[CMSC 426] Assignment #3: Flask Web Application with Templates

Due: End of Day, October 20th, 2024

In this assignment, you will put into practice several Flask capabilities for website development, such as templates, error handling, URL handling, forms, etc. You will design a web application using Flask to process course override requests at VCU. Your application will allow students to submit an override request via a web form, and after successful submission, the application should display a confirmation message such as "The course override has been submitted."

Requirements

Your application must meet the following requirements:

- A web form that includes the following fields:

  - Student Name (required)
  - Student ID (required)
  - Course Name (required)
  - Course Number (required)
  - Justification (not-required)

- Basic form validation: Ensure all required fields are filled out. The application should not allow the form to be submitted if any required fields are empty or invalid.

- Error handling: Implement custom error pages for at least two scenarios:

  - 404 Not Found
  - 500 Internal Server Error

- Use *Jinja2* templates. Your application must include at least one base template to manage common elements (e.g., a navigation bar or footer) across different pages.

- Use *flask_bootstrap* for styling. You may choose your own colors and layout, as long as Bootstrap is used effectively to ensure a responsive and consistent design. No broken links or obviously poor design should be present.

Additional Notes

You are free to add more fields or customizations to your form beyond the required fields. However, make sure that your design aligns with the purpose of processing course override requests. You are also encouraged to include client-side validation using HTML5 or JavaScript, but server-side validation is required as a minimum.

Security Vulnerability and GitHub Issues

As part of our code review process, if we find known software security vulnerabilities in your code, we will post them on GitHub as issues for you to address:

- After you commit your code in the repo, clicking on the "Issues" tab in the GitHub repository, you will see a list of issues created for you. Each issue will outline a specific vulnerability that needs to be fixed. *If you don't see any issues it means there were no vulnerabilities so your task is done.*

- Please fix each vulnerability (issue) or if not possible or not necessary, provide a comment in the issue listing why this is the case.

- For each issue, there will also be an embedded link to survey that you must complete. Please make sure to fill out the survey after fixing each issue.

- *Addressing each vulnerability (issue) is part of your assignment grade.*

Submission Instructions

Submission is via GitHub. To accept the assignment, visit `https://classroom.github.com/a/Zi860vbl` and create your personal repository. We will grade your submissions directly on GitHub. There will be no submissions on Canvas. Make sure to test your application thoroughly. Submissions that do not run or are missing key components will lose points. Make sure to address any security vulnerabilities and complete the survey (see above).