



# SQL Transactions

- BEGIN TRANSACTION
- COMMIT TRANSACTION
- ROLLBACK TRANSACTION
- WITH (NOLOCK)



# What is a Transaction?

- A transaction is a series of operations performed as a single body of work
- Multiple statements on a query tab are executed as a single transaction
- Transactions are all or nothing by default
- If all operations in a transaction succeed then the transaction is automatically committed
- If any of the operations fail then the entire transaction is rolled back

```
SELECT *  
INTO Customer_Temp  
FROM Customer  
  
BEGIN TRANSACTION  
DELETE Customer_Temp  
WHERE Country != 'Germany'  
  
/*  
ROLLBACK TRANSACTION  
  
COMMIT TRANSACTION  
*/
```



# Begin Transaction

- You can use the BEGIN TRANSACTION keywords to manually set the beginning of a transaction
- All queries executed after the BEGIN TRANSACTION will not be saved until you explicitly COMMIT or ROLLBACK the transaction

```
SELECT *  
INTO Customer_Temp  
FROM Customer  
  
BEGIN TRANSACTION  
DELETE Customer_Temp  
WHERE Country NOT IN('India','Denmark')  
  
/*  
COMMIT TRANSACTION  
  
ROLLBACK TRANSACTION  
*/
```

# COMMIT TRANSACTION

- When the COMMIT TRANSACTION statement is executed, the operations in the transaction are saved to the database
- The operations cannot be undone

```
SELECT *  
INTO Customer_Temp  
FROM Customer  
  
BEGIN TRANSACTION  
DELETE Customer_Temp  
WHERE Country NOT IN('India', 'Denmark')  
  
SELECT  
    FirstName, LastName, Country  
FROM Customer_Temp  
  
DELETE Customer_Temp  
WHERE Country = 'India'  
  
SELECT  
    FirstName, LastName, Country  
FROM Customer_Temp  
  
COMMIT TRANSACTION  
  
SELECT  
    *  
FROM Customer_Temp
```

Results			
Messages			
	FirstName	LastName	Country
1	Kara	Nielsen	Denmark
2	Manoj	Pareek	India
3	Puja	Srivastava	India

  

	FirstName	LastName	Country
1	Kara	Nielsen	Denmark

  

	CustomerId	FirstName	LastName
1	9	Kara	Nielsen

# ROLLBACK TRANSACTION

- When the ROLLBACK TRANSACTION statement is executed, all statements run after the BEGIN TRANSACTION statement are undone
- You cannot undo a rollback

```
SELECT *
INTO Customer_Temp
FROM Customer

BEGIN TRANSACTION
DELETE Customer_Temp
WHERE Country NOT IN('India','Denmark')

SELECT
    FirstName, LastName, Country
FROM Customer_Temp

DELETE Customer_Temp
WHERE Country = 'India'

SELECT
    FirstName, LastName, Country
FROM Customer_Temp

ROLLBACK TRANSACTION

SELECT
    *
FROM Customer_Temp
```

Results			
Messages			
	FirstName	LastName	Country
1	Kara	Nielsen	Denmark
2	Manoj	Pareek	India
3	Puja	Srivastava	India

  

	FirstName	LastName	Country
1	Kara	Nielsen	Denmark

  

	CustomerId	FirstName	LastName
1	1	Luís	Gonçalves
2	2	Leonie	Köhler
3	3	François	Tremblay
4	4	Bjørn	Hansen
5	5	František	Wichterl...
6	6	Helena	Holý
7	7	Astrid	Gruber



# View Transaction Status

- After beginning a transaction you can check on the status with SELECT statements
- You can then choose whether to COMMIT or ROLLBACK the transaction

```
SELECT *  
INTO Customer_Temp  
FROM Customer  
  
BEGIN TRANSACTION  
DELETE Customer_Temp  
WHERE Country NOT IN('India','Denmark')
```

```
SELECT  
    FirstName, LastName, Country  
FROM Customer_Temp
```

```
DELETE Customer_Temp  
WHERE Country = 'India'
```

```
SELECT  
    FirstName, LastName, Country  
FROM Customer_Temp
```

```
COMMIT TRANSACTION
```

```
SELECT  
    *  
FROM Customer_Temp
```

# WITH (NOLOCK)

- Once you begin a transaction all associated tables are locked until the transaction is committed or rolled back
- No one can access a table while it is locked
- If you add WITH (NOLOCK) after your table name it will ignore the lock and display the table results
- Uncommitted transactions will be included. This may not be a good thing if they are subsequently rolled back

```
BEGIN TRANSACTION
DELETE Customer_Temp
WHERE Country NOT IN('India','Denmark')
```

```
DELETE Customer_Temp
WHERE Country = 'India'
```

```
SELECT *
FROM Customer_Temp WITH (NOLOCK)
```

Results		Messages			
	CustomerId	FirstName	LastName	Company	Address
1	9	Kara	Nielsen	NULL	Sønder Boulevard 51



# Summary

- BEGIN TRANSACTION
- COMMIT TRANSACTION
- ROLLBACK TRANSACTION
- WITH (NOLOCK)