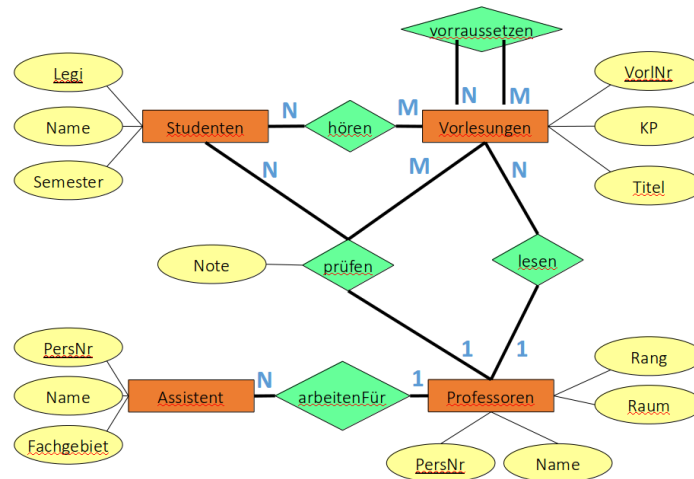


1 SQL Queries



Given the university schema from the lecture, provide the SQL queries to answer the following questions:

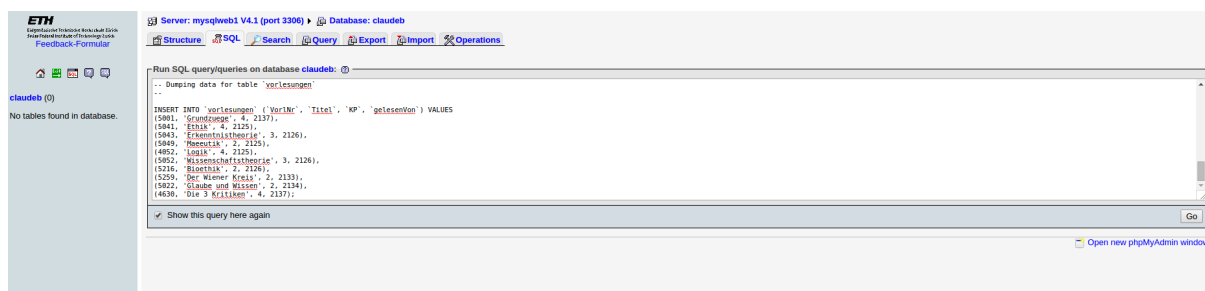
1. Which is the average semester of all students?
2. Which students are enrolled in a higher semester than the average?
3. Return all the names and Id-Numbers of all the professors, assistants and students. In the case of professors and assistants, the Id-Number is the PersNr, and in the case of students, it is their Legi. Sort the result based on the Id-Number in descending order.
4. Provide the names of all students which visit at least one lecture of Sokrates.
5. Provide the name of all professors which give at least one lecture along with the total number of points (KP) of all their courses.
6. Which are the courses which require the lecture 'Grundzuege'? (We only consider direct successors! Bonus question: Can SQL deal with transitivity? If yes, how?)
7. Which student is the most popular? You can assume that students know each other from common courses. The more people know a particular student, the more popular he/she is. Sort the resulting list by the student's popularity.

It is a good idea to try out a lot of examples including the solutions of the above with the real database. Therefore, we suggest that you at least install the university schema from the lecture as described in 2.1 and 2.2 below. When you want to try out the other queries from the lecture, you may also want to install the world database following the same pattern (link provided on the course homepage).

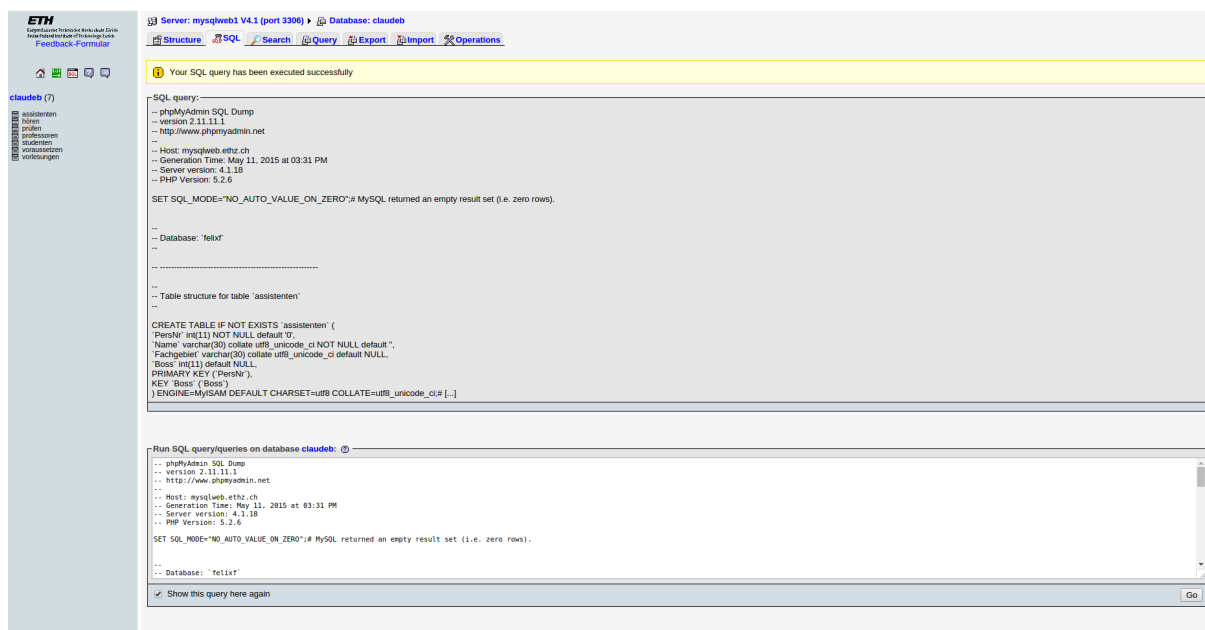
2 SQL and Java (optional)

We will now combine SQL and Java programs. A detailed description how to set up a database has been provided in Exercise 11. We will now populate the database with the university schema.

1. Log in to your database at <https://phpmyadmin.ethz.ch/>. You can only access this page from within the ETH network. A VPN connection might be required if you are working remotely.
2. Download the university schema from the course webpage <http://lec.inf.ethz.ch/baug/informatik2/2015/code/Unidb.txt>.
3. In the database administration page, select your database (your NETHZ name) on the left side and then click on the 'SQL' tab. Copy and paste the content of the university schema into the text field and click 'Go'.



4. The next page will inform you that the query has been executed. On the left side you should now see the individual table names.



Download the skeleton from the course webpage <http://lec.inf.ethz.ch/baug/informatik2/2015/ex/Assignment12.zip>. Your task is to implement three SQL queries. The first one has already been completed as a reference.

1. To connect to your database, change the 'USER' and 'PASS' fields accordingly.
2. In the main function, we establish the connection to the database and then call three functions which execute the actual queries. Two of these functions need to be completed by you.

3. In the first query, we want to select all students enrolled in or above a certain semester. First, we create a new SQL statement and since we want to pass the minimum semester as an argument, we use the '?' character as a placeholder.
4. After executing the query, we can iterate over the results by calling 'next()' on the result set. Every invocation of 'next()' gives you the next element in the result set.

Your task is to complete the remaining two queries: *printAllProfessorsByRank* shall print all the professors of a specific rank. The code for iterating over the result set is already provided. *printAllUniversityMembers* shall implement the third query from the previous question. The names of all the members of the university along with their Id-Number (PersNr or Legi) shall be printed.