Investigacion

- JONATAN PALOMARES CASTAÑEDA

- JUAN DIEGO PATIÑO MUÑOZ

A. SQL

Que es SQL:

SQL es un acrónimo en inglés para Structured Query Language. Un Lenguaje de Consulta Estructurado. Un tipo de lenguaje de programación que te permite manipular y descargar datos de una base de datos. Tiene capacidad de hacer cálculos avanzados y álgebra. Es utilizado en la mayoría de empresas que almacenan datos en una base de datos. Ha sido y sigue siendo el lenguaje de programación más usado para bases de datos relacionales.

https://datademia.es/blog/que-es-sql

Para que sirve SQL

Con SQL, puedes realizar diversas operaciones en una base de datos:

Consultas: Puedes escribir consultas para obtener información específica de la base de datos, seleccionando y filtrando datos según ciertos criterios.

Inserción: Permite insertar nuevos registros o filas de datos en una tabla existente de la base de datos.

Actualización: Permite modificar los valores de uno o más registros existentes en una tabla.

Eliminación: Permite eliminar registros específicos de una tabla.

Creación y modificación de esquemas: SQL también se utiliza para crear y modificar la estructura de una base de datos, como crear tablas, definir restricciones, establecer relaciones entre tablas, etc.

https://iddigitalschool.com/bootcamps/para-que-se-utiliza-el-lenguaje-de-programacion-sql/

Que es DML

El Lenguaje de Manipulación de Datos, o DML por sus siglas en inglés, es el grupo de comandos responsables de manipular datos en una base de datos; esto generalmente implica insertar, editar o borrar filas en tablas SQL.

El comando SQL para insertar una nueva fila en una tabla es el comando INSERT. Si queremos añadir una fila a la tabla Accounts para un usuario llamado Evan Johnson con un saldo de 3200 $, haríamos algo como esto:

sql

```
INSERT INTO Accounts (Name, Balance)
VALUES ('Evan Johnson', 3200)
```

https://learnsql.es/blog/que-son-ddl-dml-dql-y-dcl-en-sql/

Que es DDL

El Lenguaje de Definición de Datos, o DDL, está compuesto por los comandos responsables de crear, editar y borrar tablas SQL. Estos comandos son CREATE TABLE, ALTER TABLE, y DROP TABLE.

En los ejemplos anteriores, trabajábamos con la tabla Accounts que ya tenía una estructura y registros. ¿Pero cómo haríamos para crear esta tabla en primer lugar? Tendríamos que utilizar el comando CREATE TABLE:

sql

```
CREATE TABLE Accounts (
    ID INT,
    Name VARCHAR(255),
    Balance INT
)
```

https://learnsql.es/blog/que-son-ddl-dml-dql-y-dcl-en-sql/

Que es DCL

El Lenguaje de Control de Datos, o DCL para abreviar, es responsable de todo tipo de tareas administrativas en torno a la propia base de datos. La más notable es establecer permisos para los usuarios de la base de

datos, lo que se hace principalmente a través de los comandos GRANT, REVOKE y DENY.

GRANT es el comando SQL responsable de conceder permisos a un usuario de la base de datos. Si quisiéramos conceder el permiso para consultar la tabla Accounts a un usuario llamado Mark, haríamos algo como esto:

sql

```
GRANT SELECT TO 'mark'@'localhost'
```

https://learnsql.es/blog/que-son-ddl-dml-dql-y-dcl-en-sql/

Motor de bases de datos

Que son

Un motor de base de datos (o motor de almacenamiento) es el componente de software subyacente que un sistema de administración de la base de datos (SGBD) utiliza para crear, leer, actualizar y eliminar (CRUD) datos de una base de datos. La mayoría de sistemas de administración de la base de datos incluyen su interfaz de programación de aplicación propia (API) que permite al usuario interaccionar con su motor subyacente sin pasar por la interfaz de usuario del SGBD.

El término de "motor de base de datos" es frecuentemente llamado "servidor de base de datos" o "sistema de administración de la base de datos". Un caso de base de datos' se refiere a los procesos y estructuras de memoria de la base de datos de un motor de base de datos.

https://es.wikipedia.org/wiki/Motor_de_base_de_datos

Que motores ofrece SQLzoo

SQLZoo ofrece los motores: SQL Server, Oracle, MySQL, DB2, Mimer, PostgreSQL, SQLite y Access.

Que bases de datos ofrece SQLzoo

SQLZoo utiliza bases de datos de ejemplo para practicar, como: Nobel, BBC, World, Movie, Scottish Parliament, entre otras. Estas contienen información real o simulada (países, premios, películas, etc.) y sirven para aprender a hacer consultas en SQL.

Practica

A. SQL Zoo

0 SELECT basics

1 SELECT name

1. 😄

You can use `WHERE name LIKE 'B%'` to find the countries that start with "B".

- The % is a *wild-card* it can match any characters

Find the country that start with Y

```
SELECT name FROM world
  WHERE name LIKE 'Y%'
```

Submit SQL   restore default

Correct answer

name
Yemen

2. 😄

Find the countries that end with y

```
SELECT name FROM world
  WHERE name LIKE '%y'
```

Submit SQL   restore default

Correct answer

name
Turkey
Germany
Hungary
Italy
Norway
Vatican City
Paraguay

3. 😄

Luxembourg has an **x** - so does one other country. List them both.

Find the countries that contain the letter x

```
SELECT name FROM world
  WHERE name LIKE '%x%'
```

Submit SQL   restore default

Correct answer

name
Luxembourg
Mexico

4. 😄

Iceland, Switzerland end with **land** - but are there others?

Find the countries that end with land

```
SELECT name FROM world
  WHERE name LIKE '%land'
```

Submit SQL   restore default

Correct answer

name
Swaziland
Thailand
Finland
Iceland
Ireland
Poland
Switzerland

5.

Columbia starts with a **C** and ends with **ia** - there are two more like this.

Find the countries that start with C and end with ia

```
SELECT name FROM world
  WHERE name LIKE 'C%ia'
```

Submit SQL   restore default

Correct answer

name
Cambodia
Colombia
Croatia

6.

Greece has a double **e** - who has a double **o**?

Find the country that has oo in the name

```
SELECT name FROM world
  WHERE name LIKE '%oo%'
```

Submit SQL   restore default

Correct answer

name
Cameroon

7.

Bahamas has three **a** - who else?

Find the countries that have three or more a in the name

```
SELECT name FROM world
  WHERE name LIKE '%a%a%a%'
```

Submit SQL   restore default

Correct answer

name
Central African Republic
Equatorial Guinea
Madagascar
Mauritania
Sao Tomé and Príncipe
Tanzania
Afghanistan

8.

India and Angola have an **n** as the second character. You can use the underscore as a single character wildcard.

```
SELECT name FROM world
  WHERE name LIKE '_n%'
ORDER BY name
```

Find the countries that have "t" as the second character.

```
SELECT name FROM world
  WHERE name LIKE '_t%'
ORDER BY name
```

Correct answer

name
Ethiopia
Italy

9.

Lesotho and Moldova both have two o characters separated by two other characters.

Find the countries that have two "o" characters separated by two others.

```
SELECT name FROM world
 WHERE name LIKE '%o__o%'
```

Submit SQL · restore default

Correct answer

name
Congo, Democratic Republic of
Congo, Republic of
Lesotho
Morocco
Sao Tomé and PrÃncipe
Mongolia
Moldova

10.

Cuba and Togo have four characters names.

Find the countries that have exactly four characters.

```
SELECT name FROM world
 WHERE name LIKE '____'
```

Submit SQL · restore default

Correct answer

name
Chad
Mali
Togo
Iran
Iraq
Laos
Oman

11.

The capital of **Luxembourg** is **Luxembourg**. Show all the countries where the capital is the same as the name of the country

Find the country where the name is the capital city.

```
SELECT name
  FROM world
 WHERE capital LIKE name
```

Submit SQL · restore default

Correct answer

name
Djibouti
Luxembourg
San Marino
Singapore

12.

The capital of **Mexico** is **Mexico City**. Show all the countries where the capital has the country together with the word "City".

Find the country where the capital is the country plus "City".

The concat function

```
SELECT name
  FROM world
 WHERE capital LIKE concat(name, ' City')
```

Submit SQL · restore default

Correct answer

name
Guatemala
Kuwait
Mexico
Panama

13. 😬

Find the capital and the name where the capital includes the name of the country.

```
SELECT capital,name
FROM world
WHERE capital LIKE  CONCAT('%', name, '%')
```

Submit SQL   restore default

Correct answer

capital	name
Andorra la Vella	Andorra
Djibouti	Djibouti
Guatemala City	Guatemala
Kuwait City	Kuwait
Luxembourg	Luxembourg
Mexico City	Mexico
Monaco-Ville	Monaco

14. 😬

Find the capital and the name where the capital is an extension of name of the country.

You *should* include **Mexico City** as it is longer than **Mexico**. You *should not* include **Luxembourg** as the capital is the same as the country.

```
SELECT capital,name
FROM world
WHERE capital LIKE CONCAT(name, '_%')
```

Submit SQL   restore default

Correct answer

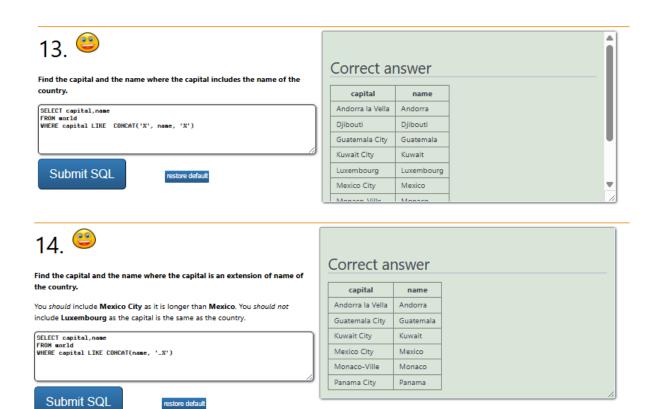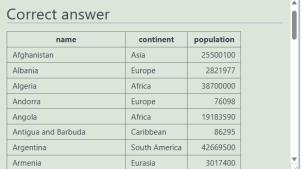| capital	name
Andorra la Vella	Andorra
Guatemala City	Guatemala
Kuwait City	Kuwait
Mexico City	Mexico
Monaco-Ville	Monaco
Panama City	Panama

2 SELECT from WORLD

1.

Read the notes about this table. Observe the result of running this SQL command to show the name, continent and population of all countries.

```
SELECT name, continent, population FROM world
```
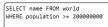
Submit SQL   restore default

Correct answer

name	continent	population
Afghanistan	Asia	25500100
Albania	Europe	2821977
Algeria	Africa	38700000
Andorra	Europe	76098
Angola	Africa	19183590
Antigua and Barbuda	Caribbean	86295
Argentina	South America	42669500
Armenia	Eurasia	3017400

Large Countries

2.

How to use WHERE to filter records. Show the name for the countries that have a population of at least 200 million. 200 million is 200000000, there are eight zeros.

```
SELECT name FROM world
WHERE population >= 200000000
```

Submit SQL   restore default

Correct answer

name
Brazil
China
India
Indonesia
United States

Per capita GDP

3.

Give the `name` and the **per capita GDP** for those countries with a `population` of at least 200 million.

HELP:How to calculate per capita GDP

per capita GDP is the GDP divided by the population GDP/population

```
SELECT name,
       gdp/population AS per_capita_gdp
FROM world
WHERE population >= 200000000
```

Submit SQL   restore default

Correct answer

name	per_capita_gdp
Brazil	11115.2648
China	6121.7106
India	1504.7931
Indonesia	3482.0205
United States	51032.2945

South America In millions

4. 😃

Show the `name` and `population` in millions for the countries of the `continent` 'South America'. Divide the population by 1000000 to get population in millions.

```
SELECT name,
        population/1000000
FROM world
WHERE continent = 'South America'
```

Submit SQL   restore default

Correct answer

name	population/1000000
Argentina	42.6695
Bolivia	10.0273
Brazil	202.7940
Chile	17.7730
Colombia	47.6620
Ecuador	15.7742
Guyana	0.7849
Paraguay	6.7834

France, Germany, Italy

5. 😃

Show the `name` and `population` for France, Germany, Italy

```
SELECT name, population
FROM world
WHERE name IN ('france', 'germany', 'italy')
```

Submit SQL   restore default

Correct answer

name	population
France	65906000
Germany	80716000
Italy	60782668

United

6. 😃

Show the countries which have a `name` that includes the word 'United'

```
SELECT name
FROM world
WHERE name LIKE '%UNITED%'
```

Submit SQL   restore default

Correct answer

name
United Arab Emirates
United Kingdom
United States

Two ways to be big

7. 😄

Two ways to be big: A country is **big** if it has an area of more than 3 million sq km or it has a population of more than 250 million.

Show the countries that are big by area or big by population. Show name, population and area.

```
SELECT name,population,area
FROM world
WHERE area > 3000000
OR population > 250000000
```

Submit SQL   restore default

Correct answer

name	population	area
Australia	23545500	7692024
Brazil	202794000	8515767
Canada	35427524	9984670
China	1365370000	9596961
India	1246160000	3166414
Indonesia	252164800	1904569
Russia	146000000	17125242
United States	318320000	9826675

One or the other (but not both)

8. 😃

Exclusive OR (XOR). Show the countries that are big by area (more than 3 million) or big by population (more than 250 million) but not both. Show name, population and area.

- Australia has a big area but a small population, it should be **included**.
- Indonesia has a big population but a small area, it should be **included**.
- China has a big population **and** big area, it should be **excluded**.
- United Kingdom has a small population and a small area, it should be **excluded**.

```
SELECT name, population, area
FROM world
WHERE area > 3000000
XOR population > 250000000
```

Submit SQL   restore default

Correct answer

name	population	area
Australia	23545500	7692024
Brazil	202794000	8515767
Canada	35427524	9984670
Indonesia	252164800	1904569
Russia	146000000	17125242

Rounding

9. 😛

Show the `name` and `population` in millions and the GDP in billions for the countries of the `continent` 'South America'. Use the ROUND function to show the values to two decimal places.

For Americas show population in millions and GDP in billions both to 2 decimal places.

Millions and billions

Missing decimals

```
SELECT name,
       ROUND(population/1000000, 2) AS population_million,
       ROUND(gdp/1000000000, 2) AS gdp_billion
FROM world
WHERE continent = 'south america'
```

Submit SQL   restore default

Correct answer		
name	population_million	gdp_billion
Argentina	42.67	477.03
Bolivia	10.03	27.04
Brazil	202.79	2254.11
Chile	17.77	268.31
Colombia	47.66	369.81
Ecuador	15.77	87.50
Guyana	0.78	2.85
Paraguay	6.78	25.94

Trillion dollar economies

10. 😛

Show the `name` and per-capita GDP for those countries with a GDP of at least one trillion (1000000000000; that is 12 zeros). Round this value to the nearest 1000.

Show per-capita GDP for the trillion dollar countries to the nearest $1000.

```
SELECT name,
       ROUND(gdp/population,-3) AS gdp_per_capita
FROM world
WHERE gdp >= 1000000000000
```

Submit SQL   restore default

Correct answer	
name	gdp_per_capita
Australia	66000
Brazil	11000
Canada	45000
China	6000
France	40000
Germany	42000
India	2000
Italy	33000
Japan	47000

Name and capital have the same length

11. 😄

Greece has capital Athens.

Each of the strings 'Greece', and 'Athens' has 6 characters.

Show the name and capital where the name and the capital have the same number of characters.

- You can use the LENGTH function to find the number of characters in a string

For Microsoft SQL Server the function LENGTH is LEN

```
SELECT name, capital
  FROM world
 WHERE LENGTH(name) = LENGTH(capital)
```

Submit SQL   restore default

Correct answer	
name	capital
Algeria	Algiers
Angola	Luanda
Armenia	Yerevan
Botswana	Gaborone
Canada	Ottowa
Djibouti	Djibouti
Egypt	Cairo
Estonia	Tallinn

Matching name and capital

12. 😄

The capital of Sweden is Stockholm. Both words start with the letter 'S'.

Show the name and the capital where the first letters of each match. Don't include countries where the name and the capital are the same word.

- You can use the function LEFT to isolate the first character.
- You can use <> as the **NOT EQUALS** operator.

```
SELECT name, capital
FROM world
WHERE LEFT(name, 1) = LEFT(capital, 1)
AND name <> capital
```

Submit SQL   restore default

Correct answer	
name	capital
Algeria	Algiers
Andorra	Andorra la Vella
Barbados	Bridgetown
Belize	Belmopan
Brazil	BrasÃlia
Brunei	Bandar Seri Begawan
Burundi	Bujumbura
Guatemala	Guatemala City

All the vowels

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 '%A%'
  AND name LIKE '%E%'
  AND name LIKE '%I%'
  AND name LIKE '%O%'
  AND name LIKE '%U%'
  AND name NOT LIKE '% %'
```

Submit SQL   restore default

Correct answer

name
Mozambique

3 SELECT from NOBEL

1.

Change the query shown so that it displays Nobel prizes for 1950.

```
SELECT yr, subject, winner
  FROM nobel
 WHERE yr = 1950
```

Submit SQL   restore default

Correct answer

yr	subject	winner
1950	chemistry	Kurt Alder
1950	chemistry	Otto Diels
1950	literature	Bertrand Russell
1950	medicine	Edward Kendall
1950	medicine	Philip Hench
1950	medicine	Tadeus Reichstein
1950	peace	Ralph Bunche

2.

Show who won the 1962 prize for literature.

```
SELECT winner
  FROM nobel
 WHERE yr = 1962
   AND subject = 'literature'
```

Submit SQL   restore default

Correct answer

winner
John Steinbeck

3.

Show the year and subject that won 'Albert Einstein' his prize.

```
SELECT yr,subject
FROM nobel
WHERE winner='Albert Einstein'
```

Submit SQL   restore default

Correct answer

yr	subject
1921	physics

4.

Give the name of the 'peace' winners since the year 2000, including 2000.

```
SELECT winner
FROM nobel
WHERE subject='peace' and yr>=2000
```

Submit SQL   restore default

Correct answer

winner
Kim Dae-jung
Kofi Annan
United Nations
Jimmy Carter
Shirin Ebadi
Wangari Maathai
International Atomic Energy Agency

5.

Show all details (**yr**, **subject**, **winner**) of the literature prize winners for 1980 to 1989 inclusive.

```
SELECT yr,subject,winner
FROM nobel
WHERE yr>=1980 and yr<=1989 and subject='literature'
```

Submit SQL   restore default

Correct answer

yr	subject	winner
1980	literature	Czes?aw Mi?osz
1981	literature	Elias Canetti
1982	literature	Gabriel García Márquez
1983	literature	William Golding
1984	literature	Jaroslav Seifert
1985	literature	Claude Simon
1986	literature	Wole Soyinka

6.

Show all details of the presidential winners:

- Theodore Roosevelt
- Thomas Woodrow Wilson
- Jimmy Carter
- Barack Obama

```
SELECT * FROM nobel
 WHERE winner IN ('Theodore Roosevelt',
                  'Thomas Woodrow Wilson',
                  'Jimmy Carter',
'Barack Obama')
```

Submit SQL   restore default

Correct answer

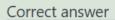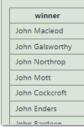| yr	subject	winner
1906	peace	Theodore Roosevelt
2002	peace	Jimmy Carter
2009	peace	Barack Obama

7.

Show the winners with first name John

```
SELECT winner
FROM nobel
WHERE winner LIKE 'John %'
```

Submit SQL   restore default

Correct answer

winner
John Macleod
John Galsworthy
John Northrop
John Mott
John Cockcroft
John Enders
John Bardeen

8.

Show the year, subject, and name of physics winners for 1980 together with the chemistry winners for 1984.

```
SELECT *
FROM nobel
WHERE (subject = 'physics' AND yr=1980) OR (subject = 'chemistry' AND
yr=1984)
```

Submit SQL   restore default

Correct answer

yr	subject	winner
1980	physics	James Cronin
1980	physics	Val Fitch
1984	chemistry	Bruce Merrifield

9. 🙄

Show the year, subject, and name of winners for 1980 excluding chemistry and medicine

```
SELECT *
FROM nobel
WHERE (yr=1980) AND (subject<>'chemistry' AND subject<>'medicine')
```

Submit SQL   restore default

Correct answer

yr	subject	winner
1980	literature	Czes?aw Mi?osz
1980	peace	Adolfo Pérez Esquivel
1980	physics	James Cronin
1980	physics	Val Fitch

10. 😃

Show year, subject, and name of people who won a 'Medicine' prize in an early year (before 1910, not including 1910) together with winners of a 'Literature' prize in a later year (after 2004, including 2004)

```
SELECT yr,subject,winner
FROM nobel
WHERE (subject='Medicine' and yr<1910) OR (subject='Literature' and yr>=2004)
```

Submit SQL   restore default

Correct answer

yr	subject	winner
1901	medicine	Emil von Behring
1902	medicine	Ronald Ross
1903	medicine	Niels Ryberg Finsen
1904	medicine	Ivan Pavlov
1905	medicine	Robert Koch
1906	medicine	Camillo Golgi
1906	medicine	Santiago Ramón y Cajal

12. 😃

Find all details of the prize won by EUGENE O'NEILL

Escaping single quotes

```
SELECT *
FROM nobel
WHERE winner = 'EUGENE O\'NEILL'
```

Submit SQL   restore default

Correct answer

yr	subject	winner
1936	literature	Eugene O'Neill

13. 🙄

Knights in order

List the winners, year and subject where the winner starts with Sir. Show the the most recent first, then by name order.

```
SELECT winner,yr,subject
FROM nobel
WHERE winner LIKE 'Sir %' ORDER BY yr DESC, winner ASC
```

Submit SQL   restore default

Correct answer

winner	yr	subject
Sir Peter Ratcliffe	2019	medicine
Sir Gregory Winter	2018	chemistry
Sir Fraser Stoddart	2016	chemistry
Sir John Gurdon	2012	medicine
Sir Martin Evans	2007	medicine
Sir Peter Mansfield	2003	medicine
Sir Paul Nurse	2001	medicine

4 SELECT within SELECT

1. 😃

List each country name where the population is larger than that of 'Russia'.

```
world(name, continent, area, population, gdp)
```

```sql
SELECT name FROM world
  WHERE population >
    (SELECT population FROM world
      WHERE name='Russia')
```

Submit SQL   restore default

Correct answer

name
Bangladesh
Brazil
China
India
Indonesia
Nigeria
Pakistan

2. 😃

Show the countries in Europe with a per capita GDP greater than 'United Kingdom'.

Per Capita GDP

```sql
SELECT name FROM world
  WHERE gdp/population>
    (SELECT gdp/population FROM world
      WHERE name='United Kingdom') AND continent='Europe'
```

Submit SQL   restore default

Correct answer

name
Andorra
Austria
Belgium
Denmark
Finland
France
Germany

3.

List the name and continent of countries in the continents containing either Argentina or Australia. Order by name of the country.

```
SELECT name, continent
FROM world
WHERE continent IN (SELECT continent FROM world WHERE name IN
('Argentina', 'Australia'))
ORDER BY name;
```

Submit SQL   restore default

Correct answer

name	continent
Argentina	South America
Australia	Oceania
Bolivia	South America
Brazil	South America
Chile	South America
Colombia	South America
Ecuador	South America

4.

Which country has a population that is more than United Kingdom but less than Germany? Show the name and the population.

```
SELECT name, population
FROM world
WHERE population >
(SELECT population FROM world WHERE name = 'United Kingdom')
AND
population < (SELECT population FROM world WHERE name = 'Germany')
```

Submit SQL   restore default

Correct answer

name	population
Congo, Democratic Republic of	69360000
France	65906000
Iran	77552000
Thailand	64456700
Turkey	76667864

5.

Germany (population roughly 80 million) has the largest population of the countries in Europe. Austria (population 8.5 million) has 11% of the population of Germany.

Show the name and the population of each country in Europe. Show the population as a percentage of the population of Germany.

The format should be *Name, Percentage* for example:

name	percentage
Albania	3%
Andorra	0%
Austria	11%
...	...

Decimal places

Percent symbol %

```
SELECT name,
       CONCAT(CAST(ROUND(population/(SELECT population
                              FROM world
                              WHERE name = 'Germany')
                    *100, 0) AS int), '%') AS percentage
FROM world
WHERE continent = 'Europe';
```

Submit SQL   restore default

Correct answer

name	percentage
Albania	3%
Andorra	0%
Austria	11%
Belarus	12%
Belgium	14%
Bosnia and Herzegovina	5%
Bulgaria	9%

Bigger than every country in Europe

6. 😜

Which countries have a GDP greater than every country in Europe? [Give the name only.] (Some countries may have NULL gdp values)

```
SELECT name
FROM world
WHERE gdp >
(SELECT max(gdp) FROM world WHERE continent = 'Europe')
```

Submit SQL   restore default

Correct answer

name
China
Japan
United States

7. 😳

Find the largest country (by area) in each continent, show the continent, the name and the area:

The above example is known as a **correlated** or **synchronized** sub-query.

Using correlated subqueries

```
SELECT continent, name, area
FROM world
WHERE area IN (SELECT MAX(area)
               FROM world
               GROUP BY continent);
```

Correct answer

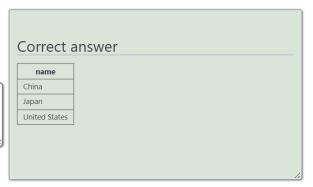| continent	name	area
Africa	Algeria	2381741
Oceania	Australia	7692024
South America	Brazil	8515767
North America	Canada	9984670
Asia	China	9596961
Caribbean	Cuba	109884
Europe	Kazakhstan	2724900

First country of each continent (alphabetically)

8. 😜

List each continent and the name of the country that comes first alphabetically.

```
SELECT continent, name
FROM world
WHERE name IN (SELECT MIN(name)
               FROM world
               GROUP BY continent);
```

Submit SQL   restore default

Correct answer

continent	name
Africa	Algeria
Asia	Afghanistan
Caribbean	Antigua and Barbuda
Eurasia	Armenia
Europe	Albania
North America	Belize
Oceania	Australia

Difficult Questions That Utilize Techniques Not Covered In Prior Sections

9. 😜

Find the continents where all countries have a population <= 25000000.
Then find the names of the countries associated with these continents. Show name, continent and population.

```
SELECT name, continent, population
FROM world AS x
WHERE 25000000 >= ALL(SELECT population
                      FROM world AS y
                      WHERE x.continent = y.continent
                      AND population IS NOT NULL);
```

Submit SQL   restore default

Correct answer

name	continent	population
Antigua and Barbuda	Caribbean	86295
Australia	Oceania	23545500
Bahamas	Caribbean	351461
Barbados	Caribbean	285000
Cuba	Caribbean	11167325
Dominica	Caribbean	71293
Dominican Republic	Caribbean	9445281

10. 😃

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

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

Submit SQL   restore default

Correct answer

name	continent
Australia	Oceania
Brazil	South America
Russia	Eurasia

5 SUM and COUNT

1. 😃

Show the total **population** of the world.

```
world(name, continent, area, population, gdp)
```

```
SELECT SUM(population)
FROM world;
```

Submit SQL   restore default

Correct answer

SUM(population)
7118632738

2. 😃

List all the continents - just once each.

```
SELECT DISTINCT continent
FROM world;
```

Submit SQL   restore default

Correct answer

continent
Africa
Asia
Caribbean
Eurasia
Europe
North America
Oceania

GDP of Africa

3.

Give the total GDP of Africa

```
SELECT SUM(gdp)
FROM world
WHERE continent = 'Africa';
```

Submit SQL   restore default

Correct answer

SUM(gdp)
1811788000000

4.

How many countries have an **area** of at least 1000000

```
SELECT COUNT(name)
FROM world
WHERE area >= 1000000;
```

Submit SQL   restore default

Correct answer

COUNT(name)
29

5.

What is the total **population** of ('Estonia', 'Latvia', 'Lithuania')

```
SELECT SUM(population)
FROM world
WHERE name IN ('Estonia', 'Latvia', 'Lithuania');
```

Submit SQL   restore default

Correct answer

SUM(population)
6251750

6.

For each **continent** show the **continent** and number of countries.

```
SELECT continent, COUNT(name)
FROM world
GROUP BY continent;
```

Submit SQL   restore default

Correct answer

continent	COUNT(name)
Africa	53
Asia	47
Caribbean	11
Eurasia	2
Europe	44
North America	11
Oceania	14

7. 😀

For each **continent** show the **continent** and number of countries with populations of at least 10 million.

```sql
SELECT continent, COUNT(name)
FROM world
WHERE population >= 10000000
GROUP BY continent;
```

Submit SQL   restore default

Correct answer

continent	COUNT(name)
Africa	29
Asia	26
Caribbean	2
Eurasia	1
Europe	14
North America	4
Oceania	1

8. 😀

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

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

Submit SQL   restore default

Correct answer

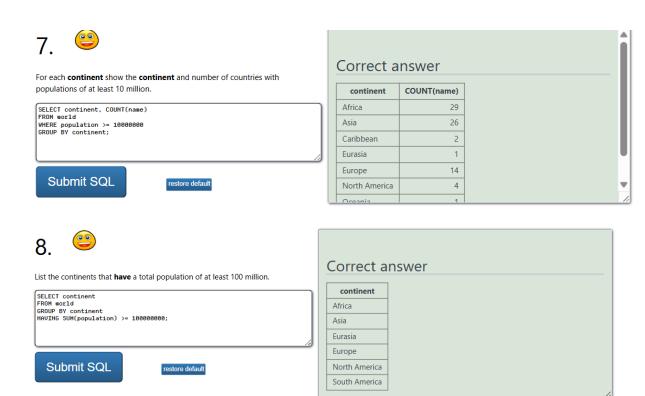| continent |
|---|
| Africa |
| Asia |
| Eurasia |
| Europe |
| North America |
| South America |

Quices

1.

7. Select the code that shows the population density of China, Australia, Nigeria and France

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

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

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

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

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

Score the test

Your score is: 7 out of 7

1.

7. Select the result that would be obtained from this code:

```
SELECT name FROM world
 WHERE continent = 'South America'
   AND population > 40000000
```

| Afghanistan |
| Brazil |
| Colombia |

| Brazil |

✓
| Brazil |
| Colombia |

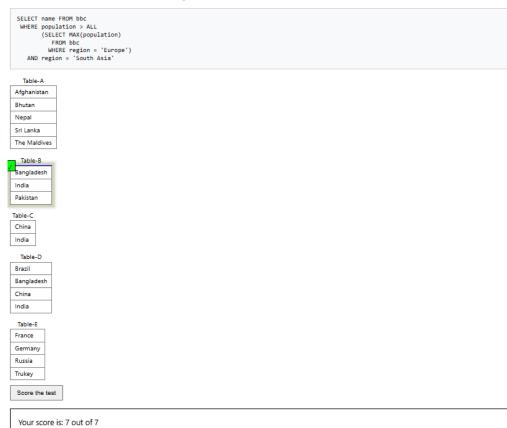| Brazil | South America |
| Colombia | South America |

| Brazil | 182800000 |
| Colombia | 45600000 |

Score the test

Your score is: 7 out of 7

1.

7. Pick the result that would be obtained from the following code:

```
SELECT subject, COUNT(subject)
  FROM nobel
 WHERE yr ='1960'
 GROUP BY subject
```

1
1
2
1
1

Chemistry	6

Chemistry	3
Literature	1
Medicine	2
Peace	0
Physics	2

✓

Chemistry	1
Literature	1
Medicine	2
Peace	1
Physics	1

Chemistry	1
Literature	1
Peace	1
Physics	1

Score the test

Your score is: 7 out of 7

1.

SELECT subject, COUNT(subject)
  FROM nobel
 WHERE yr ='1960'
 GROUP BY subject

7. >Select the result that would be obtained from the following code:

```
SELECT name FROM bbc
 WHERE population > ALL
        (SELECT MAX(population)
            FROM bbc
           WHERE region = 'Europe')
   AND region = 'South Asia'
```

Table-A

Afghanistan
Bhutan
Nepal
Sri Lanka
The Maldives

Table-B ✓

Bangladesh
India
Pakistan

Table-C

China
India

Table-D

Brazil
Bangladesh
China
India

Table-E

France
Germany
Russia
Trukey

Score the test

Your score is: 7 out of 7

1.

7. >Select the result that would be obtained from the following code:

```
SELECT name FROM bbc
 WHERE population > ALL
        (SELECT MAX(population)
            FROM bbc
           WHERE region = 'Europe')
   AND region = 'South Asia'
```

13403102	
17740392	
4943771	

Table-B

Africa	22550927
Asia-Pacific	28759578
Europe	23866987
North America	21660000

Table-C

Africa
Asia-Pacific
Europe
North America

Table-D

✓	
Americas	732240
Middle East	13403102
South America	17740392
South Asia	9437710

Table-E

Americas
Middle East
South America
South Asia

Score the test

Your score is: 8 out of 8

SELECT basics

quiz

SELECT from world

quiz

SELECT from nobel

quiz

SELECT in SELECT

quiz

SUM and COUNT

quiz

JOIN

B. Re-escritura de consultas

1.

sql

```
SELECT yr, subject, winner
  FROM nobel
 WHERE yr = 1950
```

$$
{t.yr, t.subject, t.winner | t \in nobel \land t.yr = 1950}
$$

1.

sql

```
SELECT winner
  FROM nobel
 WHERE yr = 1962
   AND subject = 'literature'
```

$$
{t.winner | t \in nobel \land t.yr = 1962 \land t.subject = 'literature'}
$$

1.

sql

```
SELECT yr,subject
FROM nobel
WHERE winner='Albert Einstein'
```

$$
{t.yr | t \in nobel \land t.winner = 'Albert Einstein'}
$$

1.

sql

```
SELECT winner
FROM nobel
WHERE subject='peace' and yr>=2000
```

$$
{t.winner | t \in nobel \land t.subjec= 'peace' \land t.yr \ge 2000}
$$

1.

sql

```sql
SELECT yr,subject,winner
FROM nobel
WHERE yr>=1980 and yr<=1989 and subject='literature'
```

$$
{t.yr.t.subject,t.winner | t \in nobel \land t.subjec= 'literature' \land t.yr \in [1980, 1989]}
$$

Funciones

1.

Contar el numero de bandas que empizan con la letra 'S'

sql

```sql
SELECT count(name) AS numero
FROM band
WHERE band_name LIKE 'S%'
```

1.

Promedio del contacto de todas las bandas

sql

```sql
SELECT AVG(band_contact) AS promedio_contacto
FROM band;
```

1.

Banda con mayor contactos

sql

```sql
SELECT MAX(band_contact)
FROM band
```

Esquemas

1.

Saber cuantas bandas por tipo hay siempre y cuando haya mas de una

sql

```sql
SELECT band_type, COUNT(*) AS total
FROM band
GROUP BY band_type
HAVING COUNT(*) > 1;
```

1.

Ordendar las bandas por numero de contacto

sql

```sql
SELECT band_name, band_contact
FROM band
ORDER BY band_contact DESC;
```

1.

Obtener los tipos de bandas sin repetir

sql

```sql
SELECT DISTINCT band_type
FROM band;
```