

# 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
```

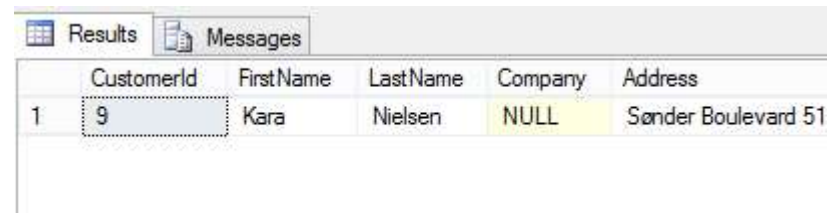
# WITH (NOLOCK)

- 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)
```



The screenshot shows a SQL Server interface with a 'Results' tab selected. It displays a single row of data from the 'Customer\_Temp' table. The columns are CustomerId, FirstName, LastName, Company, and Address. The data row shows CustomerId 9, FirstName Kara, LastName Nielsen, Company NULL, and Address Sønder Boulevard 51.

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

# Summary

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