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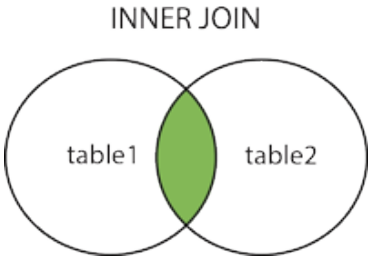
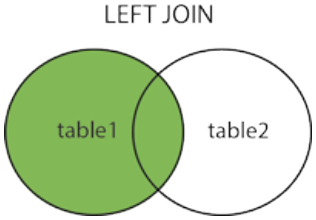
Experiment No.	**4**

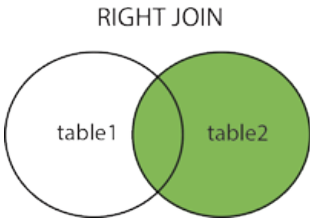
AIM:	**To perform join operations on the database**
PROBLEM STATEMENT:	To implement 5 types of JOINS in MySQL on existing tables in the database
THEORY:	**JOINS IN MySQL**: A JOIN clause is used to combine rows from two or more tables, based on a related column between them. **TYPES OF JOINS IN MySQL:** **1. INNER JOIN:** The INNER JOIN keyword selects records that have matching values in both tables. **INNER JOIN Syntax:** SELECT *column_name(s)* FROM *table1* INNER JOIN *table2* ON *table1.column_name = table2.column_name;* **2. LEFT OUTER JOIN** The LEFT JOIN keyword returns all records from the left table (table1), and the matching records (if any) from the right table. **LEFT JOIN Syntax** SELECT *column_name(s)* FROM *table1* LEFT JOIN *table2* ON *table1.column_name = table2.column_name;*





3. RIGHT OUTER JOIN

The RIGHT JOIN keyword returns all records from the right table (table2), and the matching records (if any) from the left table (table1).

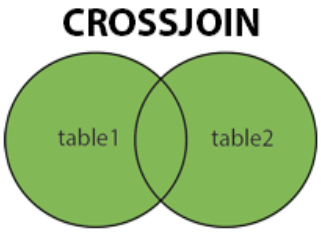


RIGHT JOIN Syntax

SELECT *column_name(s)*
FROM *table1*
RIGHT JOIN *table2*
ON *table1.column_name = table2.column_name;*

4. FULL/CROSS JOIN

The CROSS JOIN keyword returns all records from both tables (table1 and table2).



CROSS JOIN Syntax

SELECT *column_name(s)*
FROM *table1*
CROSS JOIN *table2;*

QUERIES:

1. INNER JOIN

Query:

```
SELECT patient.P_id,patient.Pname,patient.Age,doctor.Dname,doctor.Field
FROM patient
INNER JOIN doctor
ON patient.D_id = doctor.D_id;
```

Output:

P_id	Pname	Age	Dname	Field
Filter...	Filter...	Filter...	Filter...	Filter...
1	Rahul	25	akash	Cardiologist
2	Raj	30	pramod	Neurologist
3	Pranay	35	hansraj	Orthopedic
4	Dev	40	ritu	dermatologist
5	Hatim	45	viraj	dentist

2. LEFT OUTER JOIN

Query:

```
SELECT patient.P_id,patient.Pname,patient.Age,doctor.Dname,doctor.Field
FROM patient
LEFT JOIN doctor
ON patient.D_id = doctor.D_id
ORDER BY patient.Age;
```

Output:

P_id	Pname	Age	Dname	Field
Filter...	Filter...	Filter...	Filter...	Filter...
1	Rahul	25	akash	Cardiologist
2	Raj	30	pramod	Neurologist
3	Pranay	35	hansraj	Orthopedic
4	Dev	40	ritu	dermatologist
5	Hatim	45	viraj	dentist
6	Virinchi	50	NULL	NULL
7	Udit	55	NULL	NULL
8	Kaif	60	NULL	NULL
9	Anish	65	NULL	NULL

3. RIGHT OUTER JOIN

Query:

```
SELECT patient.P_id,patient.Pname,patient.Age,doctor.Dname,doctor.Field
FROM patient
RIGHT JOIN doctor
ON patient.D_id = doctor.D_id
ORDER BY patient.Age;
```

Output:

P_id	Pname	Age	Dname	Field
NULL	NULL	NULL	rohit	ophthalmologist
NULL	NULL	NULL	Iyer	gynecologist
NULL	NULL	NULL	sachin	pediatrician
NULL	NULL	NULL	sagar	pediatrician
1	Rahul	25	akash	Cardiologist
2	Raj	30	pramod	Neurologist
3	Pranay	35	hansraj	Orthopedic
4	Dev	40	ritu	dermatologist
5	Hatim	45	viraj	dentist

4. FULL JOIN

Query:

```
SELECT * FROM patient FULL JOIN doctor;
```

Output:

P_id	Pname	Age	FULL.Address	FULL.Ph_no	FULL.D_id	doctor.D_id	Dname	doctor.Ph_...	Salary
9	Anish	65	Borivali	9876543210	NULL	1	akash	5748364582	500000
8	Kaif	60	Bandra	9876543210	NULL	1	akash	5748364582	500000
7	Udit	55	Dahisar	9876543210	NULL	1	akash	5748364582	500000
6	Virinchi	50	bhayandar	9876543210	NULL	1	akash	5748364582	500000
5	Hatim	45	Marol	9876543210	5	1	akash	5748364582	500000
4	Dev	40	Santacruz	9876543210	4	1	akash	5748364582	500000
3	Pranay	35	Colaba	9876543210	3	1	akash	5748364582	500000
2	Raj	30	Parel	9876543210	2	1	akash	5748364582	500000
1	Rahul	25	Andheri	9876543210	1	1	akash	5748364582	500000
9	Anish	65	Borivali	9876543210	NULL	2	pramod	8965735643	720000
8	Kaif	60	Bandra	9876543210	NULL	2	pramod	8965735643	720000
7	Udit	55	Dahisar	9876543210	NULL	2	pramod	8965735643	720000
6	Virinchi	50	bhayandar	9876543210	NULL	2	pramod	8965735643	720000
5	Hatim	45	Marol	9876543210	5	2	pramod	8965735643	720000
4	Dev	40	Santacruz	9876543210	4	2	pramod	8965735643	720000
3	Pranay	35	Colaba	9876543210	3	2	pramod	8965735643	720000
2	Raj	30	Parel	9876543210	2	2	pramod	8965735643	720000
1	Rahul	25	Andheri	9876543210	1	2	pramod	8965735643	720000

5. CROSS JOIN

Query:

```
SELECT patient.P_id,patient.Pname,patient.Age,doctor.Dname,doctor.Field
FROM patient
CROSS JOIN doctor;
```

Output:

P_id	Pname	Age	Dname	Field
Filter...	Filter...	Filter...	Filter...	Filter...
9	Anish	65	akash	Cardiologist
8	Kaif	60	akash	Cardiologist
7	Udit	55	akash	Cardiologist
6	Virinchi	50	akash	Cardiologist
5	Hatim	45	akash	Cardiologist
4	Dev	40	akash	Cardiologist
3	Pranay	35	akash	Cardiologist
2	Raj	30	akash	Cardiologist
1	Rahul	25	akash	Cardiologist
9	Anish	65	pramod	Neurologist
8	Kaif	60	pramod	Neurologist
7	Udit	55	pramod	Neurologist
6	Virinchi	50	pramod	Neurologist
5	Hatim	45	pramod	Neurologist
4	Dev	40	pramod	Neurologist
3	Pranay	35	pramod	Neurologist
2	Raj	30	pramod	Neurologist
1	Rahul	25	pramod	Neurologist

RESULT:

Final Patient table:

P_id	Pname	Age	Address	Ph_no	D_id
Filter...	Filter...	Filter...	Filter...	Filter...	Filter...
1	Rahul	25	Andheri	9876543210	1
2	Raj	30	Parel	9876543210	2
3	Pranay	35	Colaba	9876543210	3
4	Dev	40	Santacruz	9876543210	4
5	Hatim	45	Marol	9876543210	5
6	Virinchi	50	bhayandar	9876543210	NULL
7	Udit	55	Dahisar	9876543210	NULL
8	Kaif	60	Bandra	9876543210	NULL
9	Anish	65	Borivali	9876543210	NULL

CONCLUSION:	In this experiment, we learned how to implement different type of joins in MySQL.