

RDBMS and SQL, Aug-Nov 2025

Assignment 2, 2 October 2025, due ~~9-October~~ 12 October 2025

Setup

You have to execute some SQL queries on the sample university database used in the textbook by Silberschatz et al and report your results. You have two options.

1. Set up the database on your own laptop.

- From https://www.db-book.com/university-lab-dir/sample_tables-dir/index.html download the SQL files to set up the university database. For the tables, there are two options: the small tables used in the textbook examples, and large tables with random data. You should download the small tables.
- Create and populate the database from the downloaded files.
- Record all queries and responses in a single text file `YourRollNumber-assignment2.txt`, and submit this file. You should be able to record your SQL session in a text file. For instance, in MySQL, you can save the entire session to a file `MDS202599-assignment2.txt` by using the following command.

```
mysql --tee=MDS202599-assignment2.txt
```

- Optionally, copy and paste each query and its output to the text file.

2. Use the online SQL interpreter.

- An online SQL interpreter is provided at <https://www.db-book.com/university-lab-dir/sqljs.html>
- This already has the sample university database with the small tables preloaded.
- Create a text file containing all your queries with the name `YourRollNumber-assignment2-SQL-queries.txt`.
- For each query, execute it using the online SQL interpreter and take a screen dump as a pdf file using “Print to file” from the browser. Use the following naming convention for the pdf files. For the solution to question number N , the pdf dump should be named `YourRollNumber-assignment2-SQL-answer-N.pdf`.
- Submit the (single) SQL query text file and (multiple) pdf screen dumps as separate files on Moodle

Problem statement

Consider the following relations from the university database discussed in class. The column headings are, in general, self-explanatory.

- `instructor(ID,name,dept_name,salary)`
Information about faculty.
- `department(dept_name,building,budget)`
Information about departments.
- `course(course_id,title,dept_name,credits)`
Information about courses offered.
- `student(ID,name,dept_name,total_credits)`
Information about students.

- `prerequisites(course_id, prereq_id)`

Information about course prerequisites. Both columns refer to `course_id` from the `courses` relation.

- `section(course_id, sec_id, semester, year, building, room_number, time_slot_id)`

Timetable information — classroom allocation and time slot for courses. `course_id` refers to the `course` relation.

- `teaches(ID, course_id, sec_id, semester, year)`

Information about course allocation to faculty. `ID` refers to the `instructor` relation and `course_id` refers to the `course` relation.

- `takes(ID, course_id, sec_id, semester, year, grade)`

Information about course enrollment by students. `ID` refers to the `student` relation and `course_id` refers to the `course` relation.

Write SQL queries for the following.

1. Find all departments that share a building with another department.
 2. Find all faculty members who teach exactly one course.
 3. Find all courses that are pre-requisites for more than one course.
 4. Find all students who did not register for any course in 2024.
 5. Find all students who have repeated a course.
 6. For each building, identify the department(s) in that building with the highest budget.
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How to submit

- Submit your solutions on Moodle.
 - Follow the instructions above about naming the submitted file(s).
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