

Experiment No 6

Aim: Implement various Join operations.

Class: SE Comp

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Theory:

A SQL JOIN combines records from two tables. A JOIN locates related column values in the two tables. A query can contain zero, one, or multiple JOIN operations. INNER JOIN is the same as JOIN; the keyword INNER is optional.

Four different types of JOINS:

(INNER) JOIN:

Select records that have matching values in both tables.

FULL (OUTER) JOIN:

Selects all records that match either left or right table records.

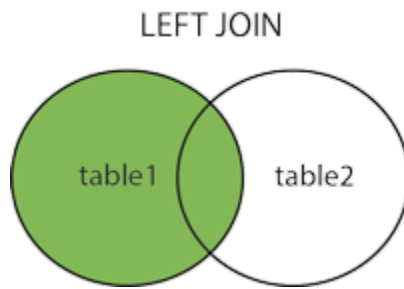
LEFT (OUTER) JOIN:

Select records from the first (left-most) table with matching right table records.

RIGHT (OUTER) JOIN:

Select records from the second (right-most) table with matching left table records.

Left Join:

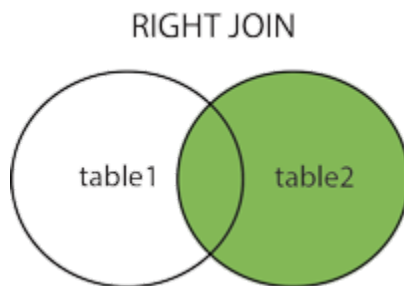


The LEFT JOIN keyword returns all records from the left table (table1), and the matching records from the right table (table2). The result is 0 records from the right side, if there is no match.

Syntax:

```
SELECT column_name(s)
FROM table1
LEFT JOIN table2
ON table1.column_name = table2.column_name;
```

Right Join:



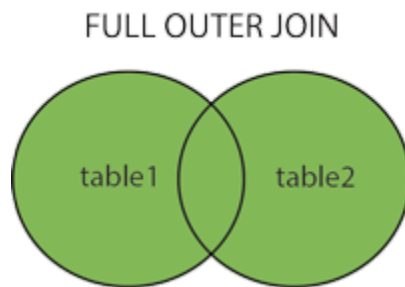
The RIGHT JOIN keyword returns all records from the right table (table2), and the matching records from the left table (table1). The result is 0 records from the left side, if there is no match.

Syntax:

```
SELECT column_name(s)
FROM table1
RIGHT JOIN table2
```

`ON table1.column_name = table2.column_name;`

Full Join:



The FULL OUTER JOIN keyword returns all records when there is a match in left (table1) or right (table2) table records.

Syntax:

```
SELECT column_name(s)
FROM table1
FULL OUTER JOIN table2
ON table1.column_name = table2.column_name
WHERE condition;
```

Self Join:

A self join is a regular join, but the table is joined with itself.

Syntax:

```
SELECT column_name(s)
FROM table1 T1, table1 T2
WHERE condition;
```

Cross Join:

The SQL CROSS JOIN produces a result set which is the number of rows in the first table multiplied by the number of rows in the second table if no WHERE clause is used along with CROSS JOIN. This kind of result is called as Cartesian Product.

Syntax:

```
SELECT *
FROM table1
CROSS JOIN table2;
```

Query:

```
select * from dept cross join emp
```

✓ Showing rows 0 - 14 (15 total, Query took 0.0031 seconds.)

```
select * from dept cross join emp
```

☐ Show all | Number of rows: Filter rows: Sort by key:

+ Options

did	dname	location	ssn	ename	address	salary	dept_no	super_ssn
1	COMPS	Mumbai	1	Ram	Mumbai	70000	1	1
2	IT	Mumbai	1	Ram	Mumbai	70000	1	1
3	EXTC	Pune	1	Ram	Mumbai	70000	1	1
1	COMPS	Mumbai	2	Rahul	Pune	50000	1	1
2	IT	Mumbai	2	Rahul	Pune	50000	1	1
3	EXTC	Pune	2	Rahul	Pune	50000	1	1
1	COMPS	Mumbai	3	Sneha	Mumbai	60000	3	1
2	IT	Mumbai	3	Sneha	Mumbai	60000	3	1
3	EXTC	Pune	3	Sneha	Mumbai	60000	3	1
1	COMPS	Mumbai	4	Anil	Mumbai	60000	2	2
2	IT	Mumbai	4	Anil	Mumbai	60000	2	2
3	EXTC	Pune	4	Anil	Mumbai	60000	2	2
1	COMPS	Mumbai	5	Riya	Mumbai	40000	3	2
2	IT	Mumbai	5	Riya	Mumbai	40000	3	2
3	EXTC	Pune	5	Riya	Mumbai	40000	3	2

Query:

```
select * from dept inner join emp on dept.did = emp.dept_no
```

✓ Showing rows 0 - 4 (5 total, Query took 0.0023 seconds.)

```
select * from dept inner join emp on dept.did = emp.dept_no
```

☐ Show all | Number of rows: 25 Filter rows:

+ Options

did	dname	location	ssn	ename	address	salary	dept_no	super_ssn
1	COMPS	Mumbai	1	Ram	Mumbai	70000	1	1
1	COMPS	Mumbai	2	Rahul	Pune	50000	1	1
3	EXTC	Pune	3	Sneha	Mumbai	60000	3	1
2	IT	Mumbai	4	Anil	Mumbai	60000	2	2
3	EXTC	Pune	5	Riya	Mumbai	40000	3	2

Query:

```
select * from dept left join emp on dept.did = emp.dept_no
```

✓ Showing rows 0 - 4 (5 total, Query took 0.0025 seconds.)

```
select * from dept left join emp on dept.did = emp.dept_no
```

☐ Show all | Number of rows: 25 Filter rows:

+ Options

did	dname	location	ssn	ename	address	salary	dept_no	super_ssn
1	COMPS	Mumbai	1	Ram	Mumbai	70000	1	1
1	COMPS	Mumbai	2	Rahul	Pune	50000	1	1
3	EXTC	Pune	3	Sneha	Mumbai	60000	3	1
2	IT	Mumbai	4	Anil	Mumbai	60000	2	2
3	EXTC	Pune	5	Riya	Mumbai	40000	3	2

Query:

```
select * from dept right join emp on dept.did = emp.dept_no
```

✓ Showing rows 0 - 4 (5 total, Query took 0.0023 seconds.)

```
select * from dept right join emp on dept.did = emp.dept_no
```

☐

Show all

Number of rows:

25

Filter rows:

+ Options

did	dname	location	ssn	ename	address	salary	dept_no	super_ssn
1	COMPS	Mumbai	1	Ram	Mumbai	70000	1	1
1	COMPS	Mumbai	2	Rahul	Pune	50000	1	1
3	EXTC	Pune	3	Sneha	Mumbai	60000	3	1
2	IT	Mumbai	4	Anil	Mumbai	60000	2	2
3	EXTC	Pune	5	Riya	Mumbai	40000	3	2

Query:

```
select ename, dname from emp, dept where emp.dept_no = dept.did  
and dname = 'COMPS'
```

✓ Showing rows 0 - 1 (2 total, Query took 0.0027 seconds.)

```
select ename, dname from emp, dept where emp.dept_no = dept.did and dname = 'COMPS'
```

☐

Show all

Number of rows:

25

Filter rows:

+ Options

ename	dname
Ram	COMPS
Rahul	COMPS

Query:

```
update emp, dept set salary = salary*1.2 where emp.dept_no =  
dept.did and dname = 'IT'
```

4	Anil	Mumbai	72000	2	2
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Query:

```
select * from sailor where sname like "___%"
```

✓ Showing rows 0 - 10 (11 total, Query took 0.0019 seconds.)

```
select * from sailor where sname like "___%"
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

sid	sname	address	rating	age
1	Rahul	Mumbai	5	34
2	Danyl	Pune	5	21
3	Shrinath	Hyderabad	5	22
4	Jack	Pennsylvania	4	32
5	Sean	Ontario	3	30

Query:

```
select * from sailor where sname like "%ram%"
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0019 seconds.)

```
select * from sailor where sname like "%ram%"
```

☐ Show all | Number of rows: 25 Filter rows:

+ Options

sid	sname	address	rating	age
11	Abram	Iran	4	23

Query:

```
select * from sailor order by rating desc
```

✓ Showing rows 0 - 10 (11 total, Query took 0.0019 seconds.) [rating: 5... - 1...]

```
select * from sailor order by rating desc
```

☐ Show all | Number of rows: 25 Filter rows:

+ Options

sid	sname	address	rating	▼ 1	age
1	Rahul	Mumbai	5		34
2	Danyl	Pune	5		21
3	Shrinath	Hyderabad	5		22
7	Hans	Berlin	4		28
11	Abram	Iran	4		23
4	Jack	Pennsylvania	4		32
5	Sean	Ontario	3		30
10	Bob	Alabama	3		54
6	Matt	Texas	3		29

Query:

```
select max(rating) from sailor
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0024 seconds.)

```
select max(rating) from sailor
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

max(rating)

5

Query:

```
select count(bid) from boat_info
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0015 seconds.)

```
select count(bid) from boat_info
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

count(bid)

2

Query:

```
select count(bid) from boat_info where color="green"
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0019 seconds.)

```
select count(bid) from boat_info where color="green"
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

count(bid)

1

Query:

```
select count(bid) from boat_info where color="blue"
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0019 seconds.)

```
select count(bid) from boat_info where color="blue"
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

count(bid)

1

Query:

```
select avg(age) from sailor
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0017 seconds.)

```
select avg(age) from sailor
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

avg(age)

29.4545

Query:

```
select avg(age) from sailor where rating="5"
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0018 seconds.)

```
select avg(age) from sailor where rating="5"
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

avg(age)

25.6667

Query:

```
select avg(age) from sailor where rating="4"
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0020 seconds.)

```
select avg(age) from sailor where rating="4"
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

avg(age)

27.6667

Query:

```
select avg(age) from sailor where rating="3"
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0024 seconds.)

```
select avg(age) from sailor where rating="3"
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

avg(age)

37.6667

Query:

```
select avg(age) from sailor where rating="2"
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0019 seconds.)

```
select avg(age) from sailor where rating="2"
```

☐ Show all | Number of rows: 25 Filter rows:

+ Options

avg(age)

29.0000

Query:

```
select avg(age) from sailor where rating="1"
```

✓ Showing rows 0 - 0 (1 total, Query took 0.0019 seconds.)

```
select avg(age) from sailor where rating="1"
```

☐ Show all | Number of rows: 25 Filter rows:

+ Options

avg(age)

22.0000

Query:

```
select avg(age) from sailor group by rating having avg(age) > 40
```

✓ Showing rows 0 - 2 (3 total, Query took 0.0023 seconds.)

```
SELECT avg(age) from sailor GROUP by rating having avg(age) > 40
```

☐ Show all

Number of rows:

25



Filter rows:

Search this table

+ Options

avg(age)

41.5000

41.3333

40.6000