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Part 1: COMPANY Queries

1. Retrieve the name and address of each employee that works in the Administration department.

```
SELECT fname, Lname, bdate, address
FROM employee
WHERE dno = ‘4';
```

	fname character varying (10)	lname character varying (20)	address character varying (30)
1	Alicia	Zelaya	3321 Castle, Spring TX
2	Jennifer	Wallace	291 Berry, Bellaire TX
3	Ahmad	Jabbar	980 Dallas, Houston TX

2. Retrieve the name and SSN of each employee that either works in department 4 or has a salary lower or equal to $30,000. You are allowed to use only one condition term in any WHERE clause; i.e., don't use AND/OR Boolean operations.

```
SELECT fname, lname, ssn
FROM employee
WHERE dno = '4'
UNION
SELECT fname, lname, ssn
FROM employee
WHERE salary <= '30000';
```

	fname character varying (10)	lname character varying (20)	ssn character (9)
1	Joyce	English	453453453
2	Alicia	Zelaya	999887777
3	Jennifer	Wallace	987654321
4	John	Smith	123456789
5	Ahmad	Jabbar	987987987

3. List the name and SSN of each employee that works on at least one of the projects 1, 2, and 3. You can use only one condition term in any WHERE clause.

```
SELECT ssn, fname, lname
FROM employee JOIN works_on ON ssn=essn
WHERE pno='1'
UNION
SELECT ssn, fname, lname
FROM employee JOIN works_on ON ssn=essn
WHERE pno='2'
UNION
SELECT ssn, fname, lname
FROM employee JOIN works_on ON ssn=essn
WHERE pno='3';
```

	ssn character (9)	fname character varying (10)	lname character varying (20)
1	666884444	Ramesh	Narayan
2	123456789	John	Smith
3	333445555	Franklin	Wong
4	453453453	Joyce	English

4. Retrieve the names of all employees of the Research department who work more than 10 hours per week on the ProductX project.

```
SELECT fname, lname
FROM employee, works_on, project
WHERE dno = '5'
AND ssn = essn AND pno = pnumber AND pname = 'ProductX' AND hours > '10';
```

	fname character varying (10)	lname character varying (20)
1	John	Smith
2	Joyce	English

5. Retrieve the names of all employees who work on all projects [every project] located in either Bellaire or Sugarland. That is, if p1, p2, and p3 are in Bellaire; and p4 and p5 are located in Sugarland; then I want an employee who works on p1, p2, p3, p4, and p5.

```
SELECT DISTINCT fname, lname
FROM ((employee JOIN works_on ON ssn=essn) JOIN project ON pnumber=pno)
WHERE plocation='Bellaire' OR plocation=‘Sugarland';
```

	fname character varying (10)	lname character varying (20)
1	Franklin	Wong
2	John	Smith
3	Joyce	English

6. Find the names of all employees who work on at least one project located in Houston but whose department has no location in Houston.

```
SELECT fname, lname
FROM employee
WHERE EXISTS (SELECT *
                FROM works_on, project
                WHERE ssn=essn AND pno=pnumber AND plocation='Houston')
                AND NOT EXISTS (SELECT *
                                FROM dept_locations
                                WHERE dno=dnumber AND dlocation='Houston');
```

1	Jennifer	Wallace

7. For each department whose average employee salary is more than $30,000, retrieve the department name and the number of male employees working for that department.

```
SELECT dname, COUNT(*)
FROM department JOIN employee ON dnumber=dno
WHERE sex='M'
GROUP BY dname HAVING AVG(salary) > ‘3000';
```

	dname character varying (15)	count bigint
1	Administration	1
2	Headquarters	1
3	Research	3

8. Retrieve the names of all employees who work in the department that has the employee with the highest salary among all employees.

```
SELECT fname,lname
FROM employee
WHERE dno=(SELECT dno
                FROM employee
                WHERE salary=(SELECT MAX(SALARY)
                                FROM employee));
```

1	James	Borg

9. [9A] Create a View ProjectInfo that has the project name, controlling department name, number of employees, and total hours worked per week on the project for each project with more than one employee working on it.

[9B] Show the content of this view.

9a

```
CREATE VIEW ProjectInfo (project_name, department_name, number_of_employees, total_num_hours)
AS
SELECT pname, dname, COUNT(*), SUM(hours)
FROM project, department, works_on
WHERE pnumber=pno AND dnumber=dnum
GROUP BY pname, dname HAVING COUNT(*)>1;
```

9b

```
SELECT * FROM ProjectInfo;
```

	project_name character varying (15)	department_name character varying (15)	number_of_employees bigint	total_num_hours numeric
1	ProductZ	Research	2	50.0
2	ProductY	Research	3	37.5
3	ProductX	Research	2	52.5
4	Reorganization	Headquarters	3	41.0
5	Computerization	Administration	3	55.0
6	Newbenefits	Administration	3	55.0

10. [10A] Create a View DepartmentInfo that has the department name, manager name for each department. [10B] Show the content of this view

10a

```
CREATE VIEW DepartmentInfo (department_name, mgr_fname, mgr_lname)
AS
SELECT dname, fname, lname
FROM DEPARTMENT, EMPLOYEE
WHERE DEPARTMENT.Mgr_ssn = EMPLOYEE.Ssn
GROUP BY dname, fname, lname;
```

10b

```
SELECT * FROM DepartmentInfo;
```

	department_name character varying (15)	mgr_fname character varying (10)	mgr_lname character varying (20)
1	Research	Franklin	Wong
2	Headquarters	James	Borg
3	Administration	Jennifer	Wallace