

Chapter 5: Set Operators

Analytics Tensor

Mahesh KC

mahesh.kc@analyticstensor.com

<https://analyticstensor.com>

Introduction

- Set
- Set Operators
 - UNION
 - INTERSECT
 - EXCEPT
- Wrap-up

Set

Set is used to combine/merge multiple tables into one table. It can also be used to find the common values among multiple tables. Set in database works similar to mathematical set operations like union, intersect etc.

Rules while performing set operations:

- Both datasets must have the same number of columns
- The data types of each column between the datasets must be same.

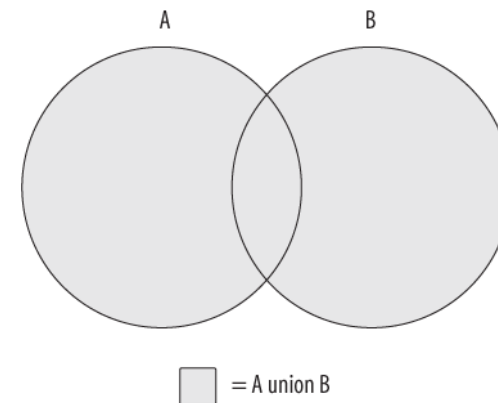
Each set operation has two flavor which

1. Include duplicates
2. Remove duplicates

Set Operators

UNION: UNION is used to merge/combine data from two or more tables. It only returns unique values between those tables. It sort the combined result from set and removes duplicates.

```
SELECT column_a, column_b from Table_A  
UNION  
SELECT column_a, column_b from Table_B
```

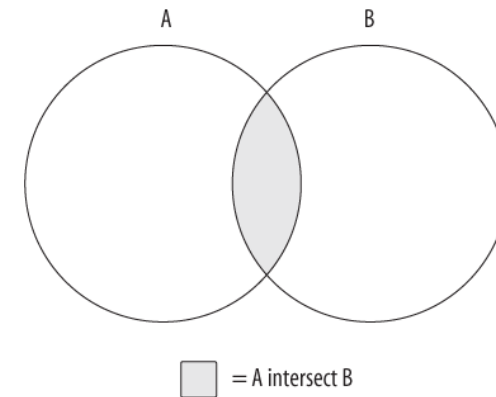


UNION ALL: Same as UNION but includes ALL the records from two more tables. The total number of records will be always equal to sum of the total numbers in each table or datasets.

Set Operators (cont..)

INTERCEPT: INTERCEPT is used to combine ONLY the common records between two or more tables. It returns the interception records from table A and table B.

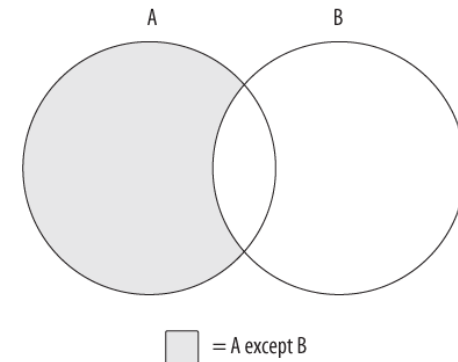
```
SELECT column_a, column_b from Table_A  
INTERCEPT  
SELECT column_a, column_b from Table_B
```



Set Operators (cont..)

EXCEPT: EXCEPT is used to return the value from first table minus any overlapping from second table. It performs A minus B which returns only records on A excluding common records from B.

```
SELECT column_a, column_b from Table_A  
EXCEPT  
SELECT column_a, column_b from Table_B
```

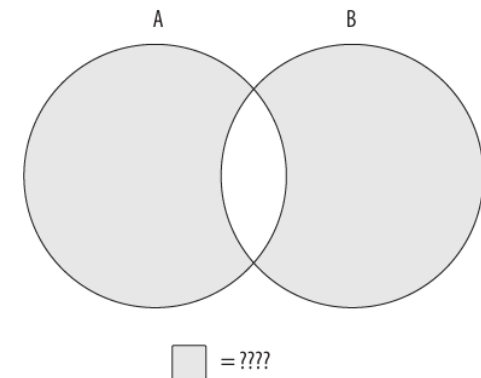


Set Operators (cont..)

How to combine two table to discard common records in both tables but include all other records. Since we don't have that function we need to construct by combining multiple set operators.

Using combination of Set Operators:

- $(A \cup B) \text{ except } (A \cap B)$
- $(A \text{ except } B) \cup (B \text{ except } A)$



Practice

If set $X = \{A B C D E\}$ and set $Y = \{E F G H O\}$, what sets are generated by the following operations?

- $X \cup Y = \{A B C D E F G H O\}$
- $X \cup \text{all } Y = \{A B C D E E F G H O\}$
- $X \cap Y = \{E\}$
- $X \setminus Y = \{A B C D\}$

Assignment-6

Write SQL statement for all the questions. The question are posted on [github](#) Chapter_5_Set_Operators/Assignment-6.

Wrap-up

- Important points.
- Q & A.