

SQL Course

Update Statement

- To introduce the syntax used to update data which is already in the database.
- To note any restrictions the SQL standard places on the use of the **UPDATE** statement.
- To illustrate the use of the **UPDATE** statement using examples.

The **UPDATE** statement alters values within existing rows of a table. The smallest unit of data that can be modified in a database is a single column of a single row.

- The **UPDATE** statement can update a single row or multiple rows.
- We may restrict the update statement to a particular row or value by using the **WHERE** clause.

This command is used to update rows from a table where the rows to be updated are identified by a search condition.

The Update statement also allows a **SELECT** statement to be used to retrieve rows from one or more tables to update another table. The rows to be updated are identified by the search condition. If no **WHERE** clause is specified then all the rows of the table will be updated.

The update command has the form:

```
UPDATE tablename SET columnname = {<value expression>|NULL|DEFAULT}  
[columnname = {<value expression>|NULL|DEFAULT}, ...] WHERE <search  
condition>;
```

- To update multiple rows from a table you could use a **SELECT** statement in the **WHERE** clause.
- **DEFAULT** implies the substitution of the current default value defined for the target column.
- The **SET** clause may also specify **NULL** as the key word if the column is to be updated to the null value. The target table to be updated is named in the statement, and you must have the required permission to update that table as well as the individual columns within the table. The **SET** clause specifies which columns are to be updated and calculates the new values for them.
- The **WHERE** clause selects the rows of the table to be modified. If the **WHERE** clause is omitted then all rows of the target table are updated.

Conceptually, SQL processes the **UPDATE** statement by going through the target table row by row, updating those rows for which the search condition yields a **FALSE** or **NULL** result.

Because it searches the table, this form of the update statement is sometimes referred to as a searched **UPDATE**. This term distinguishes it from a different form of the **UPDATE** statement called a positioned **UPDATE**, which always updates a single row.

The expression in each assignment must be computable based on the values of the row currently being updated in the target table.

- It may not include any column functions or sub-queries.
- If an expression in the assignment list references one of the columns of the target table,

the value used to calculate the expression is the value of that column in the current row before any updates are applied.

ISO Standards

The ANSI/ISO standard mandates unqualified names for the target columns, but many implementations allow qualified column names. An update may be performed on a table or view with certain restrictions on updating views.

SQL1 applies the following restriction when using the **UPDATE** statement:

- The target table cannot appear in the **FROM** clause of any sub-query at any level of nesting. This prevents the sub-queries from referencing the target table.

SQL2 removes this restriction, and specifies that a reference to the target table in a sub-query is evaluated as if none of the target table has been updated.

The following example modifies table *Aircraft* by changing the value in the column *no_club_seats* to 20 for all records where the value in column *call_sign* is equal to 'C171'.

UPDATE aircraft SET no_club_seats = 20 WHERE call_sign = 'C171';

<i>Call Sign</i>	<i>Aircraft Name</i>	<i>Model</i>	<i>Club Seats</i>	<i>Econ Seats</i>
N410C	Eagle Flyer	ATR42	22	40
C171	Jolly Roger	BS68	23	30
N7255U	NULL	Boeing 727-200	34	100
N301SW	NULL	Boeing 737-200	8	120

Table after update statement

<i>Call Sign</i>	<i>Aircraft Name</i>	<i>Model</i>	<i>Club Seats</i>	<i>Econ Seats</i>
N410C	Eagle Flyer	ATR42	22	40
C171	Jolly Roger	BS68	20	30
N7255U	NULL	Boeing 727-200	34	100
N301SW	NULL	Boeing 737-200	8	120

The following example modifies table *Aircraft* by changing the value in the column *no_club_seats* to 50 for all records.

UPDATE aircraft SET club_seats = 50;