Activity: Complete a SQL join scenario

Task 1. Match employees to their machines

To identify which employees are using which machines. The data is in the `machines` and `employees` tables.

A SQL inner join to return the records based on a connecting column. In this scenario, both tables include the `device_id` column.

```
MariaDB [organization]> SELECT *
    -> FROM machines
    -> INNER JOIN employees ON machines.device_id = employees.device_id;s
+--------------+------------------+----------------+--------------+-------------+-------------+--------------+----------+--------------
----------+-------------+
| 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 Resourc
es       | 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 Resourc
```

Task 2. Return more data

Return the information on all machines and the employees who have machines with a left join. Next, conduct a right join to retrieve the information of all employees and any machines that are assigned to them.

The results will include all records that are linked from the joins using the common `device_id` column.

```
SELECT *
FROM machines
LEFT JOIN employees ON machines.device_id = employee...' at line 1
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-43
4   |
```

Right Join:

```
MariaDB [organization]> SELECT *
    -> FROM machines
    -> RIGHT 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      |
```

Task 3. Retrieve login attempt data

To continue investigating the security incident, information was retrieved on all employees who have made login attempts. This was achieved by performing an inner join on the `employees` and `log_in_attempts` tables, linking them on the common `username` column.

```
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_date | 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     | 2022-05-08 | 02:00:39   | USA     | 192.168.178.71  |         |
```