Lesson 05 Demo 05

Demonstrating TCL Commands

Objective: To demonstrate the use of Transaction Control Language (TCL) commands in MySQL, focusing on managing and controlling transactions

Tools required: MySQL

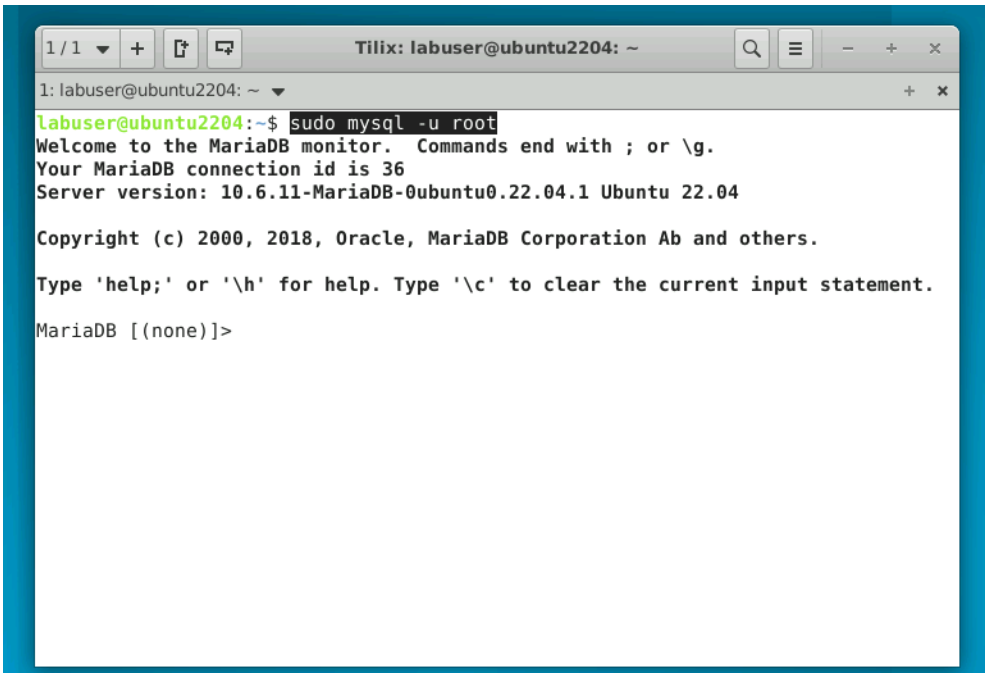
Prerequisites: None

Steps to be followed:

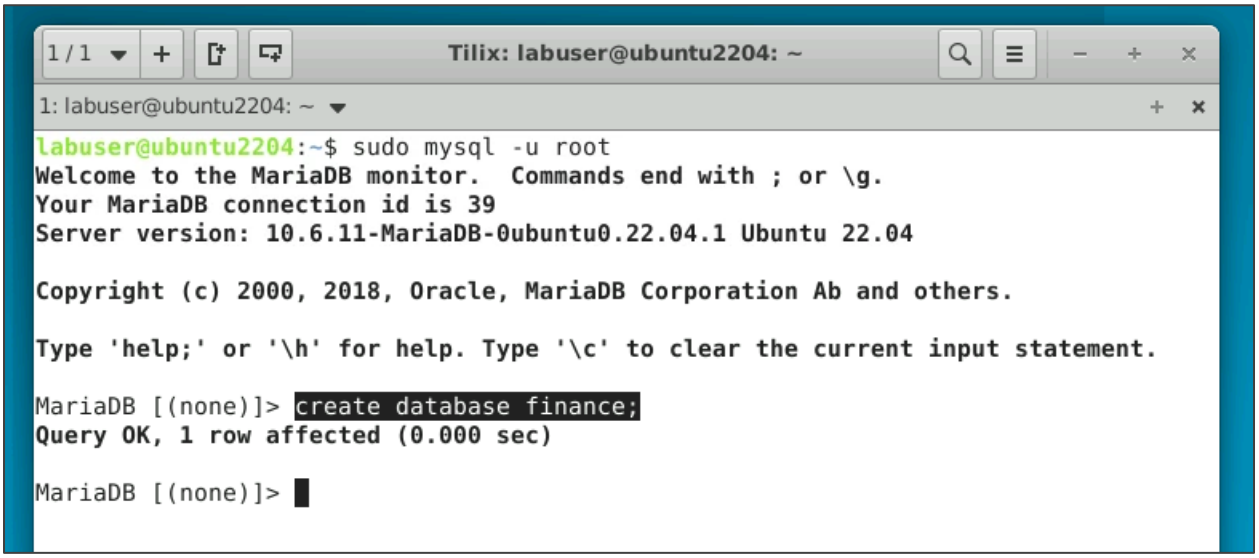
1. Set up a database and a table
2. Demonstrate the TCL commands

Step 1: Set up a database and a table

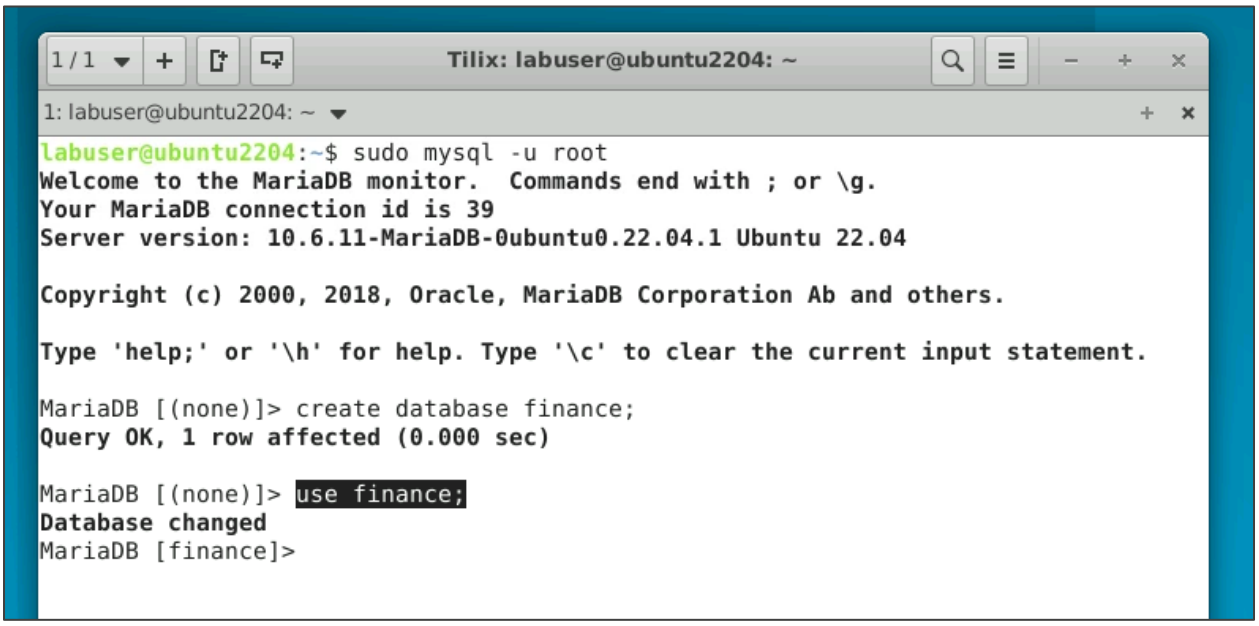
1.1 Open a terminal window and access MySQL as a root user:
sudo mysql -u root



1.2 Create a new database named **finance**:
create database finance;

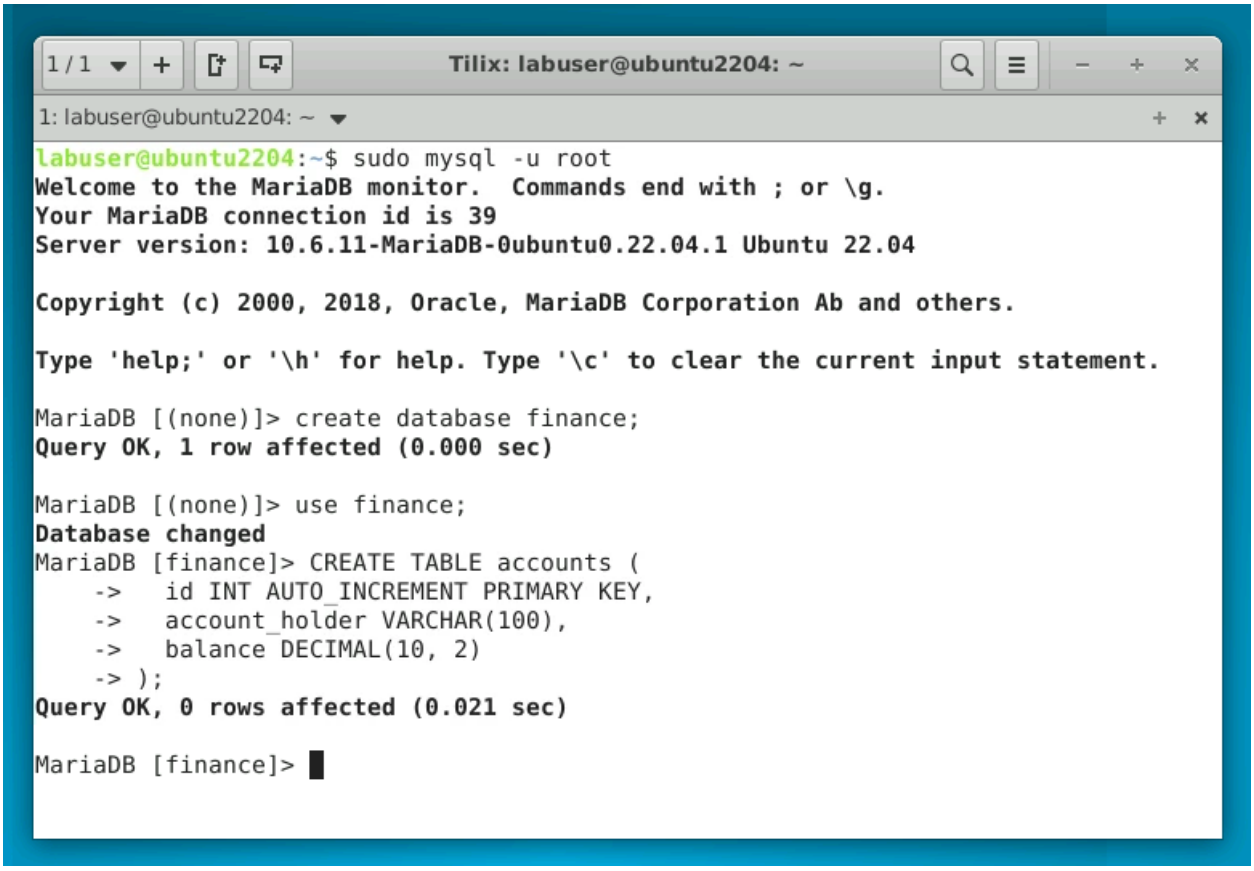


1.3 Select the **finance** database:
use finance;



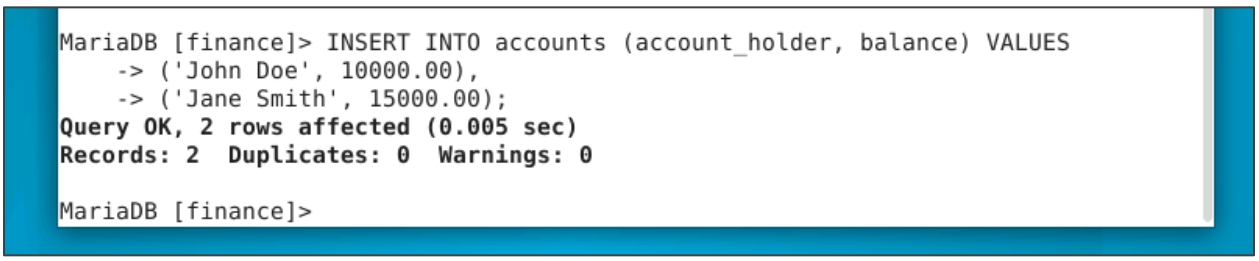
1.4 Create an **accounts** table with relevant fields:

```
CREATE TABLE accounts (
 id INT AUTO_INCREMENT PRIMARY KEY,
 account_holder VARCHAR(100),
 balance DECIMAL(10, 2)
);
```



1.5 Insert initial data into the **accounts** table:

```
INSERT INTO accounts (account_holder, balance) VALUES
('John Doe', 10000.00),
('Jane Smith', 15000.00);
```



Step 2: Demonstrate the TCL commands

2.1 Begin a new transaction using the following command:
START TRANSACTION;

```
MariaDB [finance]> INSERT INTO accounts (account_holder, balance) VALUES
    -> ('John Doe', 10000.00),
    -> ('Jane Smith', 15000.00);
Query OK, 2 rows affected (0.005 sec)
Records: 2  Duplicates: 0  Warnings: 0

MariaDB [finance]> START TRANSACTION;
Query OK, 0 rows affected (0.000 sec)

MariaDB [finance]>
```

2.2 Simulate transfer of funds between two accounts:
UPDATE accounts SET balance = balance - 1000 WHERE account_holder = 'John Doe';
UPDATE accounts SET balance = balance + 1000 WHERE account_holder = 'Jane Smith';

```
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MariaDB [finance]> START TRANSACTION;
Query OK, 0 rows affected (0.000 sec)

MariaDB [finance]> UPDATE accounts SET balance = balance - 1000 WHERE account_hold
er = 'John Doe';
Query OK, 1 row affected (0.004 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [finance]> UPDATE accounts SET balance = balance + 1000 WHERE account_hold
er = 'Jane Smith';
Query OK, 1 row affected (0.000 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [finance]> SELECT * from accounts;
+----+----------------+----------+
| id | account_holder | balance  |
+----+----------------+----------+
|  1 | John Doe       |  9000.00 |
|  2 | Jane Smith     | 16000.00 |
+----+----------------+----------+
2 rows in set (0.000 sec)

MariaDB [finance]>
```
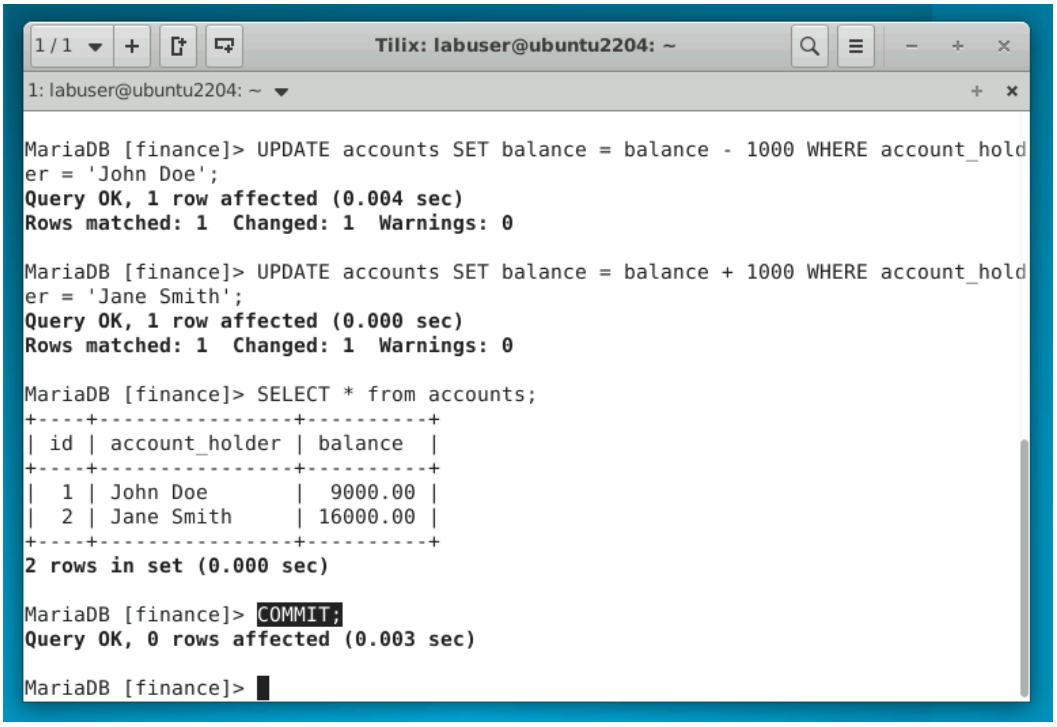
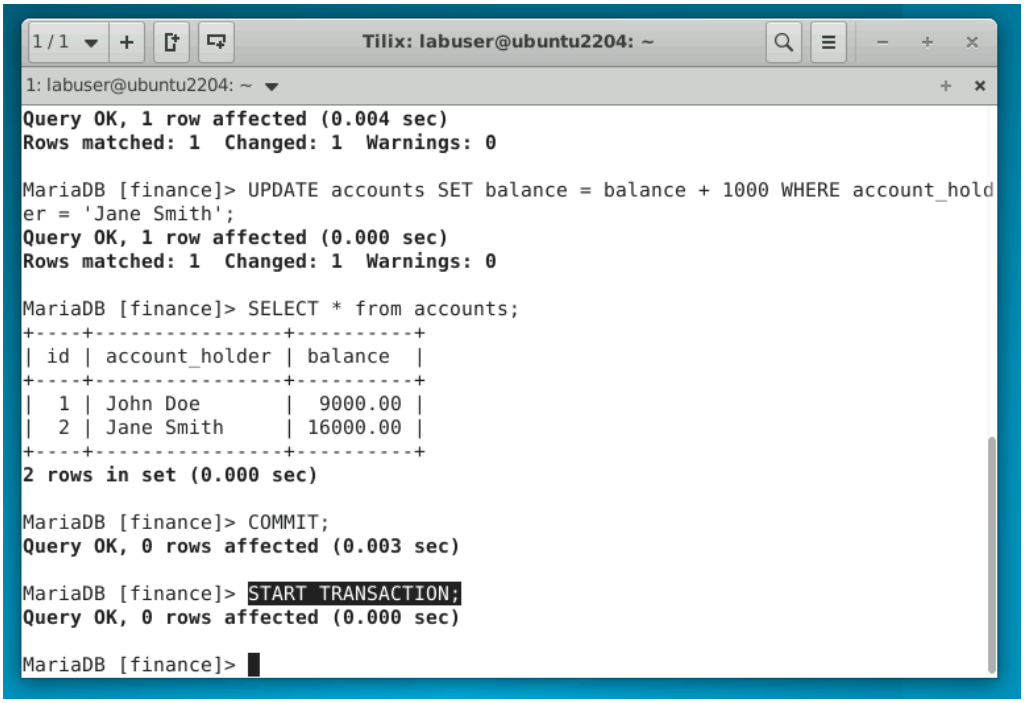

2.3 Commit the transaction to make the changes permanent:

COMMIT;



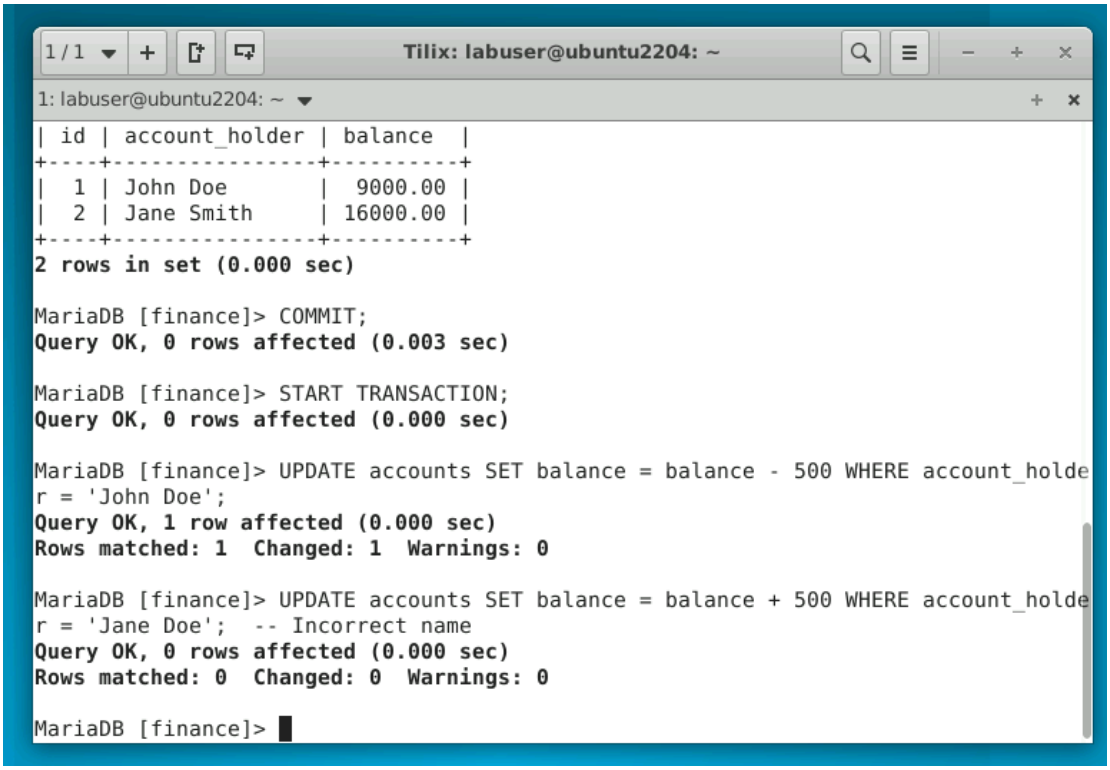
2.4 Begin another transaction using the following command:

START TRANSACTION;



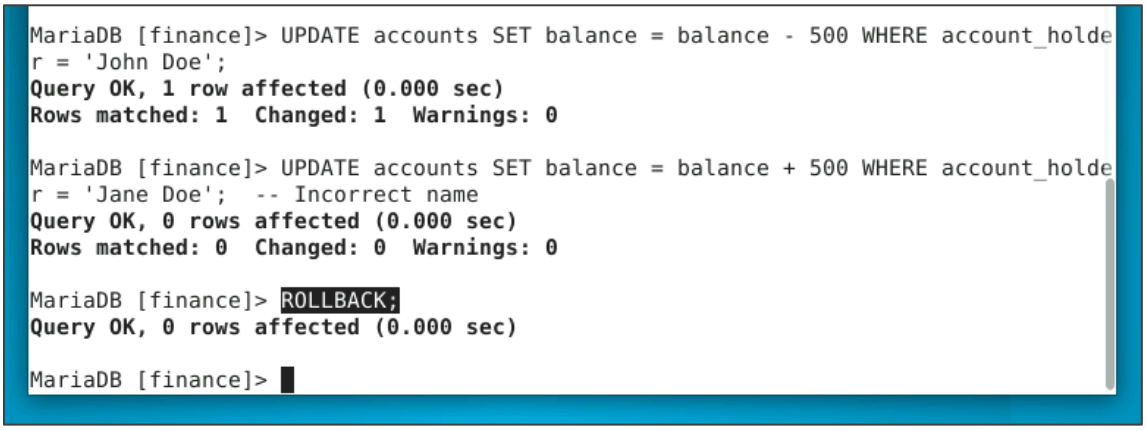
2.5 Attempt another transfer, but with an error (e.g., incorrect account holder name):

UPDATE accounts SET balance = balance - 500 WHERE account_holder = 'John Doe';
UPDATE accounts SET balance = balance + 500 WHERE account_holder = 'Jane Doe'; -- Incorrect name



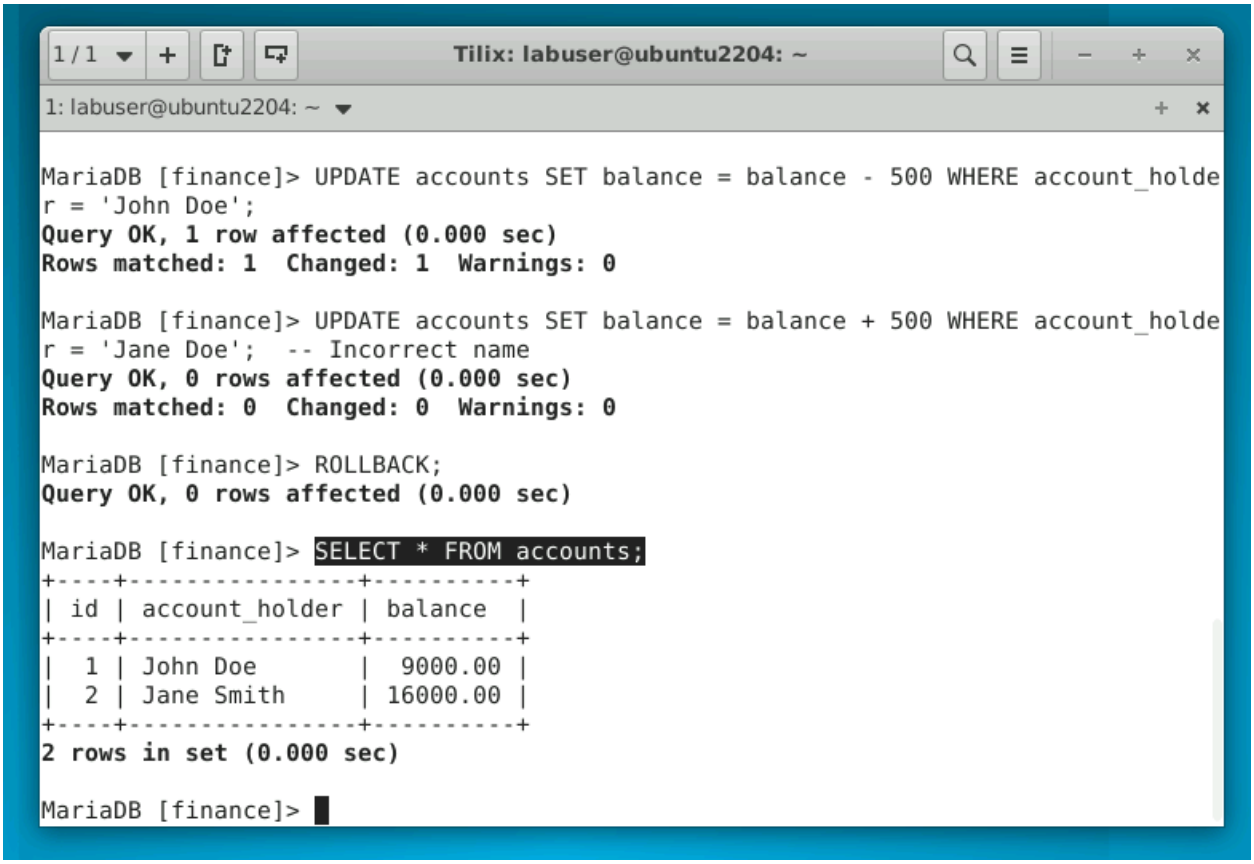
2.6 Rollback the transaction due to the error:

ROLLBACK;



2.7 Verify that the balances remain unchanged after the rollback:

SELECT * FROM accounts;



By following these steps, you have successfully demonstrated the use of TCL commands in MySQL, including starting a transaction, committing the changes, and rolling back a transaction in case of errors.