

# Apply filters to SQL queries

## Scenario description

You are a security professional at a large organization. Part of your job is to investigate security issues to help keep the system secure. You recently discovered some potential security issues that involve login attempts and employee machines.

Your task is to examine the organization's data in their **employees** and **log\_in\_attempts** tables. You'll need to use SQL filters to retrieve records from different datasets and investigate the potential security issues.

## Retrieve after hours failed login attempts

As we can see on the following image, there were 19 login attempts after 18:00. On the query we are requesting all the records with the login\_time and success fields where the login time is greater than 18:00 hours and the login attempt failed (success = 0).

```
MariaDB [organization]> SELECT login_time, success FROM log_in_attempts WHERE
login_time > '18:00' AND success = 0 ORDER BY login_time;
+-----+-----+
| login_time | success |
+-----+-----+
| 18:38:07   | 0       |
| 18:56:36   | 0       |
| 19:28:12   | 0       |
| 19:28:50   | 0       |
| 19:34:48   | 0       |
| 19:55:15   | 0       |
| 20:03:55   | 0       |
| 20:25:57   | 0       |
| 20:27:27   | 0       |
| 20:49:00   | 0       |
| 21:02:04   | 0       |
| 21:20:51   | 0       |
| 22:00:26   | 0       |
| 22:07:07   | 0       |
| 22:18:42   | 0       |
| 22:36:36   | 0       |
| 22:38:31   | 0       |
| 23:04:05   | 0       |
| 23:38:46   | 0       |
+-----+-----+
19 rows in set (0.020 sec)

MariaDB [organization]> █
```

## Retrieve login attempts on specific dates

The total of login attempts were 75, in this query we are basically telling SQL to show us all the records related to the dates 2022-05-08 or 2022-05-09.

```
MariaDB [organization]> SELECT login_date, success FROM log_in_attempts WHERE  
login_date = '2022-05-09' OR login_date = '2022-05-08' ORDER BY login_date;
```

login_date	success
2022-05-08	0
2022-05-08	1
2022-05-08	0
2022-05-08	1
2022-05-08	1
2022-05-08	0
2022-05-08	1
2022-05-08	0
2022-05-08	1
2022-05-08	1
2022-05-08	0
2022-05-08	0
2022-05-08	0
2022-05-08	0
2022-05-08	0
2022-05-08	1
2022-05-08	1
2022-05-08	1
2022-05-08	0
2022-05-08	1
2022-05-08	1
2022-05-08	1
2022-05-08	0
2022-05-08	0
2022-05-08	1
2022-05-08	0
2022-05-08	0
2022-05-08	1
2022-05-08	1
2022-05-08	0
2022-05-08	0
2022-05-08	0
2022-05-08	0
2022-05-08	1

## Retrieve login attempts outside of Mexico

In this query, we are asking SQL for all the records that do not have any 'MEX' on their name. Which gives us 144 rows.

```
MariaDB [organization]> SELECT country FROM log_in_attempts WHERE NOT country  
LIKE 'MEX%';
```

country
CAN
CAN
USA
USA
CANADA
CAN
US
CANADA
CANADA
USA
USA
USA
US
USA
CAN
USA
US
US
US
US
CANADA
US
CANADA
CANADA
US
US
US
CANADA
USA
CANADA

## Retrieve employees in Marketing

This query shows us all users that are from the Marketing department and that are allocated on any East office.

```
MariaDB [organization]> SELECT username, department ,office FROM employees WHERE department = 'Marketing' AND office LIKE 'East%';
```

username	department	office
elarson	Marketing	East-170
jdarosa	Marketing	East-195
fbautist	Marketing	East-267
rgosh	Marketing	East-157
randerss	Marketing	East-460
dellery	Marketing	East-417
cwilliam	Marketing	East-216

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

```
MariaDB [organization]> 
```

## Retrieve employees in Finance or Sales

This query shows us all the employees that are either from the Finance or Sales department.

```
MariaDB [organization]> SELECT username, department ,office FROM employees WHERE department = 'Marketing' OR department = 'Finance';
```

username	department	office
elarson	Marketing	East-170
bmoreno	Marketing	Central-276
sgilmore	Finance	South-153
wjaffrey	Finance	North-406
abernard	Finance	South-170
jlansky	Finance	South-109
jsoto	Finance	North-271
jclark	Finance	North-188
abellmas	Finance	North-403
arutley	Marketing	South-351
arusso	Finance	West-465
mrah	Marketing	West-246
ivelasco	Finance	East-156
mabadi	Marketing	West-375
dkot	Marketing	West-408
rjensen	Marketing	Central-239
tbarnes	Finance	West-415
pwashing	Finance	East-115
daquino	Finance	West-280
cward	Finance	West-373
tmitchel	Finance	South-288
jreckley	Finance	Central-295
csimmons	Finance	North-468
itraora	Marketing	Central-134
idarosa	Marketing	East-195

## Retrieve all employees not in IT

This query shows all the employees that do not belong to the IT department.

```
MariaDB [organization]> SELECT username, department ,office FROM employees WHERE NOT department = 'Information Technology';
```

username	department	office
elarson	Marketing	East-170
bmoreno	Marketing	Central-276
tshah	Human Resources	North-434
sgilmore	Finance	South-153
eraab	Human Resources	South-127
gesparza	Human Resources	South-366
wjaffrey	Finance	North-406
abernard	Finance	South-170
lrodriqu	Sales	South-134

## Summary

On this Activity we:

- Investigated security issues using SQL filters on employees and log\_in\_attempts tables
- Retrieved 19 failed login attempts after 6:00 PM
- Found 75 login attempts on May 8 and 9, 2022
- Identified 144 login attempts from outside Mexico
- Listed Marketing employees in East offices
- Retrieved employees from Finance or Sales departments
- Excluded all employees from the IT department