> This room uses the Juice Shop vulnerable web application to learn how to identify and exploit common web application vulnerabilities.

Open for business!

Within this room, we will look at OWASP's TOP 10 vulnerabilities in web applications. You will find these in all types of web applications. But for today we will be looking at OWASP's own creation, Juice Shop!

*The **FREE** Burpsuite rooms 'Burpsuite Basics' and 'Burpsuite Repeater' are recommended before completing this room!*
Juice Shop is a large application so we will not be covering every topic from the top 10.

We will, however, cover the following topics which we recommend you take a look at as you progress through this room.

← — ->

Injection

Broken Authentication

Sensitive Data Exposure

Broken Access Control

Cross-Site Scripting XSS

← — ->

PLEASE NOTE!

[Task 3] and onwards will require a flag, which will be displayed on completion of the task.

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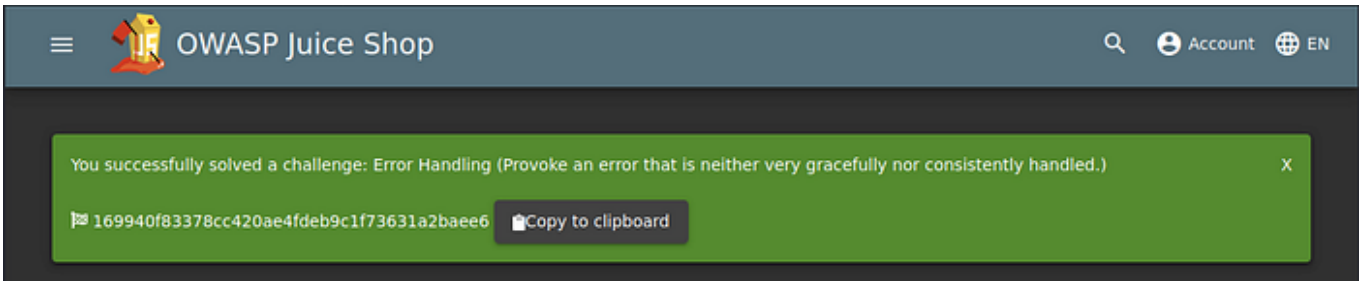

Troubleshooting

The web app takes about 2–5 minutes to load, so please be patient!

Temporarily disable burp in your proxy settings for the current browser. Refresh the page and the flag will be shown.

(This is not an issue with the application but an issue with burp stopping the flag from being shown.)

If you are doing the XSS Tasks and they are not working. Clear your cookies and site data, as this can sometimes be an issue.

If you are sure that you have completed the task but it's still not working. Go to ***[Task 8]****, as this will allow you to check its completion.*

L*et's go on an adventure!*

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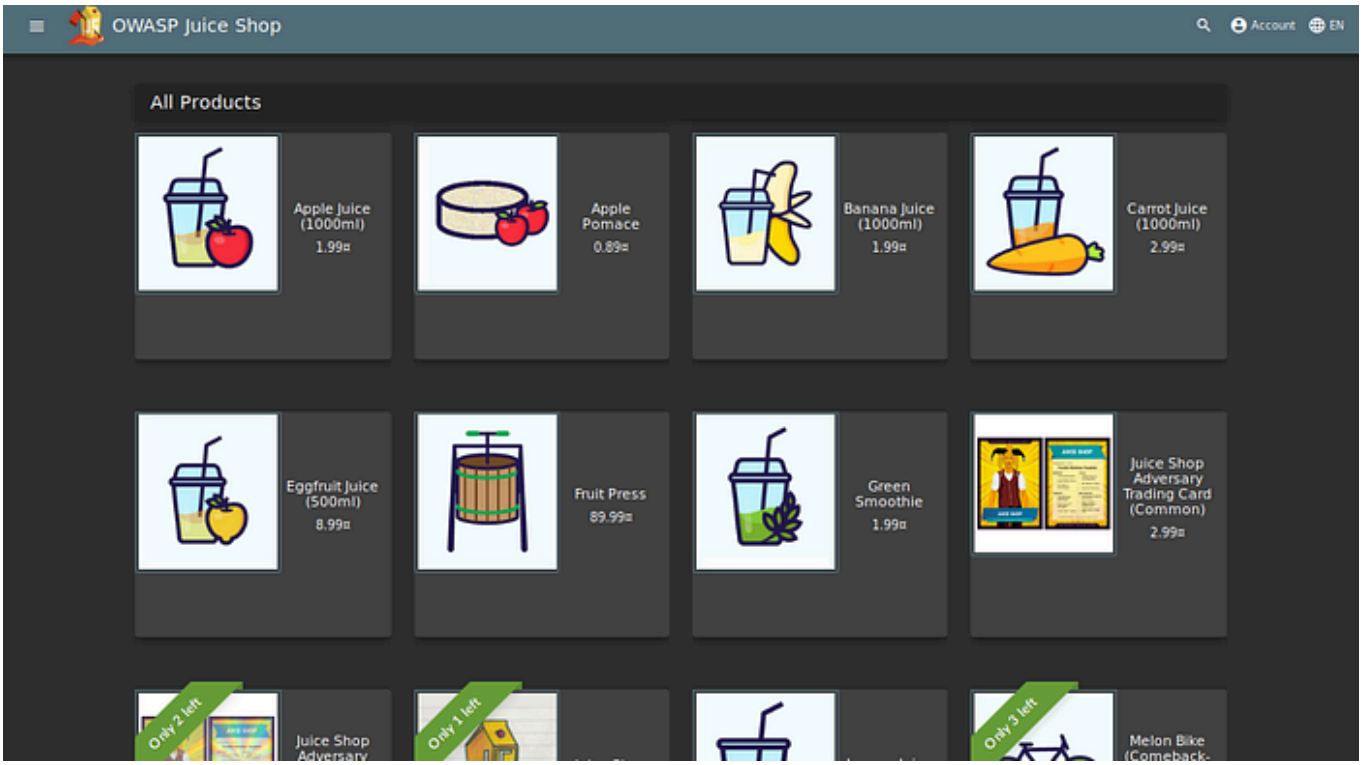
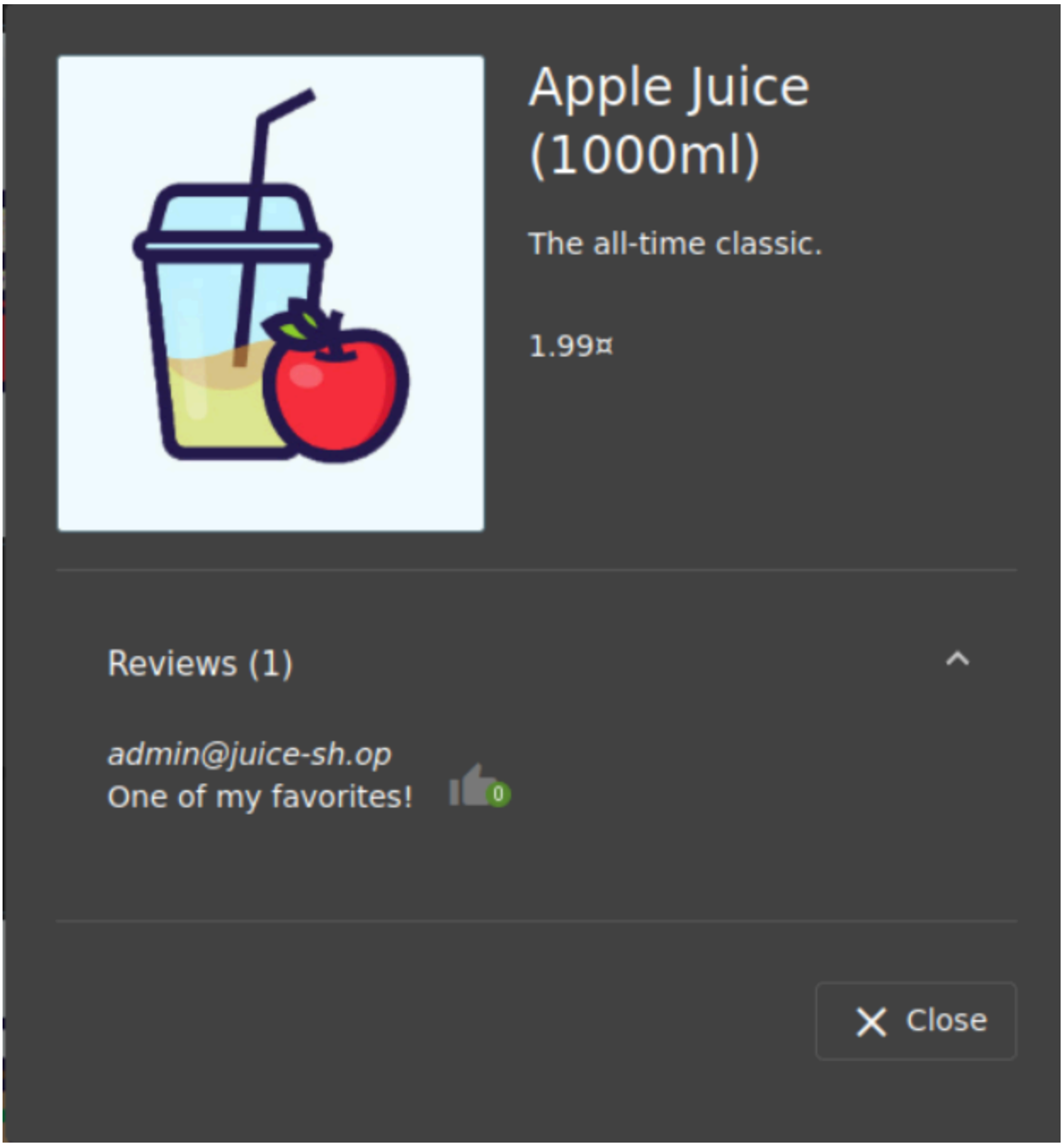


Before we get into the actual hacking part, it's good to have a look around. In Burp, set the Intercept mode to off and then browse around the site. This allows Burp to log different requests from the server that may be helpful later.

*This is called **walking through** the application, which is also a form of **reconnaissance**!*

Ques 1: What's the Administrator's email address?
Ans 1: admin@juice-sh.op



Ques 2: What parameter is used for searching?
Ans 2: q

Ques 3: What show does Jim reference in his review?
Ans 3: Star Trek

Inject the juice

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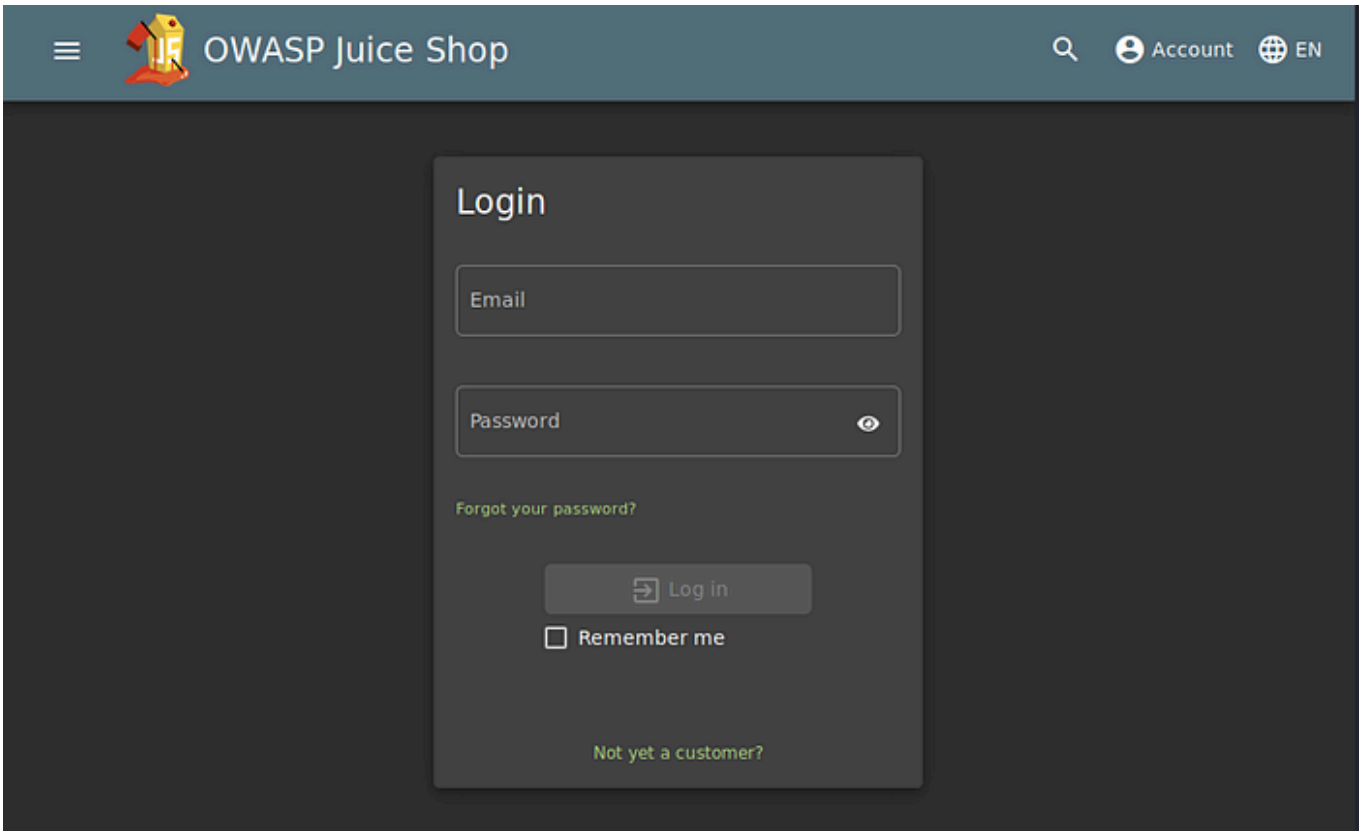

This task will be focusing on injection vulnerabilities. Injection vulnerabilities are quite dangerous to a company as they can potentially cause downtime and/or loss of data. Identifying injection points within a web application is usually quite simple, as most of them will return an error. There are many types of injection attacks, some of them are:

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SQL Injection	SQL Injection is when an attacker enters a malicious or malformed query to either retrieve or tamper data from a database. And in some cases, log into accounts.
Command Injection	Command Injection is when web applications take input or user-controlled data and run them as system commands. An attacker may tamper with this data to execute their own system commands. This can be seen in applications that perform misconfigured ping tests.
Email Injection	Email injection is a security vulnerability that allows malicious users to send email messages without prior authorization by the email server. These occur when the attacker adds extra data to fields, which are not interpreted by the server correctly.

Ques 4: Log into the administrator account!
Ans 4: 32a5e0f21372bcc1000a6088b93b458e41f0e02a

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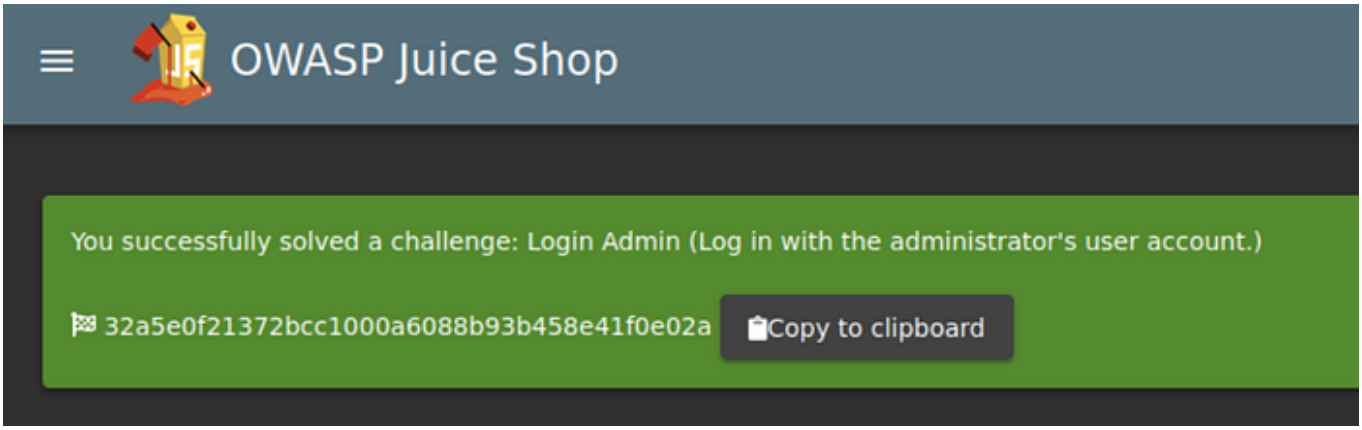

Ques 5: Log into the Bender account!
Ans 5: fb364762a3c102b2db932069c0e6b78e738d4066

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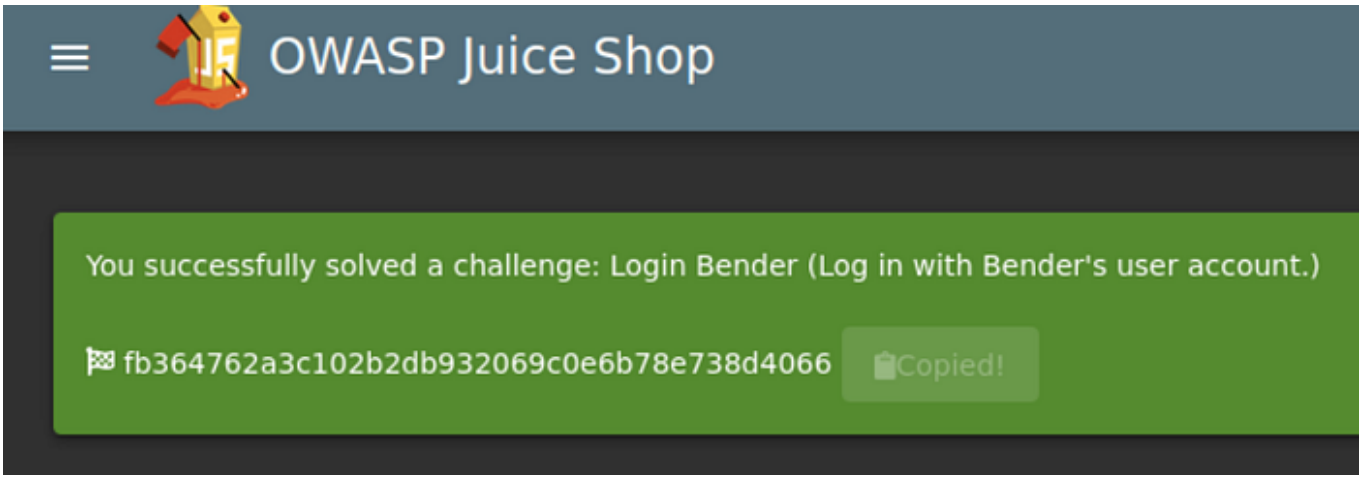

W*ho broke my lock?!*

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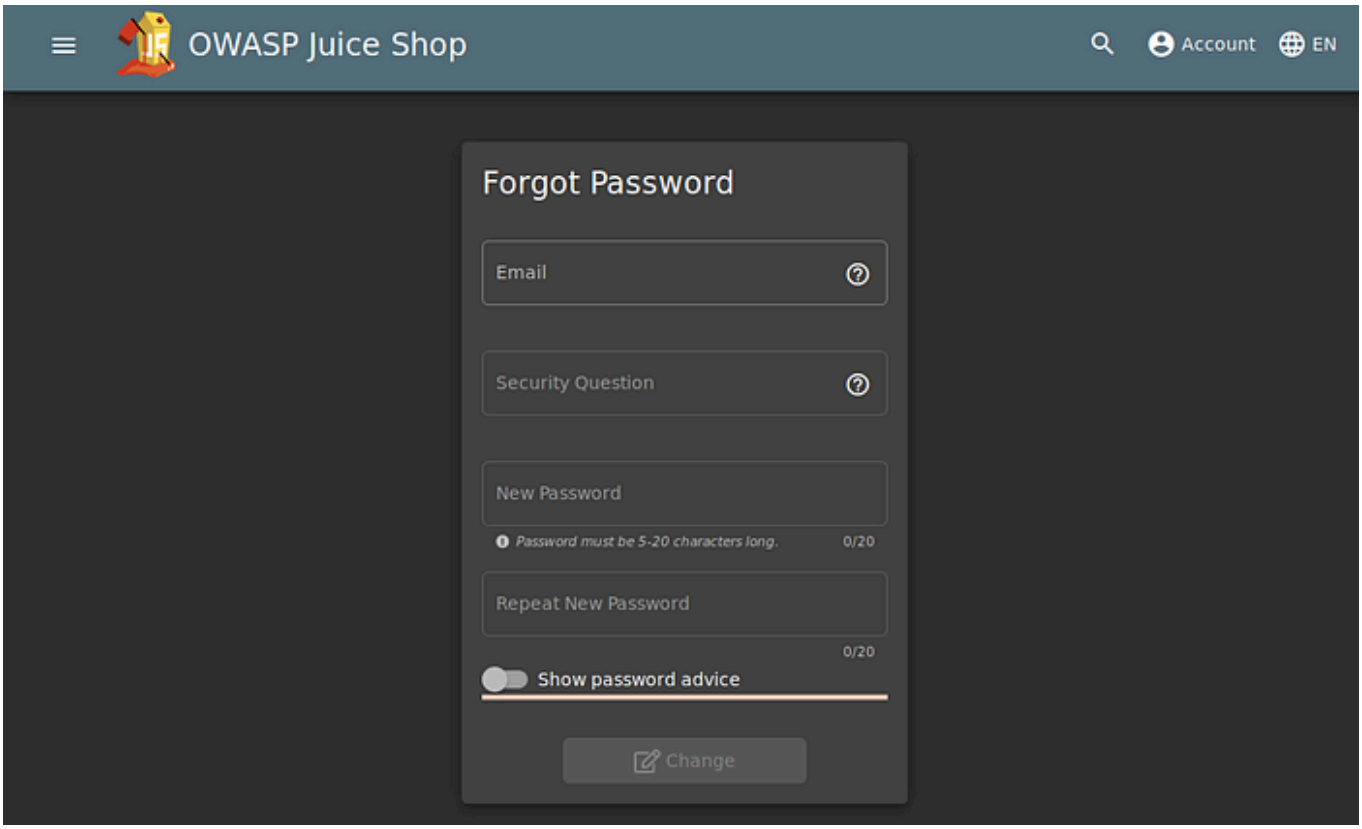

In this task, we will look at exploiting authentication through different flaws. When talking about flaws within authentication, we include mechanisms that are vulnerable to manipulation. These mechanisms, listed below, are what we will be exploiting.

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Weak passwords in high privileged accounts.

Forgotten password pages.

Ques 6: Bruteforce the Administrator account's password!
Ans 6: c2110d06dc6f81c67cd8099ff0ba601241f1ac0e

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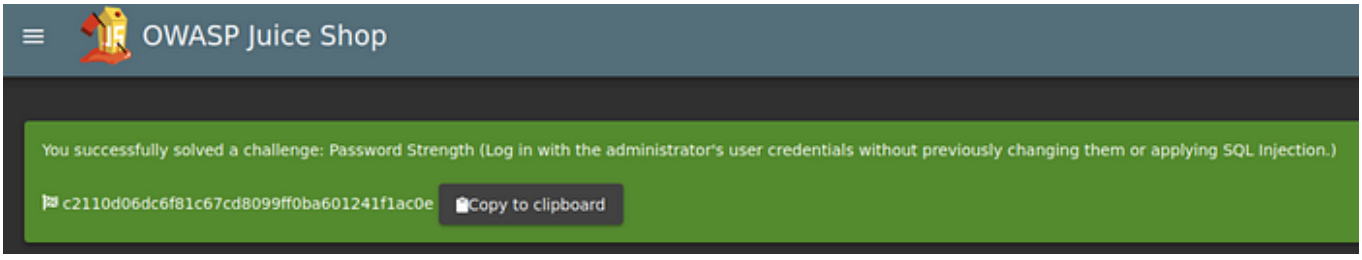

Ques 7: Reset Jim’s password!
Ans 7: 094fbc9b48e525150ba97d05b942bbf114987257

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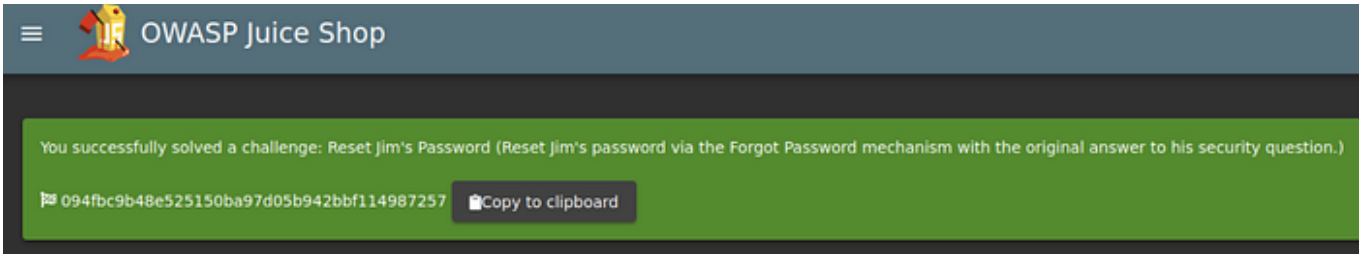

AH! Don’t look!

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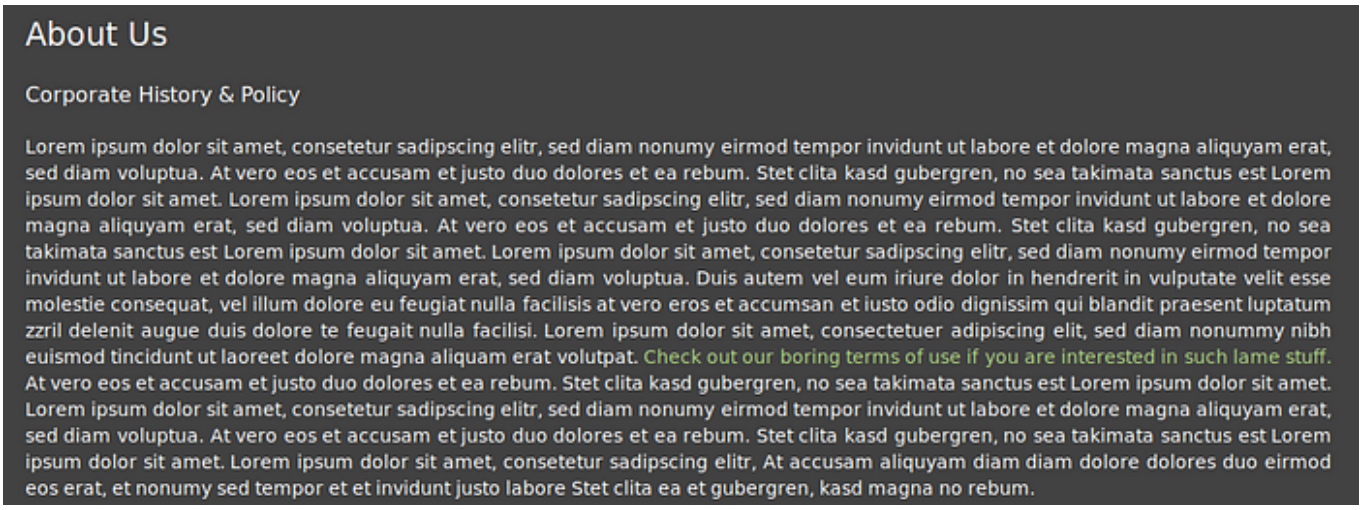

A web application should store and transmit sensitive data safely and securely. But in some cases, the developer may not correctly protect their sensitive data, making it vulnerable.

Most of the time, data protection is not applied consistently across the web application making certain pages accessible to the public. Other times information is leaked to the public without the knowledge of the developer, making the web application vulnerable to an attack.

Ques 8: Access the Confidential Document!
Ans 8: edf9281222395a1c5fee9b89e32175f1ccf50c5b

Ques 9: Log into MC SafeSearch’s account!
Ans 9: 66bdcffad9e698fd534003fbb3cc7e2b7b55d7f0

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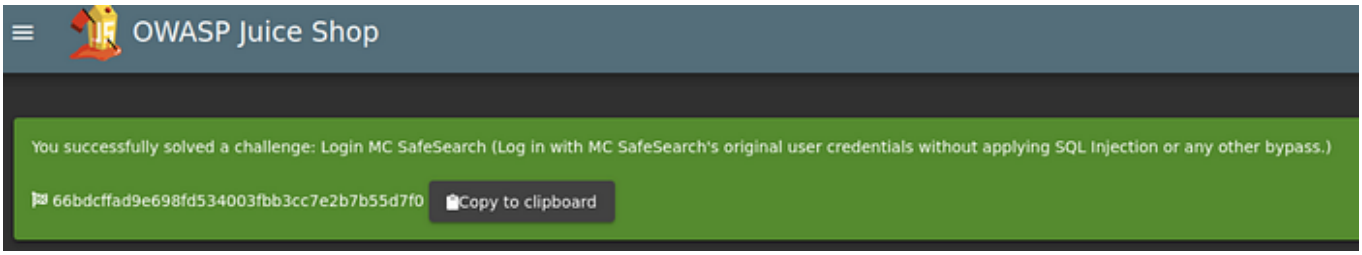

Ques 10: Download the Backup file!
Ans 10: bfc1e6b4a16579e85e06fee4c36ff8c02fb13795

W*ho's flying this thing?*

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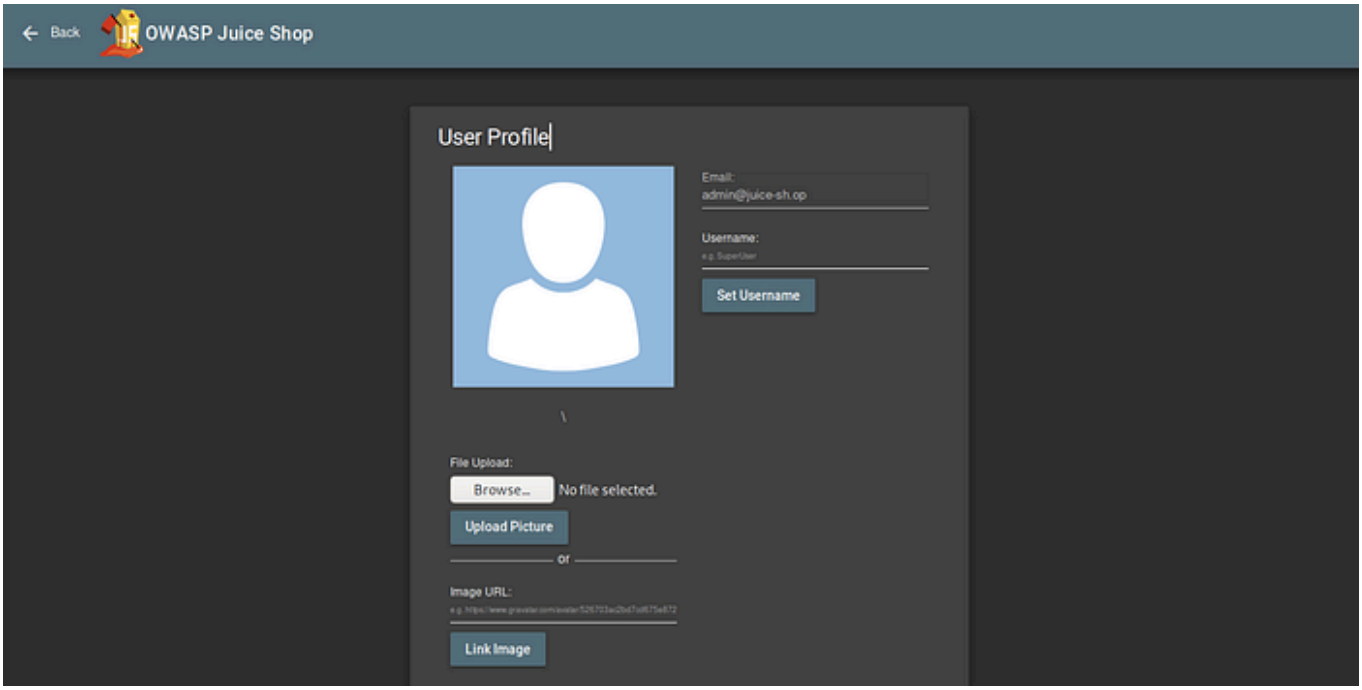

Modern-day systems will allow for multiple users to have access to different pages. Administrators most commonly use an administration page to edit, add and remove different elements of a website. You might use these when you are building a website with programs such as Weebly or Wix.

When Broken Access Control exploits or bugs are found, it will be categorized into one of ***two types****:*

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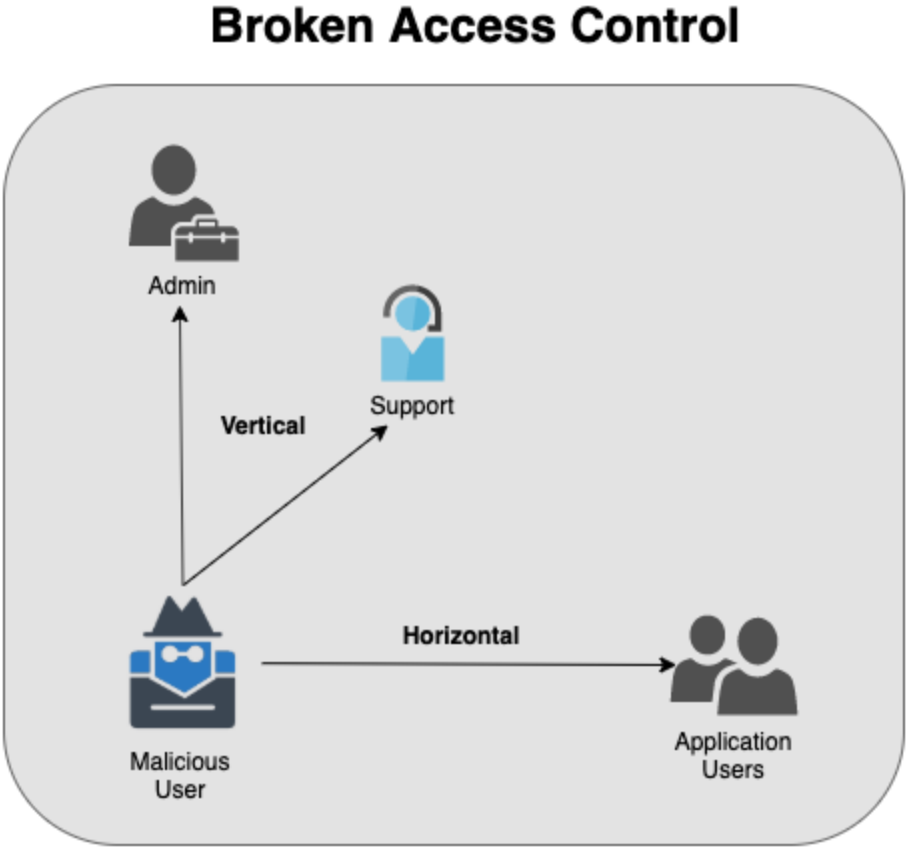
Horizontal Privilege Escalation	Occurs when a user can perform an action or access data of another user with the **same** level of permissions.
Vertical Privilege Escalation	Occurs when a user can perform an action or access data of another user with a **higher** level of permissions.



Ques 11: Access the administration page!
Ans 11: 946a799363226a24822008503f5d1324536629a0

Ques 12: View another user's shopping basket!
Ans 12: 41b997a36cc33fbe4f0ba018474e19ae5ce52121

Ques 13: Remove all 5-star reviews!
Ans 13: 50c97bcce0b895e446d61c83a21df371ac2266ef

W*here did that come from?*

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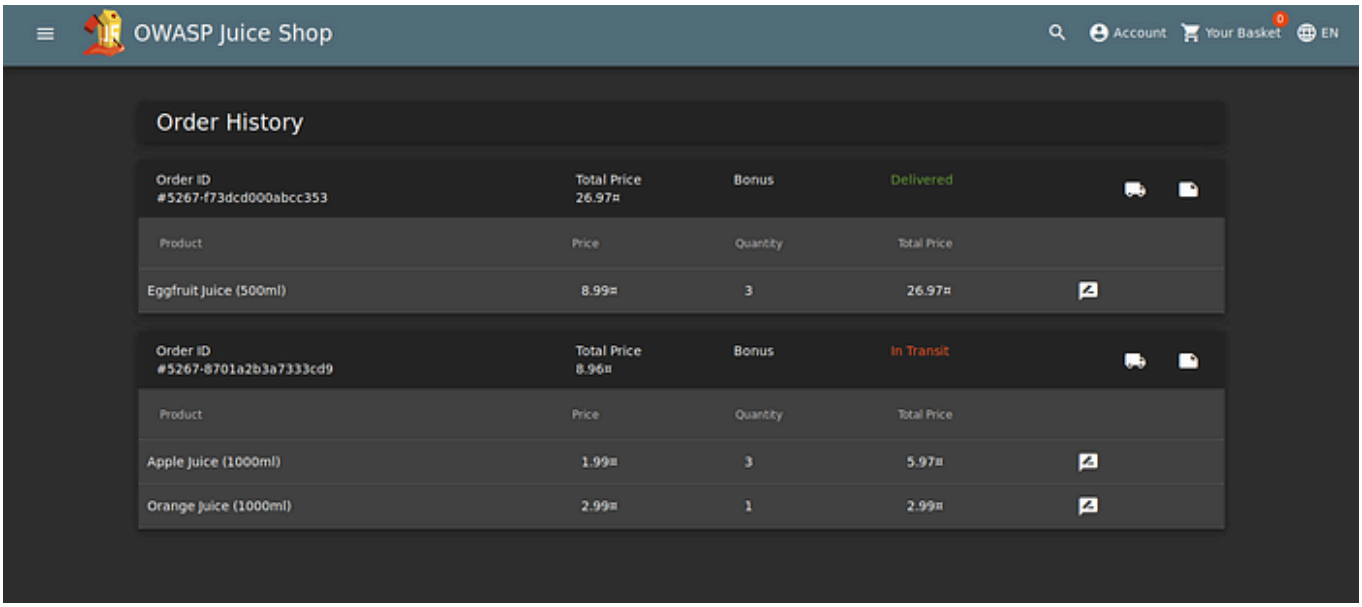

XSS or Cross-site scripting is a vulnerability that allows attackers to run javascript in web applications. These are one of the most found bugs in web applications. Their complexity ranges from easy to extremely hard, as each web application parses the queries in a different way.

There are three major types of XSS attacks:

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DOM (Special)	**DOM XSS** *(Document Object Model-based Cross-site Scripting)* uses the HTML environment to execute malicious javascript. This type of attack commonly uses the *<script></script>* HTML tag.
Persistent (Server-side)	**Persistent XSS** is javascript that is run when the server loads the page containing it. These can occur when the server does not sanitise the user data when it is **uploaded** to a page. These are commonly found on blog posts.
Reflected (Client-side)	**Reflected XSS** is javascript that is run on the client-side end of the web application. These are most commonly found when the server doesn't sanitise **search** data.

Ques 14: Perform a DOM XSS!
Ans 14: 9aaf4bbea5c30d00a1f5bbcfce4db6d4b0efe0bf

Ques 15: Perform a persistent XSS!
|Ans 15: 149aa8ce13d7a4a8a931472308e269c94dc5f156

Ques 16: Perform a reflected XSS!
Ans 16: 23cefee1527bde039295b2616eeb29e1edc660a0

E*xploration!*

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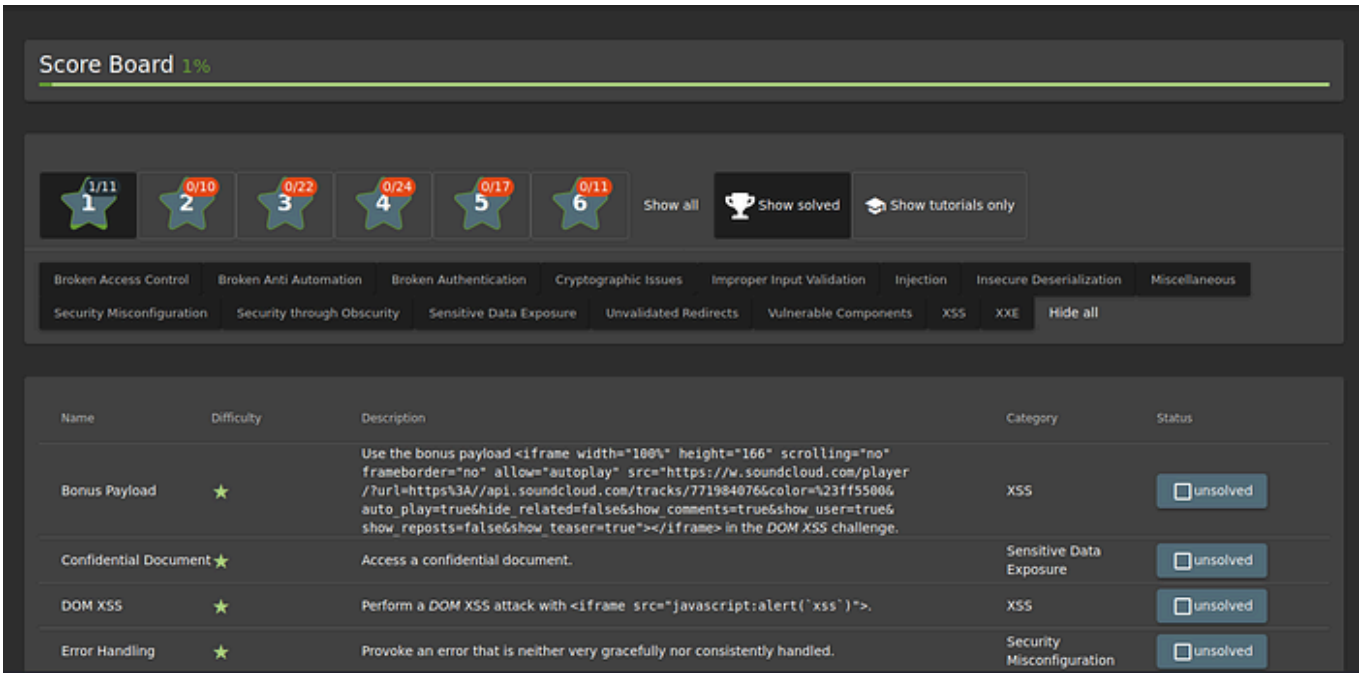

*If you wish to tackle some of the **harder** challenges that were not covered within this room, check out the **/#/score-board/** section on Juice-shop. Here you can see your completed tasks as well as other tasks in varying difficulty.*

Ques 17: Access the /#/score-board/ page
Ans 17: 7efd3174f9dd5baa03a7882027f2824d2f72d86e

References: https://tryhackme.com/room/owaspjuiceshop