Query: Select Pname
from Project
where Dnum NOT IN
(Select Dnumber
from Dept_Loc
where Dlocation = Plocation);

Outputs projects that are not in the same location as its department.

Update Project
Set Plocation = 'Bellaire' where Pnumber = 10;

Query1: Select ESSN
from works, project
where (dnum = 4 and Pno = Pnumber);

Output: { 3334
9998
9879
9876 }

List SSN of emp who work on a project in dept 4

```
Select essn
from works_on
where Pno IN
( Select Pnumber from Project where Dnum=4);
```

NOT IN

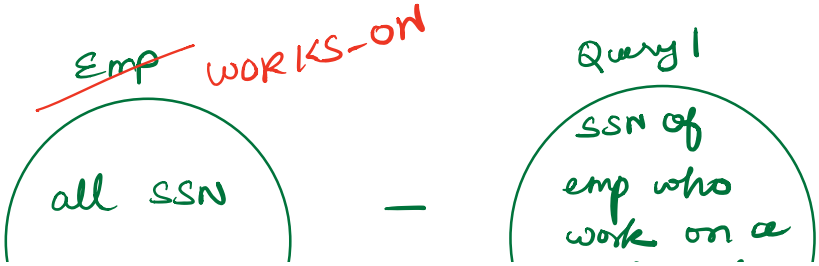
Output : { 1234
6668
4534
8886
9876
3334 }

Query 2:
Last SSN of emp who work in at least one project that is not in dept 4.

Query 3: Last SSN of emp who DO NOT work on ANY project controlled by dept 4.

Output { 1234
6668
4534
8886 }

Solution :




```
Select  SSN
from    Emp
where   SSN  NOT  IN
( Select essn
  from  workson, project
  where dnum = 4 and Pno = Pnumber );
```

Query1

Query4: List SSN of emp who work on ALL project controlled by dept 4.

{ 9998
  9879 }

{ 10, 30 }

∃ there exists

∃ x ∈ A s.t. <condition> is satisfied

A = { 0, 1, 2 }

∃ x ∈ A s.t. x > 0 True

∄ x ∈ A s.t. x > 0 False

∃ x ∈ A s.t x < 0 False

$\nexists\ x \in A$ s.t $x < 0$ True

$A = \{\}$ $\exists\ x \in A$ False

$\nexists\ x \in A$ True

$A = \{0, 1, 2\}$ $\exists\ x \in A$ True

$\nexists\ x \in A$ False

Query: List Fname of emp who work in depts located in 'Stafford' or 'Bellaire'.

```
Select Fname
from Emp
where Dno IN
(Select Dnumber
 from DeptLoc
 where Dlocation = Stafford
 or Dlocation = Bellaire);
```

```
Select Fname
from Emp
where EXISTS
(Select *
 from DeptLoc
 where (Dlocation = Stafford
 or Dlocation = Bellaire)
 AND Dnumber = Dno);
```

Output of subquery:

1234 {5, Bellaire}

IN

point $x \in$ Emp if $x.$Dno $\in$ DeptLoc

$\exists$

print $x \in$ Emp if $\exists\, y \in$ Loc s.t $x.$Dnum $= y.$Dnumber

Query: List emp without dependents.

```
Select Fname
from Emp
where SSN NOT IN
(Select essn from Dependent)
```

print $x \in$ Emp if $x.$SSN $\notin$ Dep

```
Select Fname
from Emp
where NOT EXISTS
(Select * from Dependent
 where SSN = essn);
```

↓

print $x \in$ Emp if $\nexists$ ($y \in$ Dep s.t $x.$SSN $= y.$SSN);