Apply filters to SQL queries

Project description

In this scenario, you need to obtain specific information about employees, their machines, and the departments they belong to from the database.

Your team needs data to investigate potential security issues and to update computers.

You are responsible for filtering the required information from the database.

Here's how you'll do this task: **First**, you'll retrieve all failed login attempts after business hours. **Second**, you'll retrieve all login attempts that occurred on specific dates. **Third**, you'll retrieve logins that didn't originate in Mexico. **Fourth**, you'll retrieve information about certain employees in the Marketing department. **Fifth**, you'll retrieve information about employees in the Finance or the Sales department. **Finally**, you'll obtain information about employees who are not in the Information Technology department.

Retrieve after hours failed login attempts

```
MariaDB [organization]> SELECT * FROM log_in_attempts WHERE login_time > '18:00' AND success = FALSE;
+----------+----------+------------+------------+---------+-----------------+---------+
| event_id | username | login_date | login_time | country | ip_address      | success |
+----------+----------+------------+------------+---------+-----------------+---------+
|        2 | apatel   | 2022-05-10 | 20:27:27   | CAN     | 192.168.205.12  |       0 |
|       18 | pwashing | 2022-05-11 | 19:28:50   | US      | 192.168.66.142  |       0 |
|       20 | tshah    | 2022-05-12 | 18:56:36   | MEXICO  | 192.168.109.50  |       0 |
|       28 | aestrada | 2022-05-09 | 19:28:12   | MEXICO  | 192.168.27.57   |       0 |
|       34 | drosas   | 2022-05-11 | 21:02:04   | US      | 192.168.45.93   |       0 |
|       42 | cgriffin | 2022-05-09 | 23:04:05   | US      | 192.168.4.157   |       0 |
|       52 | cjackson | 2022-05-10 | 22:07:07   | CAN     | 192.168.58.57   |       0 |
|       69 | wjaffrey | 2022-05-11 | 19:55:15   | USA     | 192.168.100.17  |       0 |
|       82 | abernard | 2022-05-12 | 23:38:46   | MEX     | 192.168.234.49  |       0 |
|       87 | apatel   | 2022-05-08 | 22:38:31   | CANADA  | 192.168.132.153 |       0 |
|       96 | ivelasco | 2022-05-09 | 22:36:36   | CAN     | 192.168.84.194  |       0 |
|      104 | asundara | 2022-05-11 | 18:38:07   | US      | 192.168.96.200  |       0 |
|      107 | bisles   | 2022-05-12 | 20:25:57   | USA     | 192.168.116.187 |       0 |
|      111 | aestrada | 2022-05-10 | 22:00:26   | MEXICO  | 192.168.76.27   |       0 |
|      127 | abellmas | 2022-05-09 | 21:20:51   | CANADA  | 192.168.70.122  |       0 |
|      131 | bisles   | 2022-05-09 | 20:03:55   | US      | 192.168.113.171 |       0 |
|      155 | cgriffin | 2022-05-12 | 22:18:42   | USA     | 192.168.236.176 |       0 |
|      160 | jclark   | 2022-05-10 | 20:49:00   | CANADA  | 192.168.214.49  |       0 |
|      199 | yappiah  | 2022-05-11 | 19:34:48   | MEXICO  | 192.168.44.232  |       0 |
+----------+----------+------------+------------+---------+-----------------+---------+
19 rows in set (0.009 sec)
```

The above query retrieves all the columns from a table called log_in_attempts where a filter was applied for a log-in time greater than 6pm and each time an employee failed to login.

Retrieve login attempts on specific dates

```
MariaDB [organization]> SELECT * FROM log_in_attempts WHERE login_date = '2022-05-08' OR login_date = '
2022-05-09';
+----------+----------+------------+------------+---------+-----------------+---------+
| 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 |
|        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 |
|        8 | bisles   | 2022-05-08 | 01:30:17   | US      | 192.168.119.173 |       0 |
|       12 | dkot     | 2022-05-08 | 09:11:34   | USA     | 192.168.100.158 |       1 |
|       15 | lyamamot | 2022-05-09 | 17:17:26   | USA     | 192.168.183.51  |       0 |
|       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 |
|       28 | aestrada | 2022-05-09 | 19:28:12   | MEXICO  | 192.168.27.57   |       0 |
|       30 | yappiah  | 2022-05-09 | 03:22:22   | MEX     | 192.168.124.48  |       1 |
|       32 | acook    | 2022-05-09 | 02:52:02   | CANADA  | 192.168.142.239 |       0 |
|       36 | asundara | 2022-05-08 | 09:00:42   | US      | 192.168.78.151  |       1 |
|       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 |
|       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 |
|       47 | dkot     | 2022-05-08 | 05:06:45   | US      | 192.168.233.24  |       1 |
|       49 | asundara | 2022-05-08 | 14:00:01   | US      | 192.168.173.213 |       0 |
|       53 | nmason   | 2022-05-08 | 11:51:38   | CAN     | 192.168.133.188 |       1 |
|       56 | acook    | 2022-05-08 | 04:56:30   | CAN     | 192.168.209.130 |       1 |
|       58 | ivelasco | 2022-05-09 | 17:20:54   | CAN     | 192.168.57.162  |       0 |
|       61 | dtanaka  | 2022-05-09 | 09:45:18   | USA     | 192.168.98.221  |       1 |
|       65 | aalonso  | 2022-05-09 | 23:42:12   | MEX     | 192.168.52.37   |       1 |
|       66 | aestrada | 2022-05-09 | 21:58:32   | MEX     | 192.168.67.223  |       1 |
|       67 | abernard | 2022-05-09 | 11:53:41   | MEX     | 192.168.118.29  |       1 |
|       68 | mrah     | 2022-05-08 | 17:16:13   | US      | 192.168.42.248  |       1 |
|       70 | tmitchel | 2022-05-09 | 10:55:17   | MEXICO  | 192.168.87.199  |       1 |
|       71 | mcouliba | 2022-05-08 | 06:57:42   | CAN     | 192.168.55.169  |       0 |
|       72 | alevitsk | 2022-05-09 | 12:09:10   | CANADA  | 192.168.139.176 |       1 |
|       79 | abernard | 2022-05-09 | 11:41:15   | MEX     | 192.168.158.170 |       0 |
|       80 | cjackson | 2022-05-08 | 02:18:10   | CANADA  | 192.168.33.140  |       1 |
|       83 | lrodriqu | 2022-05-08 | 08:10:23   | USA     | 192.168.67.69   |       1 |
|       87 | apatel   | 2022-05-08 | 22:38:31   | CANADA  | 192.168.132.153 |       0 |
|       90 | gesparza | 2022-05-09 | 00:49:05   | CANADA  | 192.168.87.201  |       0 |
|       92 | pwashing | 2022-05-08 | 00:36:12   | US      | 192.168.247.219 |       0 |
|       96 | ivelasco | 2022-05-09 | 22:36:36   | CAN     | 192.168.84.194  |       0 |
|       97 | jreckley | 2022-05-09 | 02:49:23   | MEXICO  | 192.168.32.231  |       1 |
|      101 | sbaelish | 2022-05-08 | 12:01:22   | US      | 192.168.145.158 |       0 |
|      102 | jreckley | 2022-05-09 | 16:51:44   | MEX     | 192.168.108.13  |       1 |
|      108 | daquino  | 2022-05-09 | 21:30:48   | CANADA  | 192.168.15.110  |       1 |
|      110 | mabadi   | 2022-05-09 | 00:01:54   | USA     | 192.168.90.124  |       1 |
|      112 | rjensen  | 2022-05-09 | 09:22:05   | MEX     | 192.168.69.116  |       1 |
```

The above query retrieves all the columns from a table called log_in_attempts where a filter was applied for log-in dates between '2022-05-08' and '2022-05-09' to see all who logged in that time frame.

Retrieve login attempts outside of Mexico

```
MariaDB [organization]> SELECT * FROM log_in_attempts WHERE NOT country LIKE 'MEX%';
+----------+----------+------------+------------+---------+-----------------+---------+
| 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 |
|        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 |
|       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 | 2022-05-11 | 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 |
|       21 | iuduike  | 2022-05-11 | 17:50:00   | US      | 192.168.131.147 |       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 |
|       29 | bisles   | 2022-05-11 | 01:21:22   | US      | 192.168.85.186  |       0 |
|       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 |
|       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 |
|       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 |
|       46 | eraab    | 2022-05-11 | 11:29:27   | CAN     | 192.168.24.12   |       0 |
|       47 | dkot     | 2022-05-08 | 05:06:45   | US      | 192.168.233.24  |       1 |
|       48 | asundara | 2022-05-11 | 03:18:45   | USA     | 192.168.72.10   |       1 |
|       49 | asundara | 2022-05-08 | 14:00:01   | US      | 192.168.173.213 |       0 |
|       50 | jclark   | 2022-05-10 | 10:48:02   | CANADA  | 192.168.174.117 |       0 |
|       51 | jrafael  | 2022-05-10 | 22:40:01   | CANADA  | 192.168.148.115 |       1 |
```

The above query retrieves all the columns from a table called log_in_attempts where a filter was applied to find all log-in attempts outside of Mexico.

Retrieve employees in Marketing

```
MariaDB [organization]> SELECT * FROM employees WHERE department = 'Marketing' AND office LIKE 'East%';

+-------------+-------------+----------+------------+----------+
| employee_id | device_id   | username | department | office   |
+-------------+-------------+----------+------------+----------+
|        1000 | a320b137c219 | elarson | Marketing  | East-170 |
|        1052 | a192b174c940 | jdarosa | Marketing  | East-195 |
|        1075 | x573y883z772 | fbautist| Marketing  | East-267 |
|        1088 | k865l965m233 | rgosh   | Marketing  | East-157 |
|        1103 | NULL        | randerss | Marketing  | East-460 |
|        1156 | a184b775c707 | dellery | Marketing  | East-417 |
|        1163 | h679i515j339 | cwilliam| Marketing  | East-216 |
+-------------+-------------+----------+------------+----------+
7 rows in set (0.001 sec)
```

The above query retrieves all the columns from a table called log_in_attempts where a filter was applied for the Marketing department and the office that employee worked.

Retrieve employees in Finance or Sales

```
MariaDB [organization]> SELECT * FROM employees WHERE department = 'Finance' OR department = 'Sales';
+-------------+-------------+----------+------------+-------------+
| employee_id | device_id   | username | department | office      |
+-------------+-------------+----------+------------+-------------+
|        1003 | d394e816f943 | sgilmore | Finance    | South-153   |
|        1007 | h174i497j413 | wjaffrey | Finance    | North-406   |
|        1008 | i858j583k571 | abernard | Finance    | South-170   |
|        1009 | NULL        | lrodriqu | Sales      | South-134   |
|        1010 | k2421212m542 | jlansky | Finance    | South-109   |
|        1011 | l748m120n401 | drosas   | Sales      | South-292   |
|        1015 | p611q262r945 | jsoto    | Finance    | North-271   |
|        1017 | r550s824t230 | jclark   | Finance    | North-188   |
|        1018 | s310t540u653 | abellmas | Finance    | North-403   |
|        1022 | w237x430y567 | arusso   | Finance    | West-465    |
|        1024 | y976z753a267 | iuduike  | Sales      | South-215   |
|        1025 | z381a365b233 | jhill    | Sales      | North-115   |
|        1029 | d336e475f676 | ivelasco | Finance    | East-156    |
|        1035 | j236k3031245 | bisles   | Sales      | South-171   |
|        1039 | n253o917p623 | cjackson | Sales      | East-378    |
|        1041 | p929q222r778 | cgriffin | Sales      | North-208   |
|        1044 | s429t157u159 | tbarnes  | Finance    | West-415    |
|        1045 | t567u844v434 | pwashing | Finance    | East-115    |
|        1046 | u429v921w138 | daquino  | Finance    | West-280    |
|        1047 | v109w587x644 | cward    | Finance    | West-373    |
|        1048 | w167x592y375 | tmitchel | Finance    | South-288   |
|        1049 | NULL        | jreckley | Finance    | Central-295 |
|        1050 | y132z930a114 | csimmons | Finance    | North-468   |
|        1057 | f370g535h632 | mscott   | Sales      | South-270   |
|        1062 | k3671639m697 | redwards | Finance    | North-180   |
|        1063 | l686m140n569 | lpope    | Sales      | East-226    |
|        1066 | o678p794q957 | ttyrell  | Sales      | Central-444 |
|        1069 | NULL        | jpark    | Finance    | East-110    |
|        1071 | t244u829v723 | zdutchma | Sales      | West-348    |
|        1072 | u905v920w694 | esmith   | Sales      | East-421    |
|        1076 | y347z204a710 | fgarcia  | Finance    | Central-270 |
|        1078 | a667b270c984 | sharley  | Sales      | North-418   |
|        1081 | d647e310f618 | qcorbit  | Finance    | South-290   |
|        1083 | f840g812h544 | gkoshi   | Finance    | West-165    |
|        1085 | h339i498j269 | cperez   | Sales      | East-325    |
|        1086 | i281j129k749 | lmajumda | Sales      | West-499    |
```

The above query retrieves all the columns from a table called log_in_attempts where a filter was applied for employees who worked in Finance or Sales.

Retrieve all employees not in IT

```
MariaDB [organization]> SELECT * FROM employees WHERE NOT department = 'Information Technology';
+-------------+-------------+-----------+---------------------+---------------+
| employee_id | device_id   | username  | department          | office        |
+-------------+-------------+-----------+---------------------+---------------+
|        1000 | a320b137c219| elarson   | Marketing           | East-170      |
|        1001 | b239c825d303| bmoreno   | Marketing           | Central-276   |
|        1002 | c116d593e558| tshah     | Human Resources     | North-434     |
|        1003 | d394e816f943| sgilmore  | Finance             | South-153     |
|        1004 | e218f877g788| eraab     | Human Resources     | South-127     |
|        1005 | f551g340h864| gesparza  | Human Resources     | South-366     |
|        1007 | h174i497j413| wjaffrey  | Finance             | North-406     |
|        1008 | i858j583k571| abernard  | Finance             | South-170     |
|        1009 | NULL        | lrodriqu  | Sales               | South-134     |
|        1010 | k2421212m542| jlansky   | Finance             | South-109     |
|        1011 | l748m120n401| drosas    | Sales               | South-292     |
|        1015 | p611q262r945| jsoto     | Finance             | North-271     |
|        1016 | q793r736s288| sbaelish  | Human Resources     | North-229     |
|        1017 | r550s824t230| jclark    | Finance             | North-188     |
|        1018 | s310t540u653| abellmas  | Finance             | North-403     |
|        1020 | u899v381w363| arutley   | Marketing           | South-351     |
|        1022 | w237x430y567| arusso    | Finance             | West-465      |
|        1024 | y976z753a267| iuduike   | Sales               | South-215     |
|        1025 | z381a365b233| jhill     | Sales               | North-115     |
|        1026 | a998b568c863| apatel    | Human Resources     | West-320      |
|        1027 | b806c503d354| mrah      | Marketing           | West-246      |
|        1028 | c603d749e374| aestrada  | Human Resources     | West-121      |
|        1029 | d336e475f676| ivelasco  | Finance             | East-156      |
|        1030 | e391f189g913| mabadi    | Marketing           | West-375      |
|        1031 | f419g188h578| dkot      | Marketing           | West-408      |
|        1034 | i679j565k940| bsand     | Human Resources     | East-484      |
|        1035 | j236k303l245| bisles    | Sales               | South-171     |
|        1036 | k550l533m205| rjensen   | Marketing           | Central-239   |
|        1038 | m873n636o225| btang     | Human Resources     | Central-260   |
|        1039 | n253o917p623| cjackson  | Sales               | East-378      |
|        1040 | o783p832q294| dtarly    | Human Resources     | East-237      |
|        1041 | p929q222r778| cgriffin  | Sales               | North-208     |
|        1042 | q175r338s833| acook     | Human Resources     | West-381      |
|        1044 | s429t157u159| tbarnes   | Finance             | West-415      |
|        1045 | t567u844v434| pwashing  | Finance             | East-115      |
|        1046 | u429v921w138| daquino   | Finance             | West-280      |
|        1047 | v109w587x644| cward     | Finance             | West-373      |
|        1048 | w167x592y375| tmitchel  | Finance             | South-288     |
|        1049 | NULL        | jreckley  | Finance             | Central-295   |
|        1050 | y132z930a114| csimmons  | Finance             | North-468     |
|        1051 | z451a308b518| itraora   | Marketing           | Central-134   |
```

The above query retrieves all the columns from a table called log_in_attempts where a filter was applied for who didn't work in the Information Technology department.

Summary

The purpose of this project is to retrieve relevant employee information in order to update the database. The project was completed using SQL for its ability to retrieve and filter information. Information that was updated was for employees in Marketing where they were in the east building and all other employees working in Finance, Sales, and Information Technology through the entire company.