

SQL Joins

Scenario

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In this scenario, you'll investigate a recent security incident that compromised some machines.

You are responsible for getting the required information from the database for the investigation.

Here's how you'll do this task: **First**, you'll use an inner join to identify which employees are using which machines. **Second**, you'll use left and right joins to find machines that do not belong to any specific user and users who do not have any specific machine assigned to them. **Finally**, you'll use an inner join to list all login attempts made by all employees.

You're ready to join tables in SQL!

```
00 rows in set (0.008 sec)

MariaDB [organization]> SELECT *
->
-> FROM machines
->
->
-> RIGHT JOIN employees ON machines.device_id = employees.device_id;
```

device_id	operating_system	email_client	OS_patch_date	employee_id	employee_id	device_id	u
ername	department	office					
a320b137c219	OS 2	Email Client 2	2021-03-01	1000	1000	a320b137c219	e
arson	Marketing	East-170					
b239c825d303	OS 1	Email Client 1	2021-03-01	1001	1001	b239c825d303	b
oreno	Marketing	Central-276					
c116d593e558	OS 3	Email Client 1	2021-09-01	1002	1002	c116d593e558	t
hah	Human Resources	North-434					
d394e816f943	OS 3	Email Client 2	2021-03-01	1003	1003	d394e816f943	s
ilmore	Finance	South-153					
e218f877g788	OS 2	Email Client 1	2021-09-01	1004	1004	e218f877g788	e
aab	Human Resources	South-127					
f551g340h864	OS 3	Email Client 2	2021-12-01	1005	1005	f551g340h864	g
sparza	Human Resources	South-366					
g329h357i597	OS 1	Email Client 2	2021-06-01	1006	1006	g329h357i597	a
evitsk	Information Technology	East-320					
h174i497j413	OS 2	Email Client 1	2021-03-01	1007	1007	h174i497j413	w
affrey	Finance	North-406					
i858j583k571	OS 2	Email Client 2	2021-06-01	1008	1008	i858j583k571	a
ernard	Finance	South-170					
NULL	NULL	NULL	NULL	NULL	1009	NULL	l
odriqu	Sales	South-134					
k242l212m542	OS 1	Email Client 1	2021-03-01	1010	1010	k242l212m542	j
ansky	Finance	South-109					
l748m120n401	OS 3	Email Client 1	2021-09-01	1011	1011	l748m120n401	d

Figure 1 Using RIGHT Join to join employees and machines where both the device ids match

```

200 rows in set (0.001 sec)

MariaDB [organization]> SELECT *
->
-> FROM employees
->
-> INNER JOIN log_in_attempts ON employees.username = log_in_attempts.username;

```

employee_id	device_id	username	department	office	event_id	username	login_date
login_time	country	ip_address	success				
1032	g773h303i639	jrafael	Information Technology	Central-309	1	jrafael	2022-05-09
04:56:27	CAN	192.168.243.140	0				
1026	a998b568c863	apatel	Human Resources	West-320	2	apatel	2022-05-10
20:27:27	CAN	192.168.205.12	0				
1031	f419g188h578	dkot	Marketing	West-408	3	dkot	2022-05-09
06:47:41	USA	192.168.151.162	0				
1031	f419g188h578	dkot	Marketing	West-408	4	dkot	2022-05-08
02:00:39	USA	192.168.178.71	0				
1032	g773h303i639	jrafael	Information Technology	Central-309	5	jrafael	2022-05-11
03:05:59	CANADA	192.168.86.232	0				
1020	u899v381w363	arutley	Marketing	South-351	6	arutley	2022-05-12
17:00:59	MEXICO	192.168.3.24	0				
1004	e218f877g788	eraab	Human Resources	South-127	7	eraab	2022-05-11
01:45:14	CAN	192.168.170.243	0				
1035	j236k303l245	bisles	Sales	South-171	8	bisles	2022-05-08
01:30:17	US	192.168.119.173	0				
1033	NULL	yappiah	Information Technology	West-387	9	yappiah	2022-05-11
13:47:29	MEX	192.168.59.136	0				
1032	g773h303i639	jrafael	Information Technology	Central-309	10	jrafael	2022-05-12
09:33:19	CANADA	192.168.228.221	0				
1003	d394e816f943	sgilmore	Finance	South-153	11	sgilmore	2022-05-11
10:16:29	CANADA	192.168.140.81	0				
1031	f419g188h578	dkot	Marketing	West-408	12	dkot	2022-05-08
09:11:34	USA	192.168.100.158	0				

Figure 2 Using INNER JOIN to join employees and login attempts table where the usernames match