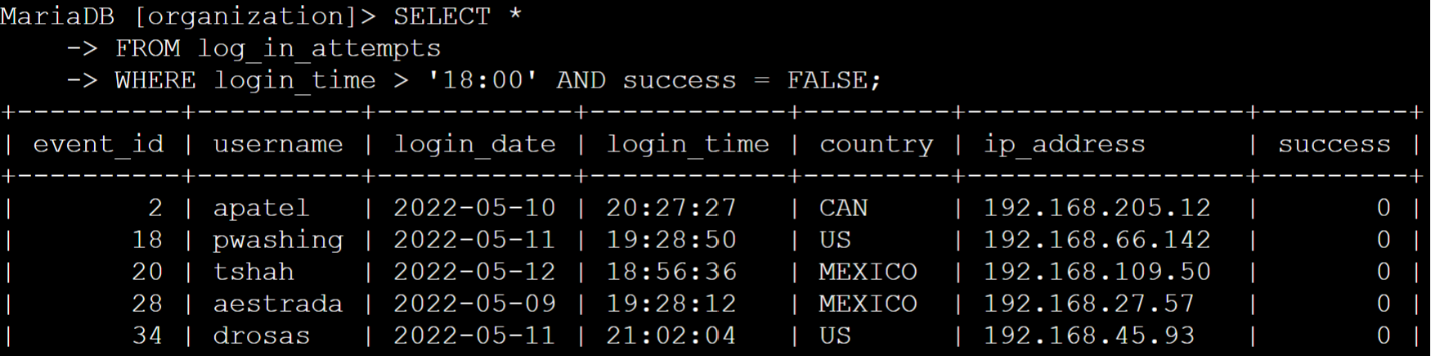
# Applying Filters to SQL Queries

## Project Description

This organization is trying to make their system more secure. In this project, I’m responsible for making sure the system is safe, I need to investigate all potential security issues, and I need to update employee computers if they need. The following steps show how I used SQL with filters to accomplish these security tasks.

## Retrieving After Hours Failed Login Attempts

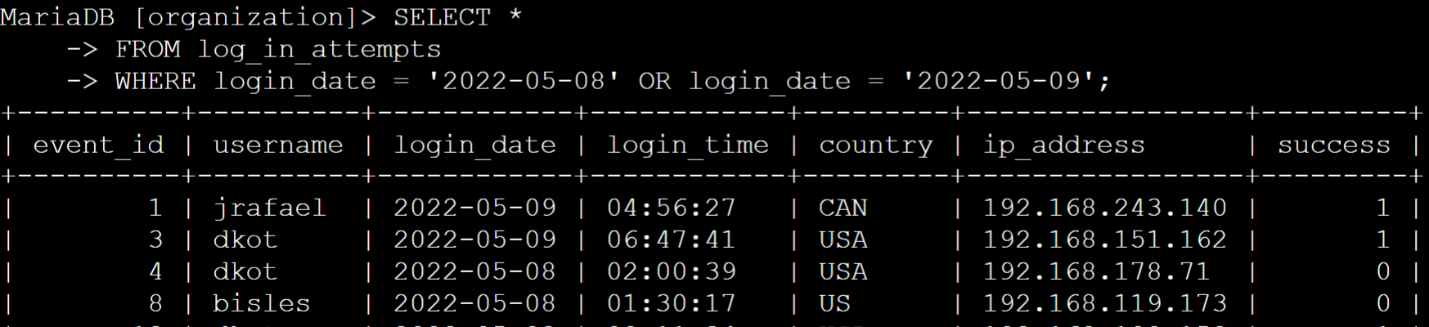
There was a potential after hours security incident and I need to investigate all failed login attempts after 18:00. The code in the following screenshot shows how I made a SQL query to filter for all the failed login attempts that happened after 18:00.



The first part of the screenshot shows the query I used, and the second part shows the results of that query. This specific query filters failed login attempts that occurred after 18:00. I first selected all the data from the log\_in\_attempts table. I them used a WHERE clause with an AND operator to filter the results to only output login attempts that happened after 18:00 and failed. The first condition is login\_time > ’18:00’, which filters all login attempts that happened after 18:00. The second condition is success = FALSE, which filtered for all failed login attempts.

## Retrieve Login Attempts on Specific Dates

We know that a suspicious event happened on 2022-05-09, I need to investigate all login activity that happened on both 2022-05-09 and the day before, 2022-05-08. The screenshot below shows the code used to make a SQL query that filters for login attempts on these specific dates.



The first part of the screenshot is the query I used, and the second part is some of the output of that query. This query returned all login attempts that happened on both 2022-05-08 and 2022-05-09. I first selected all data from the log\_in\_attempts table. I then used a WHERE clause with an OR operator to filter the results to only show login attempts that happened on both 2022-05-08 and 2022-05-09. The first condition set is login\_date = ‘2022-05-08’, and the second condition is login\_date = ‘2022-05-09’. Both conditions filter the logins for each day.

## Retrieve Login Attempts Outside of Mexico

After I investigated the data on login attempts, I suspected that the login attempt issues happened outside of Mexico. All login attempts not in Mexico need to be investigated. The following screenshot shows the SQL query I made to filter all login attempts that happened outside of Mexico.

A screen shot of a computer

Description automatically generated

The first part of that screenshot shows the query I used, with the second part showing just a portion of the output. This query returned all login attempts that happened in all countries other than Mexico. I first selected all data from the log\_in\_attempts table. I then used a WHERE clause with NOT to filter for all other countries besides Mexico. I use LIKE with MEX% as the pattern match since the data displays Mexico as both MEX and MEXICO. The percentage sign (%) represents all unspecified characters when it is used with LIKE.

## Retrieve Employees in Marketing

Our team needs to update the computers of certain employees in the Marketing department, in order to do this I need to retrieve information on which employee computers need updating. The code below shows the SQL query I made to filter for employee computer from employees in the Marketing department, specifically in the East office.

A screenshot of a computer screen

Description automatically generated

The first part of the screenshot shows the query I made, and the second part shows just a portion of the output. This query returns all employees in the Marketing department who work in the East office. I first selected all data from the employees table. I then used a WHERE clause with AND to filter for the employees who work both in the Marketing department and the East office. I used LIKE with East% as the pattern to match since the data in the office column shows the East office with specific office numbers. The first condition I set is the department = ‘Marketing’ part, and the second condition I set is office LIKE ‘East%’. Both conditions filter the data to give us the Marketing employees in the East office.

## Retrieve Employees in Finance or Sales

Our team also needs to update the computers in the Finance and Sales departments. A different security update is needed, so I need to get information on employees only from these two departments. The following code shows the SQL query I made to filter for employee computers from employees in the Finance or Sales departments.

A screen shot of a computer

Description automatically generated

The first part of the screenshot shows the query I made, and the second part is just a portion of the output. This query returns all employees in both the Finance and Sales departments. I first selected all data from the employees table. I then used a WHERE clause with OR to filter for employees that are in the Finance or Sales departments. The OR operator is more useful than AND in the case since I want all employees in either department, not those in both. The first condition I set is department = ‘Finance’ and the second condition I set is department = ‘Sales’. Both conditions filter for employees in the Finance and Sales departments respectively.

## Retrieve All Employees Not in IT

Our team needs to make one more security update on employees who are not in the Information Technology department, to make this update I need to first get information on these employees. The screenshot below shows the SQL query used to filter for employee computers from employees not in the Information Technology department.

A screen shot of a computer

Description automatically generated

The first part of the screenshot shows the query I made, and the second part is just a portion of the output. I first selected all data from the employees table. The condition set is WHERE NOT department = ‘Information Technology’. The clause WHERE NOT allows me to exclude a specific department from the results. This condition filters for all employees who are not in the Information Technology department.

## Summary

This project allowed me to apply filters to SQL queries in order to get specific information regarding login attempts and employee computers. I utilized two different tables, log\_in\_attempts and employees to get the information needed. I then used the operators AND, OR, and NOT to filter for the specific information I needed for each task. I also used LIKE and the percentage sign (%) wildcard to filter for patterns in the data.