

Penetration Testing Report

Full Name: Milind Patel
Program: HCS - Penetration Testing Internship Week-2
Date: 25-02-2025

Introduction

This report document hereby describes the proceedings and results of a Black Box security assessment conducted against the **Week 2 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 2 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.

Application Name	Insecure Direct Object Reference , SQL Injection
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3. Summary

Outlined is a Black Box Application Security assessment for the **Week 2 Labs**.

Total number of Sub-labs: {count} Sub-labs

High	Medium	Low
4	7	5

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. Insecure Direct Object Reference

1.1. Give Me My Amount!!

Reference	Risk Rating
Give Me My Amount!!	Low
Tools Used	
burp suite	
Vulnerability Description	
The application is vulnerable to IDOR , allowing unauthorized access to other user accounts by modifying the ID parameter in the URL. The server does not validate whether the logged-in user has permission to access the requested resource.	
How It Was Discovered	
Manual Analysis: After registering and logging in, I observed the ID parameter in the URL, manually changed it to another user's ID, and successfully accessed their account without credentials.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/idor_lab/lab_1/profile.php?id=48 http://labs.hacktify.in/HTML/idor_lab/lab_1/profile.php?id=49	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Authentication Bypass: Attackers can log in without valid credentials, gaining unauthorized access.2. Privilege Escalation: If an admin account is compromised, the attacker can take full control of the system.3. Data Breach: Sensitive user information may be exposed, leading to privacy violations.	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Implement Multi-Factor Authentication (MFA)	
References	
https://portswigger.net/web-security/access-control/idor https://cheatsheetseries.owasp.org/cheatsheets/Insecure Direct Object Reference Prevention Cheat Sheet.html	

Proof of Concept

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

ISO 27001 CERTIFIED

HACKTIFY
cybersecurity

Happy Hack

User Profile

Email

Credit Card

Transaction 1

Transaction 2

Transaction 3

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ISO 27001 CERTIFIED

HACKTIFY
cybersecurity

Happy Hacking

User Profile

Email

Credit Card

Transaction 1

Transaction 2

Transaction 3

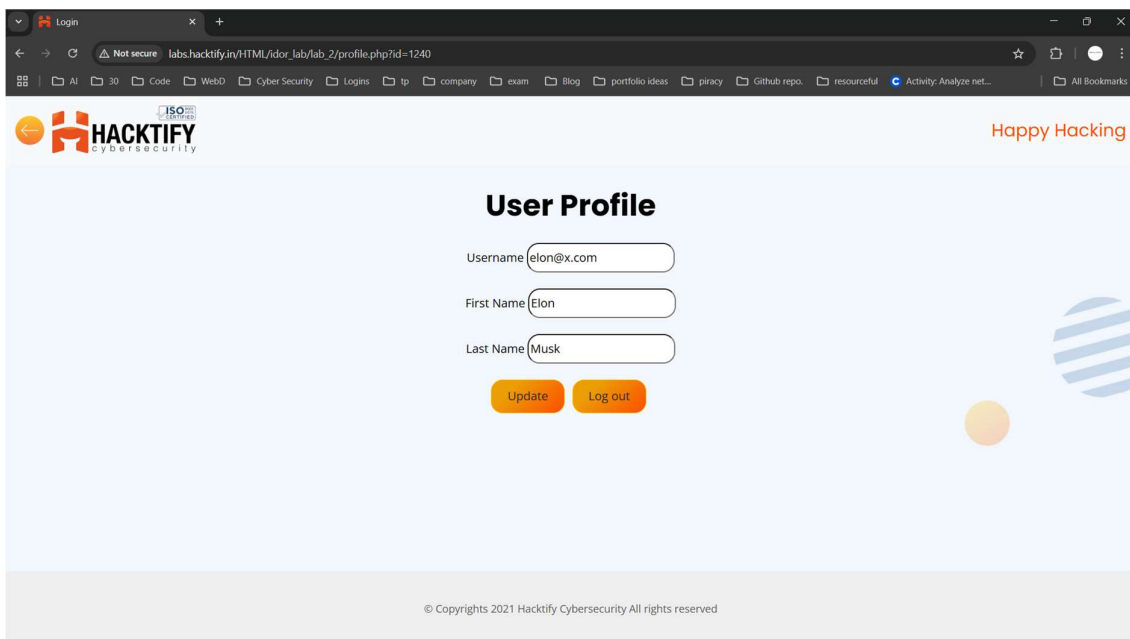
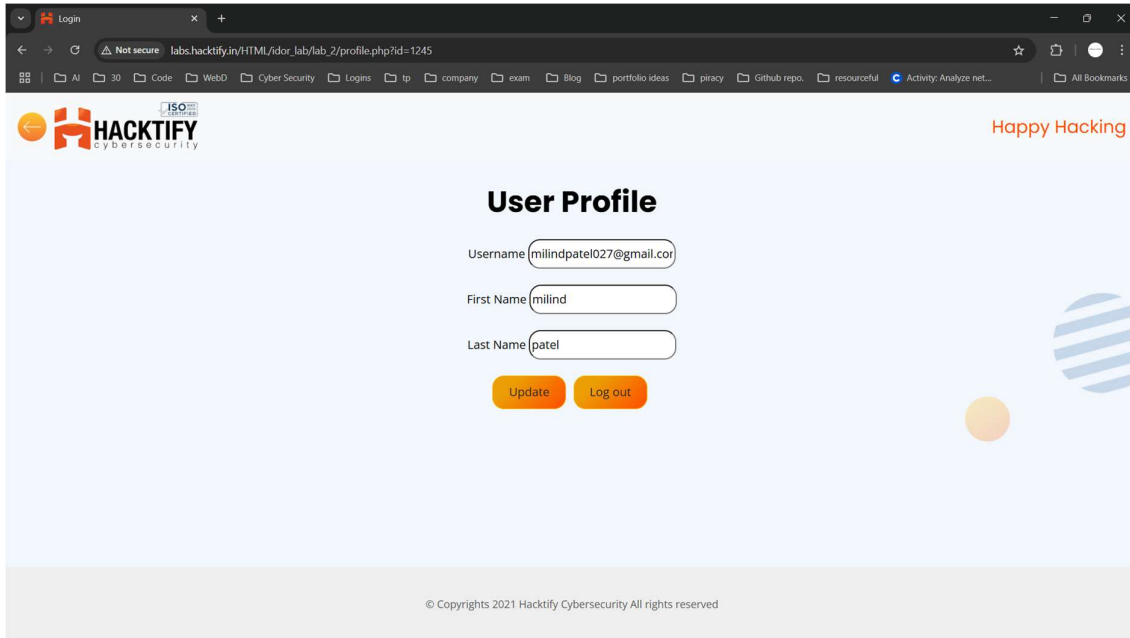
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1.2. Stop pulling my params!

Reference	Risk Rating
Stop pulling my params!	Medium
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to IDOR , allowing unauthorized access to other user accounts by modifying the ID parameter in the URL. The server does not validate whether the logged-in user has permission to access the requested resource.	
How It Was Discovered	
Manual Analysis : After registering and logging in, I observed the ID parameter in the URL, manually changed it to another user's ID, and successfully accessed their account without credentials.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/idor_lab/lab_2/profile.php?id=1245	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Account Takeover2. Data Breach3. Privilege Escalation4. Compliance Violations	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Implement Proper Authorization Checks2. Use Session-Based Authentication3. Validate User Access Server-Side	
References	
https://portswigger.net/web-security/access-control/idor https://cheatsheetseries.owasp.org/cheatsheets/Insecure Direct Object Reference Prevention Cheat Sheet.html	

Proof of Concept

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

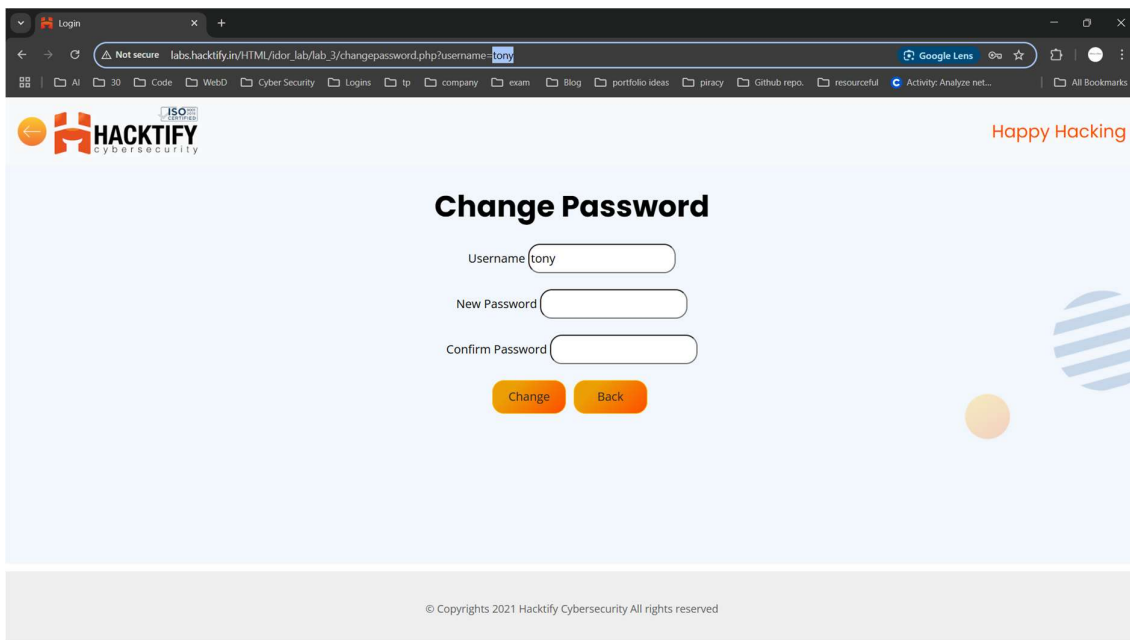
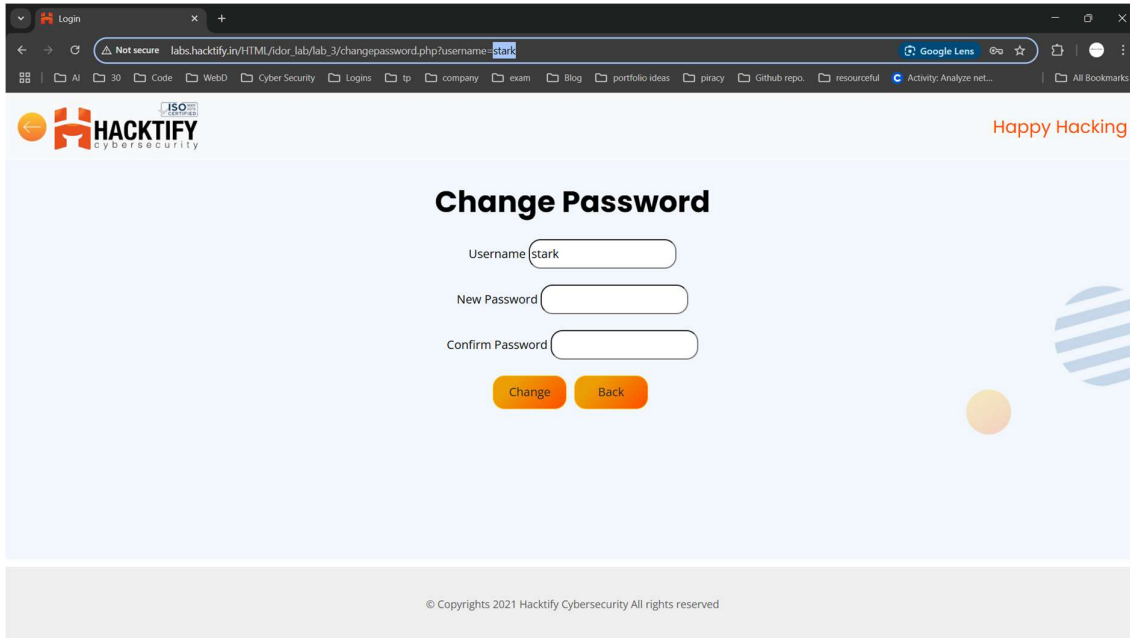


1.3. Someone changed my password!

Reference	Risk Rating
Someone changed my password	Medium
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to IDOR , allowing unauthorized access to other user accounts by modifying the username parameter in the URL. The server does not properly validate whether the logged-in user has permission to access the requested account	
How It Was Discovered	
Manual Analysis : after logging in, I observed the username parameter in the URL, changed it to another user's username, and successfully accessed their account without credentials.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/idor_lab/lab_3/changepassword.php?username=stark http://labs.hacktify.in/HTML/idor_lab/lab_3/changepassword.php?username=tony	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Account Takeover2. Data Breach3. Privilege Escalation4. Compliance Violations	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Implement Proper Authorization Checks2. Use Session-Based Authentication3. Validate User Access Server-Side	
References	
https://portswigger.net/web-security/access-control/idor https://cheatsheetseries.owasp.org/cheatsheets/Insecure_Direct_Object_Reference_Prevention_Cheat_Sheet.html	

Proof of Concept

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

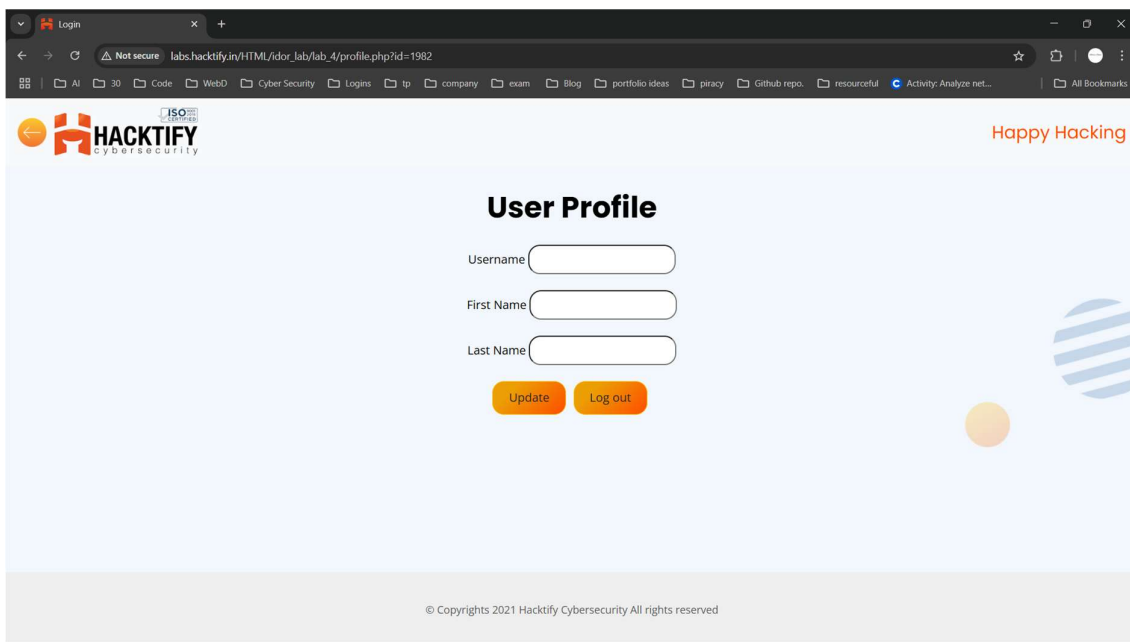
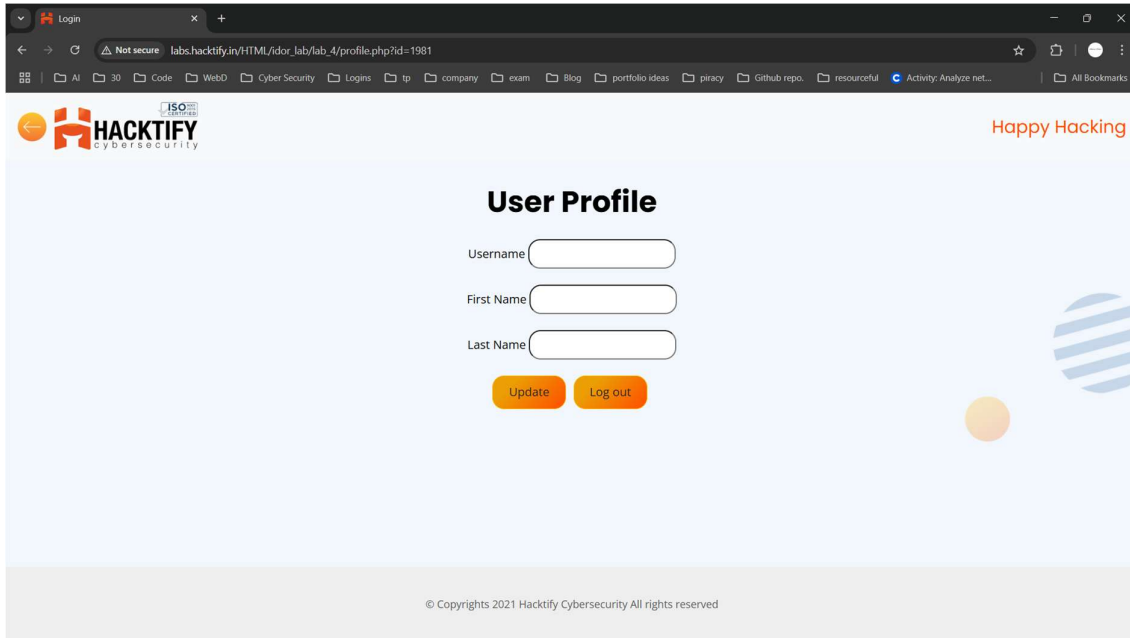


1.4. Change your methods.

Reference	Risk Rating
Change your methods	Medium
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to IDOR , allowing unauthorized access to and modification of other users' data by manipulating the numerical ID parameter in the URL. The server does not verify whether the logged-in user has permission to update another user's information.	
How It Was Discovered	
Manual Analysis : After registering two users, I observed numerical ID parameters in the URL, changed one to another user's ID, and was able to access and update their account data without authentication.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/idor_lab/lab_4/profile.php?id=1981 http://labs.hacktify.in/HTML/idor_lab/lab_4/profile.php?id=1982	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Tampering3. Privilege Escalation4. Identity Theft & Fraud	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Implement Proper Authorization Checks2. Use Session-Based Authentication3. Enforce Server-Side Validation	
References	
https://portswigger.net/web-security/access-control/idor https://cheatsheetseries.owasp.org/cheatsheets/Insecure_Direct_Object_Reference_Prevention_Cheat_Sheet.html	

Proof of Concept

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



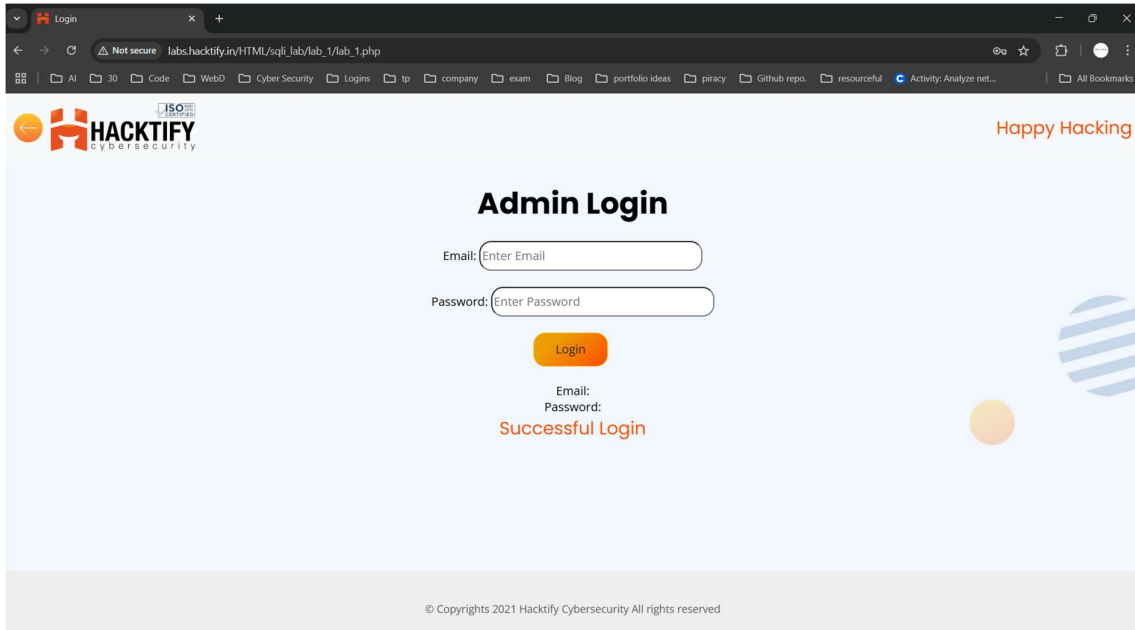
2. SQL Injection

2.1. Strings & Errors Part 1!

Reference	Risk Rating
Strings & Errors Part 1!	Low
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: By injecting SQL payloads in username and password.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sqli_lab/lab_1/lab_1.php	
Consequences of not Fixing the Issue.	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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

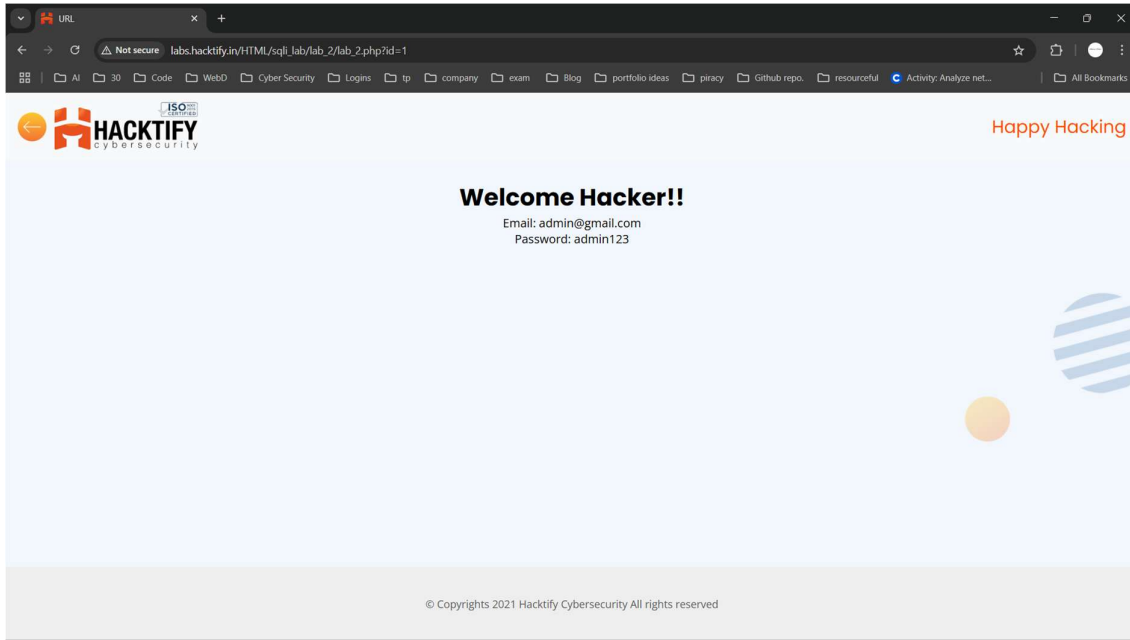


2.2. Strings & Errors Part 2!

Reference	Risk Rating
Strings & Errors Part 2!	Low
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: I directly entered numeric values in the ID parameter of the login URL and successfully accessed different user accounts without authentication.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sqli_lab/lab_2/lab_2.php?id=1	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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

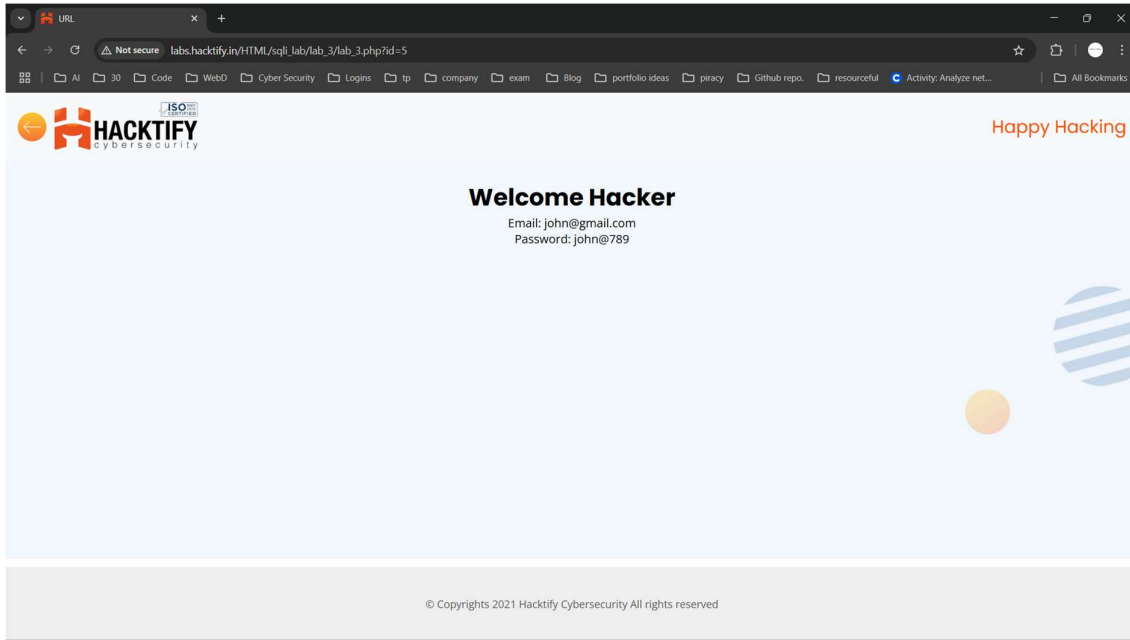


2.3. Strings & Errors Part 3!

Reference	Risk Rating
Strings & Errors Part 3!	Low
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: I directly entered numeric values in the ID parameter of the login URL and successfully accessed different user accounts without authentication.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sqli_lab/lab_3/lab_3.php?id=5	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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

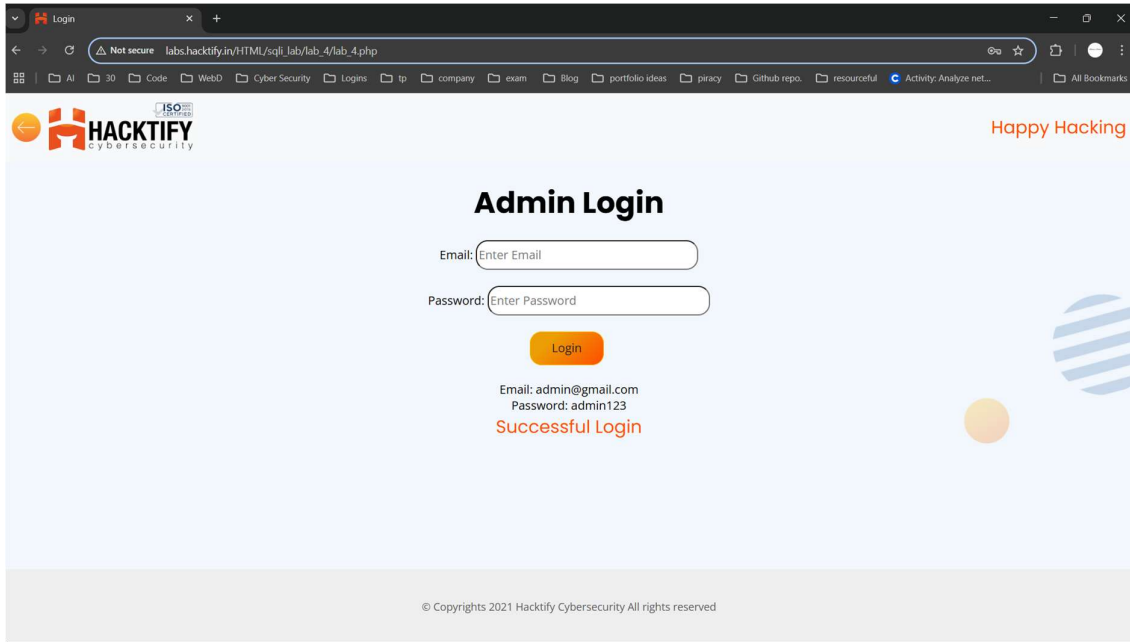


2.4. Let's trick 'em!

Reference	Risk Rating
Let's trick 'em!	Medium
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: By injecting SQL payloads in username and password.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sqli_lab/lab_4/lab_4.php	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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

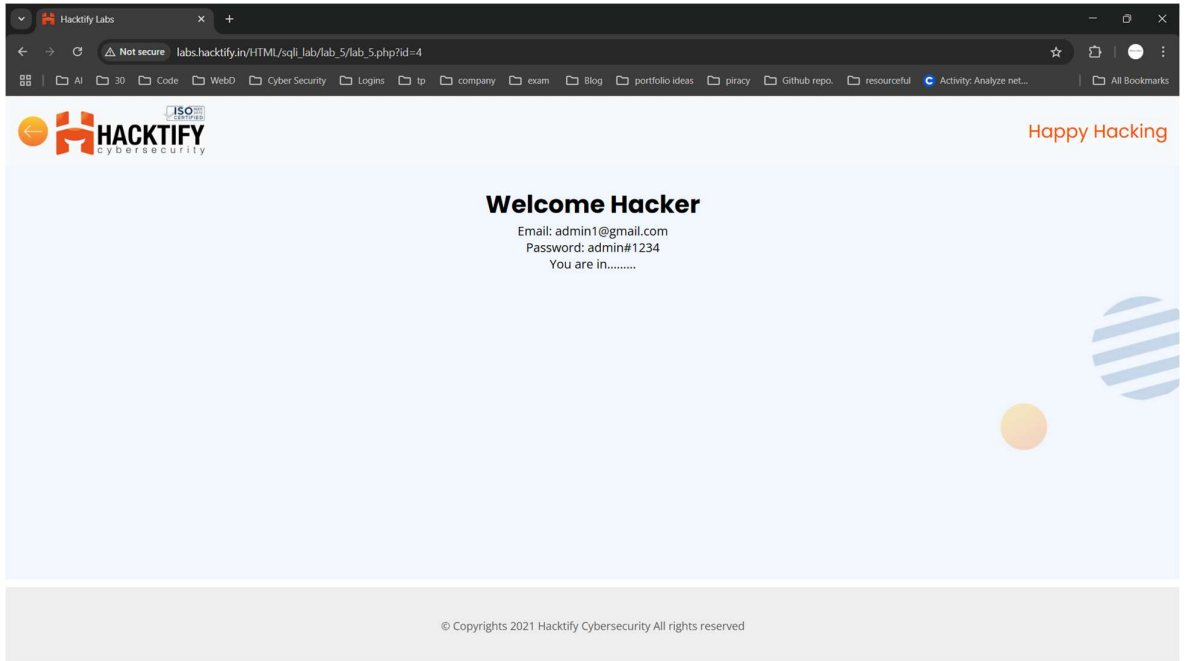


2.5. Booleans and Blind!

Reference	Risk Rating
Booleans and Blind!	High
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: I directly entered numeric values in the ID parameter of the login URL and successfully accessed different user accounts without authentication	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sqli_lab/lab_5/lab_5.php?id=4	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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

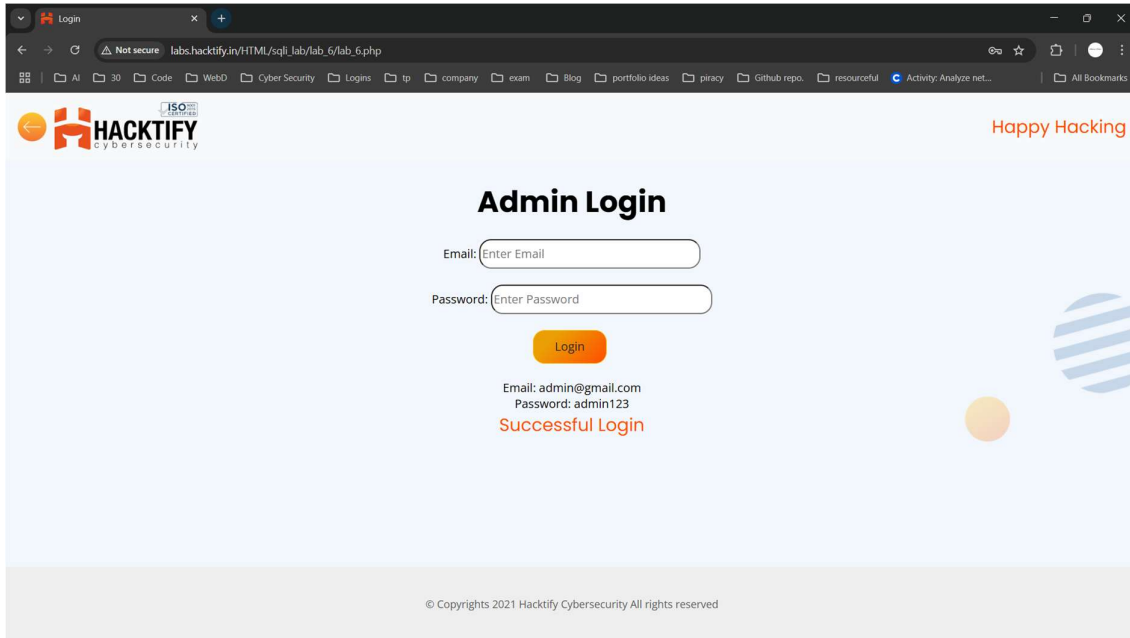


2.6. Error based : Tricked !

Reference	Risk Rating
Error based : Tricked !	Medium
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: By injecting SQL payloads in username and password.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sql_lab/lab_6/lab_6.php	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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

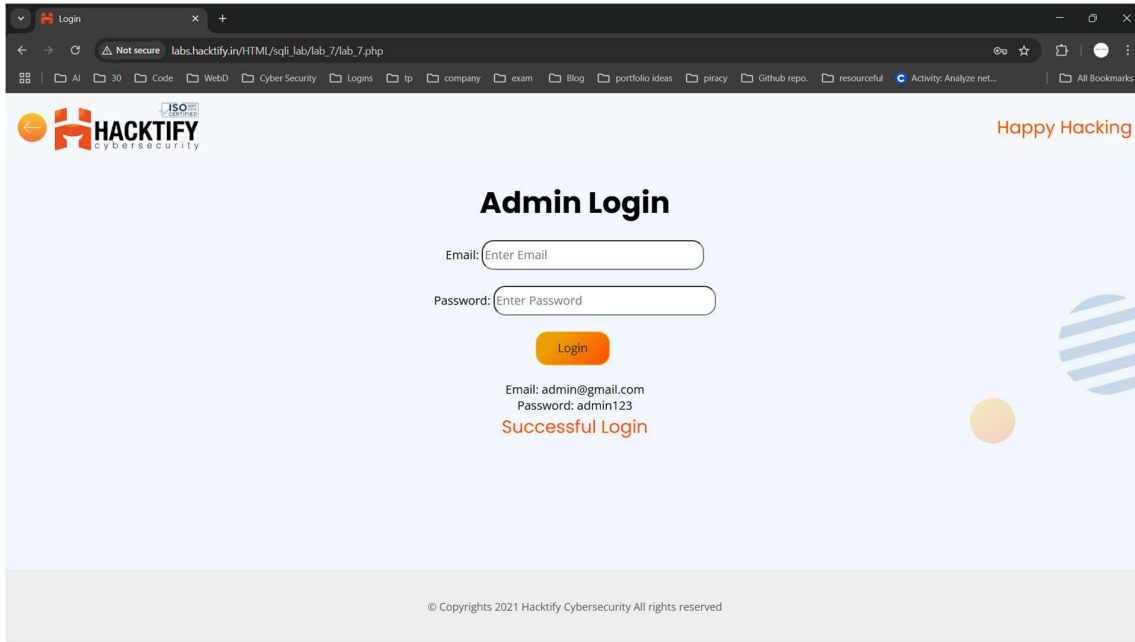


2.7. Errors and Post!

Reference	Risk Rating
Errors and Post !	Low
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: By injecting SQL payloads in username and password.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sqli_lab/lab_7/lab_7.php	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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

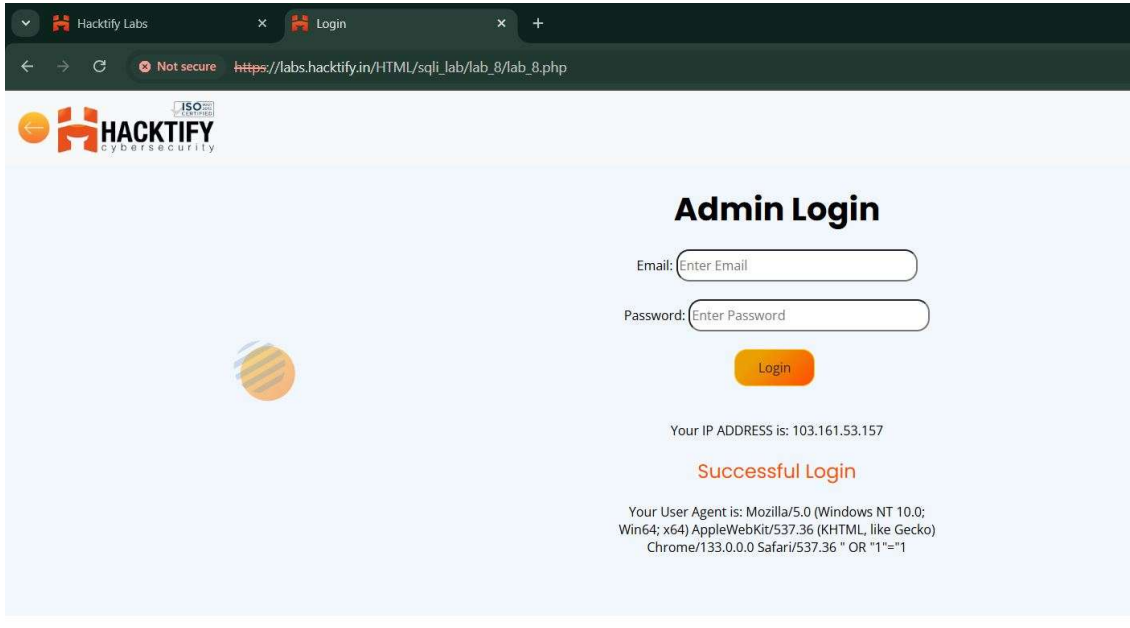


2.8. User Agents lead us!

Reference	Risk Rating
User agents lead us!	High
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: By injecting SQL payloads in username and password.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sqli_lab/lab_8/lab_8.php	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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



2.9. Referer lead u!

Reference	Risk Rating
Referer lead us!	Medium
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: By injecting SQL payloads in username and password.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sqli_lab/lab_9/lab_9.php	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	



Proof of Concept

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

Hacktify Labs

Login

labs.hacktify.in/HTML/sql_i_lab/lab_9/lab_9.php



Admin Login

Email:

Password:

Login

Your IP ADDRESS is: 103.161.53.157

Successful Login

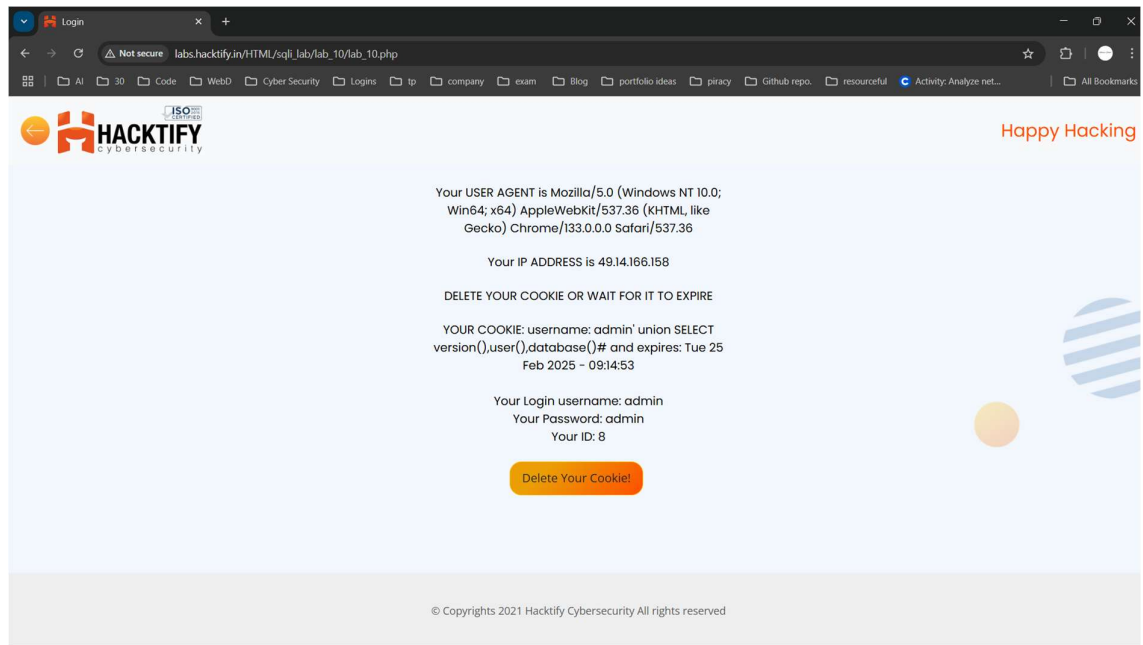
Your User Agent is:
"https://labs.hacktify.in/HTML/sql_i_lab/lab_9/lab_9.php"

2.10. Oh Cookies!

Reference	Risk Rating
Oh Cookies!	High
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: By injecting SQL payloads in username and password.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sqli_lab/lab_10/lab_10.php	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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

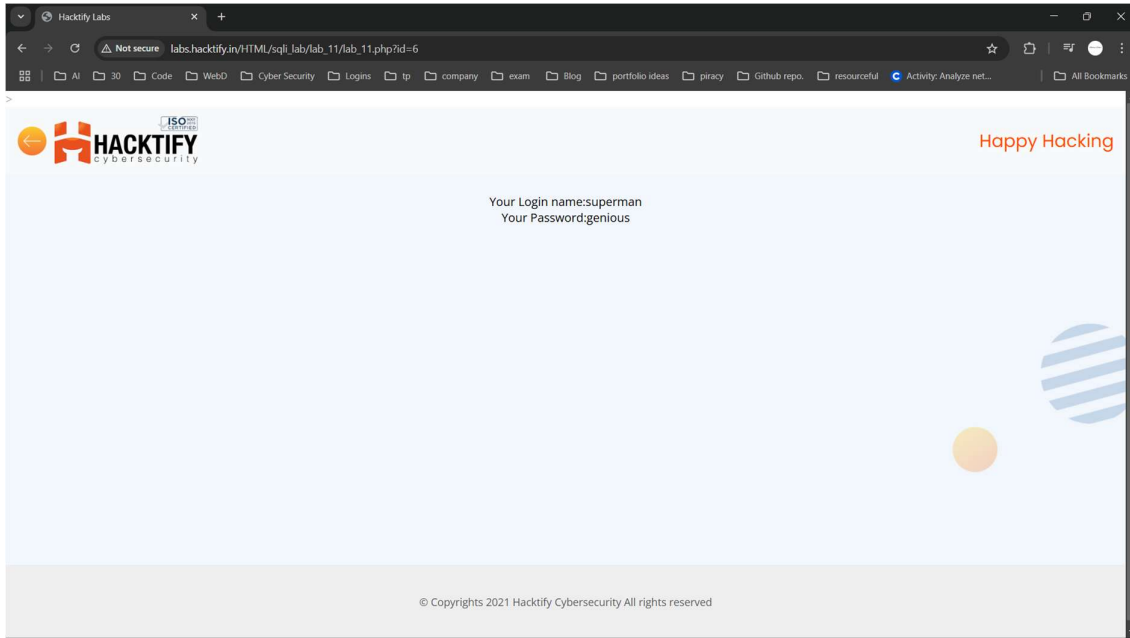


2.11. WAF's are injected!

Reference	Risk Rating
WAF's are injected!	High
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: I directly entered numeric values in the ID parameter of the login URL and successfully accessed different user accounts without authentication.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sql_lab/lab_11/lab_11.php?id=6	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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



2.12. WAF's are injected Part 2!

Reference	Risk Rating
WAF's are injected Part 2!	Medium
Tools Used	
Burp Suite	
Vulnerability Description	
The application is vulnerable to SQL Injection , allowing an attacker to bypass authentication by injecting malicious SQL queries. The login form does not properly validate user inputs before executing database queries.	
How It Was Discovered	
Manual Analysis: I directly entered numeric values in the ID parameter of the login URL and successfully accessed different user accounts without authentication.	
Vulnerable URLs	
http://labs.hacktify.in/HTML/sql_lab/lab_12/lab_12.php?id=7	
Consequences of not Fixing the Issue	
<ol style="list-style-type: none">1. Unauthorized Access2. Data Exposure3. Privilege Escalation4. Data Manipulation5. System Compromise	
Suggested Countermeasures	
<ol style="list-style-type: none">1. Use Prepared Statements (Parameterized Queries)2. Implement Input Validation3. Use Stored Procedures4. Apply Least Privilege Principle5. Enable Web Application Firewall (WAF)	
References	
https://portswigger.net/web-security/sql-injection https://owasp.org/www-community/attacks/SQL_Injection	

Proof of Concept

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