TU München, Fakultät für Informatik
Lehrstuhl III: Datenbanksysteme
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TUM

***Database System Concepts for Non-Computer Scientist* - WiSe 24/25**
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http://db.in.tum.de/teaching/ws2425/DBSandere/?lang=en

Sheet 04

Exercise 1

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

(a) How many students are there?

(b) Find all students that are in the third semester.

(c) Figure out if there is a lecture with more than five *weeklyhours*.

(d) Print out a list with all professor names and avoid duplicates.

(e) Find students whose name start and end with the letter 'a'.

Solution:

(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;
```

$\rightarrow$ 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*.

```
select a.persNr, a.name
from Professors p, Assistants a
where p.name = 'Sokrates'
and p.persNr = a.boss;
```

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

```
select distinct p.persNr, p.name
from Professors p, attend a, Lectures l, Students s
where p.PersNr = l.given_by
  and l.lectureNr = a.lectureNr
  and a.studNr = s.studNr
  and s.name ='Fichte';
```

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

```
select distinct l.title
from Lectures l, attend a, Students s
where l.lectureNr = a.lectureNr
  and a.studNr = s.studnr
  and s.semester between 1 and 4;
```

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

```
select distinct other_s.studNr, other_s.name
from Students fichte_s, attend fichte_a, attend other_a, Students
    other_s
where fichte_s.name = 'Fichte'
  and fichte_a.studNr = fichte_s.studNr
  and other_a.lectureNr = fichte_a.lectureNr
  and other_s.studNr = other_a.studNr
  and other_s.studNr != fichte_s.studnr
```