Bissenova Anara / 20BD/ Lab4

Task1.

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

Initial Phase: characterize the information needs of the database users

Second Phase: choosing a data model, translating requirements into a schema of the database, indicate the functional requirements of the enterprise
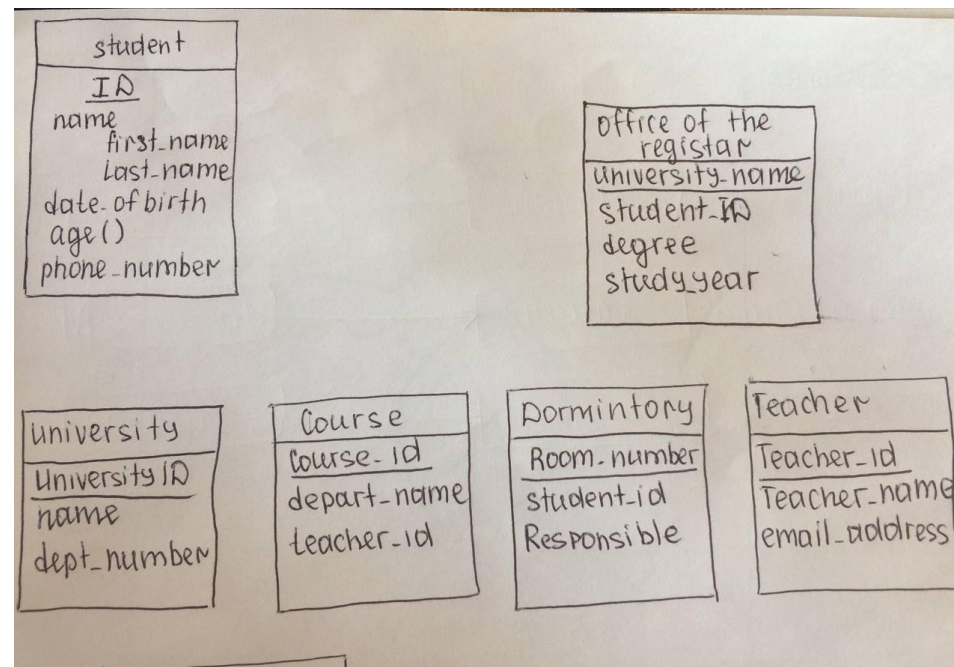
Final Phase: implementation of the database, logical design – deciding on the schema, attributes creation, relation schemas, physical design – deciding on the physical layout of the database.
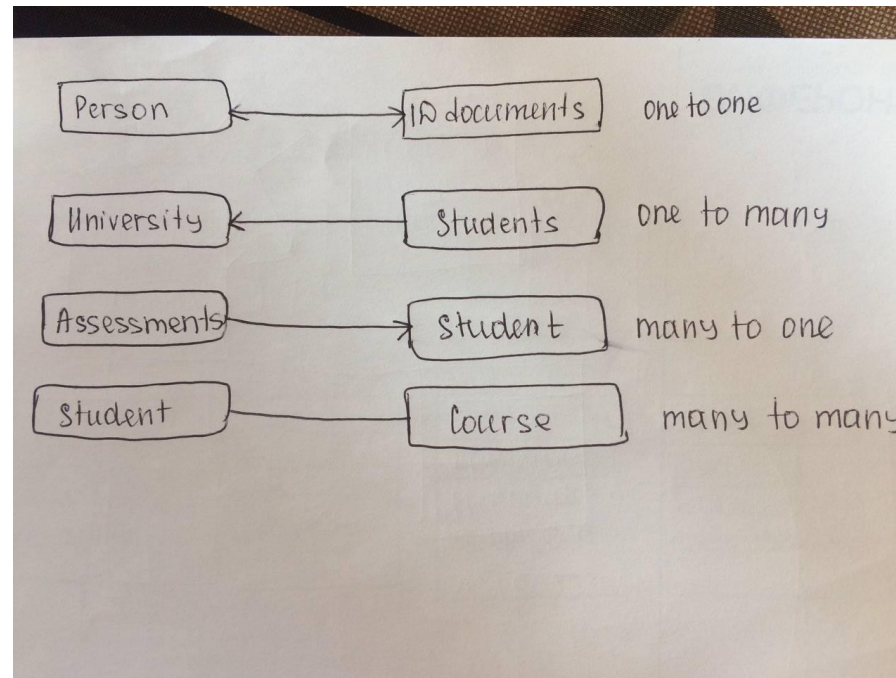
b) What is the entity-relationship (ER) data model?

- Models an enterprise as a collection of entities and relationships
- Entity: a "thing" or "object" in the enterprise that is distinguishable from other objects
- Described by a set of attributes
- Relationship: an association among several entities
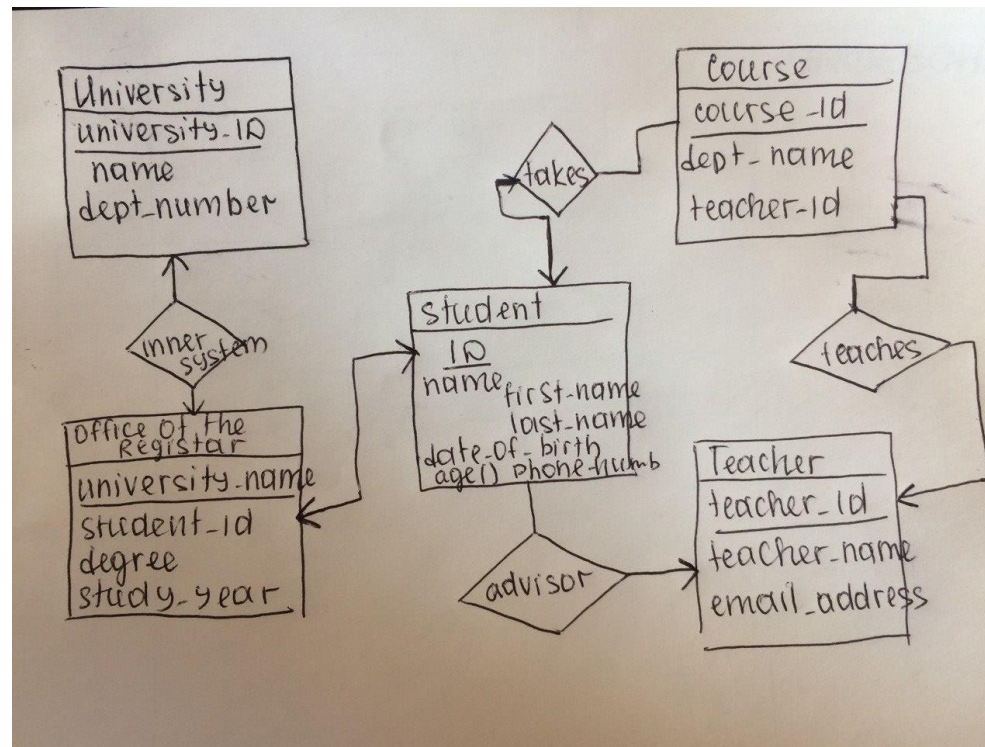- Represented diagrammatically by an entity-relationship diagram:

Task2.

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 the Registrar" with at least 3 attributes each.

Task3. Give examples for one-to-many, one-to-one, many-to-many, many-to-one relations.

Person	→	ID documents	one to one
University	←	Students	one to many
Assessments	→	Student	many to one
Student	—	Course	many to many

Task4. Create ER data model with relations using data from the second task.

Task5. Create ER data model for IT company.

Office
- office-id
- company-name
- num-emp
- budget

Company
- name
- CEO-name
- num-off
- num-emp

Staff — office-id, employee-ID

admin — name, office-id

departments — name, ID, dept. name

employee
- ID
- name
- position
- salary
- dept-name

Work — office-id, project-name

Order — name, project name

Responsible — ID, project name

Project
- project-name
- num-team
- specialization
- office-id
- budget

history — ID

Result — ID, name

Report
- ID
- project-name
- budget
- text-info
- budget
- income
- company-name