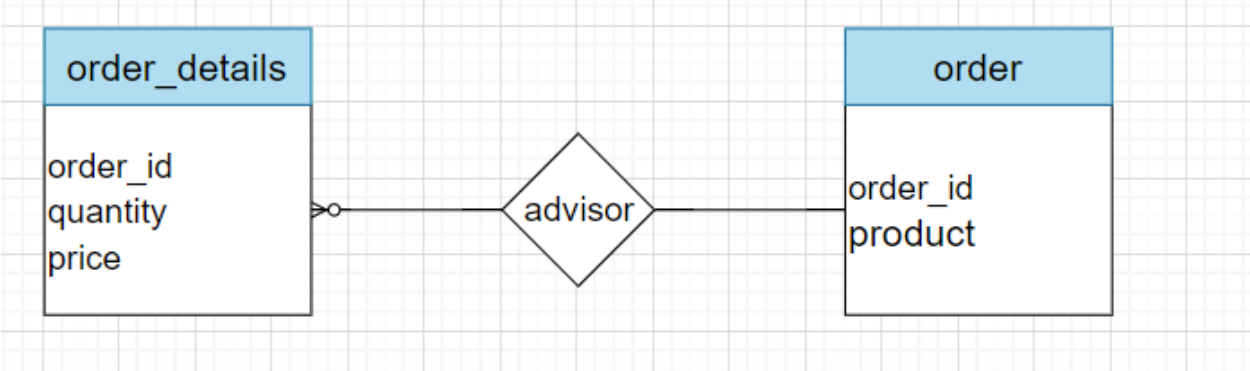
2)one to many relation:



3)many to many relation:

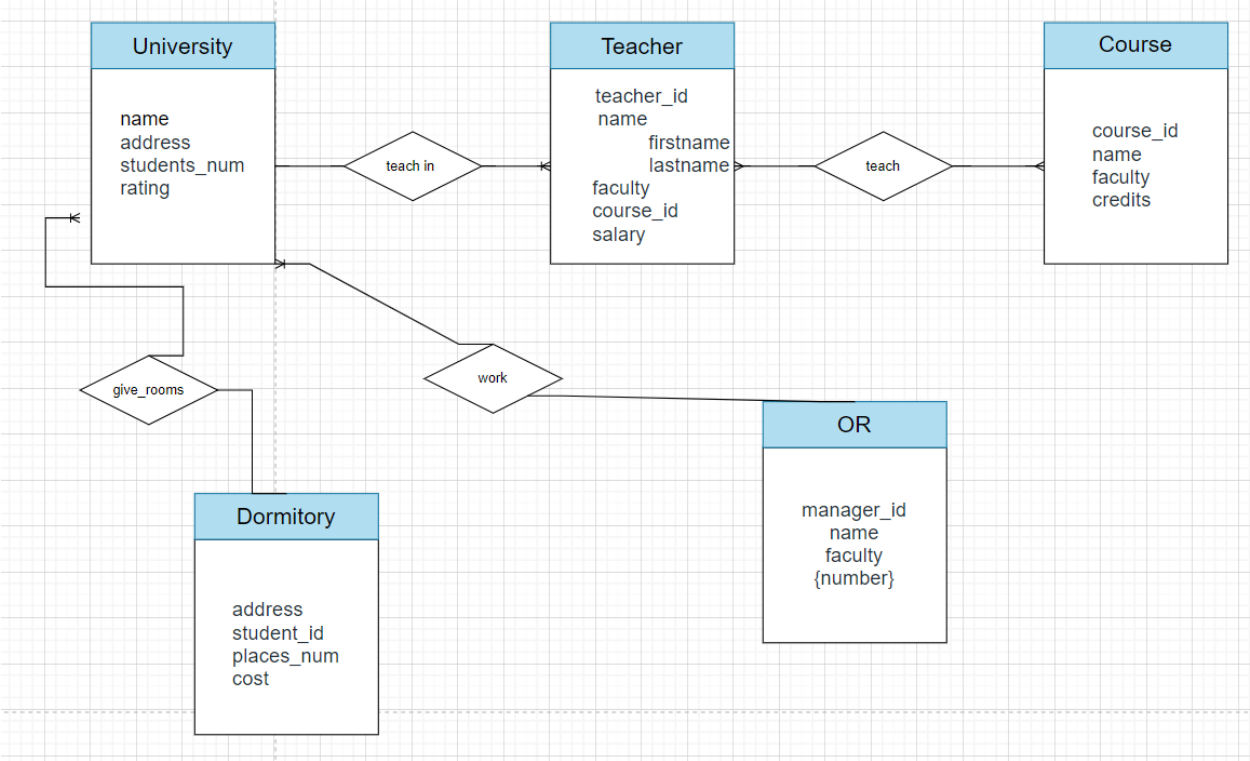


4)many to one relation:



#4

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



#5

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