Apply filters to SQL queries

Project description

Using SQL, the cybersecurity analyst investigates potential security issues by examining organisational data in the employees and log_in_attempts tables using SQL filters.

Retrieve after hours failed login attempts

 ent_id use	+ ername	+ login_date	login_time	country	1	 ip_address	success
+ 23 var	+ opiah	2022-05-10	 18:11:53	+	+-	 192.168.200.48	+ I 1
	afael	2022-05-10	22:40:01	CANADA		192.168.148.115	i 1
	eckley	2022-05-10	19:31:19	MEXICO	i	192.168.167.152	1
	ındara	2022-05-12	21:13:02	US	i	192.168.211.201	1
60 acc	ook i	2022-05-11	21:46:00	CAN	i	192.168.54.45	1
64 apa	atel	2022-05-10	22:00:09	CANADA	Ĺ	192.168.172.71	1
65 aa	lonso	2022-05-09	23:42:12	MEX	Ĺ	192.168.52.37	1
66 aes	strada	2022-05-08	21:58:32	MEX	Ĺ	192.168.67.223	1
105 cja	ackson	2022-05-12	19:36:42	CAN	Ī	192.168.247.153	1
108 dad	quino	2022-05-09	21:30:48	CANADA	Ĺ	192.168.15.110	1
115 ive	elasco	2022-05-10	23:06:01	CAN	Ī	192.168.154.1	1
116 tm:	itchel	2022-05-10	20:33:27	MEXICO	1	192.168.119.26	1
118 sma	artell	2022-05-12	23:21:31	MEXICO	I	192.168.173.196	1
119 tm:	itchel	2022-05-11	23:07:13	MEXICO	I	192.168.110.175	1
121 bta	ang	2022-05-10	22:00:36	US	I	192.168.80.143	1
126 jra	afael	2022-05-12	18:47:52	CAN	I	192.168.22.16	1
132 rje	ensen	2022-05-12	23:26:03	MEX	T	192.168.9.166	1
158 sma	artell	2022-05-09	19:30:32	MEXICO	1	192.168.190.178	1
164 jc	lark	2022-05-12	21:15:52	CAN	I	192.168.18.34	1
173 ası	undara	2022-05-12	23:17:52	US	I	192.168.58.217	1
+	+			+	+-		+
ows in set	(0.001 s)	ec)					

To investigate a potential security incident that occurred after business hours, the analyst queried the <code>log_in_attempts</code> table and review after hours login activity, using SQL filters to create a query that identifies all failed login attempts that occurred after 18:00.

Retrieve login attempts on specific dates

MariaDB [org	ganization]:	> SELECT * FRO	OM log_in_atte	empts WHERE	E login_date = '20	22-05-09	OR login_date = '2022-05-08'
event id	username	login date	login time	country	ip address	success	- +
1		+	04:56:27	CAN	192.168.243.140	1	+
3	dkot	2022-05-09	06:47:41	USA	192.168.151.162	1	
1 4 1	dkot	2022-05-08		USA	192.168.178.71	. 0	
8 12	bisles	2022-05-08 2022-05-08		US	192.168.119.173 192.168.100.158	1 0	
15		2022-05-09	17:17:26	USA	192.168.183.51	1 0	
24	arusso	2022-05-09	06:49:39	MEXICO	192.168.171.192	1 1	
25 26	sbaelish apatel	2022-05-09 2022-05-08		US CANADA	192.168.33.137 192.168.123.105	1 1	1
1 28	aestrada	2022-05-09	19:28:12	MEXICO	192.168.27.57	1 0	
30	yappiah			MEX CANADA	192.168.124.48	1 1	
32 36	acook asundara	2022-05-09		US	192.168.142.239 192.168.78.151	1 1	1
38	sbaelish	2022-05-09	14:40:01	USA	192.168.60.42	1 1	
39	yappiah	2022-05-09		MEXICO	192.168.57.115	1 1	
42 43		2022-05-09 2022-05-08		CANADA	192.168.4.157 192.168.16.208	1 0	;
44				CANADA	192.168.168.144	1 0	
47		2022-05-08		US	192.168.233.24	1 1	
49 53	asundara nmason	2022-05-08 2022-05-08		US CAN	192.168.173.213 192.168.133.188	0	!
56		2022-05-08		CAN	192.168.209.130	1 1	
58		2022-05-09	17:20:54	CAN	192.168.57.162	. 0	
61 65	dtanaka	2022-05-09 2022-05-09		USA MEX	192.168.98.221 192.168.52.37	1 1	1
66	aestrada	2022-05-08	21:58:32	MEX	192.168.67.223	1 1	
67	abernard	2022-05-09	11:53:41	MEX	192.168.118.29	1 1	
68 70	mrah twitchel	2022-05-08 2022-05-09		US MEXICO	192.168.42.248 192.168.87.199	1 1	1
71	mcouliba			CAN	192.168.55.169	1 0	
72	GICOIDIA			CANADA	192.168.139.176	1 1	
79 80	abernard cjackson			MEX CANADA	192.168.158.170 192.168.33.140	1 0	!
83	lrodrigu	2022-05-08		USA	192.168.67.69	1 1	
87		2022-05-08		CANADA	192.168.132.153	1 0	
90 92				CANADA	192.168.87.201 192.168.247.219	1 0	!
96				CAN	192.168.84.194	0	
97			02:49:23	MEXICO	192.168.32.231	1 1	
101	sbaelish jreckley			US MEX	192.168.145.158 192.168.108.13	1 0	1
	daquino	2022-05-09	21:30:48	CANADA	192.168.15.110	1 1	
110		2022-05-09		USA	192.168.90.124	1 1	
112		2022-05-09 2022-05-08		MEX USA	192.168.69.116 192.168.197.187	1 0	;
	tmitchel	2022-05-09	02:58:17	MEXICO	192.168.134.62	1 0	
127	abellmas			CANADA	192.168.70.122	1 0	
128	jclark bisles	2022-05-09 2022-05-09		CANADA	192.168.122.169 192.168.113.171	1 0	;
134		2022-05-09		USA	192.168.22.115	1 1	
135	bsand	2022-05-09		US CANADA	192.168.91.238	. 0	
144	daquino ivelasco	2022-05-09 2022-05-08		CANADA CANADA	192.168.139.9 192.168.39.196	0 1	1
147	yappiah	2022-05-08	06:04:34	MEX	192.168.65.245	i ō	
148 150	daquino	2022-05-08		CANADA CAN	192.168.135.6 192.168.204.124	1 1	
150	nmason	2022-05-08	16:29:46	USA	192,168,30,225	1 1	i
158	smartell	2022-05-09	19:30:32	MEXICO	192.168.190.178	1 1	
161	abellmas	2022-05-09 2022-05-09	13:25:50	CAN MEXICO	192.168.180.205 192.168.162.100	1 0	
162 163		2022-05-09		MEXICO	192.168.162.100	1 0	
165	jreckley	2022-05-08	15:28:43	MEXICO	192.168.34.193	1 0	
	jlansky	2022-05-08	13:25:42	USA CANADA	192.168.210.94	1 1	
	alevitsk sbaelish			USA	192.168.210.228 192.168.65.113	1 0	i
172	mabadi	2022-05-08	08:06:50	US	192.168.180.41	1 1	
178	sgilmore			CAN CAN	192.168.52.216 192.168.33.70	1 0	
186	alevitsk bisles	2022-05-08		USA	192.168.40.72	1 0	i
187	arusso	2022-05-09	00:36:26	MEX	192.168.77.137	1 0	
		2022-05-08		CANADA USA	192.168.168.117	1 1	
190	jsoto cjackson			CANADA	192.168.25.60 192.168.7.187	1 0	
193	lrodriqu	2022-05-08	07:11:29	US	192.168.125.240	1 0	
197	jsoto	2022-05-08	09:05:09	US	192.168.36.21	1 0	
75 rows in a	et (0.002	sec)					
MariaDB [org	anization]:	,					

To investigate a suspicious event which occurred on 2022-05-09, the analyst reviewed all login attempts that occurred on this day and the day before using SQL filters to create a query that identifies all login attempts that occurred on 2022-05-09 or 2022-05-08.

Retrieve login attempts outside of Mexico



To investigate suspicious activity with login attempts that originated outside Mexico, the analyst investigated login attempts that occurred outside of Mexico using SQL filters to create a query that identifies all login attempts that occurred outside of Mexico, including the full country name and abbreviations.

Retrieve employees in Marketing

To allow the team to perform security updates on specific employee machines in the Marketing department, the analyst created a query that identifies all employees in the Marketing department for all offices in the East building.

Retrieve employees in Finance or Sales

	ization]> SELECT Financee' OR dep			department =	'Financee' and depar	tme
employee_id	device_id	username	 department +	office 	İ	
1009	NULL	lrodrigu	Sales	 South-134	Ī	
1011	1748m120n401	drosas	Sales	South-292	i	
1024	y976z753a267	iuduike	Sales	South-215	i	
1025	z381a365b233	jhill	Sales	North-115	i	
1035	j236k3031245	bisles	Sales	South-171	i	
1039	n253o917p623	cjackson	Sales	East-378	i	
1041	p929q222r778	cgriffin	Sales	North-208	i	
1057	f370g535h632	mscott	Sales	South-270	i	
	1686m140n569	lpope	Sales	East-226	i	
	o678p794q957		Sales	Central-444		
	t244u829v723	zdutchma	Sales	West-348	i	
1072	u905v920w694	esmith	Sales	East-421	i	
1078	a667b270c984	sharley	Sales	North-418	i	
1085	h339i498j269	cperez	Sales	East-325	i	
	i281j129k749	lmajumda	Sales	West-499	i	
	1358m929n154	jpark2	Sales	West-251	i	
	n378o313p469	rtran	Sales	Central-230	i	
1092	o391p779q935	lpark	Sales	West-227	i	
1098		tarchamb	Sales	North-423	i	
1107	d168e758f876	akajwara	Sales	North-471	i .	
1109	f229g533h679	nlocklea	Sales	East-196	i	
1110	g567h376i314	pchaudhu	Sales	Central-428	i	
1111	h835i179j862	jlee	Sales	West-309	i	
1116	m272n572o874	nzhao	Sales	South-100	i	
1117	n683o758p820	dahmad	Sales	West-405	i	
1118		jpark3	Sales	South-329		
1119	p164q780r999	omubarak	Sales	West-409		
1121	r628s557t397	mrojas	Sales	East-288	1	
1130	a317b635c465	tsnow	Sales	Central-451	I	
1169	NULL	mmitchel	Sales	Central-250		
1176	u849v569w521	nliu	Sales	West-220		
1185	d790e839f461	revens	Sales	North-330		
1186	e281f433g404	sacosta	Sales	North-460	1	
rows in set	_					

To allow the team to perform a different security update on machines for employees in the Sales and Finance departments, the analyst used SQL filters to create a query that identifies all employees in either the Sales or Finance departments.

Retrieve all employees not in IT

	ixation)> SELEC				
employee_id	device id	* FROX em	decastment	office	Information Technology'; ;
3,000	a320b137c219	elarson	Marketing		
1001	232@137c219 235c825d303 c116d593e558 d394e816f543 e218f877g788 f551g34@1864 h1741497j413 1858j581X571 WULL	tehah	Marketing Human Resources	East-170 Centeal-276 North-434 South-153 South-127 South-366 North-406 South-170 South-134 South-109	
1004	e21818779788	erash osenarra	Human Resources	South-127	
1007	h17414975413 18581583x571	wjaffrey absenaed	Finance Finance	North-406 South-170	
1 1009	NULL X2421212#542	abernard leodriqu jlansky	Sales Finance	South-134 South-109	
1 1011	1748r120n401 p611q262r945	decess jecto	Sales Finance		
1 1016	q793x736x288 x550x824t230	deceas jecto shaelish jelark abellwas	Human Resources Finance	North-292 North-271 North-229 North-188 North-403 South-351	
1020	u899v381w363 w237w430v567	arutley arusec iuduike jhill apatel	Marketing	South-351 West-465	
1024	y976x753a267 x381a365x233	iuduike thill	Marketing Finance Sales Sales	West-465 South-215 North-115 West-320	
1 1026	29582568c863 2806c503d354	meah	Human Resources Marketing		
1028	c603d749e374 d336e475f676	sestrada ivelasco mabadi	Human Resources Finance	West-121 East-156 West-375 West-408 East-484	
1031	1415g188h578	dket	Marketing Marketing Buran Besources	West-408	
1035	1236k3031245 k5501533m205	hisles signeen	Sales Marketing	West-408 South-171 Centual-239 Centual-240 East-484 South-171 Centual-260 East-278 East-277 West-278 West-415 East-280 West-415 East-280 West-817 South-268 Centual-255 Month-468 Centual-134 Centual-134 Centual-134 Centual-135 Centual-134 Centual-13	
1 1038	m873n636c225 n253c517p623	Etang cjackson	Human Resources Sales	Central-260 East-378	
1 1040	c783c832q294 c929q222e778	cjackson dtaxly ogziffin accok thaxnes pwashing daquino	Buffan Resources Sales	East-237 North-208	
1044	9175E3389833 9429t157u159	tharnes	Human Mesources Finance	West-415	
1046	u429v921w138	daquino	Finance	West-280	
1048	w167x592y375	tritchel	Finance Finance	South-288 Central-295	
1 1050	y132x930a114 x451a308b518	cward tritchel jreckley caimmons itracra	Finance Nasketing	North-468 Central-134	
1 1052	2192c174c940 b975c871d361	jdamesa nemranus	Narketing Human Resources	East-195 Central-259	
1055	0831e972f553 e782f537g683	csimmons itracca jdancsa jdancsa nermanus awilliam ankala mscott madebowa	Marketing Marketing	North-139	
1057	g264h8521697	macett madebowa jngwyen nhezah	Marketing	South-119	
1061	1 Marco 1 Marc	nhersh redwards	Human Resources	Centeal-134 East-195 Centeal-259 Centeal-256 North-139 South-270 South-270 South-275 East-163 North-180 East-226 South-477	
1063	1686m140m569 NULL	lpope ejones	Sales Marketing	East-226 South-477	
1065	1686r140n569 1686r140n569 NUII n4280322r522 c678p794q557 p288q432r721	imoore ttyrell	Human Resources Sales	West-490 Central-444 North-277 East-110	
1067	F288q432=721 NULL	lwhite jpank	Marketing Finance	North-277 East-110	
1070	2/72t1750409 t244u829v723	thailey edutchma earith amobined	Human Resources	North-204 West-348 East-421	
1001 1002 1004 1004 1004 1006 1006 1006 1006 1006			Marketing		
1076	y347x204a710 x654a154b259	fgarcia fgarcia ldavis sharley gredina	Marketing Marketing Finance Heram Resources Sales Marketing Marketing Finance Finance Heram Resources Sales Sales	East-267 Central-270 East-241 Morth-418 Morth-456 Morth-156 South-155 East-165 South-165 East-165 East-165 East-165 East-165 Central-230 West-251 Central-230 West-27 Central-27 Central-27 Central-27	
1 1078	26672270c584 2433c245d868	Idavis sharley gredina	Sales Warketing	North-418 North-456	
1 1080	c568d742e974 d647e310f618	groon qoosbit gkoshi nhuynh	Namketing Finance	North-156 South-290	
1084	g95@h9721991	nhuynh	Human Resources	South-155	
1086	12815125X749 X8651965#233	lirajunda socah	Sales Marketing	West-499 East-157	
1089	1358r929n154 n378c313p469	jpark2 rtean	Marketing Sales Sales Sales	West-251 Central-230	
1 1092	c391r775q935 r765q957x699	lpank etangany		West-227 Central-247	
1097	t363u179v368 u671v146w618	jlee tarcharb	Human Resources Sales	North-423	
1100	w326x611y598 w701y250x303	rjin ichowdhu	Huffan Resources Huffan Resources Sales Finance Huffan Resources Huffan Resources	Took 022	
1102	x701y250x303 y943x930x241 NULL b551c837d758 c597d792x215 d168x758f876	keelassi randerss	Marketing Marketing Finance Marketing Sales	South-378 East-460 Central-232 South-395 North-471	
1105	NULL h551c837d758 c597d792e215 d168e758f876 e113f288g203 f229g533h679 g567h3761314 h83511791862 j781k4201510	kerei joohen	Finance Marketing	South-395	
1 1107	d16887581876 e113f288g203	akajwana jwashing nlocklea pchaudhu jlee		North-226	
1110	g567h3761314 h83511791862	pchaudhu 11ee	Sales Sales Sales	North-226 East-196 Central-428 West-309 East-366	
11113	1781k4201510 NULL	pchaodhe jlee pjaimes mgreene mchao dahmad jpank3 crubanak		East-366 North-335 South-100	1
1116	m272n572c874 n683c758p820	dahrad	Marketing Sales Sales Sales	Nest-405 South-329 Nest-409	
1119	r164q780±999	crubarak ebradaha	Sales Marketing		
1121	NULL m272n572c874 m283c758p820 c305p208q337 p164q780m555 q512m15e313 m28a557t397 a103t552c851 t475c468v151 u340v531m764	muharak shradaha mrojas htomes ekonya clam	Sales Finance	East-288 West-319	
1123	t479u468v151 u340v931w764	clam	Human Resources	Central-172	
1128	y103x561a649	ekonya clam mrodgers mpirato ploper tanom creddy	Huran Resources	South-490 West-205 West-326 Central-451	
1130	a317c635c465	tanow	Sales Butan Bescurces	Central-451 Central-210	
1133	SEL1	tenom creddy pirey akhatri jhawes mwood	Marketing Human Resources	Central-210 Central-164 West-159 West-416 South-166 South-329	
1136 1137	9299h5201457 h1651539j638)hawes twood	Human Resources	West-416 South-166	
1138	1637k9861199	exerten	Human Resources		
1141	1282m821m717 m674m127o823	cochuba leilua	Human Resources	East-385 South-282 East-440 Central-266	
1144	NULL p752q137±169	erchinac macaa	Finance Human Resources		
1146	-451-455.4621 -361-2648 -3661-470-14 -317-76-350-45 -317-76-36 -3	ulereze tvega	Human Resources Finance	Central-171 West-177 South-181 Central-364	
1148 1150	w354v512w139 w852w512w139		Finance Marketing Human Resources		
1152 1153	NULL x677y330x256	nwilliam ncambena	Marketing	Central-170 Central-363	
100 100 100 100 100 100 100 100 100 100	NUII x677y330x256 y765x123x548 x942x566x589 x184x775c707 b264c773d577 c406d877e550 d881e710f732	suhah nwilliam ncamdena chryand rjones dellery lstein hnaser	Marketing Human Resources	North-182	
1156	184E775C707 E264C773d977	rjones dellery lstein bnaser jahen	Human Resources	Conteal-343	
1159	d881e710f732	jahan	Finance Marketino	East-122 East-417 Central-343 Central-243 East-153 West-353	
1163	e1271591g924 h6791515]339 1682]513k442 j713k8931832 k4951234r708 1738r922n515	Cwilliam famelts	Marketing Finance Marketing Marketing Marketing Marketing Sales		
1165	h6751515j339 1682j513k442 j713k8931832 k4951234m708 1738m922n515	ferelt: nwords nyoung thlackwe	Marketing Marketing	North-163 South-128 Central-397 North-443 Central-250	
1169	NULL 015803020359	thlackwe mritchel lalvamer	Marketing Sales Human Resources	Central-250 North-218	
1172	q372x826s628 x537s849t690	akhan ialcarar	Marketing Marketing	North-278 Central-360 South-428 North-428 North-154	
1174 1175	#371t911u987 t959u687u394	ocetie jelaski	Marketing Marketing Finance Finance	North-428 North-154	
1176	08490369x521 v651x183x928 w986w183w88	nlie 20112 nlannist 202129	Human Resources	West-194 West-220 East-190 Westh-196 Westh-445 Centeal-340	
1179	x174y934x376 y131x211a578	asalas medwards	Human Resources Human Resources	North-445 Centeal-340	
1181	x8032233b718 b566c710d544	louraish	Finance Human Besources	South-207 East-400 Central-247 North-330 North-460	
1184	c986d200e170 d790e839f461	rtscsie revens	Human Resources Sales	North-330	
1186	#28114339404 f9639637h851	hhode noshi-a	Finance	East-351 West-252	
1189	17389522015 MILI 01569300035 01728226628 23738454560 23735114887 13554687432 46544565421 46544565421 46544565421 465445645000170 27560331641 2756031644 275603164 2756	slefkowi kcarter	Human Resources Marketing	West-342 Centeal-270	
1151	NULL NULL #340n2870441 n5160853p957	kcarter shakiri rwarren	Marketing Human Resources	Centeal-366 West-212	
1160 1161 1164 1164 1166 1166 1167 1170 1170 1170 1170 1170	MULL	ceilliar famile famile famile famile famile famile medda nyoung tilached metteral lakunga famile metteral lakunga famile metteral lakunga famile metteral famile fa	Finance Finance Finance Heran Besources Marketing Marketing Heran Besources Finance Marketing Heran Resources Heran Resources	North-460 East-351 West-252 West-252 West-342 Centeal-270 Centeal-366 West-212 East-346 South-117 East-100	
161 rows in se		areyes	Human Resources	2200-100	
Variate (cegan	ixation]>				

To allow the team to make an update to employee machines outside of the Information Technology department, the analyst used used SQL filters to create a query which identifies all employees not in the IT department.

Summary

Using filters in SQL allows analysts and the teams they are part of to complete a number of cybersecurity tasks with specific criteria, selecting individuals, machines and incidents that meet various criteria for further action.