

Query1: List SSN of emp who work on a project in dep4

Select essn
from works-on
where EXISTS

(Select * from Proj
where dnum=4 and Pno=Pnumber);

Select essn
from works-on
where Pno ~~IS~~ NOT IN
(Select Pnumber from Project where Dnum=4);

Query2: List SSN of emp who do not work on any
proj in dep 4.

Select SSN from Emp
where NOT EXISTS

(Select * from works, Proj
where dnum=4 and Pno=Pnumber
and SSN=essn);

Select SSN
from Emp
where SSN NOT IN
(Query1);

for i=1 to nemp
for j=1 to nw*np

Select SSN from Emp
where not exists

(Select * from works
where SSN=essn and exists

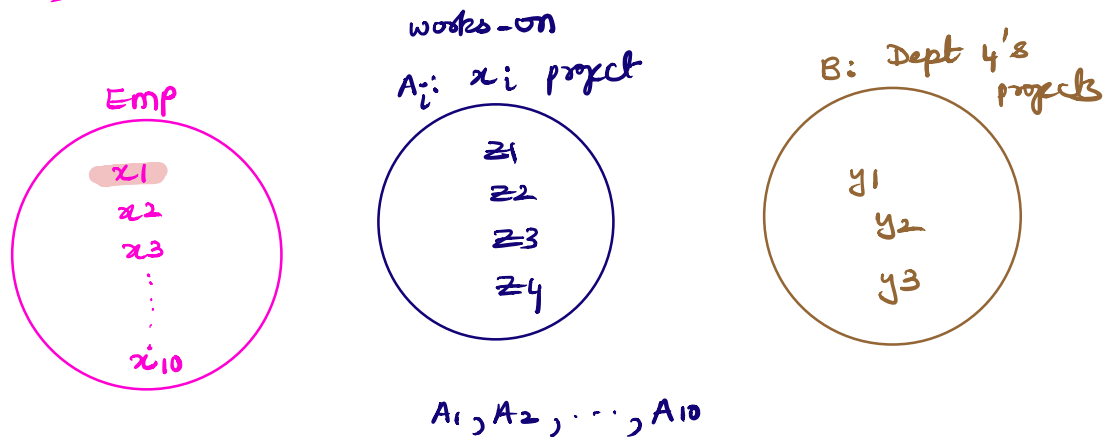
(Select * from Project
where dnum=4 and Pno=Pnumber));

for i=1 to nemp
for j=1 to nw
for k=1 to np

Query 3: List emp who work in all projects controlled by dept 4.

↓
{10, 30}

↓
{9879, 9998}



$x_i \in \text{Emp}$ will be listed if $y_1, y_2, y_3 \in A_i$

print x_i if $\nexists (y \in B \text{ s.t. } y \notin A_i)$

Select SSN

from Emp

where not exists

(Select * from Project where Dnum = 4
and Pnumber NOT IN

(Select Pno from workson where essn = ssn));

print x_i if $\nexists (y \in B \text{ and } \nexists y \in A_i)$

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select ssn  
from Emp  
where not exists  
  ( select * from Project where Dnum = 4  
    and not exists  
      ( select * from works-on Bi  
        where essn = ssn and pro = pnumber ) ) ;
```

What is the output when there are no projects in dept 4?

∅ Join