

Laboratory work №1.

Relational Model, keys.

Part 1.

Task 1.1. ① Relation A.

1. 6 superkeys:

- 1) EmpID.
- 2) SSN
- 3) Email.
- 4) EmpID, SSN.
- 5) EmpID, Email.
- 6) Email, SSN.

2. Candidate keys: EmpID, SSN, Email.

3. EmpID, because it is stable, doesn't changing when change phone number/mail. Doesn't contain confidential data.

4. Yes, it can be home or office phone number.

② Relation B.

1. Minimum attributes needed for the pk:

- 1) Student ID.
- 2) Course Code.
- 3) Section.
- 4) Semester.
- 5) Year.



2. Why?

Student ID - Identifies the student.

Course Code - Identifies the course

Section - difference between different sections of the same course.

Semester - same student may retake in different sem.

Year - needed because sem. repeat every year.

3. I don't find any additional ck.

Task 1.2.

Table 1: Student  $\rightarrow$  Student ID (PK).

Major, Advisor ID (FK)

Table 2: Professor  $\rightarrow$  Prof ID (PK).

Department (FK).

Table 3: Course  $\rightarrow$  Course ID (PK).

Department Code (FK)

Table 4: Department  $\rightarrow$  Dept Code (PK).

Chair ID (FK).

Table 5: Enrollment  $\rightarrow$  Student ID, Course ID (FK)



All foreign keys:

Major  $\rightarrow$  Department (Dept Code).

Advisor ID  $\rightarrow$  Professor (Prof ID).

Department  $\rightarrow$  Department (Dept Code).

Department Code  $\rightarrow$  Department (Dept Code).

Chair ID  $\rightarrow$  Professor (Prof ID).

Student ID  $\rightarrow$  Student (Student ID).

Course ID  $\rightarrow$  Course (Course ID).