

Aufgabenblatt 6

6.1 Aufgabe

- a) The names of all female persons, who were born on "01.01.1950".

$\pi_{Person.name}$
 $\sigma_{Person.birthday='01.01.1950' \wedge Person.gender='f'}$
 $Person$

- b) The names of all persons, who played a role in the movie "The legacy of Codd".

$\pi_{Person.id, Person.name}$
 $\sigma_{Movie.title='The legacy of Codd'}$
 $(Movie \bowtie_{Movie.id=actor.movie} \sigma_{actor.role \neq null} actor)$

- c) The names of all persons, who at least once acted and directed in the same movie.

$\pi_{Person.name}$
 $\sigma_{actor.person=director.person \wedge actor.movie=director.movie}$
 $(actor \times Director \times Person)$

- d) The number of parodies to the movie "Adventures with relational databases".

$\pi_{\mathcal{F}_{count}(Movie.title)}$
 $\sigma_{Movie.title='Adventures with relational databases' \wedge connection.type='parody'}$
 $(Movie \bowtie_{connection.to=Movie.id} connection)$

- e) Genres that are not assigned to any movie at all.

$\pi_{Genre.name}$
 $(\pi_{Genre.name}(Genre \bowtie_{Genre.name=hasGenre.genre} Genre)$
 \setminus
 $\pi_{Genre.name} \sigma_{Genre.name=hasGenre.genre}(Genre \bowtie_{Movie.id=hasGenre.movie} hasGenre))$

- f) The titles of movies that are a "sequel" of a "parody".

$\pi_{Movie.title}$
 $\sigma_{Movie.id=sequel.id}$
 $(\rho_{sequel(id)}$
 $\pi_{connection.from} \sigma_{connection.type='sequel'}$
 $(connection \bowtie_{connection.to=parody.from}$
 $(\rho_{parody(from,to,title)} \sigma_{type='parody'} connection)$
 $))$

- g) The person(s) who played the role “relational algebra hacker” most.

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Person ⋈Person.id=count.personId (πcount.personId
σcount.num=max(count.num)
(ρcount(personId,num)(
Person.id ⋈count(Person.id)
Person ⋈Person.id=actor.person ∧ role='relational algebra hacker' actor
)
)
))

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6.2 Aufgabe

- a) NULL-Values werden bei der Aggregation ignoriert.
- b) Duplikate werden bei der Aggregation ignoriert.
- c) Damit Operationen wie Vereinigung, Schnitt oder Differenz auf zwei Relationen angewandt werden können müssen die Relationen aus denselben Attributen zusammengesetzt sein.
- d)

$$R \bowtie_{\theta} S = \sigma_{\theta}(R \times S)$$

6.3 Aufgabe

$$\pi_s(A \cap B) = (\pi_s A) \cap (\pi_s B)$$