

## CONSTRAINTS

A constraint is a rule or restriction applied to a database table to ensure the accuracy, integrity, and consistency of the data. Constraints prevent invalid or inconsistent data from being inserted, updated, or deleted.

There are 7 types of constraints sql:

### 1. NOT NULL Constraint:

It ensures that a column cannot have a NULL value.

Adding not null:

Syntax: ALTER TABLE employees MODIFY COLUMN name VARCHAR(50) NOT NULL;

### DROP NOT NULL Constraint:

Syntax: ALTER TABLE employees MODIFY COLUMN name VARCHAR(50) NULL;

### 2. UNIQUE Constraint:

It ensures that all values in a column are unique, @ie Duplicates are not allowed.

DROP UNIQUE Constraint:

Syntax: ALTER TABLE employees DROP INDEX unique\_email;

Adding unique constraint:

Syntax: ALTER TABLE employees ADD UNIQUE (email);

### 3. PRIMARY KEY Constraint:

A combination of NOT NULL and UNIQUE. Uniquely identifies each record in a table.

Adding Primary key constraint:

Syntax: ALTER TABLE employees ADD PRIMARY KEY (id);

DROP Primary key constraint:

Syntax: ALTER TABLE employees DROP PRIMARY KEY;

### 4. FOREIGN KEY Constraint:

Establishes a relationship between two tables. Ensures referential integrity by linking a column to another table's primary key.

Adding Foreign key constraint:

Syntax: ALTER TABLE orders ADD CONSTRAINT fk\_customer FOREIGN KEY (customer\_id) REFERENCES customers(id);

DROP Foreign key constraint:

Syntax: ALTER TABLE orders DROP FOREIGN KEY fk\_customer;

### 5. CHECK Constraint:

It ensures that values in a column meet a specific condition.

Adding Check Constraint:

Syntax: ALTER TABLE products ADD CONSTRAINT chk\_price CHECK (price > 0);

DROP Check Constraint:

Syntax: ALTER TABLE products DROP CONSTRAINT chk\_price;

### 6. DEFAULT Constraint:

It assigns a default value to a column if no value is provided.

Adding Default Constraint:

Syntax: ALTER TABLE orders ALTER COLUMN status SET DEFAULT 'Pending';

DROP Default Constraint:

Syntax: ALTER TABLE orders ALTER COLUMN status DROP DEFAULT;

### 7. INDEX Constraint:

Improves search performance by creating an index on columns.

\* Use ALTER TABLE to add or remove constraints.

\* Dropping PRIMARY KEY and FOREIGN KEY constraints requires knowing their names.

\* SHOW CREATE TABLE table\_name; helps find existing constraints.