

Set Operations

- **Set operators** combine the results of two queries into a single result.
- The two queries can be a select query from a same table or from different tables.
- The different types of Set Operators are given below.

Operators	Description
UNION	Returns all distinct rows selected by both the queries
UNION ALL	Returns all rows selected by either query, including all duplicates
INTERSECT	Returns all distinct rows selected by both queries
MINUS	Returns all distinct rows selected by the first query but not the second

- Some rules of set operators are:
 1. Both queries should select the same number of columns.
 2. The columns must be of the same data type. However the length and name of the columns may be different.
 3. Column names of first query will be column headings of the retrieved records.

```
SELECT Country, State  
FROM Customers  
<Set Operator>  
SELECT Country, State  
FROM Offices
```

The records retrieved will have the columns for the first table.

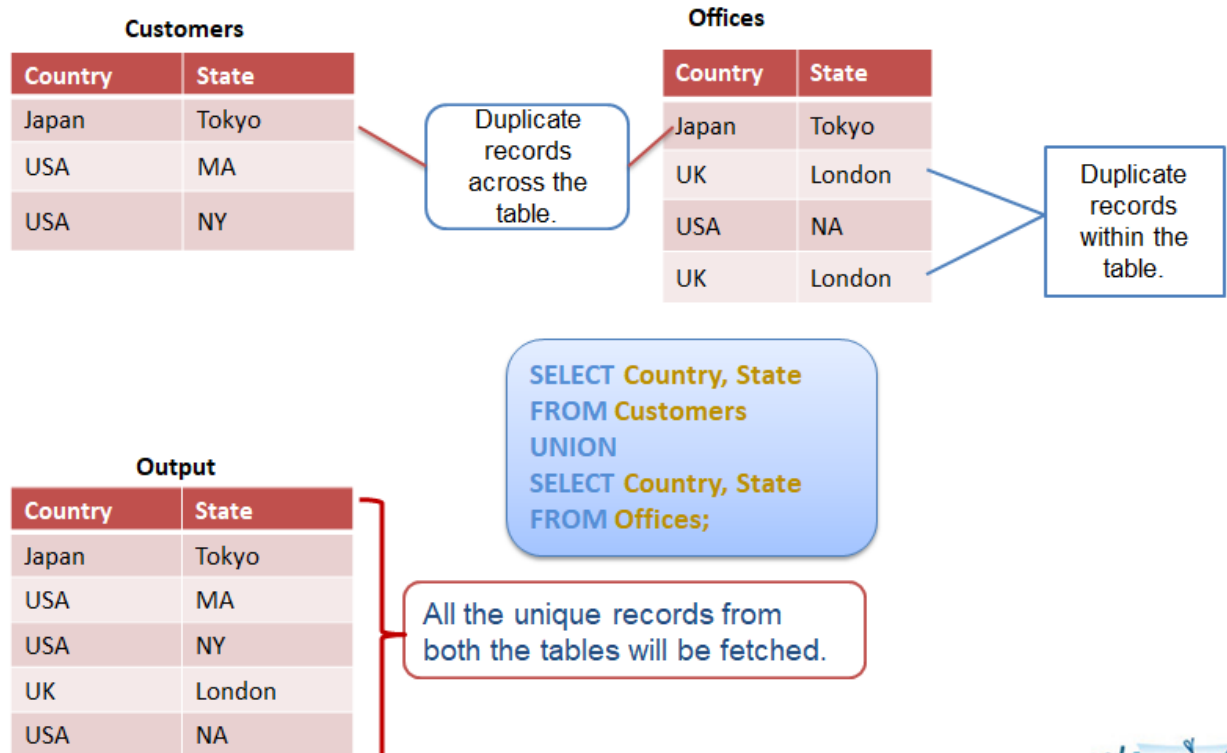
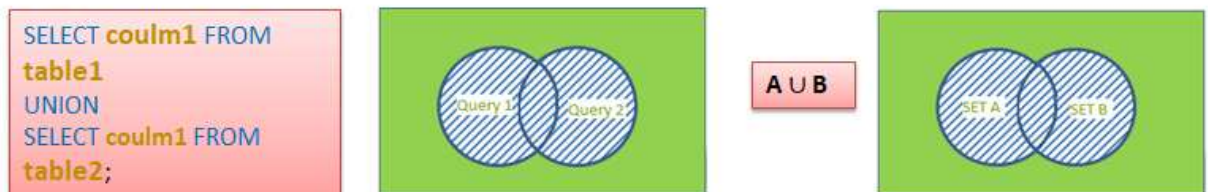
Country	State
Japan	Tokyo

- **UNION**

The UNION operator combines the output of two query expressions into a single result set. Query expressions are executed independently, and their output is combined into a single result table.

- **Syntax**

```
{ <query_specification> | ( <query_expression> ) }
UNION <query_specification> | ( <query_expression> )
[ UNION <query_specification> | ( <query_expression> )
[ ...n ] ]
```



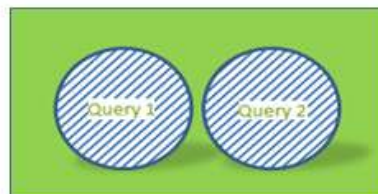
- **UNION ALL**

If UNION ALL is specified, duplicate rows returned by union expression are retained. If two query expressions return the same row, two copies of the row are returned in the final result. If ALL is not specified, duplicate rows are eliminated from the result set.

- **Syntax**

```
{ <query_specification> | ( <query_expression> ) }
UNION ALL <query_specification> | ( <query_expression> )
[ UNION ALL <query_specification> | ( <query_expression> )
[ ...n ] ]
```

```
SELECT column1 FROM
table1
UNION ALL
SELECT column1 FROM
table2;
```



A & B
where
 $A \cap B = \emptyset$



Customers

Country	State
Japan	Tokyo
USA	MA
USA	NY

Offices

Country	State
Japan	Tokyo
USA	NA
UK	London

Output

Country	State
Japan	Tokyo
USA	MA
USA	NY
UK	London
USA	NA
Japan	Tokyo

```
SELECT Country, State
FROM Customers
UNION ALL
SELECT Country, State
FROM Offices;
```

This also retrieves the duplicate records

