Query Optimization

1. Exercise

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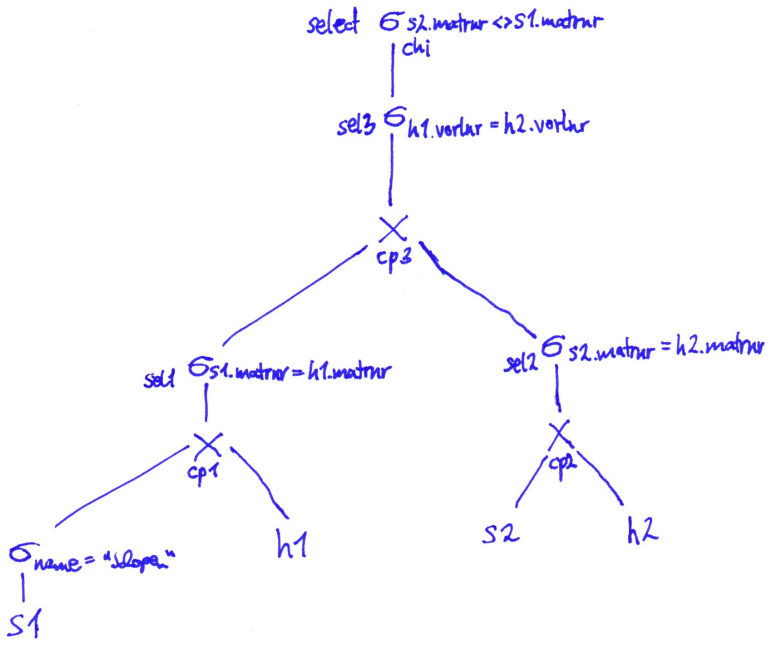
Exercise 1

Tinydb implementation in file Exercise1.java

Part 1

Find all students that attended the lectures together with Schopenhauer, excluding Schopenhauer himself.

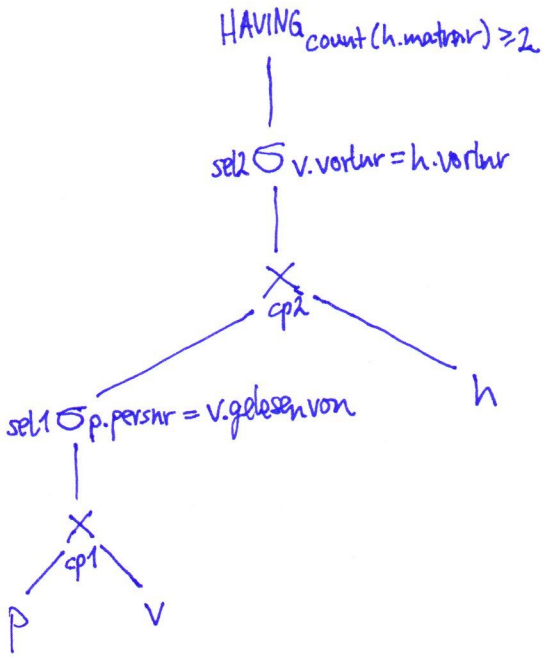
```
SELECT s2.name FROM studenten s1, studenten s2, hoeren h1, hoeren h2
WHERE s1.name='Schopenhauer' AND s1.matrnr=h1.matrnr AND s2.matrnr=h2.matrnr
AND h1.vorlnr=h2.vorlnr AND s2.matrnr<>s1.matrnr
```



Part 2

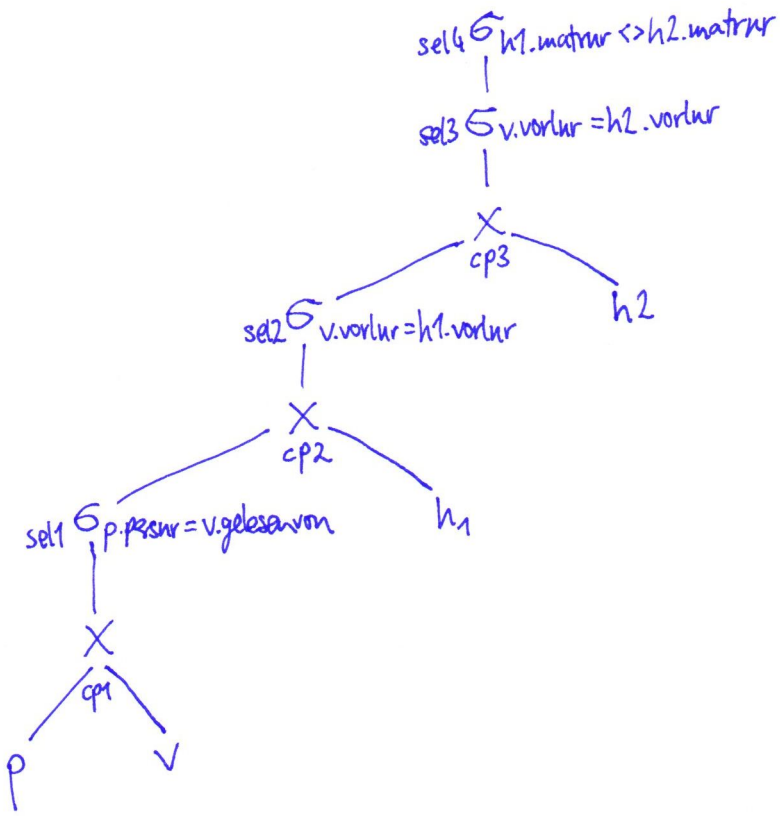
Find all professors whose lectures attended at least two students.

```
SELECT p.name, COUNT(h.matrnr) AS hoerer FROM professoren p, vorlesungen v, hoeren h
WHERE p.persnr=v.gelesenvon AND v.vorlnr=h.vorlnr
GROUP BY p.name
HAVING COUNT(h.matrnr)>=2
```



We implemented a having clause because it is flexible if the number should change. The alternative would be to use the relation hoeren two times:

```
SELECT p.name FROM professoren p, vorlesungen v, hoeren h1, hoeren h2
WHERE p.persnr=v.gelesenvon AND v.vorlnr=h1.vorlnr AND v.vorlnr=h2.vorlnr
AND h1.matrnr<>h2.matrnr
```



Exercise 2

Tinydb implementation in file Exercise2.java