Database Systems

Spring 2019

Lab Manual 6

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Purpose:

Understanding of

- Set Operators
  - UNION
  - INTERSECTION
  - EXCEPT
- Creation of database
- Connection With Application

Reading Material:

Set operations allow the results of multiple queries to be combined into a single result set. Set operators include `UNION`, `INTERSECT`, and `EXCEPT`.

UNION operator

In SQL the **`UNION`** clause combines the results of two SQL queries into a single table of all matching rows. The two queries must result in the same number of columns and compatible data types in order to unite. Any duplicate records are automatically removed unless `UNION ALL` is used.

`UNION` can be useful in data warehouse applications where tables aren't perfectly normalized. A simple example would be a database having tables `sales2005` and `sales2006` that have identical structures but are separated because of performance considerations. A `UNION` query could combine results from both tables.

Note that `UNION ALL` does not guarantee the order of rows. Rows from the second operand may appear before, after, or mixed with rows from the first operand. In situations where a specific order is desired, `ORDER BY` must be used.

Note that `UNION ALL` may be much faster than plain `UNION`.

INTERSECT operator

The SQL `INTERSECT` operator takes the results of two queries and returns only rows that appear in both result sets. For purposes of duplicate removal the `INTERSECT` operator does not distinguish between `NULLs`. The `INTERSECT` operator removes duplicate rows from the final result set. The `INTERSECT ALL` operator does not remove duplicate rows from the final result set. In SQL Server Management Studio 2017 `Intersect All` is not supported. If used, it will result in the error: `The 'ALL' version of the INTERSECT operator is not supported.`

EXCEPT operator

The SQL EXCEPT operator takes the distinct rows of one query and returns the rows that do not appear in a second result set. The EXCEPT ALL operator does not remove duplicates. For purposes of row elimination and duplicate removal, the EXCEPT operator does not distinguish between NULLs. In SQL Server Management Studio 2017 Except All is not supported. If we use It will give an errorThe 'ALL' version of the except operator is not supported.

Notably, the Oracle platform provides a MINUS operator which is functionally equivalent to the SQL standard EXCEPT DISTINCT operator.

DATABASE DESIGN:

Follow these steps:-

- CREATE a database with name “HIRE A CAR”
- INSERT at least 5 records in each table.
- Make a C# windows form application and connect with the database.