MYSQL TABLE LOCKING

TABLE LOCKING

- A lock is a mechanism associated with a table used to restrict the unauthorized access of the data in a table.

- MySQL also allows table locking to prevent it from unauthorized modification into the same table during a specific period.

- A session in MySQL can acquire or release locks on the table only for itself.
- Therefore, one session cannot acquire or release table locks for other sessions.

- It is to note that we must have a TABLE LOCK and SELECT privileges for table locking.

- Table Locking in MySQL is mainly used to solve concurrency problems.
- It will be used while running a transaction, i.e., first read a value from a table (database) and then write it into the table (database).

- MySQL provides two types of locks onto the table, which are

- : READ LOCK: This lock allows a user to only read the data from a table.

- : WRITE LOCK: This lock allows a user to do both reading and writing into a table.

- It is to note that the default storage engine used in MySQL is InnoDB.

- The InnoDB storage engine does not require table locking manually because MySQL automatically uses row-level locking for InnoDB tables.
- Therefore, we can do multiple transactions on the same table simultaneously to read and write operations without making each other wait.

- All other storage engines use table locking in MySQL.

MYSQL LOCK TABLES STATEMENT

- The following is the syntax that allows us to acquire a table lock explicitly:

1. **LOCK TABLES table_name [READ | WRITE];**

- In the above syntax, we have specified the table name on which we want to acquire a lock after the LOCK TABLES keywords.
- We can specify the lock type, either READ or WRITE.

- We can also lock more than one table in MySQL by using a list of comma-separated table's names with lock types.

- syntax:
- 1. LOCK TABLES tab_name1 [READ | WRITE],

  tab_name2 [READ | WRITE)]....;

MYSQL UNLOCK TABLES STATEMENT

- The following is the syntax that allows us to release a lock for a table in MySOL:

- mysql> UNLOCK TABLES;

LOCK TYPES

- READ LOCKS
- WRITE LOCKS

READ LOCKS

- Lock allows a user to only read the data from a table.

- At the same time, MySQL allows multiple sessions to acquire a READ lock for a table.And all other sessions can read the table without acquiring the lock.
- If the session holds the READ lock on a table, they cannot perform a write operation on it. It is because the READ lock can only read data from the table. All other sessions that do not acquire a READ lock are not able to write data into the table withoutreleasing the READ lock. The write operations go into the waiting states until we have not released the READ lock.
- When the session is terminated normally or abnormally, MySQL implicitly releases all types of locks on to the table. This feature is also relevant for the WRITE lock.

WRITE LOCKS

- It is the session that holds the lock of a table and can read and write data both from the table.
- It is the only session that accesses the table by holding a lock. And all other sessions cannot access the data of the table until the WRITE lock is released.

LEVEL OF LOCKS

1) Row Level

2) Page Level

3) Table Level

1) Row Level:

- If the Where clause evaluates to only one row in the table.

2) Page Level:

- if the Where clause evaluates to a set of data.

3) Table Level:

- If there is no Where clause (i.e. the query accesses the entire table).

THANK YOU