Transactions and Locks

Objective
In this lab you will learn:
- What transactions and locks are
- How to use them
- When to use them

Required Materials
You will need the following resources to complete this laboratory assignment:
- Personal copy of the Northwinds database
- ANGEL Lab Quiz 11
- SQL Server Books Online

Assignment Details
Task 1: Using Transactions
1. Copy the following SQL query into a 'New Query' tab and examine it before executing it:

```
BEGIN TRANSACTION
  SELECT 'Howard Snyder' AS 'original name'
  SELECT @@trancount AS 'trancount value'
  SELECT ContactName AS 'Before update' FROM Customers WHERE CustomerID = 'GREAL'
  UPDATE Customers SET ContactName = 'Howard Snyder_Updated' WHERE CustomerID
='GREAL'
  SELECT ContactName AS 'After update' FROM Customers WHERE CustomerID = 'GREAL'
  SELECT @@trancount AS 'trancount value'
-- COMMIT TRANSACTION

SELECT ContactName FROM Customers WHERE CustomerID = 'GREAL'
```

2. Before executing this query, set the current database to your personal copy of the Northwinds database. After doing so, execute the query. Examine the results and the messages it generates.
3. Navigate to the 'Customers' table in the left pane of the Management Studio. Right-click on this table and click "Open Table". A tab for the data in the Customers table will open, but the table inside the window should not immediately populate. In the status strip, you will see the words "Retrieving Data…". This process may take some time to complete.
4. Switch back to the SQL query tab you generated in step 1. Highlight the words `COMMIT TRANSACTION` and hit F5 (execute). Refresh the Customers table by clicking the red exclamation point or by closing then reopening the Customers table using the procedure in step 3.
5. **ANGEL: Answer Question 1 in Lab Questions on ANGEL before proceeding.**
6. **ANGEL: Answer Question 2 in Lab Questions on ANGEL before proceeding.**
7. Execute this new query and verify that you have made the correct changes.

Task 2: Using ROLLBACK
1. Copy the following SQL query into a new tab in a 'New Query' tab:

```
BEGIN TRANSACTION
  SELECT @@trancount AS 'trancount value'
  SELECT ContactName AS 'Before update' FROM Customers WHERE CustomerID = 'GREAL'
  UPDATE Customers SET ContactName = 'Howard Snyder2' WHERE CustomerID ='GREAL'
  SELECT ContactName AS 'After update' FROM Customers WHERE CustomerID = 'GREAL'
  SELECT @@trancount AS 'trancount value'

ROLLBACK TRANSACTION

  SELECT ContactName AS 'After ROLLBACK' FROM Customers WHERE CustomerID = 'GREAL'
  SELECT @@trancount AS 'trancount value'
```

2. Execute this query and examine the results and messages.
3. **ANGEL: Answer Question 3 in Lab Questions on ANGEL.**

Task 3: Using Locks

1. Copy the following query into a 'New Query' tab:

```
BEGIN TRANSACTION
  UPDATE Customers
    SET ContactName = 'Howard Snyder'
    WHERE CustomerID ='GREAL'
-- For the purpose of the exercise, COMMIT TRAN is not used.

PRINT 'Server Process ID (spid)'
SELECT @@spid AS SPID
-- Use the SPID to identify the connection when using sp_lock.

-- ROLLBACK TRANSACTION
```

2. Execute it and take note of the SPID – you'll need it in the next step.
3. Copy the following query into a 'New Query' tab, substituting in the value you received in the previous step:

```
USE master
  GO

  SELECT * FROM sys.dm_tran_locks
  WHERE request_session_id = <SPID_FROM_STEP_2>
```

4. **ANGEL: Answer Question 4 in Lab Questions on ANGEL.**
5. Highlight and execute the `ROLLBACK TRANSACTION` command in the query from step 1.

Task 4: Learning Assessment

1. Ms. Anne Dodsworth just got promoted to Sales Manager and moved to 8 Houndstooth Road. Write a transaction to represent this change (you do not need to execute this query, but if you do include a `ROLLBACK TRANSACTION` to prevent the change from being permanent).
2. **ANGEL: Turn in your query to Question 5 in Lab Questions on ANGEL.**
3. **ANGEL: Answer the remaining Lab Questions on ANGEL.**
4. **ANGEL: Please complete the ANGEL Lab Feedback Survey.**

Turn-in Instructions

Make sure to complete Lab Questions and Lab Feedback Survey on Angel; you do not need to upload any additional files.

Revision History

Jan. 28, 2007: Revised Task 3 SQL query, Bryan Musial

Jan. 25, 2007: Task structuring and updates for SQL Server 2005, Bryan Musial

Jan. 27, 2006: Minor updates, Curt Clifton.

Jan. 25, 2005: Revisions made by David Yip.

Jan. 17, 2005: Created by Pat Roby.