

# Laboratory work 4

1) 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.
- 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.

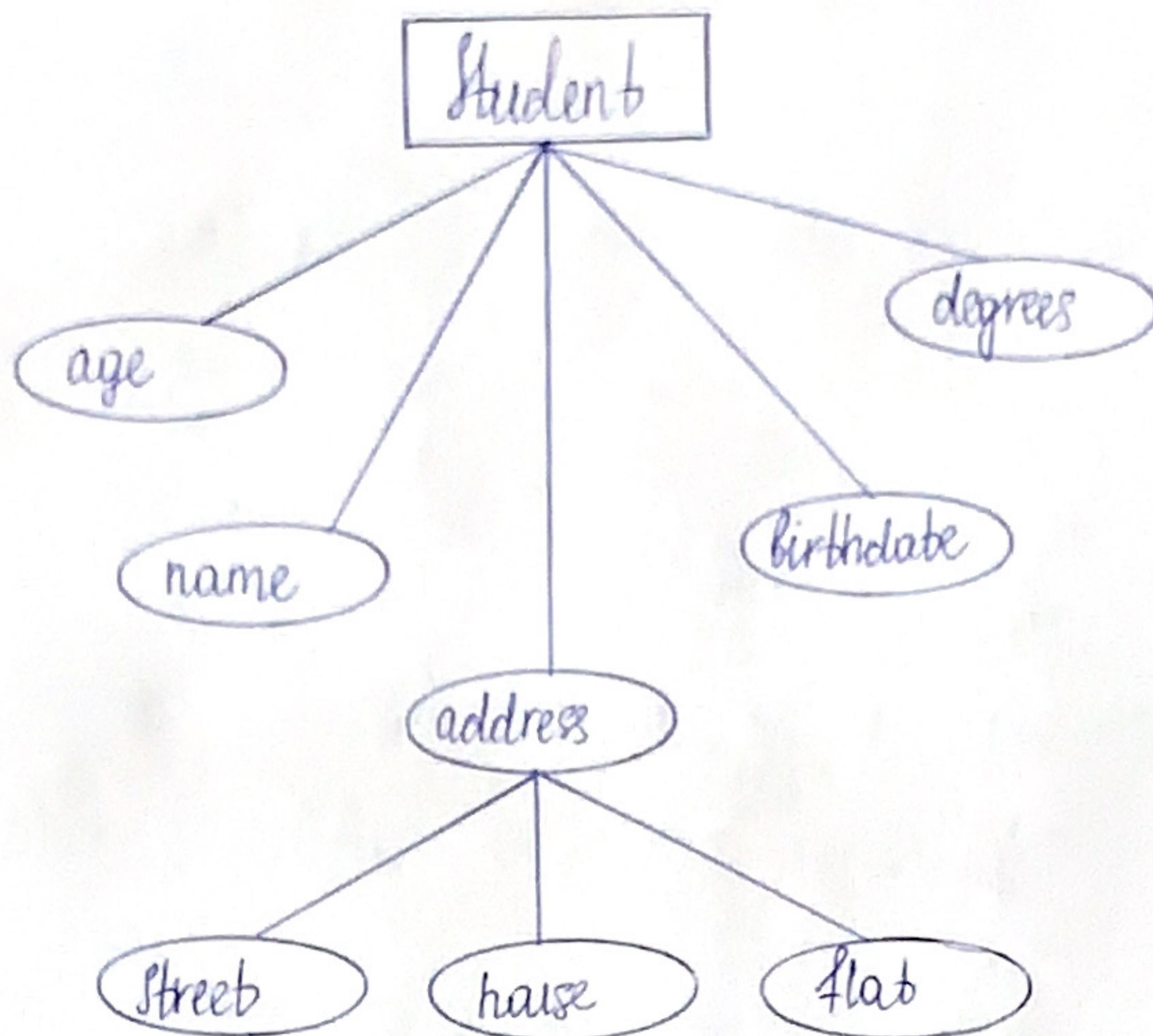
- Logical design - deciding on the database schema.
  - Database design requires that we find a "good" collection of relation schemas
  - Business decision - What attributes should we record in the database?
  - Computer science decision - What relation schemas should we have and how should the attributes be distributed among the various relation schemas?
- Physical design - deciding on the physical layout of the database.

b) Entity Relationship 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 diagramm:

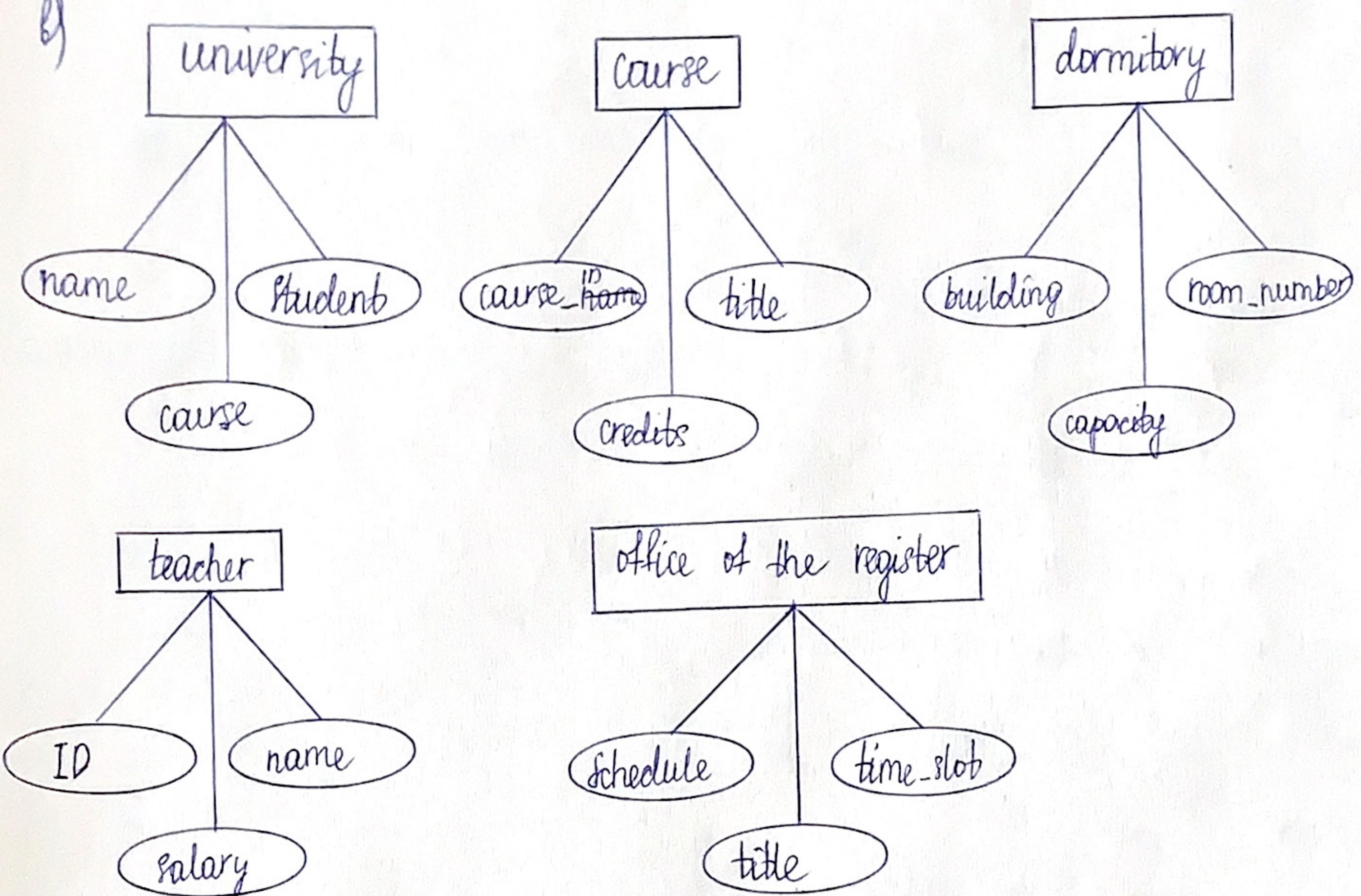
2.

a)



simple : name  
 composite : address  
 multivalued : degrees  
 derived : age

b)



3.

