Recitation 1

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1 Problem 1

Consider the following schema:

- Person(**id**,name,address)
- Student(**id**)
- Teacher(**id**, office)
- Course(**cid**, name, teacherId)
- Takes(**id**, **cid**, grade)
- Requires(**cid**, requiredCid)

Where primary keys are in bold and id in Student and Teacher are foreign keys of Person, id in Takes is a foreign key of Student, teacherId in Course is a foreign key of Teacher, cid in Takes and Requires is a foreign key of Course, and finally requiredCid is a foreign key of Course.

Answer at least 2 of the following queries in relational algebra:

- a. Names of all the students
- b. Name of the teacher teaching the course with id DD1368
- c. Names of the students taking the course with id DD1368

1.1 Solution

a. Names of all the students:

$$\Pi_{name}(Student)$$

We use *Selection* to select the name column of Student.

b. Name of the teacher teaching the course with id DD1368

c. Names of the students taking the course with id DD1368

$$\Pi_{name}(\sigma_{\Pi_{id}(\sigma_{\Pi_{cid}(\sigma_{DD1368}(Course))}(Takes))}(Person))$$

We use *Project*