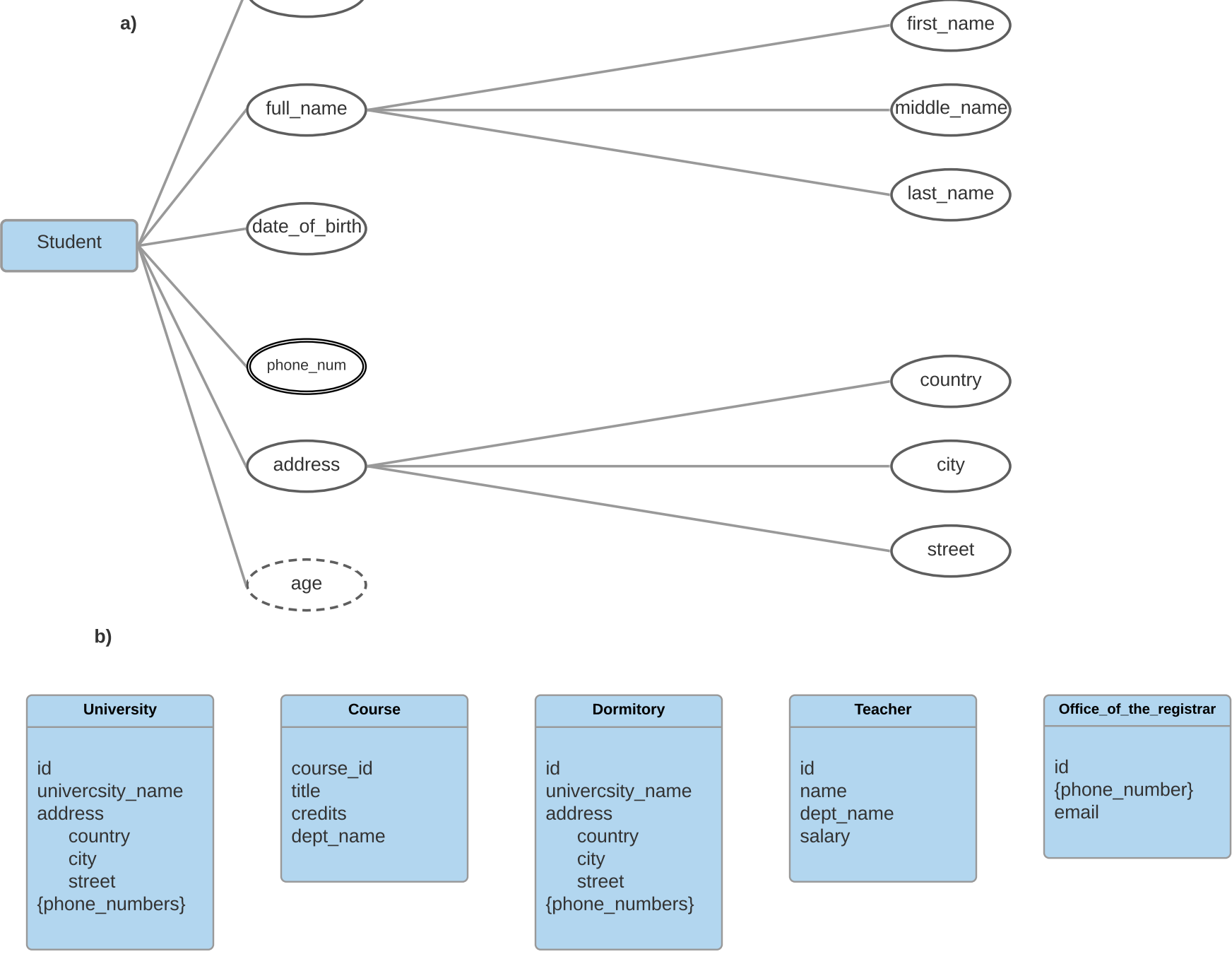


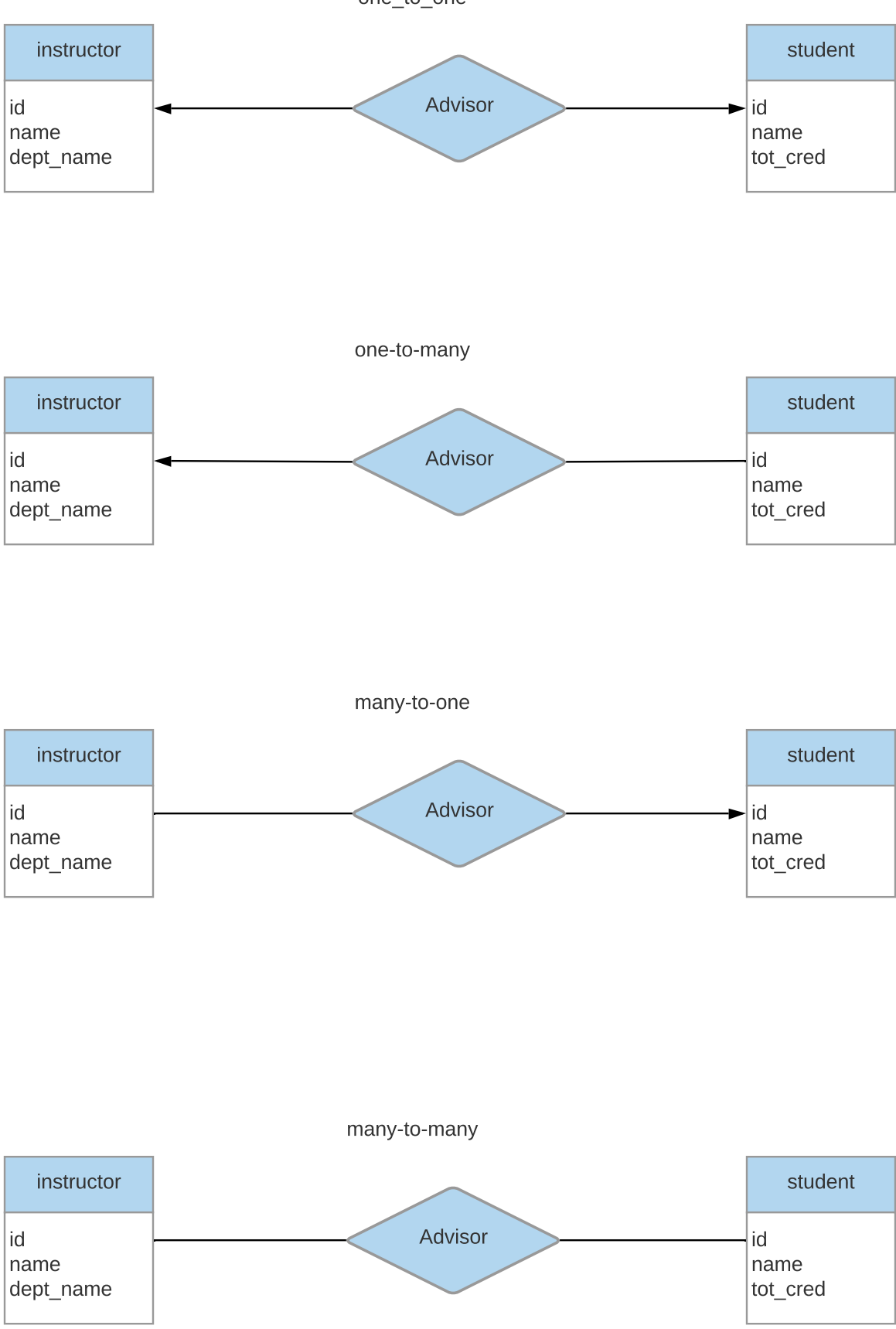
TASK_1

- 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 diagram

TASK_2

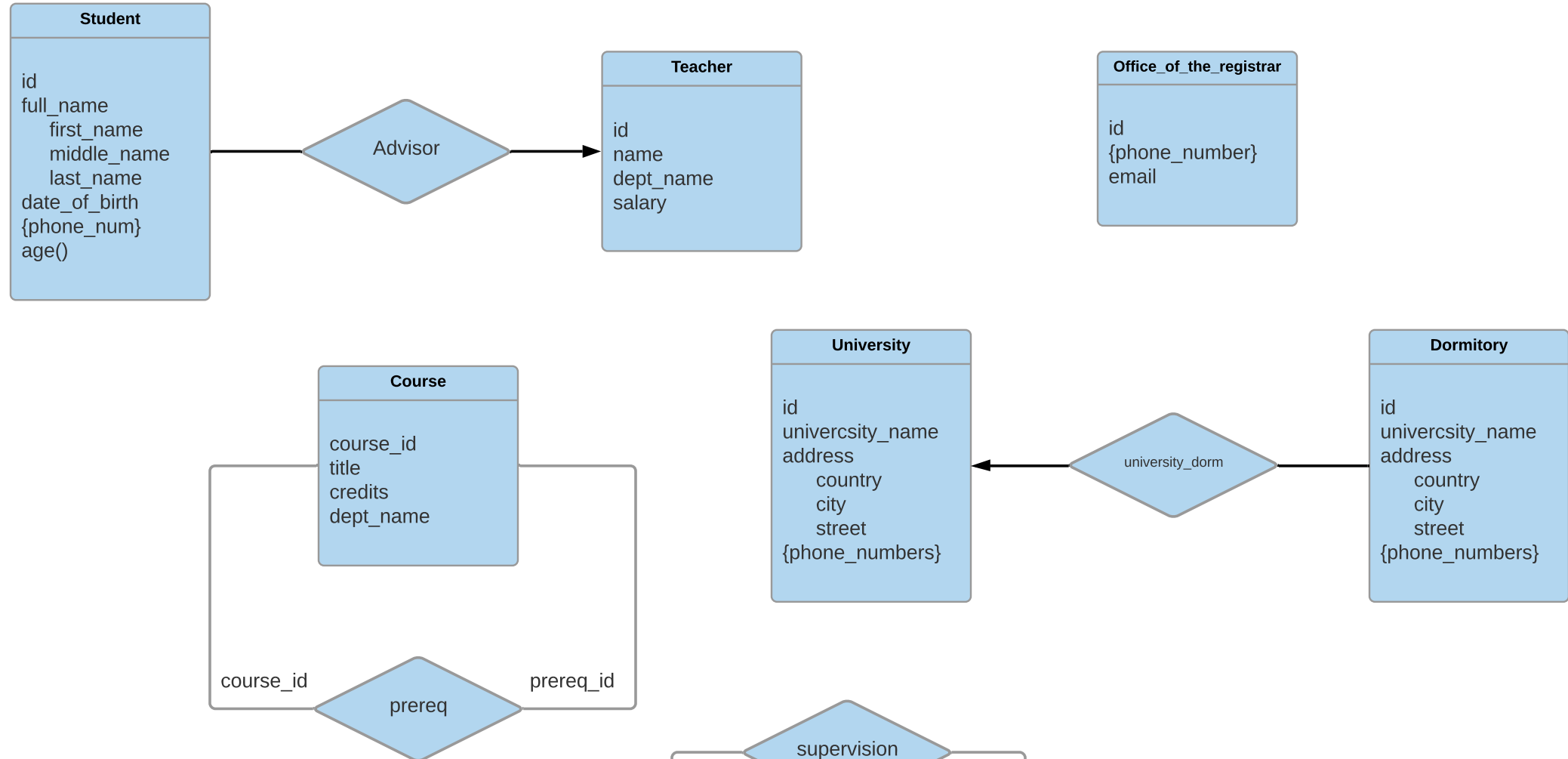


TASK_3



- One-to-one relationship between an instructor and a student:
 - A student is associated with at most one instructor via the relationship advisor
 - A student is associated with at most one department via stud_dept
- one-to-many relationship between an instructor and a student:
 - an instructor is associated with several (including 0) students via advisor
 - a student is associated with at most one instructor via advisor
- In a many-to-one relationship between an instructor and a student:
 - an instructor is associated with at most one student via advisor
 - and a student is associated with several (including 0) instructors via advisor
- An instructor is associated with several (possibly 0) students via advisor
- A student is associated with several (possibly 0) instructors via advisor

TASK_4



TASK_5

