



# TP SQL

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# QU'EST CE QUE LE SQL?

Le langage de requête structuré (SQL) est un langage de programmation permettant de stocker et de traiter des informations dans une base de données relationnelle. Une base de données relationnelle stocke les informations sous forme de tableau, avec des lignes et des colonnes représentant différents attributs de données et les diverses relations entre les valeurs de données. Vous pouvez utiliser des instructions SQL pour stocker, mettre à jour, supprimer, rechercher et récupérer des informations de la base de données. Vous pouvez également utiliser le langage SQL pour maintenir et optimiser les performances de la base de données.

## POURQUOI LE LANGAGE SQL EST-IL IMPORTANT ?

Le langage SQL (Structured Query Language) est un langage de requête populaire fréquemment utilisé dans tous les types d'applications. Les analystes de données et les développeurs apprennent et utilisent le langage SQL, car il s'intègre parfaitement aux différents langages de programmation.

Par exemple, ils peuvent intégrer des requêtes SQL au langage de programmation Java pour créer des applications de traitement de données hautement performantes avec les principaux systèmes de base de données SQL tels qu'Oracle ou MS SQL Server. SQL est également assez facile à apprendre, car il utilise des mots clés anglais courants dans ses instructions.

# LANCER MYSQL

```
ryandetree — mysql — mysql — 80x24

Last login: Wed Aug 28 16:25:24 on ttys000
ryandetree@ryanmac ~ % /Applications/XAMPP/xamppfiles/bin/mysql ; exit;
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 16
Server version: 10.4.28-MariaDB Source distribution

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)]> █
```

## LA COMMANDE “HELP”

```
ryandetree — mysql — mysql — 109x34

General information about MariaDB can be found at
http://mariadb.org

List of all client commands:
Note that all text commands must be first on line and end with ';'
?      (?) Synonym for 'help'.
clear  (\c) Clear the current input statement.
connect (\r) Reconnect to the server. Optional arguments are db and host.
delimiter (\d) Set statement delimiter.
edit   (\e) Edit command with $EDITOR.
ego    (\G) Send command to MariaDB server, display result vertically.
exit   (\q) Exit mysql. Same as quit.
go     (\g) Send command to MariaDB server.
help   (\h) Display this help.
nopager (\n) Disable pager, print to stdout.
notee  (\t) Don't write into outfile.
pager  (\P) Set PAGER [to_pager]. Print the query results via PAGER.
print  (\p) Print current command.
prompt (\R) Change your mysql prompt.
quit   (\q) Quit mysql.
rehash (\#) Rebuild completion hash.
source (\.) Execute an SQL script file. Takes a file name as an argument.
status (\s) Get status information from the server.
system (\!) Execute a system shell command.
tee     (\T) Set outfile [to_outfile]. Append everything into given outfile.
use     (\u) Use another database. Takes database name as argument.
charset (\C) Switch to another charset. Might be needed for processing binlog with multi-byte charsets.
warnings (\W) Show warnings after every statement.
nowarning (\w) Don't show warnings after every statement.

For server side help, type 'help contents'

MariaDB [(none)]> █
```



# LA COMMANDE STATUS

```
ryandetree — mysql — mysql — 109x34
charset (\C) Switch to another charset. Might be needed for processing binlog with multi-byte charsets.
warnings (\W) Show warnings after every statement.
nowarning (\w) Don't show warnings after every statement.

For server side help, type 'help contents'

MariaDB [(none)]> status

-----
/Applications/XAMPP/xamppfiles/bin/mysql Ver 15.1 Distrib 10.4.28-MariaDB, for osx10.10 (x86_64) using Edit
Line wrapper

Connection id:          16
Current database:
Current user:           ryandetree@localhost
SSL:                    Not in use
Current pager:          stdout
Using outfile:          ''
Using delimiter:        ;
Server:                 MariaDB
Server version:         10.4.28-MariaDB Source distribution
Protocol version:       10
Connection:             Localhost via UNIX socket
Server characteraset:   utf8mb4
Db characteraset:       utf8mb4
Client characteraset:   utf8mb4
Conn. characteraset:    utf8mb4
UNIX socket:            /Applications/XAMPP/xamppfiles/var/mysql/mysql.sock
Uptime:                 2 hours 47 min 26 sec

Threads: 6 Questions: 20 Slow queries: 0 Opens: 18 Flush tables: 1 Open tables: 11 Queries per second a
vg: 0.001
-----

MariaDB [(none)]> █
```

← Il y a actuellement aucune base de données

# SHOW DATABASES

```
ryandetree — mysql — mysql — 109x34
Current pager:          stdout
Using outfile:          ''
Using delimiter:        ;
Server:                 MariaDB
Server version:         10.4.28-MariaDB Source distribution
Protocol version:       10
Connection:             Localhost via UNIX socket
Server characteraset:   utf8mb4
Db characteraset:       utf8mb4
Client characteraset:   utf8mb4
Conn. characteraset:    utf8mb4
UNIX socket:            /Applications/XAMPP/xamppfiles/var/mysql/mysql.sock
Uptime:                 2 hours 47 min 26 sec

Threads: 6 Questions: 20 Slow queries: 0 Opens: 18 Flush tables: 1 Open tables: 11 Queries per second a
vg: 0.001
-----

MariaDB [(none)]> show databases;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB s
erver version for the right syntax to use near 'databases' at line 1
MariaDB [(none)]> show database;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB s
erver version for the right syntax to use near 'database' at line 1
MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| test      |
+-----+
2 rows in set (0.002 sec)

MariaDB [(none)]> █
```

# CREER UNE BASE DE DONNÉES

```

● ● ● Vaults SFTP X 91.172.4.135 +
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

*** System restart required ***
Last login: Wed Aug 28 12:27:46 2024 from 80.13.175.148
ryan@Ubuntu-NAS:~$ mysql
ERROR 1045 (28000): Access denied for user 'ryan'@'localhost' (using password: NO)
ryan@Ubuntu-NAS:~$ mysql -u
mysql: option '-u' requires an argument
ryan@Ubuntu-NAS:~$ su root
Password:
root@Ubuntu-NAS:/home/ryan# sd
sd: command not found
root@Ubuntu-NAS:/home/ryan# mysql -u
mysql: option '-u' requires an argument
root@Ubuntu-NAS:/home/ryan# mysql
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 9724
Server version: 10.6.18-MariaDB-0ubuntu0.22.04.1 Ubuntu 22.04

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)]> CREATE DATABASE bibliotheque ;
Query OK, 1 row affected (0.045 sec)

MariaDB [(none)]> SHOW DATABASES ;
+-----+
| Database |
+-----+
| bibliotheque |
| information_schema |
| mysql |
| nextcloud |
| performance_schema |
| sys |
+-----+
6 rows in set (0.001 sec)

MariaDB [(none)]>

```

← La base a bien été créée

```

● ● ● Vaults SFTP X 91.172.4.135 +
root@Ubuntu-NAS:/home/ryan# mysql -u
mysql: option '-u' requires an argument
root@Ubuntu-NAS:/home/ryan# mysql
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 9724
Server version: 10.6.18-MariaDB-0ubuntu0.22.04.1 Ubuntu 22.04

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)]> CREATE DATABASE bibliotheque ;
Query OK, 1 row affected (0.045 sec)

MariaDB [(none)]> SHOW DATABASES ;
+-----+
| Database |
+-----+
| bibliotheque |
| information_schema |
| mysql |
| nextcloud |
| performance_schema |
| sys |
+-----+
6 rows in set (0.001 sec)

MariaDB [(none)]> USE bibliotheque;
Database changed
MariaDB [bibliotheque]> CREATE TABLE auteurs (
  -> id INT AUTO_INCREMENT PRIMARY KEY,
  -> nom VARCHAR(255) NOT NULL,
  -> prenom VARCHAR(255) NOT NULL
  -> );
Query OK, 0 rows affected (0.667 sec)

MariaDB [bibliotheque]> CREATE TABLE livres ( id INT AUTO_INCREMENT PRIMARY KEY, titre VARCHAR(255) NOT NULL, annee INT NOT NULL, auteur_id INT, Foreign KEY
(auteur_id) REFERENCES auteurs(id) );
Query OK, 0 rows affected (1.185 sec)

MariaDB [bibliotheque]>

```

# TABLE

```
MariaDB [bibliotheque]> show tables;
```

```
+-----+
| Tables_in_bibliotheque |
+-----+
| auteurs                 |
| livres                  |
+-----+
```

```
2 rows in set (0.001 sec)
```

```
MariaDB [bibliotheque]> █
```

## COMMANDE 'DESCRIBE'

```
MariaDB [bibliotheque]> DESCRIBE auteurs ;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
nom	varchar(255)	NO		NULL	
prenom	varchar(255)	NO		NULL	

```
3 rows in set (0.001 sec)
```

```
MariaDB [bibliotheque]> █
```

```
MariaDB [bibliotheque]> DESCRIBE livres ;
```

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
titre	varchar(255)	NO		NULL	
annee	int(11)	NO		NULL	
auteur_id	int(11)	YES	MUL	NULL	

```
4 rows in set (0.002 sec)
```

```
MariaDB [bibliotheque]> $█
```

## AJOUT DE LIVRES & AUTEURS

```
MariaDB [bibliotheque]> INSERT INTO auteurs (nom, prenom)
```

```
-> VALUES ('Hugo', 'Victor');
```

```
Query OK, 1 row affected (0.304 sec)
```

```
MariaDB [bibliotheque]> INSERT INTO livres (titre, annee, auteur_id)
```

```
-> VALUES ('Les Misérables', 1862, 1);
```

```
Query OK, 1 row affected (0.126 sec)
```

```
MariaDB [bibliotheque]> INSERT INTO auteurs (nom, prenom)
```

```
-> VALUES ('Dan', 'KEPSEU');
```

```
Query OK, 1 row affected (0.074 sec)
```

```
MariaDB [bibliotheque]> INSERT INTO auteurs (nom, prenom) VALUES ('RYAN', 'DETREE');
```

```
Query OK, 1 row affected (0.304 sec)
```

```
MariaDB [bibliotheque]> INSERT INTO livres (titre, annee, auteur_id)
```

```
-> VALUES ('Je suis un livre', 1862, 1);
```

```
Query OK, 1 row affected (0.083 sec)
```

```
MariaDB [bibliotheque]> █
```



# TABLE

```
● ● ● Vaults SFTP 91.172.4.135 +
-> VALUES ('Dan', 'KEPSEU');
Query OK, 1 row affected (0.074 sec)

MariaDB [bibliotheque]> INSERT INTO auteurs (nom, prenom) VALUES ('RYAN', 'DETREE');
Query OK, 1 row affected (0.304 sec)

MariaDB [bibliotheque]> INSERT INTO livres (titre, annee, auteur_id)
-> VALUES ('Je suis un livre', 1862, 1);
Query OK, 1 row affected (0.083 sec)

MariaDB [bibliotheque]> clear
MariaDB [bibliotheque]> SELECT nom, prenom
-> FROM auteur ;
ERROR 1146 (42S02): Table 'bibliotheque.auteur' doesn't exist
MariaDB [bibliotheque]> SELECT * FROM livres;
+-----+-----+-----+-----+
| id | titre           | annee | auteur_id |
+-----+-----+-----+-----+
| 1  | Les Misérables  | 1862  | 1         |
| 2  | Je suis un livre | 1862  | 1         |
+-----+-----+-----+-----+
2 rows in set (0.001 sec)

MariaDB [bibliotheque]> SELECT livres.titre, livres.annee, CONCAT(auteurs.prenom, ' ',
-> auteurs.nom) AS auteur
-> FROM livres
-> JOIN auteurs ON livres.auteur_id = auteurs.id;
+-----+-----+-----+
| titre           | annee | auteur      |
+-----+-----+-----+
| Les Misérables  | 1862  | Victor Hugo |
| Je suis un livre | 1862  | Victor Hugo |
+-----+-----+-----+
2 rows in set (0.001 sec)

MariaDB [bibliotheque]> DROP TABLE auteurs;
ERROR 1451 (23000): Cannot delete or update a parent row: a foreign key constraint fails
MariaDB [bibliotheque]> DROP TABLE livres;
Query OK, 0 rows affected (0.364 sec)

MariaDB [bibliotheque]> █
```

```
● ● ● Vaults SFTP 91.172.4.135 +
+-----+-----+-----+
2 rows in set (0.001 sec)

MariaDB [bibliotheque]> SELECT livres.titre, livres.annee, CONCAT(auteurs.prenom, ' ',
-> auteurs.nom) AS auteur
-> FROM livres
-> JOIN auteurs ON livres.auteur_id = auteurs.id;
+-----+-----+-----+
| titre           | annee | auteur      |
+-----+-----+-----+
| Les Misérables  | 1862  | Victor Hugo |
| Je suis un livre | 1862  | Victor Hugo |
+-----+-----+-----+
2 rows in set (0.001 sec)

MariaDB [bibliotheque]> DROP TABLE auteurs;
ERROR 1451 (23000): Cannot delete or update a parent row: a foreign key constraint fails
MariaDB [bibliotheque]> DROP TABLE livres;
Query OK, 0 rows affected (0.364 sec)

MariaDB [bibliotheque]> DROP DATABASE bibliotheque
-> :
-> ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near '
: ' at line 2
MariaDB [bibliotheque]> DROP DATABASE bibliotheque;
Query OK, 1 row affected (0.639 sec)

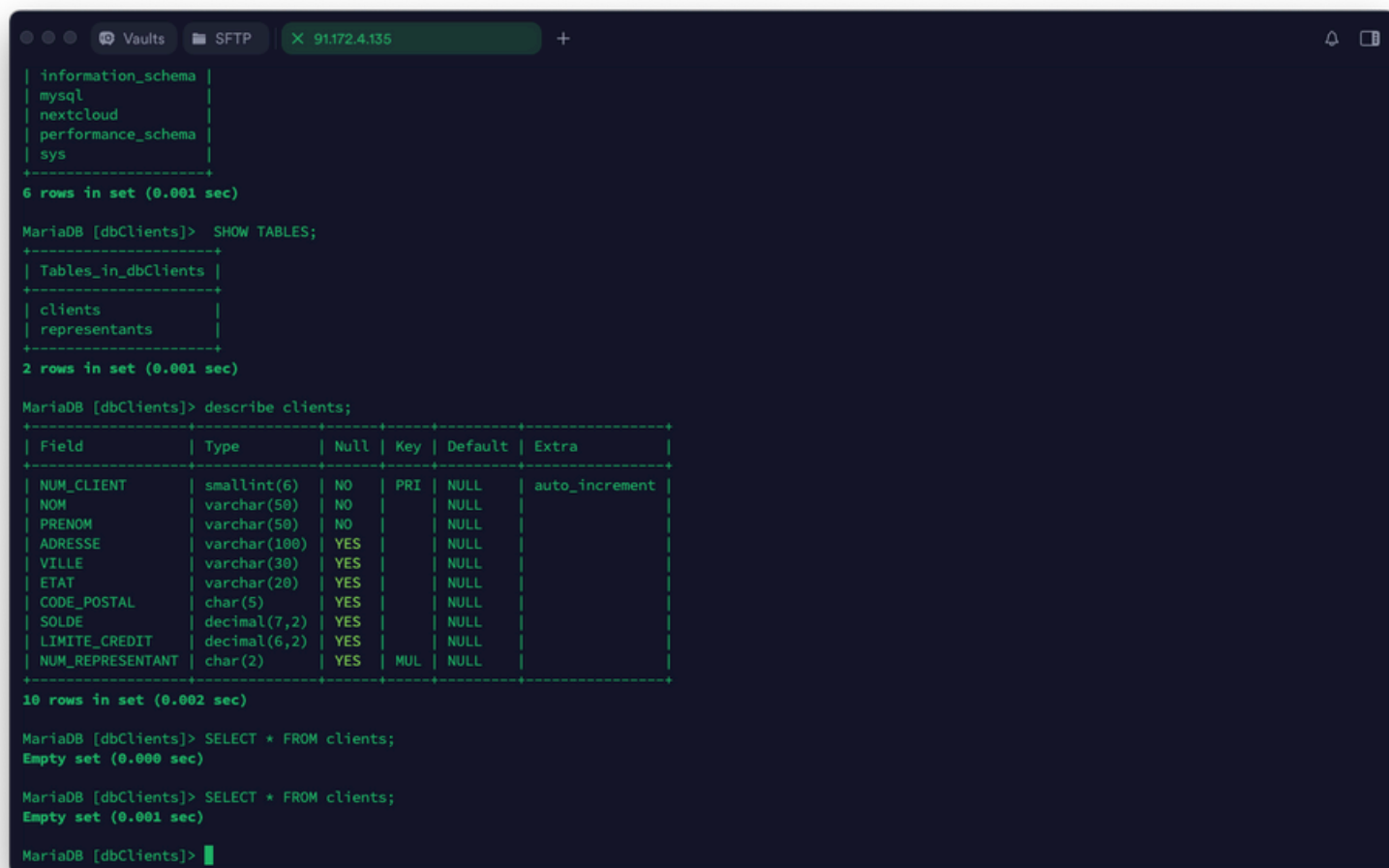
MariaDB [(none)]> SHOW DATABASES ;
+-----+
| Database |
+-----+
| information_schema |
| mysql        |
| nextcloud    |
| performance_schema |
| sys          |
+-----+
5 rows in set (0.001 sec)

MariaDB [(none)]> █
```

# PARTIE 2

## A. AFFICHER TOUTES LES INFORMATIONS DES CLIENTS

**SELECT \* FROM CLIENTS;**



The screenshot shows a terminal window with a dark background. At the top, there are tabs for 'Vaults' and 'SFTP', and a window title 'X 91.172.4.135'. The terminal displays the following commands and results:

```
information_schema |
mysql              |
nextcloud          |
performance_schema |
sys                |
+-----+
6 rows in set (0.001 sec)

MariaDB [dbClients]> SHOW TABLES;
+-----+
| Tables_in_dbClients |
+-----+
| clients              |
| representants        |
+-----+
2 rows in set (0.001 sec)

MariaDB [dbClients]> describe clients;
+-----+
| Field          | Type          | Null | Key | Default | Extra          |
+-----+
| NUM_CLIENT     | smallint(6)   | NO   | PRI | NULL    | auto_increment |
| NOM            | varchar(50)   | NO   |     | NULL    |                |
| PRENOM         | varchar(50)   | NO   |     | NULL    |                |
| ADRESSE        | varchar(100)  | YES  |     | NULL    |                |
| VILLE          | varchar(30)   | YES  |     | NULL    |                |
| ETAT           | varchar(20)   | YES  |     | NULL    |                |
| CODE_POSTAL    | char(5)       | YES  |     | NULL    |                |
| SOLDE          | decimal(7,2)  | YES  |     | NULL    |                |
| LIMITE_CREDIT  | decimal(6,2)  | YES  |     | NULL    |                |
| NUM_REPRESENTANT | char(2)       | YES  | MUL | NULL    |                |
+-----+
10 rows in set (0.002 sec)

MariaDB [dbClients]> SELECT * FROM clients;
Empty set (0.000 sec)

MariaDB [dbClients]> SELECT * FROM clients;
Empty set (0.001 sec)

MariaDB [dbClients]> 
```



# F. RAJOUTER UN CLIENT

```
INSERT INTO CLIENTS (NOM, PRENOM, ADRESSE, VILLE, CODE_POSTAL, LIMITE_CREDIT,  
SOLDE_CREDIT, ID_REPRESENTANT)  
VALUES ('MICHEL', 'DONOVAN', '150 AV. JEAN JAURÈS', 'AGEN', 'FRANCE', '45000', 2000,  
12);
```

# G. MODIFIER LE CODE POSTAL DES CLIENTS VIVANT À AGEN ET REEMPLACER PAR 47000

```
UPDATE CLIENTS  
SET CODE_POSTAL = '47000'  
WHERE VILLE = 'AGEN';
```

# H. AFFICHER LE REPRÉSENTANT AYANT LE PLUS PETIT TAUX DE COMMISSION

```
SELECT NOM, PRENOM, TAUX_COMMISSION  
FROM REPRESENTANTS  
ORDER BY TAUX_COMMISSION ASC  
LIMIT 1;
```

# I. AFFICHER LE NOM ET PRÉNOM DES CLIENTS AINSI QUE LE NOM ET PRÉNOM DE LEUR REPRÉSENTANT

```
SELECT C.NOM AS CLIENT_NOM, C.PRENOM AS CLIENT_PRENOM, R.NOM AS REP_NOM,  
R.PRENOM AS REP_PRENOM  
FROM CLIENTS C  
JOIN REPRESENTANTS R ON C.ID_REPRESENTANT = R.ID;
```

# J. MODIFIER LA TABLE CLIENTS ET RENOMMER LA COLONNE 'ETAT' ET REEMPLACER PAR 'PAYS'

```
ALTER TABLE CLIENTS CHANGE COLUMN ETAT PAYS VARCHAR(255);
```

## B. AFFICHER LE NOM, PRÉNOM ET LA VILLE DES REPRÉSENTANTS

**SELECT NOM, PRENOM, VILLE FROM REPRESENTANTS;**

```
MariaDB [dbClients]> SELECT nom, prenom, ville FROM representants;  
Empty set (0.001 sec)
```

## C. AFFICHER LES CLIENTS QUI VIVENT À GRANT

**SELECT \* FROM CLIENTS WHERE VILLE = 'GRANT';**

```
MariaDB [dbClients]> SELECT * FROM clients WHERE ville = 'GRANT';  
Empty set (0.001 sec)
```

## D. AFFICHER LES CLIENTS QUI ONT UNE LIMITE DE CRÉDIT SUPÉRIEURE À 1000

**SELECT \* FROM CLIENTS WHERE LIMITE\_CREDIT > 1000;**

```
MariaDB [dbClients]> SELECT * FROM clients WHERE limite_credit > 1000;  
Empty set (0.001 sec)
```

## E. AFFICHER LE NOM DES CLIENTS DONT LE REPRÉSENTANT EST DIAZ

**SELECT C.NOM  
FROM CLIENTS C  
JOIN REPRESENTANTS R ON C.ID\_REPRESENTANT = R.ID  
WHERE R.NOM = 'DIAZ';**

# RESSOURCE

<https://aws.amazon.com/fr/what-is/sql/>



# CONCLUSION

## Coordonnées

Agen  
Rue du lot

[www.campusermitage.fr](http://www.campusermitage.fr)  
[groupe1@campusermitage.fr](mailto:groupe1@campusermitage.fr)



**Campus  
Ermitage**