Datenbanksysteme I
5. Übungsserie

Aufgabe 1:

(a)

```
select *
from Studenten
where MatrNr in (
  select MatrNr
  from hoeren
  group by MatrNr
  having count(*) >= 3
  )
```

(b)

```
select *
from vorlesungen
where vorlnr in (
  select vorgaenger
  from voraussetzen
  group by vorgaenger
  having count(*) >= 2
  )
and SWS >= 4
```

(c)

```
with vorlSokrates as (
  select vorlnr
  from vorlesungen v join professoren p
  on v.gelesenvon = p.persnr
  where p.name = 'Sokrates'
  )
select avg(semester)
from studenten
where matrnr in (
  select matrnr
  from hoeren h, vorlSokrates v
  where h.vorlnr = v.vorlnr
  )
```

(d)

```
with hoerenCount as (
  select matrnr, count(*) anzahl
  from studenten
  where matrnr not in (
    select matrnr
    from hoeren
    )
  group by matrnr
  union
  select matrnr, count(*) anzahl
```

```
      from studenten
      where matrnr in (
        select matrnr
        from hoeren
        )
      group by matrnr
      )
  select avg(cast(anzahl as float))
  from hoerenCount
```

Aufgabe 2:

(a)

```
with bolt as (
    select *
    from ZehnkampfD
    where name ='Bolt '
    )

  select distinct zehnkampfd.name
  from zehnkampfd, bolt
  where zehnkampfd.disziplin = bolt.disziplin
  and zehnkampfd.name != 'Bolt'
  and zehnkampfd.name not in (
    select name
    from zehnkampfd
    where bolt.punkte >= zehnkampfd.punkte
    )
```

(b)

```
with Bolt as (
  select *
  from ZehnkampfD
  where name='Bolt '
  )
  select all.Name, all.Disziplin, all.Punkte
  from ZehnkampfD all, Bolt
  where all.Disziplin = Bolt.Disziplin
  and all.Punkte >= Bolt.Punkte
  group by all.Name
  having count(all.Disziplin) = max(all.Disziplin)
  except
  select *
  from Bolt
```