**How to Modify a Column in SQL (MySQL)**

To **modify an existing column**, we use the **ALTER TABLE** statement with **MODIFY COLUMN** or **CHANGE COLUMN**.

**✅ 1. Using MODIFY COLUMN**

* Changes the **data type, size, or constraints** of a column without changing its name.

**Syntax:**

ALTER TABLE table\_name

MODIFY COLUMN column\_name new\_datatype [constraints];

**Example:**

ALTER TABLE student

MODIFY COLUMN name VARCHAR(100) NOT NULL;

👉 This changes the **name column** to VARCHAR(100) and makes it **NOT NULL**.

**✅ 2. Using CHANGE COLUMN**

* Changes both the **column name and its data type/constraints**.

**Syntax:**

ALTER TABLE table\_name

CHANGE COLUMN old\_column\_name new\_column\_name new\_datatype [constraints];

**Example:**

ALTER TABLE student

CHANGE COLUMN name student\_name VARCHAR(100) NOT NULL;

👉 This renames the column from name to student\_name and changes its datatype to VARCHAR(100) with **NOT NULL**.

**✅ Summary**

| **Operation** | **Command** | **Purpose** |
| --- | --- | --- |
| Modify datatype/constraints | MODIFY COLUMN | Change type/constraints without renaming |
| Rename + Modify | CHANGE COLUMN | Rename and/or change type/constraints |

**To add new constraint**-

### ****1. Add PRIMARY KEY****

ALTER TABLE student

ADD CONSTRAINT pk\_student PRIMARY KEY (id);

### ✅ ****2. Add FOREIGN KEY****

ALTER TABLE student

ADD CONSTRAINT fk\_dept FOREIGN KEY (dept\_id)

REFERENCES department(dept\_id);

### ✅ ****3. Add UNIQUE Constraint****

ALTER TABLE student

ADD CONSTRAINT unique\_name UNIQUE (name);

### ✅ ****4. Add CHECK Constraint****

ALTER TABLE student

ADD CONSTRAINT chk\_age CHECK (age >= 18);

### ✅ ****5. Add NOT NULL Constraint****

You can't directly add **NOT NULL** via ADD CONSTRAINT, but you can modify the column:

ALTER TABLE student

MODIFY COLUMN name VARCHAR(50) NOT NULL;

### ✅ ****6. Add DEFAULT Value****

ALTER TABLE student

ALTER COLUMN age SET DEFAULT 18;

Or in MySQL:

ALTER TABLE student

ALTER COLUMN age SET DEFAULT 18;

### ✅ ****Summary****

| **Constraint Type** | **Syntax Example** |
| --- | --- |
| PRIMARY KEY | ADD CONSTRAINT ... PRIMARY KEY |
| FOREIGN KEY | ADD CONSTRAINT ... FOREIGN KEY |
| UNIQUE | ADD CONSTRAINT ... UNIQUE |
| CHECK | ADD CONSTRAINT ... CHECK |
| NOT NULL | MODIFY COLUMN ... NOT NULL |
| DEFAULT | ALTER COLUMN ... SET DEFAULT |