Exercise: Transactions / Basics

1. With Activated Autocommit

Log in to MySQL and connect to a database where you have write privileges.
Do not change any settings. (This means, that AUTOCOMMIT is switched on, by default).

a)
Insert a new tuple into a table X.
Enter SELECT * FROM X; to verify the tuple was inserted.
Type "ROLLBACK" to the MySQL prompt.
Enter SELECT * FROM X; again to see whether the insertion was rolled back.
Why is the tuple still there? AUTOCOMMIT is on by default. Rollbacks can be performed if autocommit is disabled manually.

b)
Type START TRANSACTION to the MySQL prompt.
Insert a new tuple into a table X.
Enter SELECT * FROM X; to verify the tuple was inserted.
Type "ROLLBACK" to the MySQL prompt.
Enter SELECT * FROM X; again to see whether the insertion was rolled back.
Why is the tuple no longer there now?
By using START TRANSACTION, you started a new transaction. All subsequent operations (in this case, the INSERT statement) are part of this transaction. With START TRANSACTION , autocommit remains disabled until you end the transaction with COMMIT or ROLLBACK .

2. With Autocommit switched off.

Type to the MySQL prompt:
SET AUTOCOMMIT = 0;

a) AUTOCOMMIT is on by default. Rollbacks can be performed if autocommit is disabled manually.
Insert a new tuple into a table X.
Enter SELECT * FROM X; to verify the tuple was inserted.
Type "ROLLBACK" to the MySQL prompt.
Enter SELECT * FROM X; again to see whether the insertion was rolled back.
Why is the tuple no longer there? Compare this to situations 1a) and 1b).

b)
Insert a new tuple into a table X.
Enter SELECT * FROM X; to verify the tuple was inserted.
Type "COMMIT" to the MySQL prompt.
Enter SELECT * FROM X; again to verify that the tuple is still there.
Type "ROLLBACK" to the MySQL prompt.
Why is the tuple still there? COMMIT permanently saves the changes made by the current transaction. ROLLBACK undo the changes made by the current transaction. The transaction can not undo changes after COMMIT execution.

c)
Repeat 2a) and 2b) with a preceding START TRANSACTION command.

3. Transactions consisting of several SQL statements

a)
Switch Autocommit off (=0) in case it is not switched off.

Enter several SQL statements that perform changes in the data.
After several statements, type COMMIT.

Verify that all changes are still in effect.

Enter several more SQL statements that perform changes in the data.
After several statements, type ROLLBACK.

Verify that all changes have been undone.

b)
Switch Autocommit on (= 1) in case it is not switched off.

Enter START TRANSACTION to the MySQL prompt.

Enter several SQL statements that perform changes in the data.
After several statements, type COMMIT.

Verify that all changes are still in effect.

Enter START TRANSACTION to the MySQL prompt.

Enter several more SQL statements that perform changes in the data.
After several statements, type ROLLBACK.

Verify that all changes have been undone.