1.

A)

a. Initial phase - analyzing and characterizing a needed data for the database users

b. Second phase - choosing a data model(abstract). Applying concepts, describing, translating them
into a conceptual schema. Describing the operations.

c. Final phase - implement database of this data model. Deciding on relations, schema, attributes.

B)

Models an enterprise as a collection of entities and relationships. Graphical approach to database design.

2.

a)

Student (ID, name_first_name, name_second_name, date_of_birth, age, uni, classes)

– {classes}, age()

b)

University (name, departaments, studs )

Course (title, credits, instructor)

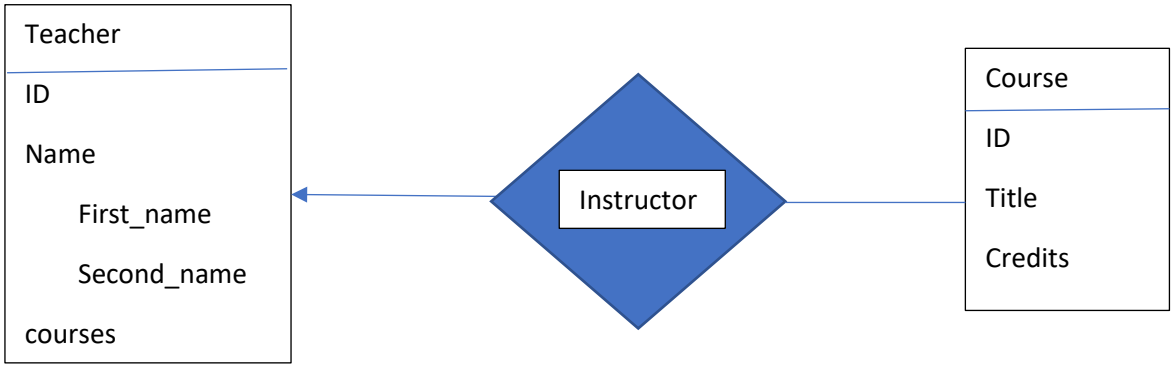
Dormitory( University, building, capacity )

Teacher (ID, name_f_n, name_s_n, universities, courses)

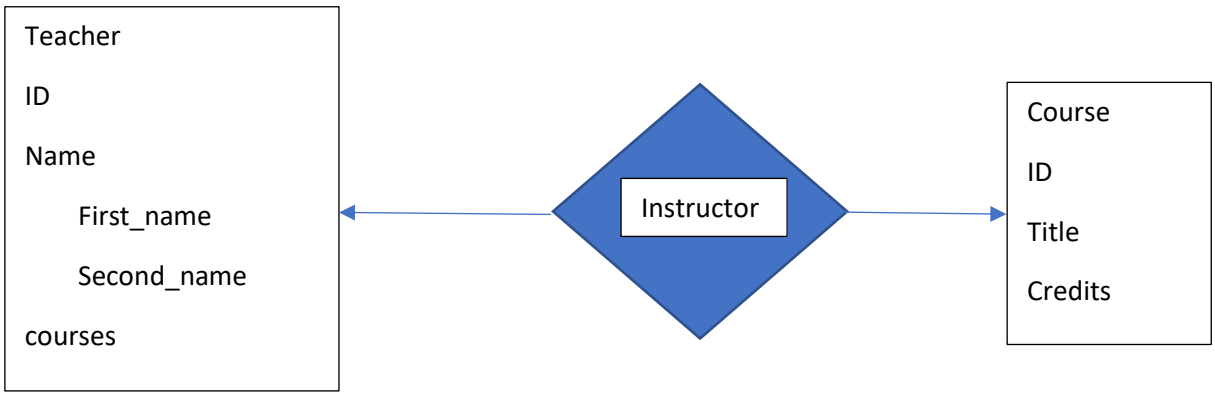
Office_of_the_Registrar ( id, uni, location)

3.

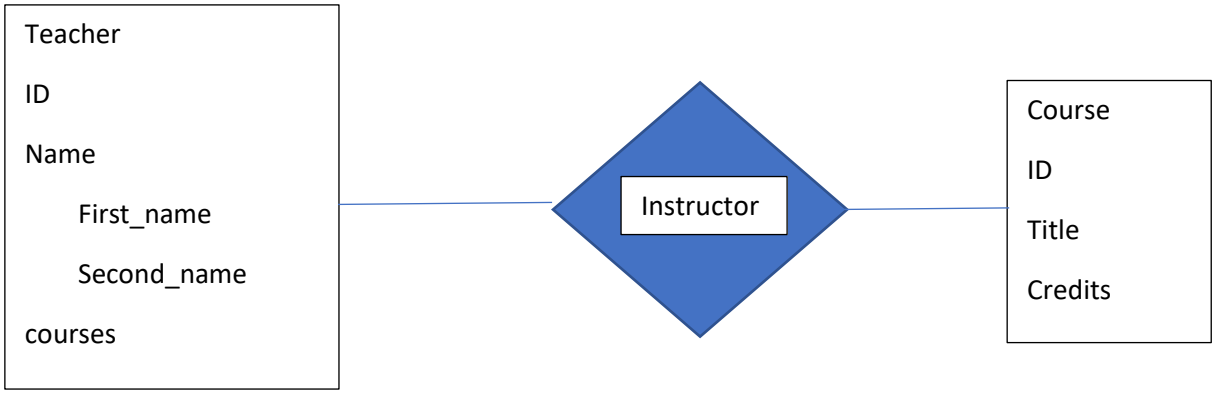
One-to-many



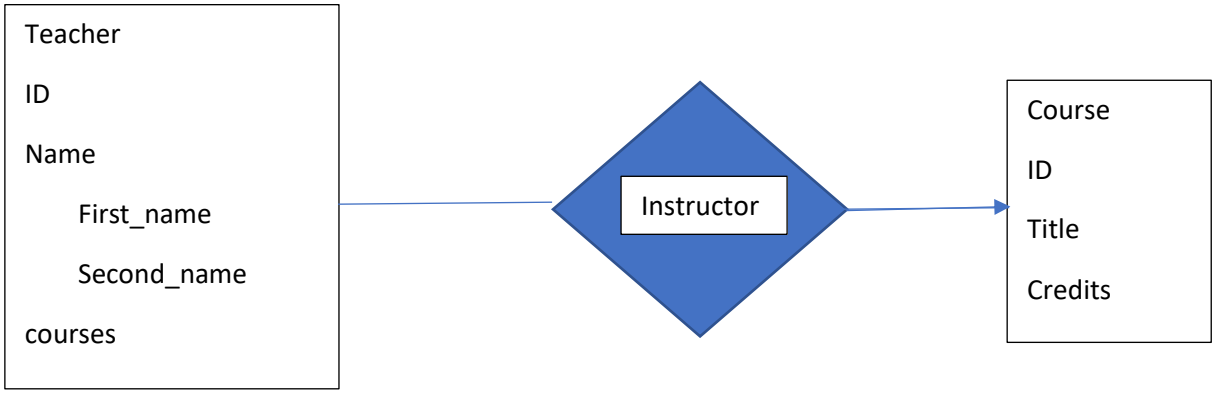
## One-to-one



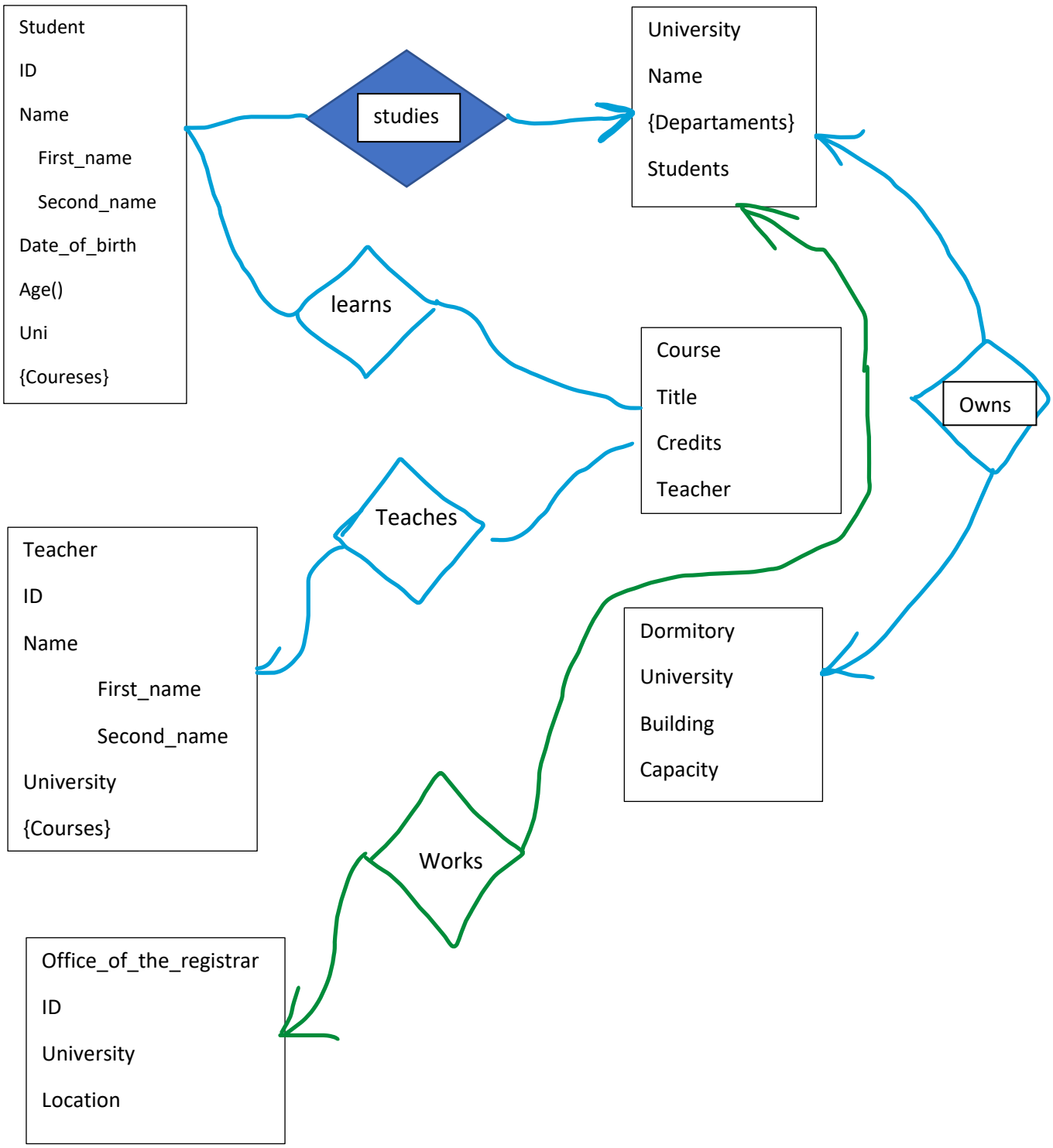

## Many-to-many



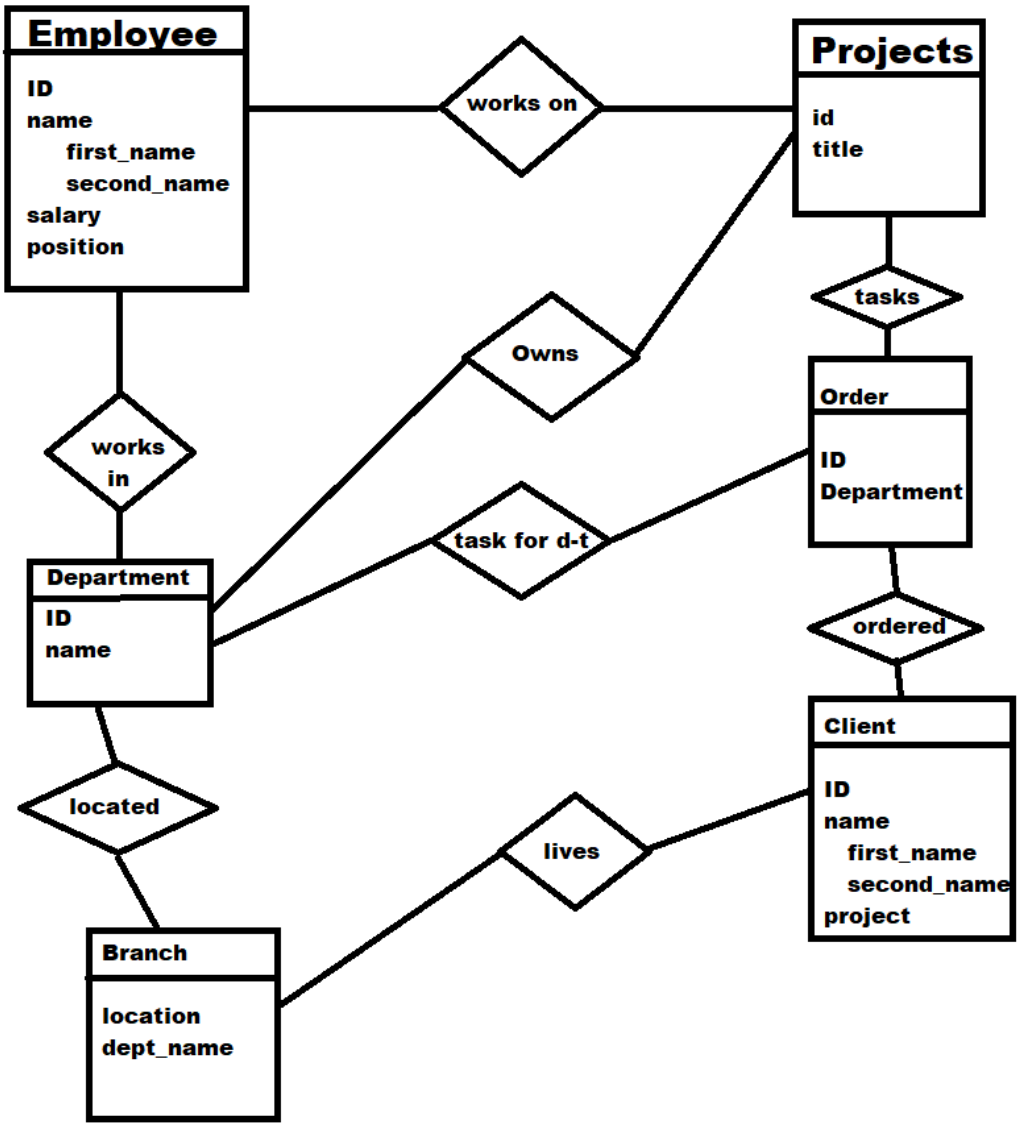

## Many-to-one




## 4.


Student
ID
Name
First_name
Second_name
Date_of_birth
Age()
Uni
{Coureses}
studies
University
Name
{Departaments}
Students
learns
Course
Title
Credits
Teacher
Owns
Teaches
Teacher
ID
Name
First_name
Second_name
University
{Courses}
Dormitory
University
Building
Capacity
Works
Office_of_the_registrar
ID
University
Location

5.


Employee
ID
name
first_name
second_name
salary
position
works on
Projects
id
title
tasks
Owns
Order
ID
Department
works
in
task for d-t
Department
ID
name
ordered
Client
ID
name
first_name
second_name
project
located
lives
Branch
location
dept_name