



# Web Application Penetration Testing Report

## Report For :

**Organization Name** : Gujarat Informatics Ltd.

**Report Date** : August 31st 2024

## Report By :

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**Report Date** : August 31st 2024

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## 1. Document Control

This document serves as a comprehensive report of the findings and recommendations resulting from the web application security assessment performed on Gujarat Panchayat Service Selection Board(Gujarat Informatics Ltd.) by Xiarch Solutions Private Limited. This report is intended for Management, and is to be used as a guide for improving the security posture of the web application.

### 1.1 Document Version Control

Version	Report	Person	Action	Date
1.0	Level 01	Manish Gupta	Audit	31/08/2024
1.1	Level 01	Nitin Panwar	Review	31/08/2024
1.2	Level 01	Ronak Bal	Final Approval	31/08/2024

### 1.2 Document Distribution List

Name	Designation	Organization
Manish Gupta	Associate InfoSec Consultant	Xiarch Solutions Private Limited
Nitin Panwar	InfoSec Consultant	Xiarch Solutions Private Limited
Ronak Bal	Senior InfoSec Consultant	Xiarch Solutions Private Limited

## 2. Introduction

### 2.1 Summary

This report outlines the results of a comprehensive web application security assessment conducted for the Gujarat Panchayat Service Selection Board web application. The purpose of this assessment was to identify any potential security vulnerabilities and to provide recommendations for their mitigation.

The assessment was conducted using a combination of manual and automated testing techniques, including vulnerability scanning, penetration testing, and code review. The scope of the assessment covered the application's front-end and back-end components, as well as any supporting infrastructure.

The assessment was conducted in accordance with industry-standard security best practices and guidelines, including the Open Web Application Security Project (OWASP) Top 10 list of web application security risks.

The results of the assessment identified a number of security vulnerabilities, which have been categorized according to their severity and impact on the application's security posture. Recommendations for mitigating these vulnerabilities have been provided, along with a roadmap for addressing any remaining security issues.

The findings and recommendations contained in this report are intended to assist the development team in improving the overall security of the web application, and to help ensure that it meets the necessary security standards and compliance requirements.

### 2.2 Assessment Objective:

- Identify and assess security flaws in mobile application according to industry principal security standards like OWASP Web Security Project Top 10 and SANS 25 etc.
- Provide recommendations for mitigation of risk(s) emerged during the identified vulnerabilities.

## 3. Scope

### 3.1 Scope Details

The security assessment was carried out in the pre-production environment and it included the following scope:

<b>Application Name</b>	<b>Panchayat Web Application</b>
<b>URL</b>	<a href="https://panchayat.gipl.in/">https://panchayat.gipl.in/</a> <a href="https://panchayat.gipl.in/workflow">https://panchayat.gipl.in/workflow</a>
<b>User IDs and Access</b>	Username- DDO_AMR, Panchayat , Password: *****
<b>Testing Environment Details</b>	Testing Environment
<b>Application Description</b>	<b>Panchayat</b> Web application

<b>For Employee</b>	
<b>Modules</b>	<b>Sub module</b>
Login	N/A
Dashboard	N/A
Edit Details	N/A
Logout	N/A

<b>Out of Scope</b>	
<b>Module</b>	<b>Sub module</b>
N/A	N/A

### Assumptions:

- No changes were made during assessment by project team, all artefacts/documents shared with us are latest as on shared date and are unaltered.
- This vulnerability assessment exercise did not include the testing of vulnerabilities leading to Denial of service (DoS) and similar attacks.

- Appropriate backup and rollback plan are made prior to implementing the recommendation on the system.
- Vulnerabilities identified were as on the data scan conducted and as per the scan policies (non-intrusive) & plugins selected. There may be vulnerabilities which may exist & not assessed since their exploits may lead to system downtime. Also, the vulnerabilities identified after the scan date may also not form part of this report.

### 3.2 Post Assessment Clean-up

Any test accounts, which were created for the purpose of this assessment, should be disabled or removed, as appropriate, together with any associated content.

## 4. Terms , Clarity & Legends

This section describes the format in which the identified vulnerabilities are reported in the later section of the report. "Vulnerability Table" shown below is used to provide the details of the vulnerability, its impact and the recommendations.

### 4.1 Vulnerability Table

<b>Observation ID &amp; Title :</b>			
<b>CVSS Risk Rating :</b>		<b>Status :</b>	
<b>Observation Details :</b>			
<b>Risk/Impact :</b>			
<b>Recommendations :</b>			
<b>Affected URL &amp; Parameter :</b>			
<b>CVSS Vector :</b>			

- |                            |   |
|----------------------------|---|
| Title of the Vulnerability | - A short title that describes the vulnerability  |
| Risk Level                 | - It describes the risk level. The title bar of each vulnerability table is colour coded for quick identifications of the severity level of the vulnerabilities |
| Description                | - It provides a brief description of the vulnerability.   |
| Impact                     | - Describes the probable impact if the vulnerability is successfully exploited.   |
| Recommendations            | - Provide the recommendations to fix the vulnerability.   |
| Affects                    | - Provide the information where vulnerability is present.   |
| Status                     | - Provides the information whether the vulnerability is closed or not.  |

## 4.2 Findings Ranking System

In order to prioritize the assessment results, each finding was categorized based on severity classifications. Final analysis of the risk or impact to the application will require an internal evaluation. Xiarch Labs has developed classifications using the severity nomenclature for ranking the issues identified within the various severity categories.

### 4.2.1 Severity Categories

Based on Xiarch Lab analysis of the particular finding and assets affected, a finding will fall into one of the following severity level categories:

**Critical** Vulnerabilities require an immediate response through mitigating controls, direct remediation or a combination thereof. Exploitation of critical severity vulnerabilities results in privileged access to the target system, application or sensitive data and enables further access to other hosts or data stores within the environment. In general, a critical severity ranking is warranted when the issue has a direct impact on regulatory or compliance controls imposed on the environment, accesses personally identifiable information (PII) or financial data or could cause significant reputational or financial harm.

**High** Findings with a high severity ranking require immediate evaluation and subsequent resolution. Exploitation of high severity vulnerabilities leads directly to an attacker gaining privileged, administrative-level access to the system, application or sensitive data. However, it does not enable further access to other hosts or data stores within the environment. If left unmitigated, high severity vulnerabilities can pose an elevated threat that could affect business continuity or cause significant financial loss.

**Medium** A finding with a medium severity ranking requires review and resolution within a short time. From a technical perspective, vulnerabilities that warrant a medium severity ranking can lead directly to an attacker gaining non-privileged or user-level access to the system, application or sensitive data. Findings that can cause a denial-of-service (DoS) condition on the host, service or application are also classified as medium risk. Alternately, the vulnerability may provide a way for attackers to gain elevated levels of privilege. From a less technical perspective, observations with this ranking are significant, but they do not pose as much of a threat as high or critical severity exposures.

**Low** Low severity findings should be evaluated for review and resolution once the remediation efforts for critical, high and medium severity issues are complete. From a technical perspective, vulnerabilities that warrant a low severity ranking may leak information to unauthorized or anonymous users used to launch a more targeted attack against the environment.

**Informational** An informational finding presents no direct threat to the confidentiality, integrity or availability of the data or systems supporting the environment. These issues pose an inherently low threat to the organization and any proposed resolution should be considered as an addition to the information security procedures already in place.

## 5. Assessment Methodology

A penetration testing methodology for web apps typically includes the following steps:

**Probe:** Involves gathering information about the target system, such as the target's IP address, server type, operating system, and other details that can help identify vulnerabilities.

**Enumeration:** In this phase, the tester tries to identify any open ports, services or applications that may be running on the target system. This can be done using various tools such as port, network or web application scanners.

**Vulnerability Scanning:** Once the tester has identified the services running on the target system, they can use vulnerability scanners to identify any known vulnerabilities or weaknesses that can be exploited.

**Exploitation:** After identifying vulnerabilities, the tester attempts to exploit them to gain unauthorized access to the target system or its data. This can be done using various tools and techniques such as SQL injection, cross-site scripting or brute force attacks.

**After Exploitation:** After gaining access to the system, the tester attempts to maintain access and escalate privileges to gain more control over the target system.

**Reporting:** Finally, the tester documents his findings and provides the client with recommendations for remediation. This report usually contains a detailed description of the vulnerabilities found, their severity, and recommended steps to mitigate them.

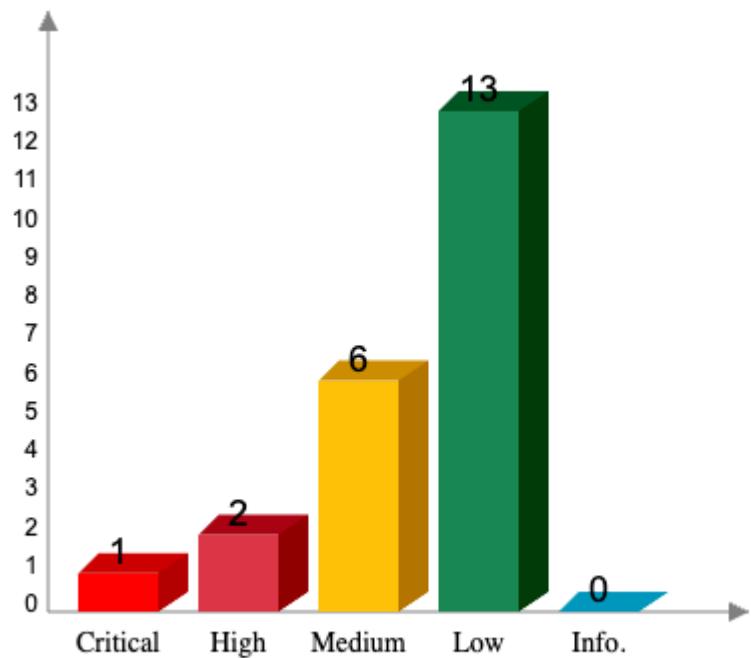
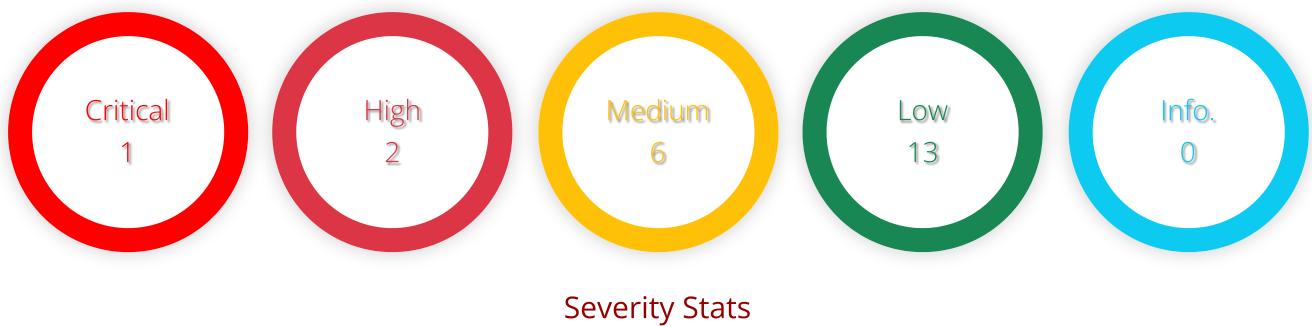
It is important to note that this methodology may vary depending on the specific target being tested and the objectives of the test.



## 6. Executive Summary

Xiarch conducted a comprehensive security assessment of **Gujarat Informatics Ltd.** in order to determine existing vulnerabilities and establish the current level of security risk associated with the environment and the technologies in use. This assessment harnessed penetration testing and vulnerability assessment techniques to provide **Gujarat Informatics Ltd.** management with an understanding of the risks and security posture of their corporate environment.

### 6.1 Application Health



Bar Chart - Severity Stats

## 7. Assessment Findings Overview

The table below provides a summary of the assessment findings categorized by group and ranked by severity. The table provides an overview of all of the findings from the assessment and allows the remediation team to focus efforts on the areas of highest severity as determined by Xiarch Labs. Click the individual link below to go directly to that finding.

S. No.	Vulnerability Title	Severity	Status
1	Improper Access Control	Critical	Open
2	No Rate Limit - Account Bruteforce	High	Open
3	Broken Authentication	High	Open
4	Improper Cache Control	Medium	Open
5	Improper Error handling	Medium	Open
6	Vulnerable JavaScript Library	Medium	Open
7	Missing Security Header	Medium	Open
8	SQL Possible	Medium	Open
9	TLS Fallback SCSV Support	Medium	Open
10	Banner Grabbing	Low	Open
11	No Session Timeout	Low	Open
12	Dangerous Method Enabled	Low	Open
13	HTTP Strict Transport Security	Low	Open
14	Weak lock out mechanism	Low	Open
15	AutoComplete Enabled	Low	Open
16	Weak password policy	Low	Open
17	Missing secure Flag Not Set	Low	Open
18	Improper Session Expiry	Low	Open
19	Clickjacking	Low	Open
20	TLS 1.0 And TLS 1.1 Enabled	Low	Open
21	Sweet32 Attack	Low	Open
22	Improper Input Validation	Low	Open

## 8. Assessment Findings Details

<b>Observation ID &amp; Title</b>		<b>8.1 Improper Access Control</b>	
<b>CVSS Risk Rating</b>	<b>Critical</b>	<b>Status</b>	<b>Open</b>
<b>Observation Details</b>			
It is been observed that the account can be open directly without providing the credentials in the website. As per observation, user logged in first in the account and logout the account. Now attacker just opened the account with the dashboard URL of a account which comes after logging in the account.			
<b>Risk</b>			
It is possible to takeover the account without providing the credentials. This can be used to access the account number of times and attacker can change or edit the details of the user.			
<b>Recommendations</b>			
The Following are the recommendations that should be implemented.			
<ol style="list-style-type: none"> <li>1. Continuous Inspection and Testing Access Control</li> <li>2. Limiting CORS Usage</li> <li>3. Proper authentication should be done in the application.</li> </ol>			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
9.0 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

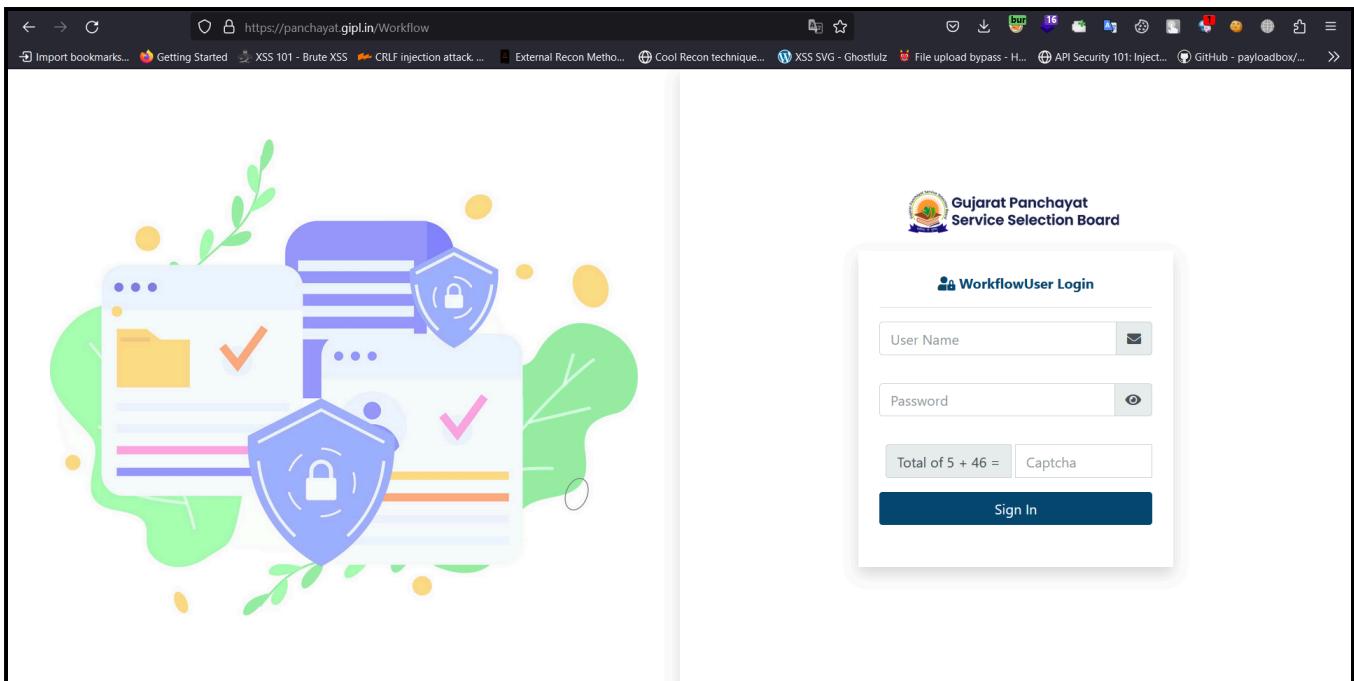


Figure 1 - Go to the mentioned URL

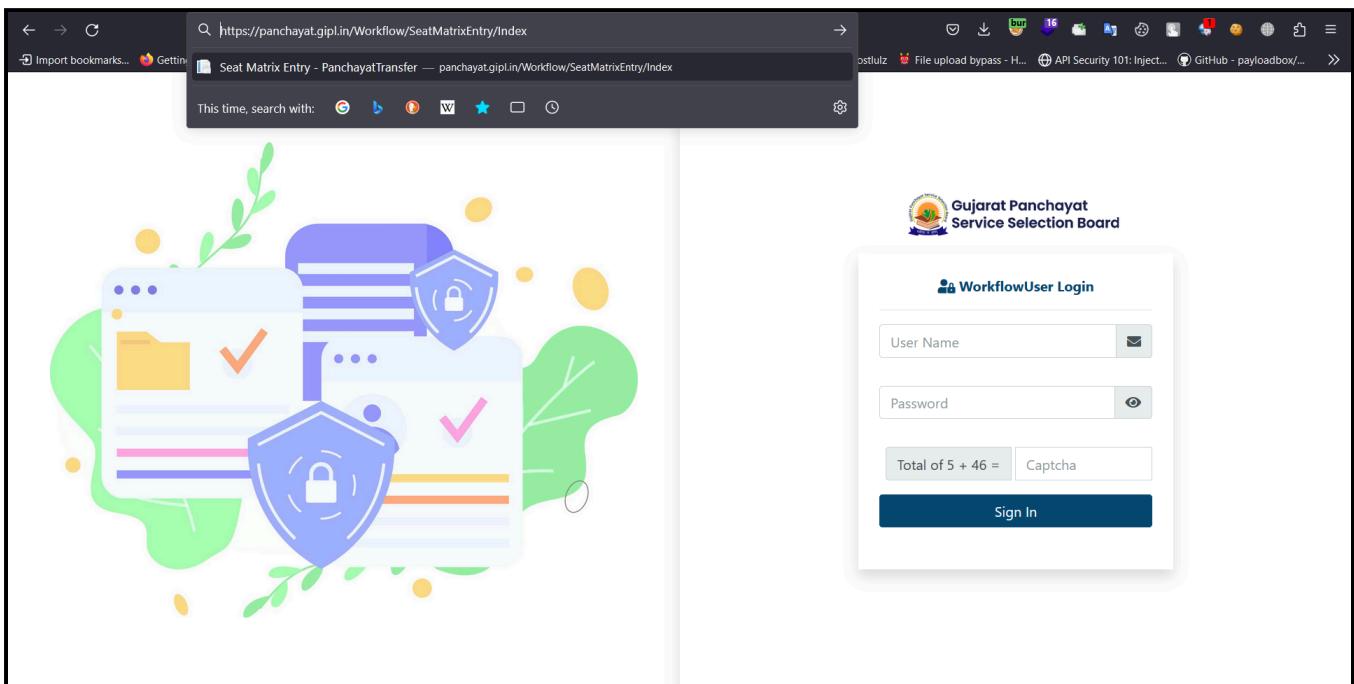
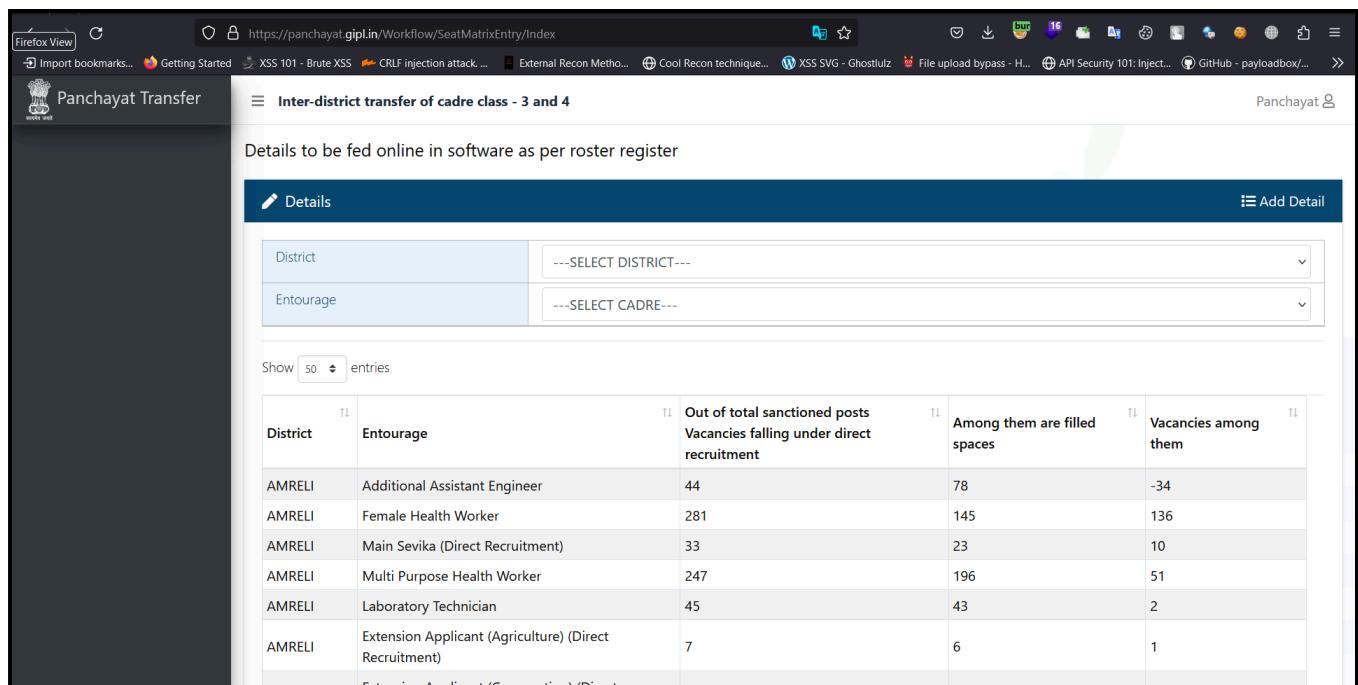


Figure 2 - Paste the URL that comes after Logging in the account.



District	Entourage	Out of total sanctioned posts Vacancies falling under direct recruitment	Among them are filled spaces	Vacancies among them
AMRELI	Additional Assistant Engineer	44	78	34
AMRELI	Female Health Worker	281	145	136
AMRELI	Main Sevika (Direct Recruitment)	33	23	10
AMRELI	Multi Purpose Health Worker	247	196	51
AMRELI	Laboratory Technician	45	43	2
AMRELI	Extension Applicant (Agriculture) (Direct Recruitment)	7	6	1
	Extension Applicant (Cooperation) (Direct Recruitment)			

Figure 3 - As you can see that the attacker get the access of the user.

<b>Observation ID &amp; Title</b>		<b>8.2 No Rate Limit - Account Bruteforce</b>	
<b>CVSS Risk Rating</b>	High	<b>Status</b>	Open
<b>Observation Details</b>			
<p>Rate limiting is a process to limit requests possible. It is used in web applications in order to prevent brute force attacks. This is necessary to prevent the attackers from logging in accounts by brute forcing credentials or even sending excessive requests to the server.</p> <p>No rate limit is a flaw that doesn't limit the no. of attempts one makes on a website server to extract data. It is a vulnerability which can prove to be critical when misused by attackers.</p>			
<b>Risk</b>			
<ul style="list-style-type: none"> <li>Identity theft – stealing someone's identity to access their accounts, such as bank accounts or credit cards. This enables the attacker to purchase goods using these details. In addition, information such as social security numbers can be sold for use in other cyber-attacks.</li> <li>Loss of data – due to loss of confidentiality if data is stolen which could destroy company reputation. Additionally, there may be reputational damage caused by a leak of sensitive customer information that leads to public distrust and dissatisfaction with the business.</li> <li>Downtime – this refers to system outages where websites or computer networks cannot be accessed due to a cyber-attack. This is costly to the business in terms of lost revenue, customer satisfaction as well as loss of image.</li> </ul>			
<b>Recommendations</b>			
<p>The Following are the recommendations that should be implemented.</p> <ul style="list-style-type: none"> <li>Never use information that can be found online (like names of family members).</li> <li>Have as many characters as possible.</li> <li>Combine letters, numbers, and symbols.</li> <li>To protect your organization from brute force password hacking, enforce the use of strong passwords.</li> <li>Be different for each user account.</li> <li>Avoid common patterns.</li> <li>Lockout policy</li> <li>Progressive delays</li> <li>Authorization should be properly validated from the server side.</li> </ul>			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
8.5 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

Figure 4 - Intercept the login request > Send the request to Intruder. Select the password as a attack vector.

Positions **Payloads** Resource pool Settings

**Payload sets**

You can define one or more payload sets. The number of payload sets depends on the attack type defined in the Positions tab. Various payload types are available for each payload set, and each payload type can be customized in different ways.

Payload set: 1 Payload count: 127  
Payload type: Simple list Request count: 127

---

**Payload settings [Simple list]**

This payload type lets you configure a simple list of strings that are used as payloads.

Paste | dsfgdfg  
Load ... | dsfgsdfg  
Remove | dsfv  
Clear | dsfv  
Deduplicate | xc  
Add | Enter a new item  
Add from list ...

---

**Payload processing**

You can define rules to perform various processing tasks on each payload before it is used.

Add	Enabled	Rule
Edit		
Remove		

Figure 5 - Select simple list > Upload the wordlist for the attack.

Attack Save Columns 3. Intruder attack of https://panchayat.gipl.in - Temporary attack - Not saved to pr...

Results Positions Payloads Resource pool Settings

Filter: Showing all items

Request	Payload	Status	Error	Timeout	Length	Comment
122	HOit#123	200	<input type="checkbox"/>	<input type="checkbox"/>	7165	
123	b44743ab3cf54d6f42175cf2...	200	<input type="checkbox"/>	<input type="checkbox"/>	7167	
124	IRIS@123	200	<input type="checkbox"/>	<input type="checkbox"/>	7167	
125	Admin@123	200	<input type="checkbox"/>	<input type="checkbox"/>	7167	
126	2b444a2c7504829d93a9148	200	<input type="checkbox"/>	<input type="checkbox"/>	7166	
127	P@nchayat2023	302	<input type="checkbox"/>	<input type="checkbox"/>	1028	

Request Response

Pretty Raw Hex Render

```

1 HTTP/2 302 Found
2 Cache-Control: no-cache, no-store
3 Pragma: no-cache
4 Expires: Thu, 01 Jan 1970 00:00:00 GMT
5 Location: /Workflow/SeatMatrixEntry/Index
6 Server: Microsoft-IIS/10.0
7 Set-Cookie: .AspNetCore.Workflow=
CfDJ8BEP1W0L39hLg8rm5nyqhbXws3rdMZ-8ZhmMKWqulqW14dqprnRB0mxTmt2TuuT--Z8EcQJYZZYZV-a2bS1LGv0rvztLX5YGF3Ix
byriY1-LVQpBUjVuJhFzskV_Ys9mK5NZ-Cfs1xybxv0dgGUZgBMQWgqyr8RTXaF4XOpYcxMHe8gV6ILoH51fe4CE0oww8Sxjb1vRBy
OhDM6sYPohCWPcdeIXqAoxSBWa-qTrp4fQE7B912y-Gsr9fRwHtbvTDOBXtSsk2ZUrGS9c2KgG4Q98G0zwRpmTNt4K1DCu9JshF7Z
YOOGYvXJNv1xA3q11xanUJ7zjHBuUrwFXj2LjX3gEVuMABttB6y86oI0CDQqfklwwXU1VSFzEbl-jM1LiPxE7QdmnmbEtHQwgxXOWXA
ZraBK6WqQIW0oN-AplnDgpMwL_wexVc7va5KP8C02A2e-u1Q9owpU19dIxwEN0v-jWUxOU_dAY1b5qfSm2ASNRJ0CNWB4XovGSf2v
1NhxBZzZnQ8vCadJgEqr1hHNeq7mrBFU14ARSXUROnfq5GyyeRht4OnmthsP5lRpEdo fp1EYaxjWolhavtACOrG00u3HbVRmh3LqY0
4S120x-NVsm-18ww4VrgAp2ntJR1q5JeGbPmFK_i2XVKbuJZAq89Xx574PPKu6cwy7ErPkKoMnhrRysK6bR2dyccGN10-0T0Q;
path=/; secure; samesite=lax; httponly
8 X-Powered-By: ASP.NET
9 Date: Fri, 26 May 2023 07:43:16 GMT
10
11

```

0 matches

Finished

Figure 6 - Start the attack > you will get the password as response of Status 302 Found.

<b>Observation ID &amp; Title</b>		<b>8.3 Broken Authentication</b>	
<b>CVSS Risk Rating</b>	<b>High</b>	<b>Status</b>	<b>Open</b>
<b>Observation Details</b>			
The application does not properly invalidate a user's session on the server after the user initiates logout. User sessions remain active on the server, and any requests submitted including the user's session identifier will execute successfully, as though the user had made those requests.			
<b>Risk</b>			
An attacker can use previous used or available session token to change anything in the user account without logging in the user account.			
<b>Recommendations</b>			
The Following are the recommendations that should be implemented.			
The user's HTTP session should be terminated on the server immediately after a logout action is performed. It is important to note that simply deleting the cookie from the browser will not terminate the server session. The session must be invalidated at the server, using the HTTP container's intrinsic session abandonment mechanism.			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
8.0 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

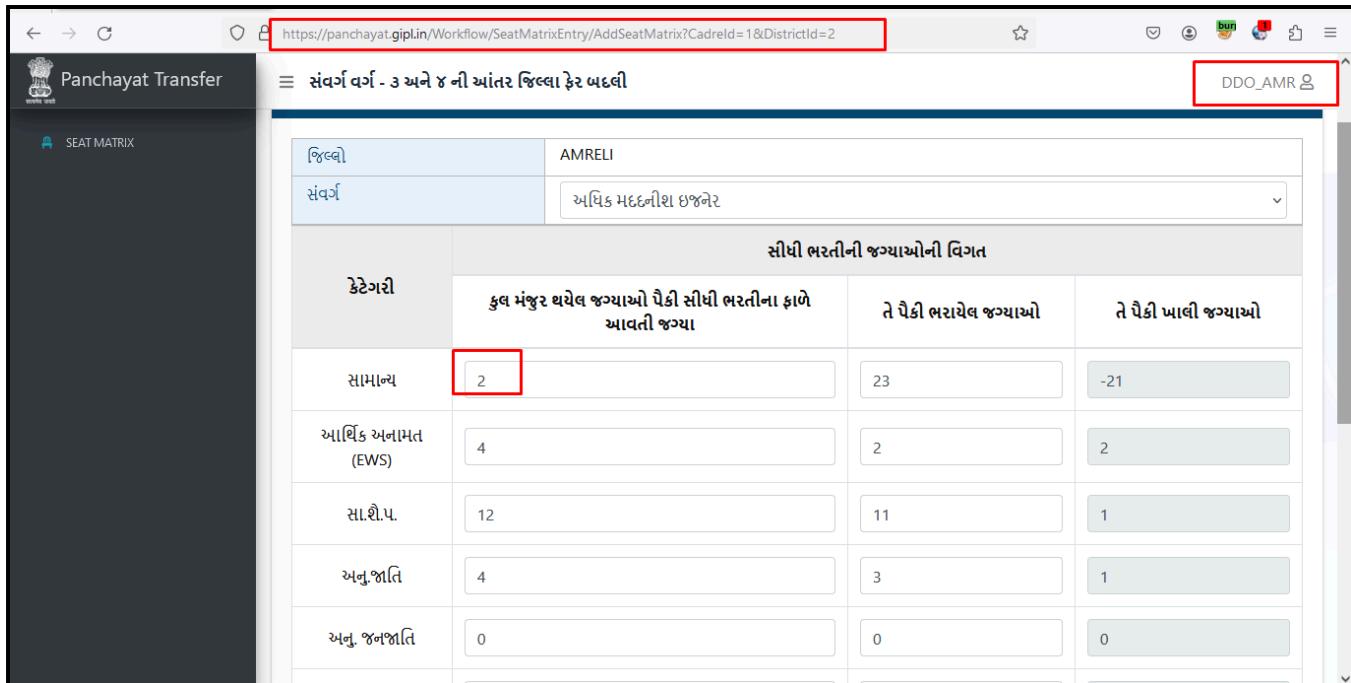


Figure 7 - Intercept the request by clicking on save in the Edit Details.

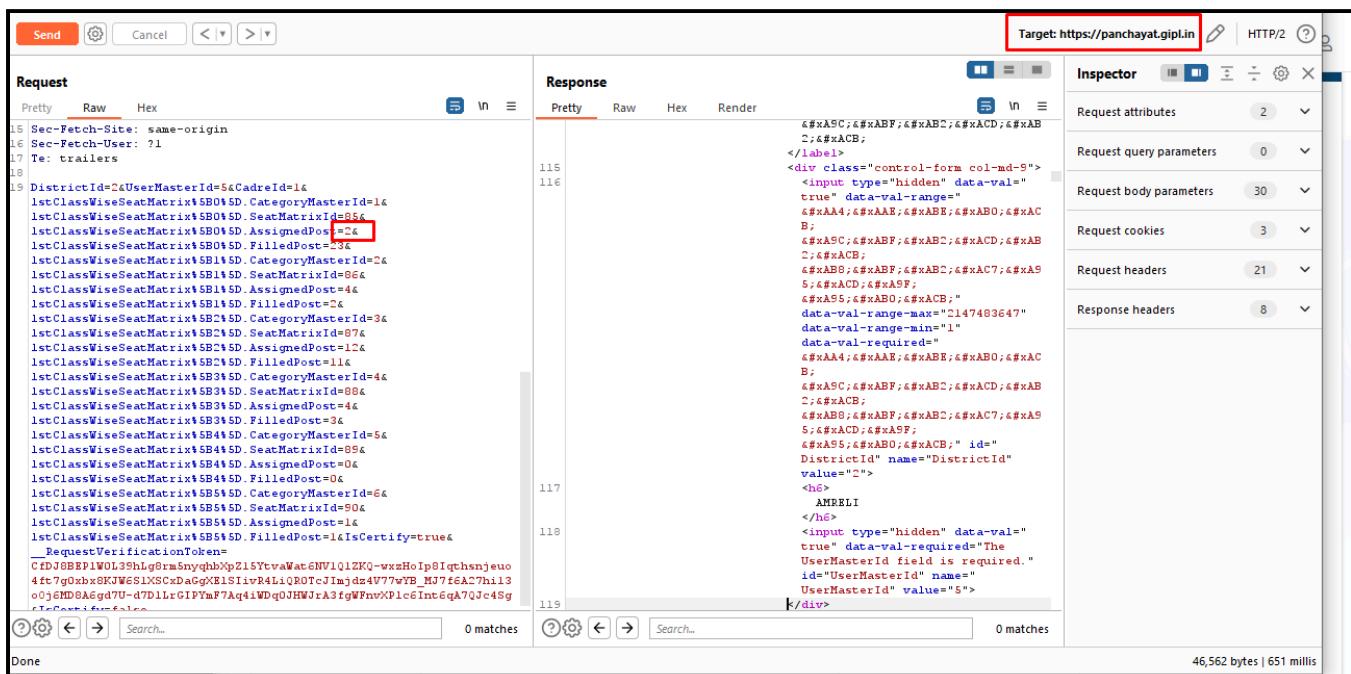
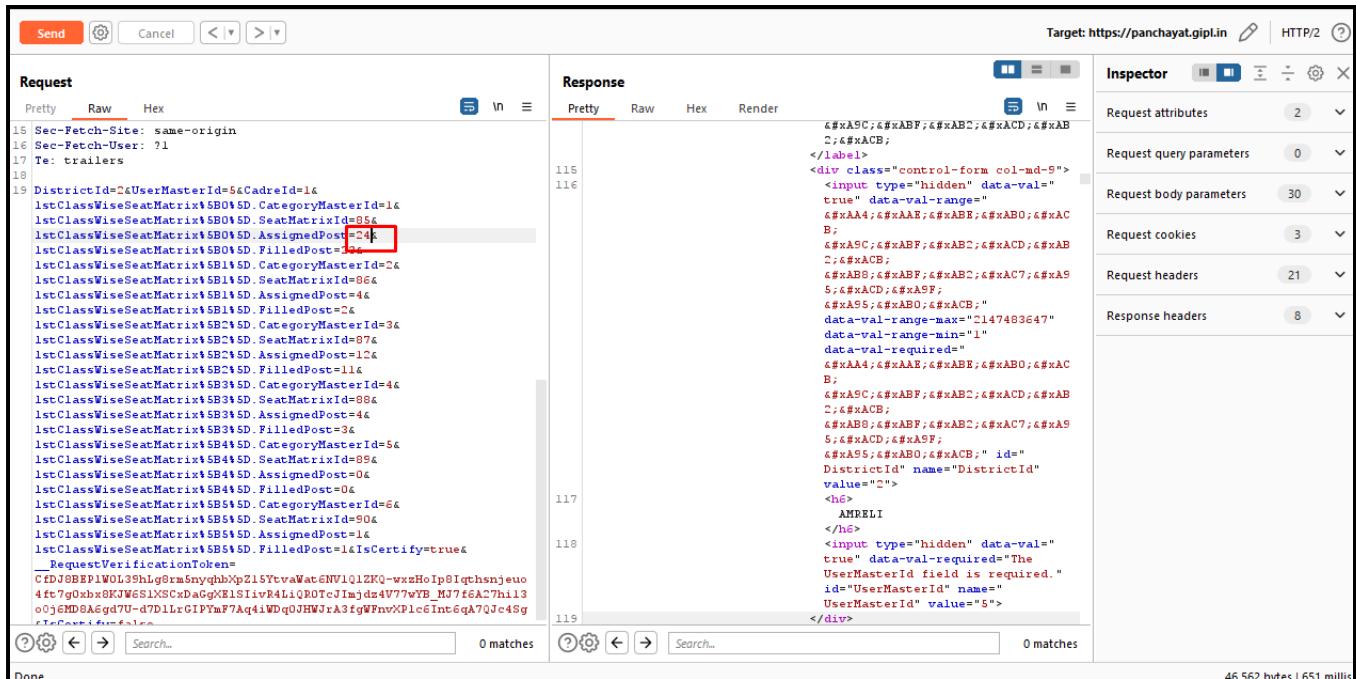


Figure 8 - Send the request to Repeater > Logout the account.



Request

```

15 Sec-Fetch-Site: same-origin
16 Sec-Fetch-User: ?1
17 Te: trailers
18
19 DistrictId=&UserMasterId=5&CadreId=1&
1stClassWiseSeatMatrix@SB015D.CategoryMasterId=1&
1stClassWiseSeatMatrix@SB015D.SeatMatrixId=054
1stClassWiseSeatMatrix@SB015D.AssignedPost=24
1stClassWiseSeatMatrix@SB015D.FilledPost=24
1stClassWiseSeatMatrix@SB115D.CategoryMasterId=2&
1stClassWiseSeatMatrix@SB115D.SeatMatrixId=064
1stClassWiseSeatMatrix@SB115D.AssignedPost=4&
1stClassWiseSeatMatrix@SB115D.FilledPost=24
1stClassWiseSeatMatrix@SB215D.CategoryMasterId=3&
1stClassWiseSeatMatrix@SB215D.SeatMatrixId=074
1stClassWiseSeatMatrix@SB215D.AssignedPost=12&
1stClassWiseSeatMatrix@SB215D.FilledPost=12
1stClassWiseSeatMatrix@SB315D.CategoryMasterId=4&
1stClassWiseSeatMatrix@SB315D.SeatMatrixId=084
1stClassWiseSeatMatrix@SB315D.AssignedPost=4&
1stClassWiseSeatMatrix@SB315D.FilledPost=34
1stClassWiseSeatMatrix@SB415D.CategoryMasterId=5&
1stClassWiseSeatMatrix@SB415D.SeatMatrixId=094
1stClassWiseSeatMatrix@SB415D.AssignedPost=04
1stClassWiseSeatMatrix@SB415D.FilledPost=04
1stClassWiseSeatMatrix@SB515D.CategoryMasterId=6&
1stClassWiseSeatMatrix@SB515D.SeatMatrixId=904
1stClassWiseSeatMatrix@SB515D.AssignedPost=14
1stClassWiseSeatMatrix@SB515D.FilledPost=14
1stClassWiseSeatMatrix@SB515D.IsCertify=true
1stClassWiseSeatMatrix@SB515D.UserMasterIdToken=
CFDJBEP1WOL39hjgjrm5nyqbbhjgZ1G7vvaWatGNV1Q1ZHQ-wxeHoIp8Iqthsnjso
4ft7gukbxuKJWeS1XScxhDaggxE1S1iivR4L1QROtCJ1mjds24V77wTB_MJ7f6A27hi13
0j6MD8A6gd7U-d7D1LrGIPYmF7Aq4iWDq0JHWJrA3fgWFnvXPlc6Int6qA7QJc48g

```

Response

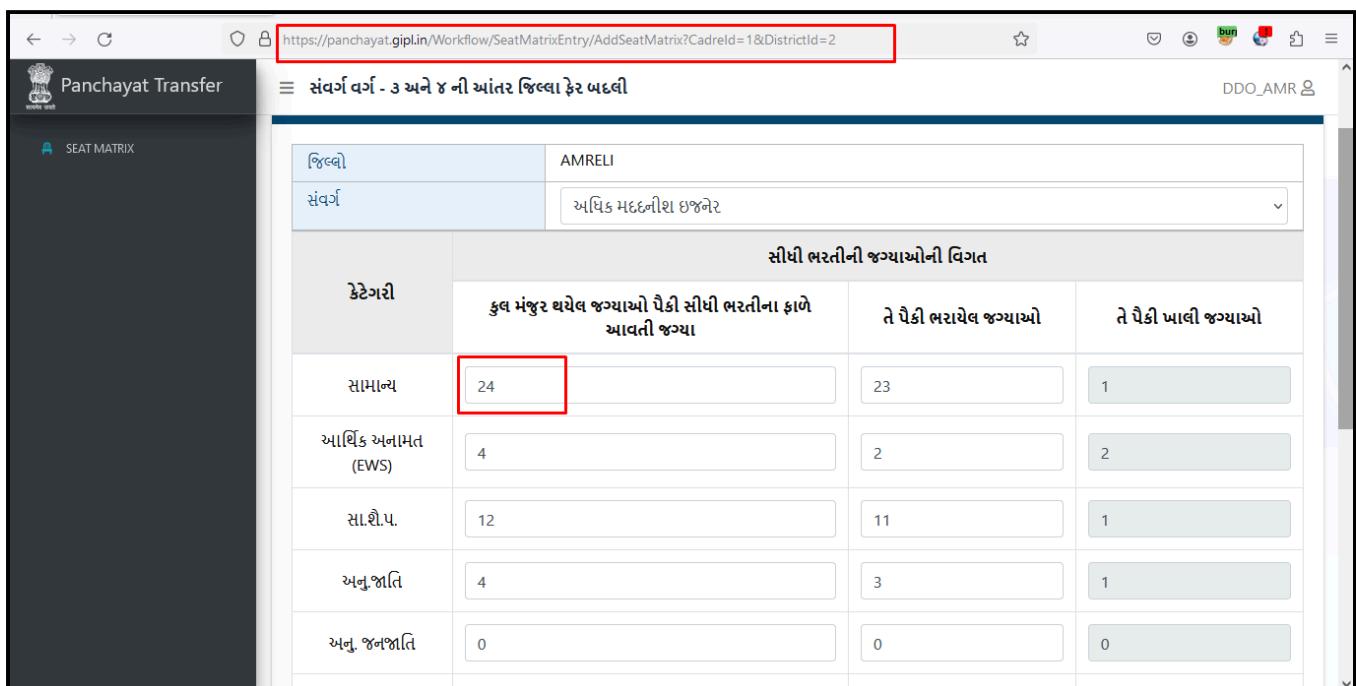
```

115
116
117
118
119

```

Inspector

Figure 9 - Now in the repeater, change the value from 2 to 24. Click on Send.



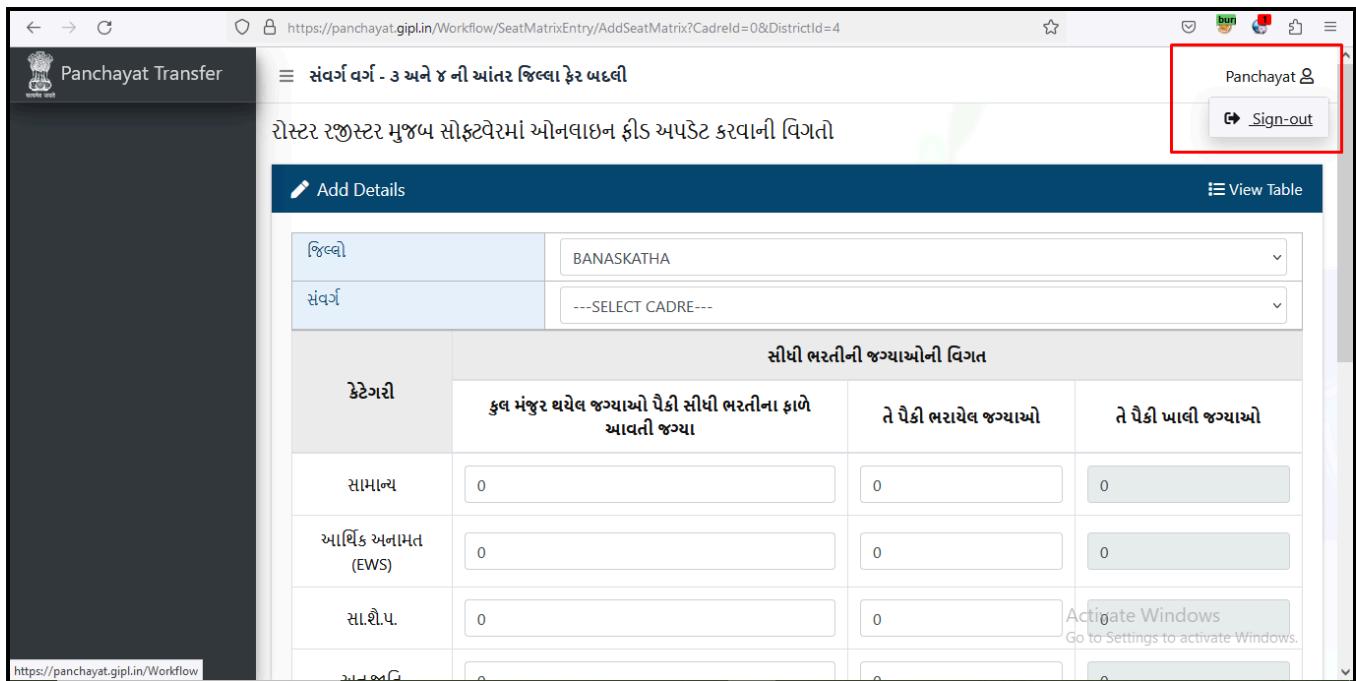
https://panchayat.gipl.in/Workflow/SeatMatrixEntry/AddSeatMatrix?CadreId=1&DistrictId=2

સંવાર વર્ગ - 3 અને 4 ની આંતર જિલ્લા કેર અદલી

ક્રેન્ટરી	કુલ મંજુર થયેલ જગ્યાઓ પૈકી સીધી ભરતીના ફાળે આવતી જગ્યા	તે પૈકી ભરાયેલ જગ્યાઓ	તે પૈકી ખાલી જગ્યાઓ
સામાન્ય	24	23	1
આર્થિક અનાનિત (EWS)	4	2	2
સાશ્રીપ.	12	11	1
અનુભાતિ	4	3	1
અનુભાતિ	0	0	0

Figure 10 - Login again the account and you will see that the value has been change to 24.

<b>Observation ID &amp; Title</b>		<b>8.4 Improper Cache Control</b>		
<b>CVSS Risk Rating</b>		<b>Medium</b>	<b>Status</b>	<b>Open</b>
<b>Observation Details</b>				
While testing web application, it came to our notice that, this application is vulnerable to Improper cache control. Cache-control is an HTTP header that dictates browser caching behavior. When someone visits a website, their browser will save certain resources, such as images and website data, in a store called the cache. When that user revisits the same website, cache-control sets the rules which determine whether that user will have those resources loaded from their local cache or not.				
<b>Risk</b>				
Using this vulnerability, an attacker can view sensitive information even if he is not logged into the account				
<b>Recommendations</b>				
The following are the recommendations that should be implemented.				
The web server should return the following HTTP headers in all responses containing sensitive content:				
Cache-control: no-store Pragma: no-cache				
<b>Affected URL &amp; Parameter</b>				
Throughout the Application				
<b>CVSS Vector</b>				
5.3 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L				



https://panchayat.gipl.in/Workflow

સંવર્ગ વર્ગ - ૩ અને ૪ ની આંતર જિલ્લા ફેર બદલી

રોસ્ટર રજીસ્ટર મુજબ સોફ્ટવેરમાં ઓનલાઇન ફીડ અપડેટ કરવાની વિગતો

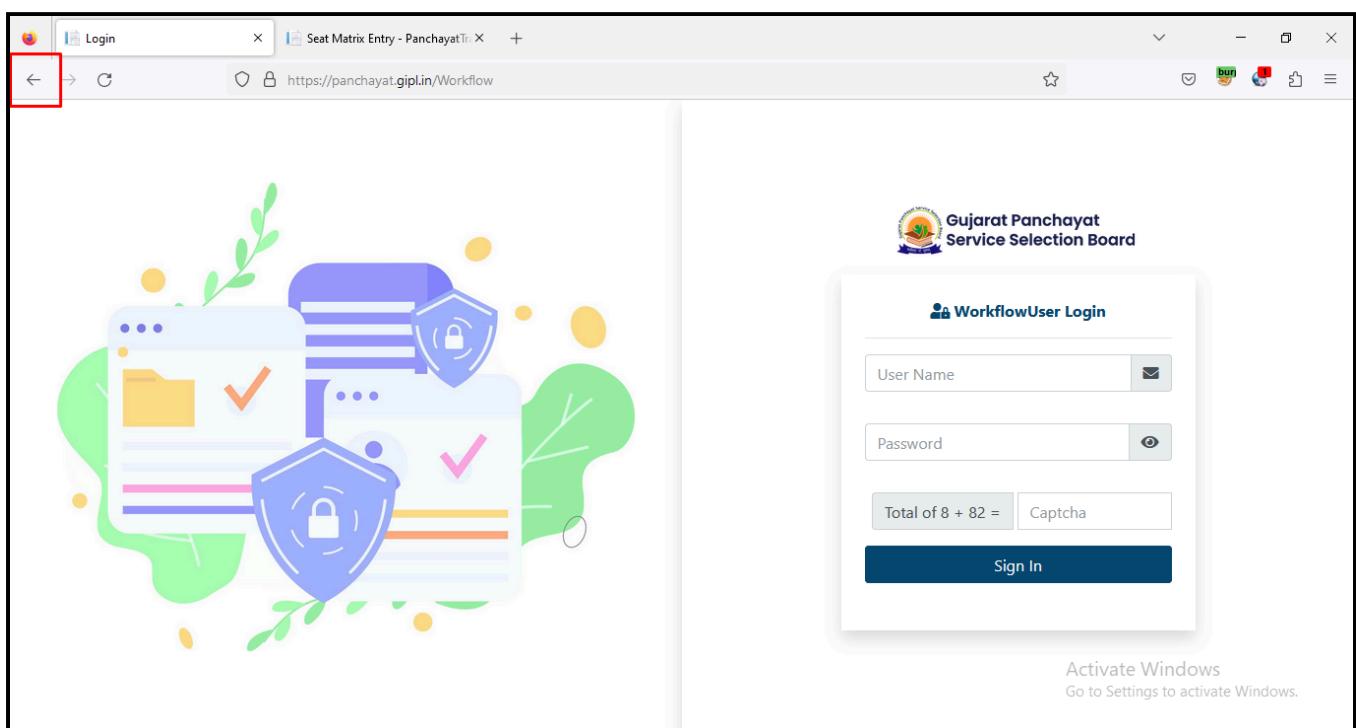
Add Details

View Table

જિલ્લો	BANASKATHA		
સંવર્ગ	---SELECT CADRE---		
સીધી ભરતીની જગ્યાઓની વિગત			
ક્રેટગ્રે	કુલ મંજુર થયેલ જગ્યાઓ પેકી સીધી ભરતીના ફાળે આવતી જગ્યા	તે પેકી ભરાયેલ જગ્યાઓ	તે પેકી ઘાલી જગ્યાઓ
સામાન્ય	0	0	0
આર્થિક અનામંત (EWS)	0	0	0
સા.શી.પ્ર.	0	0	0
ગુરુત્વારી	0	0	0

Activate Windows  
Go to Settings to activate Windows.

Figure 11 - Login in the account and access any page.



https://panchayat.gipl.in/Workflow

Gujarat Panchayat Service Selection Board

WorkflowUser Login

User Name

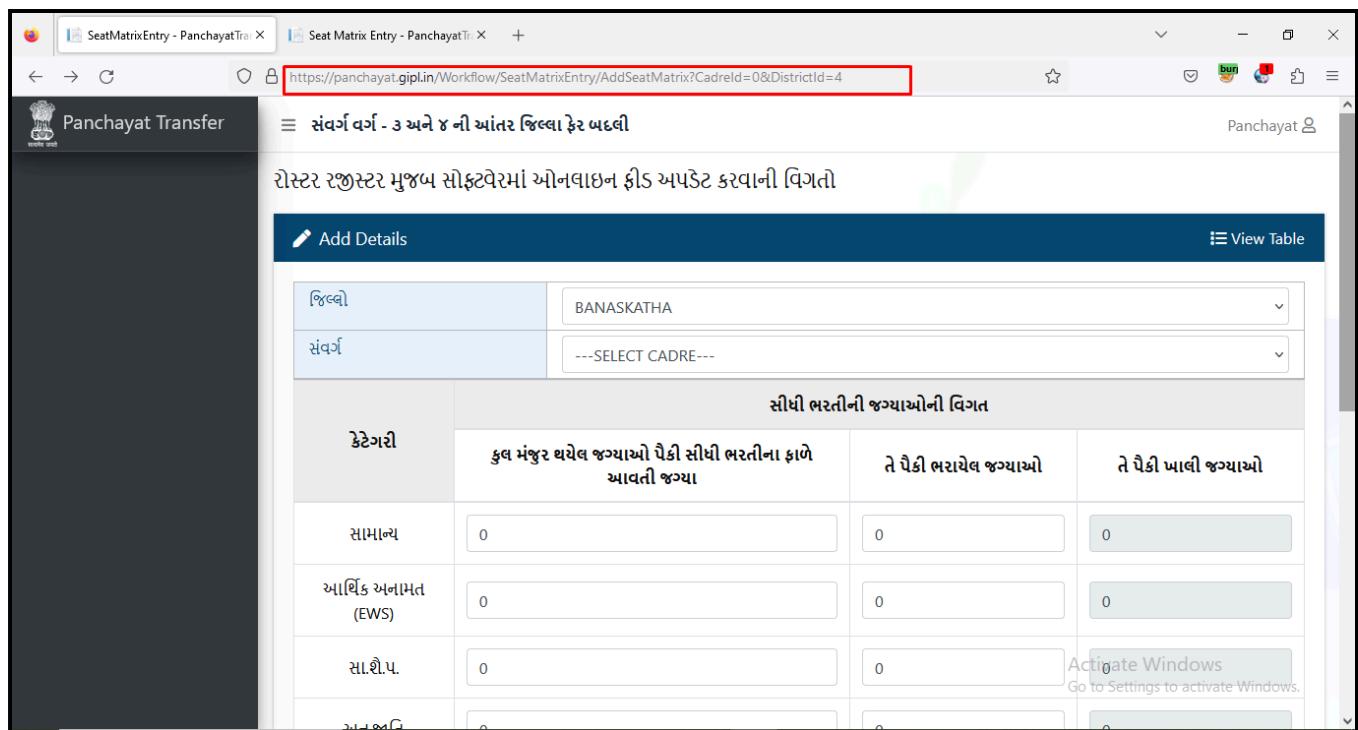
Password

Total of 8 + 82 =  Captcha

Sign In

Activate Windows  
Go to Settings to activate Windows.

Figure 12 - Logout the account and click on back button.



SeatMatrixEntry - PanchayatTransfer X Seat Matrix Entry - PanchayatTransfer X https://panchayat.gipl.in/Workflow/SeatMatrixEntry/AddSeatMatrix?CadreId=0&DistrictId=4

≡ સંવર્ગ વર્ગ - ૩ અને ૪ ની આંતર જિલ્લા ફેર બદલી

રોસ્ટર રજીસ્ટર મુજબ સોફ્ટવેરમાં ઓનલાઇન ફીડ અપદેટ કરવાની વિગતો

Add Details View Table

જિલ્લા	BANASKATHA		
સંવર્ગ	---SELECT CADRE---		
ક્રેગરી	સીધી ભરતીની જગ્યાઓની વિગત		
સામાન્ય	કુલ મંજુર થયેલ જગ્યાઓ પૈકી સીધી ભરતીના ફાળે આવતી જગ્યા	તે પૈકી ભરાયેલ જગ્યાઓ	તે પૈકી ખાલી જગ્યાઓ
આર્થિક અનામંત (EWS)	0	0	0
સાર્વી.પ.	0	0	0
અન્યોનો	0	0	0

Figure 13 - As you can see that the application is returned to the previous page without any authentication.

<b>Observation ID &amp; Title</b>		<b>8.5 Improper Error handling</b>				
<b>CVSS Risk Rating</b>	<b>Medium</b>		<b>Status</b>	<b>Open</b>		
<b>Observation Details</b>						
Improper error handling refers to the failure to properly manage and handle errors that occur during the execution of a program. This can include not properly logging or reporting errors, not providing adequate feedback to the user, or not properly securing error messages.						
<b>Risk</b>						
If errors are not properly handled, they can potentially be exploited by attackers to gain unauthorized access to sensitive information or to perform other malicious actions.						
Some potential impacts of improper error handling include:						
Unauthorized access to sensitive information: If an attacker is able to view or exploit error messages, they may be able to gain access to sensitive information, such as passwords or financial data, that is stored in the program's database.						
Reputation damage: If an attacker is able to successfully exploit improper error handling, it could damage the reputation of the organization that operates the program, potentially leading to loss of trust from customers and other stakeholders.						
Legal and regulatory consequences: Depending on the nature and severity of the attack, the organization may be subject to penalties or fines from regulatory authorities for failing to properly handle errors in their program.						
<b>Recommendations</b>						

It is recommended that it is important to properly handle errors that occur during its execution. Some recommended steps for implementing effective error handling include:

Properly log and report errors: It is important to log and report errors in a way that allows developers to quickly identify and fix the problem. This can include providing detailed information about the error, such as the location and cause of the error, as well as any relevant context.

Provide adequate feedback to the user: When an error occurs, it is important to provide clear and concise feedback to the user about what has happened and what steps they can take to resolve the issue. This can help prevent confusion and frustration on the part of the user.

Properly secure error messages: It is important to properly secure error messages to prevent attackers from being able to view or exploit them. This can include not displaying sensitive information in error messages, and properly configuring error handling to prevent stack traces from being visible to unauthorized users.

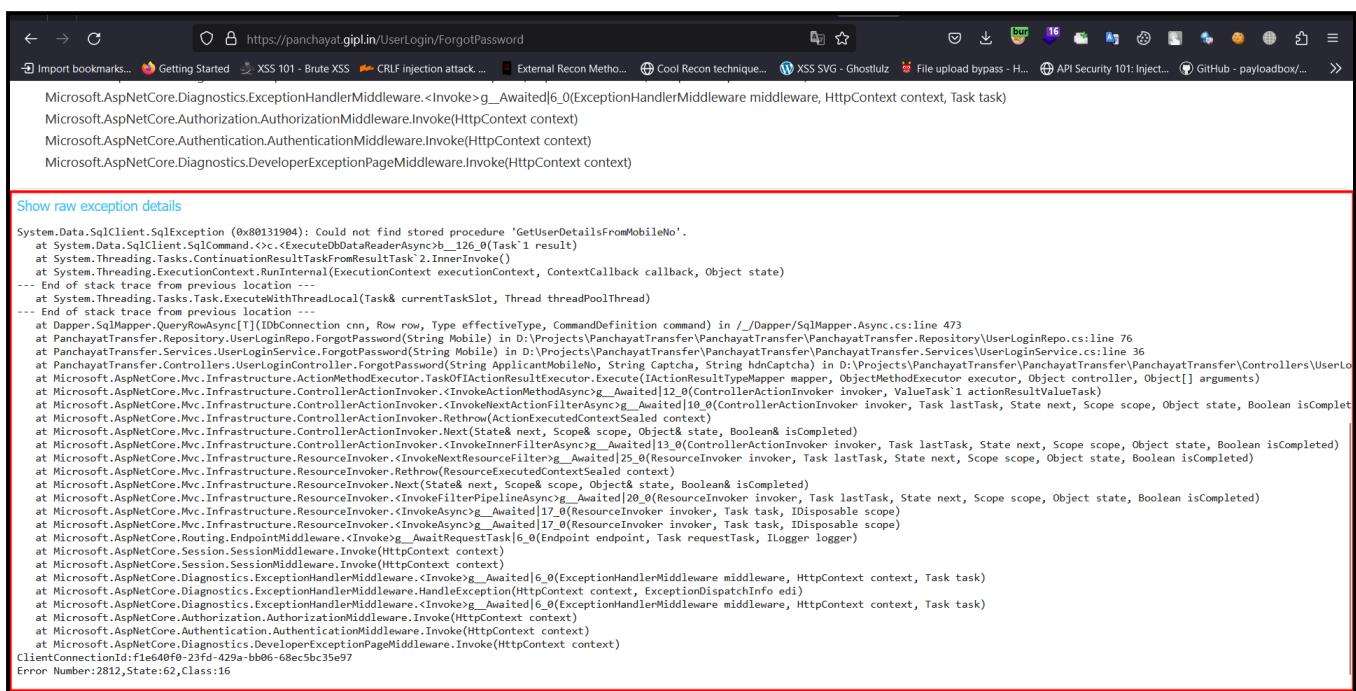
Regularly review and test your program: It is important to regularly review and test your program to identify and prevent errors, as well as vulnerabilities that may be related to error handling. This can include conducting regular code reviews and performing penetration testing to identify potential weaknesses.

## Affected URL & Parameter

Throughout the Application

## CVSS Vector

5.7 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L



```

Microsoft.AspNetCore.Diagnostics.ExceptionHandlerMiddleware <Invoke>_g_Awaited[6.0](ExceptionHandlerMiddleware middleware, HttpContext context, Task task)
Microsoft.AspNetCore.Authorization.AuthorizationMiddleware.Invoke(HttpContext context)
Microsoft.AspNetCore.Authentication.AuthenticationMiddleware.Invoke(HttpContext context)
Microsoft.AspNetCore.DiagnosticsDeveloperExceptionPageMiddleware.Invoke(HttpContext context)

Show raw exception details
System.Data.SqlClient.SqlException (0x80131904): Could not find stored procedure 'GetUserDetailsFromMobileNo'.
  at System.Data.SqlClient.SqlCommand.<>c.<ExecuteDbDataReaderAsync>b__126_0(Task`1 result)
  at System.Threading.Tasks.Continuation.RunTaskFromResultTask`2.InnerInvoke()
  at System.Threading.ExecutionContext.RunInternal(ExecutionContext executionContext, ContextCallback callback, Object state)
--- End of stack trace from previous location ---
  at System.Threading.Tasks.Task.ExecuteWithThreadLocal(Task`1 currentTaskSlot, Thread threadPoolThread)
--- End of stack trace from previous location
  at Microsoft.EntityFrameworkCore.Query.ReaderSync[T](IDbConnection conn, Row row, Type effectiveType, CommandDefinition command) in /_/Dapper/SqlMapper.Async.cs:line 473
  at PanchayatTransfer.Repository.UserLoginRepo.ForgotPassword(String Mobile) in D:\Projects\PanchayatTransfer\PanchayatTransfer.Repository\UserLoginRepo.cs:line 76
  at PanchayatTransfer.Services.UserLoginService.ForgotPassword(String Mobile) in D:\Projects\PanchayatTransfer\PanchayatTransfer.Services\UserLoginService.cs:line 36
  at PanchayatTransfer.Controllers.UserLoginController.ForgotPassword(String ApplicantMobileNo, String Captcha, String HdrCaptcha) in D:\Projects\PanchayatTransfer\PanchayatTransfer\PanchayatTransfer\Controllers\UserLo
  at Microsoft.AspNetCore.Mvc.Infrastructure.ActionMethodExecutor.TsakOfIACTIONResultExecutor.Execute(IActionResultTypeMapper mapper, ObjectMethodExecutor executor, Object controller, Object[] arguments)
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionMethodAsync>g_Awaited[12.0](ControllerActionInvoker invoker, ValueTask`1 actionResultValueTask)
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeNextActionFilterAsync>g_Awaited[10.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[9.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[8.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[7.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[6.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[5.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[4.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[3.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[2.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[1.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionFilterAsynchronously>g_Awaited[0.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeInnerFilterAsynchronously>g_Awaited[13.0](ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeNextResourceFilter>g_Awaited[25.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeResourceFilter>g_Awaited[24.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeResourceFilter>g_Awaited[23.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeResourceFilter>g_Awaited[22.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeResourceFilter>g_Awaited[21.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeResourceFilter>g_Awaited[20.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeResourceFilter>g_Awaited[19.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeResourceFilter>g_Awaited[18.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeResourceFilter>g_Awaited[17.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeResourceFilter>g_Awaited[16.0](ResourceInvoker invoker, Task lastTask, State next, Scope scope, Object state, Boolean isComplet
  at Microsoft.AspNetCore.Routing.EndpointMiddleware.<Invoke>g_Awaited[15.0](Endpoint endpoint, Task requestTask, ILogger logger)
  at Microsoft.AspNetCore.Session.SessionMiddleware.<Invoke>g_Awaited[14.0](HttpContext context)
  at Microsoft.AspNetCore.Diagnostics.ExceptionHandlerMiddleware.<Invoke>g_Awaited[13.0](ExceptionHandlerMiddleware middleware, HttpContext context, Task task)
  at Microsoft.AspNetCore.Diagnostics.ExceptionHandlerMiddleware.HandleException(HttpContext context, ExceptionDispatchInfo edi)
  at Microsoft.AspNetCore.Diagnostics.ExceptionHandlerMiddleware.<Invoke>g_Awaited[12.0](ExceptionHandlerMiddleware middleware, HttpContext context, Task task)
  at Microsoft.AspNetCore.Authentication.AuthorizationMiddleware.Invoke(HttpContext context)
  at Microsoft.AspNetCore.Authentication.AuthenticationMiddleware.Invoke(HttpContext context)
  at Microsoft.AspNetCore.DiagnosticsDeveloperExceptionPageMiddleware.Invoke(HttpContext context)
ClientConnectionId:11e640f0-23fd-429a-bb96-6895b35e97
Error Number:2812,State:62,Class:16
  
```

Figure 14 - As you can see that after submitting the mobile number in forgot password, application is giving code errors.

<b>Observation ID &amp; Title</b>		<b>8.6 Vulnerable JavaScript Library</b>				
<b>CVSS Risk Rating</b>	<b>Medium</b>		<b>Status</b>	<b>Open</b>		
<b>Observation Details</b>						
jQuery, Angular, Vue, and React are a few well-known Javascript libraries. An unpatched JavaScript library can leave a website significantly open to numerous types of attacks. A number of DOM-based vulnerabilities, such as DOM-XSS, can be drawn by third-party JavaScript modules and used to steal user accounts. The given web application was found to be using a vulnerable JavaScript library as well, which immediately should be remediated.						
<b>Risk</b>						
JavaScript library's security vulnerabilities can be exploited to perform cross-site scripting, cross-site request forgery, and buffer overflow attack.						
<b>Recommendations</b>						
It is highly recommended that:-						
As part of patch management, implement version management for JavaScript libraries.						
Remove libraries that are no longer in use to reduce your attack surface.						
Frequently check for patches and upgrade JavaScript libraries to the latest version.						
<b>Affected URL &amp; Parameter</b>						
Throughout the Application						
<b>CVSS Vector</b>						
4.7 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L						

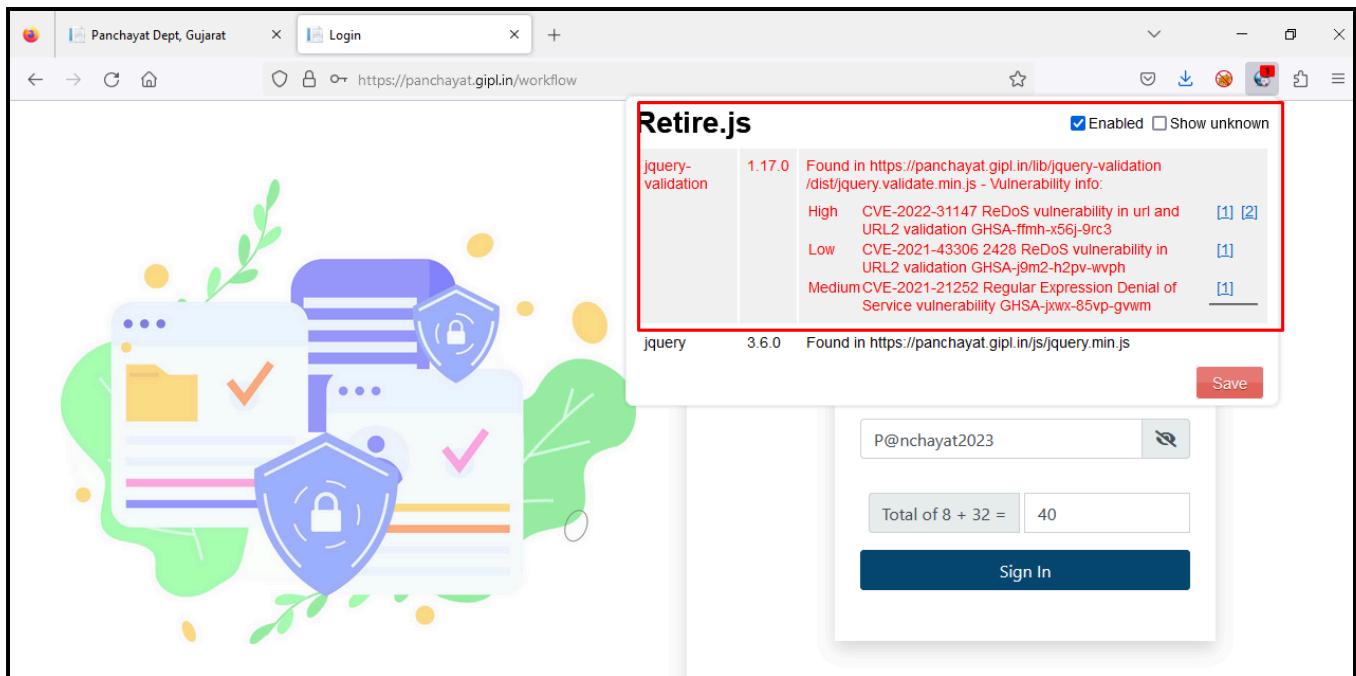
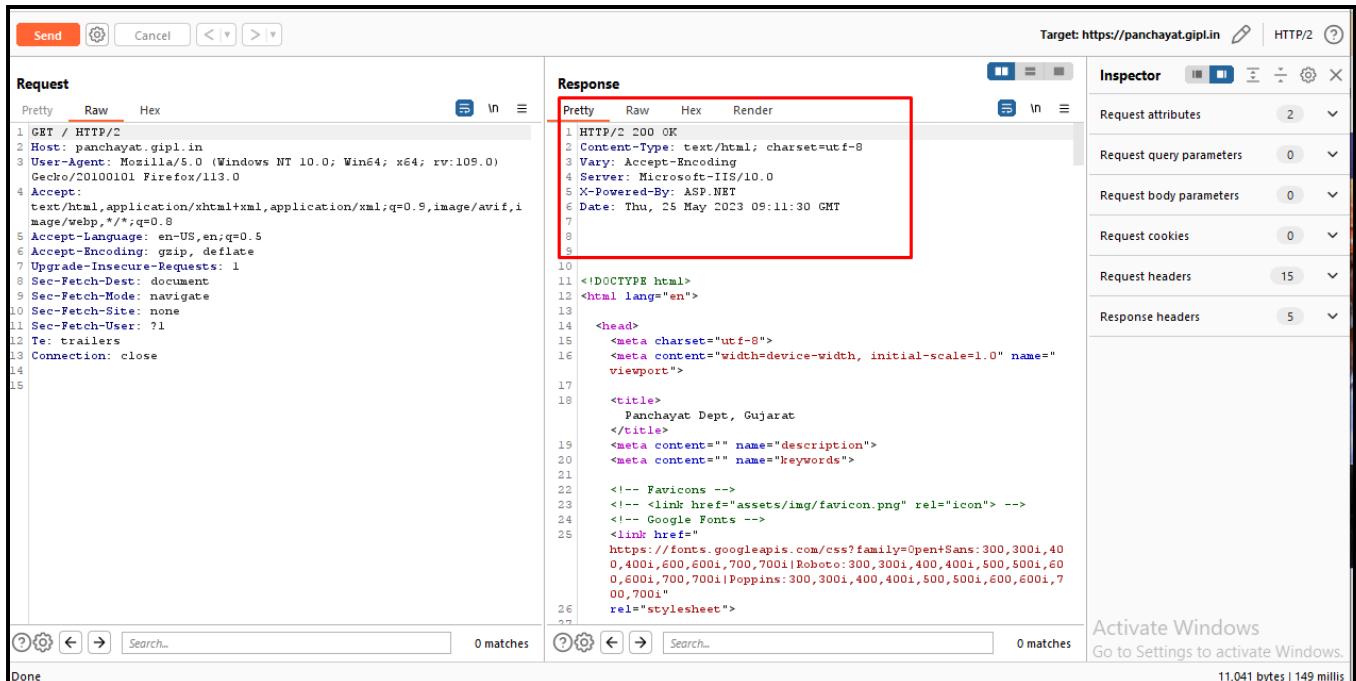


Figure 15 - As you can see that the application is vulnerable to old Jquery version.

<b>Observation ID &amp; Title</b>		<b>8.7 Missing Security Header</b>				
<b>CVSS Risk Rating</b>	<b>Medium</b>		<b>Status</b>	<b>Open</b>		
<b>Observation Details</b>						
Upon testing the web application, we found that there were important security headers missing from the web application. Whenever a browser requests a page from any web server, the server responds with the content along with HTTP response headers. These HTTP security headers tell the browser how to behave while handling the website content.						
<b>Risk</b>						
If security headers are missing in a web application or have not been implemented properly, attackers can conduct various attacks such as cross site scripting, Spectre, data injection, HTTP redirection, downgrade attacks, etc.						
<b>Recommendations</b>						
The Following are the recommendations that should be implemented.						
Apply Webserver Configuration (Apache, Nginx, and HSTS).						
Apply X-Frame-Options.						
Apply X-XSS-Protection.						
Apply X-Content-Type-Options						
Apply HTTP Strict-Transport-Security						
Apply Same-Site Cookie						
Apply Content-Security-Policy						
Apply Referrer-Policy						
Apply Cache-Control						
Apply Access-Control-Allow-Origin						
<b>Affected URL &amp; Parameter</b>						
Throughout the Application						
<b>CVSS Vector</b>						
4.5 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L						



The screenshot shows a network traffic analysis tool with the following details:

- Request:**
  - Pretty (selected)
  - Raw
  - Hex

```

1 GET / HTTP/2
2 Host: panchayat.gipl.in
3 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:109.0)
   Gecko/20100101 Firefox/113.0
4 Accept:
   text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 Upgrade-Insecure-Requests: 1
8 Sec-Fetch-Dest: document
9 Sec-Fetch-Mode: navigate
10 Sec-Fetch-Site: none
11 Sec-Fetch-User: ?1
12 Te: trailers
13 Connection: close
14
15

```
- Response:**
  - Pretty (selected)
  - Raw
  - Hex
  - Render

```

1 HTTP/2 200 OK
2 Content-Type: text/html; charset=utf-8
3 Vary: Accept-Encoding
4 Server: Microsoft-IIS/10.0
5 X-Powered-By: ASP.NET
6 Date: Thu, 25 May 2023 09:11:30 GMT
7
8
9
10
11 <!DOCTYPE html>
12 <html lang="en">
13
14   <head>
15     <meta charset="utf-8">
16     <meta content="width=device-width, initial-scale=1.0" name="viewport">
17
18   <title>
19     Panchayat Dept, Gujarat
20   </title>
21   <meta content="" name="description">
22   <meta content="" name="keywords">
23
24   <!-- Favicons -->
25   <!-- <link href="assets/img/favicon.png" rel="icon"> -->
26   <!-- Google Fonts -->
27   <link href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Roboto:300,300i,400,400i,500,500i,600,600i,700,700i|Poppins:300,300i,400,400i,500,500i,600,600i,700,700i" rel="stylesheet">

```

- Inspector:**
- Request attributes: 2
- Request query parameters: 0
- Request body parameters: 0
- Request cookies: 0
- Request headers: 15
- Response headers: 5

Figure 16 - As you can see that the headers are missing in the application.

<b>Observation ID &amp; Title</b>		<b>8.8 SQL Possible</b>	
<b>CVSS Risk Rating</b>	<b>Medium</b>	<b>Status</b>	<b>Open</b>
<b>Observation Details</b>			
As per observation, while resetting the password, application is giving the sql error which is further possible to extract the data if the attacker wants.			
<b>Risk</b>			
Attacker can extract the data of the server files with the help of sql error.			
<b>Recommendations</b>			
The Following are the recommendations that should be implemented.			
Application should not give such SQL error which can result to the high impact to the organization.			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
4.9 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

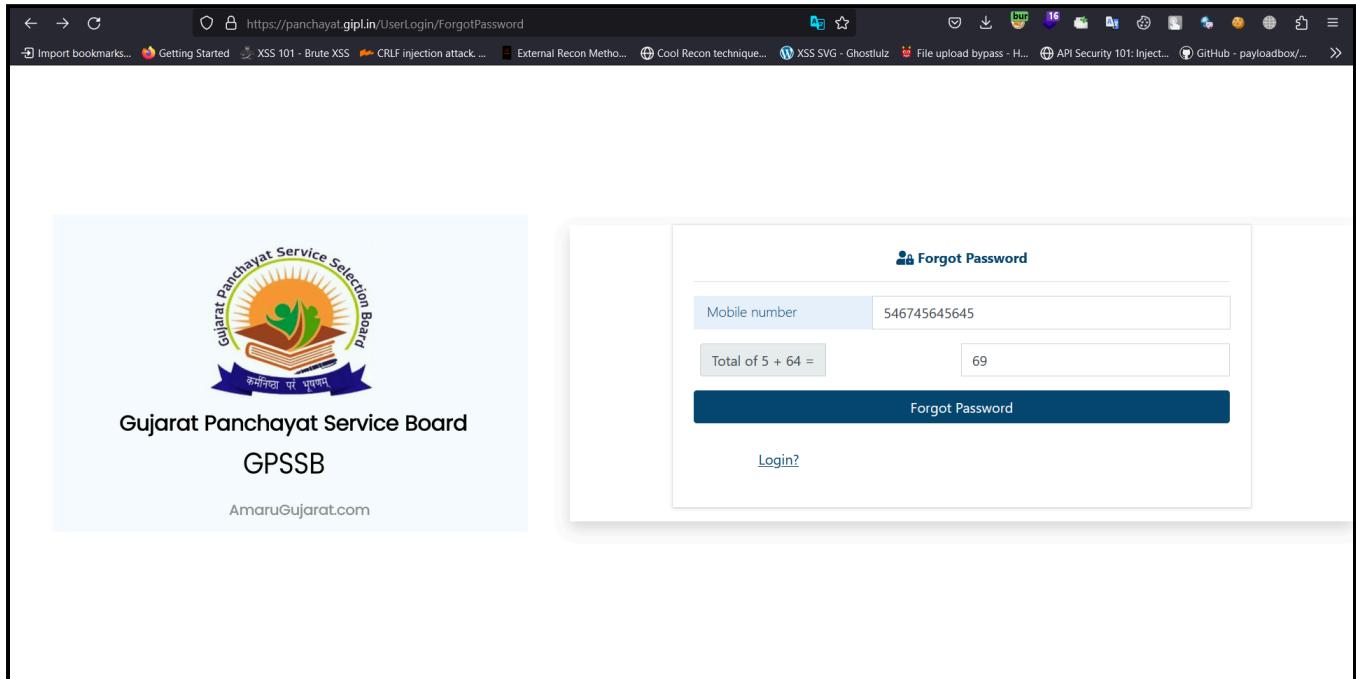


Figure 17 - Fill up the details and click on submit.

An unhandled exception occurred while processing the request.

SqlException: Could not find stored procedure 'GetUserDetailsFromMobileNo'.

```
System.Data.SqlClient.SqlCommand+<>c.<ExecuteDbDataReaderAsync>b__126_0(Task<SqlDataReader> result)
System.Threading.Tasks.ContinuationResultTaskFromResultTask<TAntecedentResult, TResult>.InnerInvoke()
System.Threading.ExecutionContext.RunInternal(ExecutionContext executionContext, ContextCallback callback, object state)
System.Threading.Tasks.Task.ExecuteWithThreadLocal(ref Task currentTaskSlot, Thread threadPoolThread)
Dapper.SqlMapper.QueryRowAsync<T>(IConnection cnn, Row row, Type effectiveType, CommandDefinition command) in SqlMapper.Async.cs
PanchayatTransfer.Repository.UserLoginRepo.ForgotPassword(string Mobile) in UserLoginRepo.cs
PanchayatTransfer.Services.UserLoginService.ForgotPassword(string Mobile) in UserLoginService.cs
PanchayatTransfer.Controllers.UserLoginController.ForgotPassword(string ApplicantMobileNo, string Captcha, string hdnCaptcha) in UserLoginController.cs
Microsoft.AspNetCore.Mvc.Infrastructure.ActionMethodExecutor+TaskOfActionResultExecutor.Execute(IActionResultTypeMapper mapper, ObjectMethodExecutor executor, object controller, object[] arguments)
Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeActionMethodAsync>g__Awaited|12_0(ControllerActionInvoker invoker, ValueTask<IActionResult> actionResultValueTask)
Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeNextActionFilterAsync>g__Awaited|10_0(ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, object state, bool isCompleted)
Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.Rethrow(ActionExecutedContextSealed context)
Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.Next(ref State next, ref Scope scope, ref object state, ref bool isCompleted)
Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker.<InvokeInnerFilterAsync>g__Awaited|13_0(ControllerActionInvoker invoker, Task lastTask, State next, Scope scope, object state, bool isCompleted)
Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeNextResourceFilter>g__Awaited|25_0(ResourceInvoker invoker, Task lastTask, State next, Scope scope, object state, bool isCompleted)
Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.Rethrow(ResourceExecutedContextSealed context)
Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.Next(ref State next, ref Scope scope, ref object state, ref bool isCompleted)
Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeFilterPipelineAsync>g__Awaited|20_0(ResourceInvoker invoker, Task lastTask, State next, Scope scope, object state, bool isCompleted)
Microsoft.AspNetCore.Mvc.Infrastructure.ResourceInvoker.<InvokeAsync>g__Awaited|17_0(ResourceInvoker invoker, Task task, IDisposable scope)
```

Figure 18 - As you can observe that the application is giving the SQL errors.

<b>Observation ID &amp; Title</b>		<b>8.9 TLS Fallback SCSV Support</b>	
<b>CVSS Risk Rating</b>	Medium	<b>Status</b>	Open
<b>Observation Details</b>			
<p>The TLS Signalling Cipher Suite Value (SCSV) protects against TLS/SSL downgrade attack such as POODLE. If enables the server, ensure that the strongest protocol that both client and server understand is used. It has been observed that the web application is not using or not enabled the TLS_FALLBACK_SCSV Support.</p>			
<b>Risk</b>			
<p>Attackers with the network level access can attempt downgrade attacks; where the attacker forces a client to negotiate to a weaker or known vulnerable encryption scheme. This encrypted session can then be later broken or decrypted by the malicious user.</p>			
<b>Recommendations</b>			
<p>The Following are the recommendations that should be implemented.</p> <p>Ensure that all web servers and client devices support the TLS_FALLBACK_SCSV cipher suite. This will prevent attackers from being able to perform a downgrade attack and intercept sensitive information.</p> <p>Regularly update the web servers and client devices to the latest versions of the TLS protocol. This will ensure that they are able to support the latest security features and protections against attacks.</p> <p>OpenSSL 1.0.1 users should upgrade to 1.0.1j      OpenSSL 1.0.0 users should upgrade to 1.0.0o      OpenSSL 0.9.8 users should upgrade to 0.9.8zc</p>			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
4.7 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

Target:  Start scanning  Add to sitemap

Status: Ready to scan

---

• Offer SSLv2: **No**  
 • Offer SSLv3: **No**  
 • Offer TLS1.0: Yes  
 • Offer TLS1.1: Yes  
 • Offer TLS1.2: Yes

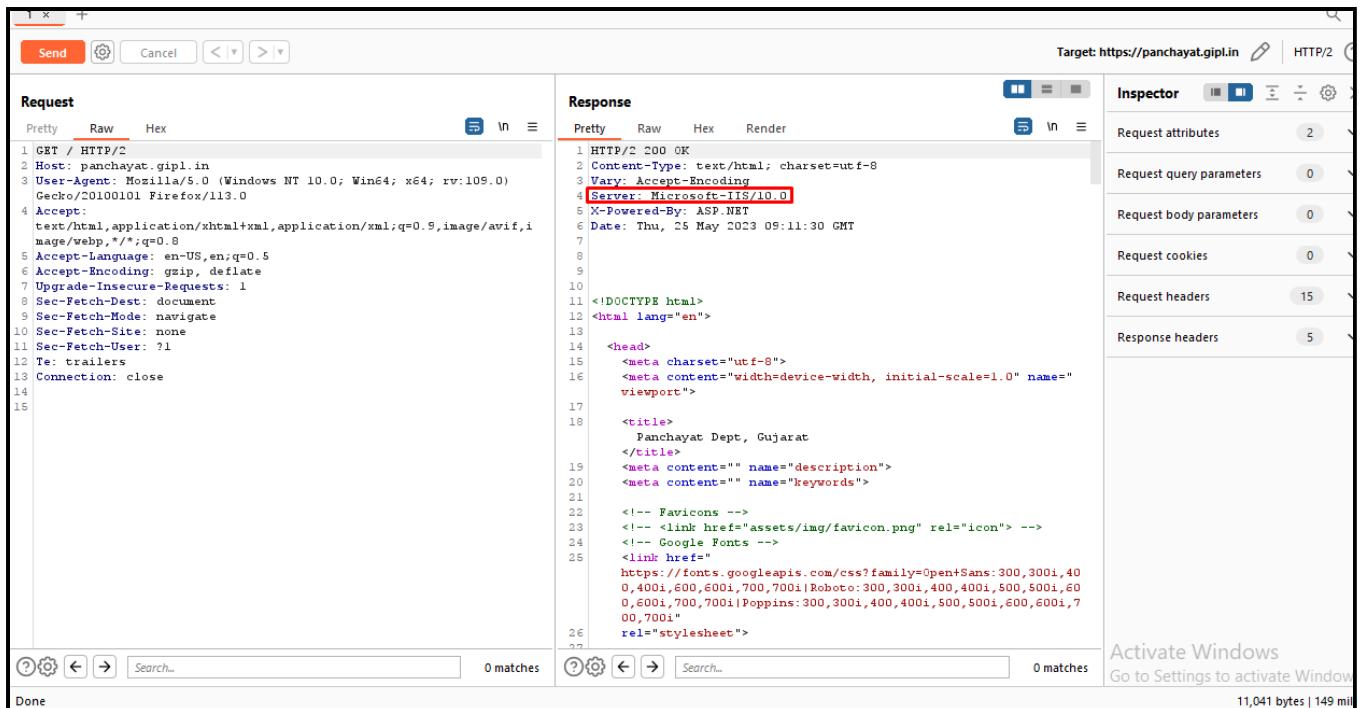
**Available ciphers:**

- NULL Cipher (no encryption): **No**
- ANON Cipher (no authentication): **No**
- EXP Cipher (without ADH+NULL): **No**
- LOW Cipher (64 Bit + DES Encryption): **No**
- WEAK Cipher (SEED, IDEA, RC2, RC4): **Yes (not OK)**
- 3DES Cipher (Medium): **Yes (not recommended)**
- HIGH Cipher (AES+Camellia, no AEAD): **Yes (OK)**
- STRONG Cipher (AEAD Ciphers): **Yes (OK)**

Heartbleed: **Not vulnerable**  
 CCS Injection: **Not vulnerable**  
 TLS\_FALLBACK\_SCSV Support: **No**  
 POODLE (SSLv3): **Not vulnerable**  
 Sweet32: **Vulnerable**  
 DROWN: **Not vulnerable**  
 FREAK: **Not vulnerable**  
 LUCKY13: **Potentially vulnerable**  
 CRIME (TLS): **Not vulnerable**  
 BREACH: **Not vulnerable**

Figure 19 - As you can see that the TLS fallback is not supported.

<b>Observation ID &amp; Title</b>		<b>8.10 Banner Grabbing</b>		
<b>CVSS Risk Rating</b>		<b>Low</b>	<b>Status</b>	<b>Open</b>
<b>Observation Details</b>				
<p>Web server fingerprinting is a critical task for the penetration tester. Knowing the version and type of a running web server allows testers to determine known vulnerabilities and the appropriate exploits to use during testing.</p> <p>There are several different vendors and versions of web servers on the market today. Knowing the type of web server that is being tested significantly helps in the testing process and can also change the course of the test. This information can be derived by sending the web server specific commands and analysing the output, as each version of web server software may respond differently to these commands. By knowing how each type of web server responds to specific commands and keeping this information in a web server fingerprint database, a penetration tester can send these commands to the web server, analyse the response, and compare it to the database of known signatures.</p>				
<b>Risk</b>				
<p>Banner grabbing does not involve the leakage of critical data but rather information that may aid the attacker during the exploitation phase of the attack. For example, if the target leaks the version of PHP running on the server and that version happens to be vulnerable to remote command/code execution (RCE) because it wasn't updated, attackers may exploit the known vulnerability and take full control of the web application.</p>				
<b>Recommendations</b>				
<p>The Following are the recommendations that should be implemented.</p> <p>While exposed server information is not necessarily in itself a vulnerability, it is information that can assist attackers in exploiting other vulnerabilities that may exist. Exposed server information can also lead attackers to find version-specific server vulnerabilities that can be used to exploit unpatched servers. For this reason, it is recommended that some precautions be taken. These actions include:</p> <ul style="list-style-type: none"> <li>Obscuring web server information in headers, such as with Apache's mod headers module.</li> <li>Using a hardened reverse proxy server to create an additional layer of security between the web server and the Internet.</li> <li>Ensuring that web servers are kept up to date with the latest software and security patches.</li> </ul>				
<b>Affected URL &amp; Parameter</b>				
Throughout the Application				
<b>CVSS Vector</b>				
2.7 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L				



Target: https://panchayat.gipl.in

Request

Response

Inspector

Request attributes: 2

Request query parameters: 0

Request body parameters: 0

Request cookies: 0

Request headers: 15

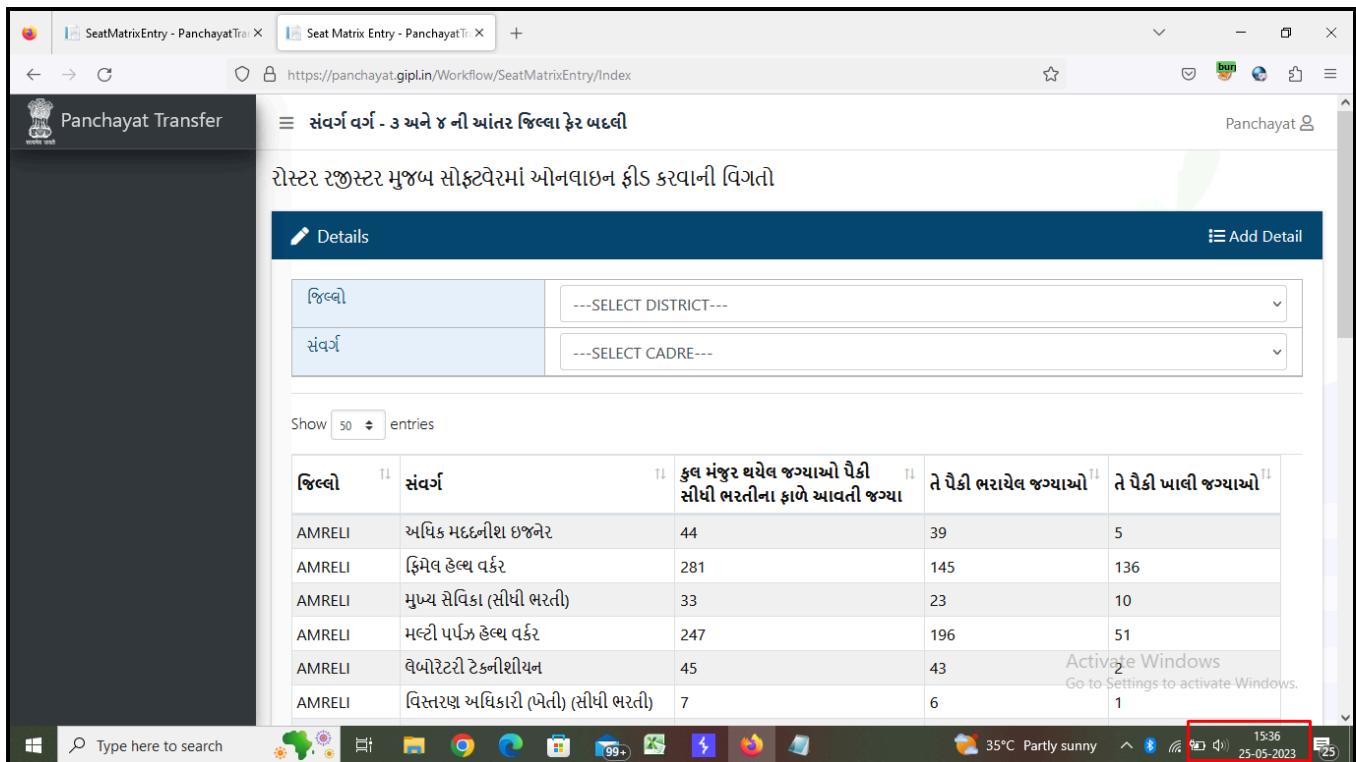
Response headers: 5

Activate Windows  
Go to Settings to activate Windows

11,041 bytes | 149 ms

Figure 20 - As you can see that the application version is clearly visible.

<b>Observation ID &amp; Title</b>		<b>8.11 No Session Timeout</b>		
<b>CVSS Risk Rating</b>		<b>Low</b>	<b>Status</b>	<b>Open</b>
<b>Observation Details</b>				
A session timeout vulnerability is a security flaw that arises when a web application fails to properly manage the session expiration of a user's authenticated session. This can result in a user's session remaining active even after they have left the site, potentially allowing an attacker to gain unauthorized access to sensitive information.				
<b>Risk</b>				
<p><b>Unauthorized Access:</b> If an attacker is able to hijack an active session, they can gain unauthorized access to sensitive information such as user credentials, personal data, and financial information.</p> <p><b>Data Theft:</b> A session timeout vulnerability can allow an attacker to steal data from a user's session, potentially leading to identity theft, financial fraud, and other forms of cybercrime.</p> <p><b>Data Manipulation:</b> An attacker may be able to manipulate data within a user's active session, potentially leading to the insertion or alteration of sensitive information.</p>				
<b>Recommendations</b>				
<p>To avoid session timeout vulnerabilities, web applications should implement appropriate session management techniques such as:</p> <ul style="list-style-type: none"> <li>Setting a reasonable session timeout duration, based on the sensitivity of the data being accessed and the likelihood of the user remaining idle for an extended period of time.</li> <li>Implementing an automatic logout feature that terminates a user's session after a set period of inactivity.</li> <li>Ensuring that session IDs are securely generated and transmitted using secure channels.</li> <li>Using secure session storage mechanisms, such as HTTP-only cookies or server-side storage.</li> </ul>				
<b>Affected URL &amp; Parameter</b>				
Throughout the Application				
<b>CVSS Vector</b>				
3.0 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L				



SeatMatrixEntry - PanchayatTransfer X Seat Matrix Entry - PanchayatTransfer X + https://panchayat.gipl.in/Workflow/SeatMatrixEntry/Index

Panchayat Transfer

≡ સંવર્ગ વર્ગ - ૩ અને ૪ ની આંતર જિલ્લા ફેર બદલી

રોસ્ટર રજીસ્ટર મુજબ સોફ્ટવેરમાં ઓનલાઇન ફીડ કરવાની વિગતો

Details Add Detail

જિલ્લો	---SELECT DISTRICT---
સંવર્ગ	---SELECT CADRE---

Show 50 entries

જિલ્લો	સંવર્ગ	કુલ મંજૂર થયેલ જગ્યાઓ પૈકી સીધી ભરતીના ફાળે આવતી જગ્યા	તે પૈકી ભરાયેલ જગ્યાઓ	તે પૈકી ખાલી જગ્યાઓ
AMRELI	અધિક મદદનીશ ઇજનેર	44	39	5
AMRELI	ફિલેલ હેલ્પ વર્કર	281	145	136
AMRELI	મુખ્ય સર્વિસ (સીધી ભરતી)	33	23	10
AMRELI	મલ્ટી પર્સન હેલ્પ વર્કર	247	196	51
AMRELI	વૈબારેટો ટેકનોલોજીન	45	43	2
AMRELI	વિસરણ અધિકારી (એટેટી) (સીધી ભરતી)	7	6	1

Activate Windows  
Go to Settings to activate Windows.

Figure 21 - As you can see that the application is not terminating the session even after 30 min of idle time.

<b>Observation ID &amp; Title</b>		<b>8.12 Dangerous Method Enabled</b>	
<b>CVSS Risk Rating</b>	Low	<b>Status</b>	Open
<b>Observation Details</b>			
<p>While testing the application it came to our notice that the application is vulnerable is allowing dangerous methods like PUT, HEAD, DELETE these method allow an attacker to modify the files stored on the web server and, in some scenarios, steal the credentials of legitimate users</p>			
<b>Risk</b>			
<p>Web server accepting these methods may allow an attacker to gain full control over the application and its environment. The same methods can be also be used to cause Denial of Service (DoS) by destroying the application structure . An unauthenticated attacker can gain access to complete information held in databases that is not meant to be accessed by them. The attacker could also gain control over the entire database server which can leads to confidentiality, integrity and availability.</p>			
<b>Recommendations</b>			
<p>The Following are the recommendations that should be implemented.</p> <ol style="list-style-type: none"> <li>1) Always enable deny all option.</li> <li>2) Configure your web and application server to disallow HEAD requests entirely</li> </ol>			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
3.3 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

Figure 22 - As you can see that HEAD, TRACE method is allowed.

<b>Observation ID &amp; Title</b>		<b>8.13 HTTP Strict Transport Security</b>	
<b>CVSS Risk Rating</b>	Low	<b>Status</b>	Open
<b>Observation Details</b>			
<p>During the testing phase, it came to our notice that the web application does not have HTTP Strict Transport Security mechanism implemented. The HTTP Strict Transport Security (HSTS) is a policy mechanism that is implemented through the use of a special response header. HSTS basically prevents any communications from being sent over HTTP and will only allow communications over HTTPS (encrypted channel). This mechanism will automatically redirect HTTP requests over to HTTPS for the target domain. It also prevents HTTPS click through prompts on browsers.</p>			
<b>Risk</b>			
<p>The attacker can conduct various attacks if the HSTS policy mechanism is not implemented. These attacks include:</p> <p>Protocol Downgrade attacks: The Protocol downgrade attack is an attack through which, an attacker can downgrade the used protocol in the web application to communicate using any vulnerable protocol. Using the vulnerable protocol, the attacker can steal data sent between the server and the client.</p> <p>Man-In-The-Middle attacks: The man-in-the-middle (MITM) attack is an attack through which an attacker can sniff data passed via the communication channel. The attacker can access sensitive information from login credentials to application's cookies.</p> <p>Cookie-hijacking: The cookie hijacking attack is an attack through which, an attacker can hijack information present in the user's cookie from the communication channel. The cookie details include information about the user's session. The attacker can use this information to steal user's sessions.</p>			
<b>Recommendations</b>			
<p>The Following are the recommendations that should be implemented.</p> <p>Configure the remote web server to communicate using HSTS.</p> <p>If there is any preload directive in the application, it is recommended to switch back to HTTP. An attacker can send a preload directive from the application. These preload directives might have serious issues on the server. The preload directive can be used to prevent the users from accessing the web application along with any of its subdomains.</p> <p>The web application must instruct the user's web browser to only access the application using HTTPS. To do this, the application must enable HTTP Strict Transport Security (HSTS). The HSTS can be enabled by adding the response header 'Strict-Transport-Security'. Set the value 'max-age=expireTime'. It is also recommended to add the 'includeSubDomains' flag.</p>			
<b>Affected URL &amp; Parameter</b>			

Throughout the Application

## CVSS Vector

3.0 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L

Send  Cancel  

Target: <https://panchayat.gipl.in>  HTTP/2 

**Request**

Pretty Raw Hex   

```

1 GET / HTTP/2
2 Host: panchayat.gipl.in
3 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:109.0)
  Gecko/20100101 Firefox/113.0
4 Accept:
  text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 Upgrade-Insecure-Requests: 1
8 Sec-Fetch-Dest: document
9 Sec-Fetch-Mode: navigate
10 Sec-Fetch-Site: none
11 Sec-Fetch-User: ?1
12 Te: trailers
13 Connection: close
14
15

```

    0 matches     0 matches

**Response**

Pretty Raw Hex Render   

```

1 HTTP/2 200 OK
2 Content-Type: text/html; charset=utf-8
3 Vary: Accept-Encoding
4 Server: Microsoft-IIS/10.0
5 X-Powered-By: ASP.NET
6 Date: Thu, 25 May 2023 09:11:30 GMT
7
8
9
10
11 <!DOCTYPE html>
12 <html lang="en">
13
14   <head>
15     <meta charset="utf-8">
16     <meta content="width=device-width, initial-scale=1.0" name="viewport">
17
18     <title>
19       Panchayat Dept, Gujarat
20     </title>
21     <meta content="" name="description">
22     <meta content="" name="keywords">
23
24     <!-- Favicons -->
25     <!-- <link href="assets/img/favicon.png" rel="icon"> -->
26     <!-- Google Fonts -->
27     <link href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Roboto:300,300i,400,400i,500,500i,600,600i,700,700i|Poppins:300,300i,400,400i,500,500i,600,600i,700,700i"
28       rel="stylesheet">
29
30

```

    0 matches     0 matches

Inspector     

Request attributes 2 

Request query parameters 0 

Request body parameters 0 

Request cookies 0 

Request headers 15 

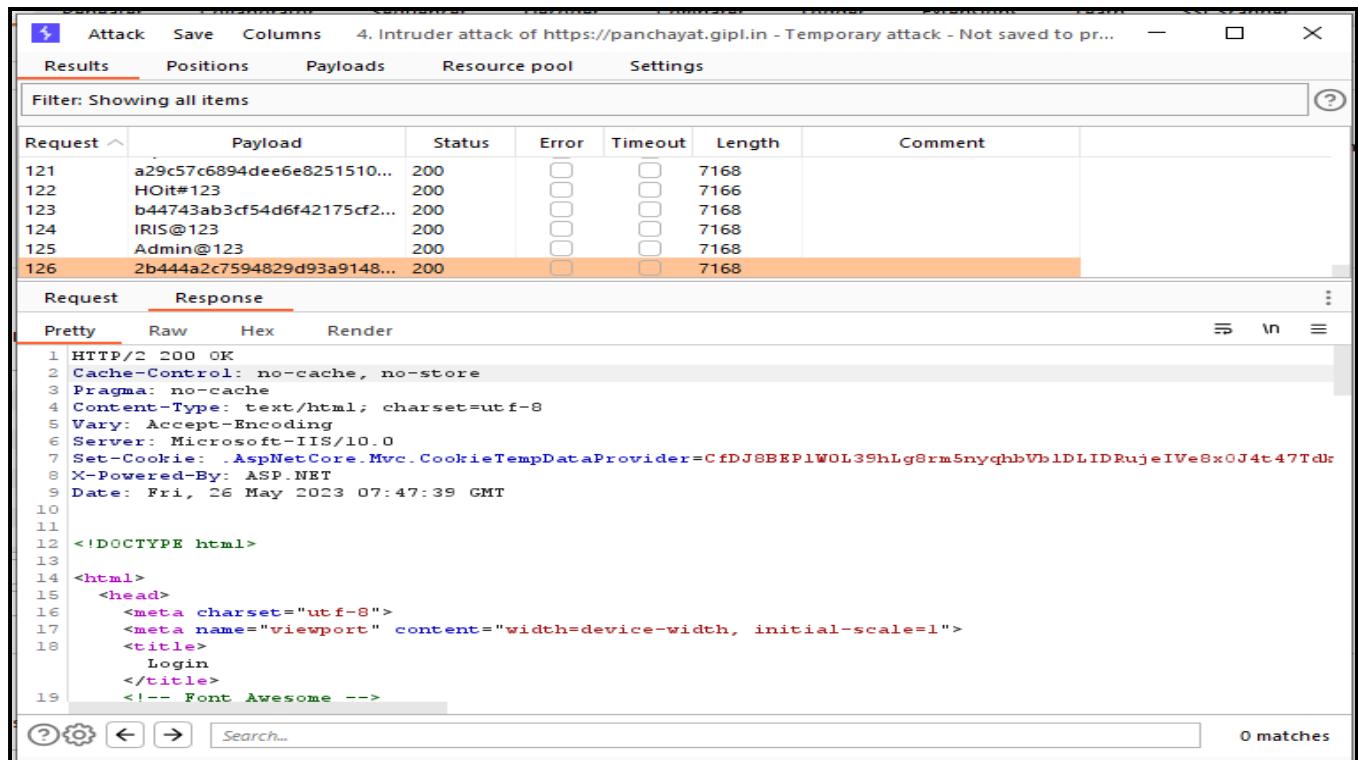
Response headers 5 

Activate Windows  
Go to Settings to activate Windows.

11,041 bytes | 149 millis

Figure 23 - As you can see that HTTP Strict Transport Policy is not enforced.

<b>Observation ID &amp; Title</b>		<b>8.14 Weak lock out mechanism</b>		
<b>CVSS Risk Rating</b>		<b>Low</b>	<b>Status</b>	<b>Open</b>
<b>Observation Details</b>				
A lock-out mechanism is a security feature that is designed to prevent brute-force attacks by temporarily locking an account after a certain number of failed login attempts. However, if the lock-out mechanism is weak, it may not be effective at preventing brute-force attacks, allowing an attacker to continue trying to guess a user's password until they are successful.				
<b>Risk</b>				
The impact of this vulnerability can be significant, as it can allow an attacker to gain unauthorized access to a user's account. This can be used to steal sensitive information, perform actions on behalf of the user, and potentially compromise the security of the entire system.				
<b>Recommendations</b>				
It is highly recommended to:-				
Implement a strong lock-out mechanism that is effective at preventing brute-force attacks.				
Use longer lock-out periods, requiring additional authentication factors.				
Implement CAPTCHA challenges to verify that the user is human.				
<b>Affected URL &amp; Parameter</b>				
Throughout the Application				
<b>CVSS Vector</b>				
3.9 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L				



Request	Payload	Status	Error	Timeout	Length	Comment
121	a29c57c6894dee6e8251510...	200	<input type="checkbox"/>	<input type="checkbox"/>	7168	
122	HOIt#123	200	<input type="checkbox"/>	<input type="checkbox"/>	7166	
123	b44743ab3cf54d6f42175cf2...	200	<input type="checkbox"/>	<input type="checkbox"/>	7168	
124	IRIS@123	200	<input type="checkbox"/>	<input type="checkbox"/>	7168	
125	Admin@123	200	<input type="checkbox"/>	<input type="checkbox"/>	7168	
126	2b444a2c7594829d93a9148...	200	<input type="checkbox"/>	<input type="checkbox"/>	7168	

```

1 HTTP/2 200 OK
2 Cache-Control: no-cache, no-store
3 Pragma: no-cache
4 Content-Type: text/html; charset=utf-8
5 Vary: Accept-Encoding
6 Server: Microsoft-IIS/10.0
7 Set-Cookie: .AspNetCore.Mvc.CookieTempDataProvider=CfDJSBEP1W0L39hLg8rm5nyqhbVb1LDLIDRuijeIVe8x0J4t47TdR
8 X-Powered-By: ASP.NET
9 Date: Fri, 26 May 2023 07:47:39 GMT
10
11
12 <!DOCTYPE html>
13
14 <html>
15   <head>
16     <meta charset="utf-8">
17     <meta name="viewport" content="width=device-width, initial-scale=1">
18     <title>
19       Login
     </title>
     <!-- Font Awesome -->

```

0 matches

Figure 24 - As you can see that after attempting so many passwords, account is not getting lockout.

<b>Observation ID &amp; Title</b>		<b>8.15 AutoComplete Enabled</b>				
<b>CVSS Risk Rating</b>	<b>Low</b>		<b>Status</b>	<b>Open</b>		
<b>Observation Details</b>						
<p>AutoComplete is basically a feature which is provided by many web browsers / web applications. This eases the tiring process of typing the credentials again and again. Although seen as a feature, having AutoComplete enabled in a web browser can pose a potential security vulnerability. This is because AutoComplete automatically fills in login information (such as a username and password) on websites that the user has previously visited. This can make it easier for attackers to gain access to a user's account if they have physical access to the user's device.</p>						
<b>Risk</b>						
<p>If an attacker is able to gain access to the user's device, they could potentially open the web browser and navigate to a website where the user has previously logged in. If AutoComplete is enabled, the login information will be automatically filled in, and the attacker could potentially use this information to gain access to the user's account.</p>						
<b>Recommendations</b>						
<p>To mitigate the potential security vulnerability, it is advised to:-</p> <ul style="list-style-type: none"> <li>Disable AutoComplete in the web browser.</li> <li>Use a password manager.</li> <li>Be careful about where you leave your device.</li> </ul>						
<b>Affected URL &amp; Parameter</b>						
Throughout the Application						
<b>CVSS Vector</b>						
3.0 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L						

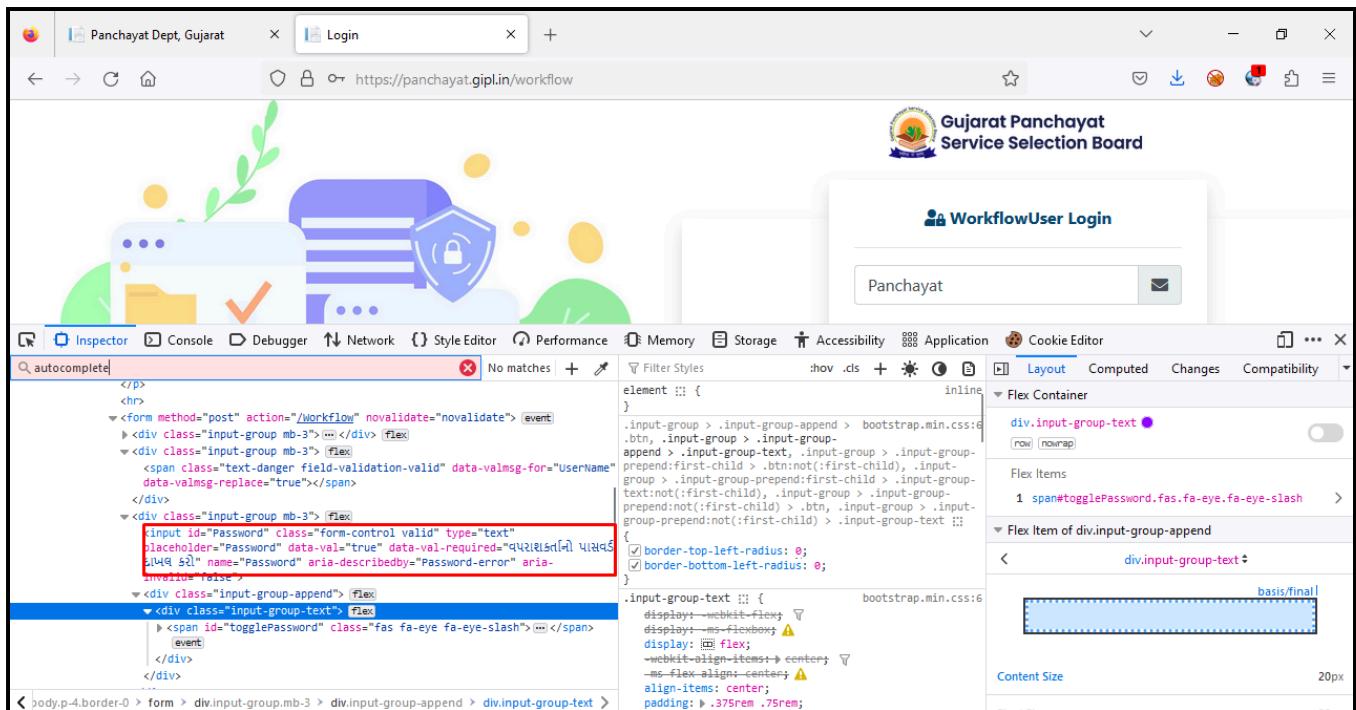
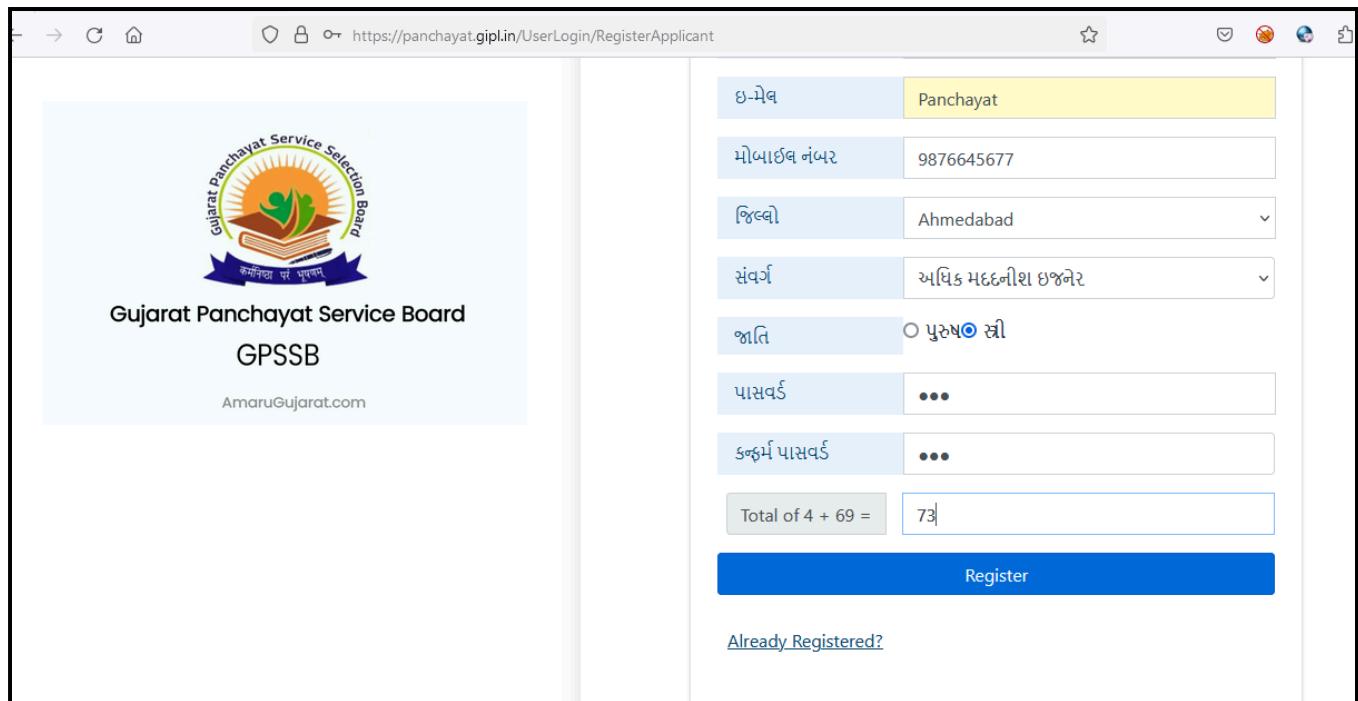


Figure 25 - As you can see that the autocomplete is not set to OFF.

<b>Observation ID &amp; Title</b>		<b>8.16 Weak password policy</b>	
<b>CVSS Risk Rating</b>	Low	<b>Status</b>	Open
<b>Observation Details</b>			
<p>While testing the web application, it came to our notice that the application has weak password policies. Weak password policies vulnerability comes under the category of Broken authentication, and this happens due to insufficient mention of password hardening rules in the policy. Password hardening rules such as keeping the minimum length of password of 8 characters, using alphanumeric characters along with special characters etc. This ensures that passwords cannot be easily guessed or brute forced.</p>			
<b>Risk</b>			
<p>Attackers have to gain access to only a few accounts or just one admin account to compromise the whole system. Depending on the domain of the application this may allow social security fraud, or identity theft and disclose legally protected highly sensitive information.</p>			
<b>Recommendations</b>			
<p>The Following are the recommendations that should be implemented.</p> <p>Tight password policy, not allowing weak or well-known passwords and not the usage of default admin credentials.</p> <p>Ensure passwords have a minimum length of 8, consist alphanumeric, special characters and both lowercase and uppercase characters.</p>			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
3.6 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			



The screenshot shows the registration page for the Gujarat Panchayat Service Selection Board (GPSSB). The page includes the GPSSB logo and name, and a link to AmarUttarGujarat.com. The registration form on the right contains the following fields:

ઠ-પેલ	Panchayat
મોબાઇલ નંબર	9876645677
જિલ્લો	Ahmedabad
સંવર્ગ	અધિક મદદનીશ ઇજનેર
જાતિ	<input checked="" type="radio"/> પુરુષો સ્ત્રી
પાસવર્ડ	•••
કન્ફર્મ પાસવર્ડ	•••
Total of 4 + 69 =	73

[Already Registered?](#)

**Register**

Figure 26 - As you can see that the application is accepting only 3 char of password.

<b>Observation ID &amp; Title</b>		<b>8.17 Missing secure Flag Not Set</b>	
<b>CVSS Risk Rating</b>	Low	<b>Status</b>	Open
<b>Observation Details</b>			
<p>During the of the web application, it was observed that there was no secure flag set in the web application. When an HTTP protocol is used for communication between client and server, the data traffic is sent in plaintext. An HHTP allows the attacker to see/modify the traffic using a Man-In-The-Middle attack (MITM). HTTPS is a secure version of HTTP. This protocol uses SSL/TLS to protect the data in the application layer. HTTPS is used for better authentication and data integrity. A secure flag is set by the application server while sending a new cookie to the user using an HTTP Response. The secure flag is used to prevent cookies from being observed and manipulated by an unauthorized party or parties. This is because the cookie is sent as a normal text. A browser will not send a cookie with the secure flag that is sent over an unencrypted HTTP request. That is, by setting the secure flag the browser will prevent/stop the transmission of a cookie over an unencrypted channel.</p>			
<b>Risk</b>			
<p>Using this vulnerability, an attacker can redirect the user to a malicious site to steal information/data or even show user false data which will, in turn, affect the credibility of the website.</p>			
<b>Recommendations</b>			
<p>It is highly recommended to set the HTTP Secure Flag to prevent cookies from being manipulated.</p>			
<b>Affected URL &amp; Parameter</b>			
<p>Throughout the Application</p>			
<b>CVSS Vector</b>			
3.7 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

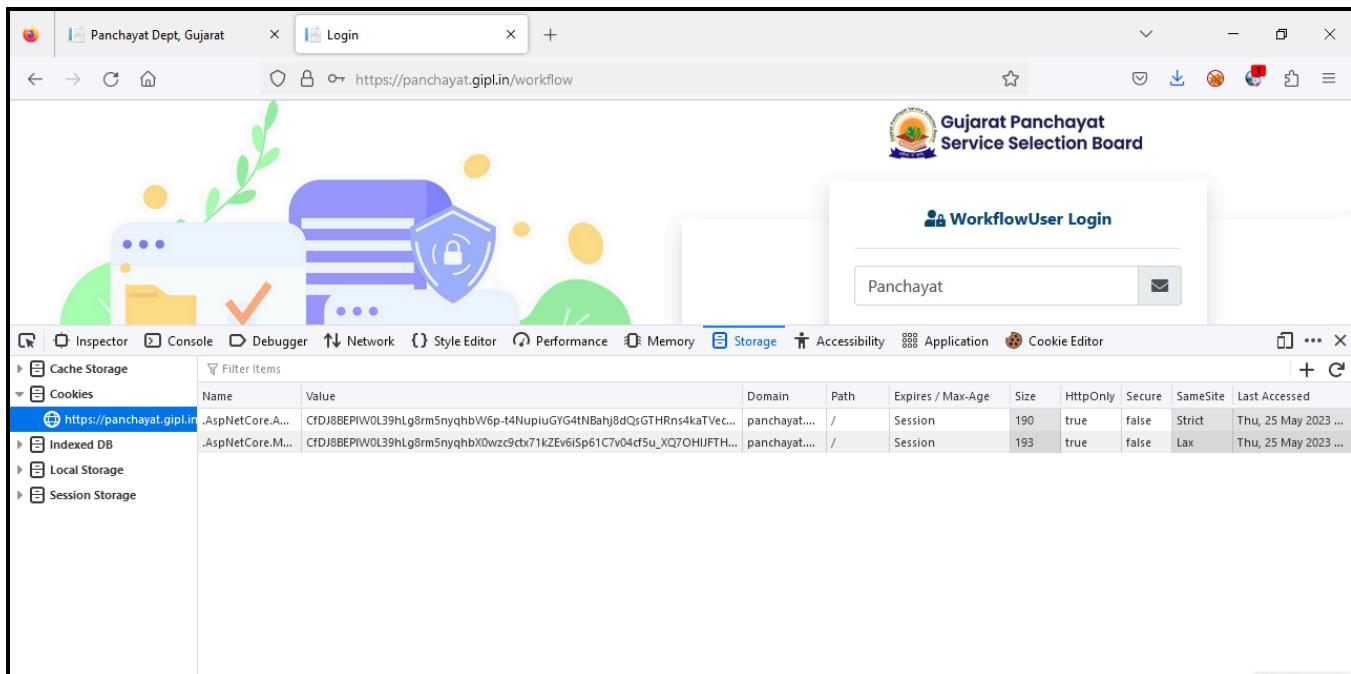


Figure 27 - As you can see that the secure flag is set to false.

<b>Observation ID &amp; Title</b>		<b>8.18 Improper Session Expiry</b>	
<b>CVSS Risk Rating</b>	Low	<b>Status</b>	Open
<b>Observation Details</b>			
Improper session expiry refers to the failure of a website or web application to properly manage the expiration of user sessions. This can occur if the website or application does not properly set the expiration time for a user's session, or if it fails to invalidate the user's session when it expires. The given web application was found to have improper session expiry.			
<b>Risk</b>			
If an organization is successfully targeted by an attack that exploits improper session expiry, the impact can be significant. The attacker may be able to gain unauthorized access to user accounts, steal sensitive information, or perform unauthorized actions on the user's behalf. This can result in loss of confidentiality, integrity, and availability of the organization's data, as well as damage to its reputation and financial losses.			
<b>Recommendations</b>			
To mitigate the risks associated with improper session expiry, appropriate security controls should be implemented, such as using strong encryption for data transmission and authentication mechanisms for verifying the identity of users. They should also ensure that their website or web application properly manages the expiration of user sessions, including setting appropriate expiration times and invalidating sessions when they expire.			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
3.7 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

Send  Cancel   

Target: <https://panchayat.gipl.in>  HTTP/2 

**Request**

Pretty	Raw	Hex
1 POST /Workflow/SeatMatrixEntry/AddSeatMatrix HTTP/2		
2 Host: panchayat.gipl.in		
3 Cookie: .AspNetCore.Antiforgery.iIbP_23PInMe		
4 CEDJ88EP1W0L39hLg@rmasnqyqbhWB9b6PEURTBqVnSRZT1bYtda-oIudCTk8ISzfxJ		
Gn1RT#6UjCTRCA_M-J1QMc1d0qqsyFF4bR0Wgfs19vo69f86YzG5WZ11dZM3leZ		
5p4opTGB4ZLjfj5j0o61vz86Y; .AspNetCore.Mvc.CookieTempDataProvider=		
CEDJ88EP1W0L39hLg@rmasnqyqbhVpjg71hejUXBbF157QDqgSOUCE_FENWuJd61qte		
LCmpEjNC6HQ4-jhdLYUWwHJ-Eo8fg6Lpvu08fPKWjCptjmvso10Wm7Nw-aRgE		
Pa-VqB44iX_EUfyChelloi; .AspNetCore.Workflow=		
CEDJ88EP1W0L39hLg@rmasnqyqbhUTrNCJ9XAA00Q8B1oU1gqHWV5XmGLXpfwWuvQD9Y		
5rkCW0_iHDvUo6m1b7beC_1y4a1CN1W162FH2zLg0P43yengsulX1R_gRkn0oQ0		
gulPULbbhv8g4vG1SEKjFH3XqjDiF1Yaoj147xAT07jh2nqcs717QTOCvsgmj2cx1oLnj		
NMfyGkR5PabA11o0eEcE2m1b31-V_Hu6vzq8jTFSz5CJCedKbHgRuGagTjpKH2Aw		
9sP0Zoeewd54CKPw1eND1C4yRNqCJnDWZHNASZch_Cou7nvXy3r1d4N1Nnf17		
egXWgajgfWmBz1XGxEz56rpCMIQ14B543lsqfNvA-FepabkrMq1qWrM1KkenXei		
DR2PK8UJAS2-XuvzRGu1X00LseNAU40wWHlkCxJZ51c0xLSPib_A058wLxf12		
hiHlyjXW1Bxx8mASYrWGuhr0Mc1d1lPwWNoHrjFzWgh11g_87h4TBfcgpm8tqPrtzH		
_HNOMBpTVfa3MWSYL1nroQw1Mo07ej3Xevey1cR_KabijdN7BzopI4WzA4Y__b0W		
LCRmTaRd8iB_PFAJ776AA0R4q0F2z1Vdtw-vWHy67GmaadCycnq0M_N_6vY78rZM1ej		
OyqVry/qfmezKuas4YBhAp13oViGPAlb7UKvhbsdq_gjBv40j06g		
4 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:109.0) Gecko/20100101 Firefox/113.0		
5 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8		
6 Accept-Language: en-US,en;q=0.5		
7 Accept-Encoding: gzip, deflate		
8 Content-Type: application/x-www-form-urlencoded		
9 Content-Length: 1395		
10 Origin: <a href="https://panchayat.gipl.in">https://panchayat.gipl.in</a>		
11 Referer: <a href="https://panchayat.gipl.in/Workflow/SeatMatrixEntry/Index?CadrelId=0&amp;DistrictId=2">https://panchayat.gipl.in/Workflow/SeatMatrixEntry/Index?CadrelId=0&amp;DistrictId=2</a>		
12 <a href="#">Home</a> <a href="#">Logout</a> <a href="#">Repeater</a>		

**Response**

Pretty	Raw	Hex	Render
1 #xAB0; #xABF; #xABC; #xAC7; #xAS9			
2 #xAS5; #xAB0; #xACB;			
3 data-val-range-max="2147483647"			
4 data-val-range-min="1"			
5 data-val-required="true"			
6 #xA4; #xA4E; #xABE; #xAB0; #xACB;			
7 #xAS5; #xABF; #xABC; #xAC7; #xAS9			
8 #xAS5; #xAB0; #xACB; " id="			
9 DistrictId" name="DistrictId" value="2">			
10 <b>AMRELI</b>			
11 </h>			
12 <input type="hidden" data-val="true" data-val-required="The UserMasterId field is required." id="UserMasterId" name="UserMasterId" value="5">			
13 </div>			
14 <div class="form-group row">			
15 <label class="control-label col-md-3" for="CadrelId">			
16 #xAB0; #xABC; #xAS5; #xAB0; #xACB; #xAS9;			
17 </label>			
18 <div class="control-form col-md-9">			
19 <select class="form-control" onchange="fnCadreChange()">			
20 1 match			

Ready

46,562 bytes | 169 millis

Figure 28 - Intercept the request of the page containing the information > Send the request to repeater

https://panchayat.gipl.in/Workflow/SeatMatrixEntry/Index?CadrelId=0&DistrictId=2

DDO\_AMR 

**Details**

જિલ્લો	AMRELI					
સંવર્ગ	---SELECT CADRE---					
જિલ્લો	AMRELI					
સંવર્ગ	---SELECT CADRE---					
Show 50 entries						
જિલ્લો	સંવર્ગ	કુલ મંજુર થયેલ જગ્યાઓ પૈકી સીધી ભરતીના ફાળે આવતી જગ્યા	તે પૈકી ભરાયેલ જગ્યાઓ	તે પૈકી ખાલી જગ્યાઓ	Edit	Delete
AMRELI	અનિક મદદનિશા ઇજનેર	22	39	-17		
AMRELI	ફિલેવ હલ્થ વર્કર	281	145	136		
AMRELI	મુખ્ય સેવિકા (સીધી ભરતી)	33	23	10		
AMRELI	મલ્ટી પર્ફા હલ્થ વર્કર	247	196	51		

Figure 29 - Signout the account.

Target: https://panchayat.gipl.in | HTTP/2

**Request**

Pretty	Raw	Hex
1 POST /Workflow/SeatMatrixEntry/AddSeatMatrix HTTP/2		
2 Host: panchayat.gipl.in		
3 Cookie: .AspNetCore.Antiforgery.iLbP_23PlnM=		
CEDJ8REP1WOL3hLg9rmaNyqbhWE5bP6VURTBqVn9ZT1bYtda-o1udCTh8ISzfxJ		
GniTfT6UjTCECA-M-J1QmfId0qgyyF4b4R0Wgtsi9v69fB6YzQG5W2IIzH3Lez		
Ip4opYGH4ZLffjIjQ61vm6Y; .AspNetCore.Mvc.CookieTempDataProvider=		
CEDJ8REP1WOL3hLg9rmaNyqbhPjg7ih6jUXEDft570DkgsQOUcE_FBNWufb61Qte		
LCmpEjNCfPHQ4-jhd1LYUWfHJ-Eo8fg6Lpvu08fPwW)optjmvsos10Wfm7Nw-aRge		
Pa-Vg044iy_EUfyCChelloi; .AspNetCore.Workflow=		
CEDJ8REP1WOL3hLg9rmaNyqbhWE5bP6VURTBqVn9ZT1bYtda-o1udCTh8ISzfxJ		
5rkhCWO_iHdvUoEmhly7heWly4a1L2H1W1e2PH2cLgOP43yenqsv1X1pTvvuWCQbY		
guljFULhbvsg4vG1SEjJH3Xqjd1f1YAj0j147xAT0YjhCnqc571TQ70euqjm2cxloLnj		
NMy0kR5pAB1L1f0eEcE2mlb31-V_Huavq0jTfE5ECJcdXhERuGAjTjpH2Aw_		
9sP02ewdsG4KGFpFleND8L1C4yEHNqgpCJnWZ2NaSzZC_Cou7mvxy3r1D4H1Nmfi7		
egXVgnjgfWmH81XGKc96rpM1Qh48543s1qHvA-A-Feabhrfqlq1wMlkKsenKei		
DE2PKH18UPJAS-Z-Xu0Rg1X0019eNAU4GwWH1LcXZS1c0xrLPSp1b_A055wLxf12		
hiHlyFW1Bxx8maSYrWchrMcldalcPwH0Hr1jxWgh1g_B7hATBfognm8UlgRbzM		
_HNOMBpTVfa3M8YLMr09w1m007ej33reyxlcr_Kmbijdn7Bsp014Wm4Y_bjKw		
LCEmTsRd81B_PFAJ776A8RdqeF2i3Ddn-v7PHy67GmaCyCnqc0zH_6vYf0rZMlej		
CyqhrvqfmasKuan4T9gAp13oV1CPAlb7UKvb+dQ_g0Bw40j06g		
4 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:109.0) Gecko/20100101 Firefox/113.0		
5 Accept:		
text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8		
6 Accept-Language: en-US,en;q=0.5		
7 Accept-Encoding: gzip, deflate		
8 Content-Type: application/x-www-form-urlencoded		
9 Content-Length: 1395		
10 Origin: https://panchayat.gipl.in		
11 Referer: https://panchayat.gipl.in/Workflow/SeatMatrixEntry/AddSeatMatrix?C		
adreId=1&DistrictId=2		
12 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:109.0) Gecko/20100101 Firefox/113.0		

**Response**

Pretty	Raw	Hex	Render
12: #xABC;			
13: #xAB8; #xABC; #xABC; #xABC; #xABC;			
14: #xACD; #xABC;			
15: #xABC; #xABC; #xABC; #xABC;			
16: #xABC; #xABC; #xABC; #xABC;			
17: #xABC; #xABC; #xABC; #xABC;			
18: #xABC; #xABC; #xABC; #xABC;			
19: #xABC; #xABC; #xABC; #xABC;			
20: #xABC; #xABC; #xABC; #xABC;			
21: #xABC; #xABC; #xABC; #xABC;			
22: #xABC; #xABC; #xABC; #xABC;			
23: #xABC; #xABC; #xABC; #xABC;			
24: #xABC; #xABC; #xABC; #xABC;			
25: #xABC; #xABC; #xABC; #xABC;			
26: #xABC; #xABC; #xABC; #xABC;			
27: #xABC; #xABC; #xABC; #xABC;			
28: #xABC; #xABC; #xABC; #xABC;			
29: #xABC; #xABC; #xABC; #xABC;			
30: #xABC; #xABC; #xABC; #xABC;			
31: #xABC; #xABC; #xABC; #xABC;			
32: #xABC; #xABC; #xABC; #xABC;			
33: #xABC; #xABC; #xABC; #xABC;			
34: #xABC; #xABC; #xABC; #xABC;			
35: #xABC; #xABC; #xABC; #xABC;			
36: #xABC; #xABC; #xABC; #xABC;			
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119: #xABC; #xABC; #xABC; #xABC;			
120: #xABC; #xABC; #xABC; #xABC;			
121: #xABC; #xABC; #xABC; #xABC;			
122: #xABC; #xABC; #xABC; #xABC;			
123: #xABC; #xABC; #xABC; #xABC;			
124: #xABC; #xABC; #xABC; #xABC;			

Figure 30 - Now again go to Repeater and send the request > As you can see that the application is showing the data.

<b>Observation ID &amp; Title</b>		<b>8.19 Clickjacking</b>	
<b>CVSS Risk Rating</b>	Low	<b>Status</b>	Open
<b>Observation Details</b>			
While testing the application it came to our notice that the application is vulnerable to clickjacking that is UI redress attack. In this attack click is hijacked that means any one can put multiple transparent or opaque layers to trick user into clicking on a button or link of another page when they were intending to click on the top level of page.			
<b>Risk</b>			
By exploiting this vulnerability, an attacker can trick the user to click on their desired page most likely owned by another application. Thus an attacker can steal sensitive information such as user credentials, credit card details etc.			
<b>Recommendations</b>			
The Following are the recommendations that should be implemented.			
Implementing security policy such as Content Security Policy (CSP), or implementing the X-Frame option headers that will instruct the browser to not allow framing from other domains is recommended.			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
3.2 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

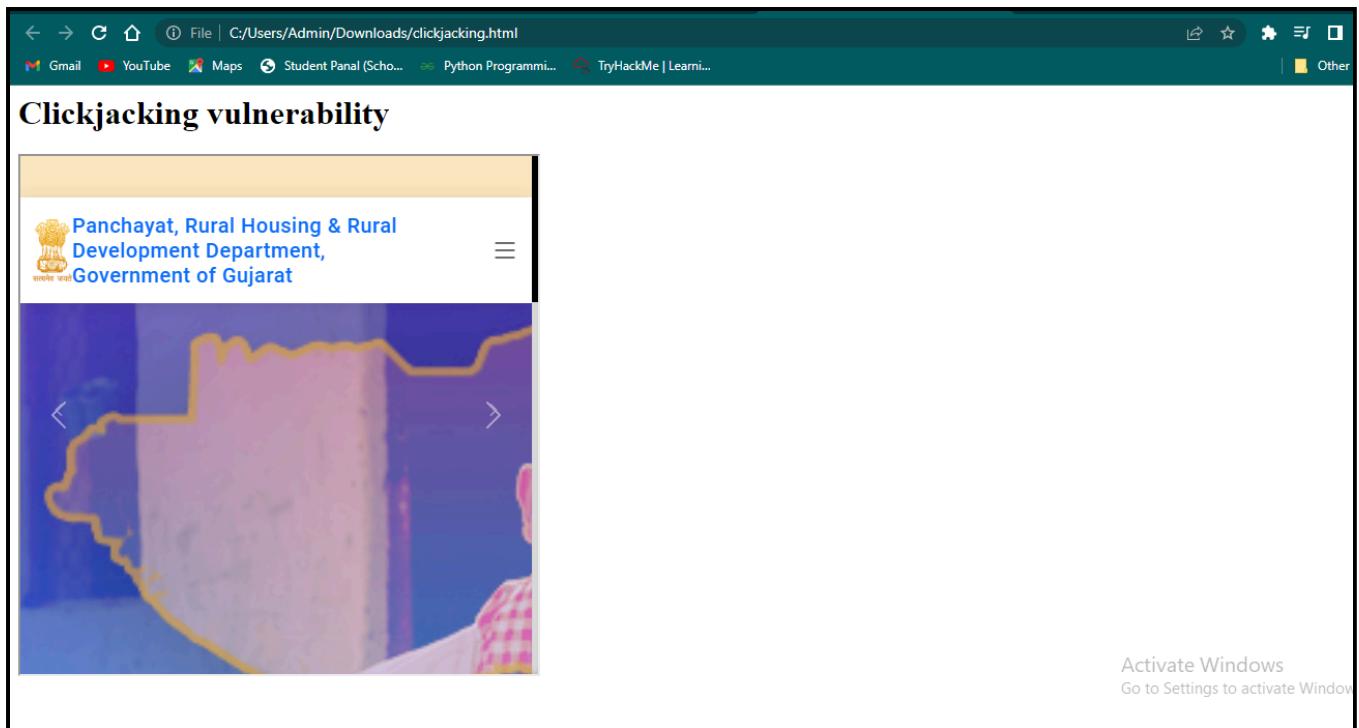


Figure 31 - As you can see that the application is vulnerable to clickjacking attack.

<b>Observation ID &amp; Title</b>		<b>8.20 TLS 1.0 And TLS 1.1 Enabled</b>	
<b>CVSS Risk Rating</b>	Low	<b>Status</b>	Open
<b>Observation Details</b>			
<p>Transport Layer Security (TLS) are cryptographic protocols that provide communications security over a computer network. Several versions of the protocols find widespread use in applications such as web browsing, email, instant messaging, and voice over IP (VoIP). Websites can use TLS to secure all communications between their servers and web browsers. Since applications can communicate either with or without TLS (or SSL), it is necessary for the client to indicate to the server the setup of a TLS connection. During the testing of the web application, it was found that TLS version 1.0 / 1.1 was being used for communication in the web application. These versions, as discussed above are outdated.</p>			
<b>Risk</b>			
<p>TLS 1.0 version is vulnerable to many implementations and it fails to shield against attacks such as BEAST and POODLE. This version of TLS can be easily breached by the attackers.</p> <p>TLS 1.1 is an outdated version. The pseudo random function in TLS is based on a combination on a MD5 and SHA-1. The attacker can easily break these function and in return can cause severe damage to the server. TLS 1.1 was defined in RFC 4346 in April 2006. It is an update from TLS version 1.0. Using even any one of the above mentioned versions of TLS, the attacker could access sensitive information, with attacks such MiTM, etc.</p>			
<b>Recommendations</b>			
<p>The Following are the recommendations that should be implemented.</p> <p>As the web application is using an outdated version of TLS, it is highly recommended to update TLS to the latest version, TLS 1.3.</p>			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
3.0 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

Target: <https://panchayat.gipl.in/>   Add to sitemap

Status: Ready to scan

---

• Offer SSLv2: **No**  
 • Offer SSLv3: **No**  
 • Offer TLS1.0: Yes  
 • Offer TLS1.1: Yes  
 • Offer TLS1.2: Yes

**Available ciphers:**

- NULL Cipher (no encryption): **No**
- ANON Cipher (no authentication): **No**
- EXP Cipher (without ADH+NULL): **No**
- LOW Cipher (64 Bit + DES Encryption): **No**
- WEAK Cipher (SEED, IDEA, RC2, RC4): **Yes (not OK)**
- 3DES Cipher (Medium): **Yes (not recommended)**
- HIGH Cipher (AES+Camellia, no AEAD): **Yes (OK)**
- STRONG Cipher (AEAD Ciphers): **Yes (OK)**

Heartbleed: **Not vulnerable**  
 CCS Injection: **Not vulnerable**  
 TLS\_FALLBACK\_SCSV Support: **No**  
 POODLE (SSLv3): **Not vulnerable**  
 Sweet32: **Vulnerable**  
 DROWN: **Not vulnerable**  
 FREAK: **Not vulnerable**  
 LUCKY13: **Potentially vulnerable**  
 CRIME (TLS): **Not vulnerable**  
 BREACH: **Not vulnerable**

Figure 32 - As you can see TLS 1.0 & 1.1 is enabled.

<b>Observation ID &amp; Title</b>		<b>8.21 Sweet32 Attack</b>	
<b>CVSS Risk Rating</b>	Low	<b>Status</b>	Open
<b>Observation Details</b>			
<p>The Sweet32 is an attack first found by researchers at the French National Research Institute for Computer Science (INRIA). The attack targets the design flaws in some ciphers that are used in TLS, SSH, IPsec, and OpenVPN. The Sweet32 attack allows an attacker to recover small portions of plaintext. It is encrypted with 64-bit block ciphers (such as Triple-DES and Blowfish), under certain circumstances. The SWEET32 attack can be used to exploit the communication that uses a DES/3DES based cipher suite. The SWEET32 attack affects the commonly used algorithm like AES (Advanced Encryption Standard), Triple-DES (Data Encryption Standard) and Blowfish for encrypting communication for TLS, SSH, IPsec and OpenVPN protocol. The given web application was found to be having this vulnerability.</p>			
<b>Risk</b>			
<p>An attacker can exploit this vulnerability to conduct many attacks. A man-in-the-middle attacker could use this flaw to recover some plaintext data. The attacker can steal large amounts of encrypted traffic between TLS/SSL server and client.</p>			
<b>Recommendations</b>			
<p>It is highly recommended to :-</p> <p>Use OpenSSL security update RHSA-2016:1940.</p> <p>Try to avoid the usage of legacy 64-bit block ciphers.</p> <p>Use 128-bit ciphers for encryption in servers and VPNs.</p>			
<b>Affected URL &amp; Parameter</b>			
Throughout the Application			
<b>CVSS Vector</b>			
3.0 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

Target: <https://panchayat.gipl.in/>   Add to sitemap

Status: Ready to scan

---

- Offer SSLv2: **No**
- Offer SSLv3: **No**
- Offer TLS1.0: Yes
- Offer TLS1.1: Yes
- Offer TLS1.2: Yes

**Available ciphers:**

- NULL Cipher (no encryption): **No**
- ANON Cipher (no authentication): **No**
- EXP Cipher (without ADH+NULL): **No**
- LOW Cipher (64 Bit + DES Encryption): **No**
- WEAK Cipher (SEED, IDEA, RC2, RC4): **Yes (not OK)**
- 3DES Cipher (Medium): **Yes (not recommended)**
- HIGH Cipher (AES+Camellia, no AEAD): **Yes (OK)**
- STRONG Cipher (AEAD Ciphers): **Yes (OK)**

Heartbleed: **Not vulnerable**  
 CCS Injection: **Not vulnerable**  
 TLS\_FALLBACK\_SCSV Support: **No**  
 POODLE (SSLv3): **Not vulnerable**  
 Sweet32: **Vulnerable**  
 DROWN: **Not vulnerable**  
 FREAK: **Not vulnerable**  
 LUCKY13: **Potentially vulnerable**  
 CRIME (TLS): **Not vulnerable**  
 BREACH: **Not vulnerable**

Figure 33 - As you can see that the application is vulnerable to TLS Sweet 32.

<b>Observation ID &amp; Title</b>		<b>8.22 Improper Input Validation</b>	
<b>CVSS Risk Rating</b>	Low	<b>Status</b>	Open
<b>Observation Details</b>			
<p>While testing the web application we found out that this application is vulnerable to Improper Input Validation vulnerability. Improper Input Validation can allow an attacker to supply malicious user input that is then executed by the vulnerable web application. Improper input validation can be used to bypass security mechanisms, such as authentication and authorization controls. It can also be used to inject malicious code into the web application, which can be executed by the server or client.</p>			
<b>Risk</b>			
<p>Improper Input Validation allows an attackers to craft the input in a form that is not expected by the rest of the application. This will lead to parts of the system receiving unintended input, which may result in altered control flow, arbitrary control of a resource, or arbitrary code execution, leakage of sensitive information, injections attacks that split database.</p>			
<b>Recommendations</b>			
<p>The Following are the recommendations that should be implemented.</p> <p>Sanitize data enter by user before processing.</p> <p>They can be removed by constrain input, reject known bad input, validate data for type, length and range</p>			
<b>Affected URL &amp; Parameter</b>			
<p>Throughout the Application</p>			
<b>CVSS Vector</b>			
3.6 CVSS:3.0/AV:L/AC:L/PR:N/UI:N/S:C/C:L/I:H/A:L			

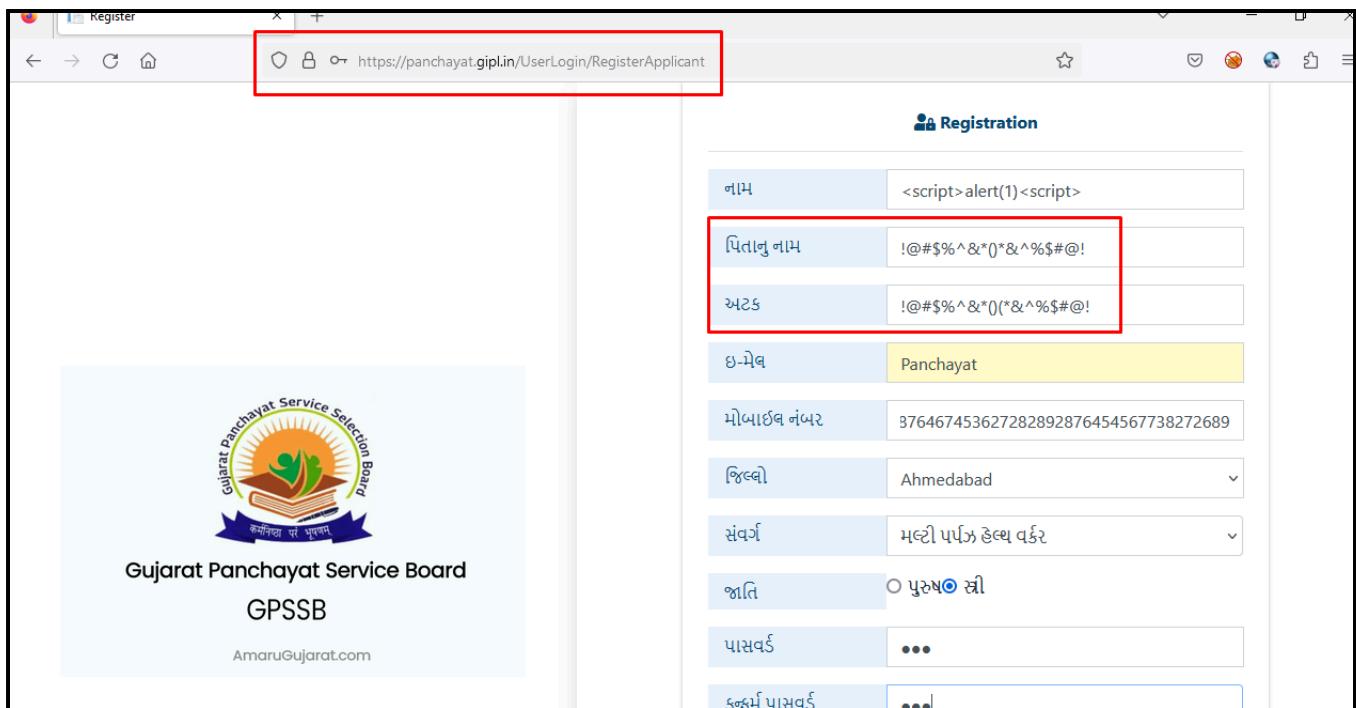


Figure 34 - As you can see that the application is accepting the special characters and those which has to be blacklisted.

## 9. Tools & Reference

### 9.1 Tools

The following tools were used for Application Security Testing

- Burp Suite Proxy
- Mozilla Web Browser with Firebug
- SQL Map
- IBM Rational AppScan
- Some other proprietary scripts and tools were also used.

### 9.2 References

The following tools were used for Application Security Testing

- For application security visit [www.owasp.org](http://www.owasp.org)
  - [http://cert.org/other\\_sources/tool\\_sources.html](http://cert.org/other_sources/tool_sources.html)
  - <http://securityfocus.com/>
  - [http://projects.webappsec.org/w/page/13246978/Threat Classification](http://projects.webappsec.org/w/page/13246978/Threat%20Classification)
- Security advisories