DVWA Installation &

SQL Injection

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| **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:

1. Terminal opened, then cloned the pentestlab folder into the terminal  
    cd pentestlab
2. Installed Docker container with the following command:

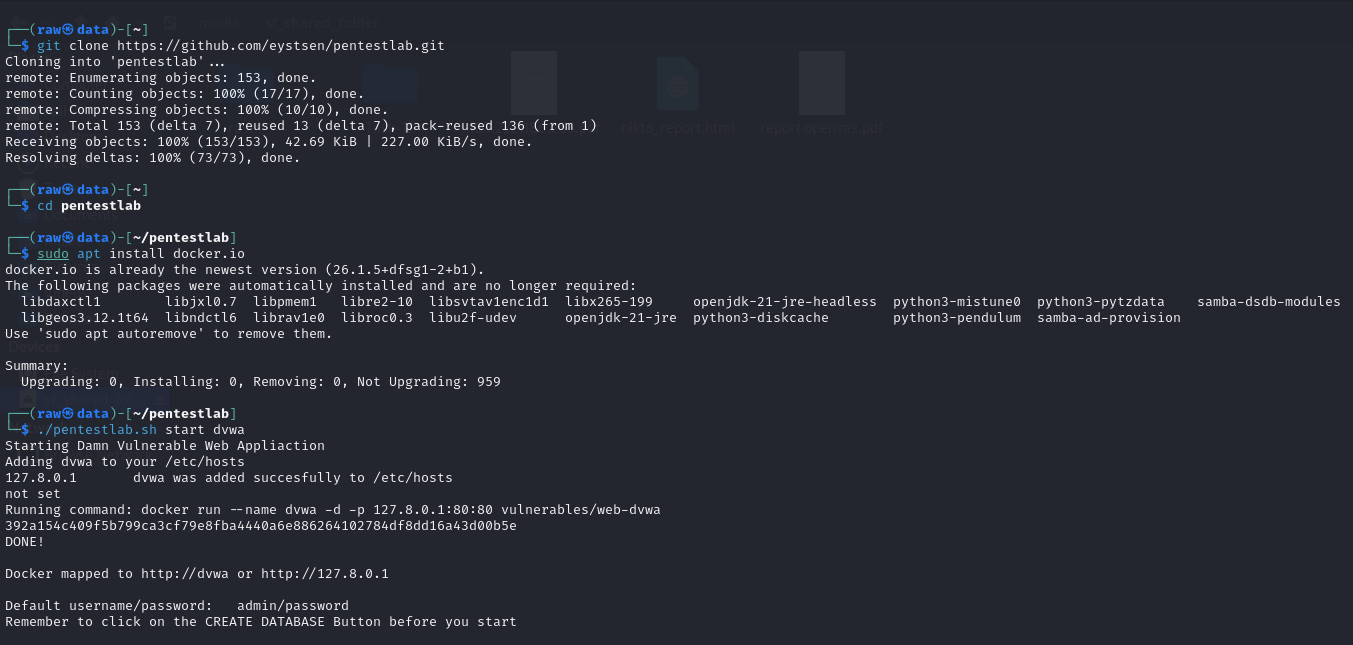
sudo apt install docker.io

## 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

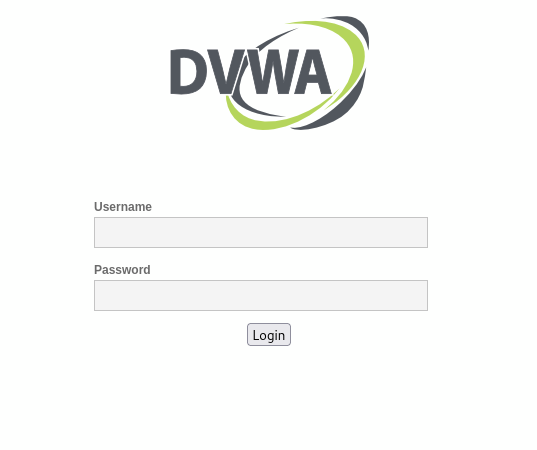
 Screenshot 1

## Login

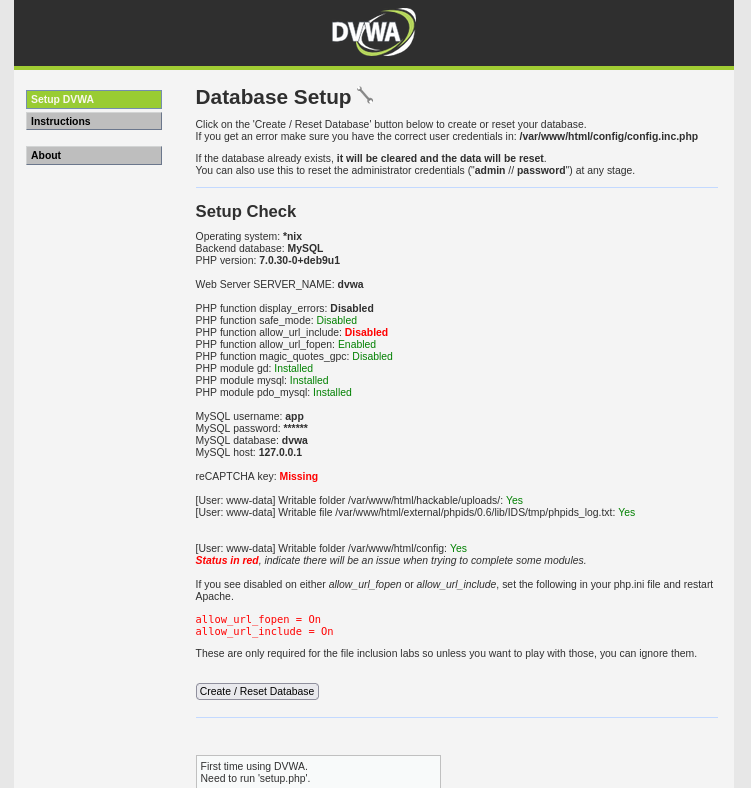
On the login page, I used the following default information:  
website: http://dvwa

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.   


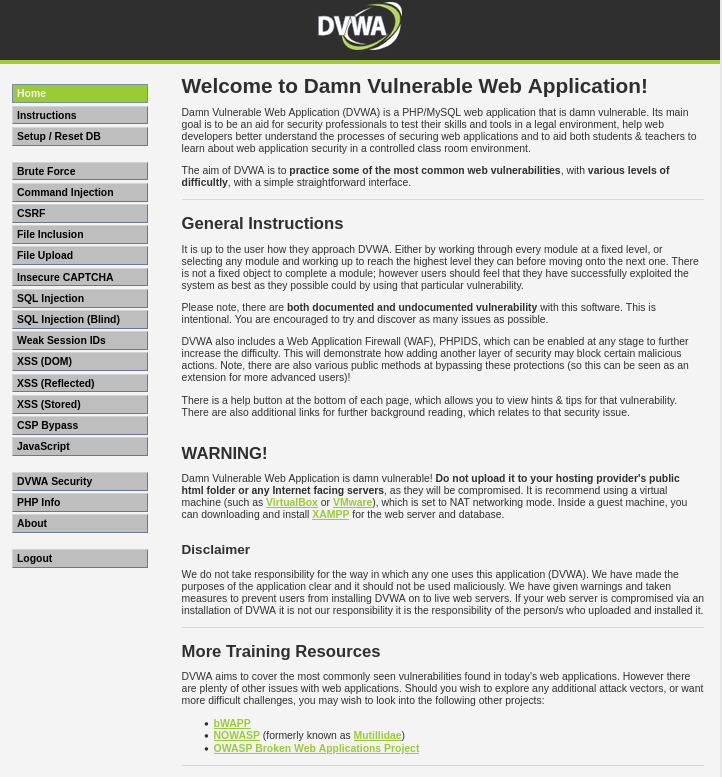
Screenshot 3

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

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| **Performing SQL Injection on DVWA** |

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| SQL Injection (Low Security Level) |

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

### First Injection

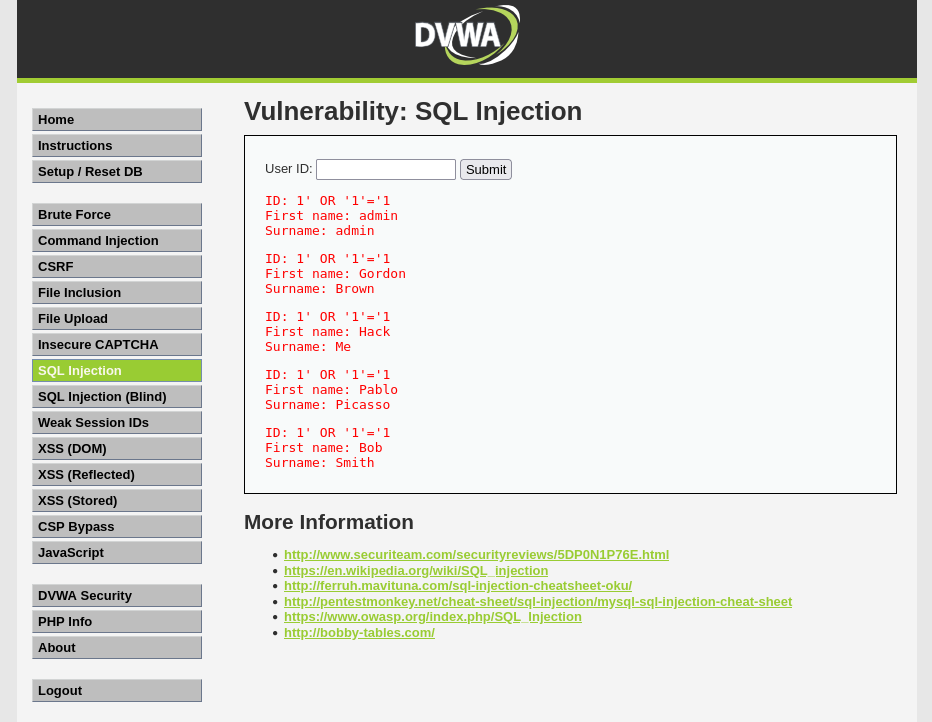
After finding the SQL injection page, I identified the input field in which to inject my SQL code.

### 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.  
  


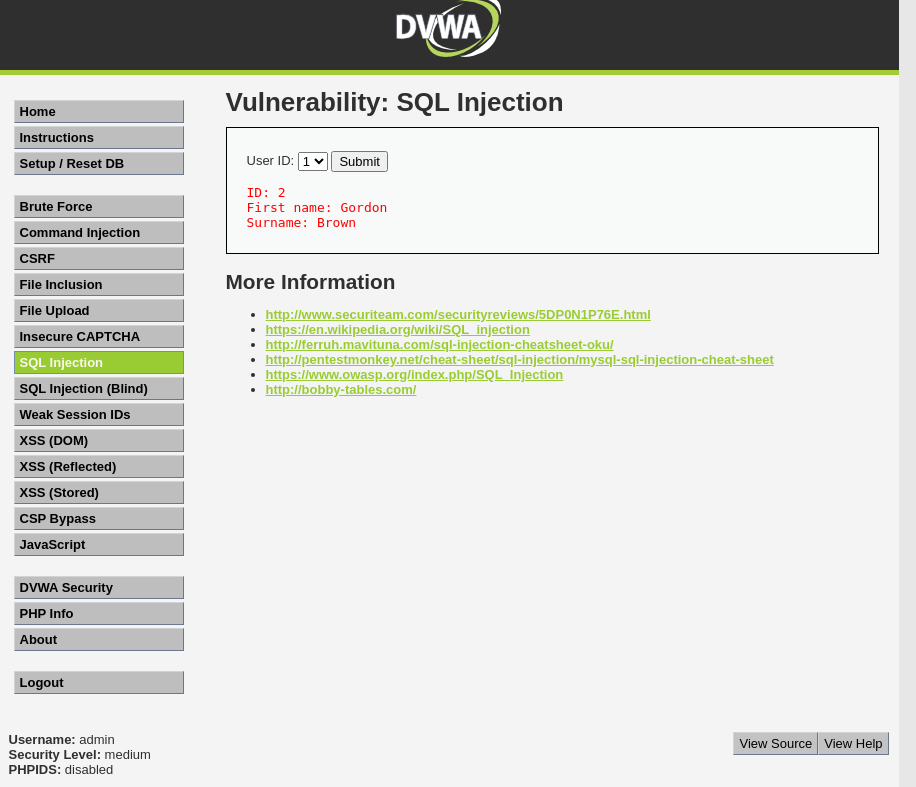
Screenshot 6

## 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.

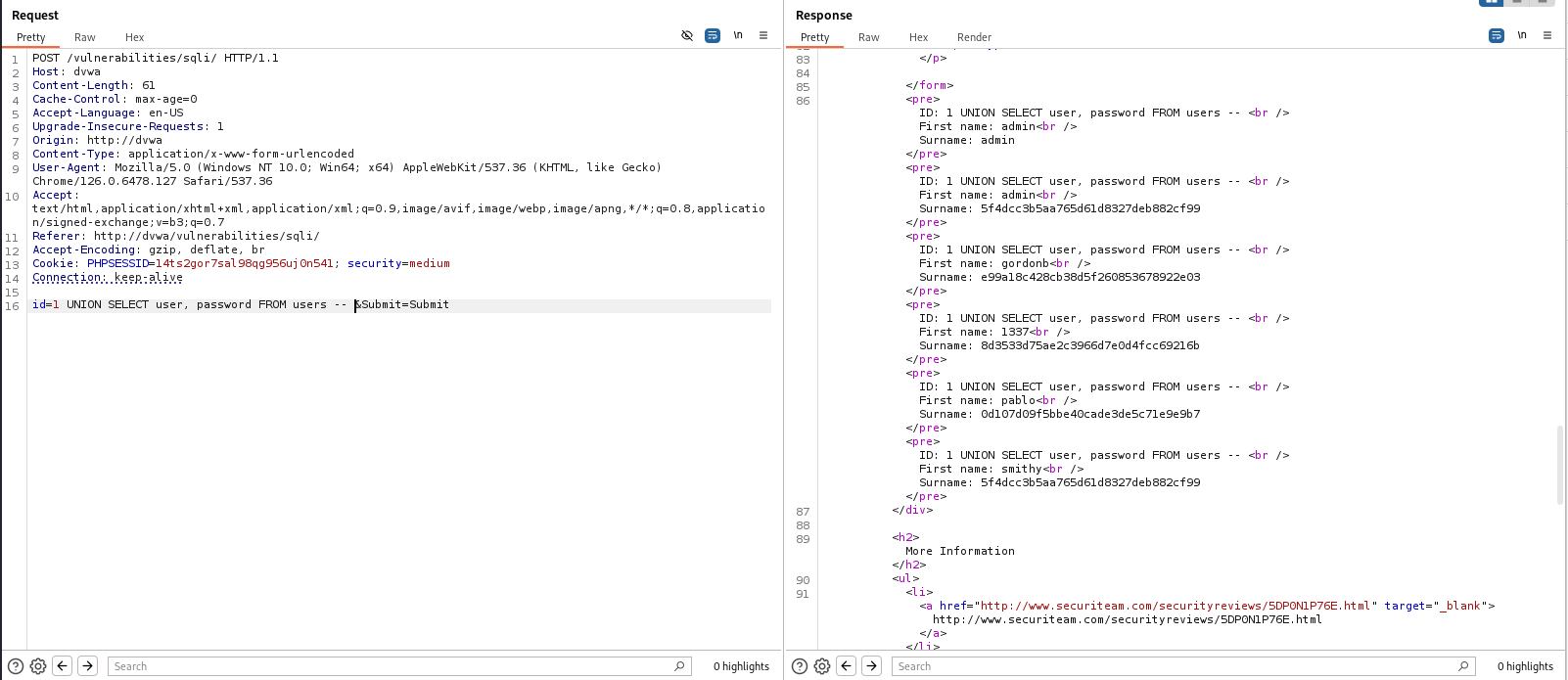


Screenshot 7  
In Burp suite side request   


Screenshot 8

### SQL Injection String

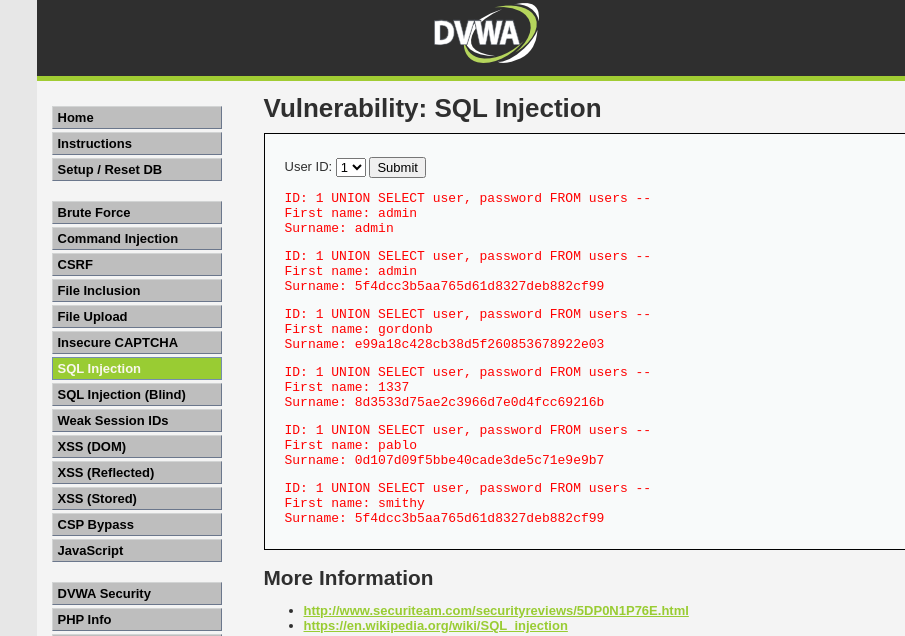
I inserted the following payload in the `id` field:

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).

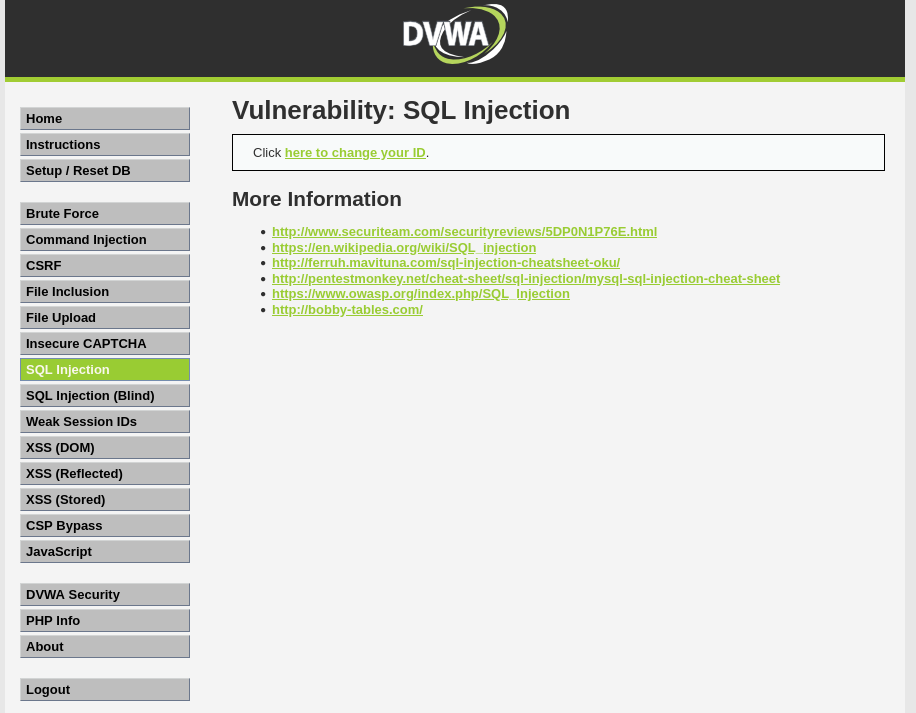
 Screenshot10

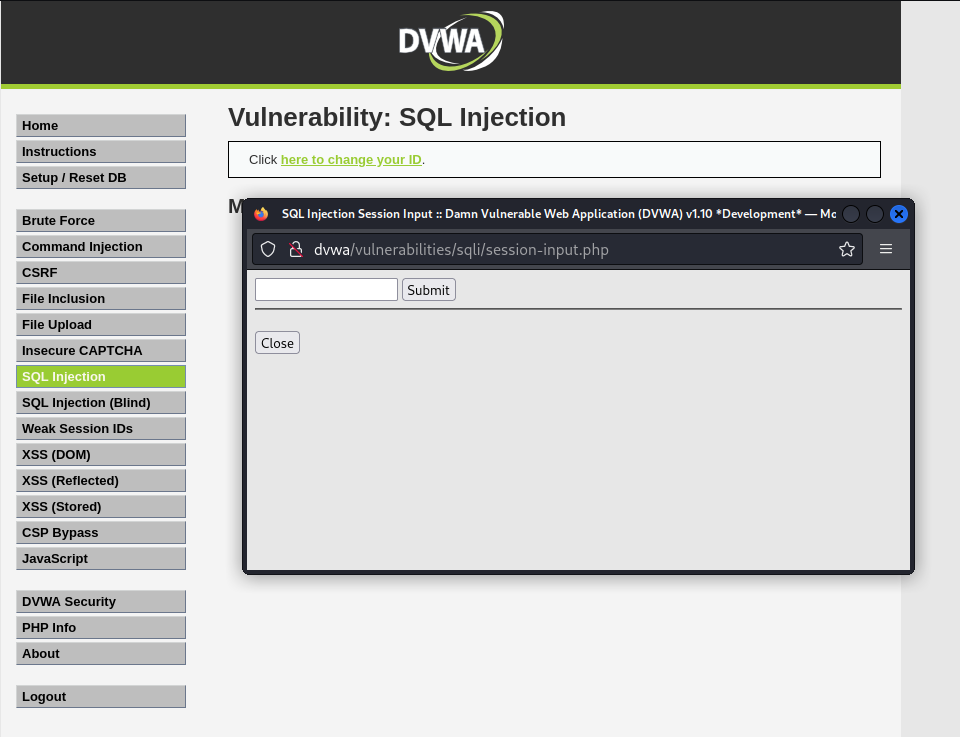
## SQL Injection (High Security Level)

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

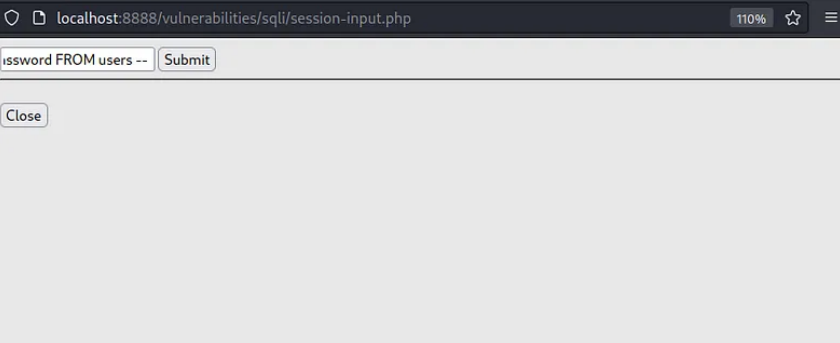
 Screenshot 11

A new window appeared with which I could enter the SQL command.  
 Screenshot 12

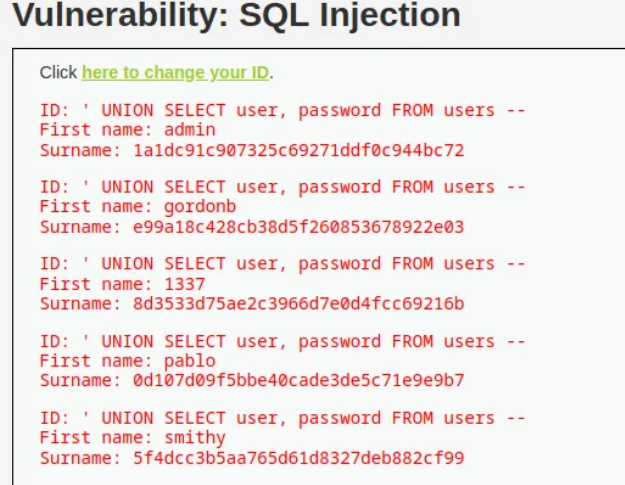
### Injection Payload

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.