Lab4 - Kabyl Kanat

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

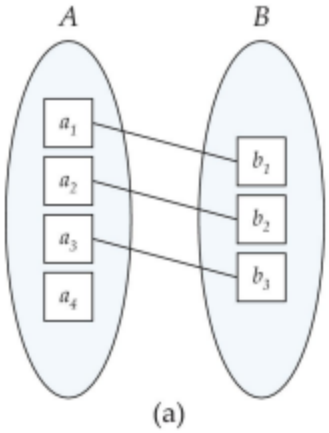
▪ Initial phase -- characterize fully the data needs of the prospective database users.
▪ Second phase -- choosing a data model
  • Applying the concepts of the chosen data model
  • Translating these requirements into a conceptual schema of the database.
  • A fully developed conceptual schema indicates the functional requirements of the enterprise.
    ▪ Describe the kinds of operations (or transactions) that will be performed on the data.

▪ Final Phase -- Moving from an abstract data model to the implementation of the database

1. b) What is the entity-relationship (ER) data model?
   Entity: a “thing” or “object” in the enterprise that is distinguishable from other objects
   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.

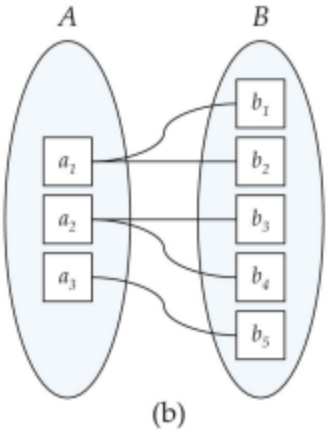
2. a)Student(id, fullname(name, surname), faculty, has_dorm, gender, {number})
   b) University(name, students_count, location), Dormitory(stud_id, student_name, corpus, room_number, {number}), Teacher(t_id, name(name, surname), course_id, experience, faculty),
   OfficeOfRegistrar(registrar_id, fullname, {number}, faculty)

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



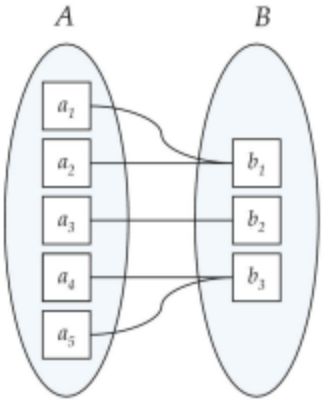
(a)

One to one



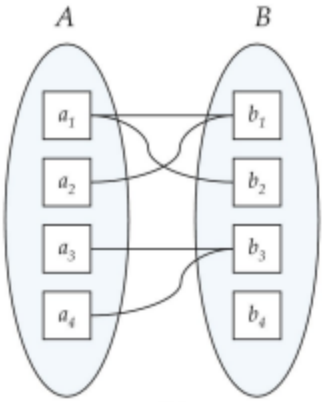
(b)

One to many



(a)

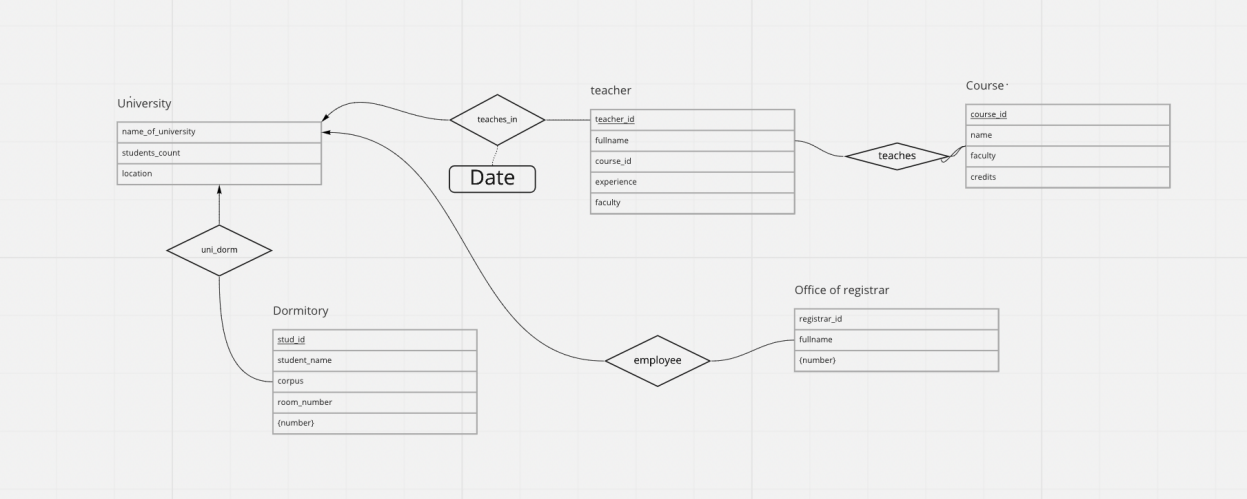
Many to one



(b)

Many to many

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)