HARI VIGNESH RAO 23BD1A052Q

LAB EXPERIMENT : Testing Authentication Weaknesses and Session Management Using Kali Linux & DVWA

PROCEDURE

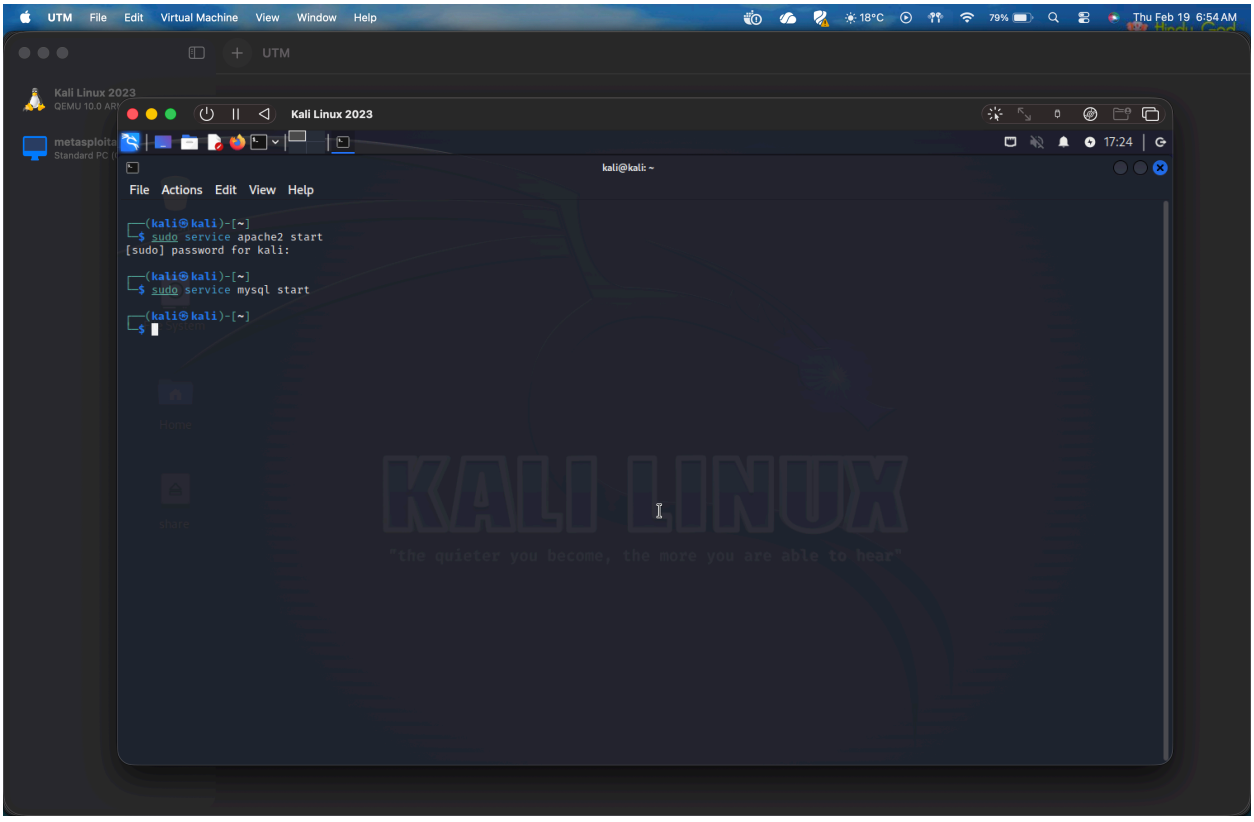
PART A: Launch DVWA

Step 1: Start Required Services

Open terminal and start Apache and MySQL:

sudo service apache2 start

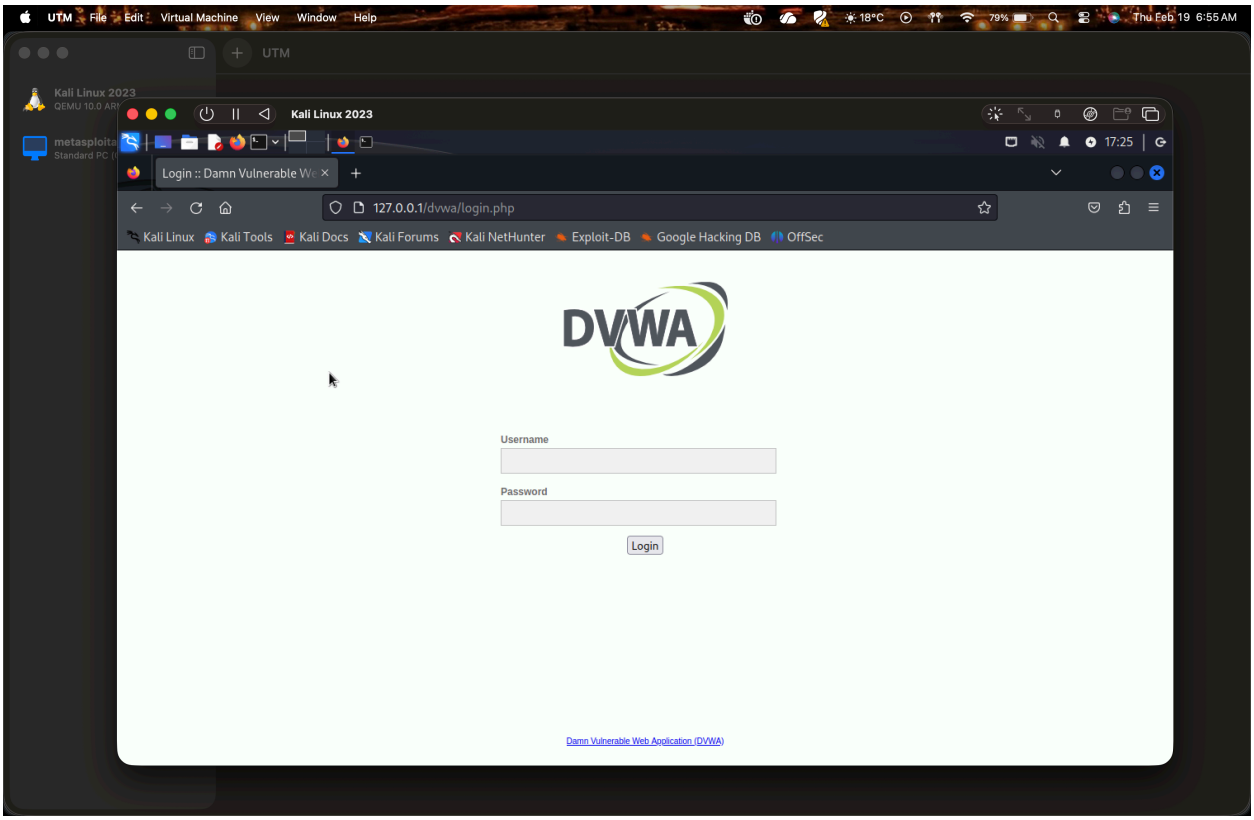
sudo service mysql start



Step 2: Open DVWA in Browser

Open Firefox and enter:

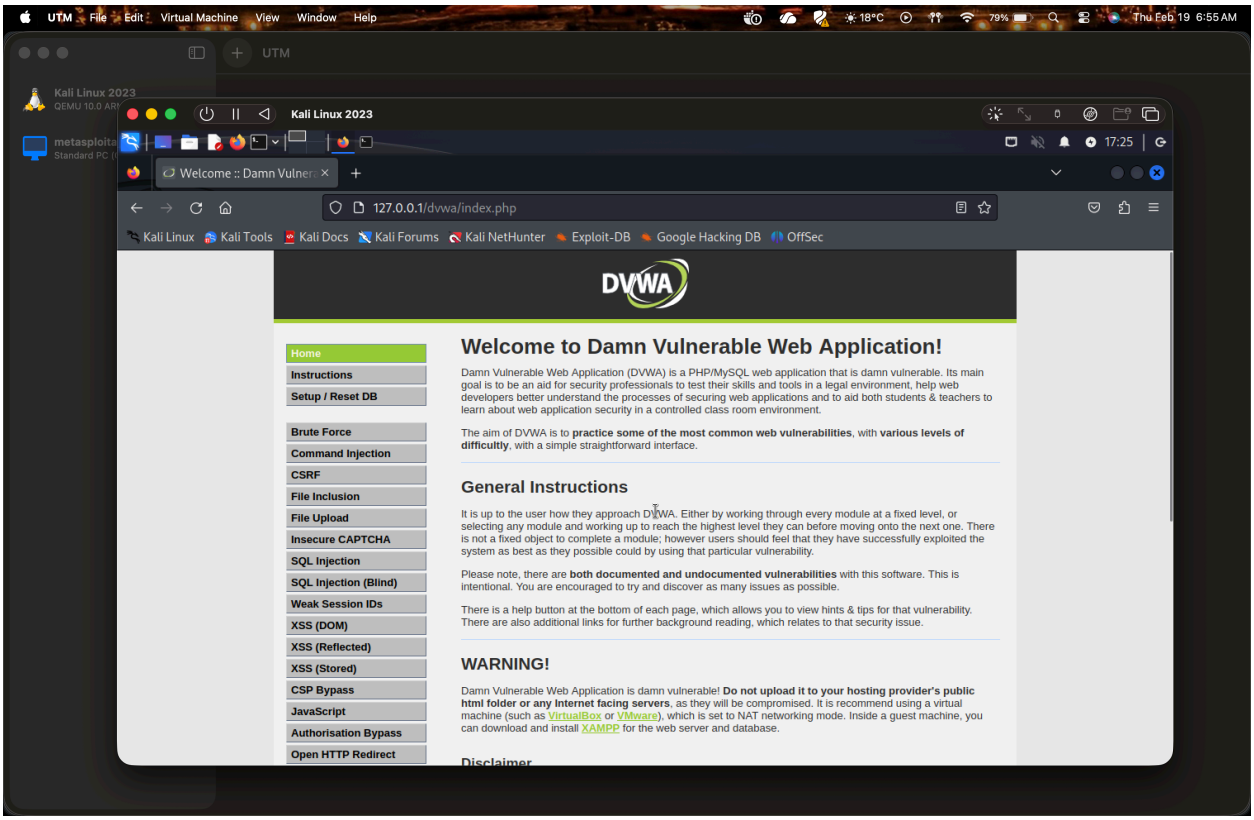
http://127.0.0.1/dvwa



Step 3: Login to DVWA Use default credentials:

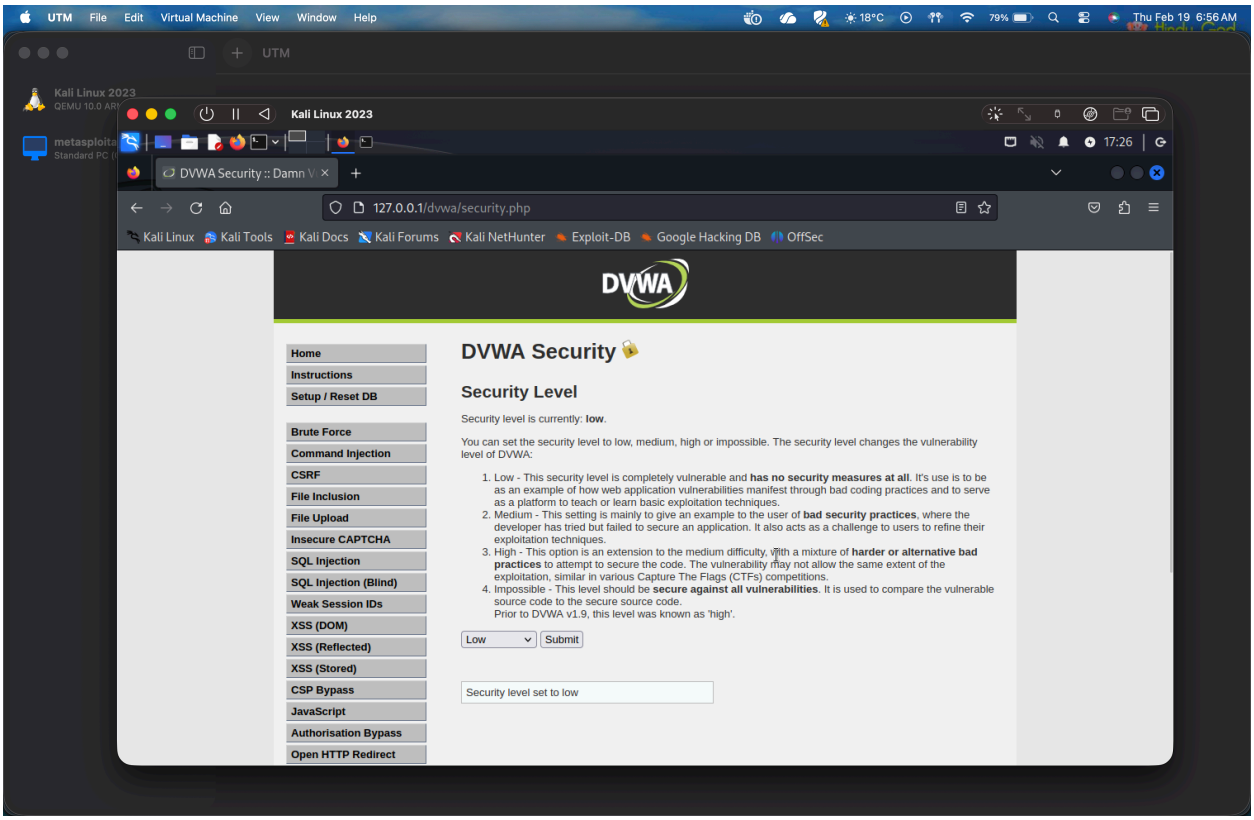
Username: admin

Password: password



Step 4: Set Security Level

- Go to DVWA Security
- Select LOW
- Click Submit



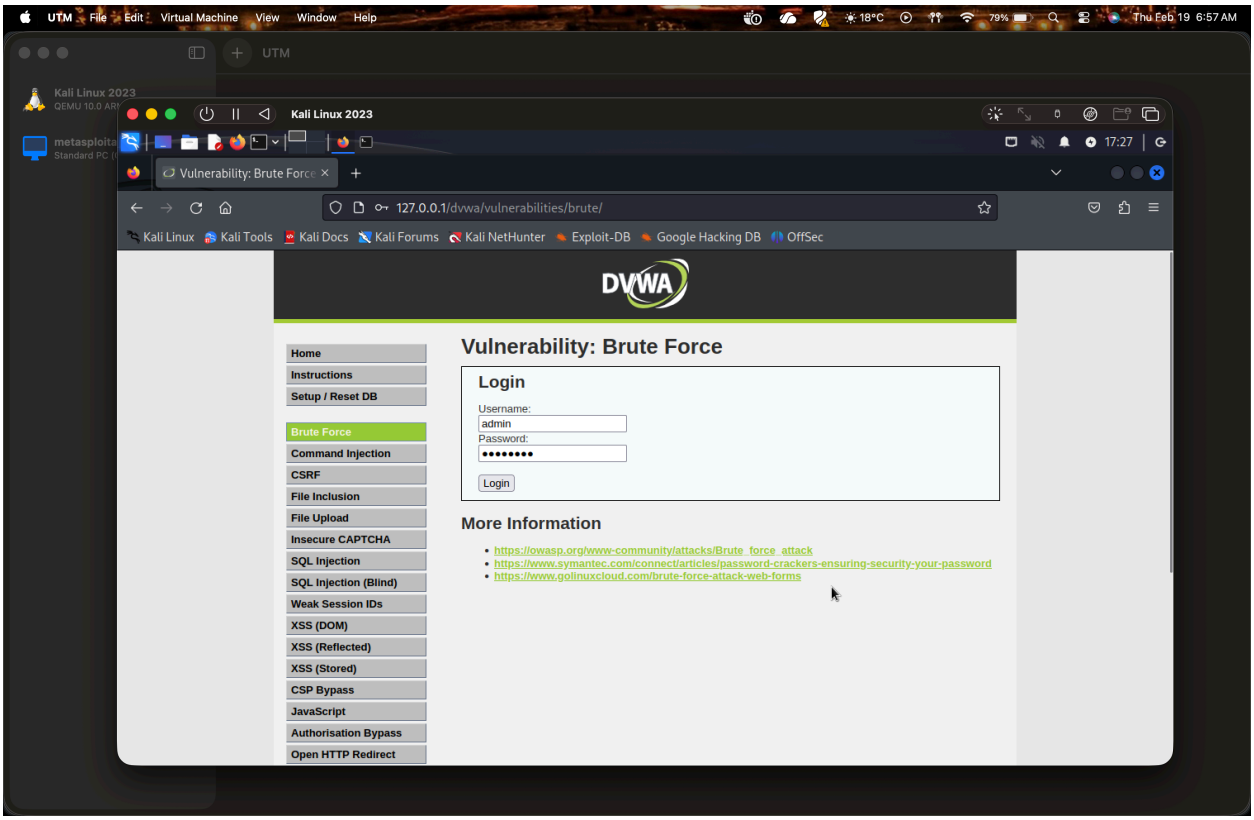
PART B: Testing Authentication Weaknesses

Experiment 1: Weak Password Authentication

Step 1: Open Brute Force Module

Navigate to:

DVWA → Vulnerabilities → Brute Force

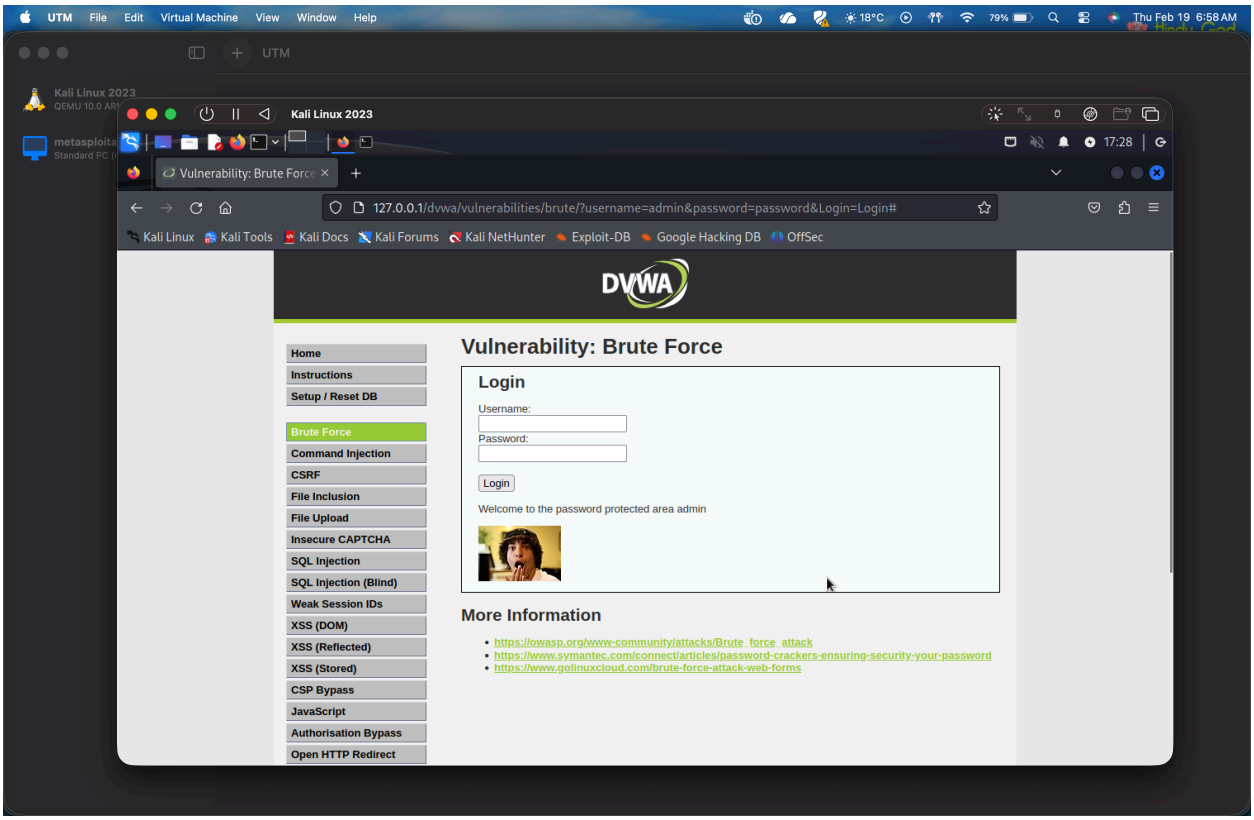


Step 2: Try Common Passwords

Enter:

Username: admin

Password: password



Observation Successful login indicates weak authentication.

Experiment 2: Manual Brute Force Attack

Enter Username (Same Every Time)

In Username field, type:

admin

Do NOT change username.

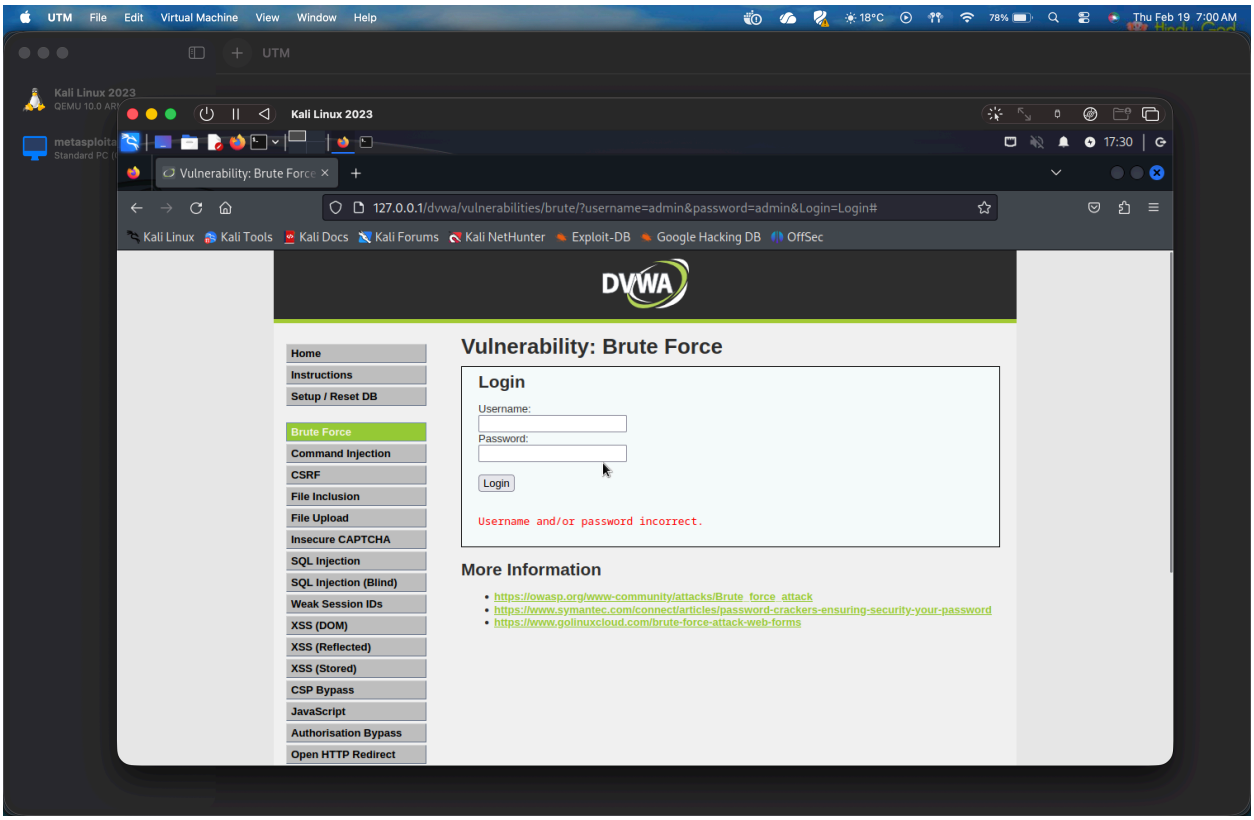
Step 3: Try Passwords ONE BY ONE

Now you will manually try passwords (this is the “manual brute force”).

Attempt 1

- Username: admin
- Password: admin
- Click Login

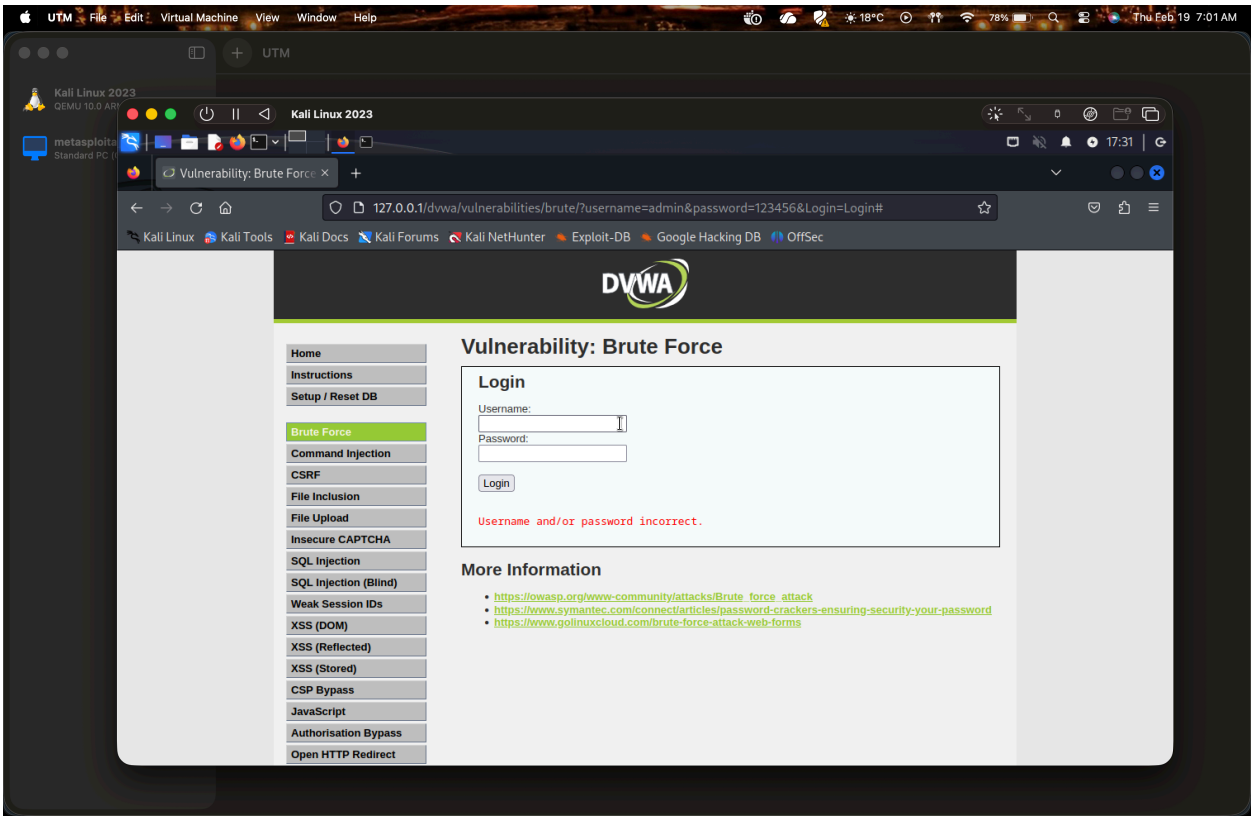
If it fails → try next password



Attempt 2

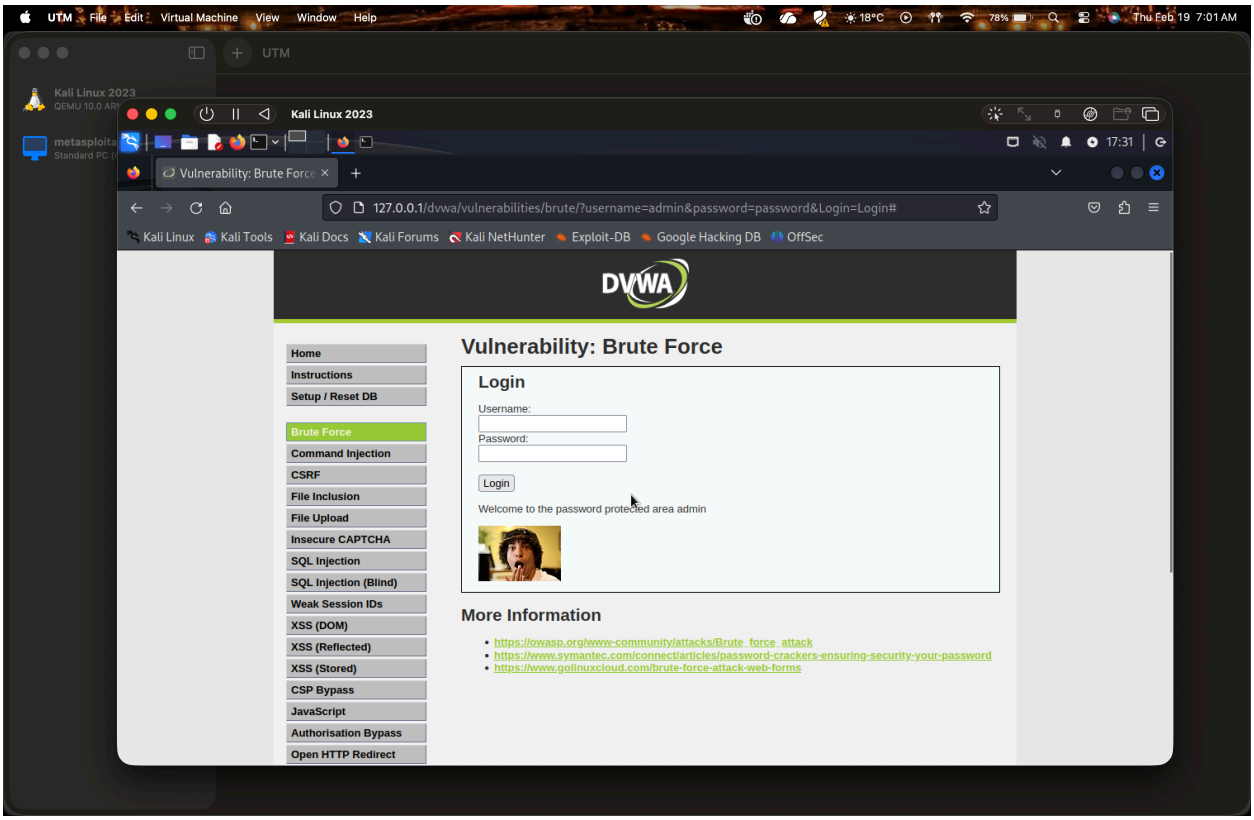
- Username: admin
- Password: 123456
- Click Login

If it fails → try next password



Attempt 3

- Username: admin
- Password: password
- Click Login



LOGIN SUCCESSFUL

Step 4: Observe What Happened

- DVWA did NOT block you
- DVWA did NOT lock account
- DVWA allowed unlimited attempts

This is called Brute Force Vulnerability

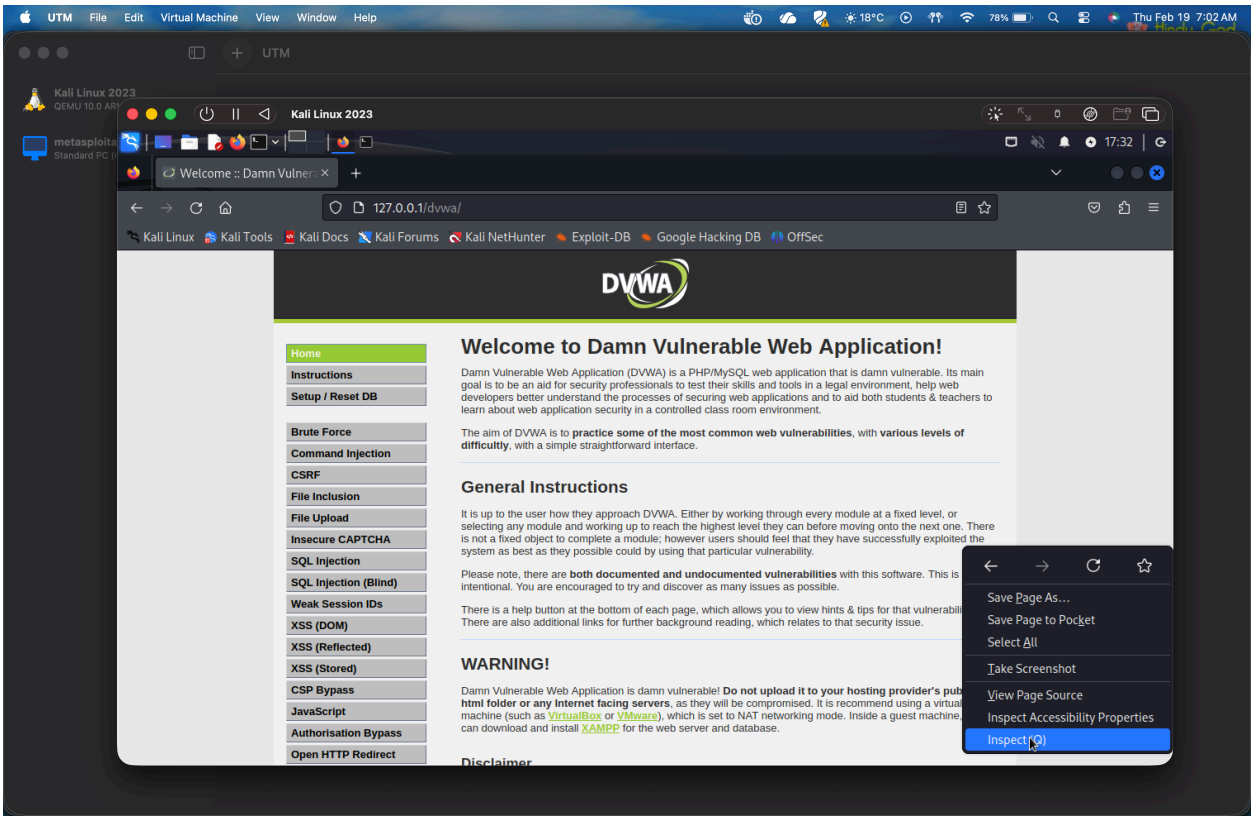
PART C: Testing Session Management Vulnerabilities

Experiment 3: Session ID Analysis

Step 1: Login to DVWA

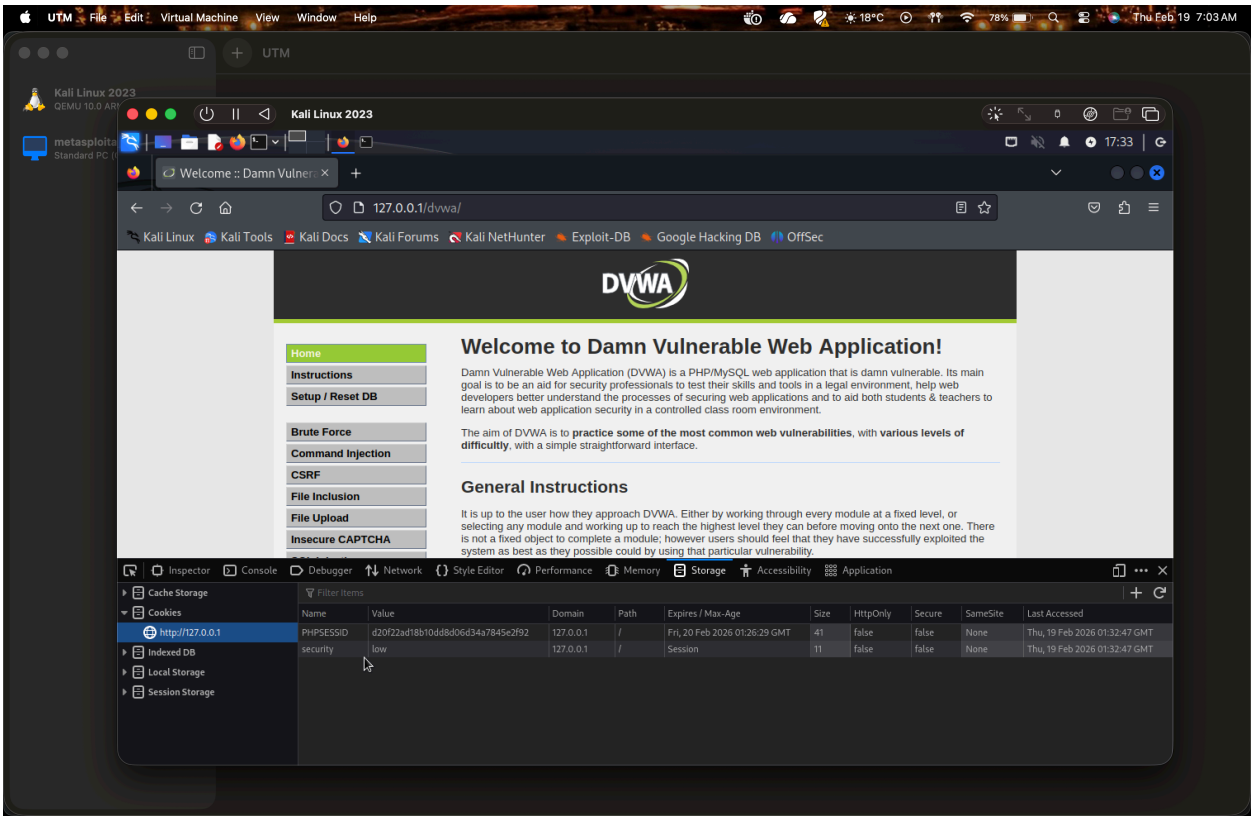
Open browser developer tools:

Right Click → Inspect → Storage → Cookies



Step 2: Observe Session Cookie

Look for: PHPSESSID



Observation

Session ID is visible and not encrypted.

PHPSESSID : d20f22ad18b10dd8d06d34a7845e2f92

Experiment 4: Session Hijacking

BEFORE YOU START (IMPORTANT)

DVWA security level = LOW

You are logged in as admin in DVWA

STEP-BY-STEP

Step 1: Open DVWA (Victim Session)

1. Open Firefox

2. Go to: http://127.0.0.1/dvwa

3. Login:

Username: admin

Password: password

4. Stay logged in (do NOT logout)

This browser is the Victim

Step 2: Copy the Session ID (PHPSESSID)

1. In the same Firefox window

2. Right click → Inspect

3. Click Storage tab

4. Click Cookies

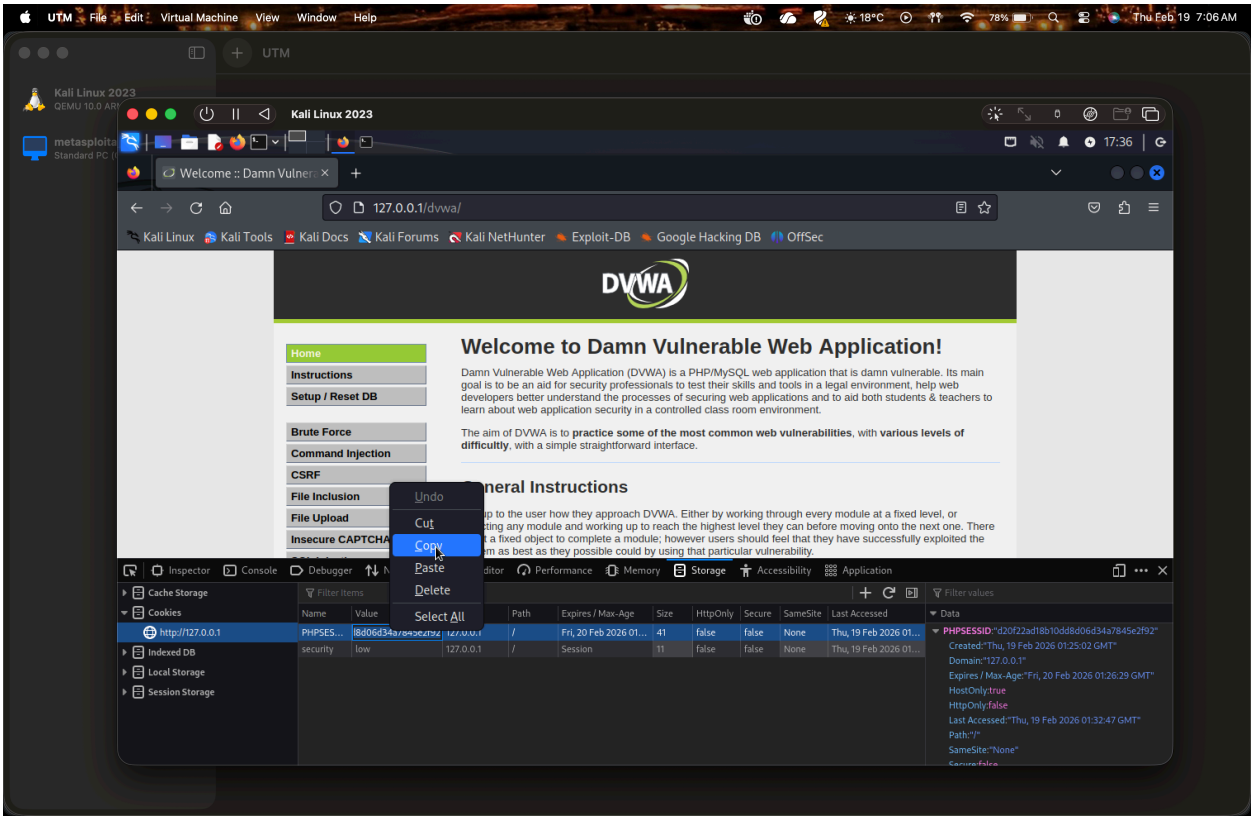
5. Select: http://127.0.0.1

You will see something like:

PHPSESSID d20f22ad18b10dd8d06d34a7845e2f92

6. Right-click on PHPSESSID value → Copy

This value is the session ID (user identity).

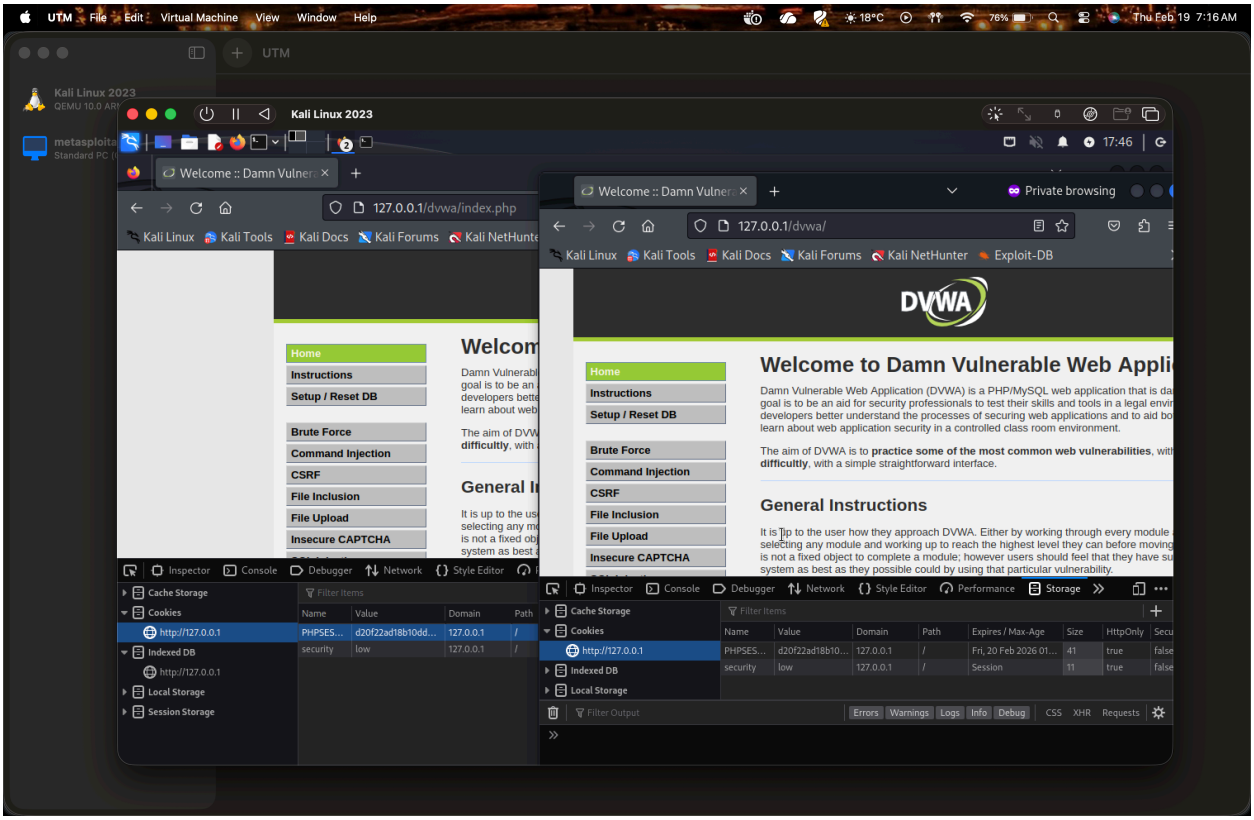


Step 3: Open Attacker Browser (Private Window)

1. Press:
   Ctrl + Shift + P
   (Private Window opens)
   Do NOT login here.

Step 4: Paste Session ID in Attacker Browser

1. In Private Window, go to: http://127.0.0.1/dvwa
2. Right click → Inspect
3. Go to Storage → Cookies
4. Click: http://127.0.0.1
5. Find PHPSESSID
6. Replace its value with the copied PHPSESSID(d20f22ad18b10dd8d06d34a7845e2f92)
7. Press Enter



Step 5: Refresh Page

1. Refresh the page (F5)

You are logged in as admin without username or password!

Result

Attacker gains access without login → Session Hijacking

Experiment 5: Session Fixation

IMPORTANT CONDITIONS (CHECK FIRST)

DVWA Security Level = LOW

Use only ONE browser window (normal window)

Do NOT use Private Window here

STEP-BY-STEP (DO EXACTLY THIS)

Step 1: Open DVWA WITHOUT Login (Attacker sets session)

1. Open Firefox

2. Go to: http://127.0.0.1/dvwa/

You will see the login page

Do NOT login

Step 2: Note the Session ID (Before Login)

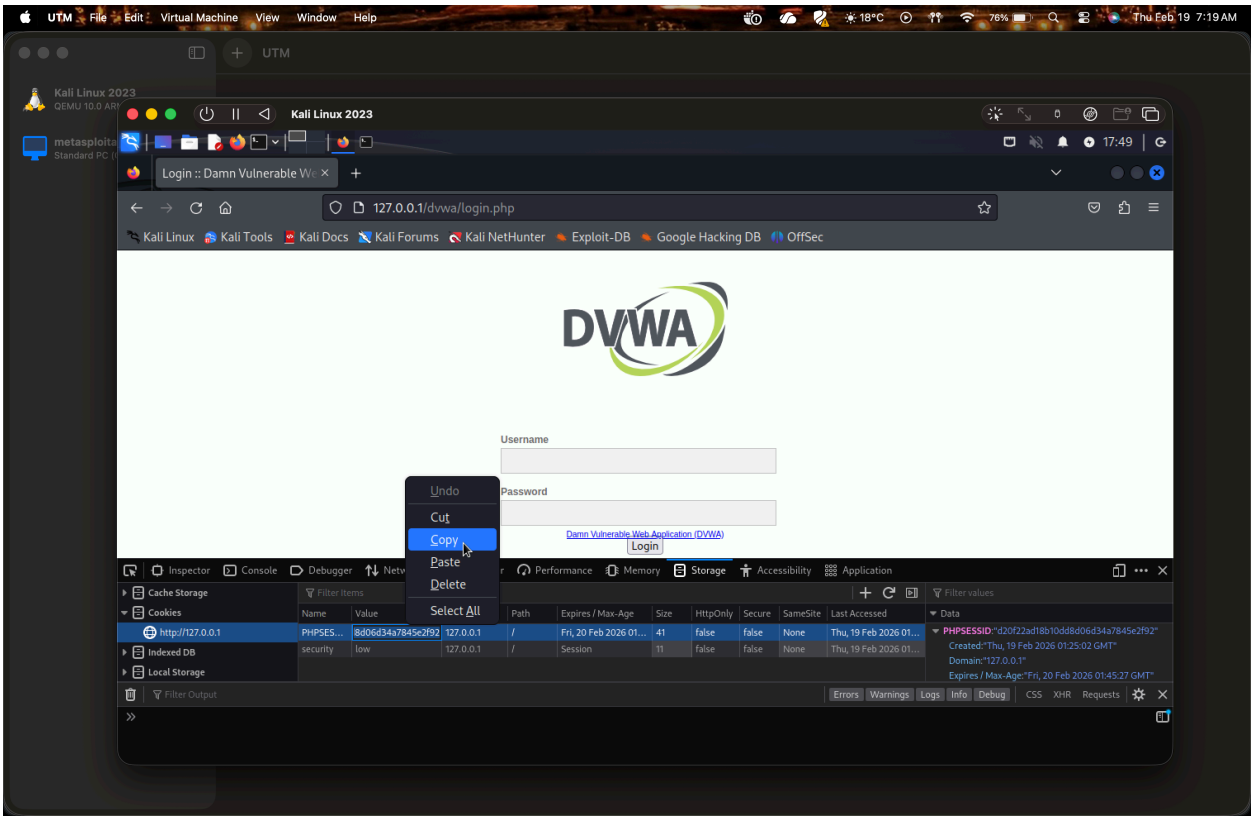
1. Right click → Inspect

2. Go to Storage

3. Click Cookies

4. Select: http://127.0.0.1

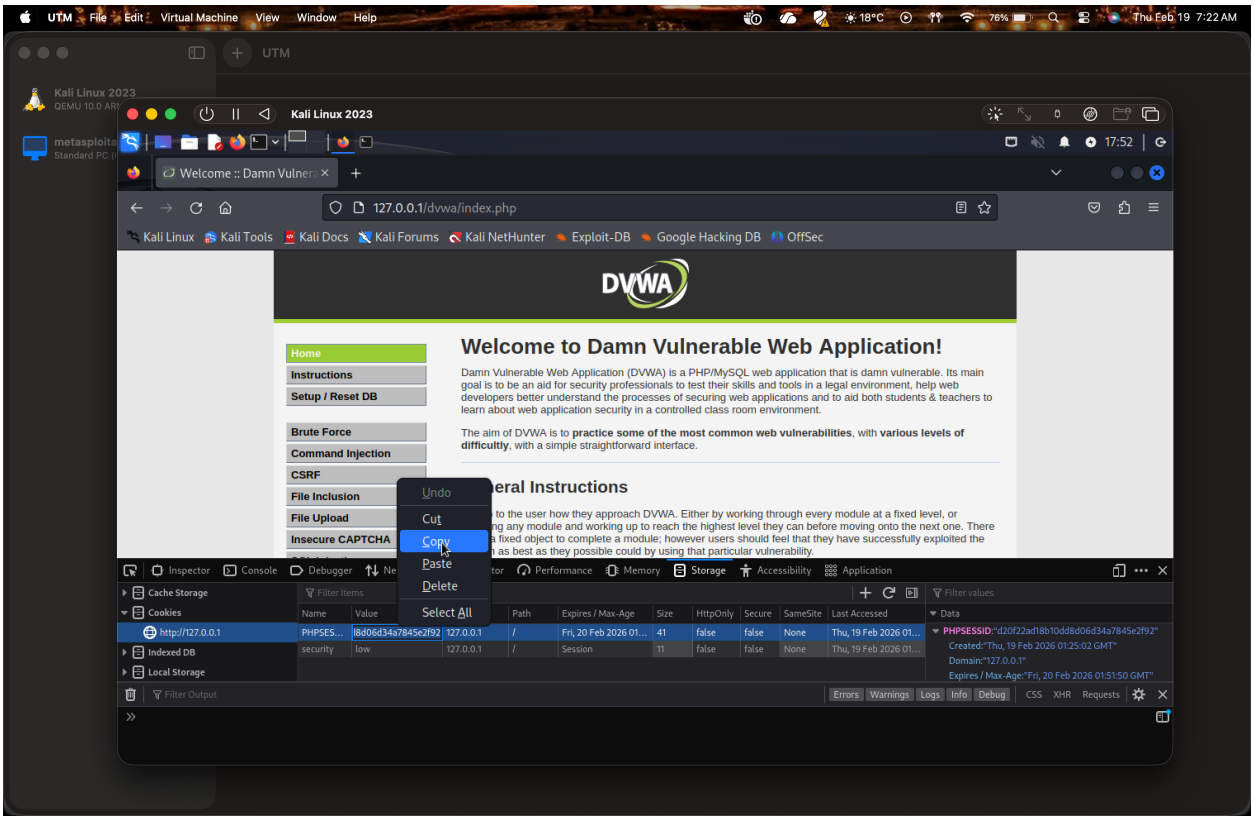
You will see: PHPSESSID = d20f22ad18b10dd8d06d34a7845e2f92



Step 3: Login WITHOUT Closing Browser

Now, in the same browser window:

1. Enter:
   Username: admin
   Password: password
2. Click Login
   Do NOT refresh, do NOT close browser
   Step 4: Check Session ID AGAIN (After Login)
   1. Again open:
      Inspect → Storage → Cookies → http://127.0.0.1
   2. Look at PHPSESSID



OBSERVE CAREFULLY

Case 1 (VULNERABLE – DVWA LOW)

Before Login PHPSESSID = d20f22ad18b10dd8d06d34a7845e2f92

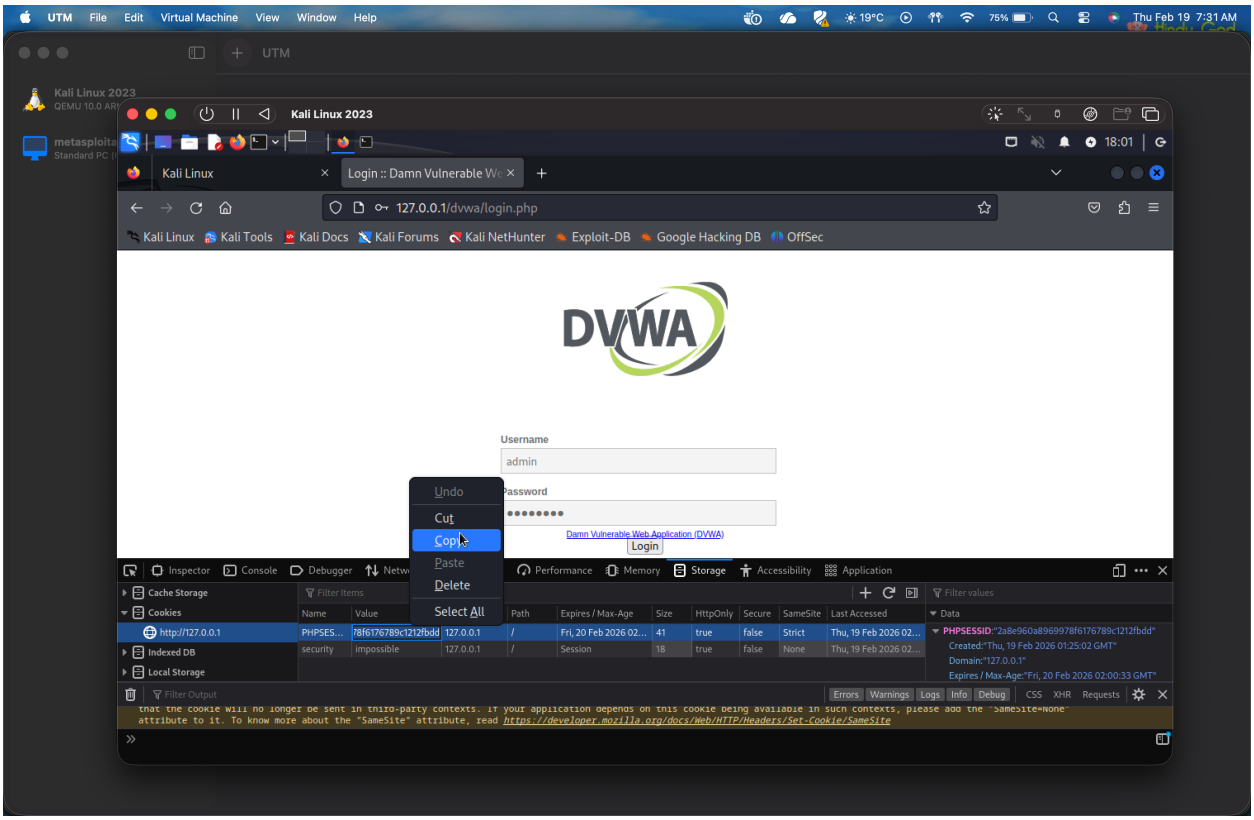
After Login PHPSESSID = d20f22ad18b10dd8d06d34a7845e2f92

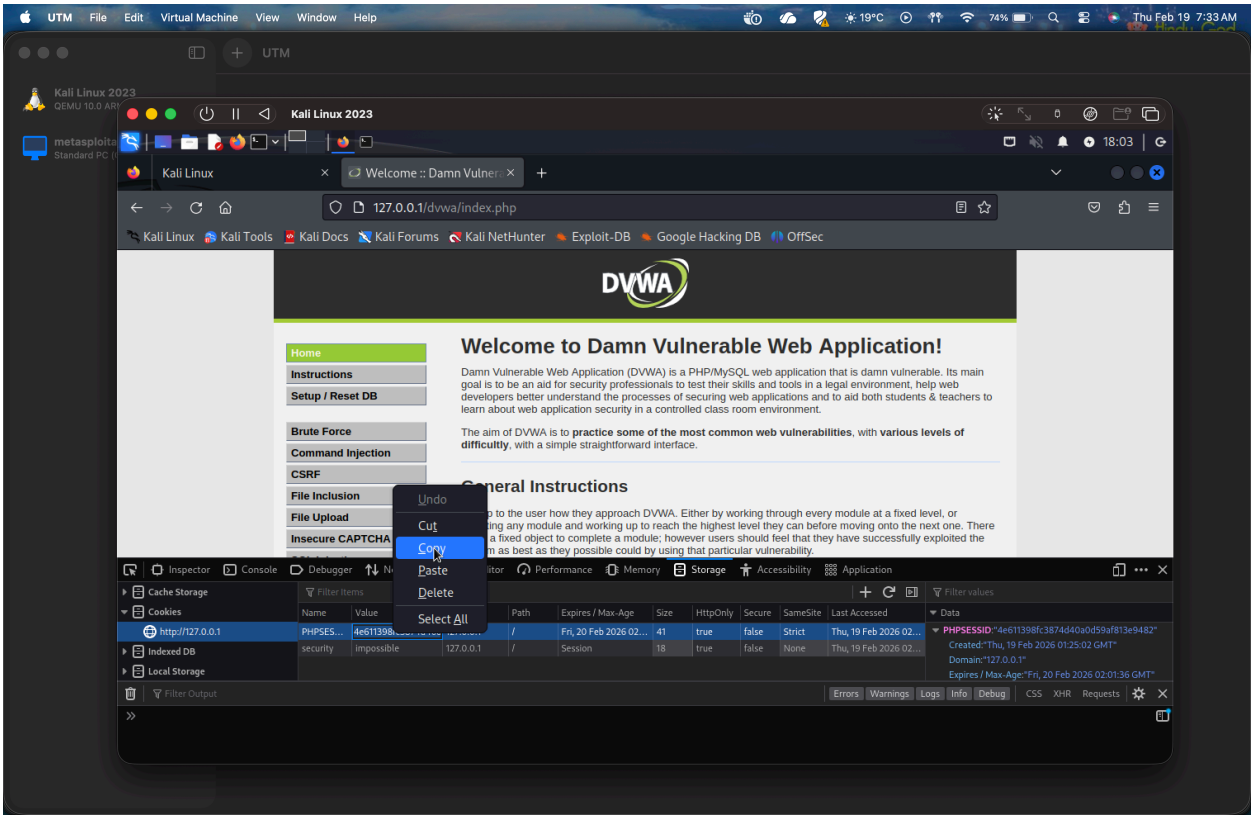
Same value Session Fixation exists

Case 2 (SECURE – DVWA HIGH / IMPOSSIBLE)

Before Login PHPSESSID = 2a8e960a8969978f6176789c1212fbdd

After Login PHPSESSID = 4e611398fc3874d40a0d59af813e9482





Session regenerated

No session fixation

Experiment 6: CONDITIONS (CHECK FIRST)

DVWA Security Level = LOW

You must know how to view cookies

STEP-BY-STEP (

Step 1: Login Normally (Victim Session)

1. Open Firefox

2. Go to: http://127.0.0.1/dvwa/

3. Login:

Username: admin

Password: password

Step 2: Copy Session ID (IMPORTANT)

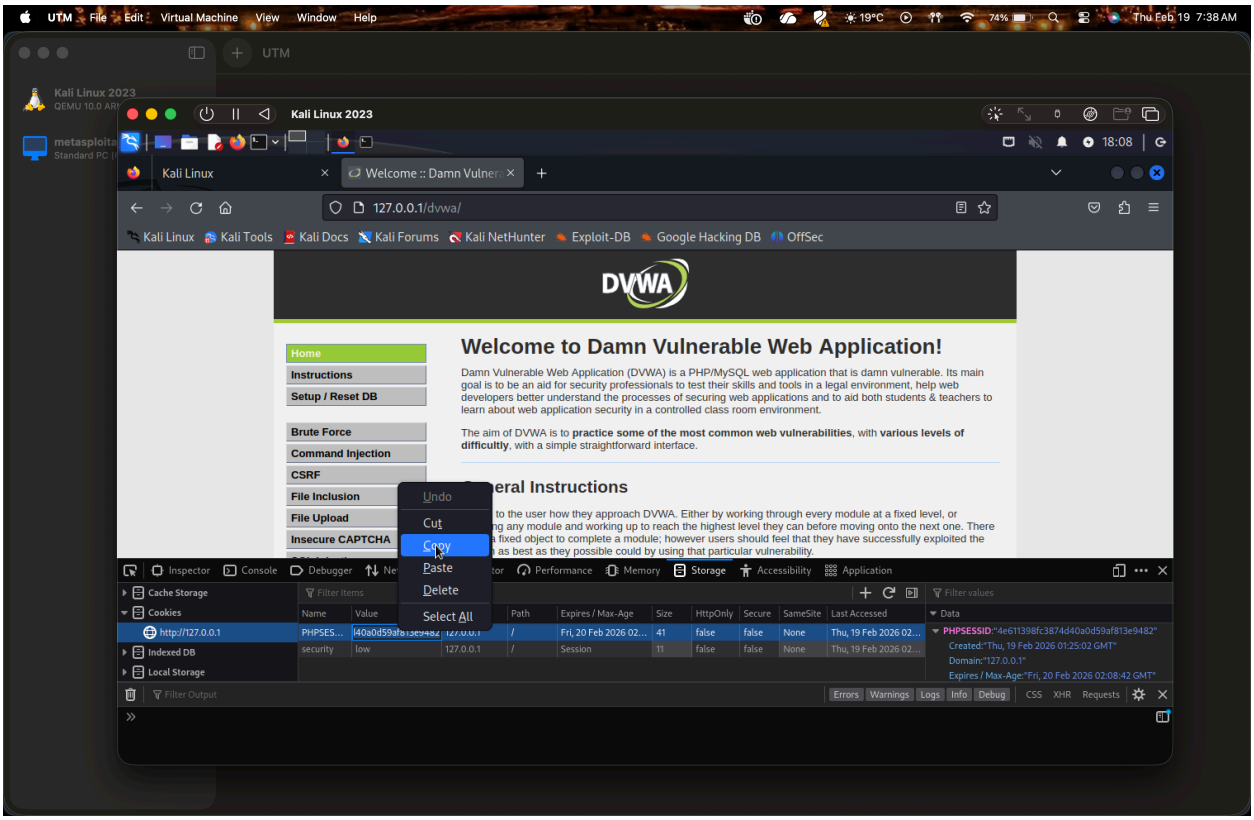
1. Right click → Inspect

2. Storage → Cookies → http://127.0.0.1

3. Copy:

PHPSESSID = 4e611398fc3874d40a0d59af813e9482

Screenshot 1: PHPSESSID before logout



Step 3: Logout from DVWA

1. Click Logout (top right or menu)

2. You will see login page

Logout completed

Step 4: Reuse OLD Session ID (THIS IS THE TEST)

Option A (EASIEST & EXAM-SAFE)

1. Open Private Window
   Ctrl + Shift + P
2. Go to: http://127.0.0.1/dvwa/
3. Open Inspect → Storage → Cookies
4. Paste the OLD PHPSESSID (copied earlier)
5. Press Enter

Step 5: Open Internal Page (KEY STEP)
In address bar, type:
http://127.0.0.1/dvwa/index.php

(or)

http://127.0.0.1/dvwa/vulnerabilities/brute/

Do NOT press Login

Do NOT enter username/password