SQL Joins

Project description

As a security analyst I had to retrieve data from two different tables so I could join them to examine data on machines, employees, and login attempts.

Objectives

1) Use an inner join to find information on employees and their machines
2) Use a left join and right join to find information on employees and their machines
3) Use an inner join to find information on employees and their login attempts

Use an inner join to find information on employees and their machines

For this task I identified which machines are used by employees.

```
MariaDB [organization]> SELECT *
    -> FROM machines
    -> INNER JOIN employees ON machines.device_id = employees.device_id;
+--------------+-----------------+----------------+----------------+-------------+-------------+--------------+
| device_id    | operating_system | email_client   | OS_patch_date | employee_id | employee_id | device_id    |
| username     | department       | office         |               |             |             |              |
+--------------+-----------------+----------------+----------------+-------------+-------------+--------------+
| a320b137c219 | OS 2            | Email Client 2 | 2021-03-01    |        1000 |        1000 | a320b137c219 |
| elarson      | Marketing        | East-170       |               |             |             |              |
| b239c825d303 | OS 1            | Email Client 1 | 2021-03-01    |        1001 |        1001 | b239c825d303 |
| bmoreno      | Marketing        | Central-276    |               |             |             |              |
| c116d593e558 | OS 3            | Email Client 1 | 2021-09-01    |        1002 |        1002 | c116d593e558 |
| tshah        | Human Resources  | North-434      |               |             |             |              |
| d394e816f943 | OS 3            | Email Client 2 | 2021-03-01    |        1003 |        1003 | d394e816f943 |
| sgilmore     | Finance          | South-153      |               |             |             |              |
| e218f877g788 | OS 2            | Email Client 1 | 2021-09-01    |        1004 |        1004 | e218f877g788 |
| eraab        | Human Resources  | South-127      |               |             |             |              |
| f551g340h864 | OS 3            | Email Client 2 | 2021-12-01    |        1005 |        1005 | f551g340h864 |
| gesparza     | Human Resources  | South-366      |               |             |             |              |
| g329h357i597 | OS 1            | Email Client 2 | 2021-06-01    |        1006 |        1006 | g329h357i597 |
| alevitsk     | Information Technology | East-320 |               |             |             |              |
| h174i497j413 | OS 2            | Email Client 1 | 2021-03-01    |        1007 |        1007 | h174i497j413 |
```

Use a left join and right join to find information on employees and their machines

For this task I returned information on employees who have machines.

```
MariaDB [organization]> SELECT *
    -> FROM machines
    -> LEFT JOIN employees ON machines.device_id = employees.device_id;
+-------------+------------------+-----------------+---------------+--------------+--------------+---------------
+----------+-----------------------+-------------+
| device_id   | operating_system | email_client    | OS_patch_date | employee_id  | employee_id  | device_id
| username | department            | office      |
+-------------+------------------+-----------------+---------------+--------------+--------------+---------------
+----------+-----------------------+-------------+
| a320b137c219 | OS 2            | Email Client 2  | 2021-03-01    |              | 1000 |        1000 | a320b137c219
| elarson  | Marketing             | East-170    |
| b239c825d303 | OS 1            | Email Client 1  | 2021-03-01    |              | 1001 |        1001 | b239c825d303
| bmoreno  | Marketing             | Central-276 |
| c116d593e558 | OS 3            | Email Client 1  | 2021-09-01    |              | 1002 |        1002 | c116d593e558
| tshah    | Human Resources       | North-434   |
| d394e816f943 | OS 3            | Email Client 2  | 2021-03-01    |              | 1003 |        1003 | d394e816f943
| sgilmore | Finance               | South-153   |
| e218f877g788 | OS 2            | Email Client 1  | 2021-09-01    |              | 1004 |        1004 | e218f877g788
| eraab    | Human Resources       | South-127   |
| f551g340h864 | OS 3            | Email Client 2  | 2021-12-01    |              | 1005 |        1005 | f551g340h864
| gesparza | Human Resources       | South-366   |
| g329h357i597 | OS 1            | Email Client 2  | 2021-06-01    |              | 1006 |        1006 | g329h357i597
| alevitsk | Information Technology | East-320   |
```

Use an inner join to find information on employees and their login attempts

For this task I decided to expand on my previous query and find employees who made login attempts by performing `INNER JOIN` on the employees/login attempts table.

```
MariaDB [organization]> SELECT * FROM employees
    -> INNER JOIN log_in_attempts ON employees.username = log_in_attempts.username;
+-------------+-------------+----------+------------------------+-------------+----------+----------+--------
----+-----------+---------+-----------------+---------+
| employee_id | device_id   | username | department             | office      | event_id | username | login_d
ate | login_time | country | ip_address      | success |
+-------------+-------------+----------+------------------------+-------------+----------+----------+--------
----+-----------+---------+-----------------+---------+
|        1032 | g773h303i639 | jrafael  | Information Technology | Central-309 |        1 | jrafael  | 2022-05
-09 | 04:56:27   | CAN     | 192.168.243.140 |       0 |
|        1026 | a998b568c863 | apatel   | Human Resources        | West-320    |        2 | apatel   | 2022-05
-10 | 20:27:27   | CAN     | 192.168.205.12  |       0 |
|        1031 | f419g188h578 | dkot     | Marketing              | West-408    |        3 | dkot     | 2022-05
-09 | 06:47:41   | USA     | 192.168.151.162 |       0 |
|        1031 | f419g188h578 | dkot     | Marketing              | West-408    |        4 | dkot     | 2022-05
```