

SQL UNIQUE Constraint

The `UNIQUE` constraint in SQL ensures that all values in a column (or combination of columns) are distinct, meaning no two rows can have the same value in that column. It can be applied to one or more columns in a table.

Example of `UNIQUE` Constraint:

```
sql Copy Edit  
  
CREATE TABLE Employees (  
    EmployeeID INT,  
    FirstName VARCHAR(50),  
    LastName VARCHAR(50),  
    Email VARCHAR(100) UNIQUE  
);
```

In the above example:

- The `Email` column must have unique values, meaning no two employees can have the same email address.

Key Points about `UNIQUE`:

- Multiple NULLs allowed:** The `UNIQUE` constraint allows NULL values, and you can have multiple NULLs in a column (but only one NULL per column in a `PRIMARY KEY`).
- One or more columns:** You can apply `UNIQUE` to a single column or multiple columns together.

Difference Between `PRIMARY KEY` and `UNIQUE KEY`

Feature	PRIMARY KEY	UNIQUE KEY
Purpose	Uniquely identifies each record in the table.	Ensures uniqueness of values in one or more columns.
Null Values	Cannot contain <code>NULL</code> values.	Allows <code>NULL</code> values (but only one <code>NULL</code> per column in case of multiple columns).
Number per Table	A table can have only one <code>PRIMARY KEY</code> .	A table can have multiple <code>UNIQUE</code> constraints.
Index	Automatically creates a unique index on the column(s).	Also creates a unique index, but not automatically part of the table's main key.
Usage	Used for the main identifier for a record.	Used for ensuring uniqueness in any column or combination of columns.

Example:

```
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CREATE TABLE Employees (  
    EmployeeID INT PRIMARY KEY,      -- Ensures this column has unique, non-null values  
    FirstName VARCHAR(50),  
    LastName VARCHAR(50),  
    Email VARCHAR(100) UNIQUE        -- Ensures email is unique but allows one NULL  
);
```

In this example:

- `EmployeeID` is the **primary key** (each employee must have a unique, non-null `EmployeeID`).
- `Email` is a **unique key** (each employee must have a unique email, but it can be `NULL`).

X

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