Apply filters to SQL queries

Project description

The security team at my organization assigned me with filtering the data needed to look for potential security issues that involved login attempts and employee machines. To finish this task, I performed following tasks:

Retrieve after hours failed login attempts

The following code represents how I used SQL query to filter data for failed login attempts after business hours of the organization:

```
MariaDB [organization]> SELECT*
    -> FROM log_in_attempts
    -> WHERE login_time > '18:00' AND success = 0;
+----------+----------+------------+------------+---------+-----------------+---------+
| 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 (0.001 sec)
```

In the above code, the highlighted lines is the SQL query I entered to request data from database. SELECT * represents that I am requesting all the data and FROM represents the table that I requested the data from which in this case is log_in_attempts table. Then I used the WHERE clause to filter the data I need. Then I used AND operator to look for data that fulfils the two conditions i.e., login_time after 18:00 and unsuccessful login attempts to narrow down my

search. As a result of this query, I found there were 19 unsuccessful login attempts after the business hours.

Retrieve login attempts on specific dates

The research team was investigating some suspicious event that occurred on 2022-05-09. So I was tasked to filter data for the date 2022-05-09 and 2022-05-08. To complete this task, I used the OR operator with the two specific dates which served as two conditions. OR specifies that either condition can be met. In this case, OR operator filter the login_date column from log_in_attempts table to find the dates 2022-05-09 and 2022-05-08. This query returned 75 rows which meant there were 75 login attempts during those two 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 | 2022-05-08 | 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 | 2022-05-09 | 06:57:42 | CAN    | 192.168.55.169  |        0 |
|  72 | alevitsk | 2022-05-08 | 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 |
| 117 | bsand    | 2022-05-08 | 00:19:11 | USA    | 192.168.197.187 |        0 |
| 120 | tmitchel | 2022-05-09 | 02:58:17 | MEXICO | 192.168.134.62  |        0 |
| 127 | abellmas | 2022-05-09 | 21:20:51 | CANADA | 192.168.70.122  |        0 |
| 128 | jclark   | 2022-05-09 | 10:45:59 | CANADA | 192.168.122.169 |        0 |
| 131 | bisles   | 2022-05-09 | 20:03:55 | US     | 192.168.113.171 |        0 |
| 134 | iuduike  | 2022-05-09 | 06:46:40 | USA    | 192.168.22.115  |        1 |
| 135 | bsand    | 2022-05-09 | 14:06:33 | US     | 192.168.91.238  |        0 |
| 144 | daquino  | 2022-05-09 | 11:09:32 | CANADA | 192.168.139.9   |        0 |
| 145 | ivelasco | 2022-05-08 | 09:06:02 | CANADA | 192.168.39.196  |        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 |
| 150 | nmason   | 2022-05-08 | 14:40:02 | CAN    | 192.168.204.124 |        0 |
| 151 | mabadi   | 2022-05-09 | 16:29:46 | USA    | 192.168.30.225  |        1 |
| 158 | smartell | 2022-05-09 | 19:30:32 | MEXICO | 192.168.190.178 |        1 |
| 161 | abellmas | 2022-05-09 | 13:25:50 | CAN    | 192.168.180.205 |        0 |
| 162 | yappiah  | 2022-05-09 | 04:51:22 | MEXICO | 192.168.162.100 |        0 |
| 163 | tmitchel | 2022-05-08 | 09:21:16 | MEX    | 192.168.119.29  |        0 |
| 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 |
| 170 | sbaelish | 2022-05-09 | 16:43:18 | USA    | 192.168.65.113  |        0 |
| 172 | mabadi   | 2022-05-08 | 08:06:50 | US     | 192.168.180.41  |        1 |
| 178 | sgilmore | 2022-05-08 | 12:27:22 | CAN    | 192.168.52.216  |        0 |
| 184 | alevitsk | 2022-05-08 | 03:09:48 | CAN    | 192.168.33.70   |        0 |
| 186 | bisles   | 2022-05-09 | 04:29:17 | USA    | 192.168.40.72   |        0 |
| 187 | arusso   | 2022-05-09 | 00:36:26 | MEX    | 192.168.77.137  |        0 |
| 189 | nmason   | 2022-05-08 | 05:37:24 | CANADA | 192.168.168.117 |        1 |
| 190 | jsoto    | 2022-05-09 | 05:09:21 | USA    | 192.168.25.60   |        0 |
| 191 | cjackson | 2022-05-08 | 06:46:07 | CANADA | 192.168.7.187   |        0 |
| 193 | lrodriqu | 2022-05-08 | 07:11:29 | US     | 192.168.125.240 |        0 |
| 197 | jsoto    | 2022-05-08 | 09:05:09 | US     | 192.168.36.21   |        0 |
+-----+----------+------------+----------+--------+-----------------+----------+
75 rows in set (0.001 sec)
```

Retrieve login attempts outside of Mexico

In this task, I retrieved the login attempts from all the countries except Mexico. I used the NOT operator for country column to negate or ignore any login attempt that originated in Mexico. Since the value for Mexico in country column was recorded as Mex and Mexico I used LIKE operator and % wildcard (Mex%) to look for a certain pattern in he data. The percentage (%) wildcard substitutes for any number of characters. After running this query, I found that there were 144 login attempts that originated in USA and Canada.

```
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 | 2022-05-09 | 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 |
|       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 |
| 52 | cjackson | 2022-05-10 | 22:07:07 | CAN    | 192.168.58.57   | 0 |
| 53 | nmason   | 2022-05-08 | 11:51:38 | CAN    | 192.168.133.188 | 1 |
| 55 | jlansky  | 2022-05-11 | 05:15:34 | US     | 192.168.6.170   | 0 |
| 56 | acook    | 2022-05-08 | 04:56:30 | CAN    | 192.168.209.130 | 1 |
| 57 | asundara | 2022-05-12 | 21:13:02 | US     | 192.168.211.201 | 1 |
| 58 | ivelasco | 2022-05-09 | 17:20:54 | CAN    | 192.168.57.162  | 0 |
| 60 | acook    | 2022-05-11 | 21:46:00 | CAN    | 192.168.54.45   | 1 |
| 61 | dtanaka  | 2022-05-09 | 09:45:18 | USA    | 192.168.98.221  | 1 |
| 64 | apatel   | 2022-05-10 | 22:00:09 | CANADA | 192.168.172.71  | 1 |
| 68 | mrah     | 2022-05-08 | 17:16:13 | US     | 192.168.42.248  | 1 |
| 69 | wjaffrey | 2022-05-11 | 19:55:15 | USA    | 192.168.100.17  | 0 |
| 71 | mcouliba | 2022-05-09 | 06:57:42 | CAN    | 192.168.55.169  | 0 |
| 72 | alevitsk | 2022-05-08 | 12:09:10 | CANADA | 192.168.139.176 | 1 |
| 73 | zbernal  | 2022-05-10 | 17:46:45 | USA    | 192.168.80.46   | 0 |
| 74 | nmason   | 2022-05-11 | 15:55:48 | CAN    | 192.168.162.2   | 1 |
| 75 | zbernal  | 2022-05-12 | 04:14:35 | US     | 192.168.188.63  | 1 |
| 76 | bmoreno  | 2022-05-10 | 10:53:55 | CAN    | 192.168.61.200  | 0 |
| 77 | wjaffrey | 2022-05-12 | 08:37:59 | US     | 192.168.106.183 | 1 |
| 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 |
|  84 | jrafael  | 2022-05-11 | 09:26:17 | CAN    | 192.168.243.203  |    1 |
|  86 | dtanaka  | 2022-05-10 | 10:22:20 | USA    | 192.168.197.135  |    1 |
|  87 | apatel   | 2022-05-08 | 22:38:31 | CANADA | 192.168.132.153  |    0 |
|  89 | dkot     | 2022-05-12 | 10:52:00 | USA    | 192.168.128.75   |    1 |
|  90 | gesparza | 2022-05-09 | 00:49:05 | CANADA | 192.168.87.201   |    0 |
|  91 | jhill    | 2022-05-11 | 17:46:47 | US     | 192.168.172.74   |    1 |
|  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 |
|  98 | gesparza | 2022-05-11 | 06:30:14 | CANADA | 192.168.148.80   |    0 |
|  99 | mcouliba | 2022-05-12 | 11:54:14 | CANADA | 192.168.218.160  |    1 |
| 101 | sbaelish | 2022-05-08 | 12:01:22 | US     | 192.168.145.158  |    0 |
| 103 | jhill    | 2022-05-11 | 09:10:54 | US     | 192.168.60.153   |    0 |
| 104 | asundara | 2022-05-11 | 18:38:07 | US     | 192.168.96.200   |    0 |
| 105 | cjackson | 2022-05-12 | 19:36:42 | CAN    | 192.168.247.153  |    1 |
| 107 | bisles   | 2022-05-12 | 20:25:57 | USA    | 192.168.116.187  |    0 |
| 108 | daquino  | 2022-05-09 | 21:30:48 | CANADA | 192.168.15.110   |    1 |
| 109 | mcouliba | 2022-05-10 | 04:43:15 | CANADA | 192.168.39.246   |    1 |
| 110 | mabadi   | 2022-05-09 | 00:01:54 | USA    | 192.168.90.124   |    1 |
| 113 | gesparza | 2022-05-10 | 00:40:00 | CAN    | 192.168.64.133   |    0 |
| 115 | ivelasco | 2022-05-10 | 23:06:01 | CAN    | 192.168.154.1    |    1 |
| 117 | bsand    | 2022-05-08 | 00:19:11 | USA    | 192.168.197.187  |    0 |
| 121 | btang    | 2022-05-10 | 22:00:36 | US     | 192.168.80.143   |    1 |
| 123 | bmoreno  | 2022-05-10 | 04:43:30 | CANADA | 192.168.98.2     |    1 |
| 124 | asundara | 2022-05-12 | 10:51:21 | USA    | 192.168.136.29   |    1 |
| 125 | bisles   | 2022-05-11 | 08:36:19 | US     | 192.168.74.9     |    1 |
| 126 | jrafael  | 2022-05-12 | 18:47:52 | CAN    | 192.168.22.16    |    1 |
| 127 | abellmas | 2022-05-09 | 21:20:51 | CANADA | 192.168.70.122   |    0 |
| 128 | jclark   | 2022-05-09 | 10:45:59 | CANADA | 192.168.122.169  |    0 |
| 129 | drosas   | 2022-05-12 | 15:39:40 | USA    | 192.168.152.200  |    0 |
| 130 | mrah     | 2022-05-11 | 02:54:21 | USA    | 192.168.102.147  |    0 |
| 131 | bisles   | 2022-05-09 | 20:03:55 | US     | 192.168.113.171  |    0 |
```

133	asundara	2022-05-12	05:57:04	USA	192.168.6.9	1
134	iuduike	2022-05-09	06:46:40	USA	192.168.22.115	1
135	bsand	2022-05-09	14:06:33	US	192.168.91.238	0
136	mabadi	2022-05-10	06:56:44	US	192.168.214.234	1
137	jrafael	2022-05-12	02:42:37	CAN	192.168.186.176	1
139	apatel	2022-05-11	01:54:36	CAN	192.168.95.222	0
140	btang	2022-05-10	13:17:29	US	192.168.249.111	0
141	btang	2022-05-12	10:12:03	USA	192.168.82.139	0
142	gesparza	2022-05-11	06:31:14	CANADA	192.168.117.56	1
143	jhill	2022-05-11	00:30:22	USA	192.168.189.19	0
144	daquino	2022-05-09	11:09:32	CANADA	192.168.139.9	0
145	ivelasco	2022-05-08	09:06:02	CANADA	192.168.39.196	1
146	nmason	2022-05-10	02:25:55	CANADA	192.168.37.147	0
148	daquino	2022-05-08	06:15:55	CANADA	192.168.135.6	1
149	jlansky	2022-05-11	01:07:11	USA	192.168.238.42	0
150	nmason	2022-05-08	14:40:02	CAN	192.168.204.124	0
151	mabadi	2022-05-09	16:29:46	USA	192.168.30.225	1
152	mabadi	2022-05-12	10:24:43	USA	192.168.96.244	0
154	jlansky	2022-05-12	10:57:35	US	192.168.23.63	1
155	cgriffin	2022-05-12	22:18:42	USA	192.168.236.176	0
156	btang	2022-05-11	17:08:51	USA	192.168.243.95	0
159	iuduike	2022-05-12	16:59:50	USA	192.168.220.115	0
160	jclark	2022-05-10	20:49:00	CANADA	192.168.214.49	0
161	abellmas	2022-05-09	13:25:50	CAN	192.168.180.205	0
164	jclark	2022-05-12	21:15:52	CAN	192.168.18.34	1
167	jclark	2022-05-12	15:47:45	CAN	192.168.146.51	1
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
170	sbaelish	2022-05-09	16:43:18	USA	192.168.65.113	0
171	drosas	2022-05-10	16:32:55	USA	192.168.92.218	0
172	mabadi	2022-05-08	08:06:50	US	192.168.180.41	1
173	asundara	2022-05-12	23:17:52	US	192.168.58.217	1
174	lyamamot	2022-05-10	12:26:27	US	192.168.228.122	0
175	jhill	2022-05-10	00:17:09	USA	192.168.130.218	0
177	wjaffrey	2022-05-11	00:15:55	USA	192.168.144.165	0
178	sgilmore	2022-05-08	12:27:22	CAN	192.168.52.216	0
179	jclark	2022-05-12	04:08:17	CAN	192.168.232.93	0
181	abellmas	2022-05-10	13:37:05	CAN	192.168.60.111	0
182	lyamamot	2022-05-10	06:01:31	USA	192.168.106.52	0
183	nmason	2022-05-11	05:29:36	CANADA	192.168.137.147	0
184	alevitsk	2022-05-08	03:09:48	CAN	192.168.33.70	0
185	jsoto	2022-05-10	13:34:58	USA	192.168.151.91	0
186	bisles	2022-05-09	04:29:17	USA	192.168.40.72	0
188	jsoto	2022-05-11	00:39:09	USA	192.168.21.88	0
189	nmason	2022-05-08	05:37:24	CANADA	192.168.168.117	1
190	jsoto	2022-05-09	05:09:21	USA	192.168.25.60	0
191	cjackson	2022-05-08	06:46:07	CANADA	192.168.7.187	0
192	bisles	2022-05-10	08:32:03	USA	192.168.201.40	1
193	lrodriqu	2022-05-08	07:11:29	US	192.168.125.240	0
194	jclark	2022-05-12	14:11:04	CAN	192.168.197.247	0
195	alevitsk	2022-05-11	06:59:13	CANADA	192.168.236.78	1
196	acook	2022-05-10	09:56:48	CAN	192.168.52.90	0
197	jsoto	2022-05-08	09:05:09	US	192.168.36.21	0
200	jclark	2022-05-12	01:11:45	CANADA	192.168.91.103	1

144 rows in set (0.023 sec)

Retrieve employees in Marketing

This task involved retrieving data about employees that worked in marketing department who worked in the East side offices. For this task I used AND operator to filter data based on two conditions i.e., employees who were in Marketing department and worked in East side offices. Since there were more than one offices on the East side, I used the LIKE operator and % wildcard after the characters East i,e,. East% to return all the marketing employees working in the east side offices. I found 7 employees who worked in Marketing department in the offices on the east side.

```
MariaDB [organization]> SELECT *
    -> FROM employees
    -> ;
+-------------+--------------+----------+---------------------+-------------+
| employee_id | device_id    | username | department          | office      |
+-------------+--------------+----------+---------------------+-------------+
|        1000 | a320b137c219 | elarson  | Marketing           | East-170    |
|        1001 | b239c825d303 | bmoreno  | Marketing           | Central-276 |
```

```
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 | k8651965m233 | 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 (0.031 sec)
```

Retrieve employees in Finance or Sales

The security team decided to perform security updates for employees from Finance and Sales departments. I used OR operator with two conditions for department column. The OR operator only specifies one condition to return data. In this case it looked for employees working in Finance or Sales department. The query result represented that there were total of 71 employees in both departments.

```
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 | k242l212m542 | 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 | j236k303l245 | 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   |
```

```
| 1050 | y132z930a114 | csimmons | Finance | North-468   |
| 1057 | f370g535h632 | mscott   | Sales   | South-270   |
| 1062 | k367l639m697 | 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    |
| 1089 | l358m929n154 | jpark2   | Sales   | West-251    |
| 1091 | n378o313p469 | rtran    | Sales   | Central-230 |
| 1092 | o391p779q935 | lpark    | Sales   | West-227    |
| 1098 | u671v146w618 | tarchamb | Sales   | North-423   |
| 1099 | v283w690x104 | anaser   | Finance | West-357    |
| 1105 | b551c837d758 | kmei     | Finance | Central-232 |
| 1107 | d168e758f876 | akajwara | Sales   | North-471   |
| 1109 | f229g533h679 | nlocklea | Sales   | East-196    |
| 1110 | g567h376i314 | pchaudhu | Sales   | Central-428 |
| 1111 | h835i179j862 | jlee     | Sales   | West-309    |
| 1116 | m272n572o874 | nzhao    | Sales   | South-100   |
| 1117 | n683o758p820 | dahmad   | Sales   | West-405    |
| 1118 | o305p208q337 | jpark3   | Sales   | South-329   |
| 1119 | p164q780r999 | omubarak | Sales   | West-409    |
| 1121 | r628s557t397 | mrojas   | Sales   | East-288    |
| 1122 | s103t952u851 | btorres  | Finance | West-319    |
```

```
|        1130 | a317b635c465 | tsnow    | Sales   | Central-451 |
|        1136 | g299h520i457 | jhawes   | Finance | West-416    |
|        1138 | i671j355k725 | sromero  | Finance | South-329   |
|        1142 | m674n127o823 | lsilva   | Finance | East-440    |
|        1144 | NULL         | erobinso | Finance | Central-266 |
|        1147 | r454s225t299 | tvega    | Finance | West-177    |
|        1148 | s328t505u907 | dharvey  | Finance | South-181   |
|        1159 | d881e710f732 | jshen    | Finance | East-193    |
|        1164 | i682j513k442 | fsmeltz  | Finance | North-163   |
|        1169 | NULL         | mmitchel | Sales   | Central-250 |
|        1174 | s371t911u987 | eortiz   | Finance | North-428   |
|        1175 | t959u687v394 | jclark2  | Finance | North-194   |
|        1176 | u849v569w521 | nliu     | Sales   | West-220    |
|        1181 | z803a233b718 | sessa    | Finance | South-207   |
|        1185 | d790e839f461 | revens   | Sales   | North-330   |
|        1186 | e281f433g404 | sacosta  | Sales   | North-460   |
|        1187 | f963g637h851 | bbode    | Finance | East-351    |
|        1188 | g164h566i795 | noshiro  | Finance | West-252    |
|        1195 | n516o853p957 | orainier | Finance | East-346    |
+-------------+--------------+----------+---------+-------------+
71 rows in set (0.001 sec)
```

Retrieve all employees not in IT

In this task I was to look for all the employees working in different departments except the Information technology department so that the security team can perform an update on the machines of these employees. I used NOT operator to negate all the employees from Information Technology department while filtering. This query listed 161 employees along with device id from all the other department except Information Technology.

```
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 | k242l212m542 | 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 |
|  1052 | a192b174c940 | jdarosa   | Marketing       | East-195    |
|  1053 | b979c871d361 | nemmanue  | Human Resources | Central-259 |
|  1055 | d831e972f553 | awilliam  | Marketing       | Central-256 |
|  1056 | e782f537g683 | ankala    | Marketing       | North-139   |
|  1057 | f370g535h632 | mscott    | Sales           | South-270   |
|  1058 | g264h852i697 | madebowa  | Marketing       | South-119   |
|  1059 | h832i322j795 | jnguyen   | Marketing       | South-255   |
|  1061 | j255k281l925 | nhersh    | Human Resources | East-163    |
|  1062 | k367l639m697 | redwards  | Finance         | North-180   |
|  1063 | l686m140n569 | lpope     | Sales           | East-226    |
|  1064 | NULL         | ejones    | Marketing       | South-477   |
|  1065 | n428o322p522 | imoore    | Human Resources | West-490    |
|  1066 | o678p794q957 | ttyrell   | Sales           | Central-444 |
```

```
| 1067 | p288q432r721 | lwhite   | Marketing       | North-277   |
| 1069 | NULL         | jpark    | Finance         | East-110    |
| 1070 | s772t175u409 | tbailey  | Human Resources | North-204   |
| 1071 | t244u829v723 | zdutchma | Sales           | West-348    |
| 1072 | u905v920w694 | esmith   | Sales           | East-421    |
| 1073 | v135w241x773 | srobinso | Marketing       | Central-494 |
| 1075 | x573y883z772 | fbautist | Marketing       | East-267    |
| 1076 | y347z204a710 | fgarcia  | Finance         | Central-270 |
| 1077 | z654a154b259 | ldavis   | Human Resources | East-241    |
| 1078 | a667b270c984 | sharley  | Sales           | North-418   |
| 1079 | b433c245d868 | gmedina  | Marketing       | North-456   |
| 1080 | c568d742e974 | gmoon    | Marketing       | North-156   |
| 1081 | d647e310f618 | qcorbit  | Finance         | South-290   |
| 1083 | f840g812h544 | gkoshi   | Finance         | West-165    |
| 1084 | g950h972i991 | nhuynh   | Human Resources | South-155   |
| 1085 | h339i498j269 | cperez   | Sales           | East-325    |
| 1086 | i281j129k749 | lmajumda | Sales           | West-499    |
| 1088 | k865l965m233 | rgosh    | Marketing       | East-157    |
| 1089 | l358m929n154 | jpark2   | Sales           | West-251    |
| 1091 | n378o313p469 | rtran    | Sales           | Central-230 |
| 1092 | o391p779q935 | lpark    | Sales           | West-227    |
| 1093 | p765q957r699 | etargary | Human Resources | Central-247 |
| 1097 | t363u179v368 | jlee     | Human Resources | South-254   |
| 1098 | u671v146w618 | tarchamb | Sales           | North-423   |
| 1099 | v283w690x104 | anaser   | Finance         | West-357    |
| 1100 | w326x611y598 | mjin     | Human Resources | Central-371 |
| 1101 | x701y250z303 | ichowdhu | Human Resources | East-233    |
| 1102 | y943z930a241 | kselassi | Marketing       | South-378   |
| 1103 | NULL         | randerss | Marketing       | East-460    |
```

```
|  1105 | b551c837d758 | kmei     | Finance         | Central-232 |
|  1106 | c597d792e215 | jcohen   | Marketing       | South-395   |
|  1107 | d168e758f876 | akajwara | Sales           | North-471   |
|  1108 | e113f288g203 | jwashing | Human Resources | North-226   |
|  1109 | f229g533h679 | nlocklea | Sales           | East-196    |
|  1110 | g567h376i314 | pchaudhu | Sales           | Central-428 |
|  1111 | h835i179j862 | jlee     | Sales           | West-309    |
|  1113 | j781k420l510 | pjaimes  | Human Resources | East-366    |
|  1114 | NULL         | xgreene  | Marketing       | North-335   |
|  1116 | m272n572o874 | nzhao    | Sales           | South-100   |
|  1117 | n683o758p820 | dahmad   | Sales           | West-405    |
|  1118 | o305p208q337 | jpark3   | Sales           | South-329   |
|  1119 | p164q780r999 | omubarak | Sales           | West-409    |
|  1120 | q912r119s313 | rbradsha | Marketing       | Central-200 |
|  1121 | r628s557t397 | mrojas   | Sales           | East-288    |
|  1122 | s103t952u851 | btorres  | Finance         | West-319    |
|  1123 | t479u468v151 | ekonya   | Human Resources | South-445   |
|  1124 | u340v931w764 | claw     | Human Resources | Central-172 |
|  1125 | v491w553x421 | mrodgers | Marketing       | South-490   |
|  1128 | y103z561a649 | mpirato  | Human Resources | West-205    |
|  1129 | z566a147b347 | plopez   | Marketing       | West-326    |
|  1130 | a317b635c465 | tsnow    | Sales           | Central-451 |
|  1132 | c150d982e144 | creddy   | Human Resources | Central-210 |
|  1133 | d693e351f221 | pfrey    | Marketing       | Central-164 |
|  1134 | e395f616g566 | akhatri  | Human Resources | West-159    |
|  1136 | g299h520i457 | jhawes   | Finance         | West-416    |
|  1137 | h165i539j638 | mwood    | Human Resources | South-166   |
|  1138 | i671j355k725 | sromero  | Finance         | South-329   |
|  1139 | j637k986l199 | emorton  | Human Resources | North-300   |
```

```
| 1140 | k982l199m839 | apatel2  | Human Resources | East-385    |
| 1141 | l282m821n717 | cochuba  | Human Resources | South-282   |
| 1142 | m674n127o823 | lsilva   | Finance         | East-440    |
| 1144 | NULL         | erobinso | Finance         | Central-266 |
| 1145 | p752q137r169 | msosa    | Human Resources | South-345   |
| 1146 | q228r135s755 | ulemere  | Human Resources | Central-171 |
| 1147 | r454s225t299 | tvega    | Finance         | West-177    |
| 1148 | s328t505u907 | dharvey  | Finance         | South-181   |
| 1150 | u554v512w139 | lmarin   | Marketing       | Central-364 |
| 1151 | v852w513x954 | sshah    | Human Resources | North-272   |
| 1152 | NULL         | nwilliam | Marketing       | Central-170 |
| 1153 | x677y330z296 | ncardena | Marketing       | Central-363 |
| 1154 | y765z123a548 | obryand  | Marketing       | North-182   |
| 1155 | z942a966b589 | zjones   | Human Resources | East-122    |
| 1156 | a184b775c707 | dellery  | Marketing       | East-417    |
| 1157 | b264c773d977 | lstein   | Human Resources | Central-343 |
| 1158 | c406d877e950 | bnaser   | Human Resources | Central-243 |
| 1159 | d881e710f732 | jshen    | Finance         | East-193    |
| 1160 | e127f591g924 | spham    | Marketing       | West-353    |
| 1163 | h679i515j339 | cwilliam | Marketing       | East-216    |
| 1164 | i682j513k442 | fsmeltz  | Finance         | North-163   |
| 1165 | j713k893l832 | nwords   | Marketing       | South-128   |
| 1166 | k495l234m708 | nyoung   | Marketing       | Central-397 |
| 1167 | l738m922n515 | tblackwe | Marketing       | North-443   |
| 1169 | NULL         | mmitchel | Sales           | Central-250 |
| 1170 | o156p302q359 | lalvarez | Human Resources | North-278   |
| 1172 | q372r826s628 | akhan    | Marketing       | Central-360 |
| 1173 | r537s849t690 | ialcazar | Marketing       | South-429   |
| 1174 | s371t911u987 | eortiz   | Finance         | North-428   |
```

```
|      1175 | t959u687v394 | jclark2  | Finance          | North-194   |
|      1176 | u849v569w521 | nliu     | Sales            | West-220    |
|      1177 | v691w183x928 | aezra    | Human Resources  | East-190    |
|      1178 | w986x187y885 | nlannist | Marketing        | North-196   |
|      1179 | x174y934z376 | asalas   | Human Resources  | North-445   |
|      1180 | y131z211a578 | medwards | Human Resources  | Central-340 |
|      1181 | z803a233b718 | sessa    | Finance          | South-207   |
|      1183 | b566c710d544 | lquraish | Human Resources  | East-400    |
|      1184 | c986d200e170 | ptsosie  | Human Resources  | Central-247 |
|      1185 | d790e839f461 | revens   | Sales            | North-330   |
|      1186 | e281f433g404 | sacosta  | Sales            | North-460   |
|      1187 | f963g637h851 | bbode    | Finance          | East-351    |
|      1188 | g164h566i795 | noshiro  | Finance          | West-252    |
|      1189 | h784i120j837 | slefkowi | Human Resources  | West-342    |
|      1190 | NULL         | kcarter  | Marketing        | Central-270 |
|      1191 | NULL         | shakimi  | Marketing        | Central-366 |
|      1194 | m340n287o441 | zwarren  | Human Resources  | West-212    |
|      1195 | n516o853p957 | orainier | Finance          | East-346    |
|      1198 | q308r573s459 | jmartine | Marketing        | South-117   |
|      1199 | r520s571t459 | areyes   | Human Resources  | East-100    |
+-----------+--------------+----------+------------------+-------------+
161 rows in set (0.001 sec)
```

Summary

I used different SQL queries to filter data required by the security team. I looked for any failed login attempts that were made after business hours using AND operator. Then I used OR operator to search for login attempts that were made on specific dates and later also to search for employees working in Finance and Sales department. I used NOT operator first time to look for login attempts for all the other countries except Mexico and later I used it again to eliminate from the list the employees from Information Technology department to return data with list of employees from all the other departments that required a specific security update. Throughout this task, I also used LIKE operator and % wildcard to filter data with certain pattern.