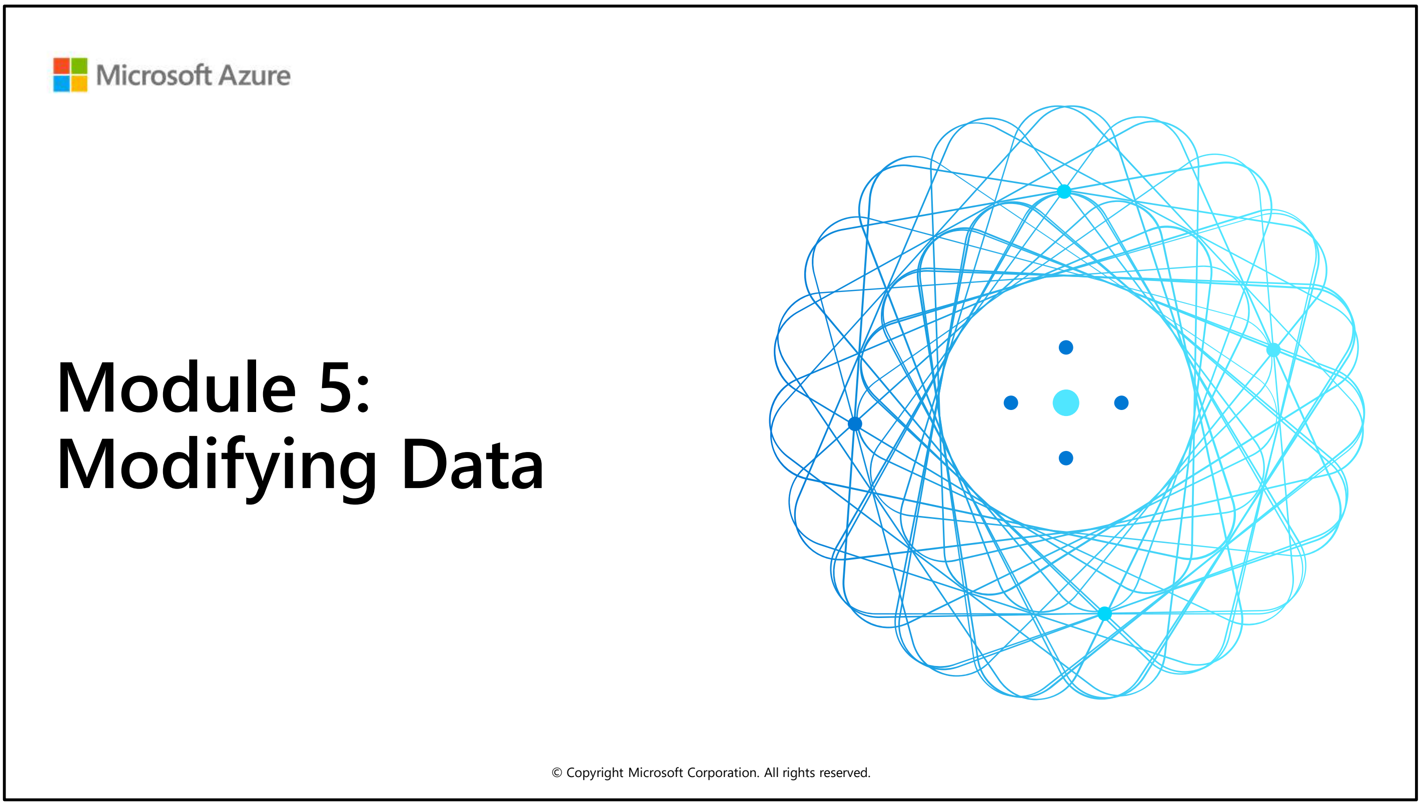
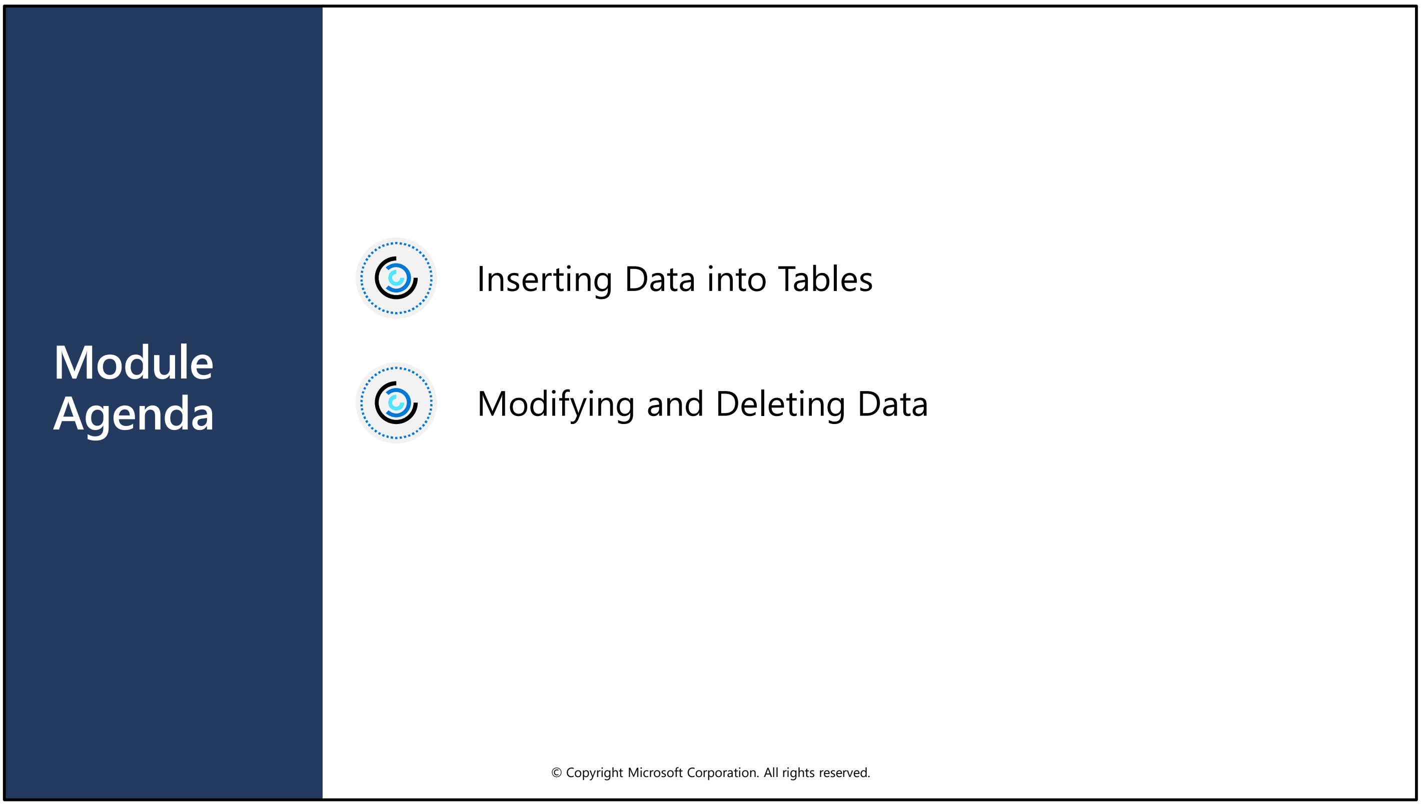
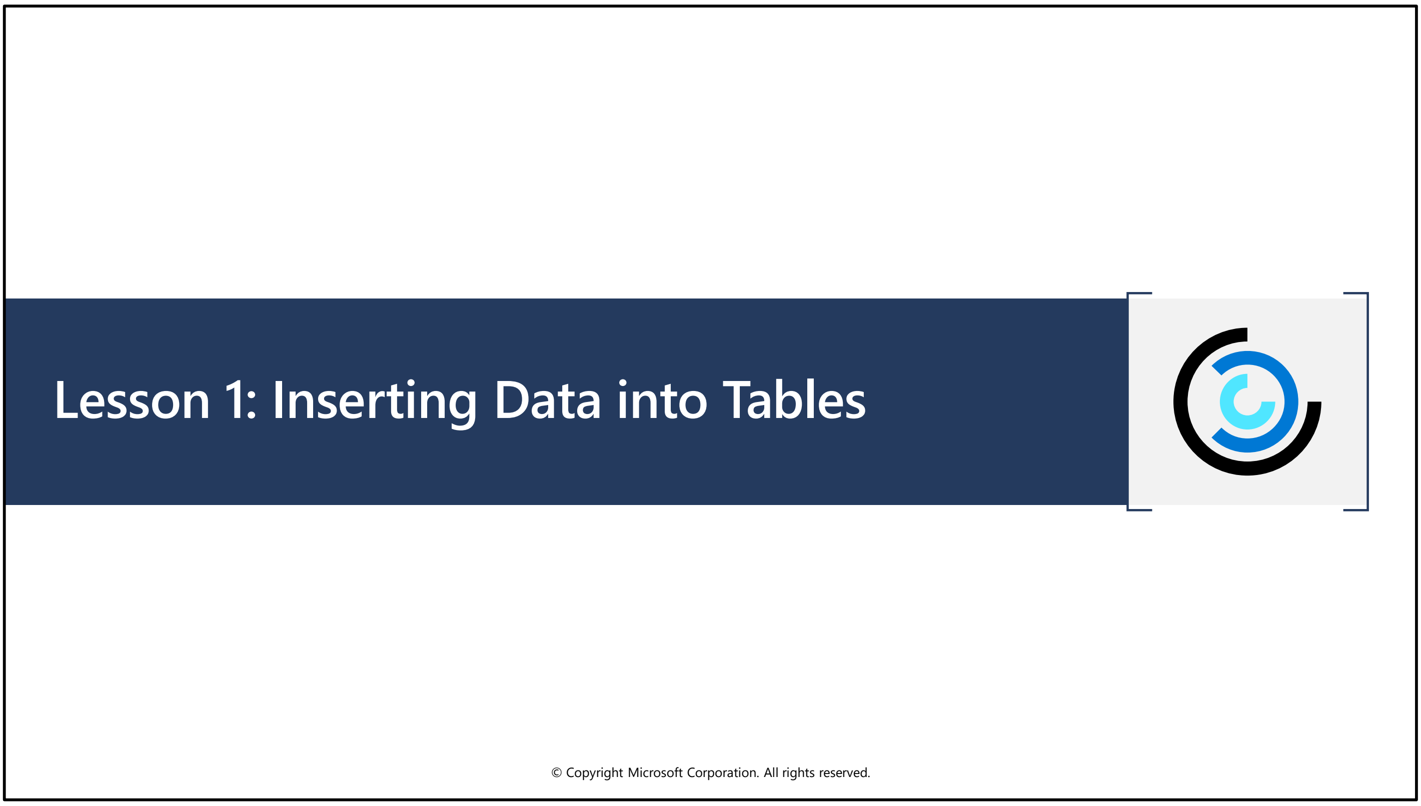


Module 5: Modifying Data



Module Agenda

- Inserting Data into Tables
- Modifying and Deleting Data



Lesson 1: Inserting Data into Tables

Options for Inserting Data into Tables

INSERT…VALUES

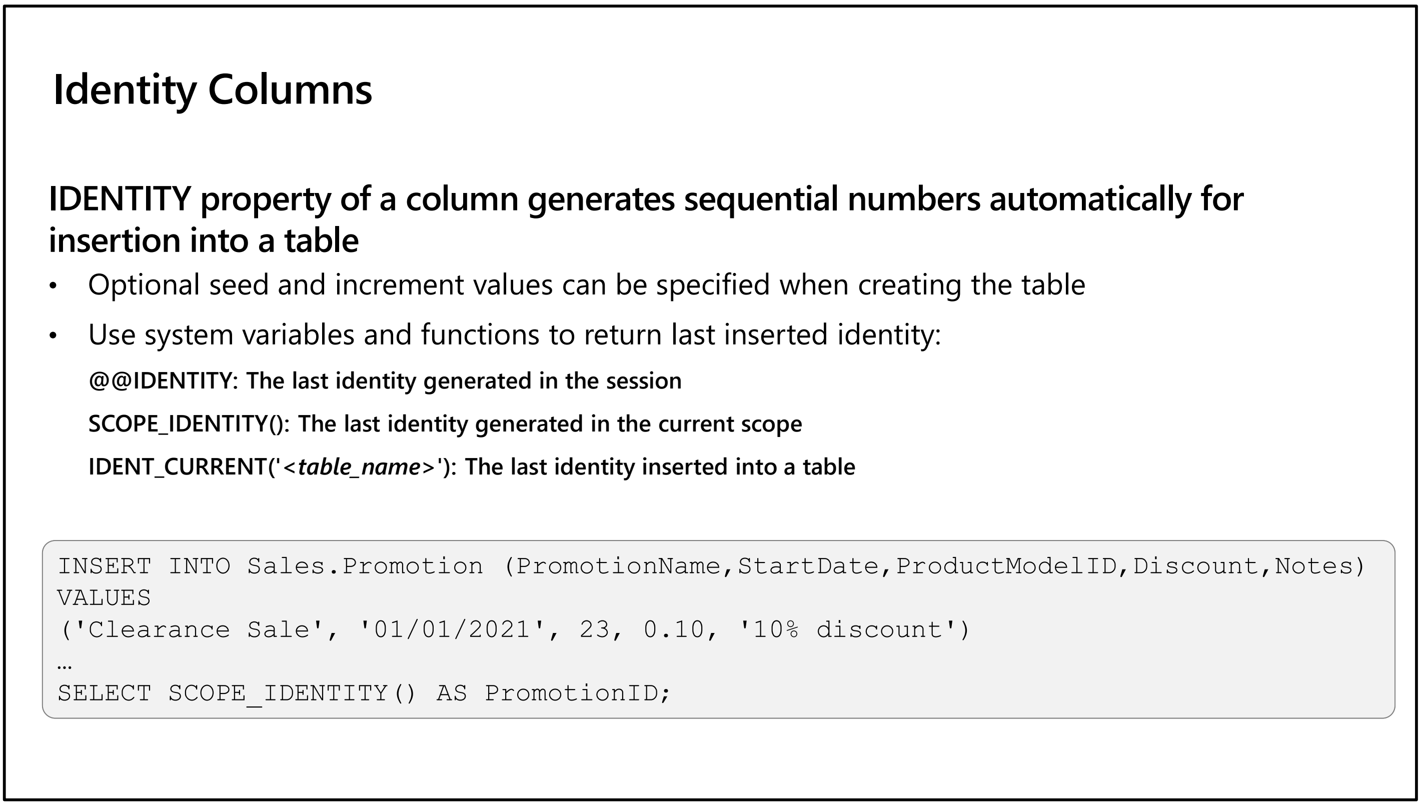
- Inserts explicit values
- You can omit identity columns, columns that allow NULL, and columns with default constraints.
- You can also explicitly specify NULL and DEFAULT

INSERT…SELECT

- Inserts the results returned by a query into an existing table

SELECT…INTO

- Creates a new table from the results of a query



Identity Columns

IDENTITY property of a column generates sequential numbers automatically for insertion into a table

- Optional seed and increment values can be specified when creating the table
- Use system variables and functions to return last inserted identity:

  @@IDENTITY: The last identity generated in the session

  SCOPE_IDENTITY(): The last identity generated in the current scope

  IDENT_CURRENT('<*table_name*>'): The last identity inserted into a table

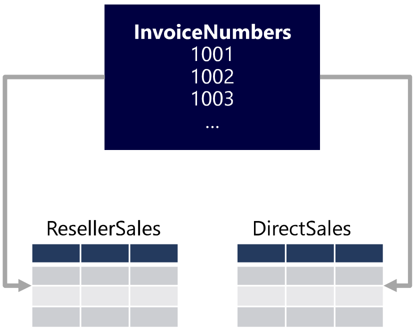
```
INSERT INTO Sales.Promotion (PromotionName,StartDate,ProductModelID,Discount,Notes)
VALUES
('Clearance Sale', '01/01/2021', 23, 0.10, '10% discount')
…
SELECT SCOPE_IDENTITY() AS PromotionID;
```

Sequences

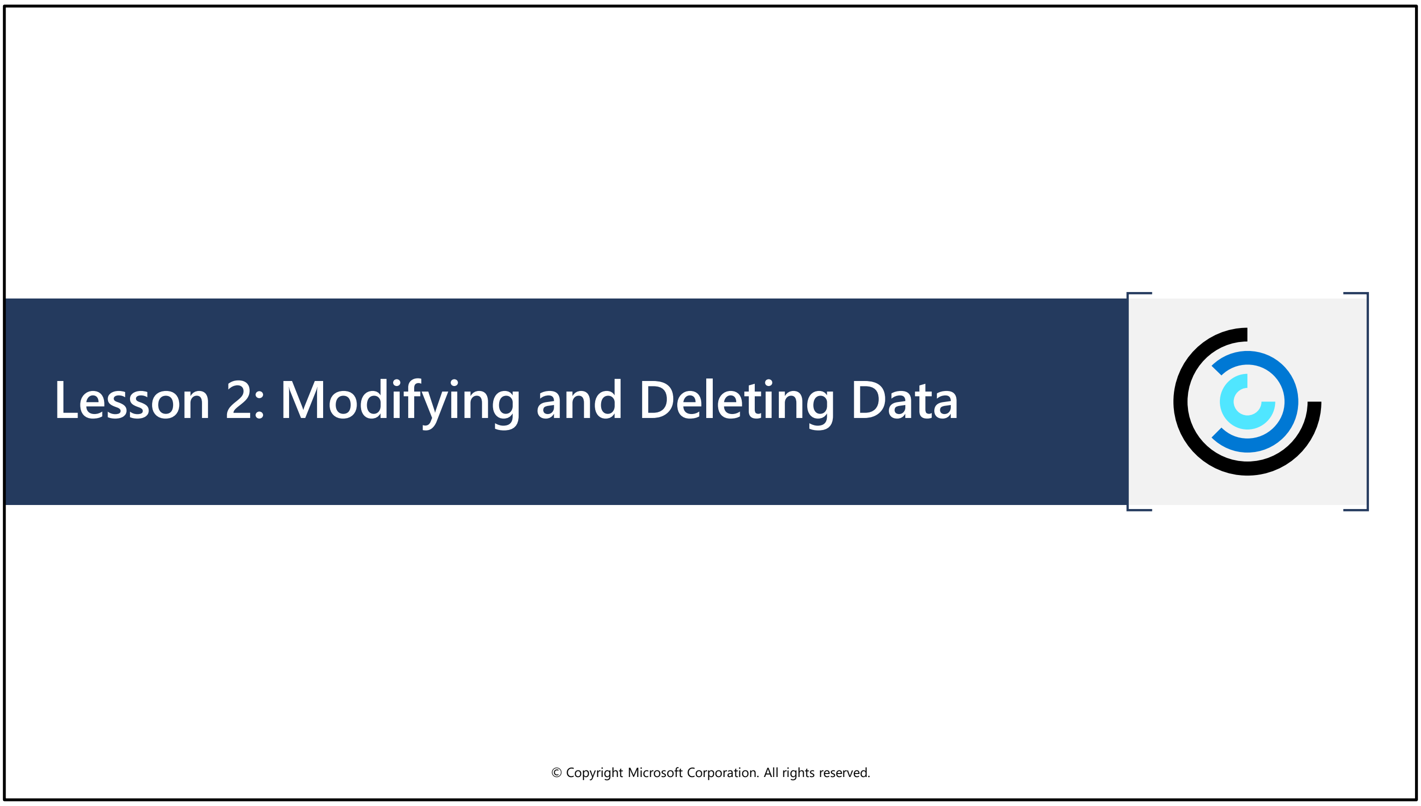
Sequences are objects that generate sequential numbers

- Exist independently of tables, so offer greater flexibility than Identity
- Use SELECT NEXT VALUE FOR to retrieve the next sequential number

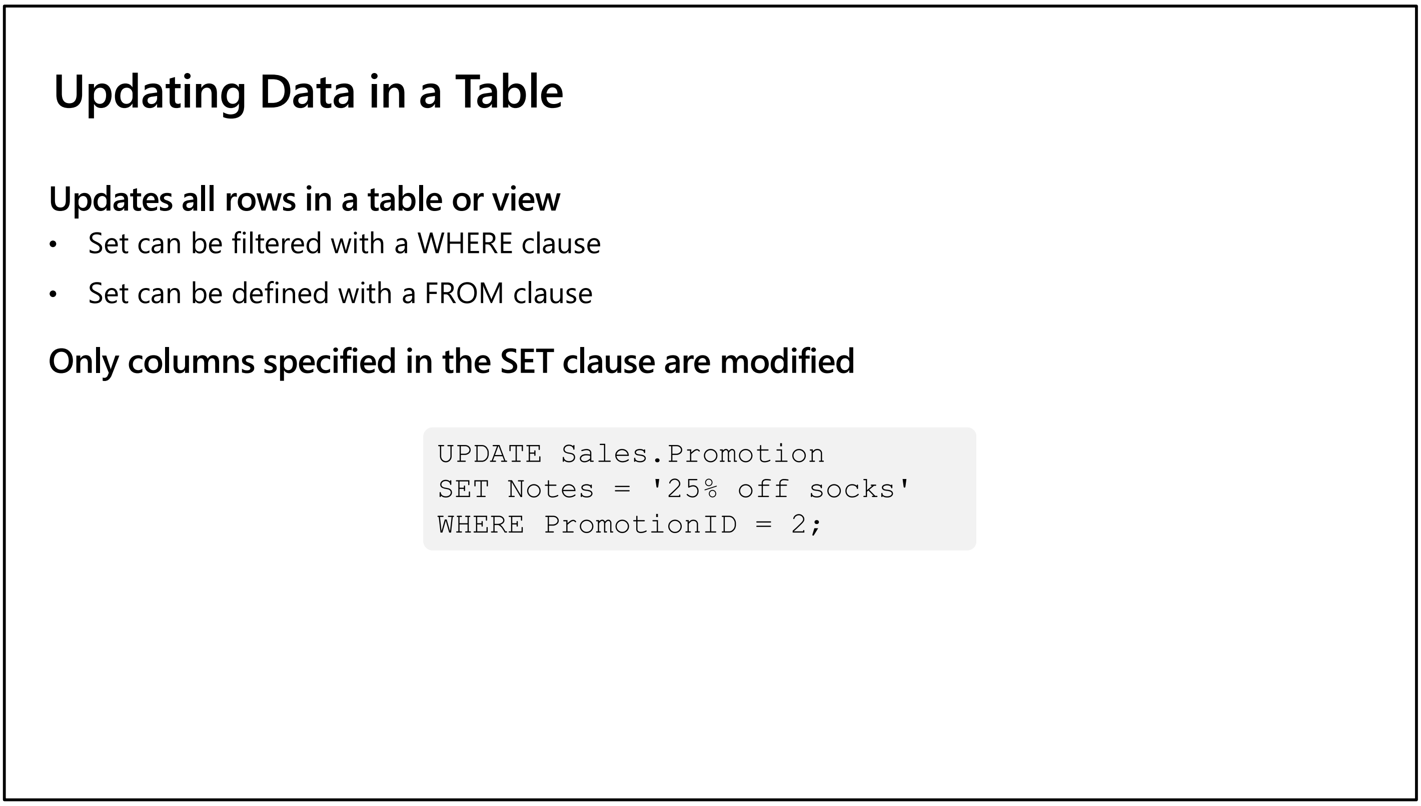
  Can be set as the default value for a column



```
CREATE SEQUENCE Sales.InvoiceNumber AS INT
START WITH 1000 INCREMENT BY 1;
…
SELECT NEXT VALUE FOR Sales.InvoiceNumber;
```



Lesson 2: Modifying and Deleting Data



Updating Data in a Table

Updates all rows in a table or view

- Set can be filtered with a WHERE clause
- Set can be defined with a FROM clause

Only columns specified in the SET clause are modified

```
UPDATE Sales.Promotion
SET Notes = '25% off socks'
WHERE PromotionID = 2;
```

Deleting Data From a Table

DELETE removes rows that match the WHERE predicate

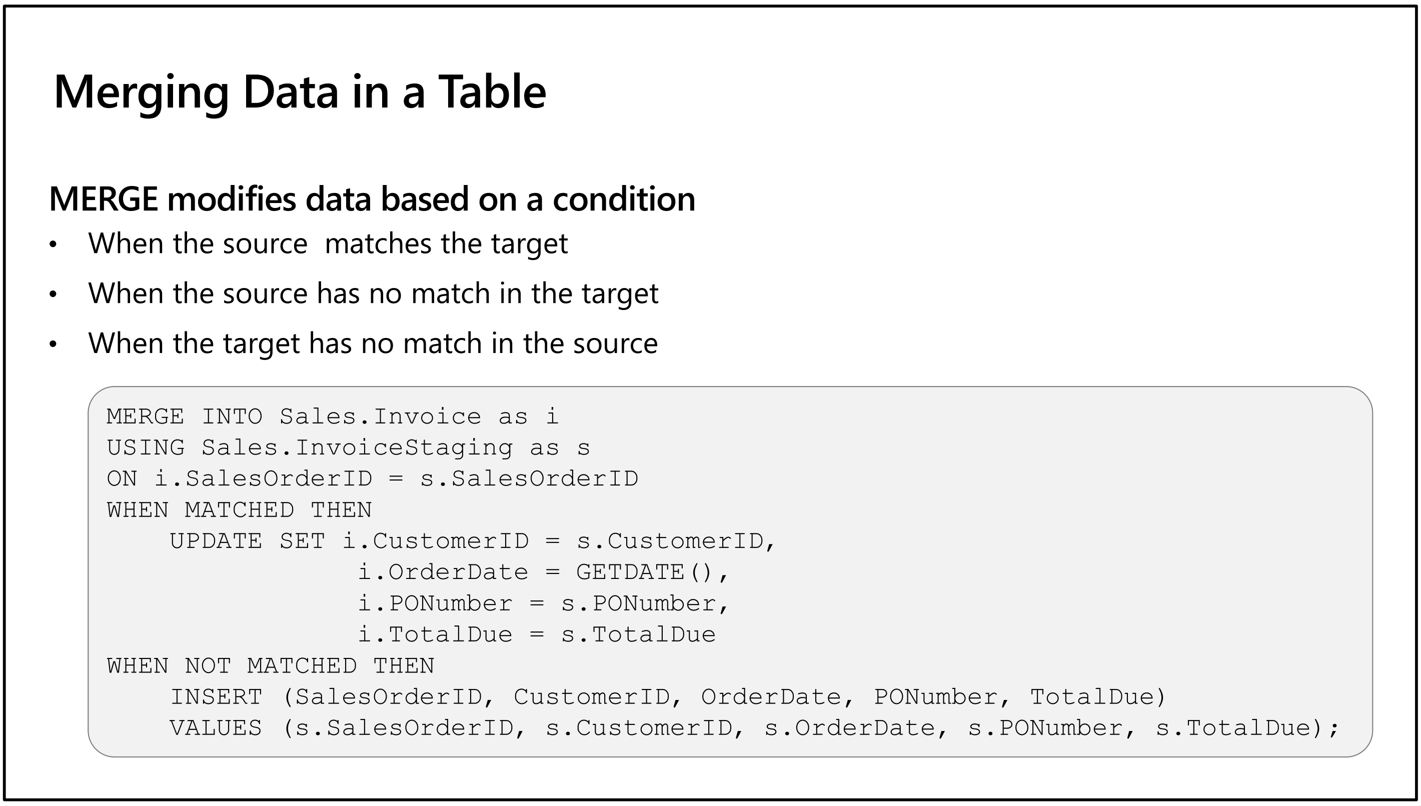
- Caution: DELETE without a WHERE clause deletes all rows!

```
DELETE FROM Production.Product
WHERE discontinued = 1;
```

TRUNCATE TABLE clears the entire table

- Storage physically deallocated, rows not individually removed
- The operation is minimally logged to optimize performance
- TRUNCATE TABLE will fail if the table is referenced by a foreign key constraint in another table

```
TRUNCATE TABLE Sales.Promotion;
```

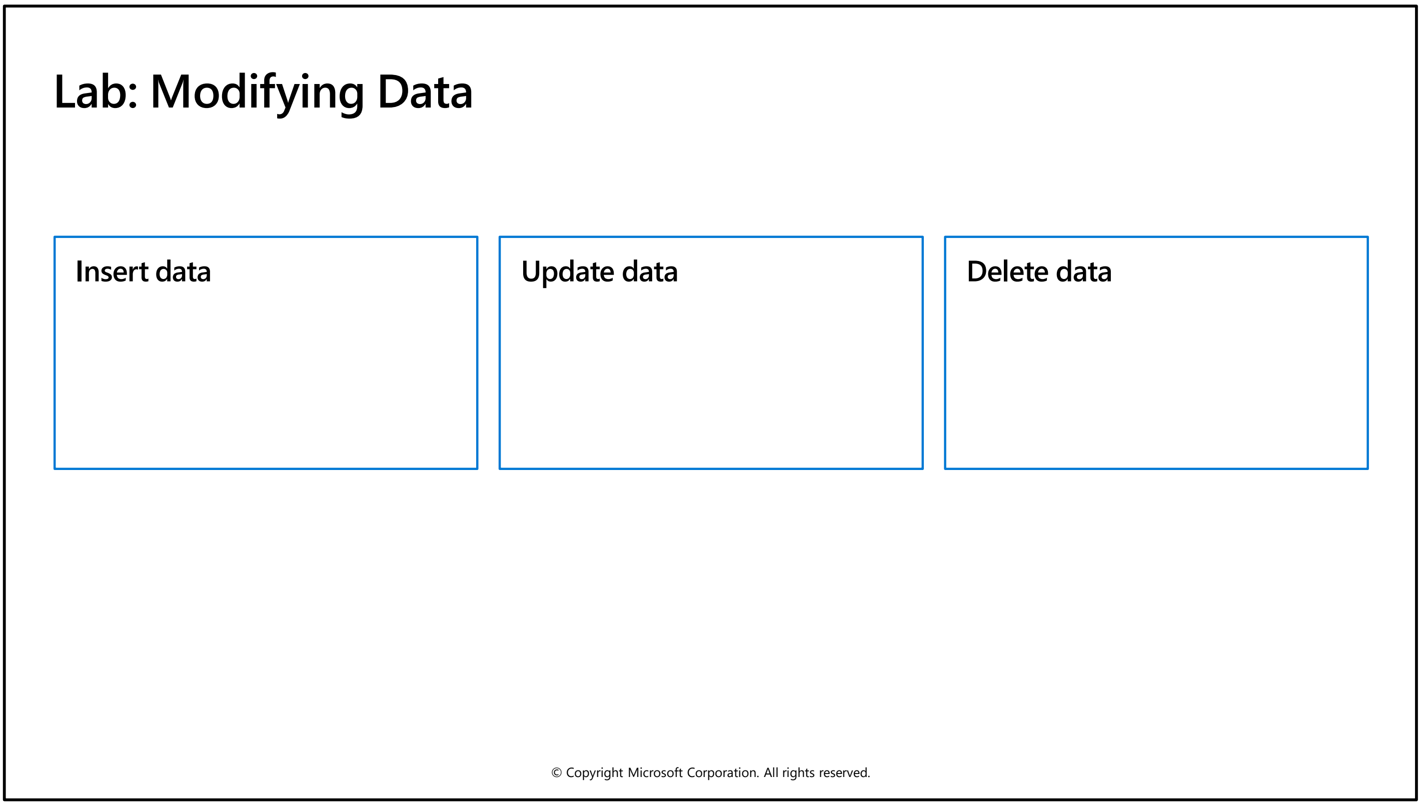


Merging Data in a Table

MERGE modifies data based on a condition

- When the source matches the target
- When the source has no match in the target
- When the target has no match in the source

```
MERGE INTO Sales.Invoice as i
USING Sales.InvoiceStaging as s
ON i.SalesOrderID = s.SalesOrderID
WHEN MATCHED THEN
    UPDATE SET i.CustomerID = s.CustomerID,
                i.OrderDate = GETDATE(),
                i.PONumber = s.PONumber,
                i.TotalDue = s.TotalDue
WHEN NOT MATCHED THEN
    INSERT (SalesOrderID, CustomerID, OrderDate, PONumber, TotalDue)
    VALUES (s.SalesOrderID, s.CustomerID, s.OrderDate, s.PONumber, s.TotalDue);
```

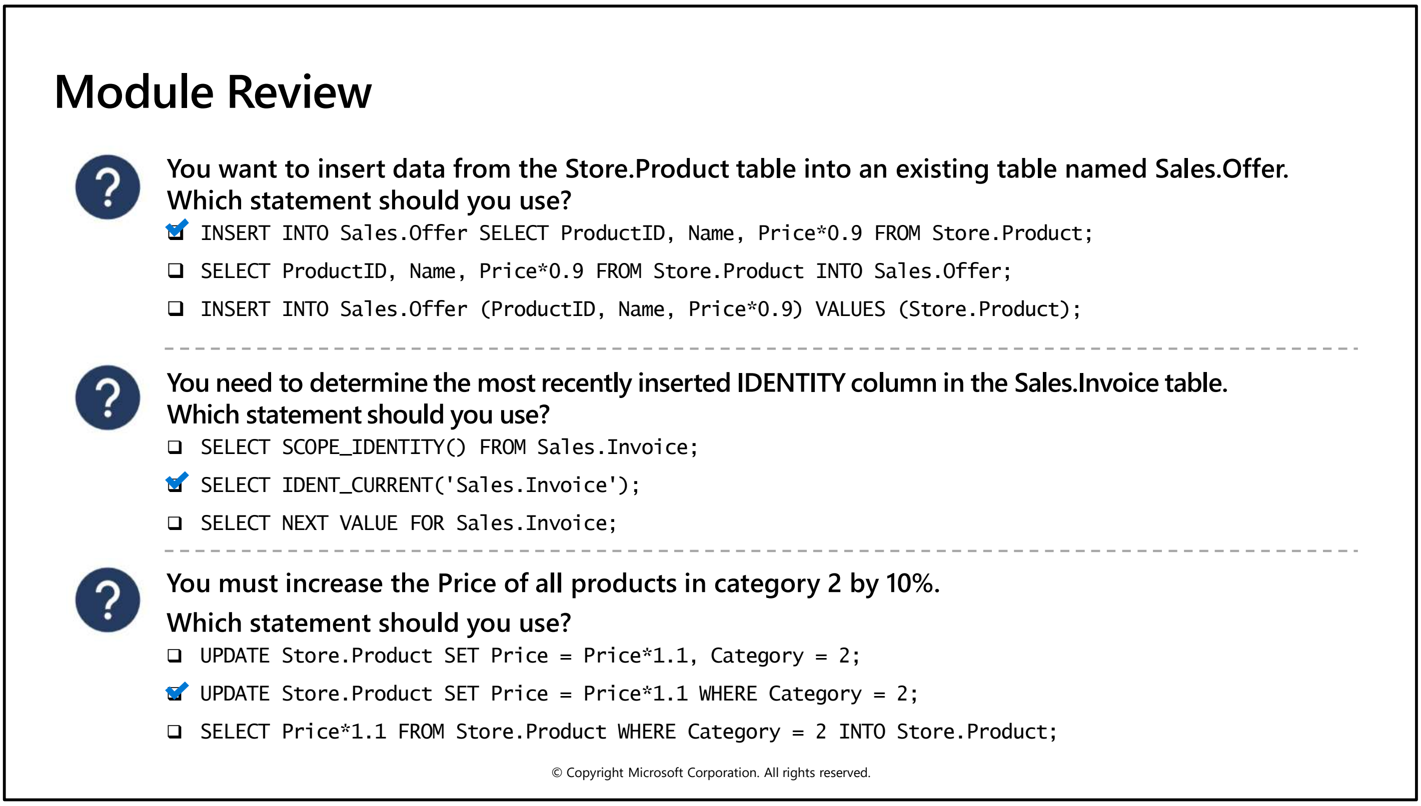


Lab: Modifying Data

Insert data

Update data

Delete data



Module Review

You want to insert data from the Store.Product table into an existing table named Sales.Offer. Which statement should you use?

☑ `INSERT INTO Sales.Offer SELECT ProductID, Name, Price*0.9 FROM Store.Product;`

□ `SELECT ProductID, Name, Price*0.9 FROM Store.Product INTO Sales.Offer;`

□ `INSERT INTO Sales.Offer (ProductID, Name, Price*0.9) VALUES (Store.Product);`

You need to determine the most recently inserted IDENTITY column in the Sales.Invoice table. Which statement should you use?

□ `SELECT SCOPE_IDENTITY() FROM Sales.Invoice;`

☑ `SELECT IDENT_CURRENT('Sales.Invoice');`

□ `SELECT NEXT VALUE FOR Sales.Invoice;`

You must increase the Price of all products in category 2 by 10%.

Which statement should you use?

□ `UPDATE Store.Product SET Price = Price*1.1, Category = 2;`

☑ `UPDATE Store.Product SET Price = Price*1.1 WHERE Category = 2;`

□ `SELECT Price*1.1 FROM Store.Product WHERE Category = 2 INTO Store.Product;`

Use the slide animation to reveal the correct answers.

Microsoft Azure