

Apply filters to SQL queries

Project description

The goal of this project is to display the importance of using filters when querying data using SQL.

Retrieve after hours failed login attempts

The organization had requested to gather all login attempts past 18:00 that were unsuccessful

```
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 (0.000 sec)
```

The first line `SELECT *` gathers all information from the table `log_in_attempts`. `WHERE` is used to locate a specific column in which we are looking for time greater than 18:00. `AND` allows me to further filter this information by gathering information from the `success` column where it is `FALSE` or `0`.

Retrieve login attempts on specific dates

The organization has tasked me to collect all log in attempts of the dates 05-09-2022 and 05-08-2022.

```

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
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

The query displayed in this image SELECT all from log_in_attempt table WHERE the login dates 2022-05-09 or 2022-05-08

Retrieve login attempts outside of Mexico

The organization had requested to gather the users that have attempted to login from Mexico

```

MariaDB [organization]> SELECT *
  -> FROM log_in_attempts
  -> WHERE country LIKE 'MEX%'
  -> ;

```

event_id	username	login_date	login_time	country	ip_address	success
6	arutley	2022-05-12	17:00:59	MEXICO	192.168.3.24	0
9	yappiah	2022-05-11	13:47:29	MEX	192.168.59.136	1
20	tshah	2022-05-12	18:56:36	MEXICO	192.168.109.50	0
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
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
30	yappiah	2022-05-09	03:22:22	MEX	192.168.124.48	1
35	tshah	2022-05-10	15:26:08	MEX	192.168.92.147	0
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
54	jreckley	2022-05-10	19:31:19	MEXICO	192.168.167.152	1
59	rjensen	2022-05-12	04:52:08	MEX	192.168.54.140	0
62	abernard	2022-05-10	10:19:57	MEXICO	192.168.156.224	1
63	tmitchel	2022-05-11	14:13:41	MEXICO	192.168.110.131	0
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
70	tmitchel	2022-05-09	10:55:17	MEXICO	192.168.87.199	1
78	smartell	2022-05-10	05:55:53	MEX	192.168.41.88	0
79	abernard	2022-05-09	11:41:15	MEX	192.168.158.170	0
81	aalonso	2022-05-11	12:50:38	MEX	192.168.152.43	1
82	abernard	2022-05-12	23:38:46	MEX	192.168.234.49	0
85	dtarly	2022-05-11	17:35:28	MEX	192.168.254.75	1
88	aestrada	2022-05-12	11:21:50	MEXICO	192.168.153.77	1
93	jreckley	2022-05-12	04:31:20	MEX	192.168.108.24	0
94	tbarnes	2022-05-10	03:37:10	MEX	192.168.74.202	0
95	dtarly	2022-05-12	11:23:42	MEX	192.168.203.198	1
97	jreckley	2022-05-09	02:49:23	MEXICO	192.168.32.231	1
100	tmitchel	2022-05-12	16:02:03	MEXICO	192.168.97.225	0
102	jreckley	2022-05-09	16:51:44	MEX	192.168.108.13	1
106	tmitchel	2022-05-12	06:15:41	MEXICO	192.168.3.252	1
111	aestrada	2022-05-10	22:00:26	MEXICO	192.168.76.27	0
112	rjensen	2022-05-09	09:22:05	MEX	192.168.69.116	1
114	smartell	2022-05-10	10:51:22	MEXICO	192.168.191.124	1
116	tmitchel	2022-05-10	20:33:27	MEXICO	192.168.119.26	1
118	smartell	2022-05-12	23:21:31	MEXICO	192.168.173.196	1
119	tmitchel	2022-05-11	23:07:13	MEXICO	192.168.110.175	1
120	tmitchel	2022-05-09	02:58:17	MEXICO	192.168.134.62	0
122	yappiah	2022-05-11	08:27:25	MEX	192.168.50.45	0

Because Mexico can be represented as Mexico or MEX we must ensure that both country option are pulled from the table. In this case follow WHERE country I used the LIKE keyword which gathers like characteristic and the % pulls all relating words with the prefix of MEX

Retrieve employees in Marketing

The organization requested to gather all employee from the marketing department in an East office.

```
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)
```

In this query we must **SELECT *** all from employees table **WHERE** the department is equal to Marketing **AND** the office **LIKE 'EAST%'** which gathers office with the prefix EAST.

Retrieve employees in Finance or Sales

The organization has request all employees in the department of Finance and Sales

```
MariaDB [organization]> SELECT * FROM employees WHERE department = 'Sales' OR department = 'Finance';
```

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	iuduke	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

The image above shows the selection of the departments WHERE the column equals Sales OR Finance.

Retrieve all employees not in IT

The organization requested to retrieve all employees not in the IT department.

```

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

The new keyword added is **NOT** which negates or filter to display anything but what follows. In this case 'Information Technology'

Summary

To summarize there are many keywords which can be used when querying the database. These filters allow us to be more precise with information we want to retrieve. It allow for a much more efficient work flow.