



270-[DF]-Lab - Selección de datos de una base de datos

Datos Generales:

Nombre: Tomás Alfredo Villaseca Constantinescu

País: Chile

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Contacto: tomas.villaseca.c@gmail.com

Este laboratorio muestra cómo usar algunas operaciones de bases de datos comunes y la statement **SELECT**.

Después de completar este laboratorio, podrá realizar lo siguiente:

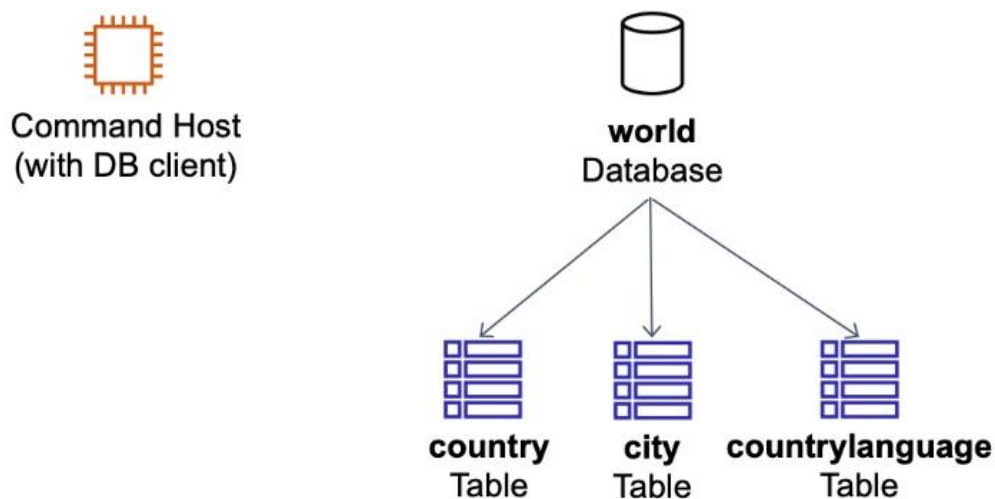
- Usar **SELECT** para consultar una base de datos
- Usar la función **COUNT ()**
- Use las siguientes operaciones para consultar una base de datos:
 - **< , > , =**
 - **WHERE**
 - **ORDER BY**
 - **AND**

Situación

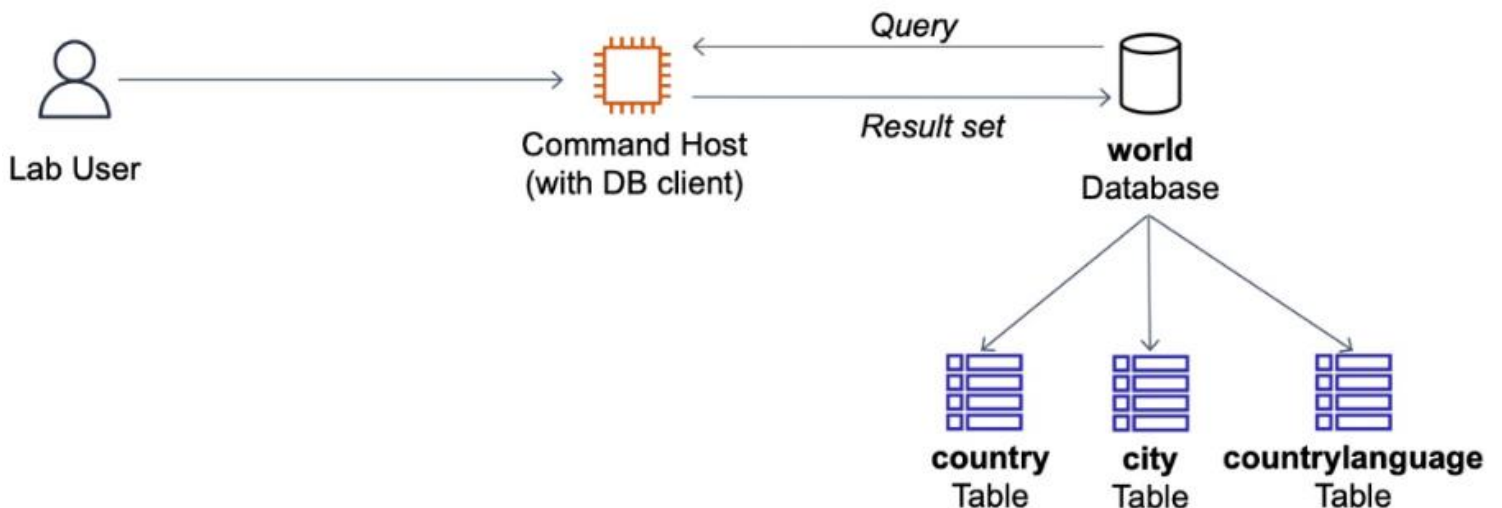
El equipo de operaciones de base de datos creó una base de datos relacional llamada **world** que contiene tres tablas: **city**, **country** y **countrylanguage**. Según los casos prácticos específicos definidos en el ejercicio de laboratorio, escribirá algunas consultas usando operadores de base de datos y **SELECT**.

Entorno del laboratorio:

- Una instancia EC2 (Command Host) con un cliente de base de datos instalado.
- Una base de datos **world** que contiene 3 tablas: **city**, **country**, y **countrylanguage**.



Al final de este laboratorio habrá usado **SELECT** y algunas operaciones de base de datos comunes:

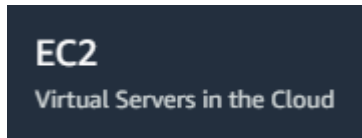


Tarea 1: Conectarse a Command Host

En esta tarea, se conectará a una instancia de EC2 configurada con un cliente de base de datos (Command Host).

El cliente se usa para ejecutar las queries de SQL contra una base de datos relacional.

Paso 1: AWS Management Console → Services → Compute → EC2



Paso 2: Instances → Command Host

<input checked="" type="checkbox"/>	Name ▾	Instance ID	Instance state ▾	Instance type ▾	Status check
<input checked="" type="checkbox"/>	Command Host	i-0524ea72e85aedde0	Running	t3.micro	2/2 checks passed

Paso 3: Command Host → Connect → Session Manager

Connect to instance [Info](#)

Connect to your instance i-0524ea72e85aedde0 (Command Host) using any of these options

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Session Manager usage:

- Connect to your instance without SSH keys, a bastion host, or opening any inbound ports.
- Sessions are secured using an AWS Key Management Service key.
- You can log session commands and details in an Amazon S3 bucket or CloudWatch Logs log group.
- Configure sessions on the Session Manager [Preferences](#) page.

Cancel

Connect

Paso 4: Configurar la terminal para acceder a todas las herramientas y recursos necesarios.

```
sudo su  
cd /home/ec2-user/
```

- sudo = ejecutar comandos con privilegios.
- su = cambiar a otro usuario.
- cd = cambiar de directorio.

Session ID: user2741130=Tom__sVillaseca-0ade39e12dc076495

```
sh-4.2$ sudo su  
[root@ip-10-1-11-97 bin]# cd /home/ec2-user/  
[root@ip-10-1-11-97 ec2-user]# pwd  
/home/ec2-user  
[root@ip-10-1-11-97 ec2-user]#
```

Paso 5: Conectarse a la base de datos relacional.

```
mysql -u root --password='re:St@rt!9'
```

- mysql = shell SQL para interactuar con los motores de bases de datos.
- -u = nombre de usuario de MySQL
- -p = contraseña de MySQL

Session ID: user2741130=Tom__sVillaseca-0ade39e12dc076495

Instance ID: i-0524ea72e85aedde0

```
[root@ip-10-1-11-97 ec2-user]# mysql -u root --password='re:St@rt!9'  
Welcome to the MariaDB monitor.  Commands end with ; or \g.  
Your MariaDB connection id is 13  
Server version: 10.6.15-MariaDB MariaDB Server  
  
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
MariaDB [(none)]>
```

Tarea 2: Consulte la base de datos world

En esta tarea, consultará la base de datos **world** usando varias **SELECT** y funciones de la base de datos.

Paso 1: Mostrar las bases de datos existentes.

```
SHOW DATABASES;
```

```
MariaDB [(none)]> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| world |
+-----+
5 rows in set (0.004 sec)
```

Paso 2: Mostrar una lista de todas las columnas de la tabla **country**

```
SELECT * FROM world.country;
```

```
MariaDB [(none)]> SELECT * FROM world.country;
+-----+-----+-----+-----+-----+-----+-----+-----+
| Code | Name | GovernmentForm | Continent | Region | Capital | Code2 | SurfaceArea | IndepYear | Population |
+-----+-----+-----+-----+-----+-----+-----+-----+
| ABW | Aruba | Nonmetropolitan Territory of The Netherlands | North America | Caribbean | 129 | AW | 193.00 | NULL | 103000 |
| AFG | Afghanistan | Islamic Emirate | Asia | Southern and Central Asia | 1 | AF | 652090.00 | 1919 | 22720000 |
| AGO | Angola | Republic | Africa | Central Africa | 56 | AG | 1246700.00 | 1975 | 12878000 |
| ZWE | Zimbabwe | Republic | Africa | Eastern Africa | 4068 | ZW | 390757.00 | 1980 | 11669000 |
+-----+-----+-----+-----+-----+-----+-----+-----+
239 rows in set (0.004 sec)
```

Paso 3: Consultar la cantidad de filas de la tabla **country**

```
SELECT COUNT(*) FROM world.country;
```

```
MariaDB [(none)]> SELECT COUNT(*) FROM world.country;
+-----+
| COUNT(*) |
+-----+
| 239 |
+-----+
1 row in set (0.001 sec)
```

Paso 4: Listar todas las columnas de la tabla **country** (se utiliza para entender el scheme de la tabla).

```
SHOW COLUMNS FROM world.country;
```

```
MariaDB [(none)]> SHOW COLUMNS FROM world.country;
```

Field	Type	Null	Key	Default	Extra
Code	char(3)	NO	PRI		
Name	char(52)	NO			
Continent	enum('Asia','Europe','North America','Africa','Oceania','Antarctica','South America')	NO		Asia	
Region	char(26)	NO			
SurfaceArea	decimal(10,2)	NO		0.00	
IndepYear	smallint(6)	YES		NULL	
Population	int(11)	NO		0	
LifeExpectancy	decimal(3,1)	YES		NULL	
GNP	decimal(10,2)	YES		NULL	
GNPOld	decimal(10,2)	YES		NULL	
LocalName	char(45)	NO			
GovernmentForm	char(45)	NO			
Capital	int(11)	YES		NULL	
Code2	char(2)	NO			

14 rows in set (0.001 sec)

Paso 5: Consultar columnas específicas de la tabla **country**

```
SELECT Name, Capital, Region, SurfaceArea, Population FROM world.country;
```

```
MariaDB [(none)]> SELECT Name, Capital, Region, SurfaceArea, Population FROM world.country;
```

Name	Capital	Region	SurfaceArea	Population
Aruba	129	Caribbean	193.00	103000
Afghanistan	1	Southern and Central Asia	652090.00	22720000
Angola	56	Central Africa	1246700.00	12878000
Anguilla	62	Caribbean	96.00	8000
Albania	34	Southern Europe	28748.00	3401200

Paso 6: Agregar un nombre de columna más descriptivo al resultado de una consulta usando un alias.

```
SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country;
```

```
MariaDB [(none)]> SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country;
```

Name	Capital	Region	Surface Area	Population
Aruba	129	Caribbean	193.00	103000
Afghanistan	1	Southern and Central Asia	652090.00	22720000
Angola	56	Central Africa	1246700.00	12878000
Anguilla	62	Caribbean	96.00	8000
Albania	34	Southern Europe	28748.00	3401200
Andorra	55	Southern Europe	468.00	78000
Netherlands Antilles	33	Caribbean	800.00	217000
United Arab Emirates	65	Middle East	83600.00	2441000

Paso 7: Ordenar los resultados de una consulta según una columna usando **ORDER BY**

```
SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country ORDER BY Population;
```

```
MariaDB [(none)]> SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country ORDER BY Population;
+-----+-----+-----+-----+-----+
| Name                                     | Capital | Region                | Surface Area | Population |
+-----+-----+-----+-----+-----+
| French Southern territories             | NULL    | Antarctica             | 7780.00      | 0          |
| Heard Island and McDonald Islands       | NULL    | Antarctica             | 359.00       | 0          |
| United States Minor Outlying Islands    | NULL    | Micronesia/Caribbean  | 16.00        | 0          |
| South Georgia and the South Sandwich Islands | NULL    | Antarctica             | 3903.00      | 0          |
| Bouvet Island                          | NULL    | Antarctica             | 59.00        | 0          |
| British Indian Ocean Territory          | NULL    | Eastern Africa         | 78.00        | 0          |
| Antarctica                             | NULL    | Antarctica             | 13120000.00  | 0          |
| Pitcairn                               | 2912    | Polynesia              | 49.00        | 50         |
| Cocos (Keeling) Islands                 | 2317    | Australia and New Zealand | 14.00        | 600        |
| Holy See (Vatican City State)           | 3538    | Southern Europe        | 0.40         | 1000       |
+-----+-----+-----+-----+-----+
```

Paso 8: Ordenar los datos en orden descendente usando la opción **DESC** con **ORDER BY**

```
SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country ORDER BY Population DESC;
```

```
MariaDB [(none)]> SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country ORDER BY Population DESC;
+-----+-----+-----+-----+-----+
| Name                                     | Capital | Region                | Surface Area | Population |
+-----+-----+-----+-----+-----+
| China                                   | 1891    | Eastern Asia           | 9572900.00   | 1277558000 |
| India                                   | 1109    | Southern and Central Asia | 3287263.00   | 1013662000 |
| United States                           | 3813    | North America          | 9363520.00   | 278357000  |
| Indonesia                               | 939     | Southeast Asia         | 1904569.00   | 212107000  |
| Brazil                                  | 211     | South America          | 8547403.00   | 170115000  |
| Pakistan                                | 2831    | Southern and Central Asia | 796095.00    | 156483000  |
| Russian Federation                      | 3580    | Eastern Europe         | 17075400.00  | 146934000  |
+-----+-----+-----+-----+-----+
```

Paso 9: Hacer una consulta agregando una condición usando **WHERE**

```
SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country WHERE Population > 50000000 ORDER BY Population DESC;
```

```
MariaDB [(none)]> SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country
+-----+-----+-----+-----+-----+
| Name                                     | Capital | Region                | Surface Area | Population |
+-----+-----+-----+-----+-----+
| China                                   | 1891    | Eastern Asia           | 9572900.00   | 1277558000 |
| India                                   | 1109    | Southern and Central Asia | 3287263.00   | 1013662000 |
| United States                           | 3813    | North America          | 9363520.00   | 278357000  |
| Indonesia                               | 939     | Southeast Asia         | 1904569.00   | 212107000  |
| Brazil                                  | 211     | South America          | 8547403.00   | 170115000  |
| Pakistan                                | 2831    | Southern and Central Asia | 796095.00    | 156483000  |
| Russian Federation                      | 3580    | Eastern Europe         | 17075400.00  | 146934000  |
| Bangladesh                             | 150     | Southern and Central Asia | 143998.00    | 129155000  |
| Japan                                   | 1532    | Eastern Asia           | 377829.00    | 126714000  |
| Nigeria                                 | 2754    | Western Africa         | 923768.00    | 111506000  |
| Mexico                                  | 2515    | Central America        | 1958201.00   | 98881000   |
| Germany                                 | 3068    | Western Europe         | 357022.00    | 82164700   |
| Vietnam                                 | 3770    | Southeast Asia         | 331689.00    | 79832000   |
| Philippines                             | 766     | Southeast Asia         | 300000.00    | 75967000   |
| Egypt                                   | 608     | Northern Africa        | 1001449.00   | 68470000   |
| Iran                                    | 1380    | Southern and Central Asia | 1648195.00   | 67702000   |
| Turkey                                  | 3358    | Middle East            | 774815.00    | 66591000   |
| Ethiopia                               | 756     | Eastern Africa         | 1104300.00   | 62565000   |
| Thailand                                | 3320    | Southeast Asia         | 513115.00    | 61399000   |
| United Kingdom                          | 456     | British Islands        | 242900.00    | 59623400   |
| France                                  | 2974    | Western Europe         | 551500.00    | 59225700   |
| Italy                                    | 1464    | Southern Europe        | 301316.00    | 57680000   |
| Congo, The Democratic Republic of the  | 2298    | Central Africa         | 2344858.00   | 51654000   |
| Ukraine                                 | 3426    | Eastern Europe         | 603700.00    | 50456000   |
+-----+-----+-----+-----+-----+
24 rows in set (0.000 sec)
```

Paso 10: Hacer una consulta agregando una serie de condiciones usando **WHERE** y operadores.

```
SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country WHERE Population > 50000000 AND Population < 100000000 ORDER BY Population DESC;
```

```
MariaDB [(none)]> SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population FROM world.country
```

Name	Capital	Region	Surface Area	Population
Mexico	2515	Central America	1958201.00	98881000
Germany	3068	Western Europe	357022.00	82164700
Vietnam	3770	Southeast Asia	331689.00	79832000
Philippines	766	Southeast Asia	300000.00	75967000
Egypt	608	Northern Africa	1001449.00	68470000
Iran	1380	Southern and Central Asia	1648195.00	67702000
Turkey	3358	Middle East	774815.00	66591000
Ethiopia	756	Eastern Africa	1104300.00	62565000
Thailand	3320	Southeast Asia	513115.00	61399000
United Kingdom	456	British Islands	242900.00	59623400
France	2974	Western Europe	551500.00	59225700
Italy	1464	Southern Europe	301316.00	57680000
Congo, The Democratic Republic of the	2298	Central Africa	2344858.00	51654000
Ukraine	3426	Eastern Europe	603700.00	50456000

```
14 rows in set (0.000 sec)
```

Desafío

Consulte la tabla **country** para arrojar un conjunto de registros basado en la siguiente pregunta:

¿Qué país en el Sur de Europa tiene una población de más de 500.000.000?

```
SELECT Name, Capital, Region, SurfaceArea AS "Surface Area", Population from world.country WHERE Population > 50000000 AND Region = "Southern Europe";
```

```
MariaDB [(none)]> SELECT Name, Capital, Region, SurfaceArea AS "Surf
```

Name	Capital	Region	Surface Area	Population
Italy	1464	Southern Europe	301316.00	57680000

```
1 row in set (0.000 sec)
```

Laboratorio Completado