

DBMS LAB-8

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```
MySQL 8.0 Command Line C&S x + v
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

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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', '1998-08-15', '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 + v - □ 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

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statemen
t.

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  +  v

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', 'Delh
i', '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>
```