Activity: Perform a SQL query

Activity overview

Previously, you learned how to use basic SQL queries to retrieve information from a database. You have also learned about using the ORDER BY keyword to sort data returned in an ascending or a descending order.

In this lab activity, you'll use SELECT and FROM in SQL to return the information you need from a database. You'll also use the ORDER BY keyword to sequence the information returned by a query based on a specified column.

It's important to know how to query information from a database because this is a common task you might encounter as a security analyst. You should know how to get the information you need to improve security and keep data safe.

With that in mind, it's time to explore the scenario.

Note: *The terms* ***row*** *and* ***record*** *are used interchangeably in this lab activity.*

Scenario

In this scenario, you have to determine which employee devices must be updated. You also need to investigate user login activity to explore if any unusual activity has occurred.

The information you need is located in the machines and login_attempts tables in the organization database.

Here's how you'll do this task: **First**, you'll obtain information on the employee devices that must be updated. **Next**, you'll examine the login attempts for unusual activity. **Finally**, you'll use the ORDER BY keyword to sort the data returned by your SQL queries.

Task 1. Retrieve employee device data

In this task, you need to obtain information on employee devices because your team needs to update them. The information you need is in the machines table in the organization database.

First, you need to retrieve all the information about the employee devices.

1. Run the following query to select all device information from the machines table:

```
Clear
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 35
Server version: 10.5.29-MariaDB-0+deb11u1 Debian 11

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [organization]> clear
MariaDB [organization]> SELECT *
    ->
    -> FROM machines;
+-------------+------------------+----------------+---------------+-------------+
| device_id   | operating_system | email_client   | OS_patch_date | employee_id |
+-------------+------------------+----------------+---------------+-------------+
| a184b775c707 | OS 1            | Email Client 1 | 2021-09-01    |        1156 |
| a192b174c940 | OS 2            | Email Client 1 | 2021-06-01    |        1052 |
| a305b818c708 | OS 3            | Email Client 2 | 2021-06-01    |        1182 |
| a317b635c465 | OS 1            | Email Client 2 | 2021-03-01    |        1130 |
| a320b137c219 | OS 2            | Email Client 2 | 2021-03-01    |        1000 |
| a398b471c573 | OS 3            | Email Client 2 | 2021-12-01    |           0 |
| a667b270c984 | OS 1            | Email Client 1 | 2021-03-01    |        1078 |
| a821b452c176 | OS 2            | Email Client 2 | 2021-12-01    |        1104 |
| a998b568c863 | OS 3            | Email Client 1 | 2021-12-01    |        1026 |
| b157c491d493 | OS 2            | Email Client 1 | 2021-03-01    |           0 |
| b239c825d303 | OS 1            | Email Client 1 | 2021-03-01    |        1001 |
| b264c773d977 | OS 2            | Email Client 2 | 2021-03-01    |        1157 |
| b265c937d713 | OS 2            | Email Client 1 | 2021-09-01    |        1131 |
| b433c245d868 | OS 1            | Email Client 1 | 2021-06-01    |        1079 |
| b551c837d758 | OS 3            | Email Client 1 | 2021-03-01    |        1105 |
| b566c710d544 | OS 1            | Email Client 1 | 2021-06-01    |        1183 |
| b806c503d354 | OS 2            | Email Client 1 | 2021-12-01    |        1027 |
| b979c871d361 | OS 2            | Email Client 1 | 2021-03-01    |        1053 |
| c116d593e558 | OS 3            | Email Client 1 | 2021-09-01    |        1002 |
```

Next, you want to focus on the email client running on various devices.

2. Run the following query to select only the device_id and email_client columns from the machines table. Replace X with device_id and Y with email_client:

```
200 rows in set (0.029 sec)

MariaDB [organization]> SELECT X, Y FROM machines;
ERROR 1054 (42S22): Unknown column 'X' in 'field list'
MariaDB [organization]> SELECT X, Y FROM machines;
ERROR 1054 (42S22): Unknown column 'X' in 'field list'
MariaDB [organization]> SELECT device_id, email_client FROM machines;
+--------------+----------------+
| device_id    | email_client   |
+--------------+----------------+
| a184b775c707 | Email Client 1 |
| a192b174c940 | Email Client 1 |
| a305b818c708 | Email Client 2 |
| a317b635c465 | Email Client 2 |
| a320b137c219 | Email Client 2 |
| a398b471c573 | Email Client 2 |
| a667b270c984 | Email Client 1 |
| a821b452c176 | Email Client 2 |
| a998b568c863 | Email Client 1 |
| b157c491d493 | Email Client 1 |
| b239c825d303 | Email Client 1 |
| b264c773d977 | Email Client 2 |
| b265c937d713 | Email Client 1 |
| b433c245d868 | Email Client 1 |
| b551c837d758 | Email Client 1 |
| b566c710d544 | Email Client 1 |
| b806c503d354 | Email Client 1 |
| b979c871d361 | Email Client 1 |
| c116d593e558 | Email Client 1 |
| c150d982e144 | Email Client 2 |
| c185d679e493 | Email Client 2 |
| c406d877e950 | Email Client 1 |
| c547d140e477 | Email Client 1 |
| c568d742e974 | Email Client 2 |
| c597d792e215 | Email Client 1 |
| c603d749e374 | Email Client 1 |
| c986d200e170 | Email Client 2 |
| d168e758f876 | Email Client 1 |
| d280e557f635 | Email Client 1 |
| d336e475f676 | Email Client 2 |
| d394e816f943 | Email Client 2 |
| d647e310f618 | Email Client 2 |
| d693e351f221 | Email Client 2 |
```

Now, you need information on the operating systems used on various devices and their last patch date.

3. Complete the query to return only the device_id, operating_system, and OS_patch_date columns from the machines table. Replace X, Y, and Z with the columns that you need to return:

```
MariaDB [organization]> SELECT device_id, operating_system, OS_patch_date FROM machines;
+--------------+------------------+---------------+
| device_id    | operating_system | OS_patch_date |
+--------------+------------------+---------------+
| a184b775c707 | OS 1             | 2021-09-01    |
| a192b174c940 | OS 2             | 2021-06-01    |
| a305b818c708 | OS 3             | 2021-06-01    |
| a317b635c465 | OS 1             | 2021-03-01    |
| a320b137c219 | OS 2             | 2021-03-01    |
| a398b471c573 | OS 3             | 2021-12-01    |
| a667b270c984 | OS 1             | 2021-03-01    |
| a821b452c176 | OS 2             | 2021-12-01    |
| a998b568c863 | OS 3             | 2021-12-01    |
| b157c491d493 | OS 2             | 2021-03-01    |
| b239c825d303 | OS 1             | 2021-03-01    |
| b264c773d977 | OS 2             | 2021-03-01    |
| b265c937d713 | OS 2             | 2021-09-01    |
| b433c245d868 | OS 1             | 2021-06-01    |
| b551c837d758 | OS 3             | 2021-03-01    |
| b566c710d544 | OS 1             | 2021-06-01    |
| b806c503d354 | OS 2             | 2021-12-01    |
| b979c871d361 | OS 2             | 2021-03-01    |
| c116d593e558 | OS 3             | 2021-09-01    |
| c150d982e144 | OS 2             | 2021-06-01    |
| c185d679e493 | OS 1             | 2021-09-01    |
| c406d877e950 | OS 2             | 2021-06-01    |
| c547d140e477 | OS 2             | 2021-03-01    |
| c568d742e974 | OS 2             | 2021-09-01    |
| c597d792e215 | OS 2             | 2021-09-01    |
| c603d749e374 | OS 1             | 2021-12-01    |
| c986d200e170 | OS 2             | 2021-09-01    |
| d168e758f876 | OS 2             | 2021-09-01    |
| d280e557f635 | OS 3             | 2021-03-01    |
| d336e475f676 | OS 2             | 2021-06-01    |
| d394e816f943 | OS 3             | 2021-03-01    |
| d647e310f618 | OS 2             | 2021-06-01    |
| d693e351f221 | OS 2             | 2021-09-01    |
| d790e839f461 | OS 1             | 2021-06-01    |
| d831e972f553 | OS 1             | 2021-09-01    |
| d881e710f732 | OS 3             | 2021-03-01    |
| e113f288g203 | OS 2             | 2021-03-01    |
| e121f951g937 | OS 3             | 2021-06-01    |
| e127f591g924 | OS 3             | 2021-12-01    |
| e218f877g788 | OS 2             | 2021-09-01    |
| e281f433g404 | OS 1             | 2021-12-01    |
| e301f659g551 | OS 3             | 2021-12-01    |
| e391f189g913 | OS 3             | 2021-12-01    |
| e395f616g566 | OS 2             | 2021-03-01    |
| e782f537g683 | OS 1             | 2021-03-01    |
```

Task 2. Investigate login activity

In this task, you need to analyze the information from the log_in_attempts table to determine if any unusual activity has occurred.

First, you need to investigate the locations where login attempts were made to ensure that they're in expected areas (the United States, Canada, or Mexico).

1. Write a SQL query to select the event_id and country columns from the log_in_attempts table.

```
MariaDB [organization]> SELECT event_id, country FROMlog_in_attempts;
ERROR 1054 (42S22): Unknown column 'event_id' in 'field list'
MariaDB [organization]> SELECT event_id, country FROM log_in_attempts;
+----------+---------+
| event_id | country |
+----------+---------+
|        1 | CAN     |
|        2 | CAN     |
|        3 | USA     |
|        4 | USA     |
|        5 | CANADA  |
|        6 | MEXICO  |
|        7 | CAN     |
|        8 | US      |
|        9 | MEX     |
|       10 | CANADA  |
|       11 | CANADA  |
|       12 | USA     |
|       13 | USA     |
|       14 | US      |
|       15 | USA     |
|       16 | CAN     |
|       17 | USA     |
|       18 | US      |
|       19 | US      |
|       20 | MEXICO  |
|       21 | US      |
|       22 | MEX     |
|       23 | MEXICO  |
|       24 | MEXICO  |
|       25 | US      |
|       26 | CANADA  |
|       27 | MEX     |
|       28 | MEXICO  |
|       29 | US      |
|       30 | MEX     |
|       31 | CANADA  |
|       32 | CANADA  |
|       33 | US      |
|       34 | US      |
|       35 | MEX     |
|       36 | US      |
|       37 | CANADA  |
|       38 | USA     |
|       39 | MEXICO  |
|       40 | MEX     |
|       41 | CANADA  |
|       42 | US      |
```

Next, you need to check if login attempts were made outside of the organization's working hours.

2. Write a SQL query that selects the username, login_date, and login_time columns from the log_in_attempts table.

```
MariaDB [organization]> SELECT username, login_date, login_time FROM log_in_attempts;
+----------+------------+------------+
| username | login_date | login_time |
+----------+------------+------------+
| jrafael  | 2022-05-09 | 04:56:27   |
| apatel   | 2022-05-10 | 20:27:27   |
| dkot     | 2022-05-09 | 06:47:41   |
| dkot     | 2022-05-08 | 02:00:39   |
| jrafael  | 2022-05-11 | 03:05:59   |
| arutley  | 2022-05-12 | 17:00:59   |
| eraab    | 2022-05-11 | 01:45:14   |
| bisles   | 2022-05-08 | 01:30:17   |
| yappiah  | 2022-05-11 | 13:47:29   |
| jrafael  | 2022-05-12 | 09:33:19   |
| sgilmore | 2022-05-11 | 10:16:29   |
| dkot     | 2022-05-08 | 09:11:34   |
| mrah     | 2022-05-11 | 09:29:34   |
| sbaelish | 2022-05-10 | 10:20:18   |
| lyamamot | 2022-05-09 | 17:17:26   |
| mcouliba | 2022-05-11 | 06:44:22   |
| pwashing | 2022-05-11 | 02:33:02   |
| pwashing | 2022-05-11 | 19:28:50   |
| jhill    | 2022-05-12 | 13:09:04   |
| tshah    | 2022-05-12 | 18:56:36   |
| iuduike  | 2022-05-11 | 17:50:00   |
| rjensen  | 2022-05-11 | 00:59:26   |
| yappiah  | 2022-05-10 | 18:11:53   |
| arusso   | 2022-05-09 | 06:49:39   |
| sbaelish | 2022-05-09 | 07:04:02   |
| apatel   | 2022-05-08 | 17:27:00   |
| aalonso  | 2022-05-10 | 01:55:35   |
| aestrada | 2022-05-09 | 19:28:12   |
| bisles   | 2022-05-11 | 01:21:22   |
| yappiah  | 2022-05-09 | 03:22:22   |
| acook    | 2022-05-12 | 17:36:45   |
| acook    | 2022-05-09 | 02:52:02   |
| zbernal  | 2022-05-11 | 02:52:10   |
| drosas   | 2022-05-11 | 21:02:04   |
| tshah    | 2022-05-10 | 15:26:08   |
| asundara | 2022-05-08 | 09:00:42   |
| eraab    | 2022-05-10 | 06:03:41   |
| sbaelish | 2022-05-09 | 14:40:01   |
| yappiah  | 2022-05-09 | 07:56:40   |
| aalonso  | 2022-05-12 | 15:15:46   |
| apatel   | 2022-05-10 | 17:39:42   |
| cgriffin | 2022-05-09 | 23:04:05   |
| mcouliba | 2022-05-08 | 02:35:34   |
| daquino  | 2022-05-08 | 07:02:35   |
| dtanaka  | 2022-05-11 | 10:28:54   |
```

Now, you need to get a complete picture of all login attempts.

3. Write a SQL query that selects all columns from the log_in_attempts table, using a single symbol after the SELECT keyword.

```
MariaDB [organization]> SELECT * FROM log_in_attempts;
+----------+----------+------------+------------+---------+-----------------+---------+
| event_id | username | login_date | login_time | country | ip_address      | success |
+----------+----------+------------+------------+---------+-----------------+---------+
|        1 | jrafael  | 2022-05-09 | 04:56:27   | CAN     | 192.168.243.140 |       1 |
|        2 | apatel   | 2022-05-10 | 20:27:27   | CAN     | 192.168.205.12  |       0 |
|        3 | dkot     | 2022-05-09 | 06:47:41   | USA     | 192.168.151.162 |       1 |
|        4 | dkot     | 2022-05-08 | 02:00:39   | USA     | 192.168.178.71  |       0 |
|        5 | jrafael  | 2022-05-11 | 03:05:59   | CANADA  | 192.168.86.232  |       0 |
|        6 | arutley  | 2022-05-12 | 17:00:59   | MEXICO  | 192.168.3.24    |       0 |
|        7 | eraab    | 2022-05-11 | 01:45:14   | CAN     | 192.168.170.243 |       1 |
|        8 | bisles   | 2022-05-08 | 01:30:17   | US      | 192.168.119.173 |       0 |
|        9 | yappiah  | 2022-05-11 | 13:47:29   | MEX     | 192.168.59.136  |       1 |
|       10 | jrafael  | 2022-05-12 | 09:33:19   | CANADA  | 192.168.228.221 |       0 |
|       11 | sgilmore | 2022-05-11 | 10:16:29   | CANADA  | 192.168.140.81  |       0 |
|       12 | dkot     | 2022-05-08 | 09:11:34   | USA     | 192.168.100.158 |       1 |
|       13 | mrah     | 2022-05-11 | 09:29:34   | USA     | 192.168.246.135 |       1 |
|       14 | sbaelish | 2022-05-10 | 10:20:18   | US      | 192.168.16.99   |       1 |
|       15 | lyamamot | 2022-05-09 | 17:17:26   | USA     | 192.168.183.51  |       0 |
|       16 | mcouliba | 2022-05-11 | 06:44:22   | CAN     | 192.168.172.189 |       1 |
|       17 | pwashing | 2022-05-11 | 02:33:02   | USA     | 192.168.81.89   |       1 |
|       18 | pwashing | 2022-05-11 | 19:28:50   | US      | 192.168.66.142  |       0 |
|       19 | jhill    | 2022-05-12 | 13:09:04   | US      | 192.168.142.245 |       1 |
|       20 | tshah    | 2022-05-12 | 18:56:36   | MEXICO  | 192.168.109.50  |       0 |
|       21 | iuduike  | 2022-05-11 | 17:50:00   | US      | 192.168.131.147 |       1 |
|       22 | rjensen  | 2022-05-11 | 00:59:26   | MEX     | 192.168.213.128 |       0 |
|       23 | yappiah  | 2022-05-10 | 18:11:53   | MEXICO  | 192.168.200.48  |       1 |
|       24 | arusso   | 2022-05-09 | 06:49:39   | MEXICO  | 192.168.171.192 |       1 |
|       25 | sbaelish | 2022-05-09 | 07:04:02   | US      | 192.168.33.137  |       1 |
|       26 | apatel   | 2022-05-08 | 17:27:00   | CANADA  | 192.168.123.105 |       1 |
|       27 | aalonso  | 2022-05-10 | 01:55:35   | MEX     | 192.168.103.210 |       0 |
|       28 | aestrada | 2022-05-09 | 19:28:12   | MEXICO  | 192.168.27.57   |       0 |
|       29 | bisles   | 2022-05-11 | 01:21:22   | US      | 192.168.85.186  |       0 |
|       30 | yappiah  | 2022-05-09 | 03:22:22   | MEX     | 192.168.124.48  |       1 |
|       31 | acook    | 2022-05-12 | 17:36:45   | CANADA  | 192.168.58.232  |       0 |
|       32 | acook    | 2022-05-09 | 02:52:02   | CANADA  | 192.168.142.239 |       0 |
|       33 | zbernal  | 2022-05-11 | 02:52:10   | US      | 192.168.72.59   |       1 |
|       34 | drosas   | 2022-05-11 | 21:02:04   | US      | 192.168.45.93   |       0 |
|       35 | tshah    | 2022-05-10 | 15:26:08   | MEX     | 192.168.92.147  |       0 |
|       36 | asundara | 2022-05-08 | 09:00:42   | US      | 192.168.78.151  |       1 |
|       37 | eraab    | 2022-05-10 | 06:03:41   | CANADA  | 192.168.152.148 |       0 |
|       38 | sbaelish | 2022-05-09 | 14:40:01   | USA     | 192.168.60.42   |       1 |
|       39 | yappiah  | 2022-05-09 | 07:56:40   | MEXICO  | 192.168.57.115  |       1 |
|       40 | aalonso  | 2022-05-12 | 15:15:46   | MEX     | 192.168.174.186 |       0 |
|       41 | apatel   | 2022-05-10 | 17:39:42   | CANADA  | 192.168.46.207  |       0 |
|       42 | cgriffin | 2022-05-09 | 23:04:05   | US      | 192.168.4.157   |       0 |
|       43 | mcouliba | 2022-05-08 | 02:35:34   | CANADA  | 192.168.16.208  |       0 |
|       44 | daquino  | 2022-05-08 | 07:02:35   | CANADA  | 192.168.168.144 |       0 |
|       45 | dtanaka  | 2022-05-11 | 10:28:54   | US      | 192.168.223.157 |       1 |
```

Task 3. Order login attempts data

In this task, you need to use the ORDER BY keyword. You'll sequence the data that your query returns according to the login date and time.

First, you need to sort the information by date.

1. Run the following query, which orders log_in_attempts data by login_date:

```
200 rows in set (0.001 sec)

MariaDB [organization]> SELECT *
    ->
    -> FROM log_in_attempts
    ->
    -> ORDER BY login_date;
+----------+----------+------------+------------+---------+-----------------+---------+
| event_id | username | login_date | login_time | country | ip_address      | success |
+----------+----------+------------+------------+---------+-----------------+---------+
|      145 | ivelasco | 2022-05-08 | 09:06:02   | CANADA  | 192.168.39.196  |       1 |
|      163 | tmitchel | 2022-05-08 | 09:21:16   | MEX     | 192.168.119.29  |       0 |
|       36 | asundara | 2022-05-08 | 09:00:42   | US      | 192.168.78.151  |       1 |
|      165 | jreckley | 2022-05-08 | 15:28:43   | MEXICO  | 192.168.34.193  |       0 |
|      168 | jlansky  | 2022-05-08 | 13:25:42   | USA     | 192.168.210.94  |       1 |
|      169 | alevitsk | 2022-05-08 | 08:10:43   | CANADA  | 192.168.210.228 |       0 |
|       72 | alevitsk | 2022-05-08 | 12:09:10   | CANADA  | 192.168.139.176 |       1 |
|      101 | sbaelish | 2022-05-08 | 12:01:22   | US      | 192.168.145.158 |       0 |
|      172 | mabadi   | 2022-05-08 | 08:06:50   | US      | 192.168.180.41  |       1 |
|      150 | nmason   | 2022-05-08 | 14:40:02   | CAN     | 192.168.204.124 |       0 |
|       68 | mrah     | 2022-05-08 | 17:16:13   | US      | 192.168.42.248  |       1 |
|       66 | aestrada | 2022-05-08 | 21:58:32   | MEX     | 192.168.67.223  |       1 |
|       53 | nmason   | 2022-05-08 | 11:51:38   | CAN     | 192.168.133.188 |       1 |
|      147 | yappiah  | 2022-05-08 | 06:04:34   | MEX     | 192.168.65.245  |       0 |
|      148 | daquino  | 2022-05-08 | 06:15:55   | CANADA  | 192.168.135.6   |       1 |
|       49 | asundara | 2022-05-08 | 14:00:01   | US      | 192.168.173.213 |       0 |
|       47 | dkot     | 2022-05-08 | 05:06:45   | US      | 192.168.233.24  |       1 |
|       44 | daquino  | 2022-05-08 | 07:02:35   | CANADA  | 192.168.168.144 |       0 |
|       43 | mcouliba | 2022-05-08 | 02:35:34   | CANADA  | 192.168.16.208  |       0 |
|       56 | acook    | 2022-05-08 | 04:56:30   | CAN     | 192.168.209.130 |       1 |
|       80 | cjackson | 2022-05-08 | 02:18:10   | CANADA  | 192.168.33.140  |       1 |
|      117 | bsand    | 2022-05-08 | 00:19:11   | USA     | 192.168.197.187 |       0 |
|       12 | dkot     | 2022-05-08 | 09:11:34   | USA     | 192.168.100.158 |       1 |
|      189 | nmason   | 2022-05-08 | 05:37:24   | CANADA  | 192.168.168.117 |       1 |
|      191 | cjackson | 2022-05-08 | 06:46:07   | CANADA  | 192.168.7.187   |       0 |
|        8 | bisles   | 2022-05-08 | 01:30:17   | US      | 192.168.119.173 |       0 |
|      193 | lrodriqu | 2022-05-08 | 07:11:29   | US      | 192.168.125.240 |       0 |
|        4 | dkot     | 2022-05-08 | 02:00:39   | USA     | 192.168.178.71  |       0 |
|      197 | jsoto    | 2022-05-08 | 09:05:09   | US      | 192.168.36.21   |       0 |
|       26 | apatel   | 2022-05-08 | 17:27:00   | CANADA  | 192.168.123.105 |       1 |
|       92 | pwashing | 2022-05-08 | 00:36:12   | US      | 192.168.247.219 |       0 |
|      178 | sgilmore | 2022-05-08 | 12:27:22   | CAN     | 192.168.52.216  |       0 |
|       83 | lrodriqu | 2022-05-08 | 08:10:23   | USA     | 192.168.67.69   |       1 |
|      184 | alevitsk | 2022-05-08 | 03:09:48   | CAN     | 192.168.33.70   |       0 |
|       87 | apatel   | 2022-05-08 | 22:38:31   | CANADA  | 192.168.132.153 |       0 |
|       70 | tmitchel | 2022-05-09 | 10:55:17   | MEXICO  | 192.168.87.199  |       1 |
|       61 | dtanaka  | 2022-05-09 | 09:45:18   | USA     | 192.168.98.221  |       1 |
|       96 | ivelasco | 2022-05-09 | 22:36:36   | CAN     | 192.168.84.194  |       0 |
|       58 | ivelasco | 2022-05-09 | 17:20:54   | CAN     | 192.168.57.162  |       0 |
```

Now, you need to further organize the previous results by ordering them by login_time.

2. Modify the query from the previous step by adding the login time to the ORDER BY clause. You must replace X with the appropriate column name:

```
MariaDB [organization]> SELECT *
    ->
    -> FROM log_in_attempts
    ->
    -> ORDER BY login_date, X;
ERROR 1054 (42S22): Unknown column 'X' in 'order clause'
MariaDB [organization]> SELECT *
    ->
    -> FROM log_in_attempts
    ->
    -> ORDER BY login_date, login_time
    -> SELECT *
    ->
    -> FROM log_in_attempts
    ->
    -> ORDER BY login_date, login_time;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your Maria
DB server version for the right syntax to use near 'SELECT *

FROM log_in_attempts

ORDER BY login_date, login_time' at line 6
MariaDB [organization]> SELECT *
    ->
    -> FROM log_in_attempts
    ->
    -> ORDER BY login_date, login_time;
+----------+----------+------------+------------+---------+-----------------+---------+
| event_id | username | login_date | login_time | country | ip_address      | success |
+----------+----------+------------+------------+---------+-----------------+---------+
|      117 | bsand    | 2022-05-08 | 00:19:11   | USA     | 192.168.197.187 |       0 |
|       92 | pwashing | 2022-05-08 | 00:36:12   | US      | 192.168.247.219 |       0 |
|        8 | bisles   | 2022-05-08 | 01:30:17   | US      | 192.168.119.173 |       0 |
|        4 | dkot     | 2022-05-08 | 02:00:39   | USA     | 192.168.178.71  |       0 |
|       80 | cjackson | 2022-05-08 | 02:18:10   | CANADA  | 192.168.33.140  |       1 |
|       43 | mcouliba | 2022-05-08 | 02:35:34   | CANADA  | 192.168.16.208  |       0 |
|      184 | alevitsk | 2022-05-08 | 03:09:48   | CAN     | 192.168.33.70   |       0 |
|       56 | acook    | 2022-05-08 | 04:56:30   | CAN     | 192.168.209.130 |       1 |
|       47 | dkot     | 2022-05-08 | 05:06:45   | US      | 192.168.233.24  |       1 |
|      189 | nmason   | 2022-05-08 | 05:37:24   | CANADA  | 192.168.168.117 |       1 |
|      147 | yappiah  | 2022-05-08 | 06:04:34   | MEX     | 192.168.65.245  |       0 |
|      148 | daquino  | 2022-05-08 | 06:15:55   | CANADA  | 192.168.135.6   |       1 |
|      191 | cjackson | 2022-05-08 | 06:46:07   | CANADA  | 192.168.7.187   |       0 |
|       44 | daquino  | 2022-05-08 | 07:02:35   | CANADA  | 192.168.168.144 |       0 |
|      193 | lrodriqu | 2022-05-08 | 07:11:29   | US      | 192.168.125.240 |       0 |
|      172 | mabadi   | 2022-05-08 | 08:06:50   | US      | 192.168.180.41  |       1 |
```

Lab Summary: Perform a SQL Query
Course: Tools of the Trade: Linux and SQL

In this lab I practiced retrieving and organizing data from the machines and log_in_attempts tables in the organization database. I used SELECT * to return all device information from the machines table and then focused on specific columns like device_id, email_client, operating_system, and OS_patch_date.

For login activity, I queried the log_in_attempts table to review event IDs and countries, checked usernames with login dates and times, and displayed the full table with SELECT *. Finally, I used the ORDER BY keyword to sort login activity first by login_date and then refined it by adding login_time to order results chronologically.

This lab reinforced how to pull targeted information with SELECT and how to sequence results with ORDER BY, which are essential skills for analyzing security-related data.