

1.

a) There are in total three main phases in the database design:

Initial phase – determining what data you will be dealing with;

Second phase – determining the data model you will be using, making a conceptual schema of the future database. Describing the functionality of the database.

Final phase – implementation of the database, consists of two parts:

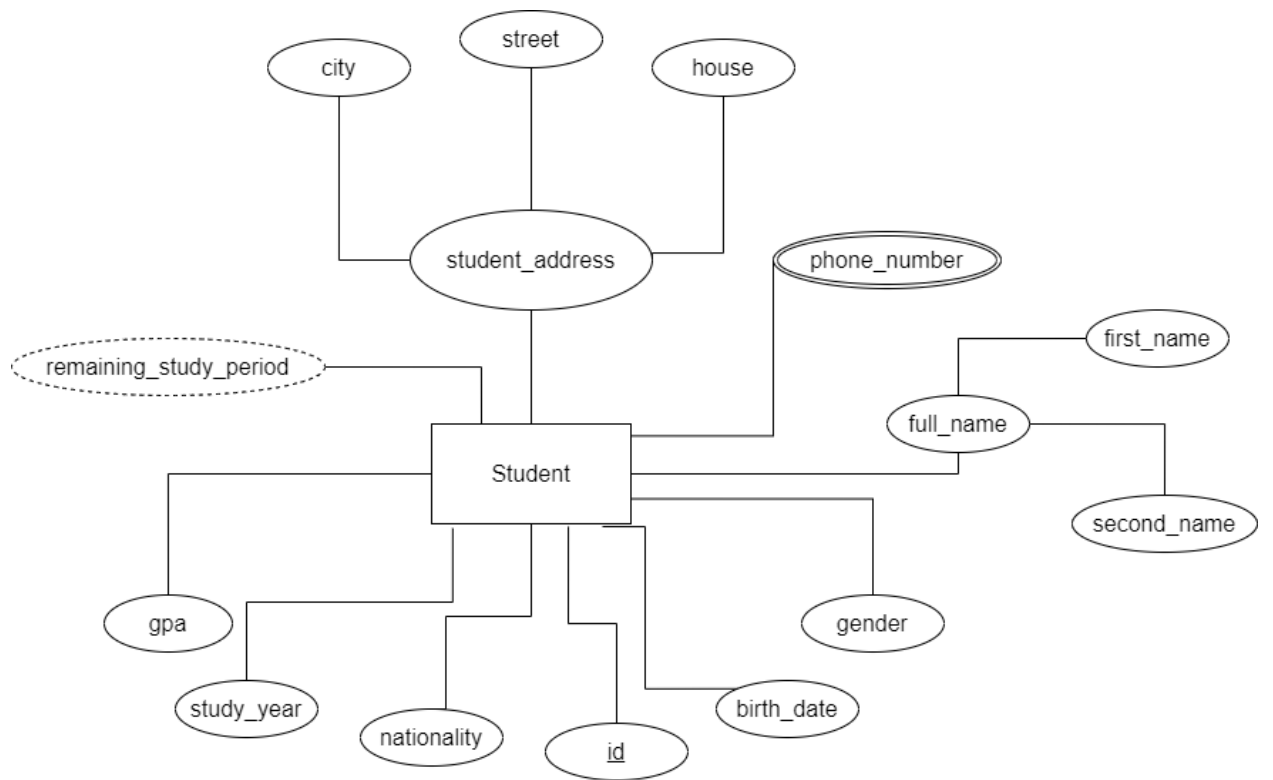
First is logical design – constructing the database schema, what relations should be created, what attributes they should consist of, process of transferring a conceptual schema into a schema for the data model of a chosen DBMS.

Second is physical design – transferring entities into relations, instances into rows, attributes into columns. While this process, you should ensure avoiding data redundancies.

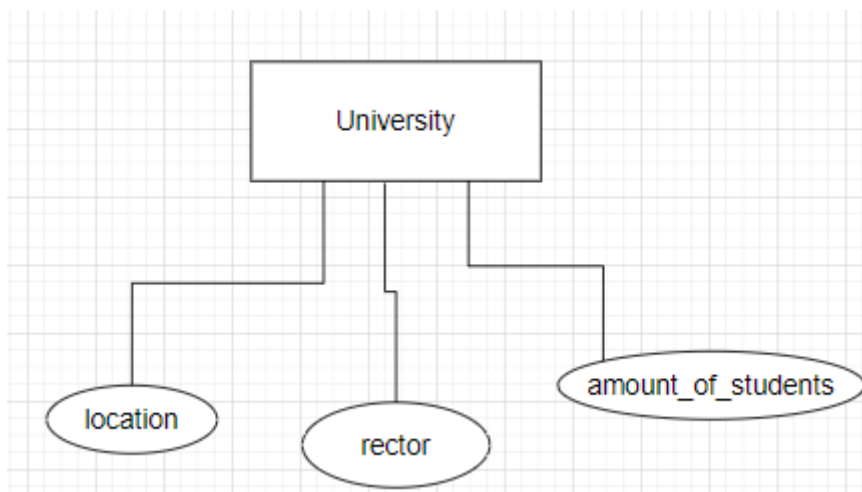
b) Entity Relationship Model – is a graphical approach to database design. ER model consists of entities and relationships. Entity is described by a set of attributes.

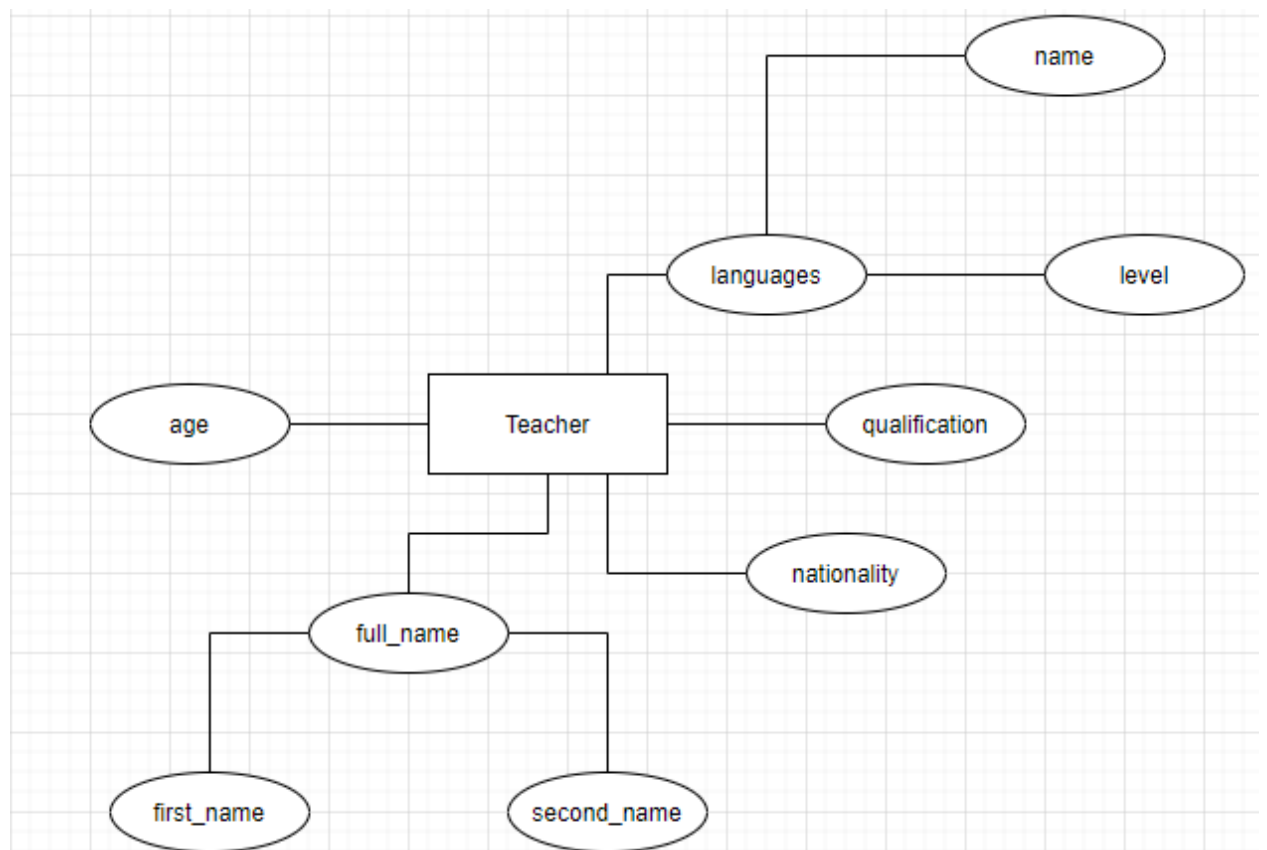
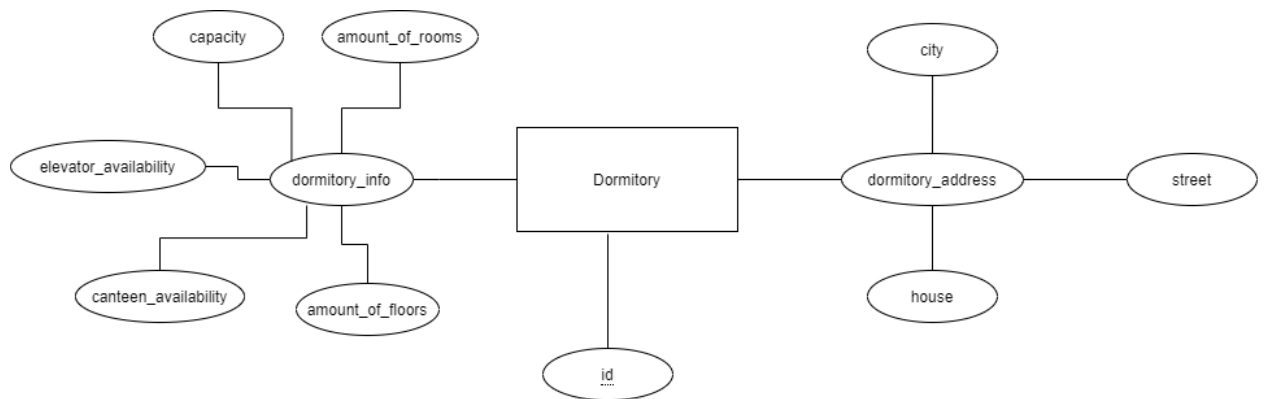
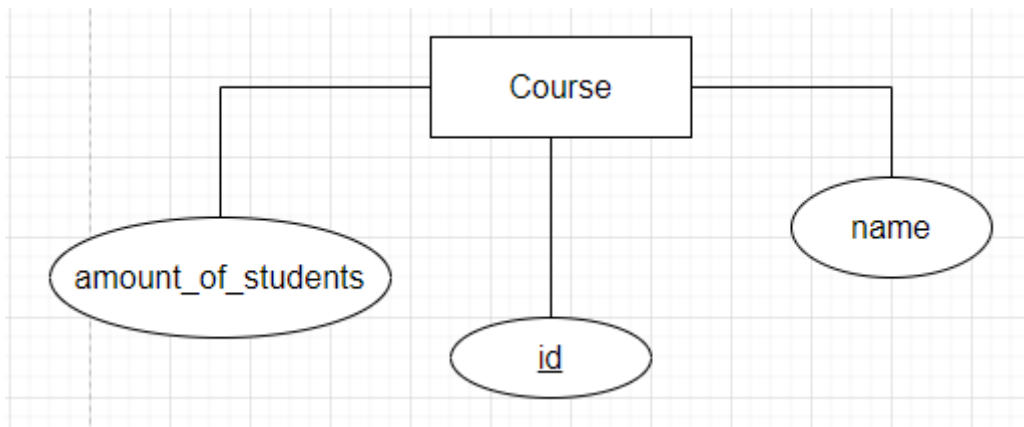
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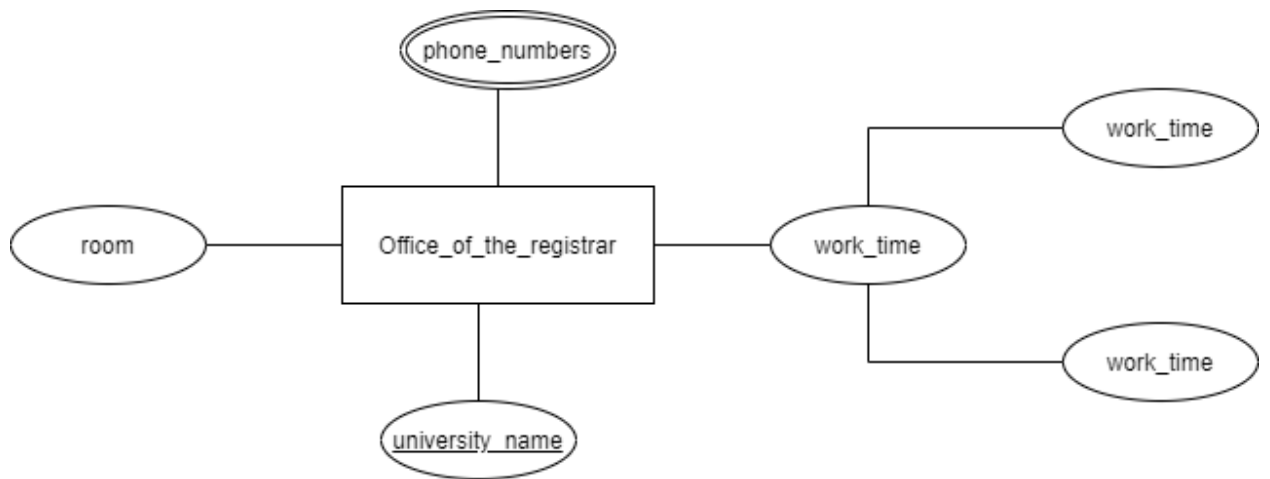
a)



b)

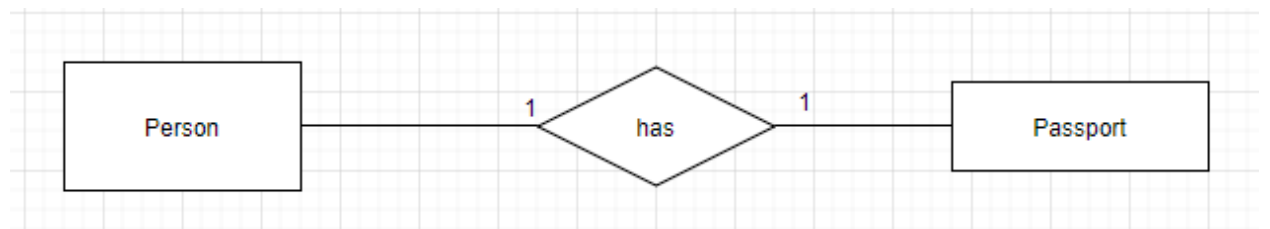




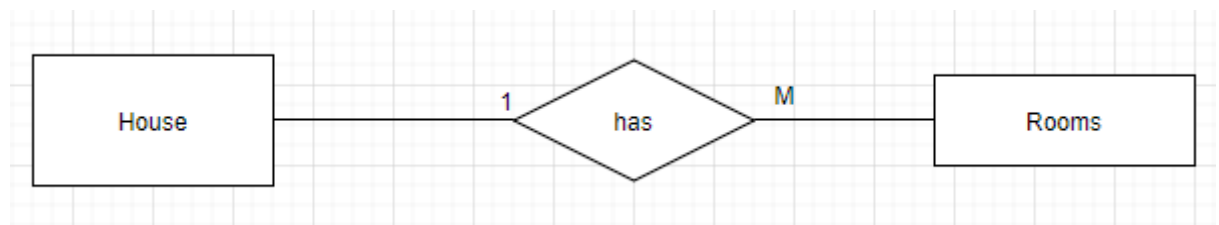


3.

One to One:



One to Many:



Many to One:



Many to Many:



