QUERIES FOR SPECIFIC REQUIREMENTS

⇒ Syntax to change the Name of an attribute:

ALTER TABLE table_name RENAME COLUMN old_column_name TO new_column_name;

```
mysql> alter table employee RENAME column job to emp_job;
Query OK, 0 rows affected (0.08 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select * from epmloyee;
ERROR 1146 (42S02): Table 'organization.epmloyee' doesn't exist
mysql> select * from employee;
+--------+----------+------------------+------------+------------+---------+----------+--------+
| emp_no | emp_name | emp_job          | hire_date  | commission | dept_no | grade_no | salary |
+--------+----------+------------------+------------+------------+---------+----------+--------+
|   1232 | Arooba   | worker           | 2025-02-11 |       NULL |     101 |        4 |  15000 |
|   1234 | zainab   | assistant        | 2025-05-03 |       1500 |     101 |        4 |   2100 |
|   1299 | Amna     | assistant        | 2025-01-02 |       NULL |     102 |        4 |  12000 |
|   2345 | khadija  | research analyst | 2025-05-02 |       1500 |     102 |        1 |   1500 |
|   3456 | laila    | manager          | 2025-05-07 |       NULL |     103 |        3 |   2200 |
|   4567 | fatima   | worker           | 2025-05-08 |       1500 |     104 |        2 |  13000 |
+--------+----------+------------------+------------+------------+---------+----------+--------+
6 rows in set (0.00 sec)
```

⇒ Syntax to add a DATE column:

ALTER TABLE table_name ADD column_name DATE;

⇒ Syntax to add a DATETIME column:

ALTER TABLE table_name ADD column_name DATETIME;

⇒ Syntax to change the datatype of an existing column:

ALTER TABLE table_name MODIFY column_name NEW_DATA_TYPE;

How to represent the day type column:

```
mysql> alter table employee ADD column Day ENUM('Monday','Tuesday','Wednesday','Thursday','Friday','Saturday','Sunday');
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select* from employee;
+--------+----------+------------------+------------+------------+---------+----------+--------+------+
| emp_no | emp_name | emp_job          | hire_date  | commission | dept_no | grade_no | salary | Day  |
+--------+----------+------------------+------------+------------+---------+----------+--------+------+
|   1232 | Arooba   | worker           | 2025-02-11 |       NULL |     101 |        4 |  15000 | NULL |
|   1234 | zainab   | assistant        | 2025-05-03 |       1500 |     101 |        4 |   2100 | NULL |
|   1299 | Amna     | assistant        | 2025-01-02 |       NULL |     102 |        4 |  12000 | NULL |
|   2345 | khadija  | research analyst | 2025-05-02 |       1500 |     102 |        1 |   1500 | NULL |
|   3456 | laila    | manager          | 2025-05-07 |       NULL |     103 |        3 |   2200 | NULL |
|   4567 | fatima   | worker           | 2025-05-08 |       1500 |     104 |        2 |  13000 | NULL |
+--------+----------+------------------+------------+------------+---------+----------+--------+------+
6 rows in set (0.00 sec)
```

```
mysql> update employee set Day='Monday' where emp_no='1299';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from empoyee;
ERROR 1146 (42S02): Table 'organization.empoyee' doesn't exist
mysql> select * from employee;
+--------+----------+------------------+------------+------------+---------+----------+--------+--------+
| emp_no | emp_name | emp_job          | hire_date  | commission | dept_no | grade_no | salary | Day    |
+--------+----------+------------------+------------+------------+---------+----------+--------+--------+
|   1232 | Arooba   | worker           | 2025-02-11 |       NULL |     101 |        4 |  15000 | NULL   |
|   1234 | zainab   | assistant        | 2025-05-03 |       1500 |     101 |        4 |   2100 | NULL   |
|   1299 | Amna     | assistant        | 2025-01-02 |       NULL |     102 |        4 |  12000 | Monday |
|   2345 | khadija  | research analyst | 2025-05-02 |       1500 |     102 |        1 |   1500 | NULL   |
|   3456 | laila    | manager          | 2025-05-07 |       NULL |     103 |        3 |   2200 | NULL   |
|   4567 | fatima   | worker           | 2025-05-08 |       1500 |     104 |        2 |  13000 | NULL   |
+--------+----------+------------------+------------+------------+---------+----------+--------+--------+
6 rows in set (0.00 sec)
```

Grant permissions to users

Syntax:-

GRANT permissions ON GRANT permissions ON database_name.table_name TO 'username'@'host' IDENTIFIED BY 'password';

❖ Example 1:

Granting Read (SELECT) access to a user:

GRANT SELECT ON my_database.* TO 'user1'@'localhost';

❖Example 2:

Granting Read and Write (SELECT, INSERT, UPDATE) access:

GRANT SELECT, INSERT, UPDATE ON my_database.* TO 'user1'@'localhost';

❖Example 3:

Granting Full Permissions (ALL PRIVILEGES):

GRANT ALL PRIVILEGES ON my_database.* TO 'user1'@'localhost' IDENTIFIED BY 'password;

QUERIES TO APPLY CHANGES

After granting the permissions, run

```
FLUSH PRIVILEGES
```

TO SEE CURRENT USER PERMISSIONS:

```
SHOW GRANTS FOR 'user1'@'localhost';
```

LOCK MECHANISM

A **lock mechanism** is used to **manage concurrent access** to data, ensuring **data integrity** and preventing conflicts when multiple users access or modify the same data at the same time.

Types of locks

1. **Table Lock** Locks the entire table for read/write.
2. **Row Lock** Locks individual rows
3. **Shared Lock (S Lock)** Allows multiple users to read but not write the same row.
4. **Exclusive Lock (X Lock)** Allows only one transaction to read/write the row.
5. **Intention Lock** Internal mechanism to coordinate row vs. table locks.
6. **Metadata Lock (MDL)** Locks the table structure (prevents ALTER during SELECT, etc.).

VIEW

In **MySQL**, a **view** is a virtual table created by a `SELECT` query. It doesn't store data itself — it just shows data from one or more real tables.

⇒ What is a View?

- It's like a saved SQL query.
- Helps simplify complex queries.
- Used for **security**, **abstraction**, and **data filtering**.

⇒Types of Views in Databases (especially MySQL)

Simple View	Based on a single table, no functions or groupings.
Complex View	Based on multiple tables, joins, or includes functions, GROUP BY, etc.
Updatable View	A view where you can perform INSERT, UPDATE, DELETE (with restrictions).
Read-Only View	Cannot be updated — often due to joins, aggregations, or DISTINCT.

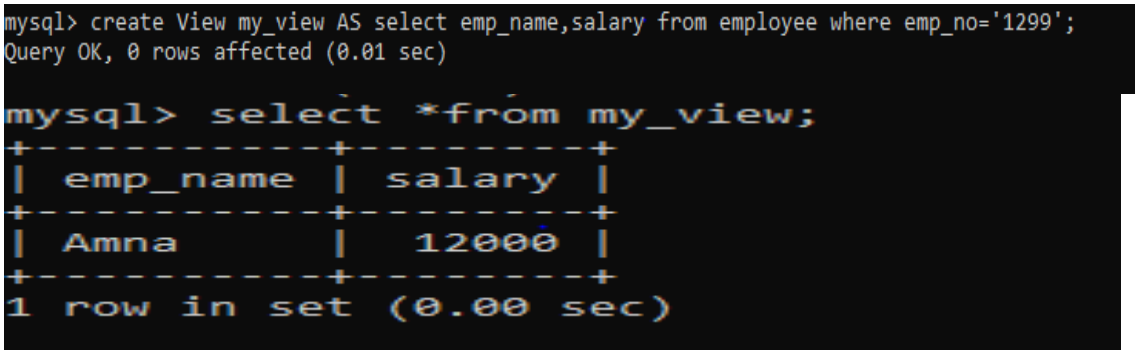
Creating a View:

```
CREATE VIEW view_name AS

SELECT column1, column2, ...

FROM table_name

WHERE condition;
```



Update a View:

```
CREATE OR REPLACE VIEW view_name AS

SELECT column1, column2, ...

FROM table_name

WHERE condition;
```

Drop a View:

```
DROP VIEW view_name;
```

Check Existing Views:

```
SHOW FULL TABLES IN database_name
WHERE TABLE_TYPE = 'VIEW';
```