

DBMS LAB-8

Name : Rithvik Rajesh Matta

SRN : PES2UG23CS485

Section : H

```
MySQL 8.0 Command Line Cli  X  +  ~
Enter password: ****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.33 MySQL Community Server - GPL

Copyright (c) 2000, 2023, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SELECT @@transaction_isolation;
+-----+
| @@transaction_isolation |
+-----+
| REPEATABLE-READ      |
+-----+
1 row in set (0.00 sec)

mysql> SELECT @@global.transaction_isolation;
+-----+
| @@global.transaction_isolation |
+-----+
| REPEATABLE-READ      |
+-----+
1 row in set (0.00 sec)
```

Task 1: Database set-up

```
MySQL 8.0 Command Line Client + ▾
mysql> CREATE DATABASE airlines_db;
Query OK, 1 row affected (0.01 sec)

mysql> USE airlines_db;
Database changed
mysql> CREATE TABLE Flight (
    -> flight_number VARCHAR(10) PRIMARY KEY,
    -> departure_time DATETIME NOT NULL,
    -> arrival_time DATETIME NOT NULL,
    -> origin VARCHAR(50) NOT NULL,
    -> destination VARCHAR(50) NOT NULL,
    -> economy_seats INT NOT NULL,
    -> business_seats INT NOT NULL,
    -> first_class_seats INT NOT NULL
    -> );
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE TABLE Passenger (
    -> passenger_id VARCHAR(10) PRIMARY KEY,
    -> name VARCHAR(50) NOT NULL,
    -> gender ENUM('Male', 'Female', 'Other'),
    -> date_of_birth DATE,
    -> phone_number VARCHAR(15),
    -> seat_preference ENUM('Window', 'Aisle', 'Middle'),
    -> class_preference ENUM('Economy', 'Business', 'First'),
    -> loyalty_program_points INT DEFAULT 0
    -> );
Query OK, 0 rows affected (0.01 sec)

mysql> INSERT INTO Flight
-> VALUES
-> ('SKY101', '2025-07-12 06:00:00', '2025-07-12 10:30:00', 'Delhi', 'Singapore', 180, 30, 10),
-> ('SKY202', '2025-07-13 14:00:00', '2025-07-13 18:00:00', 'Mumbai', 'Dubai', 160, 25, 8),
-> ('SKY303', '2025-07-14 22:00:00', '2025-07-15 02:30:00', 'Chennai', 'Bangkok', 150, 20, 5);
Query OK, 3 rows affected (0.00 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

```
mysql> INSERT INTO Passenger
-> VALUES
-> ('P001', 'Aarav Sharma', 'Male', '1990-08-15', '9876543210', 'Window', 'Economy', 12000),
-> ('P002', 'Meera Patel', 'Female', '1985-02-20', '9123456789', 'Aisle', 'Business', 22000),
-> ('P003', 'Riya Das', 'Female', '1998-11-10', '9988776655', 'Window', 'First', 30000);
Query OK, 3 rows affected (0.00 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

Task 2: Read Uncommitted

Transaction A:

```
mysql> SET SESSION TRANSACTION ISOLATION LEVEL READ COMMITTED;
Query OK, 0 rows affected (0.00 sec)

mysql> START TRANSACTION;
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT seat_preference
    -> FROM Passenger
    -> WHERE passenger_id = 'P001';
+-----+
| seat_preference |
+-----+
| Aisle          |
+-----+
1 row in set (0.00 sec)
```

Transaction B:

```
MySQL 8.0 Command Line Cli X + - X
Enter password: ****
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.33 MySQL Community Server - GPL

Copyright (c) 2000, 2023, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use airlines_db
Database changed
mysql> SET SESSION TRANSACTION ISOLATION LEVEL READ UNCOMMITTED;
Query OK, 0 rows affected (0.00 sec)

mysql> START TRANSACTION;
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT name, seat_preference
    -> FROM Passenger
    -> WHERE passenger_id = 'P001';
+-----+-----+
| name      | seat_preference |
+-----+-----+
| Aarav Sharma | Aisle      |
+-----+-----+
1 row in set (0.00 sec)
```

Task 3: Read Committed
Transaction A:

```
mysql> SET SESSION TRANSACTION ISOLATION LEVEL READ COMMITTED;
Query OK, 0 rows affected (0.00 sec)

mysql> START TRANSACTION;
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT seat_preference
    -> FROM Passenger
    -> WHERE passenger_id = 'P001';
+-----+
| seat_preference |
+-----+
| Aisle          |
+-----+
1 row in set (0.00 sec)
```

Transaction B:

```
mysql> SET SESSION TRANSACTION ISOLATION LEVEL READ COMMITTED;
Query OK, 0 rows affected (0.00 sec)

mysql> START TRANSACTION;
Query OK, 0 rows affected (0.00 sec)

mysql> UPDATE Passenger
    -> SET seat_preference = 'Window'
    -> WHERE passenger_id = 'P001';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> COMMIT;
Query OK, 0 rows affected (0.00 sec)
```

Transaction A:

```
mysql> SELECT seat_preference
    -> FROM Passenger
    -> WHERE passenger_id = 'P001';
+-----+
| seat_preference |
+-----+
| Window          |
+-----+
1 row in set (0.00 sec)
```

Task 4: Repeatable Read

Transaction A:

```
MySQL 8.0 Command Line Cli  x  +  ~
1 row in set (0.00 sec)

mysql> SET SESSION TRANSACTION ISOLATION LEVEL REPEATABLE READ;
Query OK, 0 rows affected (0.00 sec)

mysql> START TRANSACTION;
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT passenger_id, name, seat_preference
    -> FROM Passenger
    -> WHERE class_preference = 'Economy';
+-----+-----+-----+
| passenger_id | name      | seat_preference |
+-----+-----+-----+
| P001         | Aarav Sharma | Window        |
+-----+-----+-----+
1 row in set (0.00 sec)
```

Transaction B:

```
mysql> SET SESSION TRANSACTION ISOLATION LEVEL REPEATABLE READ;
Query OK, 0 rows affected (0.00 sec)

mysql> START TRANSACTION;
Query OK, 0 rows affected (0.00 sec)

mysql> UPDATE Passenger
    -> SET seat_preference = 'Aisle'
    -> WHERE passenger_id = 'P001';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> COMMIT;
Query OK, 0 rows affected (0.00 sec)
```

Transaction A:

```
mysql> SELECT passenger_id, name, seat_preference
-> FROM Passenger
-> WHERE class_preference = 'Economy';
+-----+-----+-----+
| passenger_id | name      | seat_preference |
+-----+-----+-----+
| P001         | Aarav Sharma | Aisle          |
+-----+-----+-----+
1 row in set (0.00 sec)
```

Task 5: Serializable

Transaction A:

```
mysql> SET SESSION TRANSACTION ISOLATION LEVEL SERIALIZABLE;
Query OK, 0 rows affected (0.00 sec)

mysql> START TRANSACTION;
Query OK, 0 rows affected (0.00 sec)

mysql> -- Count flights scheduled for '2025-07-14'
mysql> SELECT COUNT(*)
-> FROM Flight
-> WHERE DATE(departure_time) = '2025-07-14'
-> FOR UPDATE;
+-----+
| COUNT(*) |
+-----+
|      1   |
+-----+
1 row in set (0.00 sec)
```

Transaction B:

```
mysql> SET SESSION TRANSACTION ISOLATION LEVEL SERIALIZABLE;
Query OK, 0 rows affected (0.00 sec)

mysql> START TRANSACTION;
Query OK, 0 rows affected (0.00 sec)

mysql>
mysql> INSERT INTO Flight
-> VALUES ('SKY505', '2025-07-14 21:00:00', '2025-07-14 23:00:00', 'Delhi',
'Dubai', 180, 10, 5);
ERROR 1205 (HY000): Lock wait timeout exceeded; try restarting transaction
mysql>
```

```
mysql> commit;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql>
```