UNIT IV - SQL

ALTER COMMAND

SQL: ALTER command

- Is a DDL statement - examples of DDL include CREATE, DROP, ALTER etc.
- Is an SQL command used for modifying tables.
- *The changes that are caused by issuing DDL commands cannot be rolled back.*

The Need of the ALTER TABLE Statement

- Specifications of a database may change with time.
- For example, you may need to add a column to a particular table, or you may need to add another primary key to a table. You may also need to change the data-type of a particular column in a table.
- You may not afford to drop a table and create it again from scratch. Alter Table statement lets you do all this very seamlessly.

SQL: ALTER command

- The ALTER TABLE statement is used to :
  - add columns in an existing table.
  - delete columns in an existing table or
  - modify columns in an existing table.
- The ALTER TABLE statement is also used to :
  - add various constraints on an existing table.
  - drop various constraints on an existing table.
- The SQL ALTER TABLE statement is also used to
  - rename a table.

ALTER command : Add a column in table

- To add a column in a table, the ALTER TABLE syntax in SQL is

```
ALTER TABLE table_name
  ADD column_name column_definition;
```

Example

Let's look at a SQL ALTER TABLE example that adds a column.

```
ALTER TABLE supplier
  ADD supplier_name char(50);
```

- This SQL ALTER TABLE example will add a column called *supplier_name* to the *supplier* table.

ALTER command : Add multiple columns in table

- To add multiple columns to an existing table, the SQL ALTER TABLE syntax is:

```
ALTER TABLE table_name
  ADD (column_1 column_definition,
       column_2 column_definition,
       ...
       column_n column_definition);
```

Example

Let's look at a SQL ALTER TABLE example that adds more than one column.

```
ALTER TABLE supplier
  ADD (supplier_name char(50),
       city char(45));
```

- This SQL ALTER TABLE example will add two columns, supplier_name as a char(50) field and city as a char(45) field to the supplier table.

ALTER command : Add Column with default value

- ALTER command can add a new column to an existing table with a default value too. The default value is used when no value is inserted in the column. Following is the syntax,

```
ALTER TABLE table_name ADD(
    column-name1 datatype1 DEFAULT some_value
);
```

Example

Let's look at a SQL ALTER TABLE example that adds a column with a default value.

```
ALTER TABLE student ADD(
    dob DATE DEFAULT '01-Jan-99'
);
```

- The above command will add a new column with a preset default value to the table **student**.

ALTER command : Modify column in table

- **ALTER TABLE MODIFY COLUMN** statement to modify a column of a table.
- The following changes can be made to an existing column of a table:
  - Modify the data type
  - Change the size.
  - Rename a column
  - Add a NOT NULL constraint

ALTER command : Modify column in table

Modify column's data type

- To modify the data type of a column, you use the following statement:

```
ALTER TABLE table_name
MODIFY COLUMN column_name datatype;
```

- If you want to modify multiple columns in table, the SQL table will be

```
ALTER TABLE table_name
MODIFY (column_1 column_type,
        column_2 column_type,
        .....
        column_n column_type);
```

- *The new data type must be compatible with the old one, otherwise, you will get a conversion error in case the column has data and it fails to convert.*

ALTER command : Change the size of a column

- ALTER command can also be used to increase the size of any existing column. Following is the syntax,

```
ALTER TABLE table_name modify(
    column_name datatype
);
```

- Here is an example :

```
ALTER TABLE student MODIFY(
    address varchar(300));
```

- *However, when you decrease the size of the column, it checks the existing data to see if it can convert data based on the new size. If the conversion fails, the statement is terminated and issues an error message.*

ALTER command : Rename a column

- Using ALTER command you can rename an existing column. Following is the syntax,

```
ALTER TABLE table_name
  RENAME COLUMN old_name TO new_name;
```

- Here is an example :

```
ALTER TABLE supplier
  RENAME COLUMN supplier_name TO sname;
```

- *The above command renames a column in the supplier table from supplier_name to sname.*

ALTER command : DROP column

- To drop a column in an existing table, the SQL ALTER TABLE syntax is:

```
ALTER TABLE table_name
  DROP COLUMN column_name;
```

- Here is an example :

```
ALTER TABLE supplier
  DROP COLUMN supplier_name;
```

- This SQL ALTER TABLE example will drop the column called *supplier_name* from the table called *supplier*.

ALTER command : RENAME TABLE

- To rename a table, the SQL ALTER TABLE syntax is:

```
ALTER TABLE table_name
  RENAME TO new_table_name;
```

- Here is an example :

```
ALTER TABLE supplier
  RENAME TO vendor;
```

- This SQL ALTER TABLE example renames a table called supplier to the new name vendor.

ALTER command : ADD CONSTRAINT

- The basic syntax of an ALTER TABLE command to add a **NOT NULL** constraint to a column in a table is as follows:

```
ALTER TABLE table_name MODIFY column_name datatype NOT NULL;
```

- The basic syntax of ALTER TABLE to **ADD UNIQUE CONSTRAINT** to a table is as follows.

```
ALTER TABLE table_name
ADD CONSTRAINT MyUniqueConstraint UNIQUE(column1, column2...);
```

- The basic syntax of an ALTER TABLE command to **ADD CHECK CONSTRAINT** to a table is as follows.

```
ALTER TABLE table_name
ADD CONSTRAINT MyUniqueConstraint CHECK (CONDITION);
```

ALTER command : ADD CONSTRAINT

- The basic syntax of an ALTER TABLE command to **ADD UNIQUE** constraint to a table is as follows.

```
ALTER TABLE users ADD CONSTRAINT id_name_unique UNIQUE (id, name);
```

- The basic syntax of an ALTER TABLE command to **ADD PRIMARY KEY** constraint to a table is as follows.

```
ALTER TABLE table_name
ADD CONSTRAINT MyPrimaryKey PRIMARY KEY (column1, column2...);
```

ALTER command : DROP CONSTRAINT

- The basic syntax of an ALTER TABLE command to **DROP CONSTRAINT** from a table is as follows.

```
ALTER TABLE Persons
DROP CONSTRAINT PK_Person;
```

- Here is an example :

```
ALTER TABLE table_name
DROP CONSTRAINT MyUniqueConstraint;
```

- This SQL ALTER TABLE example renames a table called supplier to the new name vendor.