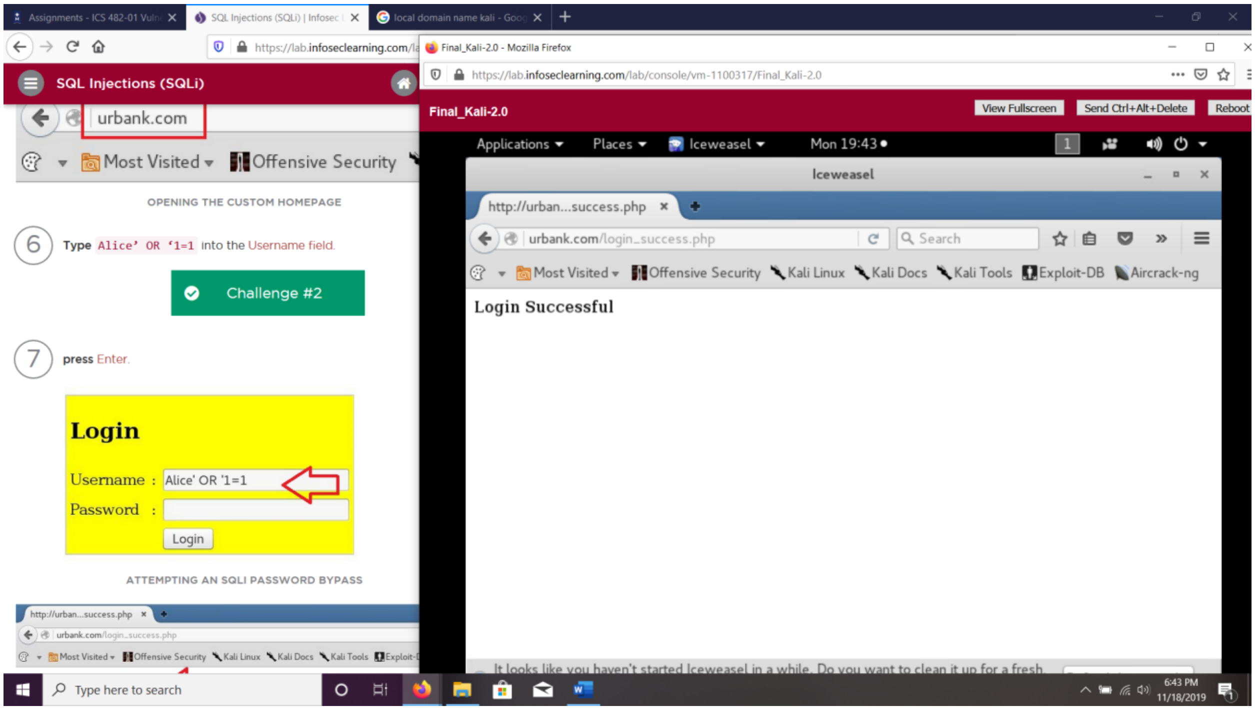
Ryan Brodsky

ICS482

11/18/19

InfoSec Lab: SQL Injection (SQLi)



OPENING THE CUSTOM HOMEPAGE

6 Type `Alice' OR '1=1` into the Username field.

Challenge #2

7 press Enter.

Login

Username : Alice' OR '1=1

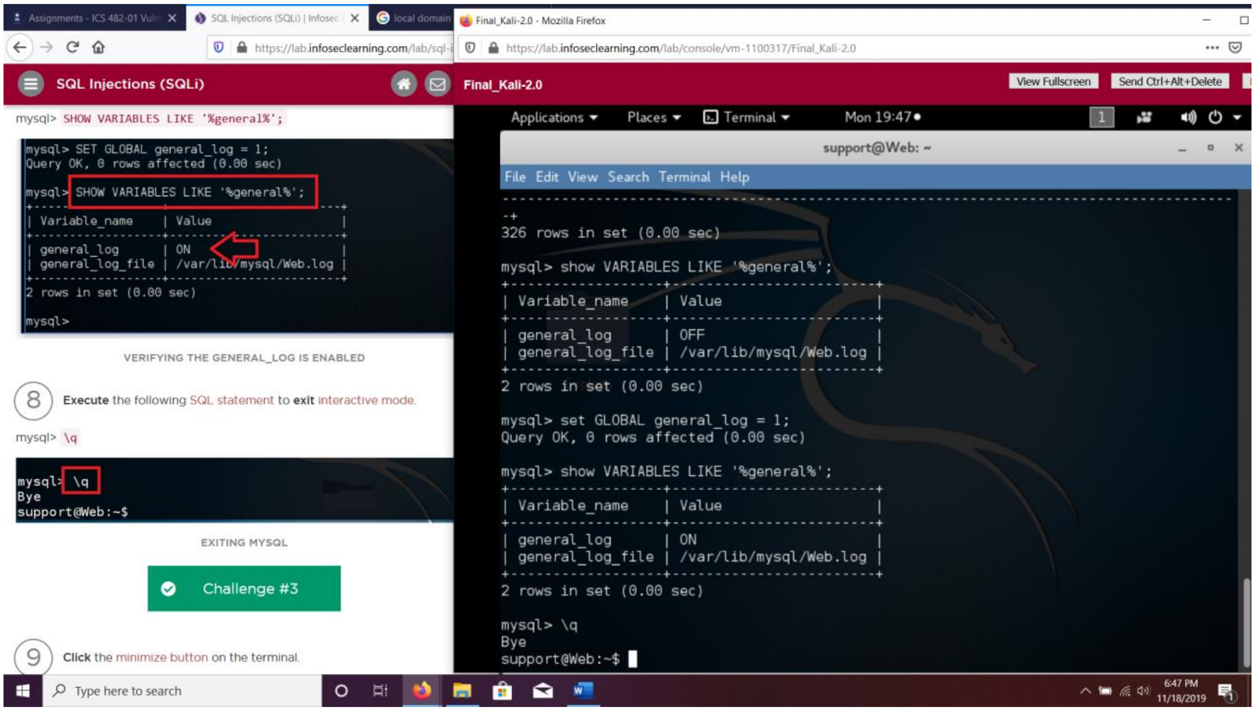
Password :

Login

ATTEMPTING AN SQLI PASSWORD BYPASS

Login Successful

It looks like you haven't started Iceweasel in a while. Do you want to clean it up for a fresh


Assignments - ICS 482-01 Vuln
SQL Injections (SQLi) | Infosec
local domain
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SQL Injections (SQLi)
Final_Kali-2.0 - Mozilla Firefox
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Terminal
Mon 19:47
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File Edit View Search Terminal Help
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6:47 PM
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mysql> `SHOW VARIABLES LIKE '%general%';`

```
mysql> SET GLOBAL general_log = 1;
Query OK, 0 rows affected (0.00 sec)

mysql> SHOW VARIABLES LIKE '%general%';
+------------------+-----------------------+
| Variable_name    | Value                 |
+------------------+-----------------------+
| general_log      | ON                    |
| general_log_file | /var/lib/mysql/Web.log |
+------------------+-----------------------+
2 rows in set (0.00 sec)

mysql>
```

VERIFYING THE GENERAL_LOG IS ENABLED

8 Execute the following SQL statement to exit interactive mode.

mysql> `\q`

```
mysql> \q
Bye
support@Web:~$
```

EXITING MYSQL

Challenge #3

9 Click the minimize button on the terminal.

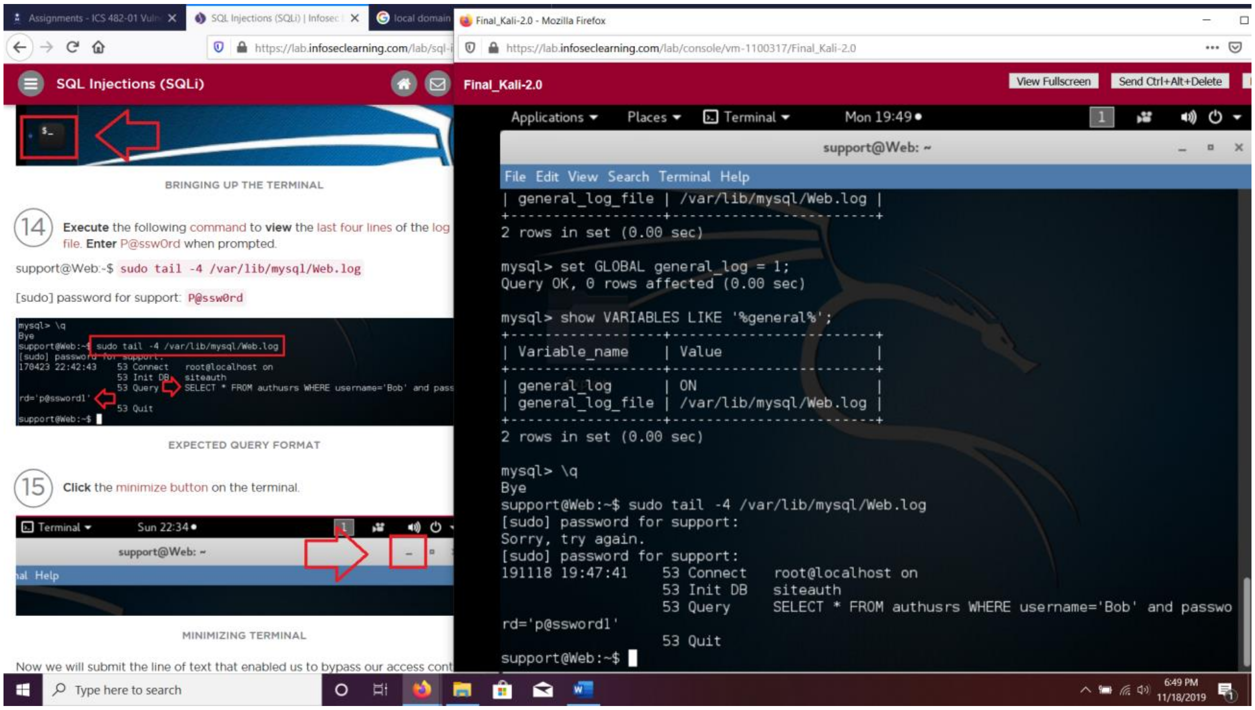
```
--+
326 rows in set (0.00 sec)

mysql> show VARIABLES LIKE '%general%';
+------------------+-----------------------+
| Variable_name    | Value                 |
+------------------+-----------------------+
| general_log      | OFF                   |
| general_log_file | /var/lib/mysql/Web.log |
+------------------+-----------------------+
2 rows in set (0.00 sec)

mysql> set GLOBAL general_log = 1;
Query OK, 0 rows affected (0.00 sec)

mysql> show VARIABLES LIKE '%general%';
+------------------+-----------------------+
| Variable_name    | Value                 |
+------------------+-----------------------+
| general_log      | ON                    |
| general_log_file | /var/lib/mysql/Web.log |
+------------------+-----------------------+
2 rows in set (0.00 sec)

mysql> \q
Bye
support@Web:~$
```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BRINGING UP THE TERMINAL

(14) **Execute** the following command to **view** the last four lines of the log file. **Enter** P@ssw0rd when prompted.

support@Web:~$ `sudo tail -4 /var/lib/mysql/Web.log`

[sudo] password for support: `P@ssw0rd`

```
mysql> \q
Bye
support@Web:~$ sudo tail -4 /var/lib/mysql/Web.log
[sudo] password for support:
170423 22:42:43     53 Connect   root@localhost on
                    53 Init DB   siteauth
                    53 Query     SELECT * FROM authusrs WHERE username='Bob' and pass
rd='p@ssword1'
                    53 Quit
support@Web:~$
```

EXPECTED QUERY FORMAT

(15) **Click** the minimize button on the terminal.

MINIMIZING TERMINAL

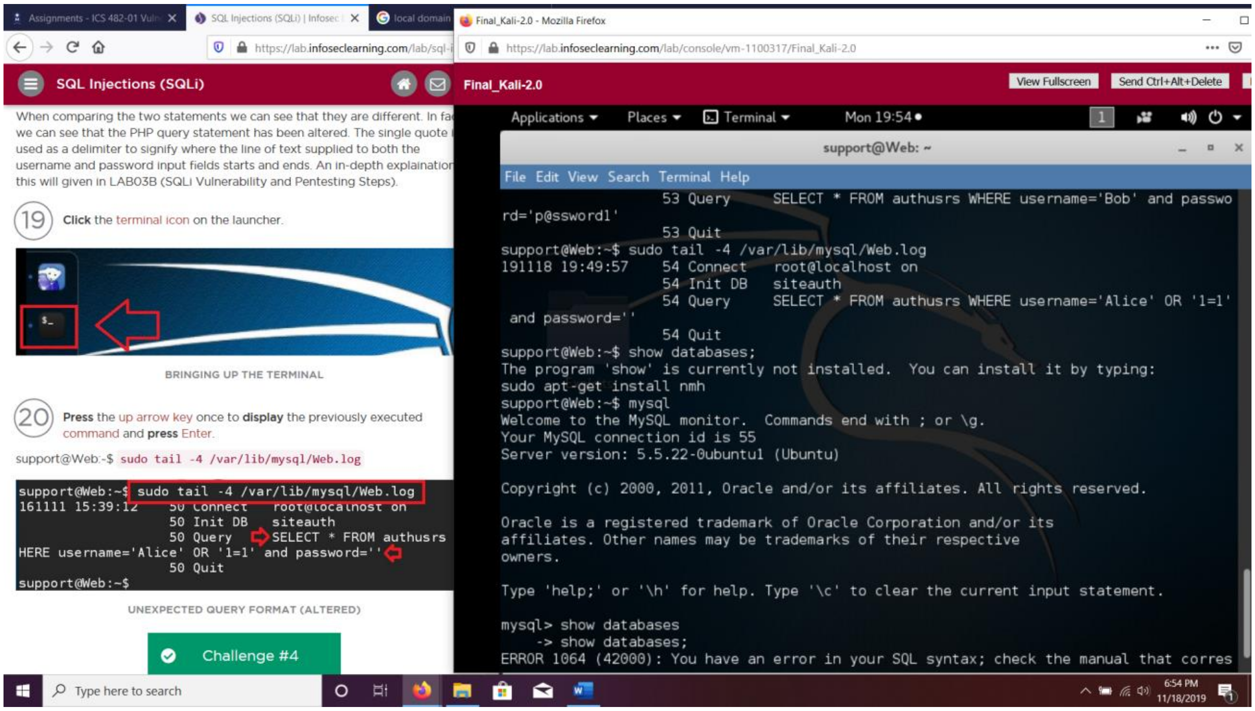
Now we will submit the line of text that enabled us to bypass our access cont

```
| general_log_file | /var/lib/mysql/Web.log |
+------------------+------------------------+
2 rows in set (0.00 sec)

mysql> set GLOBAL general_log = 1;
Query OK, 0 rows affected (0.00 sec)

mysql> show VARIABLES LIKE '%general%';
+------------------+------------------------+
| Variable_name    | Value                  |
+------------------+------------------------+
| general_log      | ON                     |
| general_log_file | /var/lib/mysql/Web.log |
+------------------+------------------------+
2 rows in set (0.00 sec)

mysql> \q
Bye
support@Web:~$ sudo tail -4 /var/lib/mysql/Web.log
[sudo] password for support:
Sorry, try again.
[sudo] password for support:
191118 19:47:41     53 Connect   root@localhost on
                    53 Init DB   siteauth
                    53 Query     SELECT * FROM authusrs WHERE username='Bob' and passwo
rd='p@ssword1'
                    53 Quit
support@Web:~$
```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Terminal ▾
Mon 19:54 ●
support@Web: ~
File Edit View Search Terminal Help
Type here to search
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When comparing the two statements we can see that they are different. In fa we can see that the PHP query statement has been altered. The single quote used as a delimiter to signify where the line of text supplied to both the username and password input fields starts and ends. An in-depth explainatior this will given in LAB03B (SQLi Vulnerability and Pentesting Steps).

(19) **Click** the terminal icon on the launcher.

BRINGING UP THE TERMINAL

(20) **Press** the up arrow key once to **display** the previously executed command and **press** Enter.

support@Web:~$ `sudo tail -4 /var/lib/mysql/Web.log`

```
support@Web:~$ sudo tail -4 /var/lib/mysql/Web.log
161111 15:39:12      50 Connect   root@localhost on
                     50 Init DB   siteauth
                     50 Query     SELECT * FROM authusrs
HERE username='Alice' OR '1=1' and password=''
                     50 Quit
support@Web:~$
```

UNEXPECTED QUERY FORMAT (ALTERED)

Challenge #4

```
                    53 Query     SELECT * FROM authusrs WHERE username='Bob' and passwo
rd='p@ssword1'
                    53 Quit
support@Web:~$ sudo tail -4 /var/lib/mysql/Web.log
191118 19:49:57     54 Connect   root@localhost on
                    54 Init DB   siteauth
                    54 Query     SELECT * FROM authusrs WHERE username='Alice' OR '1=1'
 and password=''
                    54 Quit
support@Web:~$ show databases;
The program 'show' is currently not installed.  You can install it by typing:
sudo apt-get install nmh
support@Web:~$ mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 55
Server version: 5.5.22-0ubuntu1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> show databases
    -> show databases;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corres
```

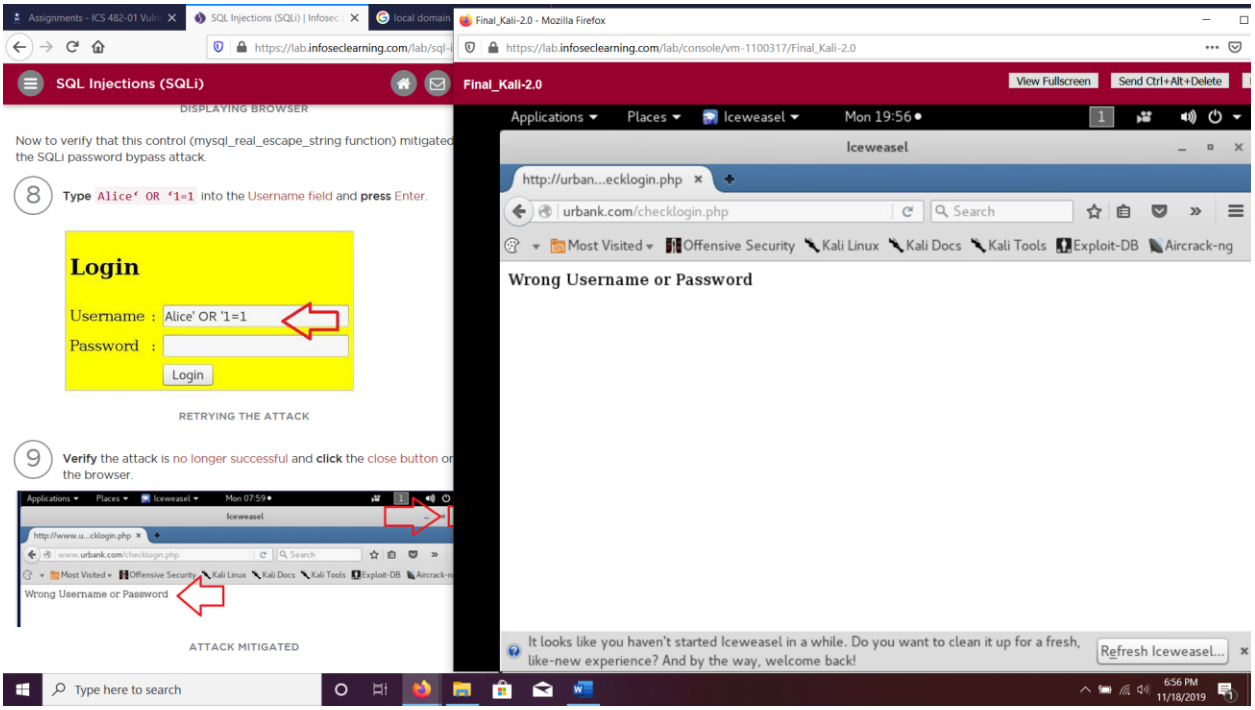
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Iceweasel
Mon 19:56
Iceweasel
http://urban...ecklogin.php
urbank.com/checklogin.php
Search
Most Visited
Offensive Security
Kali Linux
Kali Docs
Kali Tools
Exploit-DB
Aircrack-ng
Type here to search
6:56 PM
11/18/2019

DISPLAYING BROWSER

Now to verify that this control (mysql_real_escape_string function) mitigated the SQLi password bypass attack.

8 **Type** `Alice' OR '1=1` into the Username field and **press** Enter.

Login

Username : Alice' OR '1=1

Password :

Login

RETRYING THE ATTACK

9 **Verify** the attack is no longer successful and **click** the close button o the browser.

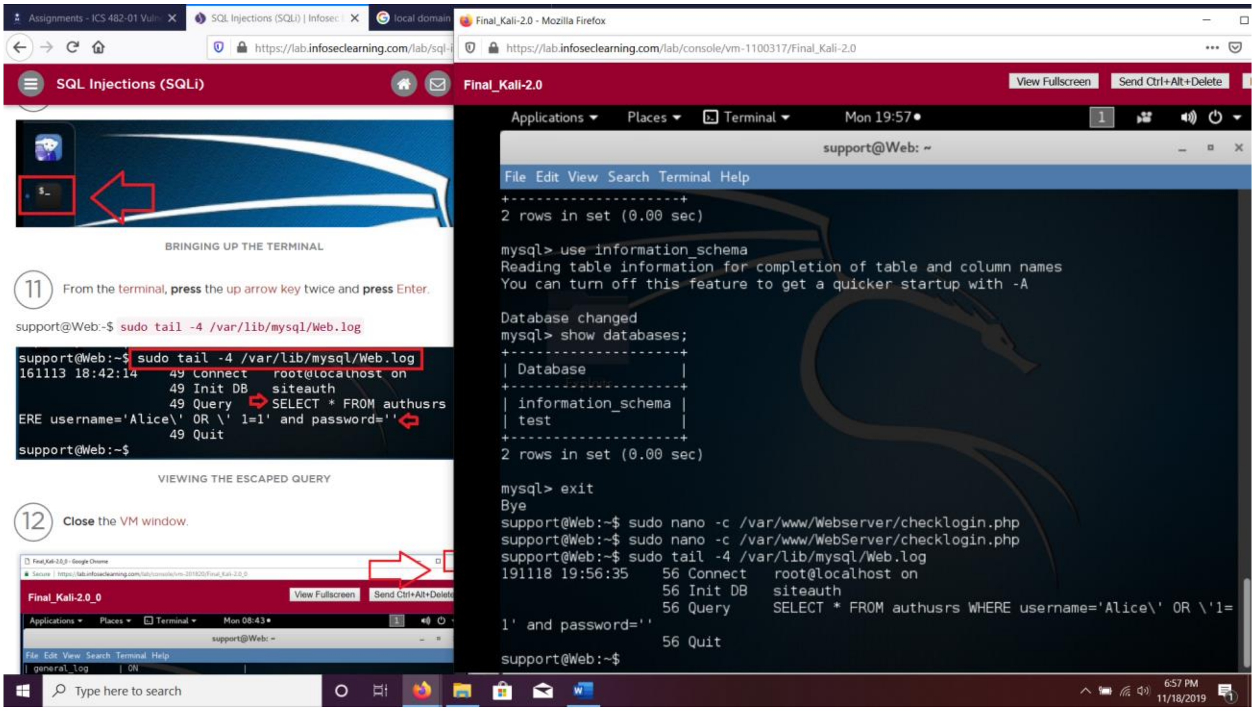
Wrong Username or Password

ATTACK MITIGATED

Wrong Username or Password

It looks like you haven't started Iceweasel in a while. Do you want to clean it up for a fresh, like-new experience? And by the way, welcome back!

Refresh Iceweasel...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SQL Injections (SQLi)
Final_Kali-2.0
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Applications
Places
Terminal
Mon 19:57
support@Web: ~
File Edit View Search Terminal Help
Type here to search
6:57 PM
11/18/2019

BRINGING UP THE TERMINAL

11 From the terminal, **press** the up arrow key twice and **press** Enter.

support@Web:-$ `sudo tail -4 /var/lib/mysql/Web.log`

```
support@Web:~$ sudo tail -4 /var/lib/mysql/Web.log
161113 18:42:14     49 Connect   root@localhost on
                    49 Init DB   siteauth
                    49 Query     SELECT * FROM authusrs
ERE username='Alice\' OR \' 1=1' and password=''
                    49 Quit
support@Web:~$
```

VIEWING THE ESCAPED QUERY

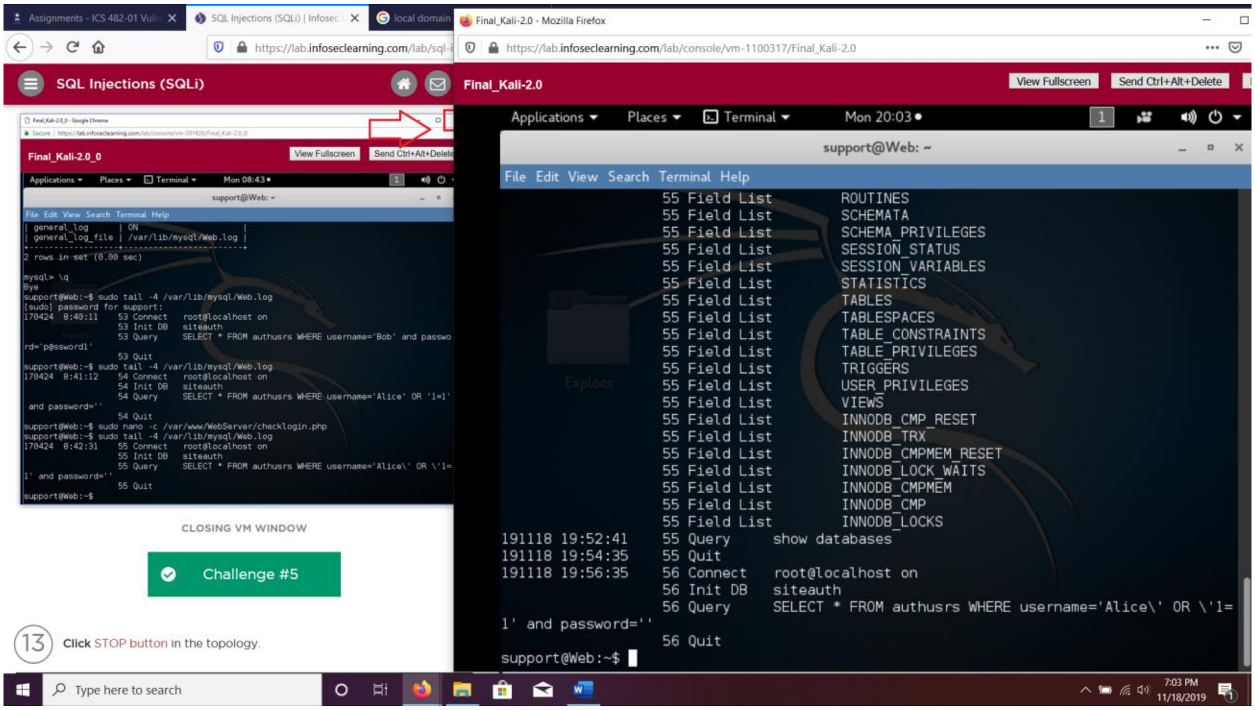
12 **Close** the VM window.

```
+--------------------+
2 rows in set (0.00 sec)

mysql> use information_schema
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| test               |
+--------------------+
2 rows in set (0.00 sec)

mysql> exit
Bye
support@Web:~$ sudo nano -c /var/www/Webserver/checklogin.php
support@Web:~$ sudo nano -c /var/www/WebServer/checklogin.php
support@Web:~$ sudo tail -4 /var/lib/mysql/Web.log
191118 19:56:35     56 Connect   root@localhost on
                    56 Init DB   siteauth
                    56 Query     SELECT * FROM authusrs WHERE username='Alice\' OR \'1=
1' and password=''
                    56 Quit
support@Web:~$
```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https://lab.infoseclearning.com/lab/sql-i
SQL Injections (SQLi)
Final_Kali-2.0_0 - Google Chrome
Secure | https://lab.infoseclearning.com/lab/console/vm-201820/Final_Kali-2.0_0
Final_Kali-2.0_0
View Fullscreen
Send Ctrl+Alt+Delete
Applications
Places
Terminal
Mon 08:43
support@Web: ~
File Edit View Search Terminal Help

```
| general_log      | ON                    |
| general_log_file | /var/lib/mysql/Web.log |
+------------------+-----------------------+
2 rows in set (0.00 sec)

mysql> \q
Bye
support@Web:~$ sudo tail -4 /var/lib/mysql/Web.log
[sudo] password for support:
170424  8:40:11     53 Connect   root@localhost on
                    53 Init DB   siteauth
                    53 Query     SELECT * FROM authusrs WHERE username='Bob' and passwo
rd='p@ssword1'
                    53 Quit
support@Web:~$ sudo tail -4 /var/lib/mysql/Web.log
170424  8:41:12     54 Connect   root@localhost on
                    54 Init DB   siteauth
                    54 Query     SELECT * FROM authusrs WHERE username='Alice' OR '1=1'
 and password=''
                    54 Quit
support@Web:~$ sudo nano -c /var/www/WebServer/checklogin.php
support@Web:~$ sudo tail -4 /var/lib/mysql/Web.log
170424  8:42:31     55 Connect   root@localhost on
                    55 Init DB   siteauth
                    55 Query     SELECT * FROM authusrs WHERE username='Alice\' OR \'1=
1' and password=''
                    55 Quit
support@Web:~$
```

CLOSING VM WINDOW

13 Click STOP button in the topology.

Final_Kali-2.0 - Mozilla Firefox
https://lab.infoseclearning.com/lab/console/vm-1100317/Final_Kali-2.0
Final_Kali-2.0
View Fullscreen
Send Ctrl+Alt+Delete
Applications
Places
Terminal
Mon 20:03
support@Web: ~
File Edit View Search Terminal Help

```
                         55 Field List       ROUTINES
                         55 Field List       SCHEMATA
                         55 Field List       SCHEMA_PRIVILEGES
                         55 Field List       SESSION_STATUS
                         55 Field List       SESSION_VARIABLES
                         55 Field List       STATISTICS
                         55 Field List       TABLES
                         55 Field List       TABLESPACES
                         55 Field List       TABLE_CONSTRAINTS
                         55 Field List       TABLE_PRIVILEGES
                         55 Field List       TRIGGERS
                         55 Field List       USER_PRIVILEGES
                         55 Field List       VIEWS
                         55 Field List       INNODB_CMP_RESET
                         55 Field List       INNODB_TRX
                         55 Field List       INNODB_CMPMEM_RESET
                         55 Field List       INNODB_LOCK_WAITS
                         55 Field List       INNODB_CMPMEM
                         55 Field List       INNODB_CMP
                         55 Field List       INNODB_LOCKS
191118 19:52:41          55 Query     show databases
191118 19:54:35          55 Quit
191118 19:56:35          56 Connect   root@localhost on
                         56 Init DB   siteauth
                         56 Query     SELECT * FROM authusrs WHERE username='Alice\' OR \'1=
1' and password=''
                         56 Quit
support@Web:~$
```