

# Apply filters to SQL queries

## Project description

You are a security professional at a large organization. Part of your job is to investigate security issues to help keep the system secure. You recently discovered some potential security issues that involve login attempts and employee machines.

Your task is to examine the organization's data in their *employees* and *log\_in\_attempts* tables. You'll need to use SQL filters to retrieve records from different datasets and investigate the potential security issues.

## Retrieve after hours failed login attempts

```
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	192.168.33.1
37	1					
	26	apatel	2022-05-08	17:27:00	CANADA	192.168.123.
105	1					
	28	aestrada	2022-05-09	19:28:12	MEXICO	192.168.27.5
7	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	192.168.78.1
51	1					
	38	sbaelish	2022-05-09	14:40:01	USA	192.168.60.4
2	1					
	39	yappiah	2022-05-09	07:56:40	MEXICO	192.168.57.1
15	1					
	42	cgriffin	2022-05-09	23:04:05	US	192.168.4.15
7	0					
	43	mcouliba	2022-05-08	02:35:34	CANADA	192.168.16.2
08	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.

## Retrieve login attempts on specific dates

```

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 |         |            |            |         |            |
+-----+-----+-----+-----+-----+-----+
| 140 | 1 | jrafael | 2022-05-09 | 04:56:27 | CAN | 192.168.243. |
| 162 | 3 | dkot | 2022-05-09 | 06:47:41 | USA | 192.168.151. |
| 71 | 4 | dkot | 2022-05-08 | 02:00:39 | USA | 192.168.178. |
| 173 | 8 | bisles | 2022-05-08 | 01:30:17 | US | 192.168.119. |
| 158 | 12 | dkot | 2022-05-08 | 09:11:34 | USA | 192.168.100. |
| 51 | 15 | lyamamot | 2022-05-09 | 17:17:26 | USA | 192.168.183. |
| 192 | 24 | arusso | 2022-05-09 | 06:49:39 | MEXICO | 192.168.171. |
| 37 | 25 | sbaelish | 2022-05-09 | 07:04:02 | US | 192.168.33.1 |
| 105 | 26 | apatel | 2022-05-08 | 17:27:00 | CANADA | 192.168.123. |
| 7 | 28 | aestrada | 2022-05-09 | 19:28:12 | MEXICO | 192.168.27.5 |
| 48 | 30 | yappiah | 2022-05-09 | 03:22:22 | MEX | 192.168.124. |
| 239 | 32 | acook | 2022-05-09 | 02:52:02 | CANADA | 192.168.142. |
| 51 | 36 | asundara | 2022-05-08 | 09:00:42 | US | 192.168.78.1 |
| 2 | 38 | sbaelish | 2022-05-09 | 14:40:01 | USA | 192.168.60.4 |
| 15 | 39 | yappiah | 2022-05-09 | 07:56:40 | MEXICO | 192.168.57.1 |
| 7 | 42 | cgriffin | 2022-05-09 | 23:04:05 | US | 192.168.4.15 |
| 08 | 43 | mcouliba | 2022-05-08 | 02:35:34 | CANADA | 192.168.16.2 |
| 144 | 44 | daquino | 2022-05-08 | 07:02:35 | CANADA | 192.168.168. |
| 24 | 47 | dkot | 2022-05-08 | 05:06:45 | US | 192.168.233. |
| 213 | 49 | asundara | 2022-05-08 | 14:00:01 | US | 192.168.173. |
| 53 | nmason | 2022-05-08 | 11:51:38 | CAN | 192.168.133. |

```

## 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
140	jrafael	2022-05-09	04:56:27	CAN	192.168.243.
12	apatel	2022-05-10	20:27:27	CAN	192.168.205.
162	dkot	2022-05-09	06:47:41	USA	192.168.151.
71	dkot	2022-05-08	02:00:39	USA	192.168.178.
32	jrafael	2022-05-11	03:05:59	CANADA	192.168.86.2
243	eraab	2022-05-11	01:45:14	CAN	192.168.170.
173	bisles	2022-05-08	01:30:17	US	192.168.119.
221	jrafael	2022-05-12	09:33:19	CANADA	192.168.228.
31	sgilmore	2022-05-11	10:16:29	CANADA	192.168.140.
158	dkot	2022-05-08	09:11:34	USA	192.168.100.
135	mrh	2022-05-11	09:29:34	USA	192.168.246.
9	sbaelish	2022-05-10	10:20:18	US	192.168.16.9
51	lyamamot	2022-05-09	17:17:26	USA	192.168.183.
189	mcouliba	2022-05-11	06:44:22	CAN	192.168.172.
9	pwashing	2022-05-11	02:33:02	USA	192.168.81.8
42	pwashing	2022-05-11	19:28:50	US	192.168.66.1
245	jhill	2022-05-12	13:09:04	US	192.168.142.
147	iuduik	2022-05-11	17:50:00	US	192.168.131.
37	sbaelish	2022-05-09	07:04:02	US	192.168.33.1
105	apatel	2022-05-08	17:27:00	CANADA	192.168.123.
86	bisles	2022-05-11	01:21:22	US	192.168.85.1

## 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)
```

```
MariaDB [organization]> █
```

## 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	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
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



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	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

## Summary

In the document, I learned how to use SQL commands for filtering database records. I practiced retrieving data based on specific conditions, like time and department. For instance, I used commands to select login attempts outside of usual business hours and to filter out logins from certain geographic locations. I also learned to identify records from particular departments, like employees not in the IT department. Through this, I gained a better understanding of using SQL operators such as `WHERE`, `AND`, `OR`, `NOT`, and `LIKE` for diverse data filtering scenarios.