

12. Set Operations

UNION, EXCEPT, and INTERSECT

Introduction to Set Operations in SQL

In SQL, set operations are used to combine the results of two or more SELECT queries. These set operations include UNION, EXCEPT (or MINUS), and INTERSECT. They allow us to perform operations similar to those in set theory, such as combining sets, finding the difference between sets, and finding the intersection of sets.

1. UNION Operator

- The UNION operator is used to combine the results of two or more SELECT statements into a single result set.
- It removes duplicate rows from the combined result set by default.
- The columns in the SELECT statements must have the same data types.
- Example:

```
SELECT Programmer_Name, Primary FROM programmers
UNION
SELECT Programmer_Name FROM studies;
```

2. EXCEPT (MINUS) Operator

- The EXCEPT (or MINUS) operator returns the rows that are present in the first result set but not in the second result set.
- It removes duplicate rows from the first result set by default.
- The columns in the SELECT statements must have the same data types.
- Example:

```
SELECT Programmer_Name FROM programmers
EXCEPT
SELECT Programmer_Name FROM studies;
```

3. INTERSECT Operator

- The INTERSECT operator returns the rows that are present in both result sets.
- It removes duplicate rows from the combined result set by default.
- The columns in the SELECT statements must have the same data types.
- Example:

```
SELECT Programmer_Name FROM programmers
INTERSECT
SELECT Programmer_Name FROM studies;
```

Dataset for Below queries

01

```
SELECT
    Language,
    COUNT(*) AS ProficiencyCount
FROM
    (
        SELECT Primary_Language AS Language FROM Programmers
        UNION ALL
        SELECT Secondary_Language AS Language FROM Programmers
    ) AS CombinedLanguages
GROUP BY
    Language
ORDER BY
    ProficiencyCount DESC
LIMIT 1;
```

2. Display the details of the SoftwareApps Developed by the Femlae Programmers Earning More than 3000/-.

```
SELECT S.*, P.SALARY FROM Programmer P
INNER JOIN Software S
ON P.PNAME = S.PNAME
WHERE P.SALARY > 15000
AND P.GENDER = 'F';
```