0x0D. SQL - Introduction

**SQLMySQL**

* By: Guillaume
* Weight: 1
* Project over - took place from Oct 17, 2023 5:00 AM to Oct 18, 2023 5:00 AM
* An auto review will be launched at the deadline

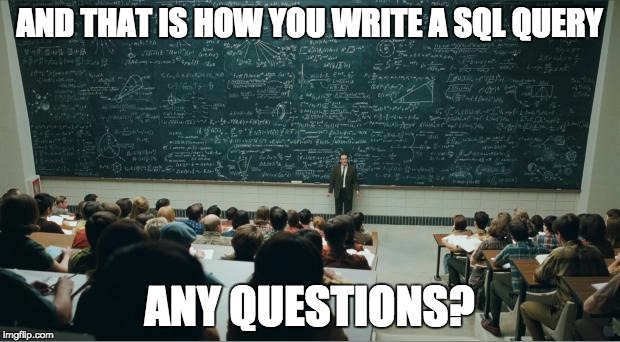
In a nutshell…

* **Auto QA review:** 63.7/104 mandatory & 15.6/24 optional
* **Altogether:**  **101.06%**
  + Mandatory: 61.25%
  + Optional: 65.0%
  + Calculation:  61.25% + (61.25% \* 65.0%)  == **101.06%**

Concepts

*For this project, we expect you to look at these concepts:*

* [Databases](https://intranet.alxswe.com/concepts/37)
* [Databases](https://intranet.alxswe.com/concepts/556)



Resources

**Read or watch**:

* [What is Database & SQL?](https://intranet.alxswe.com/rltoken/yyRKTEdRkYEVlRgZPbasjw)
* [A Basic MySQL Tutorial](https://intranet.alxswe.com/rltoken/sV2PtK5YfQsXWW1malRZ5Q)
* [Basic SQL statements: DDL and DML](https://intranet.alxswe.com/rltoken/IUKo4-UaRZSKPvXr5u9oBw) (*no need to read the chapter “Privileges”*)
* [Basic queries: SQL and RA](https://intranet.alxswe.com/rltoken/rXKvu2u7vg1Hj6bnX7UgMg)
* [SQL technique: functions](https://intranet.alxswe.com/rltoken/-Riv_dzSYsJyvy-LlaO6Mg)
* [SQL technique: subqueries](https://intranet.alxswe.com/rltoken/QpIXoR--8eBIaidgSWYsBQ)
* [What makes the big difference between a backtick and an apostrophe?](https://intranet.alxswe.com/rltoken/Gt0nFJPJRwW2Y0izzwbVrw)
* [MySQL Cheat Sheet](https://intranet.alxswe.com/rltoken/1oU1LwCksQLXjs6fZYezrw)
* [MySQL 8.0 SQL Statement Syntax](https://intranet.alxswe.com/rltoken/HmdmLiYBM0Q34iCYPWd9XQ)
* [installing MySQL in Ubuntu 20.04](https://intranet.alxswe.com/rltoken/IpYI9rgbwfjxOAQQgpHCmQ)

Learning Objectives

At the end of this project, you are expected to be able to [explain to anyone](https://intranet.alxswe.com/rltoken/-zY4kpQMjYkkbqlEb9W37A), **without the help of Google**:

General

* What’s a database
* What’s a relational database
* What does SQL stand for
* What’s MySQL
* How to create a database in MySQL
* What does DDL and DML stand for
* How to CREATE or ALTER a table
* How to SELECT data from a table
* How to INSERT, UPDATE or DELETE data
* What are subqueries
* How to use MySQL functions

Copyright - Plagiarism

* You are tasked to come up with solutions for the tasks below yourself to meet with the above learning objectives.
* You will not be able to meet the objectives of this or any following project by copying and pasting someone else’s work.
* You are not allowed to publish any content of this project.
* Any form of plagiarism is strictly forbidden and will result in removal from the program.

Requirements

General

* Allowed editors: vi, vim, emacs
* All your files will be executed on Ubuntu 20.04 LTS using MySQL 8.0 (version 8.0.25)
* All your files should end with a new line
* All your SQL queries should have a comment just before (i.e. syntax above)
* All your files should start by a comment describing the task
* All SQL keywords should be in uppercase (SELECT, WHERE…)
* A README.md file, at the root of the folder of the project, is mandatory
* The length of your files will be tested using wc

More Info

Comments for your SQL file:

$ cat my\_script.sql

-- 3 first students in the Batch ID=3

-- because Batch 3 is the best!

SELECT id, name FROM students WHERE batch\_id = 3 ORDER BY created\_at DESC LIMIT 3;

$

Install MySQL 8.0 on Ubuntu 20.04 LTS

$ sudo apt update

$ sudo apt install mysql-server

...

$ mysql --version

mysql Ver 8.0.25-0ubuntu0.20.04.1 for Linux on x86\_64 ((Ubuntu))

$

Connect to your MySQL server:

$ sudo mysql

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 11

Server version: 8.0.25-0ubuntu0.20.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective

owners.

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

mysql>

mysql> quit

Bye

$

Use “container-on-demand” to run MySQL

**In the container, credentials are root/root**

* Ask for container Ubuntu 20.04
* Connect via SSH
* OR connect via the Web terminal
* In the container, you should start MySQL before playing with it:

$ service mysql start

\* Starting MySQL database server mysqld

$

$ cat 0-list\_databases.sql | mysql -uroot -p

Database

information\_schema

mysql

performance\_schema

sys

$

**In the container, credentials are root/root**

Quiz questions

**Great!** You've completed the quiz successfully! Keep going! (Show quiz)

Tasks

0. List databases

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that lists all databases of your MySQL server.

guillaume@ubuntu:~/$ cat 0-list\_databases.sql | mysql -hlocalhost -uroot -p

Enter password:

Database

hbtn\_0c\_0

information\_schema

mysql

performance\_schema

sys

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 0-list\_databases.sql

 Done! Help Check your code Get a sandbox QA Review

1. Create a database

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that creates the database hbtn\_0c\_0 in your MySQL server.

* If the database hbtn\_0c\_0 already exists, your script should not fail
* You are not allowed to use the SELECT or SHOW statements

guillaume@ubuntu:~/$ cat 1-create\_database\_if\_missing.sql | mysql -hlocalhost -uroot -p

Enter password:

guillaume@ubuntu:~/$ cat 0-list\_databases.sql | mysql -hlocalhost -uroot -p

Enter password:

Database

information\_schema

hbtn\_0c\_0

mysql

performance\_schema

guillaume@ubuntu:~/$ cat 1-create\_database\_if\_missing.sql | mysql -hlocalhost -uroot -p

Enter password:

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 1-create\_database\_if\_missing.sql

 Done! Help Check your code Get a sandbox QA Review

2. Delete a database

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that deletes the database hbtn\_0c\_0 in your MySQL server.

* If the database hbtn\_0c\_0 doesn’t exist, your script should not fail
* You are not allowed to use the SELECT or SHOW statements

guillaume@ubuntu:~/$ cat 0-list\_databases.sql | mysql -hlocalhost -uroot -p

Enter password:

Database

hbtn\_0c\_0

information\_schema

mysql

performance\_schema

sys

guillaume@ubuntu:~/$ cat 2-remove\_database.sql | mysql -hlocalhost -uroot -p

Enter password:

guillaume@ubuntu:~/$ cat 0-list\_databases.sql | mysql -hlocalhost -uroot -p

Enter password:

Database

information\_schema

mysql

performance\_schema

sys

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 2-remove\_database.sql

 Done! Help Check your code Get a sandbox QA Review

3. List tables

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that lists all the tables of a database in your MySQL server.

* The database name will be passed as argument of mysql command (in the following example: mysql is the name of the database)

guillaume@ubuntu:~/$ cat 3-list\_tables.sql | mysql -hlocalhost -uroot -p mysql

Enter password:

Tables\_in\_mysql

columns\_priv

component

db

default\_roles

engine\_cost

func

general\_log

global\_grants

gtid\_executed

help\_category

help\_keyword

help\_relation

help\_topic

innodb\_index\_stats

innodb\_table\_stats

password\_history

plugin

procs\_priv

proxies\_priv

replication\_asynchronous\_connection\_failover

replication\_asynchronous\_connection\_failover\_managed

role\_edges

server\_cost

servers

slave\_master\_info

slave\_relay\_log\_info

slave\_worker\_info

slow\_log

tables\_priv

time\_zone

time\_zone\_leap\_second

time\_zone\_name

time\_zone\_transition

time\_zone\_transition\_type

user

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 3-list\_tables.sql

 Done! Help Check your code Get a sandbox QA Review

4. First table

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that creates a table called first\_table in the current database in your MySQL server.

* first\_table description:
  + id INT
  + name VARCHAR(256)
* The database name will be passed as an argument of the mysql command
* If the table first\_table already exists, your script should not fail
* You are not allowed to use the SELECT or SHOW statements

guillaume@ubuntu:~/$ cat 4-first\_table.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

guillaume@ubuntu:~/$ cat 3-list\_tables.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

Tables\_in\_hbtn\_0c\_0

first\_table

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 4-first\_table.sql

 Done! Help Check your code Get a sandbox QA Review

5. Full description

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that prints the full description of the table first\_table from the database hbtn\_0c\_0 in your MySQL server.

* The database name will be passed as an argument of the mysql command
* You are not allowed to use the DESCRIBE or EXPLAIN statements

guillaume@ubuntu:~/$ cat 5-full\_table.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

Table Create Table

first\_table CREATE TABLE `first\_table` (\n `id` int DEFAULT NULL,\n `name` varchar(256) DEFAULT NULL\n) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 5-full\_table.sql

 Done! Help Check your code Get a sandbox QA Review

6. List all in table

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that lists all rows of the table first\_table from the database hbtn\_0c\_0 in your MySQL server.

* All fields should be printed
* The database name will be passed as an argument of the mysql command

guillaume@ubuntu:~/$ cat 6-list\_values.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 6-list\_values.sql

 Done! Help Check your code Get a sandbox QA Review

7. First add

**mandatory**

Score: 0.0% (*Checks completed: 0.0%*)

Write a script that inserts a new row in the table first\_table (database hbtn\_0c\_0) in your MySQL server.

* New row:
  + id = 89
  + name = Best School
* The database name will be passed as an argument of the mysql command

guillaume@ubuntu:~/$ cat 7-insert\_value.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

guillaume@ubuntu:~/$ cat 6-list\_values.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

id name

89 Best School

guillaume@ubuntu:~/$ cat 7-insert\_value.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

guillaume@ubuntu:~/$ cat 7-insert\_value.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

guillaume@ubuntu:~/$ cat 6-list\_values.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

id name

89 Best School

89 Best School

89 Best School

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 7-insert\_value.sql

 Done? Help Check your code Ask for a new correction Get a sandbox QA Review

8. Count 89

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that displays the number of records with id = 89 in the table first\_table of the database hbtn\_0c\_0 in your MySQL server.

* The database name will be passed as an argument of the mysql command

guillaume@ubuntu:~/$ cat 8-count\_89.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0 | tail -1

Enter password:

3

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 8-count\_89.sql

 Done! Help Check your code Get a sandbox QA Review

9. Full creation

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that creates a table second\_table in the database hbtn\_0c\_0 in your MySQL server and add multiples rows.

* second\_table description:
  + id INT
  + name VARCHAR(256)
  + score INT
* The database name will be passed as an argument to the mysql command
* If the table second\_table already exists, your script should not fail
* You are not allowed to use the SELECT and SHOW statements
* Your script should create these records:
  + id = 1, name = “John”, score = 10
  + id = 2, name = “Alex”, score = 3
  + id = 3, name = “Bob”, score = 14
  + id = 4, name = “George”, score = 8

guillaume@ubuntu:~/$ cat 9-full\_creation.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 9-full\_creation.sql

 Done! Help Check your code Get a sandbox QA Review

10. List by best

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that lists all records of the table second\_table of the database hbtn\_0c\_0 in your MySQL server.

* Results should display both the score and the name (in this order)
* Records should be ordered by score (top first)
* The database name will be passed as an argument of the mysql command

guillaume@ubuntu:~/$ cat 10-top\_score.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

score name

14 Bob

10 John

8 George

3 Alex

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 10-top\_score.sql

 Done! Help Check your code Get a sandbox QA Review

11. Select the best

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that lists all records with a score >= 10 in the table second\_table of the database hbtn\_0c\_0 in your MySQL server.

* Results should display both the score and the name (in this order)
* Records should be ordered by score (top first)
* The database name will be passed as an argument of the mysql command

guillaume@ubuntu:~/$ cat 11-best\_score.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

score name

14 Bob

10 John

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 11-best\_score.sql

 Done! Help Check your code Get a sandbox QA Review

12. Cheating is bad

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that updates the score of Bob to 10 in the table second\_table.

* You are not allowed to use Bob’s id value, only the name field
* The database name will be passed as an argument of the mysql command

guillaume@ubuntu:~/$ cat 12-no\_cheating.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

guillaume@ubuntu:~/$ cat 10-top\_score.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

score name

10 John

10 Bob

8 George

3 Alex

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 12-no\_cheating.sql

 Done! Help Check your code Get a sandbox QA Review

13. Score too low

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that removes all records with a score <= 5 in the table second\_table of the database hbtn\_0c\_0 in your MySQL server.

* The database name will be passed as an argument of the mysql command

guillaume@ubuntu:~/$ cat 13-change\_class.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

guillaume@ubuntu:~/$ cat 10-top\_score.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

score name

10 John

10 Bob

8 George

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 13-change\_class.sql

 Done! Help Check your code Get a sandbox QA Review

14. Average

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that computes the score average of all records in the table second\_table of the database hbtn\_0c\_0 in your MySQL server.

* The result column name should be average
* The database name will be passed as an argument of the mysql command

guillaume@ubuntu:~/$ cat 14-average.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

average

9.3333

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 14-average.sql

 Done! Help Check your code Get a sandbox QA Review

15. Number by score

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that lists the number of records with the same score in the table second\_table of the database hbtn\_0c\_0 in your MySQL server.

* The result should display:
  + the score
  + the number of records for this score with the label number
* The list should be sorted by the number of records (descending)
* The database name will be passed as an argument to the mysql command

guillaume@ubuntu:~/$ cat 15-groups.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

score number

10 2

8 1

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 15-groups.sql

 Done! Help Check your code Get a sandbox QA Review

16. Say my name

**mandatory**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that lists all records of the table second\_table of the database hbtn\_0c\_0 in your MySQL server.

* Don’t list rows without a name value
* Results should display the score and the name (in this order)
* Records should be listed by descending score
* The database name will be passed as an argument to the mysql command

In this example, new data have been added to the table second\_table.

guillaume@ubuntu:~/$ cat 16-no\_link.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

score name

18 Aria

12 Aria

10 John

10 Bob

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 16-no\_link.sql

 Done! Help Check your code Get a sandbox QA Review

17. Go to UTF8

**#advanced**

Score: 65.0% (*Checks completed: 100.0%*)

Write a script that converts hbtn\_0c\_0 database to UTF8 (utf8mb4, collate utf8mb4\_unicode\_ci) in your MySQL server.

You need to convert all of the following to UTF8:

* Database hbtn\_0c\_0
* Table first\_table
* Field name in first\_table

guillaume@ubuntu:~/$ cat 100-move\_to\_utf8.sql | mysql -hlocalhost -uroot -p

Enter password:

guillaume@ubuntu:~/$ cat 5-full\_table.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

Table Create Table

first\_table CREATE TABLE `first\_table` (\n `id` int(11) DEFAULT NULL,\n `name` varchar(256) COLLATE utf8mb4\_unicode\_ci DEFAULT NULL\n) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_unicode\_ci

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 100-move\_to\_utf8.sql

 Done! Help Check your code Get a sandbox QA Review

18. Temperatures #0

**#advanced**

Score: 65.0% (*Checks completed: 100.0%*)

Import in hbtn\_0c\_0 database this table dump: [download](https://s3.amazonaws.com/intranet-projects-files/holbertonschool-higher-level_programming+/272/temperatures.sql)

Write a script that displays the average temperature (Fahrenheit) by city ordered by temperature (descending).

guillaume@ubuntu:~/$ cat 101-avg\_temperatures.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

city avg\_temp

Chandler 72.8627

Gilbert 71.8088

Pismo beach 71.5147

San Francisco 71.4804

Sedona 70.7696

Phoenix 70.5882

Oakland 70.5637

Sunnyvale 70.5245

Chicago 70.4461

San Diego 70.1373

Glendale 70.1225

Sonoma 70.0392

Yuma 69.3873

San Jose 69.2990

Tucson 69.0245

Joliet 68.6716

Naperville 68.1029

Tempe 67.0441

Peoria 66.5392

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 101-avg\_temperatures.sql

 Done! Help Check your code Get a sandbox QA Review

19. Temperatures #1

**#advanced**

Score: 65.0% (*Checks completed: 100.0%*)

Import in hbtn\_0c\_0 database this table dump: [download](https://s3.amazonaws.com/intranet-projects-files/holbertonschool-higher-level_programming+/272/temperatures.sql) (same as Temperatures #0)

Write a script that displays the top 3 of cities temperature during July and August ordered by temperature (descending)

guillaume@ubuntu:~/$ cat 102-top\_city.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

city avg\_temp

Naperville 76.9412

San Diego 73.7941

Sunnyvale 73.2353

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 102-top\_city.sql

 Done! Help Check your code Get a sandbox QA Review

20. Temperatures #2

**#advanced**

Score: 65.0% (*Checks completed: 100.0%*)

Import in hbtn\_0c\_0 database this table dump: [download](https://s3.amazonaws.com/intranet-projects-files/holbertonschool-higher-level_programming+/272/temperatures.sql) (same as Temperatures #0)

Write a script that displays the max temperature of each state (ordered by State name).

guillaume@ubuntu:~/$ cat 103-max\_state.sql | mysql -hlocalhost -uroot -p hbtn\_0c\_0

Enter password:

state max\_temp

AZ 110

CA 110

IL 110

guillaume@ubuntu:~/$

**Repo:**

* GitHub repository: alx-higher\_level\_programming
* Directory: 0x0D-SQL\_introduction
* File: 103-max\_state.sql

 Done! Help Check your code Get a sandbox QA Review

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