

# USE OF INBUILT FUNCTIONS AND RELATIONAL ALGEBRA OPERATIONS

LAB - 7

ABHINAV PATEL  
500119461  
DBMS LAB

# EXPERIMENT - 7

**Title:** Use of Inbuilt functions and relational algebra operation

**Objective:** To understand the use of inbuilt function and relational algebra with sql query.

Write and execute the following queries using the Relational Algebra on the COMPANY database schema.

1. Retrieve the names of all employees in department 5 who work more than 10 hours
2. per week on the 'ProductX' project.
3. List the names of all employees who have a dependent with the same first name as
4. themselves.
5. Find the names of employees who are directly supervised by 'Franklin Wong'.
6. Retrieve the names of employees who work on every project.
7. Retrieve the names of employees who do not work on any project.
8. Retrieve the names and addresses of all employees who work on at least one project
9. located in Houston but whose department has no location in Houston.
10. Retrieve the last names of all department managers who have no dependents.

The screenshot shows a SQL IDE interface with three queries entered and executed. The first query retrieves employee names from department 5 working more than 10 hours on 'ProductX'. The second query retrieves names of employees who work on every project using a NOT EXISTS clause. The third query lists names of employees with dependents sharing their first name. The output pane shows the results of the first two queries: 2 rows returned for the first query and 0 rows for the second.

```
1 • USE company_2;
2
3 -- 1. Retrieve the names of all employees in department 5 who work more than 10 hours per week on the 'ProductX' project.
4 • SELECT E.Fname, E.Lname
5 FROM Employee E
6 JOIN Works_On W ON E.Ssn = W.Essn
7 JOIN Project P ON W.Pno = P.Pnumber
8 WHERE E.Dno = 5 AND W.Hours > 10 AND P.Pname = 'ProductX';
9
10 -- 2. Retrieve the names of employees who work on every project.
11 • SELECT E.Fname, E.Lname
12 FROM Employee E
13 WHERE NOT EXISTS (
14     SELECT P.Pnumber
15     FROM Project P
16     WHERE NOT EXISTS (
17         SELECT W.Essn
18         FROM Works_On W
19         WHERE W.Pno = P.Pnumber AND W.Essn = E.Ssn
20     )
21 )
22
23 -- 3. List the names of all employees who have a dependent with the same first name as themselves.
```

Form Editor | Navigate: 0/0 | Read Only

Result 3 Employee 4 x

Output

#	Time	Action	Message
1	10:02:28	SELECT E.Fname, E.Lname FROM Employee E JOIN Works_On W ON E.Ssn = W.Essn JOIN Project P ON W.Pno = P.Pnumber WHERE E.Dno = 5 A...	2 row(s) returned
2	10:02:28	SELECT E.Fname, E.Lname FROM Employee E WHERE NOT EXISTS ( SELECT P.Pnumber FROM Project P WHERE NOT EXISTS ( SEL...	0 row(s) returned

```

22
23 -- 3. List the names of all employees who have a dependent with the same first name as themselves.
24 • SELECT E.Fname, E.Lname
25 FROM Employee E
26 JOIN Dependent D ON E.Ssn = D.Essn
27 WHERE E.Fname = D.Dependent_name;
28
29 -- 4. Find the names of employees who are directly supervised by 'Franklin Wong'.
30 • SELECT E.Fname, E.Lname
31 FROM Employee E
32 JOIN Employee S ON E.Super_ssn = S.Ssn
33 WHERE S.Fname = 'Franklin' AND S.Lname = 'Wong';
34
35 -- 5. Retrieve the names of employees who do not work on any project.
36 • SELECT E.Fname, E.Lname
37 FROM Employee E
38 LEFT JOIN Works_On W ON E.Ssn = W.Essn
39 WHERE W.Essn IS NULL;
40
41 -- 6. Retrieve the names and addresses of all employees who work on at least one project located in Houston but whose department has no location

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Fname	Lname
James	Borg

Result Grid

Result 5 Result 6 Result 7 Read Only

Output			
Action Output			
#	Time	Action	Message
1	10:02:28	SELECT E.Fname, E.Lname FROM Employee E JOIN Works_On W ON E.Ssn = W.Essn JOIN Project P ON W.Pno = P.Pnumber WHERE E.Dno = 5 A...	2 row(s) returned
2	10:02:28	SELECT E.Fname, E.Lname FROM Employee E WHERE NOT EXISTS ( SELECT P.Pnumber FROM Project P WHERE NOT EXISTS ( SEL...	0 row(s) returned
3	10:04:07	SELECT E.Fname, E.Lname FROM Employee E JOIN Dependent D ON E.Ssn = D.Essn WHERE E.Fname = D.Dependent_name LIMIT 0, 1000	0 row(s) returned
4	10:04:07	SELECT E.Fname, E.Lname FROM Employee E JOIN Employee S ON E.Super_ssn = S.Ssn WHERE S.Fname = 'Franklin' AND S.Lname = 'Wong' LIM...	3 row(s) returned
5	10:04:07	SELECT E.Fname, E.Lname FROM Employee E LEFT JOIN Works_On W ON E.Ssn = W.Essn WHERE W.Essn IS NULL LIMIT 0, 1000	1 row(s) returned

```

41 -- 6. Retrieve the names and addresses of all employees who work on at least one project located in Houston but whose department has no location
42 • SELECT E.Fname, E.Lname, E.Address
43 FROM Employee E
44 JOIN Works_On W ON E.Ssn = W.Essn
45 JOIN Project P ON W.Pno = P.Pnumber
46 JOIN Dept_Locations DL ON E.Dno = DL.Dnumber
47 WHERE P.Plocation = 'Houston'
48 AND E.Dno NOT IN (
49     SELECT DL2.Dnumber
50     FROM Dept_Locations DL2
51     WHERE DL2.Dlocation = 'Houston'
52 );
53
54 -- 7. Retrieve the last names of all department managers who have no dependents.
55 • SELECT E.Lname
56 FROM Employee E
57 JOIN Department D ON E.Ssn = D.Mgr_ssn
58 LEFT JOIN Dependent Dep ON E.Ssn = Dep.Essn
59 WHERE Dep.Essn IS NULL;
60

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Lname
Borg

Result Grid

Result 8 Result 9 Read Only

Output			
Action Output			
#	Time	Action	Message
1	10:04:34	SELECT E.Fname, E.Lname, E.Address FROM Employee E JOIN Works_On W ON E.Ssn = W.Essn JOIN Project P ON W.Pno = P.Pnumber JOIN Dept...	1 row(s) returned
2	10:04:34	SELECT E.Lname FROM Employee E JOIN Department D ON E.Ssn = D.Mgr_ssn LEFT JOIN Dependent Dep ON E.Ssn = Dep.Essn WHERE Dep.Ess...	1 row(s) returned