a) What are the main phases in the database design? What is done on each development phase?

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) What is the entity-relationship (ER) data model?

Entity Relationship model - is a data model using entities and representing them by creating between them bonds with each other.

#2 a) Create entity"Student"with at least5 attributes(One for each type of attribute:simple, composite, derived, multivalued)

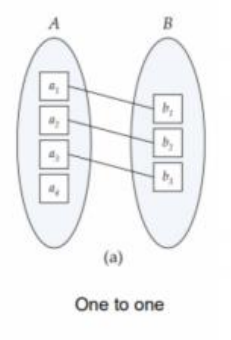
b) Create entities"University", "Course", "Dormitory","Teacher", "Office of theRegistrar"with at least 3 attributes each. (Entitytypes should be correct on datamodel)

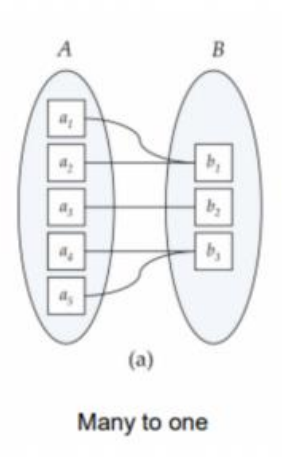
Answer:

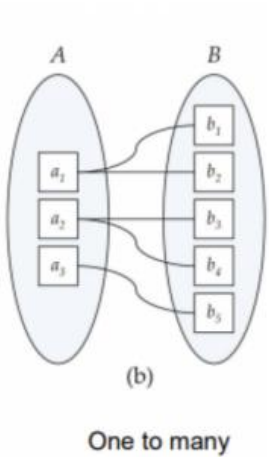
a) Student(id, fullname(name, surname), faculty, has_dorm, gender, {number})

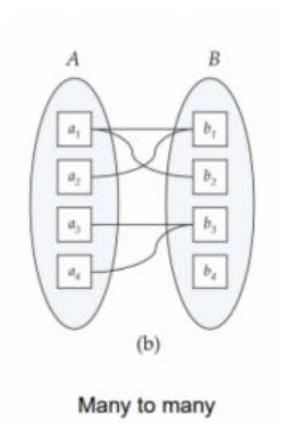
b) Universty(name, students_count, location), Dormitory(stud_id, student_name, corpus, room_number, {number}), Teacher(t_id, name(name, surname), course_id, experience, faculty), OfficeOfRegistrar(registrar_id, fullname, {number}, faculty)

Task 3

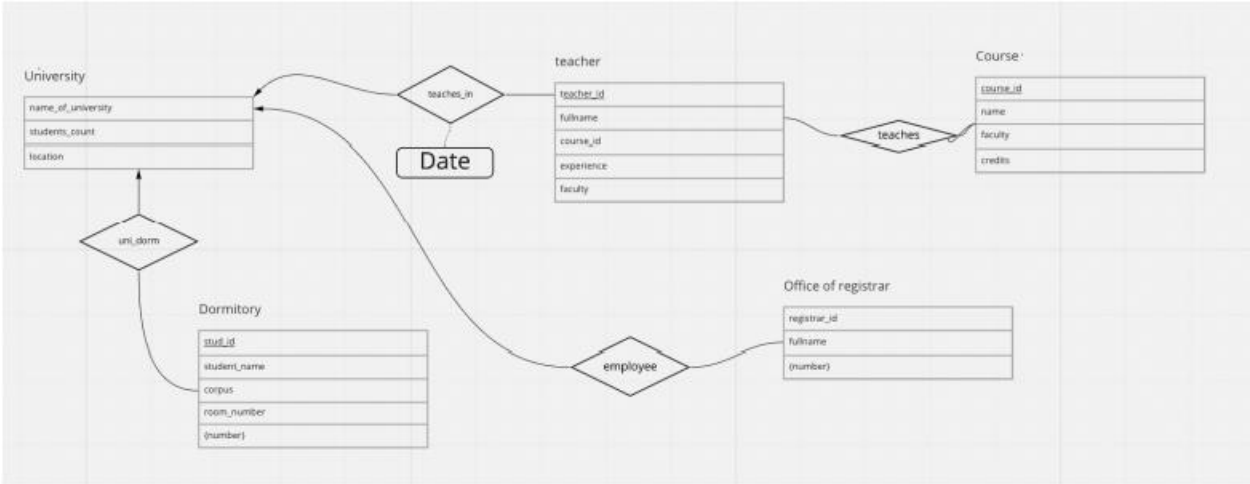

A
B
(a)
One to one


A
B
(a)
Many to one


A
B
(b)
One to many


A
B
(b)
Many to many

Task 4


University
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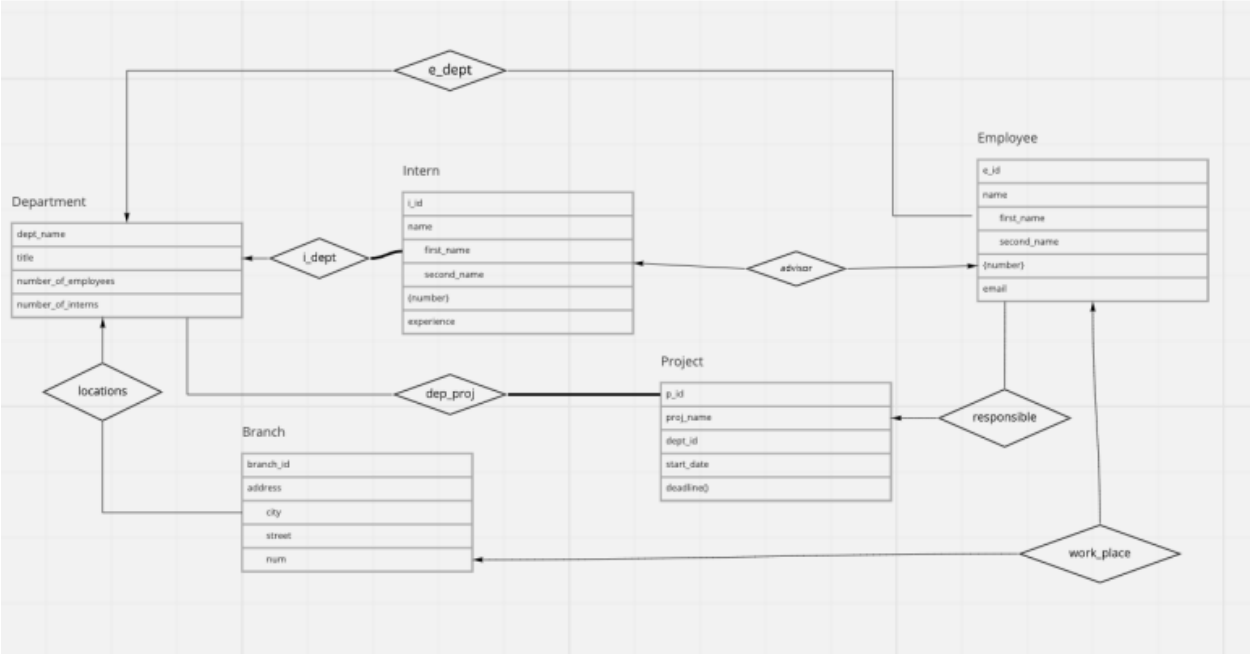
students_count
location
uni_dorm
Dormitory
stud_id
student_name
corpus
room_number
(number)
teaches_in
Date
teacher
teacher_id
fullname
course_id
experience
faculty
teaches
Course
course_id
name
faculty
credits
employee
Office of registrar
registrar_id
fullname
(number)

Task 5


e_dept
Employee
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second_name
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email
Intern
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name
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second_name
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Department
dept_name
title
number_of_employees
number_of_interns
i_dept
advisor
locations
dep_proj
Project
p_id
proj_name
dept_id
start_date
deadline()
responsible
Branch
branch_id
address
city
street
num
work_place