Set Operators: UNION, INTERSECT, EXCEPT

CIS 430/530

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Use Company2;

Q1:

Make a list of all project numbers that Research department employees are working on, either as a worker or as a manager of the department that controls the projects.

(SELECT W.Pno
 FROM DEPARTMENT D, WORKS_ON W
 WHERE D.Dname = 'research' and W.essn = D.mgrssn) /*as manager */
UNION
(SELECT W.Pno
 FROM WORKS_ON W, department D,
 EMPLOYEE E
 WHERE E.Dno = D.Dnumber AND
 W.Essn = E.Ssn AND
 D.Dname = 'research'); /*as employee */
/*Left Q: for projects as a manager of Research dept -- It returns 2,3,10,20*/

SELECT Distinct W.Pno
FROM DEPARTMENT D, WORKS_ON W
WHERE D.Dname = 'research' and w.essn = D.mgrssn;

/*Right Q: for projects as employees in Research dept -- It returns 1,2,3,10,20*/

SELECT Distinct W.Pno
FROM WORKS_ON W, department D, 
     EMPLOYEE E
WHERE E.Dno = D.Dnumber AND
      W.Essn = E.Ssn AND
      D.Dname = 'research';
Find Name and SSN of either the dept managers or supervisors

--Union
Select  E2.ssn, E2.fname, E2.lname
From Employee E1, Employee E2
Where E1.superssn = E2.ssn
UNION
Select  E3.ssn, E3.fname, E3.lname
From Employee E3, Department D
Where D.mgrssn = E3.ssn;

--UnionAll
Select  E2.ssn, E2.fname, E2.lname
From Employee E1, Employee E2
Where E1.superssn = E2.ssn
UNION All
Select  E3.ssn, E3.fname, E3.lname
From Employee E3, Department D
Where D.mgrssn = E3.ssn;
--- Intersect is Commutative
First two query results in the window

Select E2.ssn, E2.fname, E2.lname
From Employee E1, Employee E2
Where E1.superssn = E2.ssn
INTERSECT
Select E3.ssn, E3.fname, E3.lname
From Employee E3, Department D
Where D.mgrssn = E3.ssn;

Select E3.ssn, E3.fname, E3.lname
From Employee E3, Department D
Where D.mgrssn = E3.ssn
INTERSECT
Select E2.ssn, E2.fname, E2.lname
From Employee E1, Employee E2
Where E1.superssn = E2.ssn;

--- Except is NOT Commutative

Select E3.ssn, E3.fname, E3.lname
From Employee E3, Department D
Where D.mgrssn = E3.ssn
INTERSECT
Select E2.ssn, E2.fname, E2.lname
From Employee E1, Employee E2
Where E1.superssn = E2.ssn;
EXCEPT:

-- Except is NOT Commutative

Last Two Query Result

Select E3.ssn, E3.fname, E3.lname
From Employee E3, Department D
Where D.mgrssn = E3.ssn
Except
Select E2.ssn, E2.fname, E2.lname
From Employee E1, Employee E2
Where E1.superssn = E2.ssn;

Select E2.ssn, E2.fname, E2.lname
From Employee E1, Employee E2
Where E1.superssn = E2.ssn
Except
Select E3.ssn, E3.fname, E3.lname
From Employee E3, Department D
Where D.mgrssn = E3.ssn;