CROSS JOIN

people

name	state
Marcus	CA
Jennifer	VA
Devin	MA
Britt	CA

states

abbr	full
CA	California
DE	Delaware
VA	Virginia

result

name	state	abbr	full
Marcus	CA	CA	California
Marcus	CA	DE	Delaware
Marcus	CA	VA	Virginia
Jennifer	VA	CA	California
Jennifer	VA	DE	Delaware
Jennifer	VA	VA	Virginia
Devin	MA	CA	California
Devin	MA	DE	Delaware
Devin	MA	VA	Virginia
Britt	CA	CA	California
Britt	CA	DE	Delaware
Britt	CA	VA	Virginia

```
SELECT * FROM people JOIN states;
```

CROSS joins are not used most often. In SQL, the **CROSS JOIN** is used to merge each row of the first table with each row of the second table. It is also known as the **Cartesian join** since it returns the Cartesian product of the sets of rows from the joined tables.
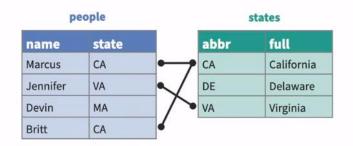
(INNER) JOIN

people

name	state
Marcus	CA
Jennifer	VA
Devin	MA
Britt	CA

states

abbr	full
CA	California
DE	Delaware
VA	Virginia

result

name	state	abbr	full
Marcus	CA	CA	California
Jennifer	VA	VA	Virginia
Britt	CA	CA	California

```
SELECT * FROM people JOIN states
ON people.state = states.abbr;
```

INNER JOIN is used to display records that match criteria in both tables. This is often referred to as a basic JOIN, the default type of join.
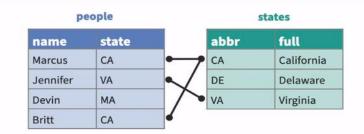
LEFT (OUTER) JOIN

people

name	state
Marcus	CA
Jennifer	VA
Devin	MA
Britt	CA

states

abbr	full
CA	California
DE	Delaware
VA	Virginia

result

name	state	abbr	full
Marcus	CA	CA	California
Jennifer	VA	VA	Virginia
Devin	MA	NULL	NULL
Britt	CA	CA	California

```
SELECT * FROM people LEFT JOIN states
ON people.state = states.abbr;
```

LEFT (OUTER) JOIN is used to get back all the records in the left table and the matched records from the right table. The final record table length would be same as the left table.
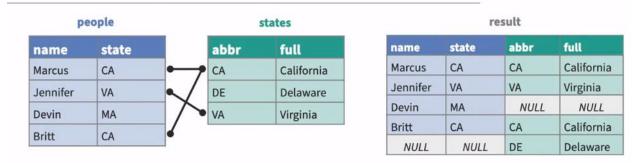
RIGHT (OUTER) JOIN

people

name	state
Marcus	CA
Jennifer	VA
Devin	MA
Britt	CA

states

abbr	full
CA	California
DE	Delaware
VA	Virginia

result

name	state	abbr	full
Marcus	CA	CA	California
Jennifer	VA	VA	Virginia
Britt	CA	CA	California
NULL	NULL	DE	Delaware

```
SELECT * FROM people RIGHT JOIN states
ON people.state = states.abbr;
```

RIGHT (OUTER) JOIN keyword shows the records in the right table and the matched records from the left table. So, the rows with common values with the right tables, only those data will be joined from left table to the right one.

FULL (OUTER) JOIN

people			states			result			
name	**state**		**abbr**	**full**		**name**	**state**	**abbr**	**full**
Marcus	CA		CA	California		Marcus	CA	CA	California
Jennifer	VA		DE	Delaware		Jennifer	VA	VA	Virginia
Devin	MA		VA	Virginia		Devin	MA	NULL	NULL
Britt	CA					Britt	CA	CA	California
						NULL	NULL	DE	Delaware

```
SELECT * FROM people FULL OUTER JOIN states
   ON people.state = states.abbr;
```

FULL (OUTER) JOIN keyword returns all the matched and unmatched values from different tables, the values from left table and right table records.