

L05: SQL 2

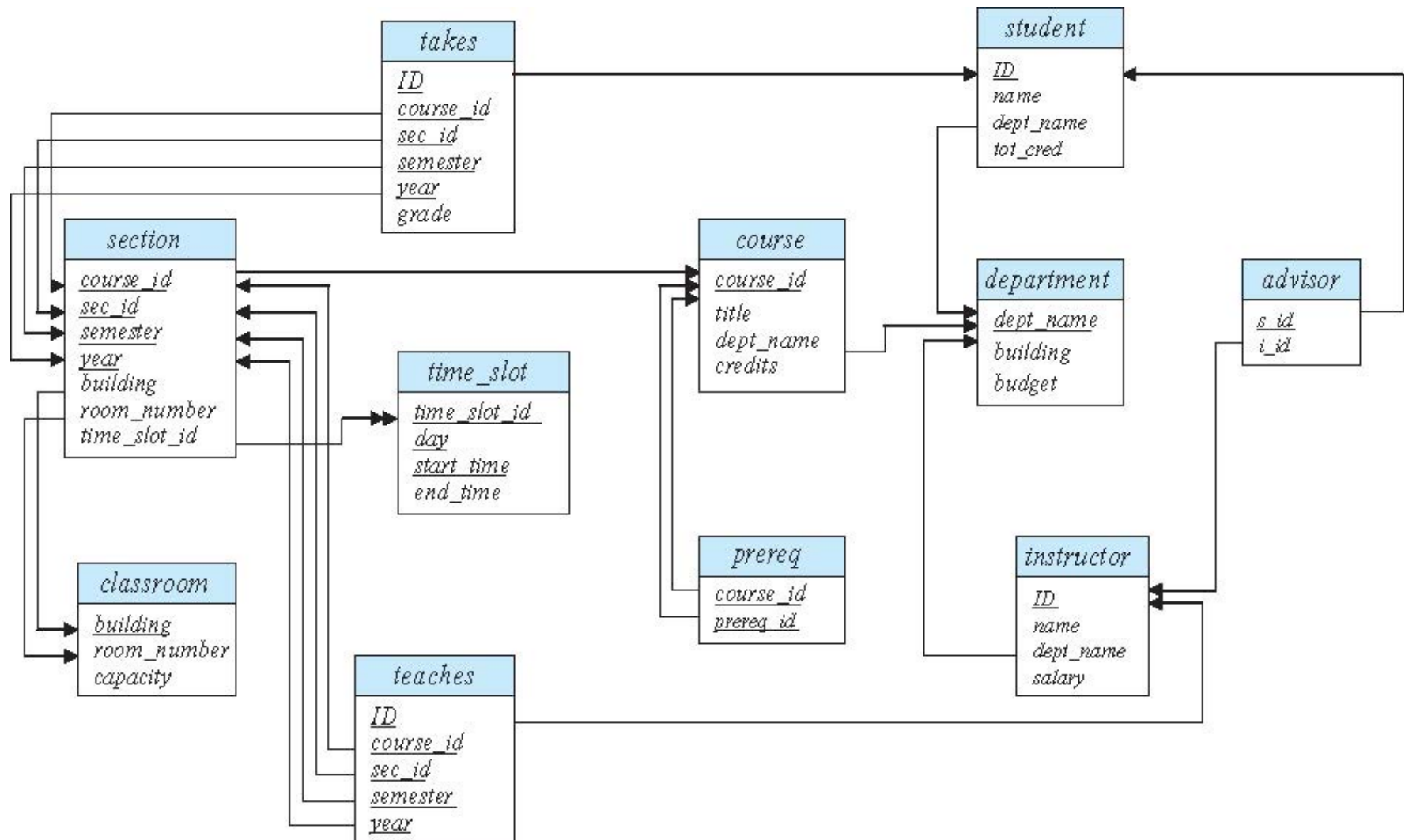
DSAN 6300/PPOL 6810: Relational Databases and SQL
Programming

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Use in Labs: Schema Diagram for University Database: On Canvas



Use MySQL to run the queries

To Submit

- The problem formulation & your query
 - Your Result set

Format:

- For SQL file, upload individual .sql file with problem formulation commented out BEFORE your sql statement
- For result set, upload individual cvs files

File names:

- Firstname_lastname_net_id_Lab05_problem03.sql
- Firstname_lastname_net_id_Lab05_problem03_results.cvs

THERE IS MORE THAN ONE WAY TO WRITE A QUERY!

Lab

Find the titles of courses in the Comp. Sci. department
that have 3 credits

Solution steps:

What data attributes we need in the result set?

What data attributes are used in where condition?

In what tables do we have this information, what are the names of the attributes?

What condition should be satisfied?

Find the **titles of courses** in the Comp. Sci. department that have 3 credits

Solution:

What data attributes we need in the result set?

titles of courses

What data attributes are used in where condition?

In what tables do we have this information, what are the names of the attributes?

What condition should be satisfied?

Find the titles of courses in the Comp. Sci. **department** that have 3 **credits**

Solution:

What data attributes we need in the result set?

titles of courses

What data attributes are used in where condition?

number of credits, name of a department

In what tables do we have this information, what are the names of the attributes (in the tables)?

What condition should be satisfied?

SQL - Problem 1

Find the titles of courses in the Comp. Sci. department that have 3 credits

Solution:

What data attributes we need in the result set?

titles of courses

What data attributes are used in the condition?

number of credits, name of a department

In what tables do we have this information, what are the names of the attributes?

table: *course*

attributes: *title* , *dept_name*, *credit*

select title

from course

where

What condition should be satisfied?

SQL - Problem 1

Find the titles of courses in the Comp. Sci. department that have 3 credits

Solution:

What data attributes we need in the result set?

titles of courses

What data attributes are used in the condition?

number of credits, name of a department

In what tables do we have this information, what are the names of the attributes?

course, title, dept_name

select title

from course

where

What condition should be satisfied?

dept_name = 'Comp. Sci.' and credits = 3

SQL – Answer to Problem 1

Find the titles of courses in the Comp. Sci. department that have 3 credits

```
select title  
from course  
where dept_name = 'Comp. Sci.' and credits = 3;
```

Find the IDs of all students who were taught by an instructor named Romero; make sure there are no duplicates in the result

Solution steps:

What data attributes we need in the result set?

What data attributes are used in the condition?

In what tables do we have this information, what are the names of the attributes?

If there is more than one table, how we join the tables?

What other condition should be satisfied?

Find the IDs of all students who were taught by an instructor named Romero; make sure there are no duplicates in the result

Solution:

What data attributes we need in the result set?

IDs of all students

What data attributes are used in where condition?

In what tables do we have this information, what are the names of the attributes?

If there is more than one table, how we join the tables?

What other condition should be satisfied?

SQL 2 - Problem 2

Find the IDs of all students who were **taught by** an **instructor named** Romero; make sure there are no duplicates in the result

Solution:

What data attributes we need in the result set?

IDs of all students

What data attributes are used in where condition?

instructor name

courses that instructor taught

courses that student took

In what tables do we have this information, what are the names of the attributes?

If there is more than one table, how we join the tables?

What other condition should be satisfied?

SQL 2 - Problem 2

Find the IDs of all students who were taught by an instructor named Romero; make sure there are no duplicates in the result

Solution:

What data attributes we need in the result set?

IDs of all students

What data attributes are used in the condition?

instructor name, courses that instructor taught, courses that student took

In what tables do we have this information, what are the names of the attributes?

tables: *instructor, takes, teaches*

attributes: *takes.ID, instructor.name, teaches.ID*

If there is more than one table, how we join the tables?

What other condition should be satisfied?

SQL 2 - Problem 2

Find the IDs of all students who were taught by an instructor named Romero; make sure there are no duplicates in the result

Solution:

What data attributes we need in the result set?

What data attributes are used in the condition?

In what tables do we have this information, what are the names of the attributes?

table: *instructor, takes, teaches*

attributes: *takes.ID, instructor.name, teaches.ID*

If there is more than one table, how we join the tables?

takes.course_id = teaches.course_id and

takes.sec_id = teaches.sec_id and

takes.semester = teaches.semester and

takes.`year` = teaches.`year` and

teaches.ID = instructor.ID

What other condition should be satisfied?

SQL 2 - Problem 2

Find the IDs of all students who were taught by an instructor named Romero; make sure there are no duplicates in the result

Solution:

What data attributes we need in the result set?

What data attributes are used in the condition?

In what tables do we have this information, what are the names of the attributes?

table: *instructor, takes, teaches*

attributes: *takes.ID, instructor.name, teaches.ID*

If there is more than one table, how we join the tables?

takes.course_id = teaches.course_id and

takes.sec_id = teaches.sec_id and

takes.semester = teaches.semester and

takes.`year` = teaches.`year` and

teaches.ID = instructor.ID

What other condition should be satisfied?

instructor.name = "Romero"

SQL 2 – Answer to Problem 2

Find the IDs of all students who were taught by an instructor named Romero; make sure there are **no duplicates** in the result

```
select distinct takes.ID
from takes, instructor, teaches
where takes.course_id = teaches.course_id and
      takes.sec_id = teaches.sec_id and
      takes.semester = teaches.semester and
      takes.'year' = teaches.'year' and
      teaches.ID = instructor.ID and
      instructor.name = "Romero";
```

Find the ID and name of each student who has took at least one course after 2017, make sure there are no duplicates in the result.

Solution steps:

What data attributes we need in the result set?

What data attributes are used in the condition?

In what tables do we have this information, what are the names of the attributes?

If there is more than one table, how we join the tables?

What other condition should be satisfied?

Find the ID and name of each student who has taken at least one Comp. Sci. course; make sure there are no duplicates in the result

Solution steps

What data attributes we need in the result set?

What data attributes are used in the condition?

In what tables do we have this information, what are the names of the attributes?

If there is more than one table, how we join the tables?

What other condition should be satisfied?