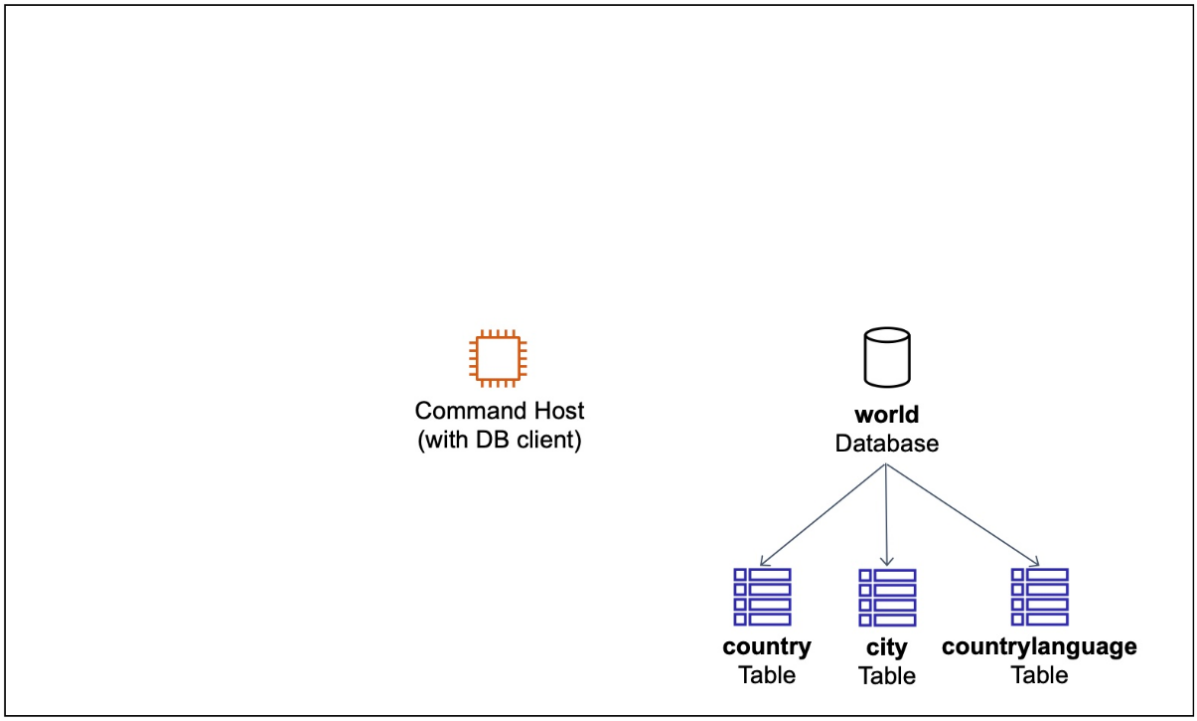
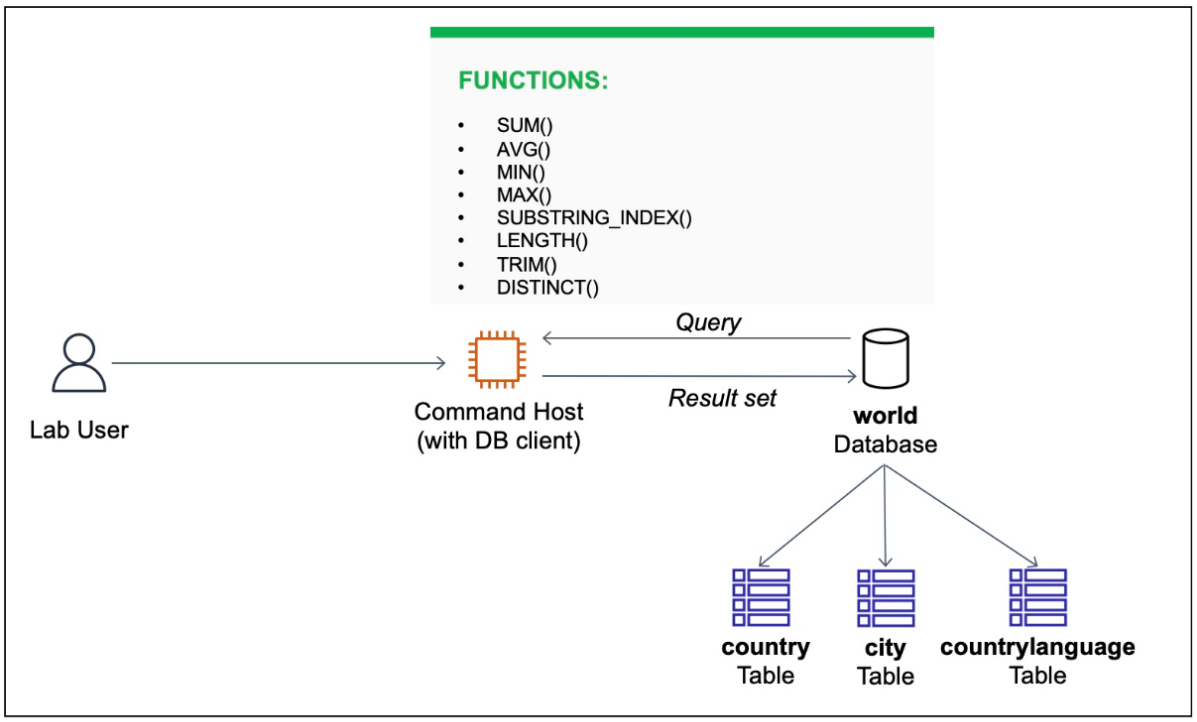
Working with Functions

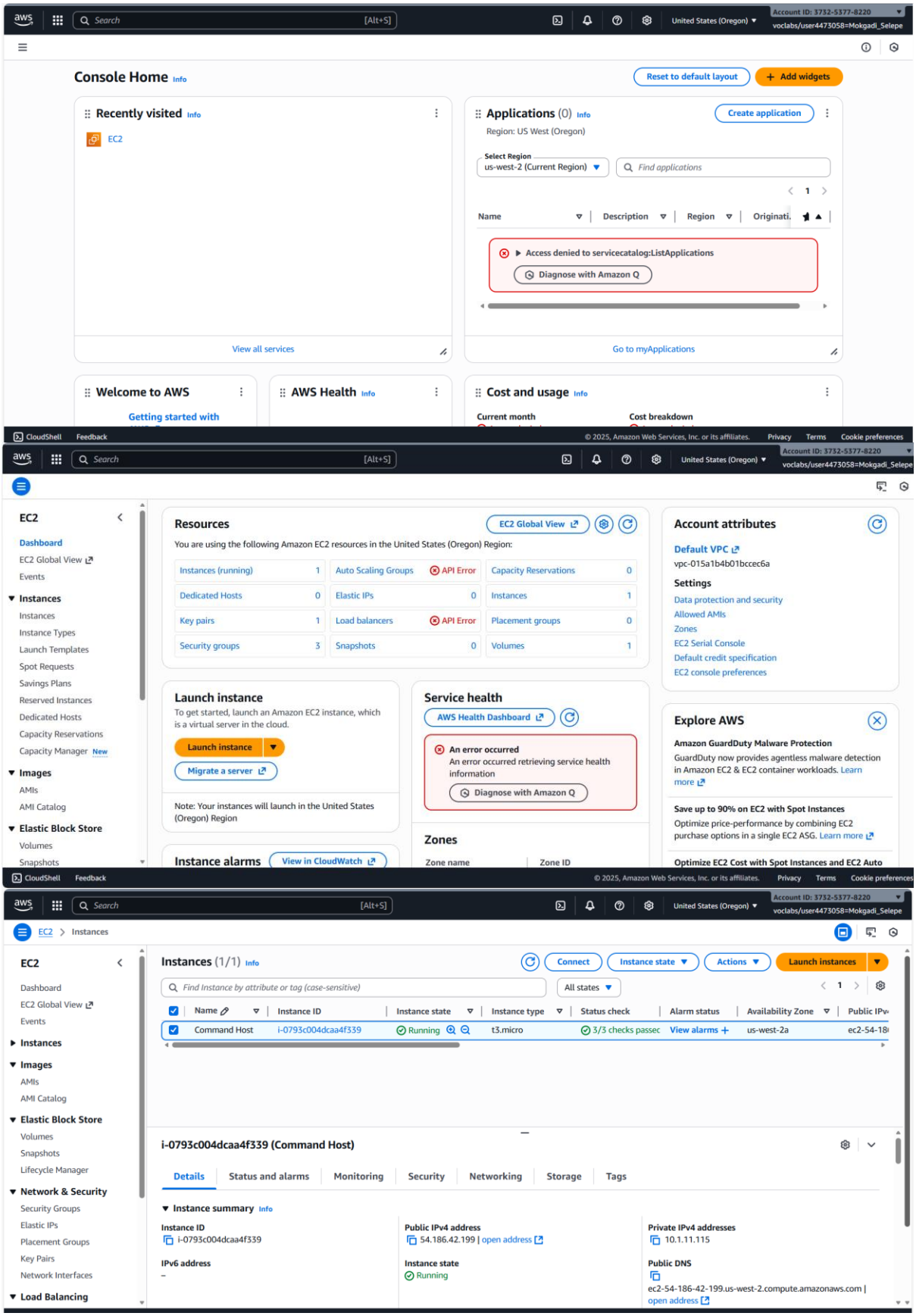


A Command Host instance and world database containing three tables

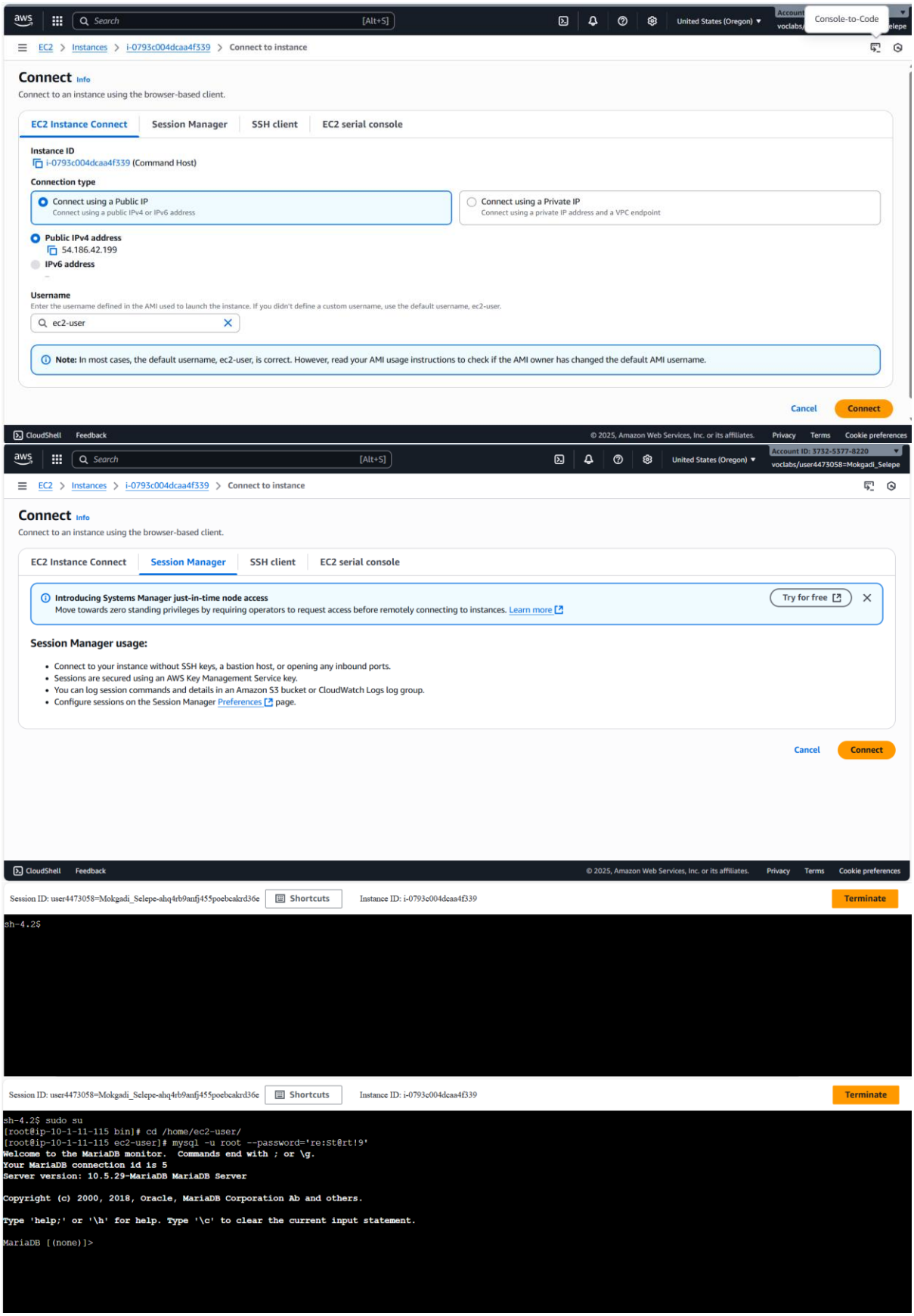
At the end of this lab, you would have used the **SELECT** statement and **WHERE** clause with some common database functions:



A lab user is connected to a database instance. It also displays some commonly used SQL database functions.


Console Home Info
Reset to default layout
+ Add widgets
Recently visited Info
EC2
Applications (0) Info
Create application
Region: US West (Oregon)
Select Region
us-west-2 (Current Region)
Find applications
Name
Description
Region
Access denied to servicecatalog:ListApplications
Diagnose with Amazon Q
View all services
Go to myApplications
Welcome to AWS
Getting started with
AWS Health Info
Cost and usage Info
Current month
Cost breakdown
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
Search
[Alt+S]
United States (Oregon)
Account ID: 3732-5377-8220
voclabs/user4473058=Mokgadi_Selepe
EC2
Dashboard
EC2 Global View
Events
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Capacity Manager New
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Resources
EC2 Global View
You are using the following Amazon EC2 resources in the United States (Oregon) Region:
Instances (running) 1
Auto Scaling Groups API Error
Capacity Reservations 0
Dedicated Hosts 0
Elastic IPs 0
Instances 1
Key pairs 1
Load balancers API Error
Placement groups 0
Security groups 3
Snapshots 0
Volumes 1
Account attributes
Default VPC
vpc-015a1b4b01bccec6a
Settings
Data protection and security
Allowed AMIs
Zones
EC2 Serial Console
Default credit specification
EC2 console preferences
Launch instance
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.
Launch instance
Migrate a server
Note: Your instances will launch in the United States (Oregon) Region
Service health
AWS Health Dashboard
An error occurred
An error occurred retrieving service health information
Diagnose with Amazon Q
Zones
Zone name
Zone ID
Explore AWS
Amazon GuardDuty Malware Protection
GuardDuty now provides agentless malware detection in Amazon EC2 & EC2 container workloads. Learn more
Save up to 90% on EC2 with Spot Instances
Optimize price-performance by combining EC2 purchase options in a single EC2 ASG. Learn more
Instance alarms
View in CloudWatch
Optimize EC2 Cost with Spot Instances and EC2 Auto
EC2 > Instances
Instances (1/1) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4
Command Host
i-0793c004dcaa4f339
Running
t3.micro
3/3 checks passed
View alarms +
us-west-2a
ec2-54-18
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
Load Balancing
i-0793c004dcaa4f339 (Command Host)
Details
Status and alarms
Monitoring
Security
Networking
Storage
Tags
Instance summary Info
Instance ID
i-0793c004dcaa4f339
Public IPv4 address
54.186.42.199 | open address
Private IPv4 addresses
10.1.11.115
IPv6 address
–
Instance state
Running
Public DNS
ec2-54-186-42-199.us-west-2.compute.amazonaws.com | open address

1: Connect to the Command Host



Here's what happened:

I connected to a special computer in the cloud called the Command Host. This computer has a tool that lets me talk to a database.

Here's how I did it:

1. I went to the AWS website and clicked on some menus to find the Command Host computer.
2. I clicked a button to connect to the Command Host, and a new window opened up.
3. In the new window, I typed some commands to get everything set up.
4. Then, I typed another command to connect to the database, using a special password.

Now I'm connected to the database and can start working with it!

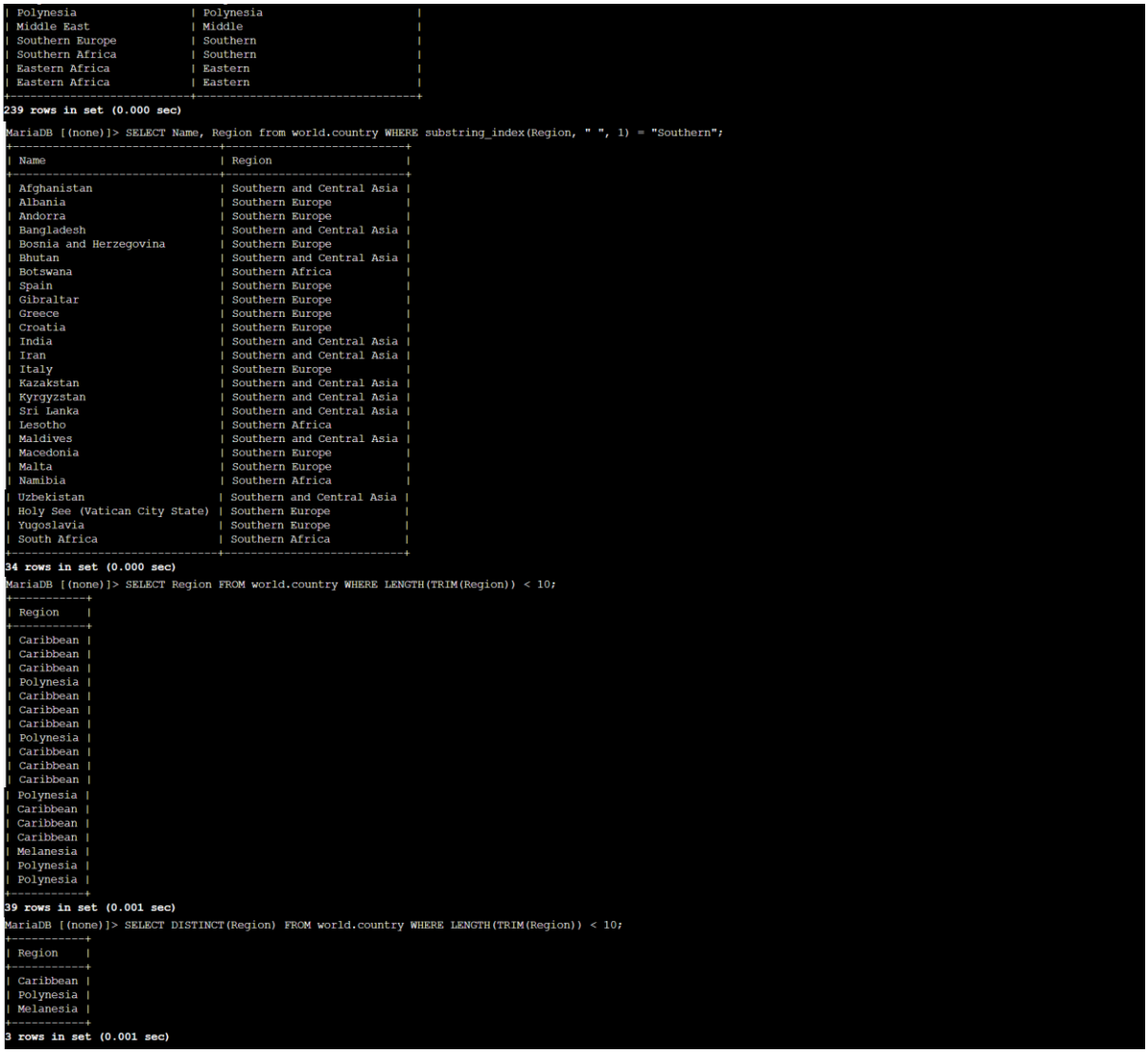
2: Query the world database

```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| world              |
+--------------------+
4 rows in set (0.001 sec)
```

```
MariaDB [(none)]> SELECT * FROM world.country;
| Code | Name                                         | Continent     | Region                    | SurfaceArea | IndepYear | Population | LifeExpectancy | GNP        | GN
POld     | LocalName                                    | GovernmentForm                                  | Capital | Code2 |
| ABW  | Aruba                                        | North America | Caribbean                 |      193.00 |      NULL |     103000 |           78.4 |     828.00 |
 793.00 | Aruba                                         | Nonmetropolitan Territory of The Netherlands   |     129 | AW    |
| AFG  | Afghanistan                                  | Asia          | Southern and Central Asia |   652090.00 |      1919 |   22720000 |           45.9 |    5976.00 |
   NULL | Afganistan/Afqanestan                         | Islamic Emirate                                 |       1 | AF    |
| AGO  | Angola                                       | Africa        | Central Africa            |  1246700.00 |      1975 |   12878000 |           38.3 |    6648.00 |
 7984.00 | Angola                                       | Republic                                        |      56 | AO    |
| AIA  | Anguilla                                     | North America | Caribbean                 |       96.00 |      NULL |       8000 |           76.1 |      63.20 |
   NULL | Anguilla                                      | Dependent Territory of the UK                   |      62 | AI    |
| ALB  | Albania                                      | Europe        | Southern Europe           |    28748.00 |      1912 |    3401200 |           71.6 |    3205.00 |
 2500.00 | Shqipëria                                    | Republic                                        |      34 | AL    |
| AND  | Andorra                                      | Europe        | Southern Europe           |      468.00 |      1278 |      78000 |           83.5 |    1630.00 |
   NULL | Andorra                                       | Parliamentary Coprincipality                    |      55 | AD    |
| ANT  | Netherlands Antilles                         | North America | Caribbean                 |      800.00 |      NULL |     217000 |           74.7 |    1941.00 |
   NULL | Nederlandse Antillen                          | Nonmetropolitan Territory of The Netherlands   |      33 | AN    |
| ARE  | United Arab Emirates                         | Asia          | Middle East               |    83600.00 |      1971 |    2441000 |           74.1 |   37966.00 |
36846.00 | Al-Imarat al-´Arabiya al-Muttahida           | Emirate Federation                              |      65 | AE    |
```

```
| YUG  | Yugoslavia                                   | Europe        | Southern Europe           |   102173.00 |      1918 |   10640000 |           72.4 |   17000.00 |
   NULL | Jugoslavija                                   | Federal Republic                                |    1792 | YU    |
| ZAF  | South Africa                                 | Africa        | Southern Africa           |  1221037.00 |      1910 |   40377000 |           51.1 |  116729.00 | 1
29092.00 | South Africa                                 | Republic                                        |     716 | ZA    |
| ZMB  | Zambia                                       | Africa        | Eastern Africa            |   752618.00 |      1964 |    9169000 |           37.2 |    3377.00 |
 3922.00 | Zambia                                       | Republic                                        |    3162 | ZM    |
| ZWE  | Zimbabwe                                     | Africa        | Eastern Africa            |   390757.00 |      1980 |   11669000 |           37.8 |    5951.00 |
 8670.00 | Zimbabwe                                     | Republic                                        |    4068 | ZW    |
239 rows in set (0.002 sec)
```

```
MariaDB [(none)]> SELECT sum(Population), avg(Population), max(Population), min(Population), count(Population) FROM world.country;
+-----------------+-----------------+-----------------+-----------------+-------------------+
| sum(Population) | avg(Population) | max(Population) | min(Population) | count(Population) |
+-----------------+-----------------+-----------------+-----------------+-------------------+
|      6078749450 |   25434098.1172 |      1277558000 |               0 |               239 |
+-----------------+-----------------+-----------------+-----------------+-------------------+
1 row in set (0.004 sec)

MariaDB [(none)]> SELECT Region, substring_index(Region, " ", 1) FROM world.country;
+---------------------------+---------------------------------+
| Region                    | substring_index(Region, " ", 1) |
+---------------------------+---------------------------------+
| Caribbean                 | Caribbean                       |
| Southern and Central Asia | Southern                        |
| Central Africa            | Central                         |
| Caribbean                 | Caribbean                       |
| Southern Europe           | Southern                        |
| Southern Europe           | Southern                        |
| Caribbean                 | Caribbean                       |
| Middle East               | Middle                          |
| South America             | South                           |
| Middle East               | Middle                          |
| Polynesia                 | Polynesia                       |
| Antarctica                | Antarctica                      |
| Antarctica                | Antarctica                      |
| Caribbean                 | Caribbean                       |
| Australia and New Zealand | Australia                       |
| Western Europe            | Western                         |
| Middle East               | Middle                          |
| Eastern Africa            | Eastern                         |
| Western Europe            | Western                         |
| Western Africa            | Western                         |
| Western Africa            | Western                         |
| Southern and Central Asia | Southern                        |
```



```
| Polynesia                 | Polynesia                         |
| Middle East               | Middle                            |
| Southern Europe           | Southern                          |
| Southern Africa           | Southern                          |
| Eastern Africa            | Eastern                           |
| Eastern Africa            | Eastern                           |
+---------------------------+-----------------------------------+
239 rows in set (0.000 sec)

MariaDB [(none)]> SELECT Name, Region from world.country WHERE substring_index(Region, " ", 1) = "Southern";
+-------------------------------+---------------------------+
| Name                          | Region                    |
+-------------------------------+---------------------------+
| Afghanistan                   | Southern and Central Asia |
| Albania                       | Southern Europe           |
| Andorra                       | Southern Europe           |
| Bangladesh                    | Southern and Central Asia |
| Bosnia and Herzegovina        | Southern Europe           |
| Bhutan                        | Southern and Central Asia |
| Botswana                      | Southern Africa           |
| Spain                         | Southern Europe           |
| Gibraltar                     | Southern Europe           |
| Greece                        | Southern Europe           |
| Croatia                       | Southern Europe           |
| India                         | Southern and Central Asia |
| Iran                          | Southern and Central Asia |
| Italy                         | Southern Europe           |
| Kazakstan                     | Southern and Central Asia |
| Kyrgyzstan                    | Southern and Central Asia |
| Sri Lanka                     | Southern and Central Asia |
| Lesotho                       | Southern Africa           |
| Maldives                      | Southern and Central Asia |
| Macedonia                     | Southern Europe           |
| Malta                         | Southern Europe           |
| Namibia                       | Southern Africa           |
| Uzbekistan                    | Southern and Central Asia |
| Holy See (Vatican City State) | Southern Europe           |
| Yugoslavia                    | Southern Europe           |
| South Africa                  | Southern Africa           |
+-------------------------------+---------------------------+
34 rows in set (0.000 sec)
MariaDB [(none)]> SELECT Region FROM world.country WHERE LENGTH(TRIM(Region)) < 10;
+-----------+
| Region    |
+-----------+
| Caribbean |
| Caribbean |
| Caribbean |
| Polynesia |
| Caribbean |
| Caribbean |
| Caribbean |
| Polynesia |
| Caribbean |
| Caribbean |
| Caribbean |
| Polynesia |
| Caribbean |
| Caribbean |
| Caribbean |
| Melanesia |
| Polynesia |
| Polynesia |
+-----------+
39 rows in set (0.001 sec)
MariaDB [(none)]> SELECT DISTINCT(Region) FROM world.country WHERE LENGTH(TRIM(Region)) < 10;
+-----------+
| Region    |
+-----------+
| Caribbean |
| Polynesia |
| Melanesia |
+-----------+
3 rows in set (0.001 sec)
```

Here's what happened:

I played around with a database called "world" using special commands.

Here's what I did:

1. I checked what databases are available and found the "world" database.
2. I looked at a table called "country" in the "world" database and saw all the data in it.
3. I used special functions to summarize the data, like calculating the total population, average population, highest population, lowest population, and how many countries there are.
4. I split some strings (like words or phrases) into smaller parts to get specific information.
5. I searched for countries with specific words in their region names, like "Southern".
6. I checked how many characters are in some region names and found the ones with fewer than 10 characters.
7. I got rid of duplicate region names so I only saw each one once.

I used lots of special functions like SUM, AVG, MAX, MIN, COUNT, SUBSTRING_INDEX, LENGTH, TRIM, and DISTINCT to get the information I needed!

Challenge

```
MariaDB [(none)]> SELECT Name, substring_index(Region, "/", 1) as "Region Name 1",substring_index(region, "/", -1) as "Region Name 2" FROM world.country WHERE Region = "Mi
cronesia/Caribbean";
+-----------------------------------+---------------+---------------+
| Name                              | Region Name 1 | Region Name 2 |
+-----------------------------------+---------------+---------------+
| United States Minor Outlying Islands | Micronesia    | Caribbean     |
+-----------------------------------+---------------+---------------+
1 row in set (0.000 sec)
```

Here's what happened:

I wrote a special command to get specific information from the "country" table in the "world" database.

Here's what I did:

1. I wanted to find countries in the "Micronesia/Caribbean" region.
2. I wrote a command that splits the region name into two separate parts: "Micronesia" and "Caribbean".
3. I made two new columns called "Region Name 1" and "Region Name 2" to show these two parts.
4. The command only shows countries where the region is exactly "Micronesia/Caribbean".

So, I got a list of countries in the "Micronesia/Caribbean" region, with the region name split into two separate columns!

Conclusion

Here's what happened:

I finished working with the database and learned lots of cool things!

Here's what I did:

1. I used special tools to summarize data, like calculating totals and averages.
2. I split strings (like words or phrases) into smaller parts to get specific information.
3. I checked how many characters are in some strings and cleaned up extra spaces.
4. I got rid of duplicate information so I only saw each thing once.
5. I used these tools in different parts of my commands to get the information I needed.

I did all these things and now I'm done! I know how to work with databases and get the information I need.
