## Laboratory work 4

1.

a.

3 phases:

- 1) The initial phase characterize fully the data needs of the prospective database users.
- 2) The second phase concept (ER model)
- 3) The final phase:
  - a) logical (logical model)
  - b) physical (creating a database schema)

b.

ER-data model that allows you to describe conceptual schemas of the subject area.

2.

a.

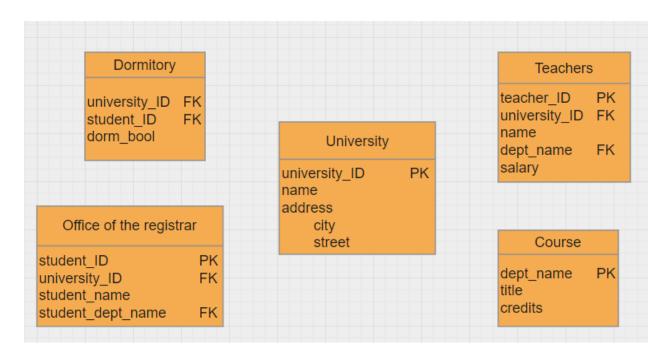
```
Student

ID

name
first_name
second_name
address
city
street
{phone_number}
date_of_birth
age()
```

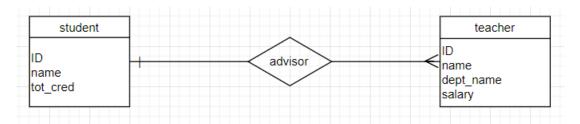
age depends on date of birth

```
simple - ID, date_of_birth
composite - name, address
derived - age
multivalued - {phone_number} (several numbers)
```

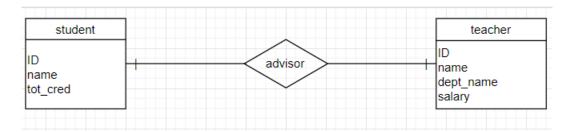


3.

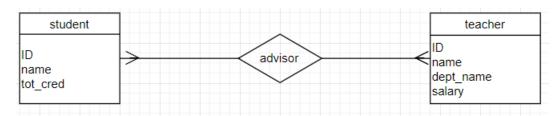
## One to many, many to one (the same, but vice versa)

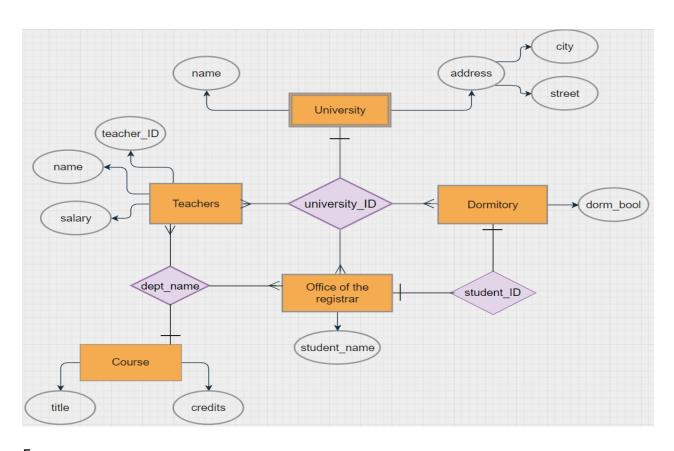


## One to one



## Many to many





5.

