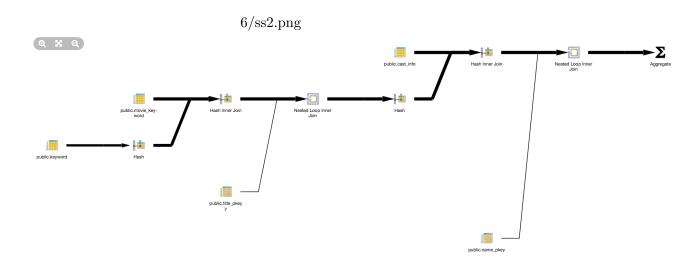
Implementation of Databases Exercise Sheet 06 Gregor Eeckels: 346265

Exercise 1

1.



2.

	estimated card.	cardinality	q-error	
cast_info	36256320	36244344	1.00033042396904741881	
name	4167363	4167491	1.00003071486693143841	
movie_keyword	4523930	4523930	1	
keyword	134170	134170	1	
title	2528754	2528312	1.000174820196241603093289	

Screenshots:

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public.cast_info

Aggregate

 Startup Cost
 0

 Plan Width
 0

 Node Type
 Seq Scan

 Plan Rows
 36256320

 Relation Name
 cast_info

 Alias
 cast_info

 Parallel Aware
 false

 Actual Rows
 36244344

 $\textbf{Output} \hspace{1cm} \text{id,person_id,movie_id,person_role_id,note,nr_order,role_id} \\$

Parent Relationship Outer
Total Cost 615250.2
Actual Loops 1
Schema public

Markus Bendel: 279587

Elder Magalhaes: 346185 Gregor Eeckels: 346265

Implementation of Databases Exercise Sheet 06

6/ss5.png



public.movie_keyword

Aggregate

otal tup cost	U
Plan Width	0
Node Type	Seq Scan

Plan Rows4523930Relation Namemovie_keywordAliasmovie_keyword

Parallel Aware false Actual Rows 4523930

Output id,movie_id,keyword_id

Parent Relationship Outer Total Cost 69693.3

Actual Loops 1

Schema public

3.

	estimated card.	cardinality	q-error
1.	414	2	1.207
2.	1	4167491	4167491
3.	4523930	4523930	1
4.	1	134170	134170
5.	1	2528312	2528312
6.	1	2528312	2528312

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Implementation of Databases Exercise Sheet 06

```
4.
5.
6.
Exercise 2
1.
a)
parent(X,Y) := child(Y,X)
b)
married(X,Y) := parent(X,Z), parent(Y,Z)
c)
sister(X,Y) := parent(Z,X), parent(Z,Y), NOT male(X)
d)
halfbrother(X,Y) := male(X), parent(A,X), parent(A,Y), parent(B,X), NOT
parent(B,Y)
2.
Datalog program 1:
The predicates can be layered:
First layer (bottom layer): t
no negative dependencies
Second layer: s
no negative dependencies
Third layer: \mathbf{r}
depends on the negative predicate s \to s is in a lower layer \to stratified
```

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Implementation of Databases Exercise Sheet 06

Fourth layer: **p**

depends on the negative predicate $r \to r$ is in a lower layer \to stratified

Fifth layer: q

depends on the negative predicate $p \to p$ is in a lower layer \to stratified

Summary: Program 1 is stratified.

Datalog program 2:

The predicates can not be layered:

First layer (bottom layer): \mathbf{s} and \mathbf{q}

no negative dependencies

Second layer: t

depends on the negative predicate t (itself) \rightarrow t is in the same layer \rightarrow **not** stratified

Third layer: **p**

depends on the negative predicate t \rightarrow t is in a lower layer \rightarrow would be stratified

Summary: Program 2 is **not** stratified because t depends on a negative predicate in the same layer (itself).