

Lab 8

Terrence Jackson

SDEV 300: Building Secure Python Applications

Professor Howard

May 7, 2024

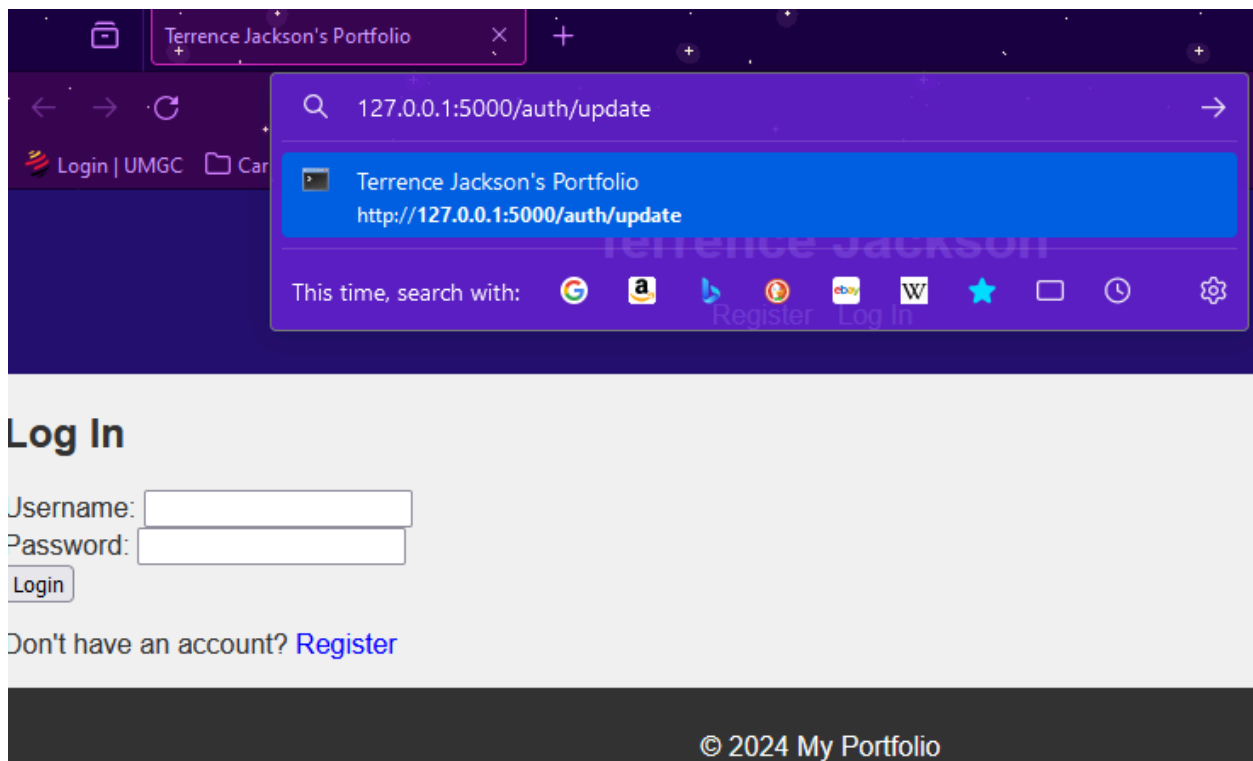
Flask Application

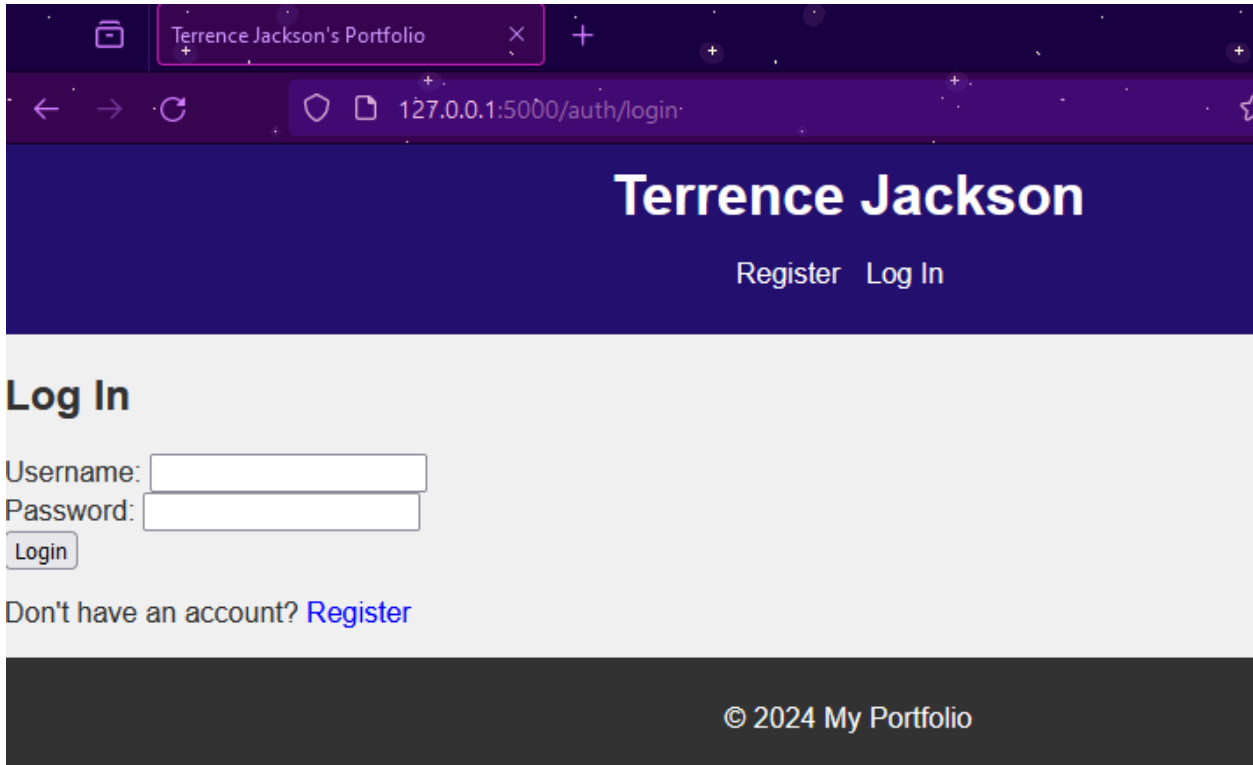
Test Cases

	Input	Expected	Actual	Pass?
1: Update page not available before login	http://127.0.0.1:5000/auth/update	Redirect to log in	Redirect to log in	Yes
2: Can update pass after login	http://127.0.0.1:5000/auth/login User: Tester Pass: ABC123def/*- Click Change Password button	Redirect to password update	Redirect to password update	Yes
3: Different passwords in fields	http://127.0.0.1:5000/auth/update Pass: HJK456mnp)(* Confirm: 12345678912	Flash error message	New Password and Confirm Password fields must match	Yes
4: common pass	Pass: Maverick Confirm: Maverick	Flash error message	Password must not be in commonly known password list.	Yes
5: Previous pass	Pass: ABC123def/*- Confirm: ABC123def/*-	Flash error message	Cannot use same password.	Yes
6: Valid pass	Pass: HJK456mnp)(* Confirm: HJK456mnp)(*	Flash success message	Password successfully changed!	Yes

7: Pass was actually updated	Click Log Out button Log back in User: Tester Pass: HJK456mnp)(*	Successful log in, load landing page	Successful log in, load landing page	Yes
8: Register w/common pass	http://127.0.0.1:5000/auth/register User: User1 Pass: maverick	Flash error message	Password must not be in commonly known password list.	Yes
9: Logger logged	Run all tests	Logs for each login error	Logs for each login error	Yes

Test Case 1:





A screenshot of a web browser showing the login page for 'Terrence Jackson's Portfolio'. The browser's address bar displays '127.0.0.1:5000/auth/login'. The page has a dark blue header with the name 'Terrence Jackson' in white, and links for 'Register' and 'Log In'. Below the header, the title 'Log In' is displayed. There are two input fields for 'Username:' and 'Password:', followed by a 'Login' button. A link for 'Don't have an account? Register' is also present. The footer shows '© 2024 My Portfolio'.

Terrence Jackson's Portfolio

127.0.0.1:5000/auth/login

Terrence Jackson

Register Log In

Log In

Username:

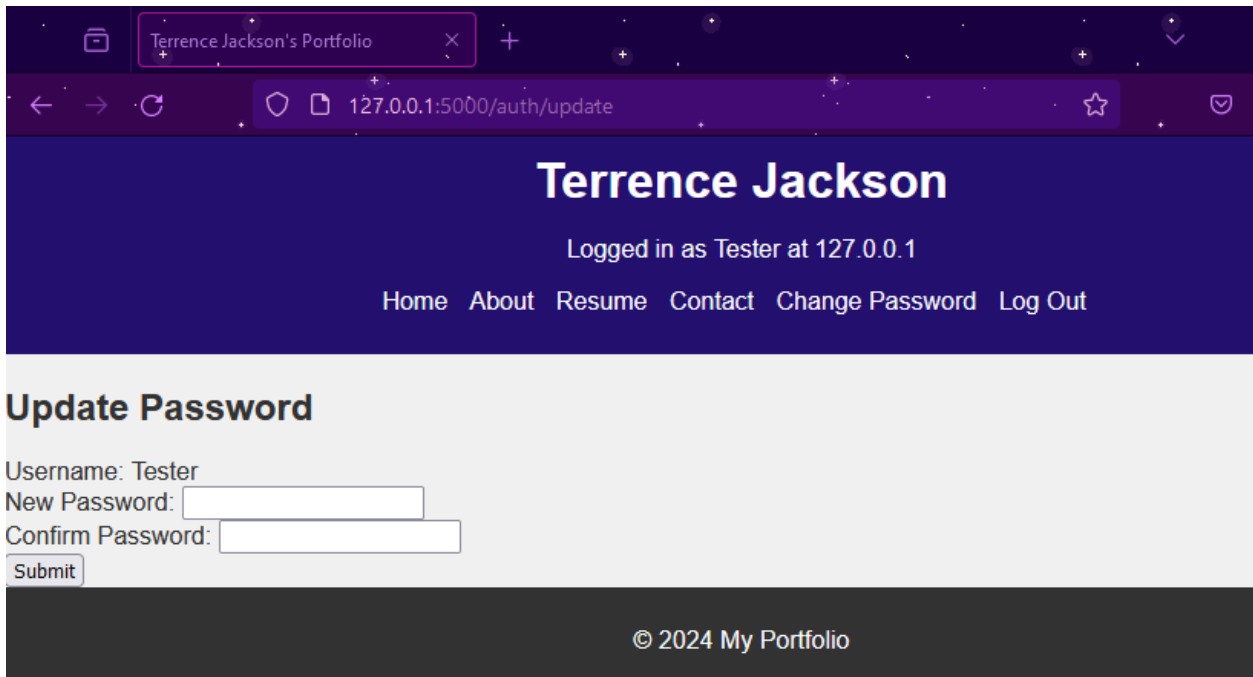
Password:

Login

Don't have an account? [Register](#)

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Test Case 2:



A screenshot of a web browser showing the 'Update Password' page for 'Terrence Jackson's Portfolio'. The browser's address bar displays '127.0.0.1:5000/auth/update'. The page has a dark blue header with the name 'Terrence Jackson' in white, and the text 'Logged in as Tester at 127.0.0.1'. Below the header, there are links for 'Home', 'About', 'Resume', 'Contact', 'Change Password', and 'Log Out'. The title 'Update Password' is displayed. There are three input fields: 'Username: Tester' (pre-filled), 'New Password:', and 'Confirm Password:'. A 'Submit' button is located below the input fields. The footer shows '© 2024 My Portfolio'.

Terrence Jackson's Portfolio

127.0.0.1:5000/auth/update

Terrence Jackson

Logged in as Tester at 127.0.0.1

Home About Resume Contact Change Password Log Out

Update Password

Username: Tester

New Password:

Confirm Password:

Submit

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Test Case 3:

Terrence Jackson

Logged in as Tester at 127.0.0.1

[Home](#) [About](#) [Resume](#) [Contact](#) [Change Password](#) [Log Out](#)

New Password and Confirm Password fields must match

Update Password

Username: Tester

New Password:

Confirm Password:

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Test Case 4:

Terrence Jackson

Logged in as Tester at 127.0.0.1

[Home](#) [About](#) [Resume](#) [Contact](#) [Change Password](#) [Log Out](#)

Password must not be in commonly known password list.

Update Password

Username: Tester

New Password:

Confirm Password:

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Test Case 5:

Terrence Jackson

Logged in as Tester at 127.0.0.1

[Home](#) [About](#) [Resume](#) [Contact](#) [Change Password](#) [Log Out](#)

Cannot use same password.

Update Password

Username: Tester

New Password:

Confirm Password:

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Test Case 6:

Terrence Jackson

Logged in as Tester at 127.0.0.1

[Home](#) [About](#) [Resume](#) [Contact](#) [Change Password](#) [Log Out](#)

Password successfully changed!

Update Password

Username: Tester

New Password:

Confirm Password:

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Test Case 7:

Terrence Jackson

Logged in as Tester at 127.0.0.1

[Home](#) [About](#) [Resume](#) [Contact](#) [Change Password](#) [Log Out](#)

Password successfully changed!

Update Password

Username: Tester

New Password:

Confirm Password:

Submit

Terrence Jackson

[Register](#) [Log In](#)

Log In

Username:

Password:

Login

Don't have an account? [Register](#)

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Terrence Jackson

Logged in as Tester at 127.0.0.1

[Home](#) [About](#) [Resume](#) [Contact](#) [Change Password](#) [Log Out](#)

Welcome to my Portfolio!

Hello and thank you for visiting! I'm Terrence Jackson, a results-oriented software developer with a passion for automating processes, resolving complex issues, and collaborating with cross-functional teams to deliver high-quality solutions. With a strong attention to detail and a commitment to continuous improvement, I strive to uncover patterns, detect anomalies, and make data-driven decisions that drive success.

Feel free to explore my portfolio to learn more about my projects, skills, and experiences. If you have any questions or would like to connect, don't hesitate to reach out via the contact information provided in [Contact](#). Thank you for your interest, and I look forward to connecting with you!

Test Case 8:

[Register](#) [Log In](#)

Password must not be in commonly known password list.

Register

Username:

Password:

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Test Case 9:

```
lab_8 > instance > log.txt > data
1 02/05/2024 | 08:13:32 | IP 127.0.0.1 | Password must not be in commonly known password list.
2 02/05/2024 | 08:36:53 | IP 127.0.0.1 | Cannot use same password.
3 02/05/2024 | 08:37:34 | IP 127.0.0.1 | Cannot use same password.
4 02/05/2024 | 08:49:14 | IP 127.0.0.1 | New Password and Confirm Password fields must match
5 02/05/2024 | 08:50:41 | IP 127.0.0.1 | Password must not be in commonly known password list.
6 02/05/2024 | 08:51:54 | IP 127.0.0.1 | Cannot use same password.
7 02/05/2024 | 08:56:56 | IP 127.0.0.1 | Incorrect Username or Password
8 02/05/2024 | 08:57:56 | IP 127.0.0.1 | User Tester is already registered.
9 02/05/2024 | 08:58:19 | IP 127.0.0.1 | Incorrect Username or Password
10 02/05/2024 | 09:04:24 | IP 127.0.0.1 | User User1 is already registered.
11
```

Pylint

```
lab_8 > lab_pylint.txt
1 ***** Module lab_8.portfolio.routes
2 lab_8\portfolio\routes.py:26:0: R1710: Either all return statements in a function should return an expression, or none of them should.
3
4 -----
5 Your code has been rated at 9.93/10 (previous run: 9.79/10, +0.14)
6
7
```

Pylint was helpful in pointing out a few whitespace errors I would have missed otherwise. Similar to my previous lab, I chose to leave in this final error because it is my intention that only one branch of the logic be followed. In this function, it is only necessary to return a value if the user isn't logged in and needs to be redirected. Any other request is acceptable and should not be affected or manipulated, leading to inconsistent return statements.

Log File

See above for screenshot included in Test Case 9. This file could be useful for noticing potential malicious behavior. For example, if there were numerous errors coming from the same IP address within a matter of seconds, it could be an indicator that someone is using a computer program to brute force attack or DDoS the website.

Password Complexity

Lab 7 included most of the implementation and testing for the password requirements. That is when I implemented the length requirement by checking the size of the string. I also implemented the complexity requirement in lab 7, using `string.ascii_lowercase` etc to compare between the password and the requirements. Both of these requirements were incorporated into one validator function that raises an exception if the password does not meet the requirements. I tested these requirements in the last lab by inputting passwords that were too short, long enough but not complex, and complex but not long enough. When none of these passwords succeeded, I tested a valid password and was successful.

In this lab, the added requirement was the common password list. None of the passwords in the list meet the length requirement. Due to this, I added this new requirement at the beginning of the function. That way, it would check the common list first, before flagging the length. In this way, I could ensure that the common password list was being used effectively, rather than being overshadowed by the length requirement. I tested one of the common passwords in the list, and received an appropriate error message.

Decryption

- a. Decoded message: THIS SDEV 300 CLASE HAS SOME STRANGE REQUESTS.

Cipher: Morse code

- b. Decode message: So this is base64. Now I know.

Cipher: Base64

- c. Decoded message: --- Begin Key ---- I am so clever. No one could possibly figure this out. --- End Key ---

Cipher: Affine Multiplier 1 Shift 14