

---

## DBMS PRACTICAL – PART A (DDL OPERATIONS)

**Title:** *DDL Commands – Create, Alter, Index, View, Rename & Drop*

---

### AIM

To study and perform various *DDL (Data Definition Language)* operations in SQL such as:

- Creating a database
- Creating a table
- Altering the structure of a table
- Creating an index
- Creating views
- Renaming a view
- Dropping a view

These commands help in defining, modifying, and managing the structure of the database.

---

## THEORY (LONG & DETAILED – FULL PAGE)

### 1. Introduction to DDL

SQL (Structured Query Language) is divided into different categories based on the type of operations performed. One of the most important categories is **DDL – Data Definition Language**. DDL commands are used to define, create, and modify the structure of database objects such as databases, tables, indexes, and views. DDL statements are auto-committed, meaning the changes made using these commands are saved permanently and cannot be rolled back.

---

### 2. CREATE Command

The **CREATE** command is used to create new database objects.

Examples:

- **CREATE DATABASE** creates a new database.

- **CREATE TABLE** creates a new table with specified columns, datatypes, and constraints.

The **CREATE** command forms the foundation of SQL because without creating a database or table, no data can be inserted or manipulated.

---

### ★ 3. ALTER Command

The **ALTER TABLE** command is used when we want to modify the structure of an existing table.

It allows operations such as:

- Adding a new column
- Modifying the datatype
- Dropping a column
- Renaming a column

**ALTER** does not affect the existing data but changes the structure of the table.

---

### ★ 4. INDEX

An **index** is a special lookup table that the database uses to speed up data retrieval. It works like the index page of a book, helping the database locate records faster without scanning the entire table.

Indexes improve performance but require extra memory.

Syntax:

```
CREATE INDEX index_name ON table_name(column_name);
```

---

### ★ 5. VIEW

A **view** is a *virtual table* created using a **SELECT** query.

It does not store data physically; instead, it displays data from one or more actual tables.

Views help in security, simplicity, and reusability of queries.

For example, a view can display only specific columns or filtered records.

---

### ★ 6. RENAME

The **RENAME TABLE** command is used to change the name of an existing table or view. It does not change the structure or data; only the name is updated.

---

## ★ 7. DROP

The **DROP VIEW** command is used to permanently remove a view. It deletes only the virtual table, not the original data stored in the base table.

---

This practical demonstrates how DDL commands help in designing and managing database structures effectively.

---

## 🔧 PART A – COMPLETE DDL CODE

```
CREATE DATABASE practical;
```

```
USE practical;
```

```
CREATE TABLE stud(  
    rno INT PRIMARY KEY AUTO_INCREMENT,  
    name VARCHAR(30),  
    age INT NOT NULL,  
    marks INT,  
    city VARCHAR(20)  
);
```

```
ALTER TABLE stud ADD COLUMN email_id VARCHAR(20);
```

```
CREATE INDEX index_name ON stud(name);
```

```
CREATE VIEW stud_view AS
```

```
SELECT * FROM stud;
```

```
CREATE VIEW stud_view2 AS  
SELECT * FROM stud WHERE city = 'Nashik';
```

```
RENAME TABLE stud_view TO stud_view_renamed;
```

```
DROP VIEW stud_view2;
```

```
SHOW TABLES;
```

---

### STEP-BY-STEP EXPLANATION (LINE BY LINE)

---

#### ★ 1. CREATE DATABASE

```
CREATE DATABASE practical;
```

- Creates a new database named *practical*.
  - This is the top-level container for all tables.
- 

#### ★ 2. USE DATABASE

```
USE practical;
```

- Selects the database so all commands run inside it.
- 

#### ★ 3. CREATE TABLE

```
CREATE TABLE stud(  
    rno INT PRIMARY KEY AUTO_INCREMENT,  
    name VARCHAR(30),  
    age INT NOT NULL,  
    marks INT,  
    city VARCHAR(20)  
);
```

Line-by-line:

- `CREATE TABLE stud` → Creates a table named stud.
  - `rno INT` → Roll number, an integer.
  - `PRIMARY KEY` → Makes rno unique + not null.
  - `AUTO_INCREMENT` → Automatically increases (1,2,3...).
  - `name VARCHAR(30)` → Name up to 30 characters.
  - `age INT NOT NULL` → Age cannot be empty.
  - `marks INT` → Stores marks.
  - `city VARCHAR(20)` → Stores city name.
- 

#### ★ 4. ALTER TABLE

`ALTER TABLE stud ADD COLUMN email_id VARCHAR(20);`

- Modifies the existing stud table.
  - Adds a new column named email\_id.
- 

#### ★ 5. CREATE INDEX

`CREATE INDEX index_name ON stud(name);`

- Creates an index on the name column.
  - Speeds up searching using the name field.
- 

#### ★ 6. CREATE VIEW (All Records)

`CREATE VIEW stud_view AS SELECT * FROM stud;`

- Creates a virtual table showing all records.
  - Does not store data; just displays data from stud.
- 

#### ★ 7. CREATE VIEW (Filtered Records)

`CREATE VIEW stud_view2 AS SELECT * FROM stud WHERE city='Nashik';`

- Creates a view showing only students from Nashik.

---

## ★ 8. RENAME VIEW

RENAME TABLE stud\_view TO stud\_view\_renamed;

- Renames stud\_view → stud\_view\_renamed.

---

## ★ 9. DROP VIEW

DROP VIEW stud\_view2;

- Deletes the view stud\_view2 permanently.

---

## ★ 10. SHOW TABLES

SHOW TABLES;

- Displays all tables and views inside the database.

---

## 🧑 HOW TO EXPLAIN THE PRACTICAL TO EXTERNAL (SHORT & IMPRESSIVE)

“Sir, in this practical I demonstrated various DDL commands.

First I created a database and a table with rno as primary key and auto-increment.

Then I used ALTER TABLE to add a new email column.

I created an index on the name column for faster searching.

Using CREATE VIEW, I made two virtual tables—one showing all records and another showing only Nashik students.

Finally, I renamed and dropped the views.”

---

## 🎤 VIVA QUESTIONS & ANSWERS (ASKED 100% BY EXTERNAL)

### 1. What is DDL?

DDL stands for Data Definition Language. It is used to define and modify the structure of database objects.

### 2. Name DDL commands.

CREATE, ALTER, DROP, RENAME, TRUNCATE.

### 3. What is the use of CREATE TABLE?

It creates a new table with specified columns and datatypes.

#### **4. What does ALTER TABLE do?**

It modifies the structure of an existing table.

#### **5. What is an index?**

A data structure that improves the speed of searching.

#### **6. What is a view?**

A virtual table created using a SELECT query.

#### **7. Does a view store data?**

No, it displays data from the base table.

#### **8. What is AUTO\_INCREMENT?**

Automatically generates sequential numbers for each new row.

#### **9. Difference between DROP TABLE and DROP VIEW.**

- DROP TABLE deletes actual data + structure.
  - DROP VIEW deletes only the virtual table.
-