

# Apply filters to SQL queries

## Project description

My organization is working to make their system more secure. It is my job to ensure the system is safe, investigate all potential security issues, and update employee computers as needed. The following steps provide examples of how I used SQL with filters to perform security-related tasks, such as retrieving suspicious login attempts and finding employee information.

## Retrieve after-hours failed login attempts

```
MariaDB [organization]> clear
MariaDB [organization]> select *
  -> from log_in_attempts
  -> where login_time > '18:00' and success = 0;
```

This query retrieves all columns from the log-in attempts table that failed and were after hours (18:00). The success value = 0 uses a boolean value where 0 is failed and 1 is successful.

## Retrieve login attempts on specific dates

```
MariaDB [organization]> select *
  -> from log_in_attempts
  -> where login_date = '2022-05-09' or login_date = '2022-05-08';
```

This query retrieves all records of login attempts that occurred on 2022-05-09 or 2022-05-08 by putting the date into a string.

## Retrieve login attempts outside of Mexico

```
MariaDB [organization]> select *
  -> from log_in_attempts
  -> where not country like 'MEX%';
```

This query retrieves all login attempts originating from outside Mexico. It uses the NOT operator to exclude records associated with Mexico. To ensure all variations are covered, it uses LIKE to search for patterns by filtering out entries similar to MEX%, where % is a wildcard that matches

any characters following “MEX.” This accounts for both abbreviations and the full name of Mexico.

## Retrieve employees in Marketing

```
MariaDB [organization]> select *  
  -> from employees  
  -> where department = 'Marketing' and office like 'East%';
```

This query retrieves all the records of employees in the Marketing department who work in the East building. It uses the AND function to ensure that the two requirements are fulfilled before the data is returned. It also uses the % sign as the column includes office numbers followed by the word East, and this ensures that they will be included.

## Retrieve employees in Finance or Sales

```
MariaDB [organization]> select *  
  -> from employees  
  -> where department = 'Sales' or department = 'Finance';
```

This query retrieves all employees that are in the sales or finance departments using the OR function which ensures that either requirement is fulfilled.

## Retrieve all employees not in IT

```
MariaDB [organization]> select *  
  -> from employees  
  -> where not department = 'Information Technology';
```

This query retrieves the records of all employees not in the IT department using the NOT function to negate the function of the department = IT.

## Summary

I used SQL filters to investigate suspicious login activities that occurred at specific times, dates, and outside of our location. I then used the AND, OR, and NOT operators to retrieve records of employees and their devices to perform security updates on those devices that need them.