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COP3813 HW 6 Report

Purpose

Like homework 4, "Fuel Economy" allows users to perform a simple calculation and gives some background information on why that calculation is interesting. The inspiration comes from an old episode of the Simpsons, when Grampa Simpson expresses his disdain for the metric system. Links to relevant Wikipedia and IMDB pages are given, and the bottom section of the page provides an example problem to solve. Functionally, this website makes use of PHP to convert miles per gallon into rods per hogshead, which are both measurements of fuel economy. The PHP code is executed server-side, so the client does not see how the calculation is done. Besides the PHP, this page maintains nearly identical HTML and CSS from the rest of the pages in the homework portal, and follows the Bootstrap Jumbotron template.

Design

The "Fuel Economy" webpage uses the same Bootstrap template as most other pages in my portfolio, giving it a consistent look and feel. The color scheme is black and white with blue and grey highlights. I added an image to increase visual appeal, but I don't completely like the way it fits into the page when viewed in a large window. However, this is probably the most mobile-ready page I've made so far, as I feel the layout is much better on a smaller screen. Because the conversion tends to end up with very small or large numbers, I used the PHP round() method to format fractional output to 8 significant figures, slightly improving readability.

Development

Tools
- Sublime Text 2 for coding.
- PHP for server-side data processing.
- HTML, CSS, and JavaScript for webpage layout and styling.
- W3Schools and StackOverflow for code examples.
- Bootstrap for template, stylesheet, and JavaScript.
- Favicon-generator.org for favicon.
- OSX Terminal and Cyberduck for SSH and SFTP to LAMP server.
- GitHub repository management.
- Safari (OSX and iOS), Chrome, Firefox for viewing and testing.
- Nu HTML Checker for validation (no errors or warnings found).

The assignment description provided most of the functional PHP and HTML code for this website. Variable and method names were changed, and the conversion calculation is just multiplication or division by 25,280. Output was rewritten to go with the page theme and

improve readability. All of this was fit inside my re-used Bootstrap template and favicon. After some testing, I found that the given method for sanitizing input was not effective. Specifically, if letters and numbers were mixed, the letters were dropped and the calculation was still done. Also, and negative values were allowed, which is not valid in the measurement of fuel economy. I did some research and switched to the built-in PHP filters for input validation and sanitization. Finally, to prevent negative values, a conditional check was added. Overall, this assignment was very easy, but I feel like I should have done more with the PHP.