Stupchenko Valentina

Laboratory work

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.
   • 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) ER data model is the relationship of entity sets stored in a database. ER data model describes interrelated things of interest in a specific domain of knowledge.

2. a)

Student
ID
name
first_name
last_name
date_of_birth
age()
{ phone_number }
s_course_id
address
city
street
street_name
home_number

   b)

University
u_name
date_of_foundation
u_age()
{ faculty }
u_address
u_city
u_street
u_ street_name
university_number
number_of_students

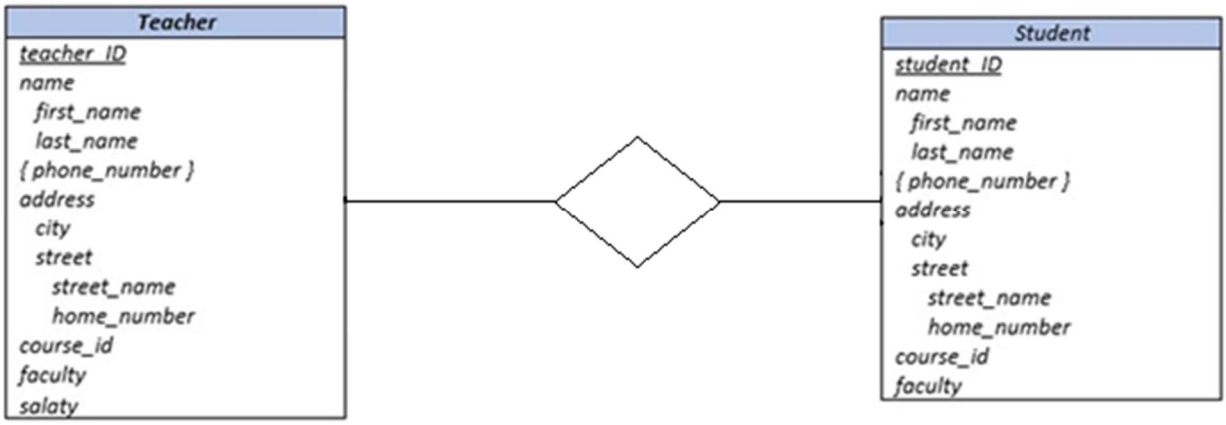
Course
course_ID
c_title
faculty
credits

Dormitory
student_ID
student_name
s_ first_name
s_last_name
{ s_phone_number }
room
building
section_number
room_number

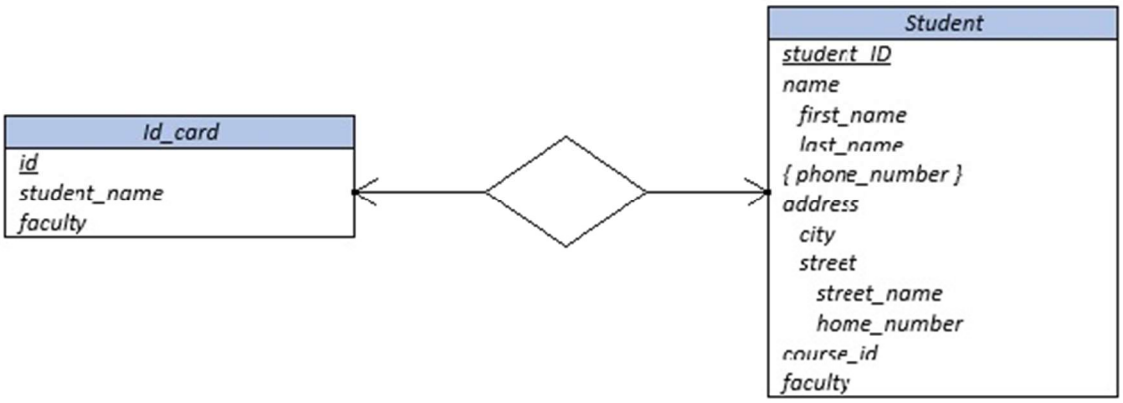
Teacher
teacher_ID
t_name
t_first_name
t_last_name
{ t_phone_number }
t_address
t_city
t_street
t_street_name
t_home_number
t_course_id
t_faculty
salaty

Office_of_the_Registrar
manager_ID
m_name
m_first_name
m_last_name
{ m_phone_number }
m_faculty

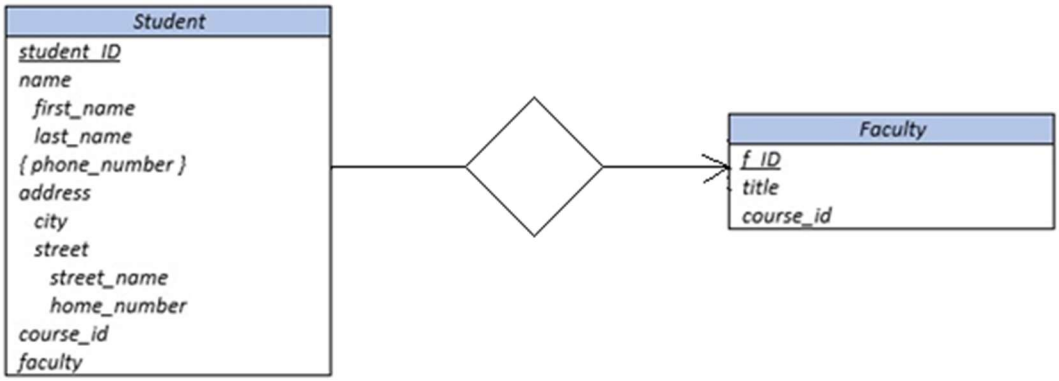
3. Many-to-many



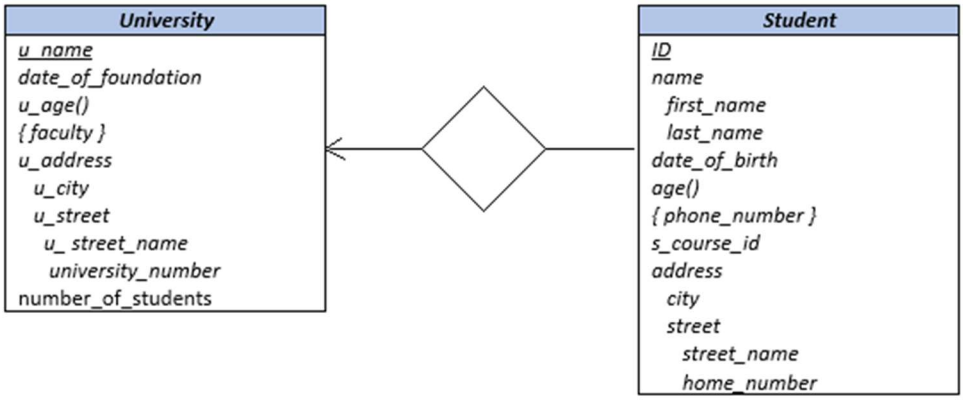
One-to-one



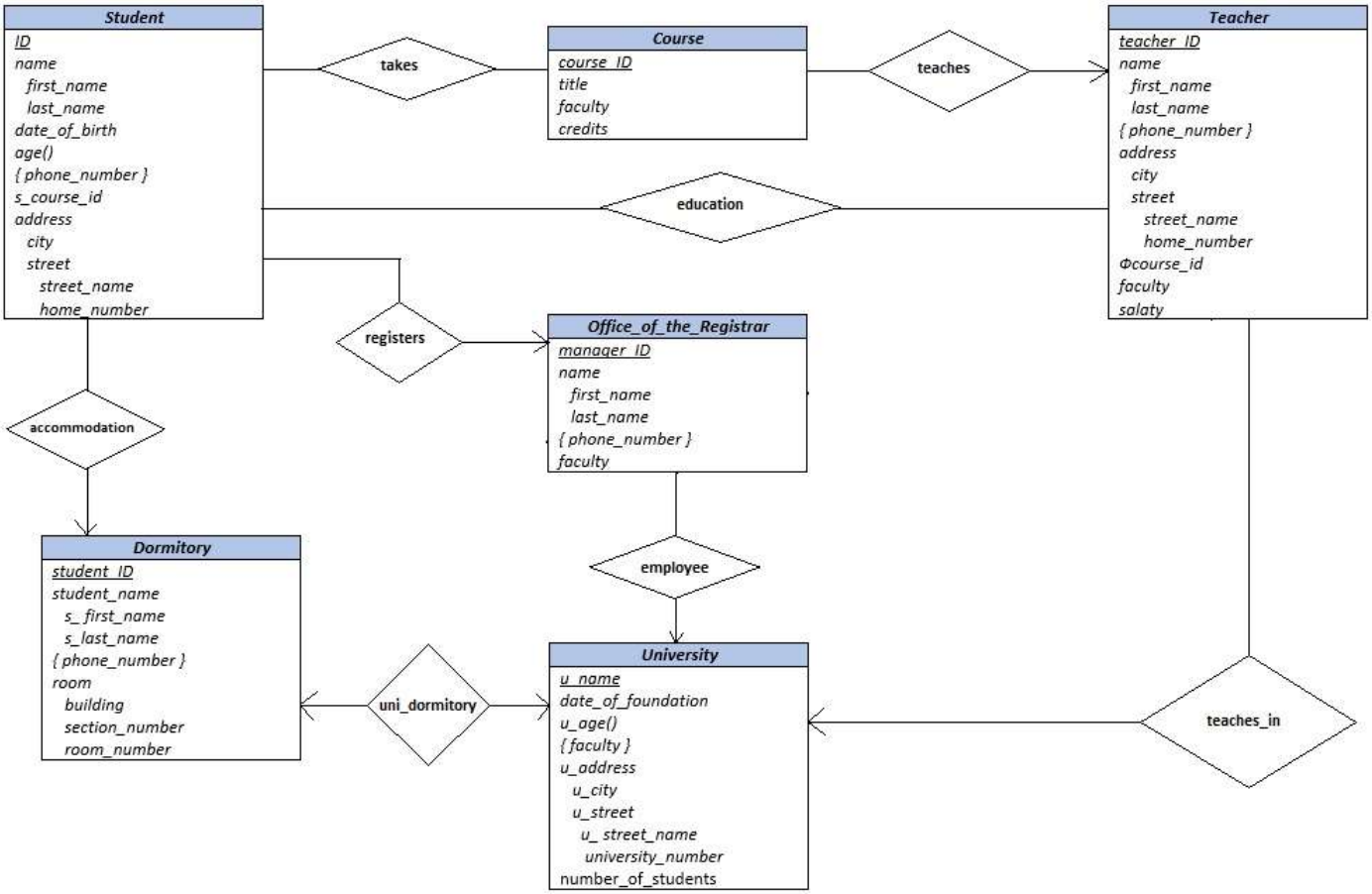
Many-to-one



One-to-many



4.


Student
ID
name
first_name
last_name
date_of_birth
age()
{ phone_number }
s_course_id
address
city
street
street_name
home_number
takes
Course
course_ID
title
faculty
credits
teaches
Teacher
teacher_ID
name
first_name
last_name
{ phone_number }
address
city
street
street_name
home_number
Φcourse_id
faculty
salaty
education
registers
Office_of_the_Registrar
manager_ID
name
first_name
last_name
{ phone_number }
faculty
accommodation
Dormitory
student_ID
student_name
s_first_name
s_last_name
{ phone_number }
room
building
section_number
room_number
employee
uni_dormitory
University
u_name
date_of_foundation
u_age()
{ faculty }
u_address
u_city
u_street
u_street_name
university_number
number_of_students
teaches_in

5.