

```
create table dept(  
    dept_id int,  
    dept_name varchar(20),  
    primary key (dept_id)  
);
```

```
create table employee (  
    emp_id int,  
    first_name varchar(20),  
    last_name varchar(20),  
    dept_id int,  
    primary key(emp_id),  
    foreign key(dept_id) references dept(dept_id)  
  
);
```

```
insert into dept values  
    (10,"HR"),  
    (20,"Sales"),  
    (30,"IT"),  
    (40,"Marketing");
```

```
insert into employee values  
    (1,"jhon","doe",10),  
    (2,"jane","smith",20),  
    (3,"mike","jhonson",30),  
    (4,"emily","davis",10);
```

INNER JOIN: Retrieves only the rows that have matching values in both tables.

```
select * from employee
```

```
INNER JOIN dept on employee.dept_id = dept.dept_id;
```

emp_id	first_name	last_name	dept_id	dept_id	dept_name
1	jhon	doe	10	10	HR
2	jane	smith	20	20	Sales
3	mike	jhonson	30	30	IT
4	emily	davis	10	10	HR

LEFT OUTER JOIN: Retrieves all rows from the left table and the matching rows from the right table. If there is no match, the right side will show **NULL**.

```
select * from employee
```

```
LEFT OUTER JOIN dept on employee.dept_id = dept.dept_id;
```

emp_id	first_name	last_name	dept_id	dept_id	dept_name
1	jhon	doe	10	10	HR
2	jane	smith	20	20	Sales
3	mike	jhonson	30	30	IT
4	emily	davis	10	10	HR

RIGHT OUTER JOIN: Retrieves all rows from the right table and the matching rows from the left table. If there is no match, the left side will show **NULL**.

```
select * from employee
```

```
RIGHT OUTER JOIN dept on employee.dept_id = dept.dept_id;
```

emp_id	first_name	last_name	dept_id	dept_id	dept_name
1	jhon	doe	10	10	HR
4	emily	davis	10	10	HR
2	jane	smith	20	20	Sales
3	mike	jhonson	30	30	IT
NULL	NULL	NULL	NULL	40	Marketing

FULL OUTER JOIN: Retrieves all rows from both tables, showing **NULL** where there is no match in either table

```
select * from employee
```

```
FULL OUTER JOIN dept on employee.dept_id = dept.dept_id;
```

emp_id	first_name	last_name	dept_id	dept_id	dept_name
1	jhon	doe	10	10	HR
2	jane	smith	20	20	Sales
3	mike	jhonson	30	30	IT
4	emily	davis	10	10	HR
NULL	NULL	NULL	NULL	40	Marketing

```
SELECT first_name, COUNT(*)
```

```
FROM Employee
```

```
GROUP BY first_name
```

```
HAVING COUNT(*) > 1;
```

first_name	COUNT(*)
John	2

```
SELECT email, COUNT(*)
```

```
FROM Employee
```

```
GROUP BY email
```

```
HAVING COUNT(*) > 1;
```

email	COUNT(*)
john.doe@example.com	2

```
SELECT first_name, last_name, COUNT(*)
```

```
FROM Employee
```

```
GROUP BY first_name, last_name
```

```
HAVING COUNT(*) > 1;
```

first_name	last_name	COUNT(*)
John	Doe	2

```
SELECT first_name, email, COUNT(*)
```

```
FROM Employee
```

```
GROUP BY first_name, email
```

```
HAVING COUNT(*) > 1;
```

first_name	email	COUNT (*)
John	john.doe@example.com	2