# Apply filters to SQL queries

## Project description

My organization is working to make their system more secure. It is my objective to ensure the system is safe, investigate all potential security matters, and update employee computers as needed. The following steps provide examples of how I used SQL with filters to perform security-related tasks.

## Retrieve after hours failed login attempts

There was a potential security incident that occurred after business hours (after 18:00). All failed login attempts after hours need to be investigated.

The following code demonstrates how I created a SQL query to filter for failed login attempts that occurred after business hours:



The first part of the screenshot is my query, and the second part is a portion of the output. This query filters for failed login attempts that occurred after business hours at 18:00. First, I started by selecting all data from the log\_in\_attempts table. Then, I used a WHERE clause with an AND operator to filter my results to output only login attempts that occurred after 18:00 and were unsuccessful. The first condition is login\_time > ‘18:00’, filtering for the login attempts that occurred after 18:00. The second condition is success = FALSE, filtering for the failed login attempts.

## Retrieve login attempts on specific dates

A suspicious event occurred on 2022-05-09. Any login activity that happened on 2022-05-09 or on the day before needs to be investigated.

The following code demonstrates how I created a SQL query to filter for login attempts that occurred on the specific date of 2022-05-09.



The first part of the screenshot is my query, and the second part is a portion of the output. This query returns all login attempts that occurred on 2022-05-09 or 2022-05-08. First, I started by selecting all data from the log\_in\_attempts table. Then, I used a WHERE clause with an OR operator to filter my results to output only login attempts that occurred on either 2022-05-09 or 2022-05-08. The first condition is login\_date = ‘2022-05-09’, which filters for logins on 2022-05-09. The second condition is login\_date = ‘2022-05-08’, which filters for logins on 2022-05-08.

## Retrieve login attempts outside of Mexico

After investigating the organization’s data on login attempts, I believe there is an issue with the login attempts that occurred outside of Mexico. These login attempts should be investigated.

The following code demonstrates how I created a SQL query to filter for login attempts that occurred outside of Mexico.



The first part of the screenshot is my query, and the second part is a portion of the output. This query returns all login attempts that occurred in countries other than Mexico. First, I started by selecting all data from the log\_in\_attempts table. Following the selection of the dataset from log\_in\_attempts , I used a WHERE clause with NOT to filter for countries other than Mexico. I used LIKE with MEX% as the pattern to match because the dataset represents Mexico as MEX and MEXICO. The percentage sign (%) represents any number of unspecified characters when used with LIKE.

## Retrieve employees in Marketing

The team wants to update the computers for certain employees in the Marketing department. To do this, I have to get information on which employee machines to update.

The following code demonstrates how the created SQL query to filter for employee machines from employees in the Marketing department in the East building.



The first part of the screenshot is my query, and the second part is a portion of the output. This query returns all employees in the Marketing department within the East building. First, I selected all data from the employees table. Then, I used a WHERE clause with AND to filter for employees who work in the Marketing department and in the East building. The first condition is the department = ‘Marketing’ portion, which filters for employees in the Marketing department. The second condition is the office LIKE ‘East%’ portion, which filters for employees in the East building. I used LIKE with East% as the pattern to match because the data in the office column represents the East building with the specific office number.

## Retrieve employees in Finance or Sales

The machines for employees in the Finance and Sales departments also needed to be updated. Since a different security update is needed, I have to get information on employees only from these two departments.

The following code demonstrates how I created a SQL query to filter for employee machines from employees in the Finance or Sales departments.



The first part of the screenshot is my query, and the second part is a portion of the output. This query returns all employees in the Finance and Sales departments. First, I started by selecting all data from the employees table. Then, I used a WHERE clause with OR to filter for employees who are in either the Finance and Sales departments. I used the OR operator instead of AND because I want all the employees who are in either department. The first condition is department = ‘Finance’, which filters for employees from the Finance department. The second condition is department = ‘Sales’, which filters for employees from the Sales department.

## Retrieve all employees not in IT

One more security update needs to be implemented on employees who are not in the Information Technology department. To make the update, I first have to get information on these employees.

The following demonstrates how I created a SQL query to filter for employee machines from employees not in the Information Technology department.



The first part of the screenshot is my query, and the second part is a portion of the output. The query returns all employees not in the Information Technology department. First, I started by selecting all data from the employees table. Then, I used a WHERE clause with NOT to filter for employees not in this department.

## Summary

I applied filters to SQL queries to get specific information on login attempts and employee machines. I used two different tables, log\_in\_attempts and employees. I used the AND, OR, and NOT operators to filter for the specific information needed for each task. I also used LIKE and the percentage sign (%) wildcard to filter for patterns.