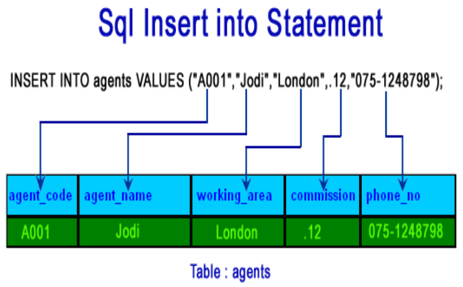
DML STATEMENTS

Instructor:

Learning Goals

By the end of this lecture students should be able to:


Sql Insert into Statement

```
INSERT INTO agents VALUES ("A001","Jodi","London",.12,"075-1248798");
```

agent_code	agent_name	working_area	commission	phone_no
A001	Jodi	London	.12	075-1248798

Table : agents

- ✓ Describe each data manipulation language (DML) statement
- ✓ Insert rows into a table
- ✓ Update rows in a table
- ✓ Delete rows from a table

Table of contents

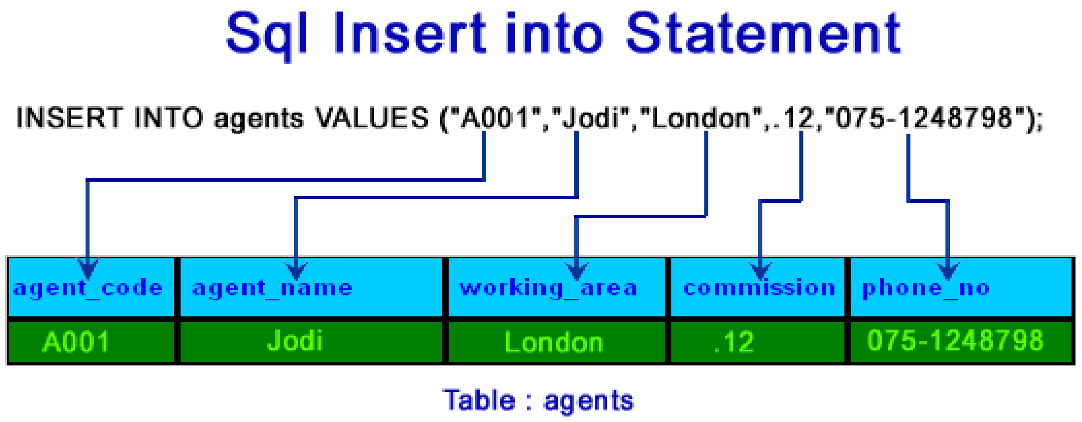
- ◊ **Insert Statement**
- ◊ **Update Statement**
- ◊ **Delete Statement**
- ◊ **Select Statement**

Section1

INSERT STATEMENT

INSERT Statements (1/3)

- The INSERT INTO statement is used to adds one or more rows to a table or a view



```
INSERT INTO agents VALUES ("A001","Jodi","London",.12,"075-1248798");
```

agent_code	agent_name	working_area	commission	phone_no
A001	Jodi	London	.12	075-1248798

Table : agents

INSERT Statements (2/3)

- **Syntax:**

(1) Inserting data to all columns

```
INSERT INTO table_name
    VALUES (value1,value2,value3,...);
```

Ex1:

```
USE Fsoft_Training
INSERT INTO dbo.Persons
VALUES ( 1,'Tom', 'B. Erichsen','Skagen 21','Stavanger')
```

(2) Inserting data to selected columns

```
INSERT INTO table_name(column1,column2,column3,...)
    VALUES (value1,value2,value3,...);
```

Ex2:

```
USE Fsoft_Training
INSERT INTO dbo.Customer (CustomerName, City, Country)
VALUES ('Cardinal', 'Stavanger', 'Norway');
```

INSERT Statement (3/3)

- **Demo**
  - ✓ Inserting data to selected columns
  - ✓ Inserting data to all columns with identity column
  - ✓ Insert many rows at one time

INSERT in practice

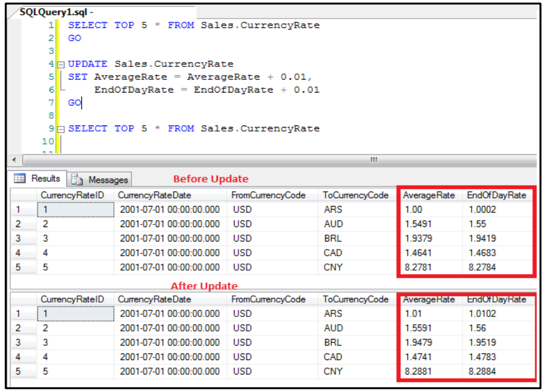
- **Always check data in various cases:**
  - ✓ Normal/Abnormal
  - ✓ Invalid data type
  - ✓ Special characters: ~!@#$%^&*()_
  - ✓ Special string characters: ‘ char(10) char(13) tab space
  - ✓ Max length, Max/Min value
  - ✓ Duplicated value in UNIQUE constraints

Section2

UPDATE STATEMENT

UPDATE Statement (1/2)

- The UPDATE statement is used to changes existing data in a table or view



SQLQuery1.sql -

```sql
SELECT TOP 5 * FROM Sales.CurrencyRate
GO

UPDATE Sales.CurrencyRate
SET AverageRate = AverageRate + 0.01,
    EndOfDayRate = EndOfDayRate + 0.01
GO

SELECT TOP 5 * FROM Sales.CurrencyRate
```

Results | Messages

Before Update

	CurrencyRateID	CurrencyRateDate	FromCurrencyCode	ToCurrencyCode	AverageRate	EndOfDayRate
1	1	2001-07-01 00:00:00.000	USD	ARS	1.00	1.0002
2	2	2001-07-01 00:00:00.000	USD	AUD	1.5491	1.55
3	3	2001-07-01 00:00:00.000	USD	BRL	1.9379	1.9419
4	4	2001-07-01 00:00:00.000	USD	CAD	1.4641	1.4683
5	5	2001-07-01 00:00:00.000	USD	CNY	8.2781	8.2784

After Update

	CurrencyRateID	CurrencyRateDate	FromCurrencyCode	ToCurrencyCode	AverageRate	EndOfDayRate
1	1	2001-07-01 00:00:00.000	USD	ARS	1.01	1.0102
2	2	2001-07-01 00:00:00.000	USD	AUD	1.5591	1.56
3	3	2001-07-01 00:00:00.000	USD	BRL	1.9479	1.9519
4	4	2001-07-01 00:00:00.000	USD	CAD	1.4741	1.4783
5	5	2001-07-01 00:00:00.000	USD	CNY	8.2881	8.2884

- **Best Practice**
  - ✓ Use the **@@ROWCOUNT** function to return the number of inserted rows to the client application.

UPDATE Statement (2/2)

- **Syntax:**

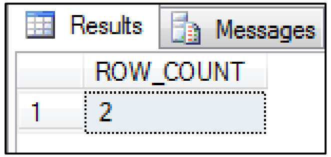
```
UPDATE table_name
SET column1=value1,column2=value2,...
WHERE some_column=some_value;
```

Notice the WHERE clause in the SQL UPDATE statement!

The WHERE clause specifies which record or records that should be updated. If you omit the WHERE clause, all records will be updated!

- Ex:

```
USE Fsoft_Training
UPDATE dbo.Customer
SET PostalCode = '4006'
WHERE Country = 'Norway'
SELECT @@ROWCOUNT AS ROW_COUNT
```



	ROW_COUNT
1	2

Section3

DELETE STATEMENT

DELETE Statement (1/2)

- Removes one or more rows from a table or view

CustomerId	CustomerName	ContactName
1	Alfreds Futterkiste	Maria Anders
~~2~~	~~Around the Horn~~	~~Thomas Hardy~~
3	Berglunds snabbköp	Christina Berglund
4	Antonio Moreno	Antonio Moreno
~~5~~	~~Ana Trujillo~~	~~Ana Trujillo~~

- **Best Practice:**

  To delete all the rows in a table, use TRUNCATE TABLE. TRUNCATE TABLE is faster than DELETE and uses fewer system and transaction log resources.

  TRUNCATE TABLE has restrictions, for example, the table cannot participate in replication

DELETE Statement (2/2)

- **Syntax:**

```
DELETE FROM table_name
WHERE some_column=some_value;
```

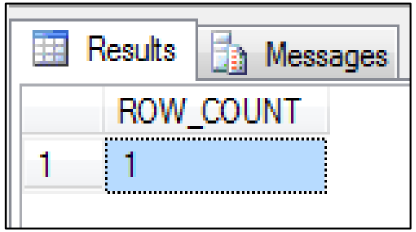
- **Notice the WHERE clause in the SQL DELETE statement!**

  The WHERE clause specifies which record or records that should be deleted. If you omit the WHERE clause, all records will be deleted!

  Please note that the DELETE FROM command cannot delete any rows of data that would violate FOREIGN KEY or other constraints.

- **Ex:**

```
USE Fsoft_Training
DELETE dbo.Customer
WHERE Country = 'Germany'
SELECT @@ROWCOUNT AS ROW_COUNT
```



	ROW_COUNT
1	1

Section4

SELECT STATEMENT

SELECT Statement (1/4)

- Retrieves rows from the database and enables the selection of one or many rows or columns from one or many tables

SELECT Statement (2/4)

- **Syntax:**

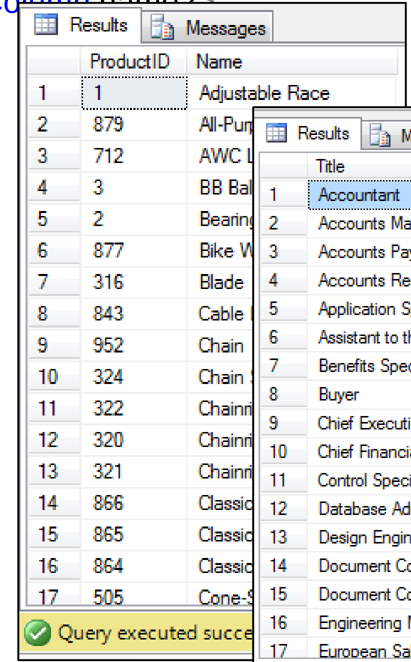
```
SELECT [ALL/DISTINCT/TOP [ WITH TIES ] ] <Column name1>, <Column name2>
          FROM <Table name>
          [WHERE <Search condition>]
          [GROUP BY grouping columns]
          [HAVING search condition]
          [ORDER BY sort specification]
```

Ex1:

```
USE AdventureWorks
GO
SELECT ProductID, Name
FROM Production.Product
ORDER BY Name ASC;
(504 rows)
```

Ex2:

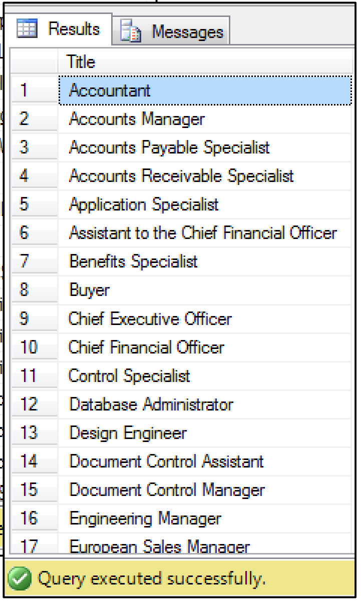
```
SELECT DISTINCT E.Title
FROM HumanResources.Employee E
ORDER BY E.Title;
(67 rows)
```



Results | Messages

	ProductID	Name
1	1	Adjustable Race
2	879	All-Pur
3	712	AWC L
4	3	BB Bal
5	2	Bearing
6	877	Bike W
7	316	Blade
8	843	Cable
9	952	Chain
10	324	Chain
11	322	Chainri
12	320	Chainri
13	321	Chainri
14	866	Classic
15	865	Classic
16	864	Classic
17	505	Cone-S

Query executed succe



Results | Messages

	Title
1	Accountant
2	Accounts Manager
3	Accounts Payable Specialist
4	Accounts Receivable Specialist
5	Application Specialist
6	Assistant to the Chief Financial Officer
7	Benefits Specialist
8	Buyer
9	Chief Executive Officer
10	Chief Financial Officer
11	Control Specialist
12	Database Administrator
13	Design Engineer
14	Document Control Assistant
15	Document Control Manager
16	Engineering Manager
17	European Sales Manager

Query executed successfully.

SELECT Statement (3/4)

- The SELECT INTO statement selects data from one table and inserts it into a different table.
- **Syntax:**

```
SELECT *
INTO new_table_name
FROM old_tablename
```

- **Tip:**
  - ✓ The SELECT INTO statement can also be used to create a new, empty table using the schema of another. Just add a WHERE clause that causes the query to return no data:

```
SELECT *
INTO newtable
FROM table1
WHERE 1=0;
```

SELECT Statement (4/4)

- **SQL Alias syntax:**
  - ✓ *For table*

```
SELECT column_name(s)
FROM table_name AS alias_name
```

  - ✓ *For Column(s)*

```
SELECT column_name AS alias_name
FROM table_name
```

- **Ex:**

```
USE AdventureWorks
GO
SELECT c.CustomerID, s.Name
FROM Sales.Customer AS c
        JOIN Sales.Store AS s
                ON c.CustomerID = s.SalesPersonID
```

Summary

- ✓ Insert Statement
- ✓ Delete Statement
- ✓ Select Statement

Thank you