Sri Lanka Institute of Information Technology

B.Sc. Special Honors Degree

in

Information Technology

(Cyber Security)

Lab report

From SQL injection to shell

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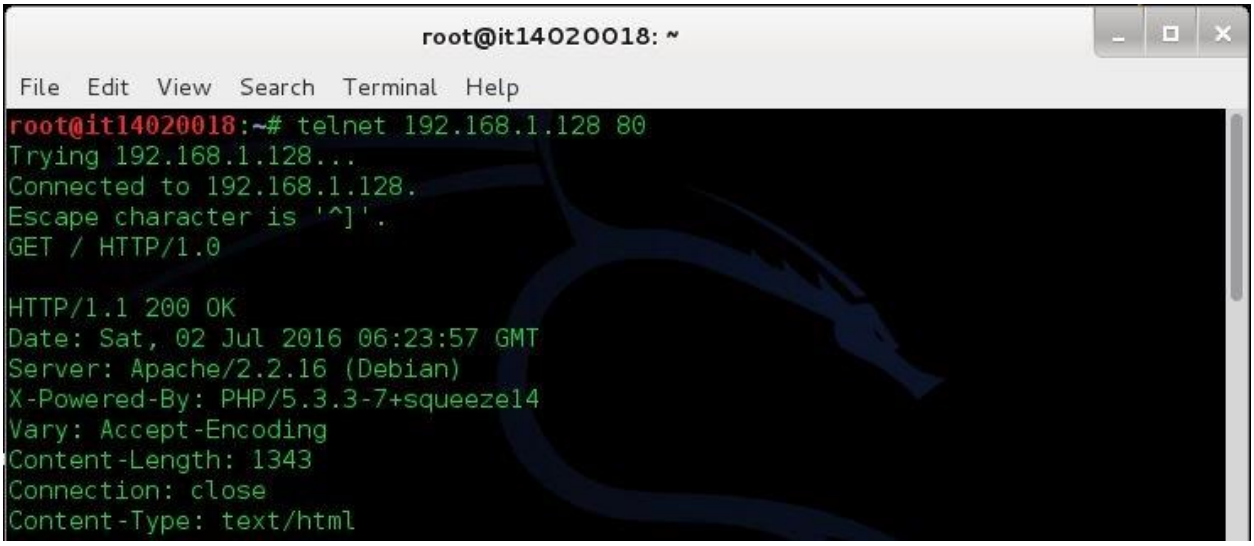
1) Gathering information about the running web server

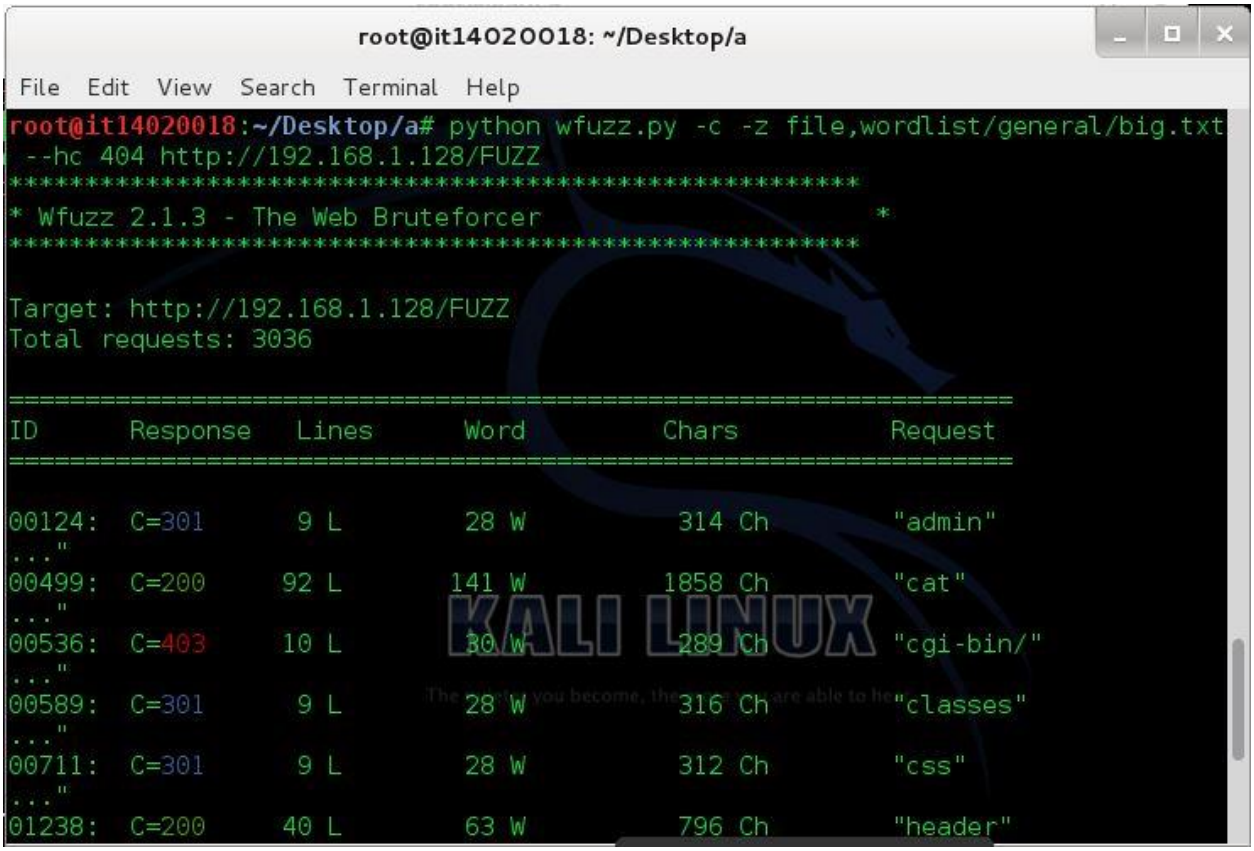
We can gather information using telnet or netcat command. First establish a connection and then send a HTTP request to port 80 of the vulnerable server. If the port is open it reply.



This specifies information such as HTTP version, web server type and version, operating system, PHP version etc...

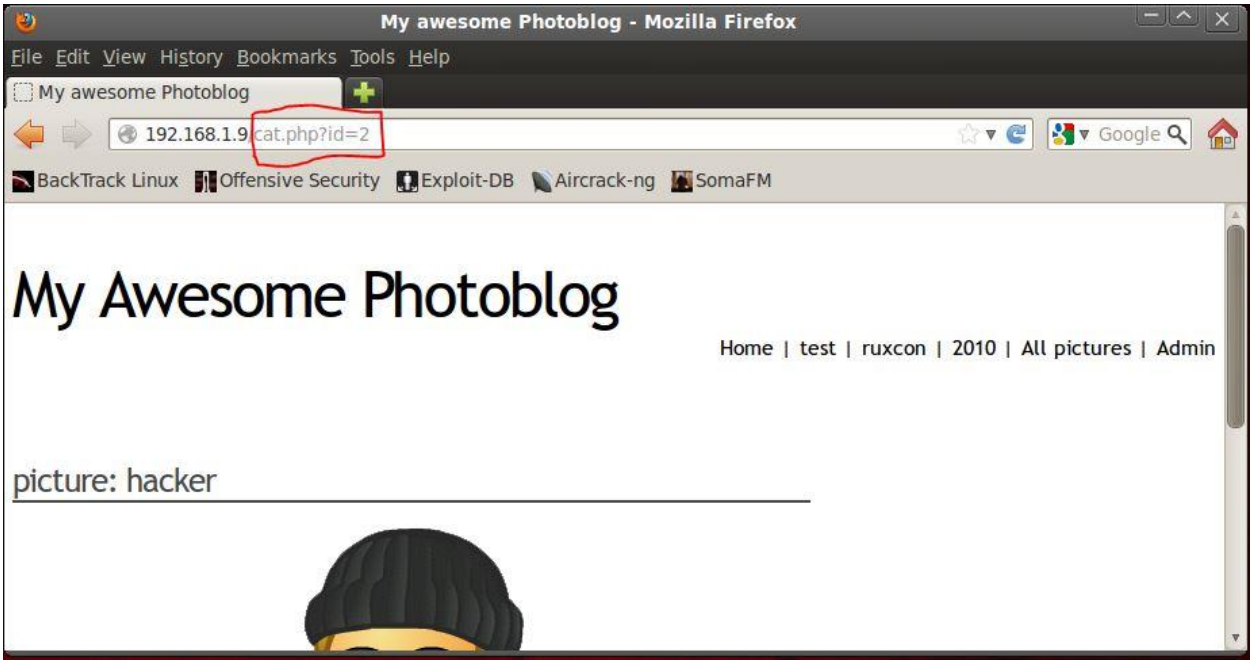
2) **Explore the web directory**

By using a directory busting tool like wufuzz.py we can brute force the directory and find out what are the directories in the web server.



3) Detecting where to inject the SQL

We can see that in the URL "**/cat.php?id=2**" if we change the value it displays a different page. That means the SQL query is getting the integer value from the URL and runs the query with it.



To perform the SQL injection, we need to find the number of columns returned from the first part of the query. Because we don't have the source code we have to guess the number (or check by entering one by one)

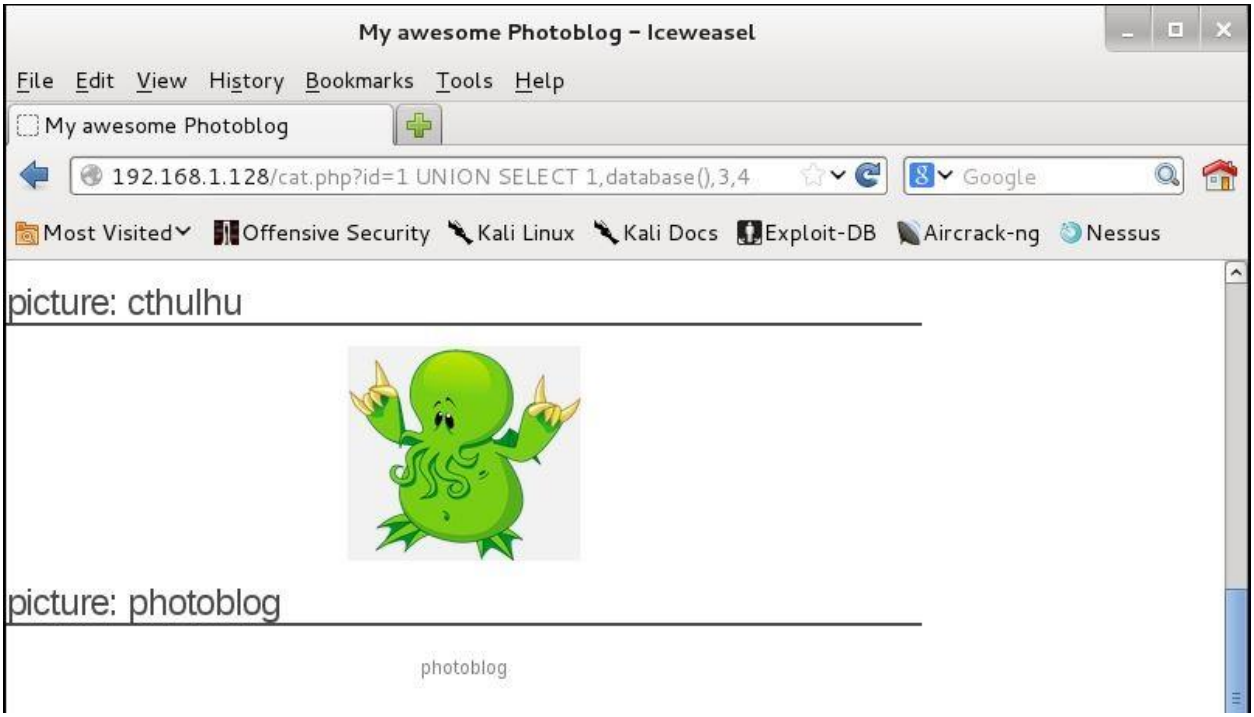
Then using the UNION keyword we can get information from two steps.

2 UNION SELECT 1 - will return an error
2 UNION SELECT 1, 2 - will return an error
2 UNION SELECT 1, 2, 3 - will return an error
2 UNION SELECT 1, 2, 3, 4 – will not return an error and show number 2 in a output.

Now we can get the information based on the error message we received. Now we can force the database to run the functions like

current_user ()

database ()

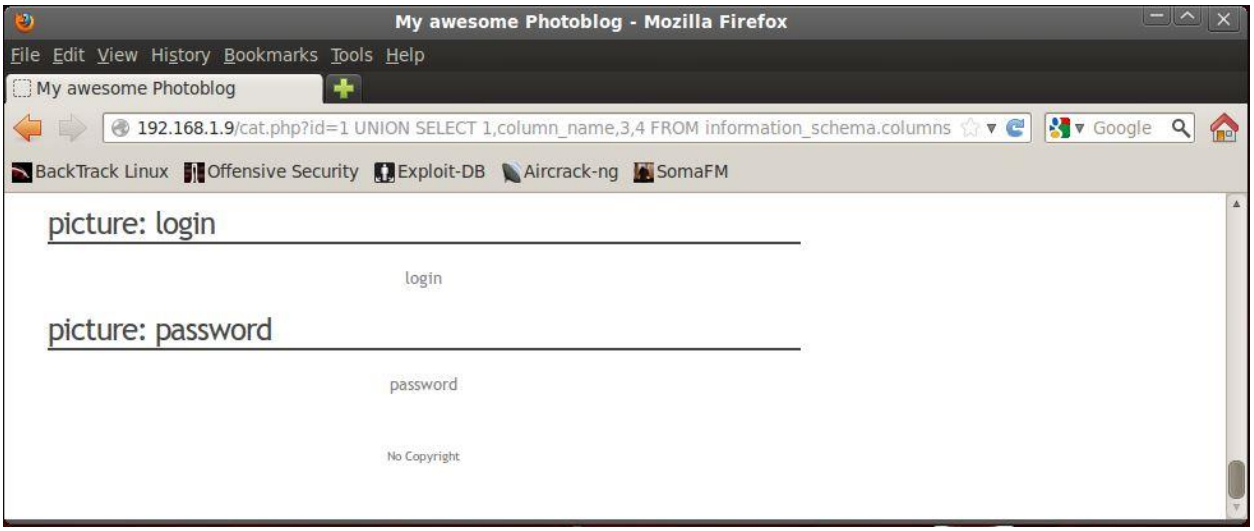


4) Exploitation of SQL

By injecting following SQL commands we can retrieve information about tables and related columns.

the list of tables: 1 UNION SELECT 1,table_name,3,4 FROM information_schema.tables.

the list of columns: 1 UNION SELECT 1,column_name,3,4 FROM information_schema.columns.



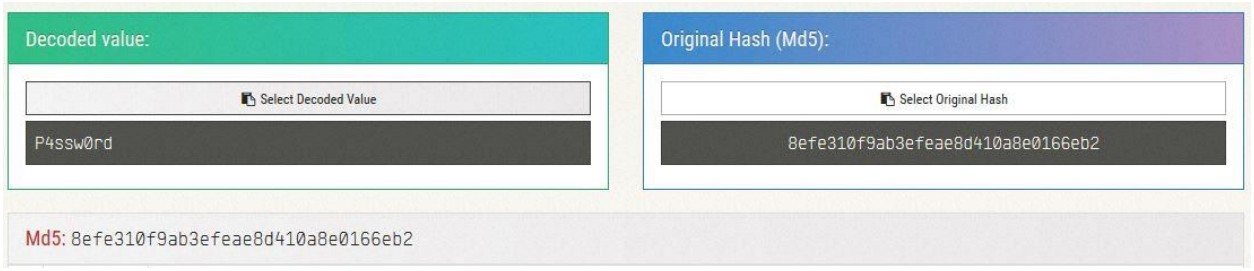
Now we know there is a table called users and it has columns names login and password.

Then using UNION we make a SQL payload to retrieve the password.

1 UNION SELECT 1,concat(login,':',password),3,4 FROM users

Concat() is used to concat different information and ':' is used to split the result of the query.

Now we can reverse the hash and get the password.
This can be easily done through search the hash in the Google and use an online tool.



Now we can log in as admin.