SQL Table and DESCRIBE Command

Table Commands in SQL

The Table command in SQL is used to define, manipulate, and manage tables within a database. A table is a collection of related data held in a structured format within a database. It consists of columns and rows. Columns represent the attributes or fields of the data, and rows represent individual records.

CREATE TABLE

The CREATE TABLE statement is used to create a new table in the database.

```
CREATE TABLE table_name (
    column1 datatype PRIMARY KEY (optional),
    column2 datatype,
    column3 datatype,
    ...
);
```

Example:

```
CREATE TABLE Employees (
    EmployeeID int PRIMARY KEY,
    FirstName varchar(255),
    LastName varchar(255),
    BirthDate date,
    Position varchar(255)
);
```

ALTER TABLE

The ALTER TABLE statement is used to add, delete, or modify columns in an existing table.

Add a column:

```
ALTER TABLE table_name
ADD column_name datatype;
```

Modify a column:

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

Drop a column:

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

Example:

```
ALTER TABLE Employees
ADD Email varchar(255);
```

DROP TABLE

The DROP TABLE statement is used to delete an existing table along with all of its data.

```
DROP TABLE table_name;
```

Example:

```
DROP TABLE Employees;
```

TRUNCATE TABLE

The TRUNCATE TABLE statement is used to delete all rows in a table without removing the table itself.

```
TRUNCATE TABLE table_name;
```

Example:

```
TRUNCATE TABLE Employees;
```

RENAME TABLE

The RENAME TABLE statement is used to rename an existing table.

```
RENAME TABLE old_table_name TO new_table_name;
```

Example:

```
RENAME TABLE Employees TO Staff;
```

SHOW TABLES

The SHOW TABLES statement is used to list all tables in a database.

```
SHOW TABLES;
```

Example:
SHOW TABLES;

DESCRIBE TABLE

The DESCRIBE or DESC command is used to display the structure of a table.

DESCRIBE table_name;

Example:

DESCRIBE Employees;

DESCRIBE Command in SQL

The DESCRIBE command in SQL is used to display the structure of a table. It provides detailed information about the columns in a table, including the column names, data types, and any constraints applied to the columns. This command is particularly useful for understanding the schema of a table without having to look at the actual data.

Syntax

The basic syntax for the DESCRIBE command is:

DESCRIBE table_name;

Alternatively, you can use the shorthand DESC:

DESC table_name;

Example

Consider the following table definition for Employees:

```
CREATE TABLE Employees (
    EmployeeID int PRIMARY KEY,
    FirstName varchar(255),
    LastName varchar(255),
    BirthDate date,
    Position varchar(255)
);
```

Using the DESCRIBE command on this table:

DESCRIBE Employees;

Output

The DESCRIBE command will produce an output similar to the following:

Field	Type	Null	Key	Default	Extra
EmployeeID	int	NO	PRI	NULL	auto_increment
FirstName	varchar(255)	YES		NULL	
LastName	varchar(255)	YES		NULL	
BirthDate	date	YES		NULL	
Position	varchar(255)	YES		NULL	

Explanation of Columns

- **Field**: The name of the column.
- **Type**: The data type of the column.
- **Null**: Indicates whether the column can contain NULL values (YES or NO).
- **Key**: Indicates if the column is indexed. Possible values are:
  - PRI (Primary Key)
  - UNI (Unique Key)
  - MUL (Multiple Key, used for foreign keys)
- **Default**: The default value for the column.
- **Extra**: Any additional information about the column (e.g., auto_increment for auto-increment columns).

Usage

The DESCRIBE command is often used by database administrators and developers to quickly inspect the structure of a table, understand its schema, and ensure that the table is correctly defined according to the requirements of the application or system.

Summary

In summary, the DESCRIBE command is a powerful tool for obtaining detailed information about the structure of a table, making it easier to work with and manage database schemas.