1) 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

2) A)Student
   - Age
   - Name
     - First_Name
     - Second_Name
   - Average_GPA
   - Hobbies[0..*]

   B)University
   - Name
   - Address
     - Country
     - City

   Course
   - Id
   - Name
   - Teacher.id[0..*]

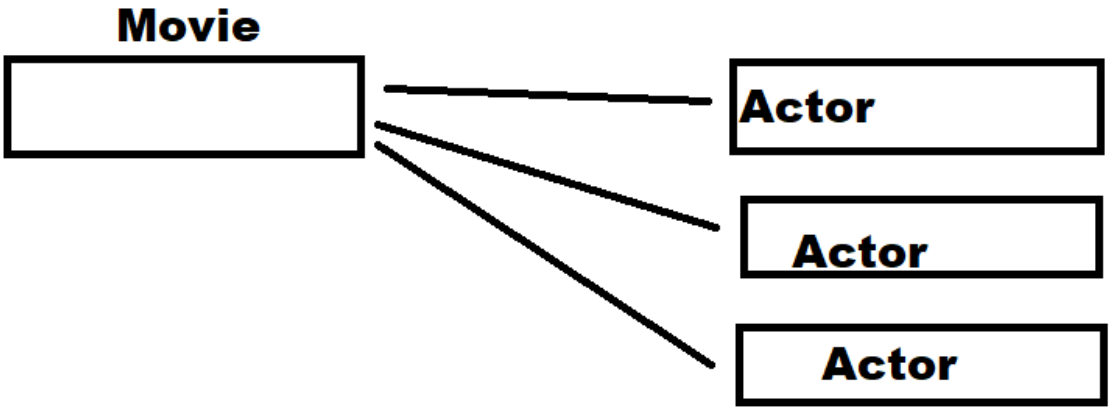
   Dormitory
   - Address
   - Slots
   - Price
     - Singleroom
     - Doubleroom
     - Triplerool
     - Quaripleroom
   - University_Name

   Teacher
   - Id

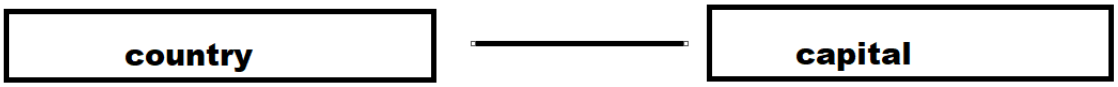
Name
First_Name
Second_Name
Age
Birthdate
University_Name

Office of registrar
Number
Worker[0..*]
Average_time_of_accepting_call
University_Name

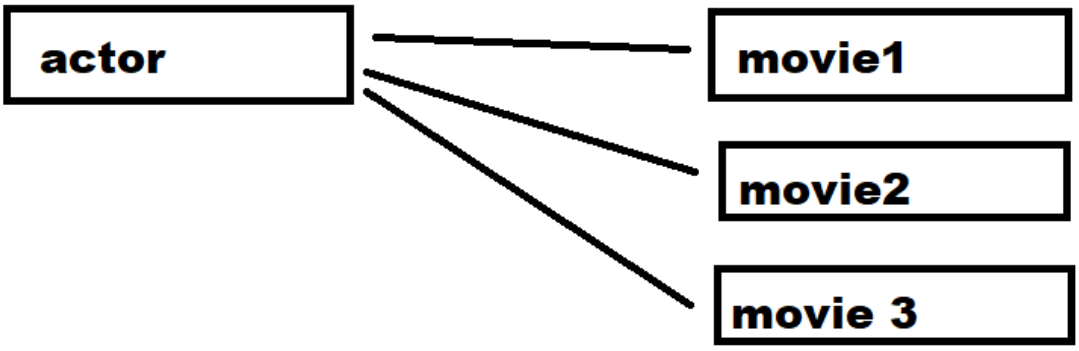
3)
One to many



One to one

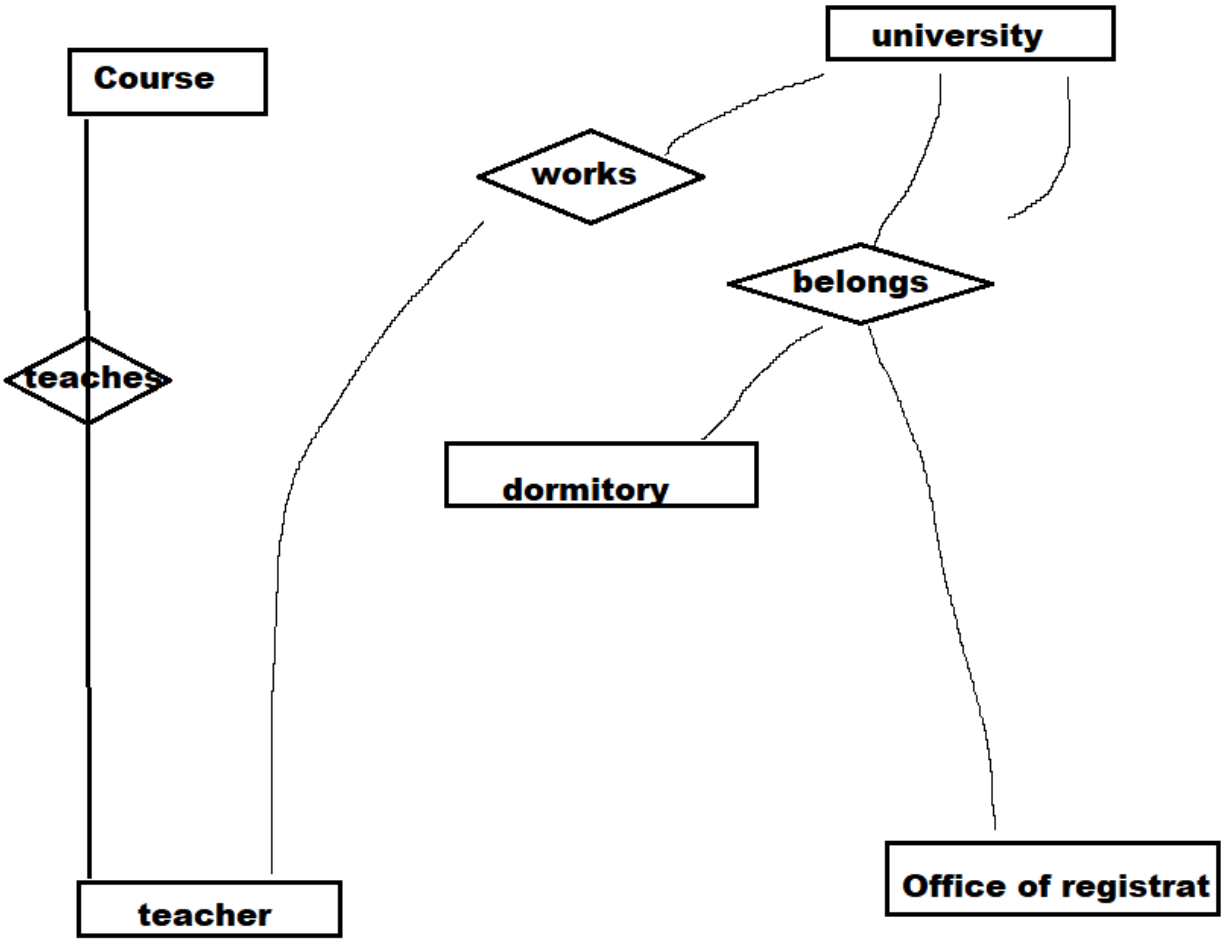


Many to one

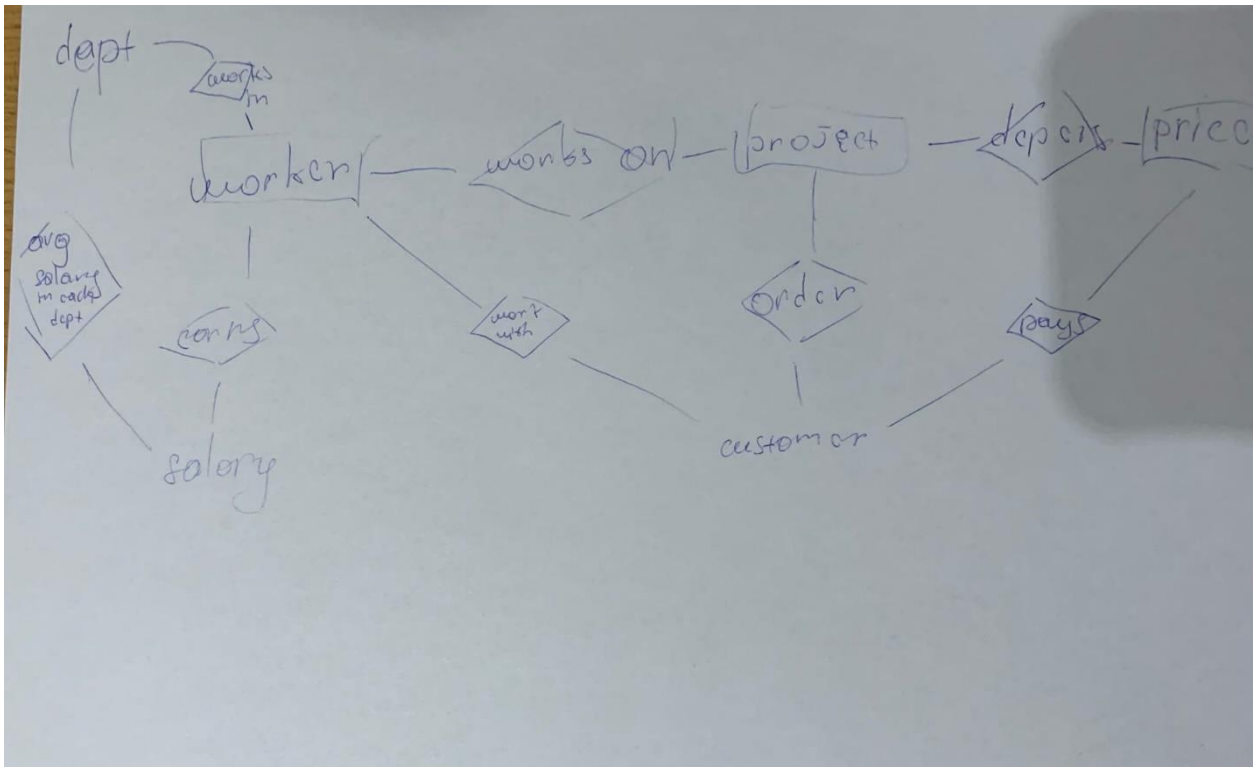


Many to many

4)



5)


dept
works in
worker
works on
project
depcit
price
avg salary in each dept
earns
salary
work with
order
pays
customer