



Module 5

Extended Query Formulation with SQL

Lesson 4: SQL SET Operators

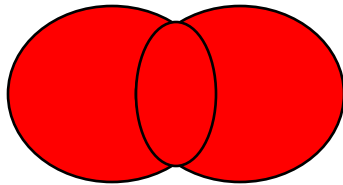


Lesson Objectives

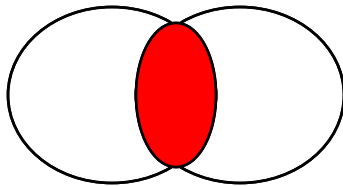
- Briefly explain the union compatibility requirement and row matching
- Write SQL SELECT statements using the UNION operator



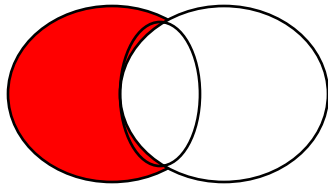
Traditional Set Operators



A UNION B



A INTERSECT B



A MINUS B



Union Compatibility

- Requirement for the traditional set operators
- Strong requirement
 - Same number of columns
 - Each corresponding column is compatible
 - Positional correspondence
- Apply to similar tables by removing columns first



SQL UNION Example

Example 1: Retrieve basic data about all university people

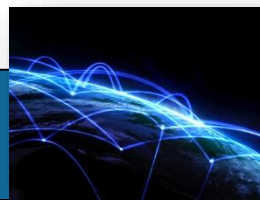
```
SELECT FacNo AS PerNo, FacFirstName AS FirstName,  
       FacLastName AS LastName, FacCity AS City,  
       FacState AS State  
FROM Faculty  
UNION  
SELECT StdNo AS PerNo, StdFirstName AS FirstName,  
       StdLastName AS LastName, StdCity AS City,  
       StdState AS State  
FROM Student;
```



SQL INTERSECT Example

Example 2: Show teaching assistants, faculty who are students.
Only show the common columns in the result.

```
SELECT FacNo AS PerNo, FacFirstName AS  
       FirstName, FacLastName AS LastName,  
       FacCity AS City, FacState AS State  
FROM Faculty  
INTERSECT  
SELECT StdNo AS PerNo, StdFirstName AS  
       FirstName, StdLastName AS LastName,  
       StdCity AS City, StdState AS State  
FROM Student;
```



PostgreSQL EXCEPT Example

Example 3 (PostgreSQL): Show faculty who are not students (only faculty). Only show the common columns in the result.

```
SELECT FacNo AS PerNo, FacFirstName AS  
       FirstName, FacLastName AS LastName,  
       FacCity AS City, FacState AS State  
FROM Faculty  
EXCEPT  
SELECT StdNo AS PerNo, StdFirstName AS  
       FirstName, StdLastName AS LastName,  
       StdCity AS City, StdState AS State  
FROM Student;
```



Summary

- Traditional set operators are not common in queries
- Must have union compatible tables to apply the traditional set operators
- Some usage of UNION in business intelligence queries

