Customer

CustID	Name	City	Age	Salary	DeptID
1	Ahmad	Amman	20	400	D1
2	Nidal	Irbid	25	220	D3
3	Abeer	Ajloun	40	400	D4
4	Sarah	Amman	20	400	D4
5	Khaled	Aqaba	20	400	D5
6	Leen	Amman	25	300	D7
7	Joud	Irbid	35	700	D7
8	Nizar	Karak	45	550	
9	Waleed	Aqaba	43	590	

Department

DeptId	Name
D1	Eng
D2	Com
D3	Lib
D4	Bus
D5	Edu
D6	Nat
D7	Mar

SQL JOINs

Combine rows from one or more tables based on a common field between those tables.

Types:
1. **Cross join**
2. **Inner join or Simple join or join**
3. **Right outer join or Right join**
4. **Left outer join or Left Join**
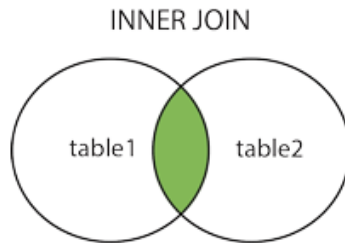5. **Full outer join or Full join**

1. Cross join

Combine each row from the first table (customer) with all rows in the second table (Department)

```
SELECT *
FROM Customer
CROSS JOIN Department;
```

After we run the sql query, will have 63 rows in the new table.

2. Inner join / Simple join/ Join

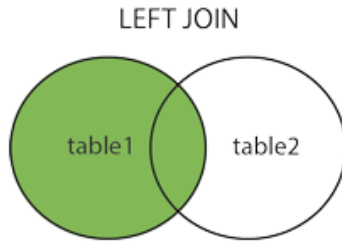Returns all rows when there is at least one match in BOTH tables

INNER JOIN


```
SELECT c.CustID, c.Name, c.DeptID, d.DeptID, d.Name
FROM Customer c
INNER JOIN Department d ON c.DeptID = d.DeptID;
```

c.CustID	c.Name	c.DeptID	d.DeptID	d.Name
1	Ahmad	D1	D1	Eng
2	Nidal	D3	D3	Lib
3	Abeer	D4	D4	Bus
4	Sarah	D4	D4	Bus
5	Khaled	D5	D5	Edu
6	Leen	D7	D7	Mar
7	Joud	D7	D7	Mar

3. Left outer join / Left Join

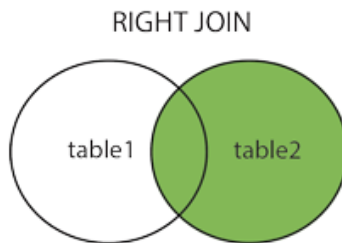Return all rows from the left table (Customer), and the matched rows from the right table (Department).

LEFT JOIN


```
SELECT c.CustID, c.Name, c.DeptID, d.DeptID, d.Name
FROM Customer c
LEFT JOIN Department d ON c.DeptID = d.DeptID;
```

c.CustID	c.Name	c.DeptID	d.DeptId	d.Name
1	Ahmad	D1	D1	Eng
2	Nidal	D3	D3	Lib
3	Abeer	D4	D4	Bus
4	Sarah	D4	D4	Bus
5	Khaled	D5	D5	Edu
6	Leen	D7	D7	Mar
7	Joud	D7	D7	Mar
8	Nizar			
9	Waleed			

4. Right outer join /Right Join

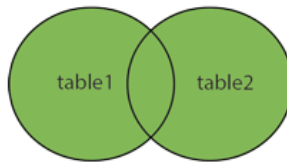Return all rows from the right table (Department), and the matched rows from the left table (Customer).

RIGHT JOIN


```
SELECT c.CustID, c.Name, c.DeptID, d.DeptID, d.Name
FROM Customer c
RIGHT JOIN Department d ON c.DeptID = d.DeptID;
```

c.CustID	c.Name	c.DeptID	d.DeptId	d.Name
1	Ahmad	D1	D1	Eng
			D2	Com
2	Nidal	D3	D3	Lib
3	Abeer	D4	D4	Bus
4	Sarah	D4	D4	Bus
5	Khaled	D5	D5	Edu
			D6	Nat
6	Leen	D7	D7	Mar
7	Joud	D7	D7	Mar

5. Full outer join / Full Join

Return all rows when there is a match in ONE of the tables

FULL OUTER JOIN


```
SELECT c.CustID, c.Name, c.DeptID, d.DeptID, d.Name
FROM Customer c
LEFT JOIN Department d ON c.DeptID = d.DeptID

UNION

SELECT c.CustID, c.Name, c.DeptID, d.DeptID, d.Name
FROM Customer c
RIGHT JOIN Department d ON c.DeptID = d.DeptID;
```

c.CustID	c.Name	c.DeptID	d.DeptId	d.Name
1	Ahmad	D1	D1	Eng
			D2	Com
2	Nidal	D3	D3	Lib
3	Abeer	D4	D4	Bus
4	Sarah	D4	D4	Bus
5	Khaled	D5	D5	Edu
			D6	Nat
6	Leen	D7	D7	Mar
7	Joud	D7	D7	Mar
8	Nizar			
9	Waleed			