Exercise 1

Write the following queries in SQL on the known university schema:

(a) How many students are there?
   
   select count(*) from Students;

(b) Find all students that are in the third semester.
   
   select * from students where semester = 3;

(c) Figure out if there is a lecture with more than five weeklyhours.
   
   select * from lectures where weeklyhours > 5;
   
   → No.

(d) Print out a list with all professor names and avoid duplicates.
   
   select distinct name from professors;

(e) Find students whose name start and end with the letter 'a'.
   
   select * from students where name like 'A%' and name like '%a';

Exercise 2

Answer the following questions on our university database using SQL:

(a) List the name and person number of the Assistants of Professor Sokrates.
   
   (b) Which Professors does Fichte know from attending their Lectures.
   
   (c) Which Lectures are attended by Students in the 1.-4. semester? Print only the title of the lectures.
   
   (d) Find all Students that attend at least one Lecture together with Fichte.
Solution:

(a) List the name and person number of the Assistants of Professor Sokrates.

\[
\text{select a.persNr, a.name}
\text{from Professors p, Assistants a}
\text{where p.name = 'Sokrates'}
\text{and p.persNr = a.boss;}
\]

(b) Which Professors does Fichte know from attending their Lectures.

\[
\text{select distinct p.persNr, p.name}
\text{from Professors p, attend a, Lectures l, Students s}
\text{where p.PersNr = l.given_by}
\text{and l.lectureNr = a.lectureNr}
\text{and a.studNr = s.studNr}
\text{and s.name = 'Fichte';}
\]

(c) Which Lectures are attended by Students in the 1.-4. semester? Print only the title of the lectures.

\[
\text{select distinct l.title}
\text{from Lectures l, attend a, Students s}
\text{where l.lectureNr = a.lectureNr}
\text{and a.studNr = s.studnr}
\text{and s.semester between 1 and 4;}
\]

(d) Find all Students that attend at least one Lecture together with Fichte.

\[
\text{select distinct other_s.studNr, other_s.name}
\text{from Students fichte_s, attend fichte_a, attend other_a, Students other_s}
\text{where fichte_s.name = 'Fichte'}
\text{and fichte_a.studNr = fichte_s.studNr}
\text{and other_a.lectureNr = fichte_a.lectureNr}
\text{and other_s.studNr = other_a.studNr}
\text{and other_s.studNr != fichte_s.studnr}
\]