



UD16 – DML (II)

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SELECT

SQL SELECT Syntax

```
SELECT column_name, column_name  
FROM table_name;
```

and

```
SELECT * FROM table_name;
```

La sentencia SELECT es la encargada de consultar los datos almacenados en las tablas

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT CustomerName, City FROM Customers;
```

| CustomerName | City |
|------------------------------------|-------------|
| Alfreds Futterkiste | Berlin |
| Ana Trujillo Emparedados y helados | México D.F. |
| Antonio Moreno Taquería | México D.F. |
| Around the Horn | London |
| Berglunds snabbköp | Luleå |
| Blauer See Delikatessen | Mannheim |
| Blondel père et fils | Strasbourg |
| Bólido Comidas preparadas | Madrid |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers;
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|--|-----------------------|-------------------------------------|-------------|------------|---------|
| 1 | Alfreds Futterkiste | Maria Anders | Obere Str. 57 | Berlin | 12209 | Germany |
| 2 | Ana Trujillo Emparedados y helados | Ana Trujillo | Avda. de la Constitución 2222 | México D.F. | 05021 | Mexico |
| 3 | Antonio Moreno Taquería | Antonio Moreno | Mataderos 2312 | México D.F. | 05023 | Mexico |
| 4 | Around the Horn | Thomas Hardy | 120 Hanover Sq. | London | WA1 1DP | UK |
| 5 | Berglunds snabbköp | Christina Berglund | Berguvsvägen 8 | Luleå | S-958 22 | Sweden |

7. Lenguaje SQL, SELECT, JOIN

SELECT

SQL WHERE Syntax

```
SELECT column_name,column_name
FROM table_name
WHERE column_name operator value;
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|------------------------------------|--------------------|-------------------------------|-------------|------------|---------|
| 1 | Alfreds Futterkiste | Maria Anders | Obere Str. 57 | Berlin | 12209 | Germany |
| 2 | Ana Trujillo Emparedados y helados | Ana Trujillo | Avda. de la Constitución 2222 | México D.F. | 05021 | Mexico |
| 3 | Antonio Moreno Taquería | Antonio Moreno | Mataderos 2312 | México D.F. | 05023 | Mexico |
| 4 | Around the Horn | Thomas Hardy | 120 Hanover Sq. | London | WA1 1DP | UK |
| 5 | Berglunds snabbköp | Christina Berglund | Berguvsvägen 8 | Luleå | S-958 22 | Sweden |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers  
WHERE Country='Mexico';
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|--|------------------------|-------------------------------------|----------------|------------|---------|
| 2 | Ana Trujillo Emparedados y helados | Ana Trujillo | Avda. de la Constitución 2222 | México D.F. | 05021 | Mexico |
| 3 | Antonio Moreno Taquería | Antonio Moreno | Mataderos 2312 | México D.F. | 05023 | Mexico |
| 13 | Centro comercial Moctezuma | Francisco Chang | Sierras de Granada 9993 | México D.F. | 05022 | Mexico |
| 58 | Pericles Comidas clásicas | Guillermo Fernández | Calle Dr. Jorge Cash 321 | México D.F. | 05033 | Mexico |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers  
WHERE CustomerID=1;
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|---------------------|--------------|---------------|--------|------------|---------|
| 1 | Alfreds Futterkiste | Maria Anders | Obere Str. 57 | Berlin | 12209 | Germany |

7. Lenguaje SQL, SELECT, JOIN

SELECT

| Operator | Description |
|----------|--|
| = | Equal |
| <> | Not equal. Note: In some versions of SQL this operator may be written as != |
| > | Greater than |
| < | Less than |
| >= | Greater than or equal |
| <= | Less than or equal |
| BETWEEN | Between an inclusive range |
| LIKE | Search for a pattern |
| IN | To specify multiple possible values for a column |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers  
WHERE Country='Germany'  
AND City='Berlin';
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|---------------------|--------------|---------------|--------|------------|---------|
| 1 | Alfreds Futterkiste | Maria Anders | Obere Str. 57 | Berlin | 12209 | Germany |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers  
WHERE City='Berlin'  
OR City='München';
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|---------------------|---------------|-------------------|---------|------------|---------|
| 1 | Alfreds Futterkiste | Maria Anders | Obere Str. 57 | Berlin | 12209 | Germany |
| 25 | Frankenversand | Peter Franken | Berliner Platz 43 | München | 80805 | Germany |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers  
WHERE Country='Germany'  
AND (City='Berlin' OR City='München');
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|---------------------|---------------|-------------------|---------|------------|---------|
| 1 | Alfreds Futterkiste | Maria Anders | Obere Str. 57 | Berlin | 12209 | Germany |
| 25 | Frankenversand | Peter Franken | Berliner Platz 43 | München | 80805 | Germany |

7. Lenguaje SQL, SELECT, JOIN

SELECT

SQL ORDER BY Syntax

```
SELECT column_name, column_name  
FROM table_name  
ORDER BY column_name ASC|DESC, column_name ASC|DESC;
```

Ordenar filas

- ASC orden ascendente, por default.
- DESC orden descendente.

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers  
ORDER BY Country;
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|-------------------------------|------------------|--|--------------|------------|-----------|
| 64 | Rancho grande | Sergio Gutiérrez | Av. del Libertador 900 | Buenos Aires | 1010 | Argentina |
| 54 | Océano Atlántico Ltda. | Yvonne Moncada | Ing. Gustavo Moncada 8585 Piso 20-A | Buenos Aires | 1010 | Argentina |
| 12 | Cactus Comidas para llevar | Patricio Simpson | Cerrito 333 | Buenos Aires | 1010 | Argentina |
| 59 | Piccolo und mehr | Georg Pipps | Geislweg 14 | Salzburg | 5020 | Austria |
| 20 | Ernst Handel | Roland Mendel | Kirchgasse 6 | Graz | 8010 | Austria |
| 50 | Maison Dewey | Catherine Dewey | Rue Joseph-Bens 532 | Bruxelles | B-1180 | Belgium |
| 76 | Suprêmes délices | Pascale Cartrain | Boulevard Tirou, 255 | Charleroi | B-6000 | Belgium |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers  
ORDER BY Country DESC;
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|----------------------|------------------|--|-----------------|------------|-----------|
| 47 | LINO-Delicateses | Felipe Izquierdo | Ave. 5 de Mayo Porlamar | I. de Margarita | 4980 | Venezuela |
| 33 | GROSELLA-Restaurante | Manuel Pereira | 5ª Ave. Los Palos Grandes | Caracas | 1081 | Venezuela |
| 35 | HILARIÓN-Abastos | Carlos Hernández | Carrera 22 con Ave. Carlos Soublette #8-35 | San Cristóbal | 5022 | Venezuela |
| 46 | LILA-Supermercado | Carlos González | Carrera 52 con Ave. Bolívar #65-98 Llano Largo | Barquisimeto | 3508 | Venezuela |
| 32 | Great Lakes Food | Howard Snyder | 2732 Baker Blvd. | Eugene | 97403 | USA |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers  
ORDER BY Country, CustomerName;
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|----------------------------|------------------|--|--------------|------------|-----------|
| 12 | Cactus Comidas para llevar | Patricio Simpson | Cerrito 333 | Buenos Aires | 1010 | Argentina |
| 54 | Océano Atlántico Ltda. | Yvonne Moncada | Ing. Gustavo Moncada 8585 Piso 20-A | Buenos Aires | 1010 | Argentina |
| 64 | Rancho grande | Sergio Gutiérrez | Av. del Libertador 900 | Buenos Aires | 1010 | Argentina |
| 20 | Ernst Handel | Roland Mendel | Kirchgasse 6 | Graz | 8010 | Austria |
| 59 | Piccolo und mehr | Georg Pipps | Geislweg 14 | Salzburg | 5020 | Austria |
| 50 | Maison Dewey | Catherine Dewey | Rue Joseph-Bens 532 | Bruxelles | B-1180 | Belgium |
| 76 | Suprêmes délices | Pascale Cartrain | Boulevard Tirou, 255 | Charleroi | B-6000 | Belgium |

7. Lenguaje SQL, SELECT, JOIN

SELECT

SQL BETWEEN Syntax

```
SELECT column_name(s)
FROM table_name
WHERE column_name BETWEEN value1 AND value2;
```

Uso de la Condición BETWEEN para mostrar las filas basadas en un rango de valores

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Products  
WHERE Price BETWEEN 10 AND 20;
```

| ProductID | ProductName | SupplierID | CategoryID | Unit | Price |
|-----------|-------------------------|------------|------------|---------------------|-------|
| 1 | Chais | 1 | 1 | 10 boxes x 20 bags | 18 |
| 2 | Chang | 1 | 1 | 24 - 12 oz bottles | 19 |
| 3 | Aniseed Syrup | 1 | 2 | 12 - 550 ml bottles | 10 |
| 15 | Genen Shouyu | 6 | 2 | 24 - 250 ml bottles | 15.5 |
| 16 | Pavlova | 7 | 3 | 32 - 500 g boxes | 17.45 |
| 21 | Sir Rodney's Scones | 8 | 3 | 24 pkgs. x 4 pieces | 10 |
| 25 | NuNuCa Nuß-Nougat-Creme | 11 | 3 | 20 - 450 g glasses | 14 |
| 31 | Gorgonzola Telino | 14 | 4 | 12 - 100 g pkgs | 12.5 |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Products  
WHERE (Price BETWEEN 10 AND 20)  
AND NOT CategoryID IN (1,2,3);
```

| ProductID | ProductName | SupplierID | CategoryID | Unit | Price |
|-----------|-------------------------------|------------|------------|-------------------|-------|
| 31 | Gorgonzola Telino | 14 | 4 | 12 - 100 g pkgs | 12.5 |
| 36 | Inlagd Sill | 17 | 8 | 24 - 250 g jars | 19 |
| 40 | Boston Crab Meat | 19 | 8 | 24 - 4 oz tins | 18.4 |
| 42 | Singaporean Hokkien Fried Mee | 20 | 5 | 32 - 1 kg pkgs. | 14 |
| 46 | Spegesild | 21 | 8 | 4 - 450 g glasses | 12 |
| 57 | Ravioli Angelo | 26 | 5 | 24 - 250 g pkgs. | 19.5 |
| 58 | Escargots de Bourgogne | 27 | 8 | 24 pieces | 13.25 |
| 73 | Röd Kaviar | 17 | 8 | 24 - 150 g jars | 15 |

7. Lenguaje SQL, SELECT, JOIN

SELECT

SQL IN Syntax

```
SELECT column_name(s)  
FROM table_name  
WHERE column_name IN (value1,value2,...);
```

Uso de la condición IN para evaluar los valores en una lista

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT * FROM Customers  
WHERE City IN ('Paris','London');
```

| CustomerID | CustomerName | ContactName | Address | City | PostalCode | Country |
|------------|-----------------------|-------------------|------------------------------|--------|------------|---------|
| 4 | Around the Horn | Thomas Hardy | 120 Hanover Sq. | London | WA1 1DP | UK |
| 11 | B's Beverages | Victoria Ashworth | Fauntleroy Circus | London | EC2 5NT | UK |
| 16 | Consolidated Holdings | Elizabeth Brown | Berkeley Gardens 12 Brewery | London | WX1 6LT | UK |
| 19 | Eastern Connection | Ann Devon | 35 King George | London | WX3 6FW | UK |
| 53 | North/South | Simon Crowther | South House 300 Queensbridge | London | SW7 1RZ | UK |
| 57 | Paris spécialités | Marie Bertrand | 265, boulevard Charonne | Paris | 75012 | France |
| 72 | Seven Seas Imports | Hari Kumar | 90 Wadhurst Rd. | London | OX15 4NB | UK |
| 74 | Spécialités du monde | Dominique Perrier | 25, rue Lauriston | Paris | 75016 | France |

7. Lenguaje SQL, SELECT, JOIN

SELECT

SQL Alias Syntax for Columns

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

SQL Alias Syntax for Tables

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

Simplifica las consultas usando prefijos para identificar a las tablas

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

```
SELECT CustomerName AS Customer, ContactName AS [Contact  
Person]  
FROM Customers;
```

| Customer | Contact Person |
|------------------------------------|--------------------|
| Alfreds Futterkiste | Maria Anders |
| Ana Trujillo Emparedados y helados | Ana Trujillo |
| Antonio Moreno Taquería | Antonio Moreno |
| Around the Horn | Thomas Hardy |
| Berglunds snabbköp | Christina Berglund |
| Blauer See Delikatessen | Hanna Moos |
| Blondel père et fils | Frédérique Citeaux |
| Bólido Comidas preparadas | Martín Sommer |

7. Lenguaje SQL, SELECT, JOIN

SELECT

Example

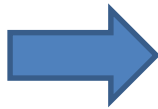
```
SELECT o.OrderID, o.OrderDate, c.CustomerName  
FROM Customers AS c, Orders AS o  
WHERE c.CustomerName="Around the Horn" AND  
c.CustomerID=o.CustomerID;
```

| OrderID | OrderDate | CustomerName |
|---------|------------|-----------------|
| 10383 | 12/16/1996 | Around the Horn |
| 10355 | 11/15/1996 | Around the Horn |

7. Lenguaje SQL, SELECT, JOIN

SQL COUNT(), AVG() and SUM()

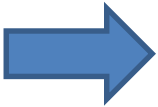
```
SELECT COUNT(ProductID)  
FROM Products;
```



COUNT(ProductID)

77

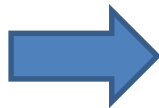
```
SELECT AVG(Price)  
FROM Products;
```



AVG(Price)

28.866363636363637

```
SELECT SUM(Quantity)  
FROM OrderDetails;
```



SUM(Quantity)

12743

7. Lenguaje SQL, SELECT, JOIN

HAVING

```
SELECT Employees.LastName, COUNT(Orders.OrderID) AS NumberOfOrders
FROM (Orders
INNER JOIN Employees ON Orders.EmployeeID = Employees.EmployeeID)
GROUP BY LastName
HAVING COUNT(Orders.OrderID) > 10;
```

Number of Records: 8

| LastName | NumberOfOrders |
|-----------|----------------|
| Buchanan | 11 |
| Callahan | 27 |
| Davolio | 29 |
| Fuller | 20 |
| King | 14 |
| Leverling | 31 |
| Peacock | 40 |
| Suyama | 18 |

7. Lenguaje SQL, SELECT, JOIN

SQL SUBCONSULTAS

```
SELECT nombre FROM empleados  
WHERE cuota <= (SELECT SUM(importe) FROM pedidos WHERE rep = numemp);
```

```
SELECT oficina, ciudad FROM oficinas  
WHERE objetivo > (SELECT SUM(ventas) FROM empleados WHERE oficina = oficinas.oficina);
```

```
SELECT nombre FROM empleados  
HAVING AVG(cuota) <= (SELECT SUM(importe) FROM pedidos WHERE rep = numemp);
```

7. Lenguaje SQL, SELECT, JOIN

SQL JOIN

Una cláusula SQL JOIN se utiliza para combinar las filas de dos o más tablas, basado en un campo común entre ellos.

Example

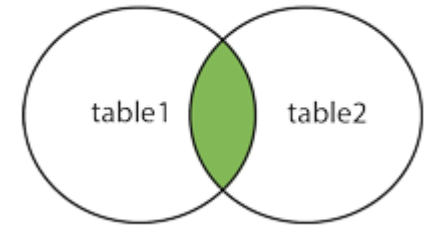
```
SELECT Orders.OrderID, Customers.CustomerName, Orders.OrderDate  
FROM Orders  
INNER JOIN Customers  
ON Orders.CustomerID=Customers.CustomerID;
```

- INNER JOIN.
- LEFT JOIN.
- RIGHT JOIN.
- FULL JOIN.

7. Lenguaje SQL, SELECT, JOIN

SQL JOIN

INNER JOIN



SQL INNER JOIN Syntax

```
SELECT column_name(s)
FROM table1
INNER JOIN table2
ON table1.column_name=table2.column_name;
```

or:

```
SELECT column_name(s)
FROM table1
JOIN table2
ON table1.column_name=table2.column_name;
```

7. Lenguaje SQL, SELECT, JOIN

SQL JOIN

Example

```
SELECT Customers.CustomerName, Orders.OrderID
FROM Customers
INNER JOIN Orders
ON Customers.CustomerID=Orders.CustomerID
ORDER BY Customers.CustomerName;
```

| CustomerName | OrderID |
|------------------------------------|---------|
| Ana Trujillo Emparedados y helados | 10308 |
| Antonio Moreno Taquería | 10365 |
| Around the Horn | 10383 |
| Around the Horn | 10355 |
| Berglunds snabbköp | 10278 |
| Berglunds snabbköp | 10280 |
| Berglunds snabbköp | 10384 |
| Blondel père et fils | 10265 |

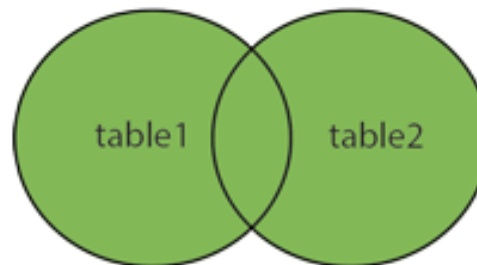
7. Lenguaje SQL, SELECT, JOIN

SQL JOIN

SQL FULL OUTER JOIN Syntax

```
SELECT column_name(s)  
FROM table1  
FULL OUTER JOIN table2  
ON table1.column_name=table2.column_name;
```

FULL OUTER JOIN



7. Lenguaje SQL, SELECT, JOIN

SQL JOIN

SQL FULL OUTER JOIN Example

The following SQL statement selects all customers, and all orders:

```
SELECT Customers.CustomerName, Orders.OrderID
FROM Customers
FULL OUTER JOIN Orders
ON Customers.CustomerID=Orders.CustomerID
ORDER BY Customers.CustomerName;
```

| CustomerName | OrderID |
|------------------------------------|---------|
| Alfreds Futterkiste | |
| Ana Trujillo Emparedados y helados | 10308 |
| Antonio Moreno Taquería | 10365 |
| | 10382 |
| | 10351 |

7. Lenguaje SQL, SELECT, JOIN

SQL JOIN

SQL UNION Syntax

```
SELECT column_name(s) FROM table1  
UNION  
SELECT column_name(s) FROM table2;
```

Note: The UNION operator selects only distinct values by default. To allow duplicate values, use the ALL keyword with UNION.

SQL UNION ALL Syntax

```
SELECT column_name(s) FROM table1  
UNION ALL  
SELECT column_name(s) FROM table2;
```

7. Lenguaje SQL, SELECT, JOIN

SQL JOIN

Example

```
SELECT City FROM Customers  
UNION  
SELECT City FROM Suppliers  
ORDER BY City;
```

| City |
|--------------|
| Aachen |
| Albuquerque |
| Anchorage |
| Ann Arbor |
| Annecy |
| Århus |
| Barcelona |
| Barquisimeto |

7. Lenguaje SQL, SELECT, JOIN

SQL GROUP BY

Example

```
SELECT COUNT(CustomerID), Country  
FROM Customers  
GROUP BY Country;
```

Result:

Number of Records: 21

| COUNT(CustomerID) | Country |
|-------------------|-----------|
| 3 | Argentina |
| 2 | Austria |
| 2 | Belgium |
| 9 | Brazil |
| 3 | Canada |
| 2 | Denmark |

7. Lenguaje SQL, SELECT, JOIN

SQL GROUP BY

Example

```
SELECT COUNT(CustomerID), Country
FROM Customers
GROUP BY Country
ORDER BY COUNT(CustomerID) DESC;
```

Result:

Number of Records: 21

| COUNT(CustomerID) | Country |
|-------------------|---------|
| 13 | USA |
| 11 | Germany |
| 11 | France |
| 9 | Brazil |
| 7 | UK |
| 5 | Spain |
| 5 | Mexico |