UNIT 6 – USING SQL COMMANDS TO QUERY EXISTING DATA

overview

This unit further examines the use of data manipulation language (DML) to query data in an existing database.

You will establish and work with a new database called Northwind in this unit.

overview

A database deployment script for Northwind is provided, which you will execute within the Microsoft SQL Server Management Studio (SSMS) application.

This deployment script contains both the database structures and data required for the unit assignment.

overview

Once you have data in the tables, what can you do with it?

This leads to the fundamental purpose of a database, which is to effectively facilitate data retrieval by users.

You will examine different SQL syntax for selecting data into a result set.

There are many ways to limit and format the result set into exactly what you require.

overview

The quandary you must overcome is to determine if the result set has returned correct results or not.

A well-formed SQL query should return something.

But you will need to analyze the results to determine if what was returned is what you asked for and if what you asked for is really what you wanted.

Sounds confusing at first, but do not worry; a little practice is all you will need.

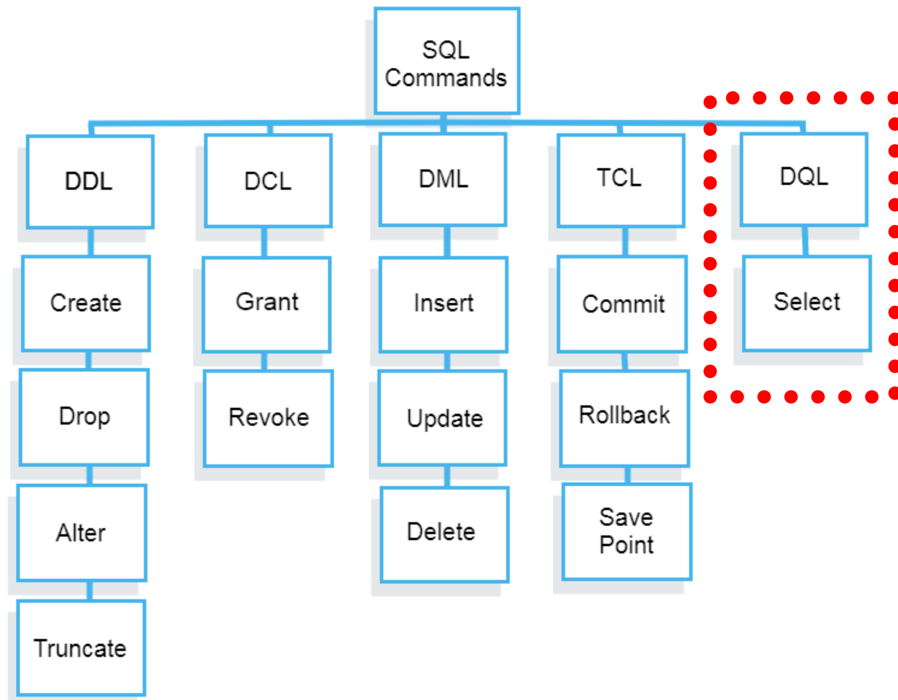
overview

After completing this unit, you should be able to:

- Use DML commands to query existing tables.

Types of SQL

- Here are five types of widely used SQL queries.
  - Data Definition Language (DDL)
  - Data Manipulation Language (DML)
  - Data Control Language(DCL)
  - Transaction Control Language(TCL)
  - Data Query Language (DQL)



TYPES OF SQL

Data Query Language (DQL)

DQL commands are basically SELECT statements.

SELECT statements let you query the database to find information in one or more tables and return the query as a result set.

A result set is an array structure; or more precisely, a result set is a two-dimensional array.

Data Query Language (DQL)

- Clauses of the SELECT statement:
  - **SELECT**
    - List the columns (and expressions) to be returned from the query
  - **FROM**
    - Indicate the table(s) or view(s) from which data will be obtained
  - **WHERE**
    - Indicate the conditions under which a row will be included in the result
  - **GROUP BY**
    - Indicate categorization of results
  - **HAVING**
    - Indicate the conditions under which a category (group) will be included
  - **ORDER BY**
    - Sorts the result according to specified criteria

SELECT Statements

```
SELECT 1;
SELECT 'ABC';
```

Results | Messages

	(No column name)
1	1

	(No column name)
1	ABC

Selecting a Literal Value

Perhaps the simplest form of a `SELECT` statement is that used to return a literal value. A *literal value* is one that you specify exactly. It is not data that come from the database.

Using the SELECT Statement

You use the `SELECT` statement to retrieve data from SQL Server. T-SQL requires only the word `SELECT` followed by at least one item in what is called a *select-list*.

SELECT Statements

Retrieving from a Table

You will usually want to retrieve data from a table instead of literal values. After all, if you already know what value you want, you probably don't need to execute a query to get that value.

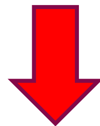
```
SELECT <column1>, <column2> FROM <schema>.<table>;
```

```
USE AdventureWorks;
GO
SELECT BusinessEntityID, JobTitle
FROM HumanResources.Employee;
```

	BusinessEntityID	JobTitle
1	1	Chief Executive Officer
2	2	Vice President of Engineering
3	3	Engineering Manager
4	4	Senior Tool Designer
5	5	Design Engineer
6	6	Design Engineer
7	7	Research and Development Manager
8	8	Research and Development Engineer
9	9	Research and Development Engineer
10	10	Research and Development Manager

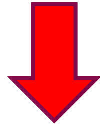
EXAMPLE

Product		
ProductID	Name	ListPrice
1	Widget	2.99
2	Gizmo	1.79
3	Thingybob	3.49



Select All Columns

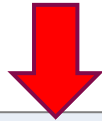
```
SELECT * FROM Product;
```



ProductID	Name	ListPrice
1	Widget	2.99
2	Gizmo	1.79
3	Thingybob	3.49

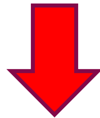
EXAMPLE

Product		
ProductID	Name	ListPrice
1	Widget	2.99
2	Gizmo	1.79
3	Thingybob	3.49



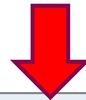
Select Specific Columns

```
SELECT Name, ListPrice
FROM Product;
```



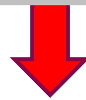
Name	ListPrice
Widget	2.99
Gizmo	1.79
Thingybob	3.49

Product		
ProductID	Name	ListPrice
1	Widget	2.99
2	Gizmo	1.79
3	Thingybob	3.49



```
SELECT Name AS Product, ListPrice * 0.9 AS SalePrice
FROM Product;
```

Expressions & Aliases



Product	SalePrice
Widget	2.69
Gizmo	1.61
Thingybob	3.14

EXAMPLE

Adding a WHERE Clause

To filter the rows returned from a query, you will add a `WHERE` clause to your `SELECT` statement. The database engine processes the `WHERE` clause second, right after the `FROM` clause. The `WHERE` clause will contain expressions, called *predicates*, that can be evaluated to `TRUE`, `FALSE`, or `UNKNOWN`.

Filtering Data

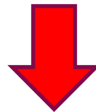
Usually an application requires only a fraction of the rows from a table at any given time. For example, an order-entry application that shows the order history will often need to display the orders for only one customer at a time. There might be millions of orders in the database, but the operator of the software will view only a handful of rows instead of the entire table. Filtering data is a very important part of T-SQL.

```
SELECT <column1>,<column2>
FROM <schema>.<table>
WHERE <column> = <value>;
```

SELECT Statements

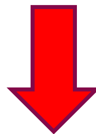
EXAMPLE

Product		
ProductID	Name	ListPrice
1	Widget	2.99
2	Gizmo	1.79
3	Thingybob	3.49



Find products with list price less than $2.75

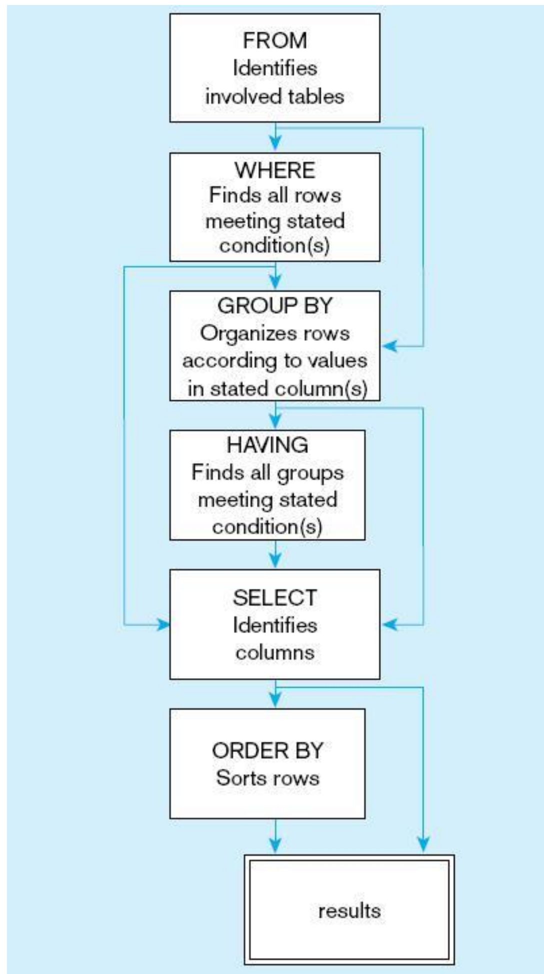
```
SELECT Name, ListPrice
FROM Product
WHERE ListPrice < 2.75;
```



Name	ListPrice
Gizmo	1.79

Comparison Operators in SQL

Operator	Meaning
=	Equal to
>	Greater than
>=	Greater than or equal to
<	Less than
<=	Less than or equal to
<>	Not equal to
!=	Not equal to



Data Query Language (DQL)

SQL STATEMENT PROCESSING ORDER

Working with Data Types
Transact-SQL Data Types

Exact Numeric	Approximate Numeric	Character	Date/Time	Binary	Other
tinyint	float	char	date	binary	cursor
smallint	real	varchar	time	varbinary	hierarchyid
int		text	datetime	image	sql_variant
bigint		nchar	datetime2		table
bit		nvarchar	smalldatetime		timestamp
decimal/numeric		ntext	datetimeoffset		uniqueidentifier
numeric					xml
money					geography
smallmoney					geometry

SELECT statement example tables

Employee

Key	Column
PK,FK1	BusinessEntityID
U2	NationalIDNumber
U1	LoginID
	ShiftID
	JobTitle
	BirthDate
	MaritalStatus
	Gender
	HireDate
	SalariedFlag
	VacationHours
	SickLeaveHours
	CurrentFlag
U3	rowguid
	ModifiedDate

SalesTerritory

Key	Column
PK	TerritoryID
U1	Name
	CountryRegionCode
	Group
	SalesYTD
	SalesLastYear
	CostYTD
	CostLastYear
U2	rowguid
	ModifiedDate

Person

Key	Column
PK,FK1	BusinessEntityID
	PersonType
	NameStyle
	Title
	FirstName
	MiddleName
	LastName
	Suffix
	EmailPromotion
	AdditionalContactInfo
	Demographics
U1	rowguid
	ModifiedDate

SalesOrderDetail

Key	Column
PK,FK1	BusinessEntityID
PK,FK1	SalesOrderID
PK	SalesOrderDetailID
	CarrierTrackingNumber
	OrderQty
FK2	ProductID
FK2	SpecialOfferID
	UnitPrice
	UnitPriceDiscount
	LineTotal
U1	rowguid
	ModifiedDate

SalesOrderHeader

Key	Column
PK,FK5	BusinessEntityID
PK	SalesOrderID
FK7	ShipMethodID
	RevisionNumber
	OrderDate
	DueDate
	ShipDate
	Status
	OnlineOrderFlag
U2	SalesOrderNumber
	PurchaseOrderNumber
	AccountNumber
FK6	TerritoryID
FK1	BillToAddressID
FK2	ShipToAddressID
FK8	CreditCardID
	CreditCardApprovalCode
FK4	CurrencyRateID
	SubTotal
	TaxAmt
	Freight
	TotalDue
	Comment
U1	rowguid
	ModifiedDate

ProductInventory

Key	Column
PK,FK2	ProductID
PK,FK1	LocationID
	Shelf
	Bin
	Quantity
	rowguid
	ModifiedDate

	CustomerID	SalesOrderID
1	11000	43793
2	11000	51522
3	11000	57418

	CustomerID	SalesOrderID
1	11000	43793

	CustomerID	SalesOrderID	OrderDate
1	27645	43702	2005-07-02 00:00:00.000
2	16624	43703	2005-07-02 00:00:00.000
3	11005	43704	2005-07-02 00:00:00.000
4	11011	43705	2005-07-02 00:00:00.000

	BusinessEntityID	LoginID	JobTitle
1	1	adventure-works\ken0	Chief Executive Officer

```
--1
SELECT CustomerID, SalesOrderID
FROM Sales.SalesOrderHeader
WHERE CustomerID = 11000;

--2
SELECT CustomerID, SalesOrderID
FROM Sales.SalesOrderHeader
WHERE SalesOrderID = 43793;

--3
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE OrderDate = '2005-07-02';

--4
SELECT BusinessEntityID, LoginID, JobTitle
FROM HumanResources.Employee
WHERE JobTitle = 'Chief Executive Officer';
```

SELECT Statement Examples

Using WHERE Clauses with Alternate Operators

Within `WHERE` clause expressions, you can use many comparison operators, not just the equals sign. Books Online lists the following operators:

- > *(greater than)*
- < *(less than)*
- = *(equals)*
- <= *(less than or equal to)*
- >= *(greater than or equal to)*
- != *(not equal to)*
- <> *(not equal to)*
- !< *(not less than)*
- !> *(not greater than)*

```
--Using a DateTime column
--1
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE OrderDate > '2005-07-05';

--2
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE OrderDate < '2005-07-05';

--3
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE OrderDate >= '2005-07-05';

--4
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE OrderDate <> '2005-07-05';
```

SELECT Statement examples

SELECT Statement Examples

```
--Using a string column
--10
SELECT BusinessEntityID, FirstName
FROM Person.Person
WHERE FirstName <> 'Catherine';

--11
SELECT BusinessEntityID, FirstName
FROM Person.Person
WHERE FirstName != 'Catherine';

--12
SELECT BusinessEntityID,
FROM Person.Person
WHERE FirstName > 'M';

--13
SELECT BusinessEntityID,
FROM Person.Person
WHERE FirstName !> 'M';
```

```
--5
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE OrderDate != '2005-07-05';

--Using a number column
--6
SELECT SalesOrderID, SalesOrderDetailID, OrderQty
FROM Sales.SalesOrderDetail
WHERE OrderQty > 10;

--7
SELECT SalesOrderID, SalesOrderDetailID, OrderQty
FROM Sales.SalesOrderDetail
WHERE OrderQty <= 10;

--8
SELECT SalesOrderID, SalesOrderDetailID, OrderQty
FROM Sales.SalesOrderDetail
WHERE OrderQty <> 10;

--9
SELECT SalesOrderID, SalesOrderDetailID, OrderQty
FROM Sales.SalesOrderDetail
WHERE OrderQty != 10;
```

Using BETWEEN

BETWEEN is another useful operator you can use in the WHERE clause to specify an inclusive range of values. It is frequently used with dates but can be used with string and numeric data as well. Here is the syntax for BETWEEN:

```
SELECT <column1>,<column2>
FROM <schema>.<table>
WHERE <column> BETWEEN <value1> AND <value2>;
```

	CustomerID	SalesOrderID	OrderDate
1	27645	43702	2005-07-02 00:00:00.000
2	16624	43703	2005-07-02 00:00:00.000
3	11005	43704	2005-07-02 00:00:00.000
4	11011	43705	2005-07-02 00:00:00.000

	CustomerID	SalesOrderID	OrderDate
1	25000	73018	2008-06-15 00:00:00.000
2	25001	61662	2008-01-08 00:00:00.000
3	25002	61397	2008-01-03 00:00:00.000
4	25003	60269	2007-12-18 00:00:00.000

	BusinessEntityID	JobTitle
1	1	Chief Executive Officer
2	5	Design Engineer
3	6	Design Engineer
4	15	Design Engineer

```
--1
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE OrderDate BETWEEN '2005-07-02' AND '2005-07-04';

--2
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE CustomerID BETWEEN 25000 AND 25005;

--3
SELECT BusinessEntityID, JobTitle
FROM HumanResources.Employee
WHERE JobTitle BETWEEN 'C' and 'E';
```

SELECT Statements

Using BETWEEN with NOT

To find values outside a particular range of values, you write the `WHERE` clause expression using `BETWEEN` along with the `NOT` keyword. In this case, the query returns any rows outside the range.

	CustomerID	SalesOrderID	OrderDate
1	27645	43702	2005-07-02 00:00:00.000
2	16624	43703	2005-07-02 00:00:00.000
3	11005	43704	2005-07-02 00:00:00.000
4	11011	43705	2005-07-02 00:00:00.000

	CustomerID	SalesOrderID	OrderDate
1	25000	73018	2008-06-15 00:00:00.000
2	25001	61662	2008-01-08 00:00:00.000
3	25002	61397	2008-01-03 00:00:00.000
4	25003	60269	2007-12-18 00:00:00.000

	BusinessEntityID	JobTitle
1	1	Chief Executive Officer
2	5	Design Engineer
3	6	Design Engineer
4	15	Design Engineer

```
--1
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE OrderDate NOT BETWEEN '2005-07-02' AND '2005-07-04';

--2
SELECT CustomerID, SalesOrderID, OrderDate
FROM Sales.SalesOrderHeader
WHERE CustomerID NOT BETWEEN 25000 AND 25005;

--3
SELECT BusinessEntityID, JobTitle
FROM HumanResources.Employee
WHERE JobTitle NOT BETWEEN 'C' and 'E';
```

SELECT Statements

THE RECORDS BELOW WILL NOT BE IN THE RESULT SETS!!!!

Filtering on Date and Time

Some temporal data columns store the time as well as the date. If you attempt to filter on such a column specifying only the date, you may retrieve incomplete results.

```
--1
SELECT ID, MyDate, MyValue
FROM #DateTimeExample
WHERE MyDate = '2009-01-03';

--2
SELECT ID, MyDate, MyValue
FROM #DateTimeExample
WHERE MyDate BETWEEN '2009-01-03 00:00:00' AND '2009-01-03 23:59:59';
```

	ID	MyDate	MyValue

	ID	MyDate	MyValue
1	2	2009-01-03 13:00:00	Trike
2	3	2009-01-03 13:10:00	Bell
3	4	2009-01-03 17:35:00	Seat

SELECT Statements

Using WHERE Clauses with Two Predicates

So far, the examples have shown only one condition or predicate in the WHERE clause, but the WHERE clause can be much more complex. They can have multiple predicates by using the logical operators AND and OR.

	BusinessEntityID	FirstName	MiddleName	LastName
1	1525	Ken	NULL	Myer
2	203	Ken	L	Myer

	BusinessEntityID	FirstName	MiddleName	LastName
1	1459	Deanna	NULL	Meyer
2	1455	Eric	B.	Meyer
3	1457	Helen	M.	Meyer
4	2140	Ken	NULL	Meyer
5	1523	Dorothy	J.	Myer
6	1525	Ken	NULL	Myer
7	203	Ken	L	Myer
8	2319	Linda	NULL	Myer

```
--1
SELECT BusinessEntityID, FirstName, MiddleName, LastName
FROM Person.Person
WHERE FirstName = 'Ken' AND LastName = 'Myer';

--2
SELECT BusinessEntityID, FirstName, MiddleName, LastName
FROM Person.Person
WHERE LastName = 'Myer' OR LastName = 'Meyer';
```

SELECT Statements

Using the IN Operator

The `IN` operator is very useful when a set of multiple values must be compared to the same column. Follow the `IN` operator with a list of possible values for a column within parentheses. Here is the syntax:

```
SELECT <column1>,<column2>
FROM <schema>.<table>
WHERE <column> IN (<value1>,<value2>);
```

```
--1
SELECT BusinessEntityID,FirstName,MiddleName,LastName
FROM Person.Person
WHERE FirstName = 'Ken' AND
    LastName IN ('Myer','Meyer');

--2
SELECT TerritoryID, Name
FROM Sales.SalesTerritory
WHERE TerritoryID IN (2,2,1,4,5);

--3
SELECT TerritoryID, Name
FROM Sales.SalesTerritory
WHERE TerritoryID NOT IN (2,1,4,5);
```

	BusinessEntityID	FirstName	MiddleName	LastName
1	2140	Ken	NULL	Meyer
2	1525	Ken	NULL	Myer
3	203	Ken	L	Myer

	TerritoryID	Name
1	1	Northwest
2	2	Northeast
3	4	Southwest
4	5	Southeast

	TerritoryID	Name
1	9	Australia
2	6	Canada
3	3	Central
4	7	France
5	8	Germany
6	10	United Kingdom

SELECT Statements

Using LIKE

Pattern matching is possible by using the `LIKE` operator in the expression instead of equal to (=) or one of the other operators. Most of the time, the percent sign (`%`) is used as a wildcard along with `LIKE` to represent zero or more characters. You will also see the underscore (_) used as a wildcard to replace exactly one character, but it's not used as often.

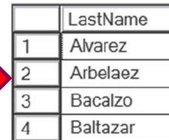
```
--1
SELECT DISTINCT LastName
FROM Person.Person
WHERE LastName LIKE 'Sand%';
```

	LastName
1	Sandberg
2	Sanders
3	Sandidge
4	Sandoval

```
--2
SELECT DISTINCT LastName
FROM Person.Person
WHERE LastName NOT LIKE 'Sand%';
```

	LastName
1	Abbas
2	Abel
3	Abercrombie
4	Abolrous

```
--3
SELECT DISTINCT LastName
FROM Person.Person
WHERE LastName LIKE '%Z%';
```



	LastName
1	Alvarez
2	Arbelaez
3	Bacalzo
4	Baltazar

```
--4
SELECT DISTINCT LastName
FROM Person.Person
WHERE LastName LIKE 'Bec_';
```

	LastName
1	Beck

SELECT Statements

NULL and three-valued logic

In the database world, NULL is used to indicate the absence of any data value. For example, at the time of recording the customer information, the email may be unknown, so it is recorded as NULL in the database.

Normally, the result of a logical expression is TRUE or FALSE. However, when NULL is involved in the logical evaluation, the result is UNKNOWN. This is called a three-valued logic: TRUE, FALSE, and UNKNOWN.

The results of the following comparisons are UNKNOWN:

```
NULL = 0
NULL <> 0
NULL > 0
NULL = NULL
```

The syntax for the IS NULL condition in SQL Server (Transact-SQL) is:

```
expression IS NULL
```

- If *expression* is a NULL value, the condition evaluates to TRUE.
- If *expression* is not a NULL value, the condition evaluates to FALSE.

The syntax for the IS NOT NULL condition in SQL Server (Transact-SQL) is:

```
expression IS NOT NULL
```

- If *expression* is NOT a NULL value, the condition evaluates to TRUE.
- If *expression* is a NULL value, the condition evaluates to FALSE.

SELECT Statements

An Example Illustrating NULL

```
--1 Returns 19,972 rows
SELECT MiddleName
FROM Person.Person;

--2 Returns 291 rows
SELECT MiddleName
FROM Person.Person
WHERE MiddleName = 'B';
```

```
--3 Returns 11,182 but 19,681 were expected
SELECT MiddleName
FROM Person.Person
WHERE MiddleName != 'B';

--4 Returns 19,681
SELECT MiddleName
FROM Person.Person
WHERE MiddleName IS NULL
    OR MiddleName !='B';
```

SELECT Statements

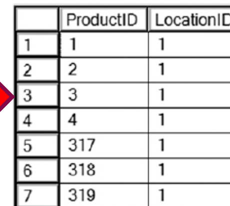
Sorting Data

You can specify one or more columns in the `ORDER BY` clause separated by commas. The sort order is ascending by default, but you can specify descending order by using the keyword `DESCENDING` or `DESC` after the column name. You can also specify `ASCENDING` or `ASC` if you wish, but the sort order is ascending by default. Here is the syntax for `ORDER BY`:

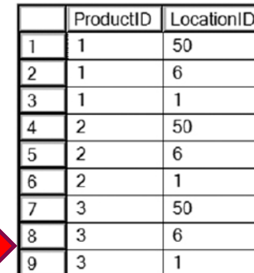
```
SELECT <column1>,<column2>
FROM <schema>.<tablename>
ORDER BY <column1>[<sort direction>],<column2> [<sort direction>]
```

```
--1
SELECT ProductID, LocationID
FROM Production.ProductInventory
ORDER BY LocationID;

--2
SELECT ProductID, LocationID
FROM Production.ProductInventory
ORDER BY ProductID, LocationID DESC;
```



	ProductID	LocationID
1	1	1
2	2	1
3	3	1
4	4	1
5	317	1
6	318	1
7	319	1



	ProductID	LocationID
1	1	50
2	1	6
3	1	1
4	2	50
5	2	6
6	2	1
7	3	50
8	3	6
9	3	1

SELECT Statements

Distinct clause

Sometimes, you may want to get only distinct values in a specified column of a table.

To do this, you use the SELECT DISTINCT clause as follows:

```
SELECT DISTINCT
    column_name
FROM
    table_name;
```

Distinct clause

The query returns only distinct values in the specified column.

In other words, it removes the duplicate values in the column from the result set.

Distinct clause

- If you use multiple columns as follows:
- The query uses the combination of values in all specified columns in the SELECT list to evaluate the uniqueness.

```
SELECT DISTINCT
        column_name1,
        column_name2 ,
        ...
FROM
        table_name;
```

Distinct clause

If you apply the DISTINCT clause to a column that has NULL, the DISTINCT clause will keep only one NULL and eliminates the other.

In other words, the DISTINCT clause treats all NULL “values” as the same value.

Distinct clause examples

sales.customers
* customer_id
first_name
last_name
phone
email
street
city
state
zip_code

```
SELECT
    city
FROM
    sales.customers
ORDER BY
    city;
```

city
Albany
Albany
Albany
Amarillo
Amarillo
Amarillo
Amarillo
Amarillo

DUPLICATES IN RESULTS

DISTINCT one column example

```
SELECT DISTINCT
    city
FROM
    sales.customers
ORDER BY
    city;
```

city
Albany
Amarillo
Amityville
Amsterdam
Anaheim
Apple Valley
Astoria
Atwater

NO DUPLICATES IN RESULTS

Distinct clause examples

sales.customers
* customer_id
first_name
last_name
phone
email
street
city
state
zip_code

```
SELECT
    city,
    state
FROM
    sales.customers
```

city	state
Albany	NY
Albany	NY
Albany	NY
Amarillo	TX
Amarillo	TX
Amarillo	TX
Amarillo	TX
Amarillo	TX
Amityville	NY
Amityville	NY
Amityville	NY
Amityville	NY
Amityville	NY

DUPLICATES IN RESULTS

DISTINCT multiple columns example

```
SELECT DISTINCT
    city,
    state
FROM
    sales.customers
```

city	state
Hopewell Junction	NY
Houston	TX
Howard Beach	NY
Huntington	NY
Huntington Station	NY
Ithaca	NY
Jackson Heights	NY
Jamaica	NY

NO DUPLICATES IN RESULTS

Distinct clause examples

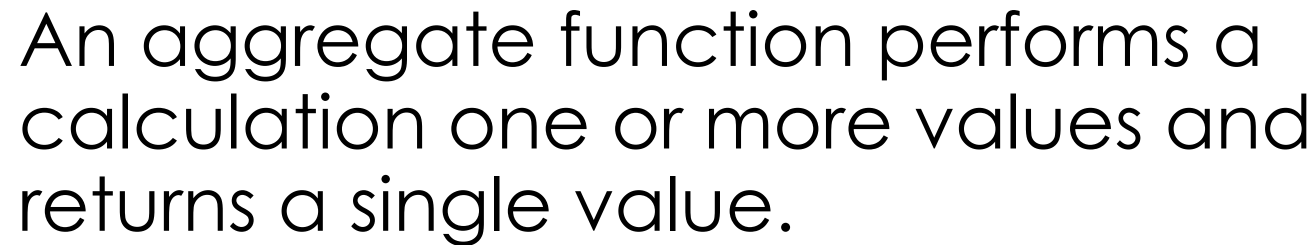
DISTINCT with null values example

sales.customers

- * customer_id
- first_name
- last_name
- phone
- email
- street
- city
- state
- zip_code

```
SELECT DISTINCT
    phone
FROM
    sales.customers
ORDER BY
    phone;
```

phone
NULL
(210) 436-8676
(210) 851-3122
(212) 152-6381
(212) 171-1335
(212) 211-7621
(212) 325-9145
(212) 578-2912



The aggregate function is often used with the GROUP BY clause and HAVING clause of the SELECT statement.

Aggregate functions

- The most commonly used aggregate functions are:
  - **COUNT** – counts the number of elements in the group defined
  - **SUM** – calculates the sum of the given attribute/expression in the group defined
  - **AVG** – calculates the average value of the given attribute/expression in the group defined
  - **MIN** – finds the minimum in the group defined
  - **MAX** – finds the maximum in the group defined

Aggregate function examples

production.products
* product_id
product_name
brand_id
category_id
model_year
list_price

```sql
SELECT
    AVG(list_price) avg_product_price
FROM
    production.products;
```

avg_product_price
1520.591401

```sql
SELECT
    COUNT(*) product_count
FROM
    production.products
WHERE
    list_price > 500;
```

product_count
213

```sql
SELECT
    MAX(list_price) max_list_price
FROM
    production.products;
```

max_list_price
11999.99

```sql
SELECT
    MIN(list_price) min_list_price
FROM
    production.products;
```

min_list_price
89.99

production.stocks
* store_id
* product_id
quantity

```sql
SELECT
    product_id,
    SUM(quantity) stock_count
FROM
    production.stocks
GROUP BY
    product_id
ORDER BY
    stock_count DESC;
```

product_id	stock_count
188	86
64	82
109	79
196	79
61	78
182	77
166	77
219	75
142	75
252	75

Aggregate function examples