

Assignment 1 posted

Quiz 1 on Wednesday 9:10 - 9:30

Query: List the last name and salary of emp in dep = 5 who earn more than 30000.

$\Pi_{lname, salary} (\sigma_{dno=5 \wedge salary > 30000} (Emp))$

Query: List the female dependents & their birthday.

$\Pi_{dependentname, Bdate} (\sigma_{sex='f'} (Dependant))$

RESULT

Dependent	Birthday

④ Rename ρ (rho)

$\rho_{\text{RESULT (Dependent, Birthday)}}$

$\pi_{\text{Dependentname, Bdate}} (\sigma_{\text{sex='f'}} (\text{Dependant}))$

$\rho_S (B_1, B_2, \dots, B_n) (R)$

new attribute names

new relation name

old relation name

$\rho_S (R)$

Example: $\rho_{\text{EMP}} (\text{EMPLOYEE})$

$\rho_{(B_1, B_2, \dots, B_n)} (R)$

$\text{Temp} \leftarrow \sigma_{\text{dno=5} \wedge \text{sal} > 30000} (\text{EMP})$

$\text{Result (Last Name, Salary)} \leftarrow \pi_{\text{lname, salary}} (\text{Temp})$

To rename a table so that it lasts the entire session in RA tool:

Use views

```
ra> EMP :- EMPLOYEE;
```

```
ra> EMP;
```

⑤ σ , Π , ρ : operators on single table

\cup , \cap , $-$: operators on 2 tables



must have identical attributes in the same order

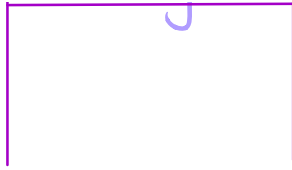
Example \cup , \cap , $-$

STUDENT

Sname
Adams
Jon
Mary

INSTRUCTOR

Iname
Adam
Dana



Student \cup Instructor

$\pi_{sname}(\text{Student}) \cup$

$e_{(sname)}(\pi_{iname}(\text{Instructor}))$

SName
Adam
Jim
Mary
Dana

Student \cap Instructor

Name
Adam

Student - Instructor

Name
Jim
Mary

Instructor - Student

Name
Dana

Query: List SSN of employees who have no dependents.

SSN
9978

66 68
4534
8886

$$\pi_{SSN}(Emp) - \rho_{(SSN)}(\pi_{ESSN}(\text{Dependent}))$$

Query: List projects (PNO) that are common to emp 1234 and emp 3334.

works-on:

1
2

2
3
10
20

WORKS_ON

Essn	Pno	Hours
123456789	1	32.5
123456789	2	75
666884444	3	40.0
453453453	1	20.0
453453453	2	20.0
333445555	2	10.0
333445555	3	10.0
333445555	10	10.0
333445555	20	10.0
999887777	30	30.0
999887777	10	10.0
987987987	10	35.0
987987987	30	5.0
987654321	30	20.0
987654321	20	15.0
888665555	20	NULL

PNO

2

$$I \quad \pi_{PNO}(\sigma_{ESSN=1234 \vee \underset{\text{or}}{ESSN=3334}} \text{works-on})$$

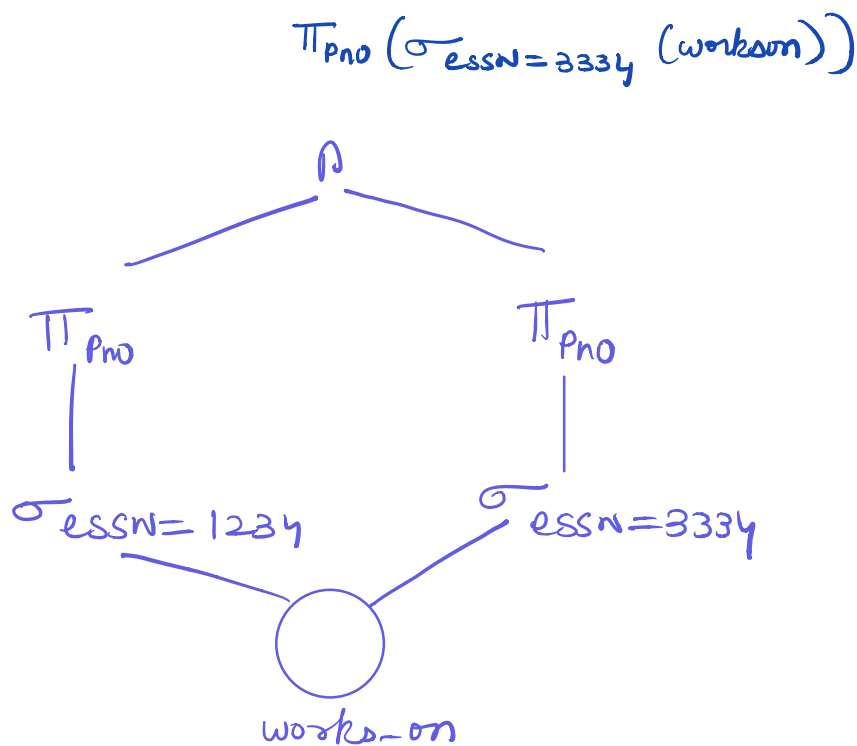
X

1
2
3
10
20

$$\text{II } \pi_{PNO}(\sigma_{\text{ESSN}=1234} \wedge \text{ESSN}=3334) \text{ works-on } \times$$

No output

$$\text{III } \pi_{PNO}(\sigma_{\text{ESSN}=1234}(\text{works-on})) \cap \pi_{PNO}(\sigma_{\text{ESSN}=3334}(\text{works-on})) \quad \checkmark$$



$$\text{IV } \pi_{PNO}(\sigma_{\text{ESSN}=1234}(\text{works-on})) \cap \sigma_{\text{ESSN}=3334}(\text{works-on}) \quad \times$$

empty table

