

INVESTIGACIÓN

A.SQL

¿QUÉ ES?

Es un tipo de lenguaje de programación que ayuda a solucionar problemas específicos o relacionados con la definición, manipulación e integridad de la información representada por los datos que se almacenan en las bases de datos.

¿PARA QUÉ SIRVE?

Para administrar datos, los cuales están organizados mediante tablas, se pueden consultar, seleccionar, borrar y actualizar los datos.

¿QUÉ ES DML, DDL, DCL, TCL?

-DML: (Data Manipulation Language) Permite recuperar, almacenar, modificar, eliminar, insertar y actualizar datos de una **base de datos**.

-DDL:(Data Definition Language) Permite crear y modificar la estructura de una **base de datos**.

-DCL: (Data Control Language) Permite crear roles, permisos e integridad referencial, así como el control al acceso a la base de datos.

-TCL: (Transactional Control Language) Permite administrar diferentes transacciones que ocurren dentro de una **base de datos**.

B. MOTOR DE BASES DE DATOS Y BASES DE DATOS

¿QUÉ SON?

MOTOR DE BASES DE DATOS: Es el servicio principal para almacenar, procesar y proteger los datos, proporciona acceso controlado y procesamiento de transacciones rápido para cumplir con los requisitos.

BASES DE DATOS: Se llama base de datos, a un conjunto de información perteneciente a un mismo contexto, ordenada de modo sistemático para su posterior recuperación, análisis y transmisión.

¿QUÉ MOTORES OFRECE SQLZOO.NET?

MySQL, Oracle, SQL Server.

¿QUÉ BASES DE DATOS OFRECE SQLZOO?

Module Feedback

Help Desk
Guest House
Adventure Works
University Timetables
Musicians
Dressmaker
Congestion Charging

PRÁCTICA

A. Estudien las secciones SELECT, SELECT ...WHERE, SELECT ... GROUP BY, SELECT ... SELECT de la referencia y escriban expresiones para las consultas en cálculo y álgebra, (1,1,1,3).

B. Estudien la section FUNCTIONS de la referencia, seleccionen 5 funciones y escriban 5 consultas que las utilicen usando la tabla covid.

- Función concatenate:

Introducing the covid table

1.

The example uses a WHERE clause to show the cases in 'Italy' in March.

Modify the query to show data from Spain

```
SELECT CONCAT(name, ' have ', confirmed, ' cases ' )
FROM covid
WHERE name LIKE 'S%'
AND MONTH(whn) = 3
AND DAY(whn) = 30
```

Submit SQL

Restore default

Result:

CONCAT(name, ..
Saint Kitts and Nevis have 7 cases
Saint Lucia have 9 cases
Saint Vincent and the Grenadines have 1 cases
San Marino have 230 cases
Sao Tome and Principe have 0 cases
Saudi Arabia have 1453 cases
Senegal have 162 cases
Serbia have 785 cases
Seychelles have 8 cases

- Funcion Extracting substrings:

1.

The example uses a WHERE clause to show the cases in 'Italy' in March.

Modify the query to show data from Spain

```
SELECT name, SUBSTRING(name FROM 1 FOR 2)
FROM covid
WHERE name LIKE 'C%'
AND MONTH(whn) = 3
AND DAY(whn) = 3
```

Submit SQL

Restore default

name	SUBSTRING(nam..
Cabo Verde	Ca
Cambodia	Ca
Cameroon	Ca
Canada	Ca
Central African Republic	Ce
Chad	Ch
Chile	Ch
China	Ch
Colombia	Co
Congo, Democratic Republic of	Co

- Función lower case:

1.

The example uses a WHERE clause to show the cases in 'Italy' in March.

Modify the query to show data from Spain

```
SELECT LOWER(name) FROM covid
WHERE name LIKE 'E%'
AND MONTH(whn) = 3
AND DAY(whn) = 3
```

Submit SQL

Restore default

Result:

LOWER(name)
ecuador
egypt
el salvador
equatorial guinea
eritrea
estonia
eswani
ethiopia

[Show what the answer should be...](#)

- Función Finding Substring:

1.

The example uses a WHERE clause to show the cases in 'Italy' in March.

Modify the query to show data from Spain

```
SELECT name,
       POSITION(' ' IN name),
       SUBSTRING(name FROM 1 FOR POSITION(' ' IN name))
FROM covid
WHERE name LIKE '% %'
AND MONTH(whn) = 3
AND DAY(whn) = 3
```

Submit SQL

Restore default

Result:

name	POSITION(' ' ..	SUBSTRING(nam..
Antigua and Barbuda	8	Antigua
Bosnia and Herzegovina	7	Bosnia
Burkina Faso	8	Burkina
Cabo Verde	5	Cabo
Central African Republic	8	Central
Congo, Democratic Republic of	7	Congo,
Congo, Republic of	7	Congo,
Costa Rica	6	Costa
Cote d'Ivoire	5	Cote

- Función Formatting numbers

1.

The example uses a WHERE clause to show the cases in 'Italy' in March.

Modify the query to show data from Spain

```
SELECT name, confirmed,
       ROUND(confirmed/100,2),
       ROUND(confirmed,-1)
FROM covid
WHERE name LIKE 'I%'
AND MONTH(whn) = 3
AND DAY(whn) = 30
```

Submit SQL

Restore default

Result:

name	confirmed	ROUND(confirm..	ROUND(confirm..
Iceland	1086	10.86	1090
India	1251	12.51	1250
Indonesia	1414	14.14	1410
Iran	41495	414.95	41500
Iraq	630	6.3	630
Ireland	2910	29.1	2910
Israel	4695	46.95	4700
Italy	101739	1017.39	101740

[Show what the answer should be...](#)

C. Realicen los ejercicios propuestos en los siguientes tutoriales. Utilice el motor My SQL. (3,13,14,10,8)(7,7,7,7,8)

- 3:

3.

Which countries are not too small and not too big? **BETWEEN** allows range checking (range specified is inclusive of boundary values). The example below shows countries with an area of 250,000-300,000 sq. km. Modify it to show the country and the area for countries with an area between 200,000 and 250,000.

```
SELECT name, area FROM world
WHERE area BETWEEN 250000 AND 300000
```

Submit SQL

Restore default

New Zealand	270467
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[Show what the answer should be...](#)

name	area
Belarus	207600
Ghana	238533
Guinea	245857
Guyana	214969
Laos	236800
Romania	238391
Uganda	241550
United Kingdom	242900

- 7:

```
SELECT name, population/area
FROM world
WHERE name IN ('China', 'Nigeria', 'France', 'Australia')
```

- 13:

13.

Equatorial Guinea and **Dominican Republic** have all of the vowels (a e i o u) in the name. They don't count because they have more than one word in the name.

Find the country that has all the vowels and no spaces in its name.

- You can use the phrase `name NOT LIKE '%a%'` to exclude characters from your results.
- The query shown misses countries like Bahamas and Belarus because they contain at least one 'a'

```
SELECT name
FROM world
WHERE name LIKE 'B%'
AND name NOT LIKE '%a%'
```

Submit SQL

Restore default

Result:

name
Belgium
Belize
Benin
Brunei
Burundi

[Show what the answer should be...](#)

name
Mozambique

- 7:

Brazil
Colombia

- 14:

14.

The expression `subject IN ('Chemistry','Physics')` can be used as a value - it will be 0 or 1.

Show the 1984 winners and subject ordered by subject and winner name; but list Chemistry and Physics last.

```
SELECT winner, subject, subject IN ('Physics','Chemistry')
FROM nobel
WHERE yr=1984
ORDER BY subject, winner
```

Submit SQL

Restore default

Wrong answer. Too many columns

winner	subject	subject IN ('..
Bruce Merrifield	Chemistry	1
Richard Stone	Economics	0
Jaroslav Seifert	Literature	0
César Milstein	Medicine	0
Georges J.F. Köhler	Medicine	0
Niels K. Jerne	Medicine	0
Desmond Tutu	Peace	0
Carlo Rubbia	Physics	1
Simon van der Meer	Physics	1

- 7:

Chemistry	1
Literature	1
Medicine	2
Peace	1
Physics	1

- 10:

10.

Some countries have populations more than three times that of any of their neighbours (in the same continent). Give the countries and continents.

```
SELECT name, continent FROM world x WHERE x. population/3 >=
ALL(SELECT population FROM world y WHERE y. continent = x. continent
AND x. population <> y. population)
```

Submit SQL

Restore default

Correct answer

name	continent
Brazil	South America
Russia	Eurasia

- 7:

Table-B

Bangladesh
India
Pakistan

- 8:

8.

List the continents that **have** a total population of at least 100 million.

```
SELECT continent
FROM world
GROUP BY continent
HAVING SUM(population) >= 100000000
```

Submit SQL

Restore default

Correct answer

continent
Africa
Asia
Eurasia
Europe
North America
South America

- 8:

Table-D

Americas	732240
Middle East	13403102
South America	17740392
South Asia	9437710

D. De las consultas anteriores, escriban 5 en álgebra y 5 en cálculo.

π continent(world)

π name, area σ area > 500 (world)

π continent, σ population > 1000000(world)

π continent,sum(area)(world)

{name,area|name,area world \wedge 200000<world[population] <250000}

{name,population|name, population world \wedge world[continent] = 'South America' \wedge world[population] > 40000000}

{name,population/area|name, population/area world ^ world[name] IN ('China', 'Nigeria', 'Francia', 'Australia')}

{subject,Count(subject)|subject nobel ^ nobel[yr] = 1960}

E. Propongan consultas que cumplan los siguientes requerimientos. Use la tabla band de la base de datos musicians.

- SELECT m_name FROM musician
WHERE died
- SELECT place_no, place_town FROM place
WHERE place_country IN ('England');
- SELECT instrument FROM performer
WHERE perf_type IN ('classical');
- SELECT instrument FROM performer
WHERE perf_type IN ('jazz');
- SELECT player FROM plays_in
WHERE band_id IN ('1');
- SELECT concert_venue
FROM concert
WHERE concert_orgriser > 3