Assignment 2: due date Monday 22nd Feb

Outer join $\supset\!\bowtie$, $\bowtie\!\subset$, $\supset\!\bowtie\!\subset$

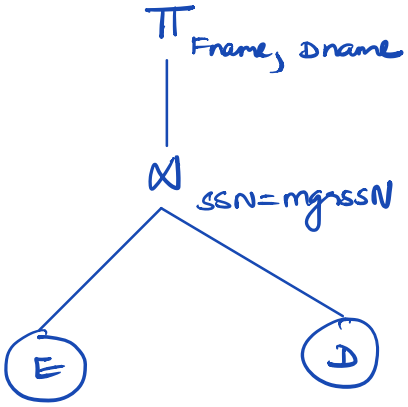
EMP

ENAME	SSN
John	1234
Mary	5678
Jack	3335

DEPARTMENT

DNAME	MgrSSN
Research	5678
Support	3335
HR	NULL

Query: List emp along with dept. managed by them.



Fname	Dname
Mary	Research
Jack	Support

Query: List emp along with dept. managed, NULL otherwise.

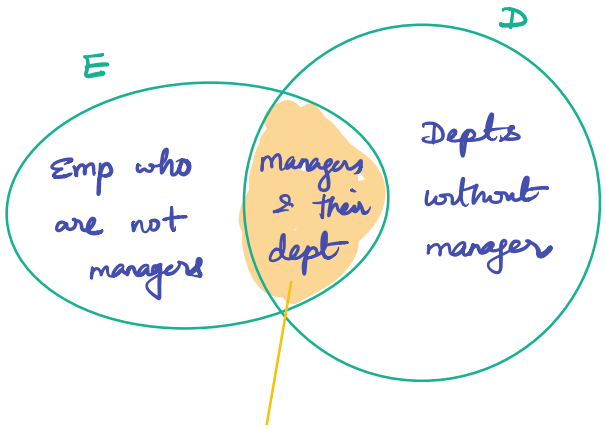
Fname	Dname
Mary	Research
Jack	Support
John	NULL

Query: List dept name along with manager, NULL otherwise

DNAME	Manager
Research	Mary
Support	Jack
HR	NULL

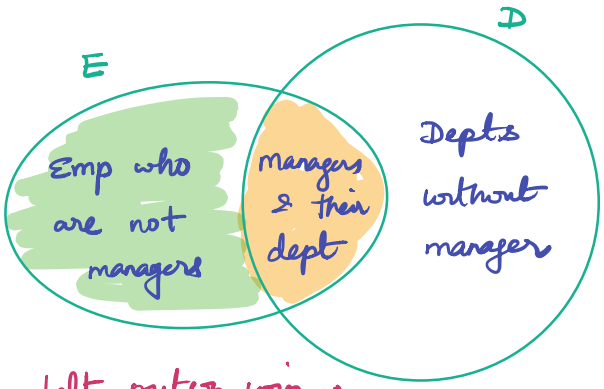
E X D

Name	SSN	Mgrssn	Dname
John	1234	5678	Research
John	1234	3335	Support
John	1234	NULL	HR
Mary	5678	5678	Research
Mary	5678	3335	Support
Mary	5678	NULL	HR
Jack	3335	5678	Research
Jack	3335	3335	Support
Jack	3335	NULL	HR



Inner join

$E \bowtie D$
$SSN = mgrSSN$



Outer join

$\supset\!\bowtie$ Left outer join :

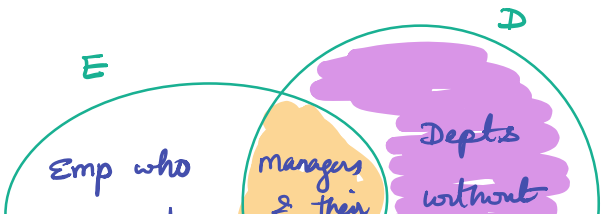
keeps every tuple from the left table.

Q1 List emp & the dept. managed, NULL otherwise

$$\Pi_{Fname, Dname} (EMP \supset\!\bowtie_{SSN = mgrSSN} Dept)$$

Fname	Dname
Mary	Research
Jack	Support
John	NULL

Q2: List dept name along with manager, null otherwise

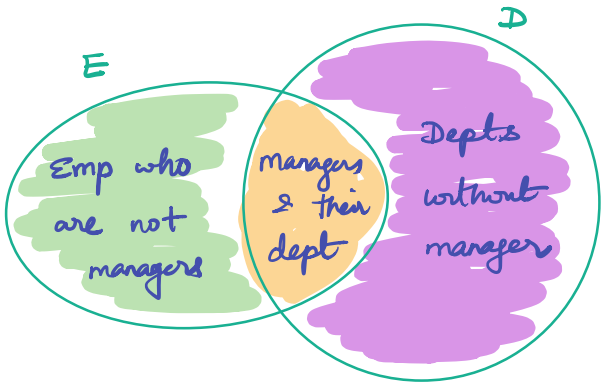


Right Outer Join $\supset\!\!\times$: keeps every tuple from the right table

$$\pi_{Dname, Ename}\left(EMP \supset\!\!\times_{SSN = mgrSSN} Dept\right)$$

D NAME	Manager
Research	Mary
Support	Jack
HR	NULL

Q3: List all tuples from both tables.



Full outer join $\times\!\!\!\times$: all tuples from both tables.

Ename	SSN	Dname
Mary	5678	Research
John	1234	NULL
Jack	3335	Support
NULL	NULL	HR

$$\Pi_{\text{Ename, SSN, DName}} \left(\text{Emp} \underset{\text{SSN} = \text{mgrSSN}}{\bowtie} \text{Department} \right)$$