DVWA

INSTALLATION ANDSQL INJECTION

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CONTENTS

1. INSTALLATION OF DVWA USING DOCKER

For the hassle-free installation of Damn Vulnerable Web Application (DVWA), I used Docker. Below are the steps that I followed to complete the installation.

CLONE THE REPOSITORY

First, I cloned the DVWA repository from pentestlab.github.io using the following

Command:

```
git clone https://github.com/eystsen/pentestlab.git
```

• BOOT THE DOCKER CONTAINER

After cloning the repository, I entered into the folder of DVWA and typed out some Docker commands to boot the web application. The steps which I followed were:

a. Terminal opened, then cloned the pentestlab folder into the terminal

```
cd pentestlab
```

b. Installed Docker container with the following command:

```
sudo apt install docker.io
```

• ACCESS TO THE DVWA WEB PAGE

After starting the Docker container I run this command to access the DVWA web page.

Command:

```
./pentestlab.sh start dvwa
```

Screenshot 1

- LOGIN

On the login page, I used the following default information:
website: http://dvwa

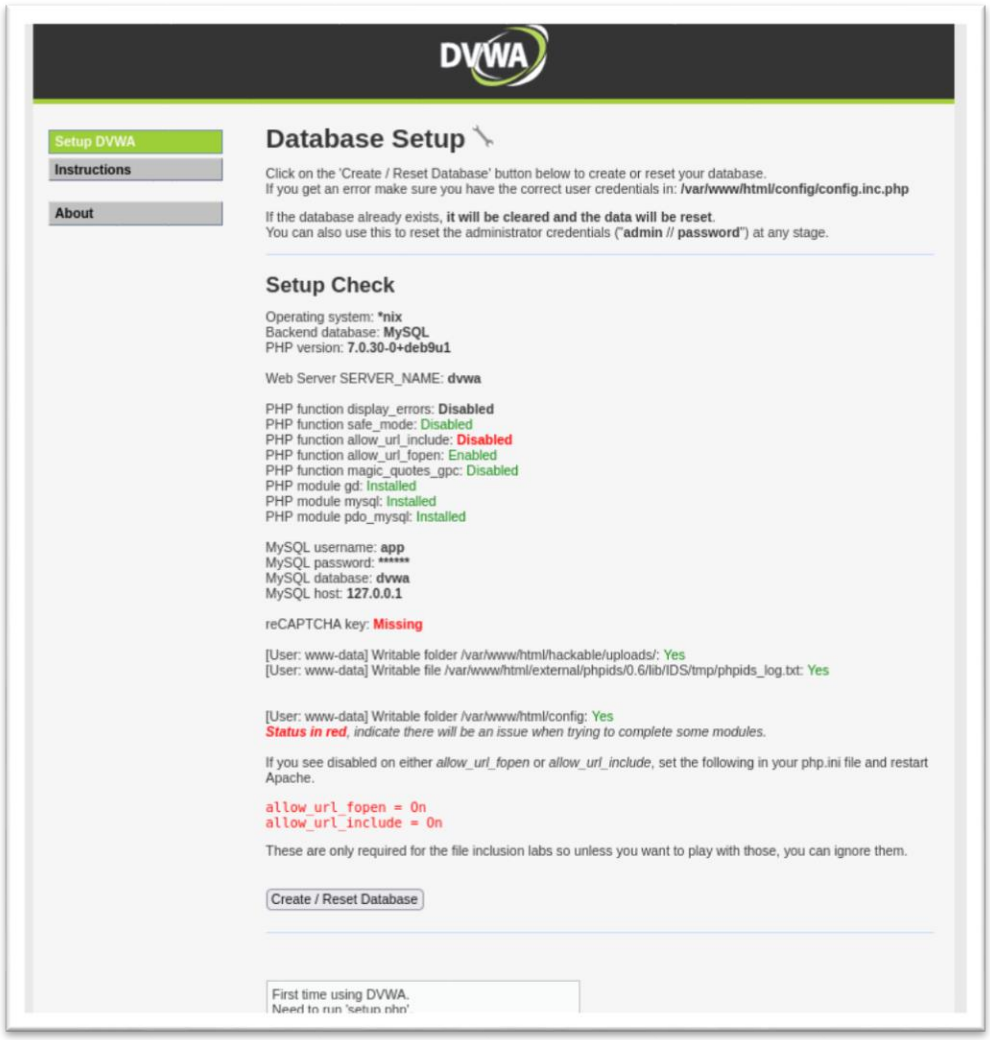
username: admin

password: password

Screenshot 2

• DATABASE RESET

In the prompt, after logging in for the first time, I was automatically prompted to reset the database. I clicked the "Reset Database" button.



Screenshot 3

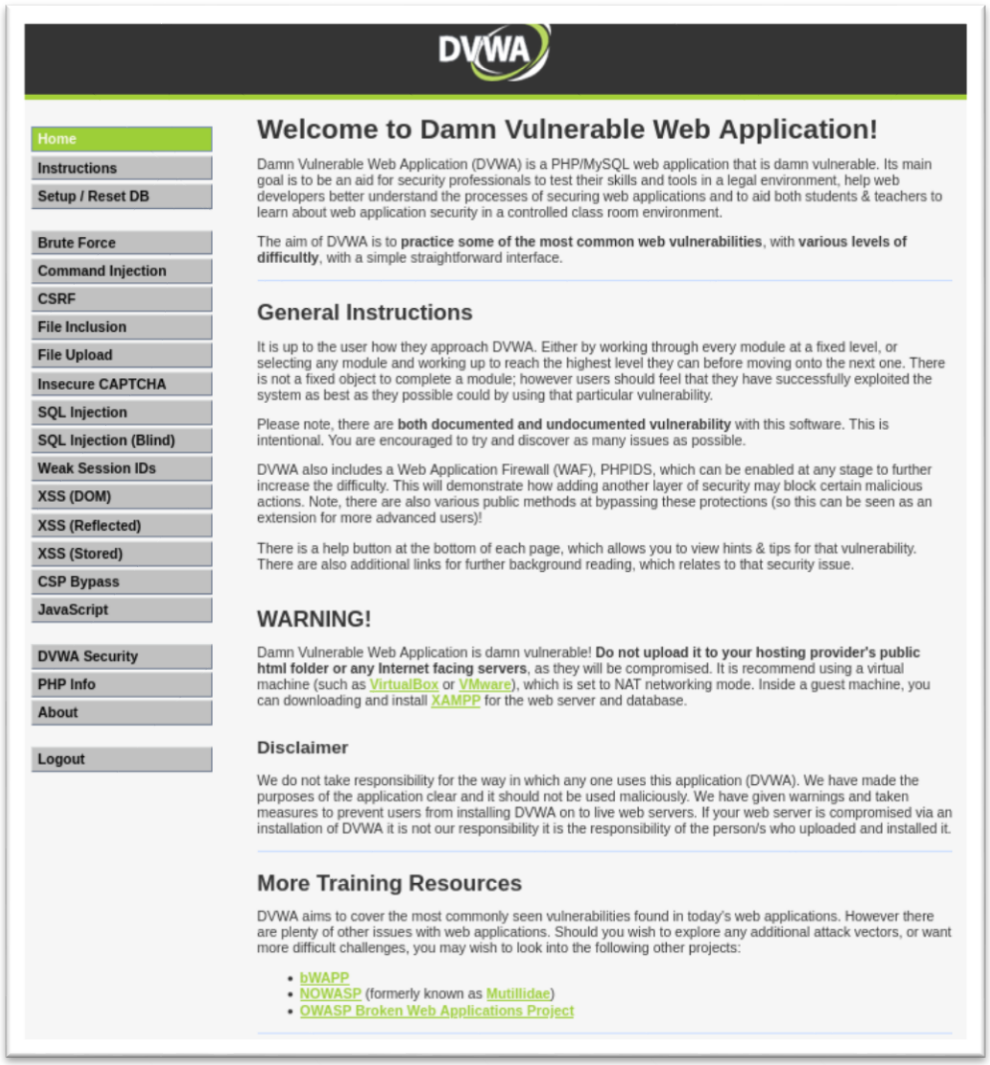
Following the reset of the database, the system took me back to the login page.

• RE-LOGIN

I then logged in again using the default credentials to access the DVWA dashboard.

• CONCLUSION

By this point, the DVWA installation was now done, and the environment was now set up for vulnerability testing.



Screenshot 4

2. PERFORMING SQL INJECTION ON DVWA

- SQL INJECTION (LOW SECURITY LEVEL)

I began by attempting the SQL injection at the Low security level.

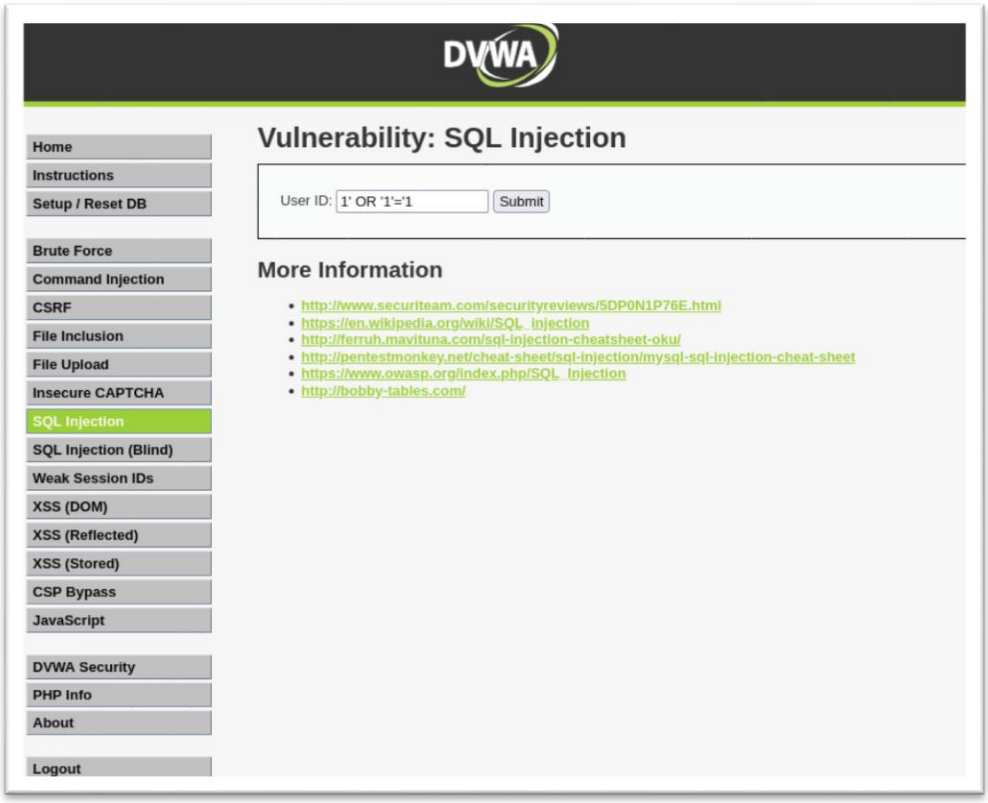
FIRST INJECTION

After finding the SQL injection page, I identified the input field in which to inject my SQL code.

SQL PAYLOAD

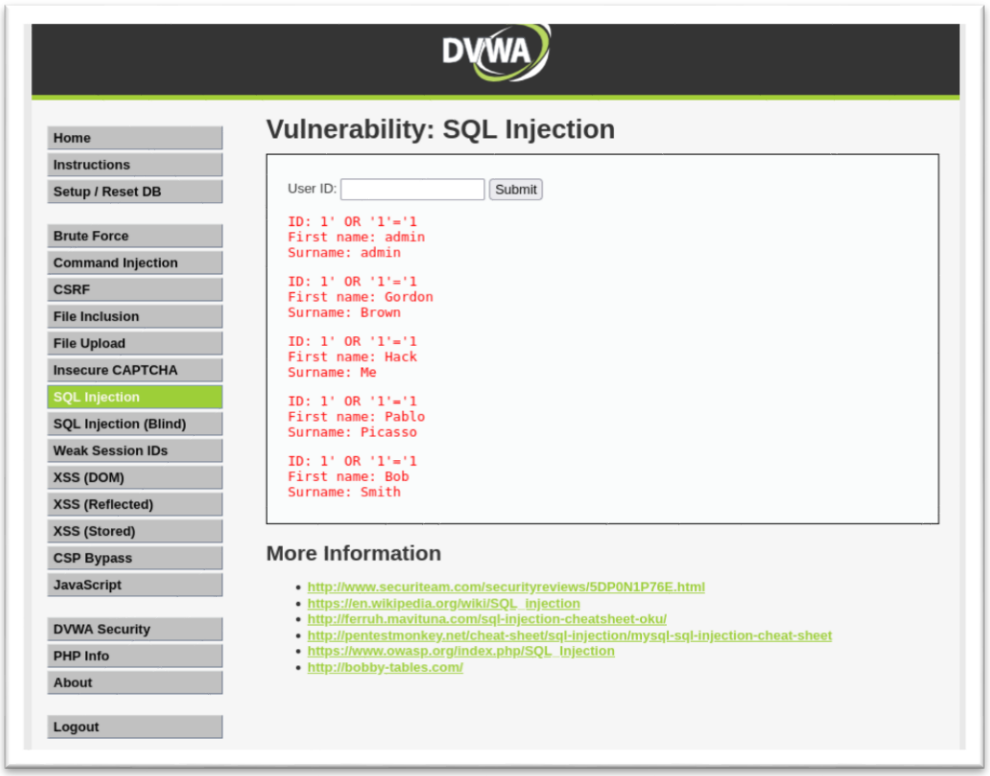
I used the following simple SQL injection string:

```
1' OR '1'='1
```



Screenshot 5

This payload circumvented the need for a valid input and printed out the first name and last name of all users.



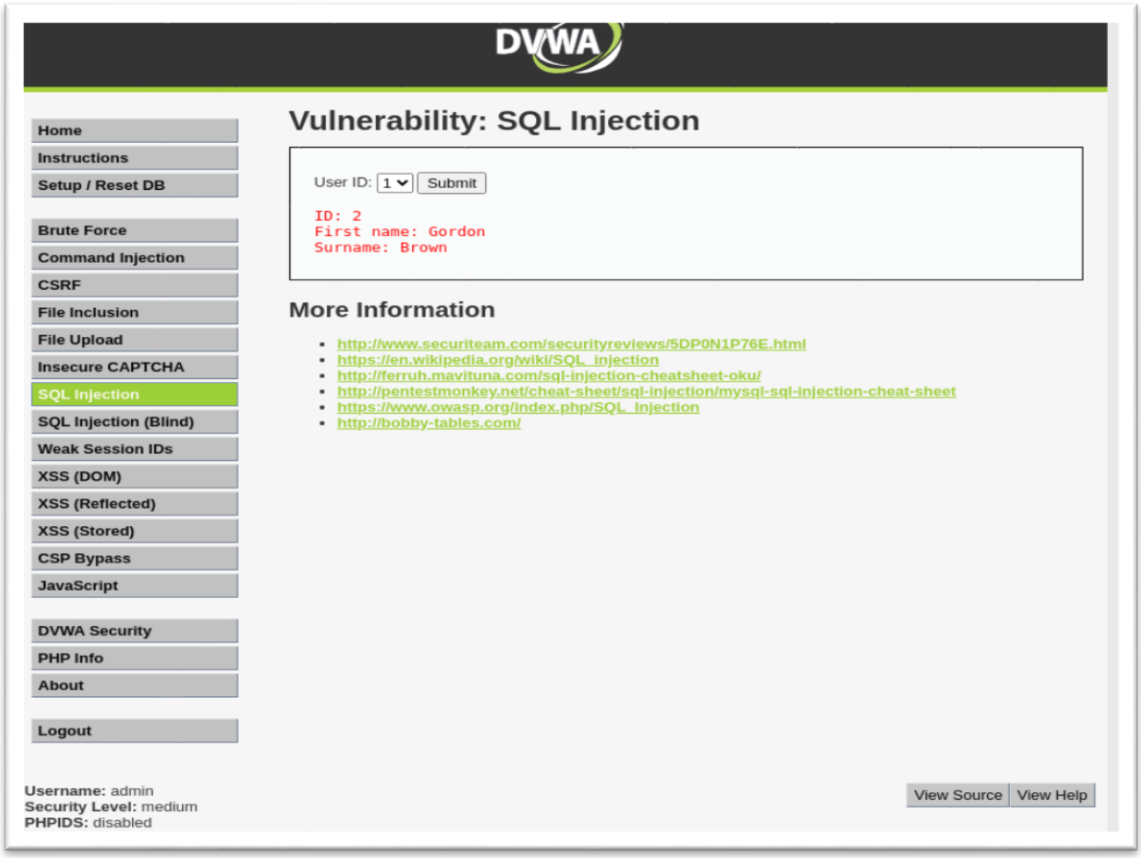
Screenshot 6

• SQL INJECTION (MEDIUM SECURITY LEVEL)

I set the security of DVWA to Medium and ran the test with a more complex payload.

USING BURP SUITE

I captured the HTTP request using Burp Suite. I modified the `id` parameter in the request to be a complex SQL injection string.



Screenshot 7

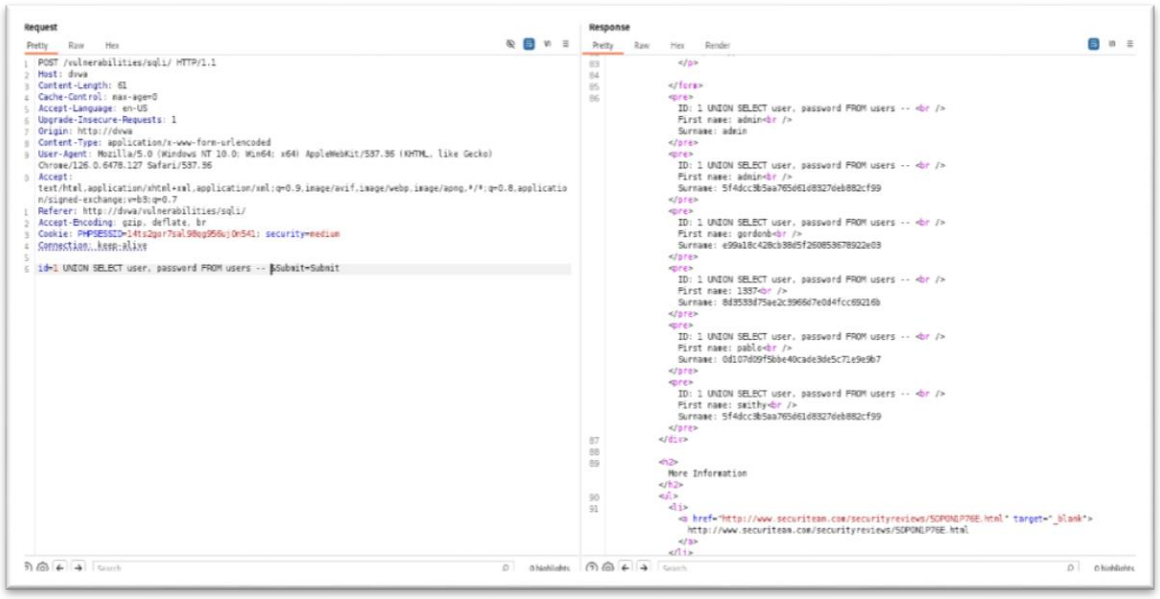
In Burp suite side request

Screenshot 8

SQL INJECTION STRING

I inserted the following payload in the `id` field:

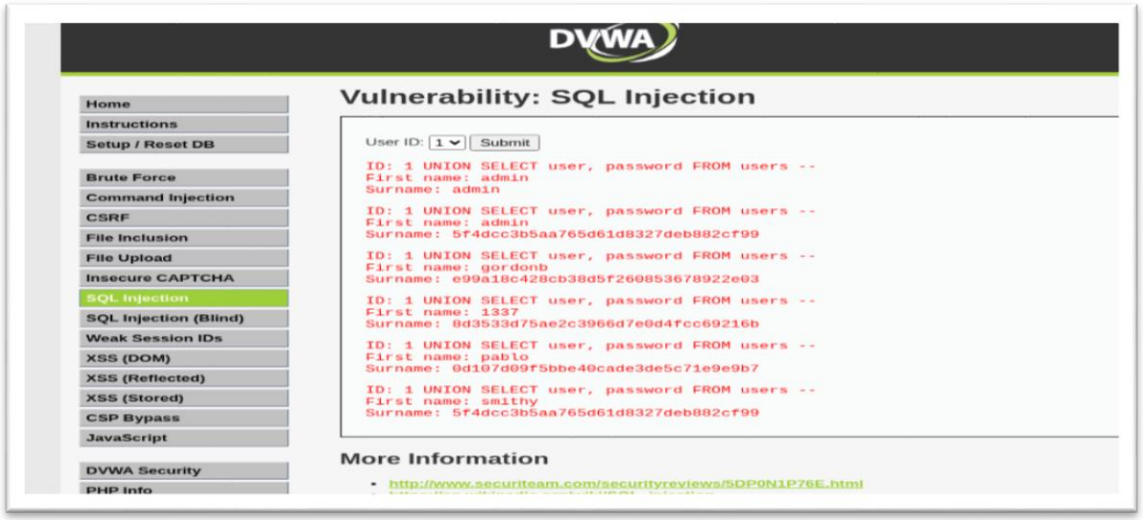
1 UNION SELECT user, password FROM users --



Screenshot 9

EXECUTION

After I had modified the request in Burp Suite, I sent it to the server. Because of this, I could see usernames and passwords fetched by the system's response (refer to screenshots 8 and 9).



Screenshot10

• SQL INJECTION (HIGH SECURITY LEVEL)

I attempted SQL injection at the High security level.

INJECTION POINT IDENTIFICATION

The interface is a bit different at the High security level. When I clicked the "here to change your ID" button

Screenshot 11

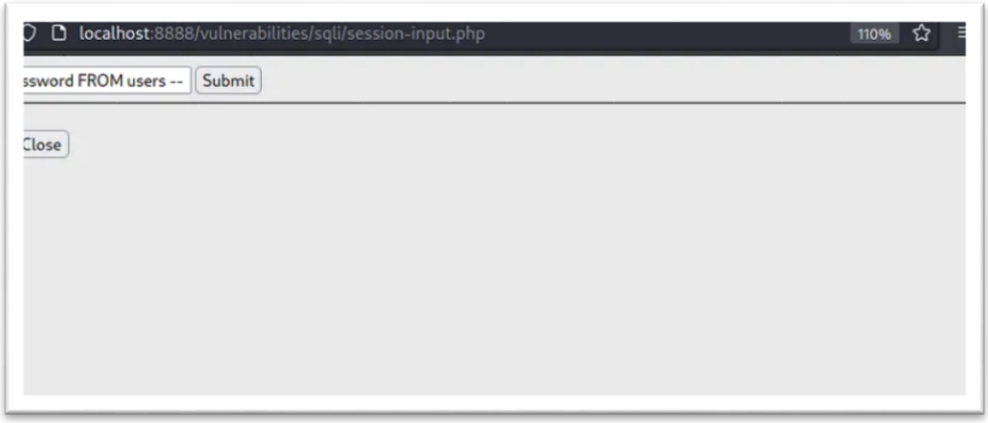
A new window appeared with which I could enter the SQL command.

Screenshot 12

INJECTION PAYLOAD

I used the following SQL injection string:

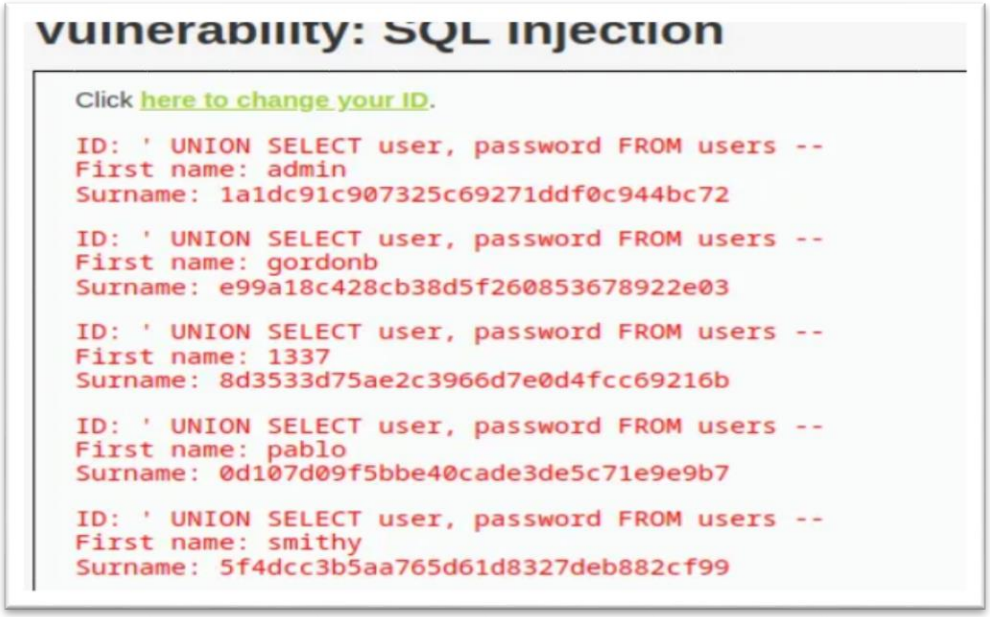
‘ UNION SELECT user, password FROM users - -



Screenshot 13

RESULTS

As a sad reminder to the developers, the system responded to the malicious code with a list of usernames and passwords after it had been submitted, which successfully confirmed the vulnerability-even at the highest security setting.



Screenshot 14

CONCLUSION

SQL Injection allows attackers to manipulate queries, potentially bypassing authentication and accessing sensitive data. In DVWA, the **low** and **medium** levels were vulnerable, while **high** security used parameterized queries, effectively preventing injections. The key takeaway is that **input validation** and **prepared statements** are crucial defenses to mitigate SQL Injection risks and protect web applications from attacks.