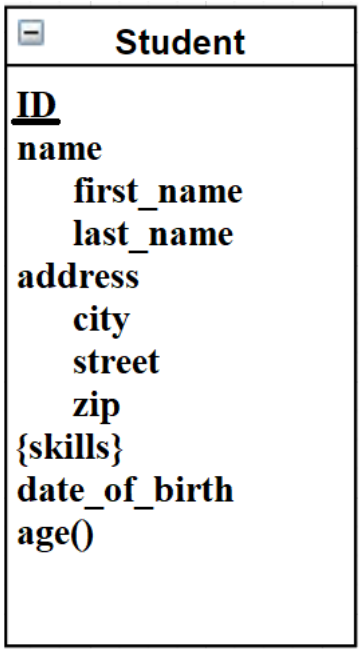
1)

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
Describe the kinds of operations (or transactions) that will beperformed on the data.
Final phase - Moving from an abstract data model to the implementation of the database
Logical Design - Deciding on the database schema.
Physical Design -Deciding on the physical layout of the database

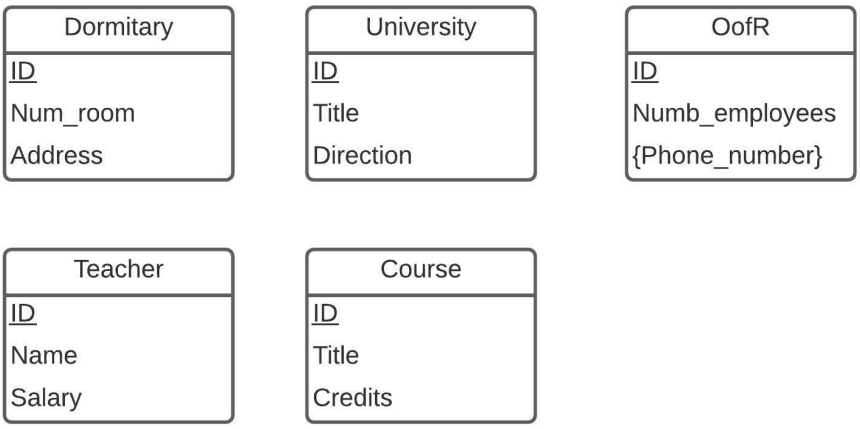
b) The entity-relationship (E-R) data model was developed to facilitate database design by allowing specification of an enterprise schema that represents the overall logical structure of a database Entity Relationship Model (ER Modeling) is a graphical approach to database design. It is a high-level data model that defines data elements and their relationship

2)

a)

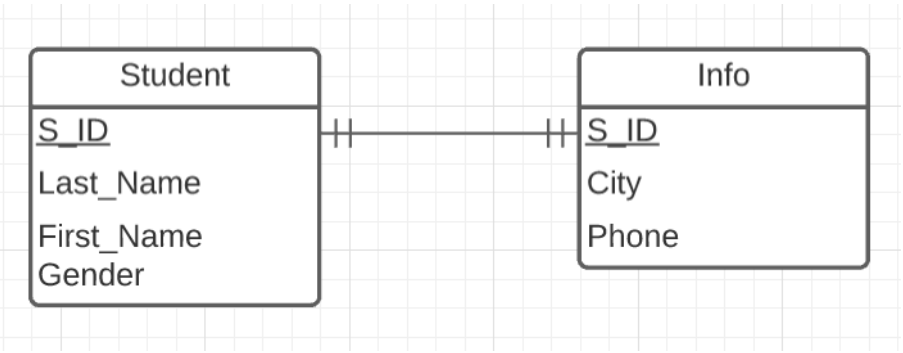



b)

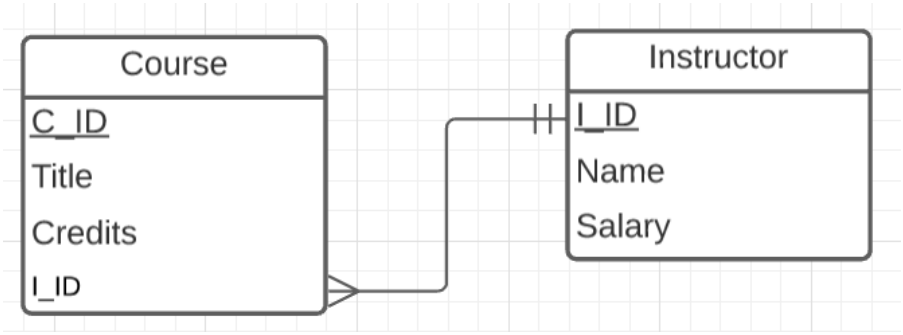



3)

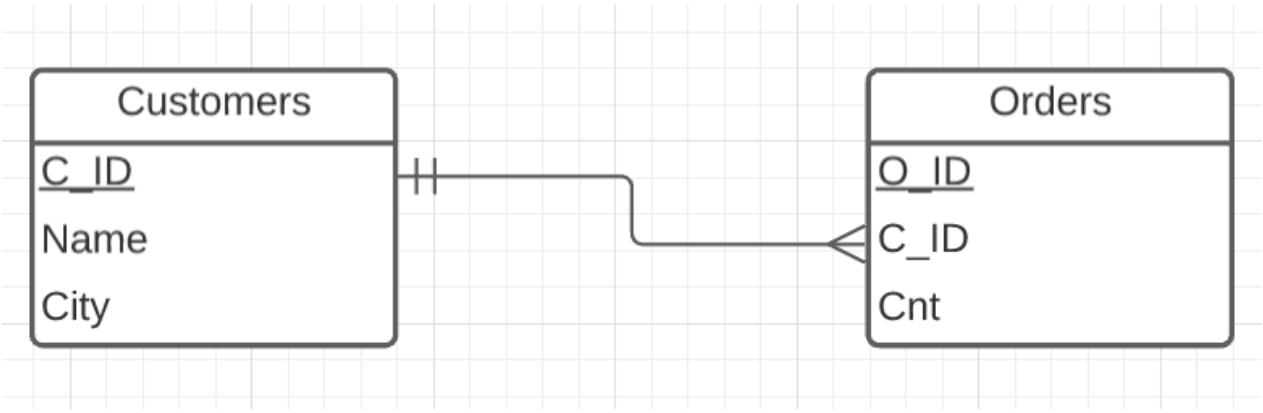
One-to-one



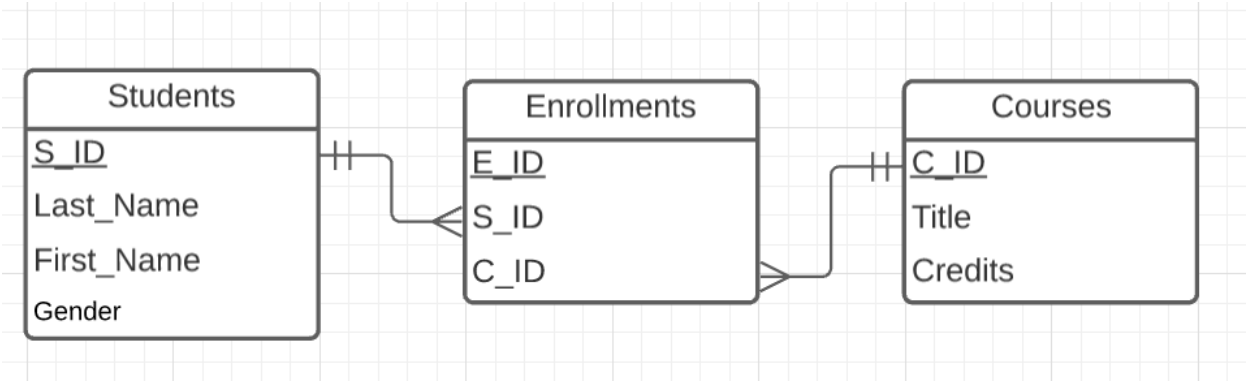

Many-to-one



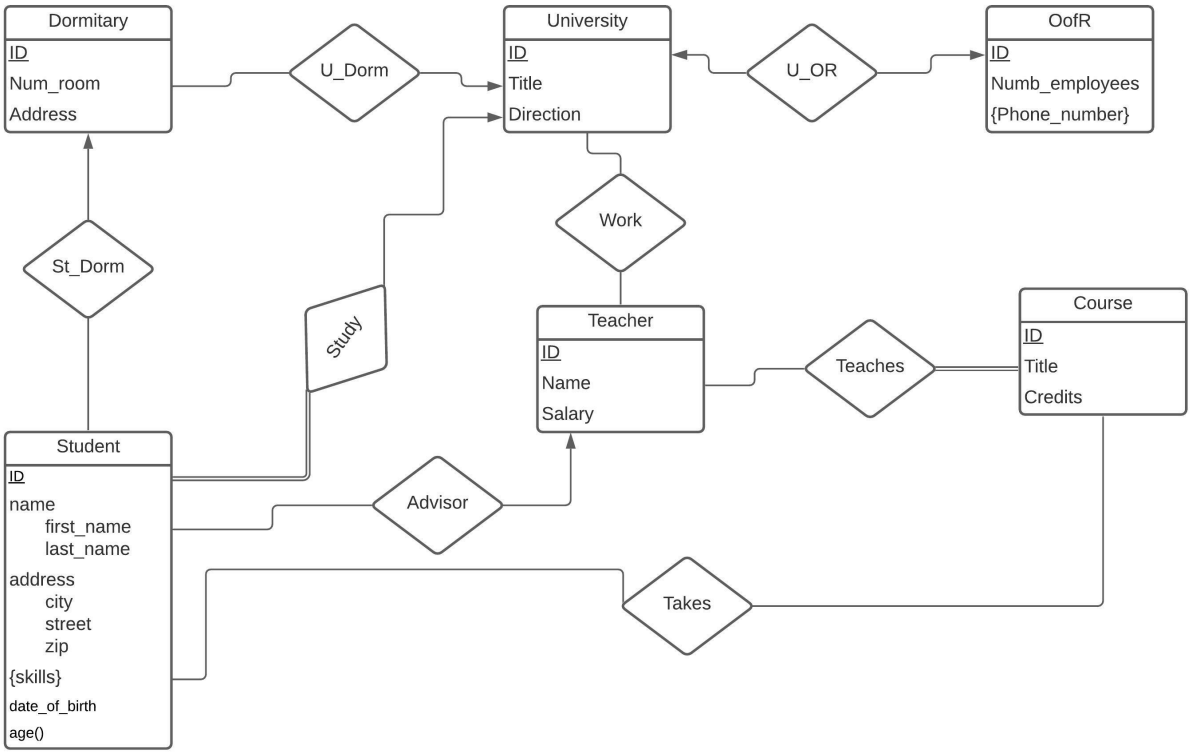

One-to-many



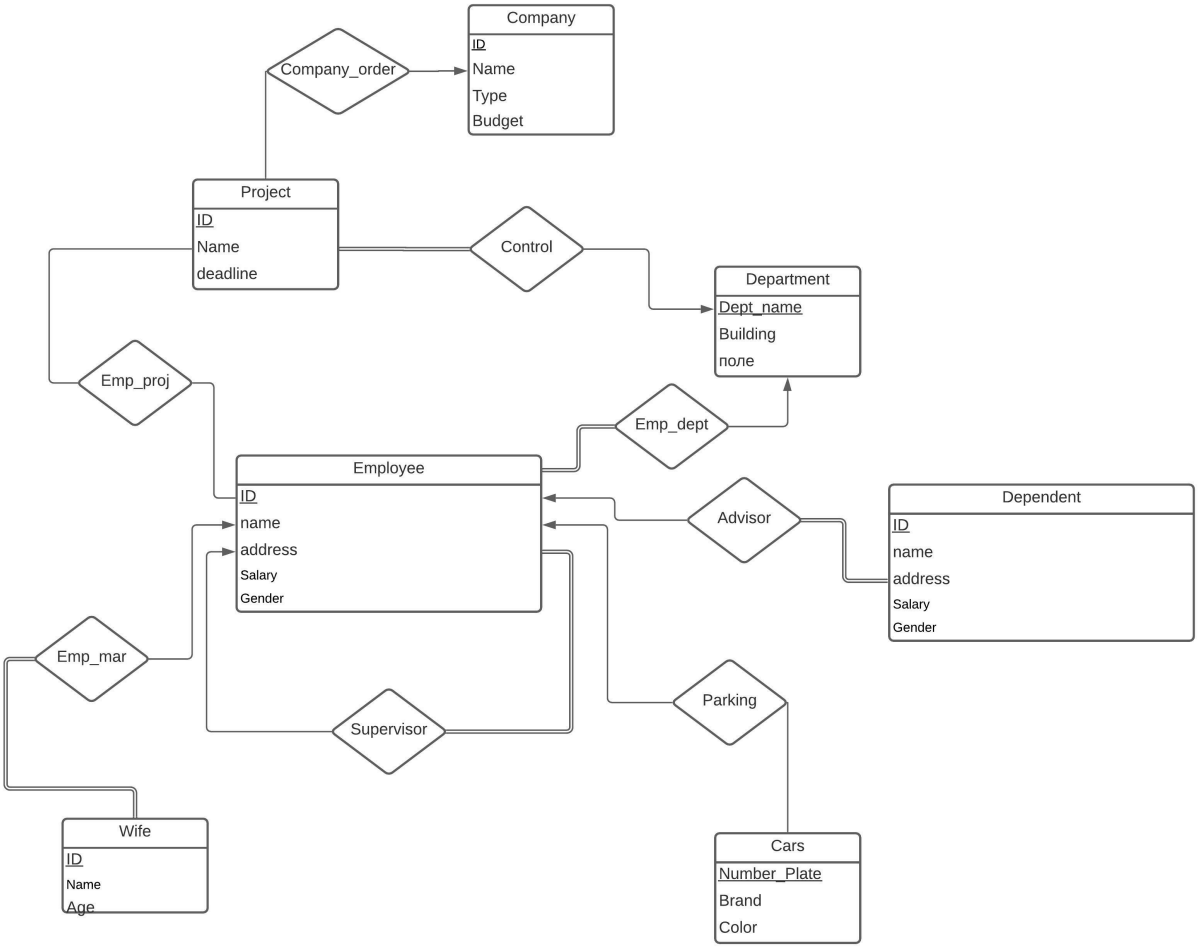

Many-to-many




4.




5.


Company
ID
Name
Type
Budget
Company_order
Project
ID
Name
deadline
Control
Department
Dept_name
Building
поле
Emp_proj
Emp_dept
Employee
ID
name
address
Salary
Gender
Advisor
Dependent
ID
name
address
Salary
Gender
Emp_mar
Parking
Supervisor
Wife
ID
Name
Age
Cars
Number_Plate
Brand
Color