

SQL: Filters with AND, OR and NOT

Scenario

6/6

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.

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

MariaDB [organization]> clear
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 |
+-----+-----+-----+-----+-----+-----+-----+
9 rows in set (0.055 sec)

MariaDB [organization]> SELECT *

```

Figure 1 Query using AND from the login_attempts table, where login time is greater than 18:00 and success is FALSE are extracted

```

9 rows in set (0.055 sec)

MariaDB [organization]> SELECT *
->
-> FROM log_in_attempts
->
-> WHERE login_date = '2022-05-09' OR login_date = '2022-05-08';
+-----+-----+-----+-----+-----+-----+-----+
| 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 |

```

Figure 2 Query using OR from the login attempts table, where login date is '2022-05-09' or '2022-05-08' are extracted

```

197 | jsoto | 2022-05-08 | 09:05:09 | US | 192.168.36.21 | 0 |
+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.001 sec)

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 |

```

Figure 3 Query using NOT from the login attempts table, where all the countries that are NOT 'Mexico' or start with 'Mex' are extracted

```

1196 | 6225p357q829 | sshan2 | Information Technology | South-385 |
1197 | p791q114r509 | aabara | Information Technology | North-159 |
1198 | q308r573s459 | jmartine | Marketing | South-117 |
1199 | r520s571t459 | areyes | Human Resources | East-100 |
-----+-----+-----+-----+-----+
200 rows in set (0.001 sec)

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 | randers | Marketing | East-460 |
1156 | a184b775c707 | dellery | Marketing | East-417 |
1163 | h679i515j339 | cwilliam | Marketing | East-216 |
-----+-----+-----+-----+-----+
7 rows in set (0.001 sec)

```

Figure 4 Query using AND from the employees table, where all the marketing department that have an East office are extracted]

```

1163 | h679i515j339 | cwilliam | Marketing | East-216 |
-----+-----+-----+-----+
7 rows in set (0.001 sec)

MariaDB [organization]> SELECT *
->
-> FROM employees
->
-> WHERE department = 'Finance' OR department = 'Sales';
-----+-----+-----+-----+-----+
employee_id | device_id | username | department | office |
-----+-----+-----+-----+-----+
1003 | d394e816f943 | sgillmore | 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 | induike | 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 |
1057 | f370g535h632 | mscott | Sales | South-270 |
1062 | k367l639m697 | redwards | Finance | North-180 |
-----+-----+-----+-----+-----+

```

Figure 5 Query using OR from employees table, where all the Finance department or Sales department are extracted

```

1 rows in set (0.001 sec)

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	jlsansky	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	astrada	Human Resources	West-121
1029	d336e475f676	ivelasco	Finance	East-156
1030	e391f189g913	mabadi	Marketing	West-375

Figure 6 Query using NOT from employees table, where all departments that are NOT IT are extracted