Develop your project in PHP

Author: *Bernat Ferrer*

Project : *Exoplanet data interface*

BASIC REQUIREMENTS

- PHP querying a csv table with exoplanet data from the nasa api, which is saved and only queried once. If the user logs back, the data is saved and it is asked if he/she wants to use the available data (displaying the creation time) or update it
- Displaying at least two plots from the data. done
- Option for the user to either visualize raw csv data or the plot. done
- Menu bar with different options related with types of plots being displayed (at least 2). done
- Main section with the plot.done
- Navbar with the plot title being displayed. done
- Tests on the fetching from javascript to PHP not done

EXTRA REQUIREMENTS

- More queries and different ways of plotting the data.done
- Settings option for each chart (color, display or not the axis labels, display or not the uncertainty). done
- Tooltips when hovering over data points. Done
- Right section with some info regarding the plot. not done

OVERVIEW REQUIREMENTS

All the basic requirements have been achieved except for the testing of fetching functions, because it has not been regarded . Instead, the testing has been implemented on the data and folder structure, as well as the csv functions in charge of handling the data. On the other hand, three of the four extra requirements have been achieved.

DAILY RECORD

First day - Friday

Tasks: Optimize and polish the design, folder structure, read about NASA api

Problems: No major problems were encountered.

Overview : All the three tasks were solved

Second day-Monday

Tasks: Login and register.

Sub tasks:

- Html structure: background, forms for logging in and registering.
- Login.php : create login logic and find out a proper way to store the data.
- Sign.js : fetch login php on submit completed, validate username and password fields.
- Styles: style the page properly

Problems: Too much time dedicated to styling the page in a specific format, using the library particles.js . That causes a bit of schedule shifting and hence, having to invest a bit of Thursday with the login. The second point is still pending.

Third day - Tuesday

Tasks: finish login, dashboard html using bootstrap, get data from the exoplanets api and fetch it from the javascript file .

Problems : Unable to find a proper bootstrap template satisfying my purposes. Hence , i had to get one and refactor it to my needs

Overview: Although with some complications, all the tasks planned were successfully achieved.

Fourth day - Wednesday

Tasks: Create a plot using the distance vs radius with chart js, develop some csv functions in php that enable to pick columns.
(plot settings).

Comments: Here i found out that the extra requirement for which the user is able to change the plot settings, is indeed necessary, due to the fact that the plot axis may not display the data in a proper way, and hence need to be modified to the user needs if I want to ensure a proper user experience.

Problems: Unwanted behaviour of the menu bar. Difficult to debug because it has been implemented using bootstrap, and hence it is not clear where such behaviour comes from.

Overview: All the requirements have been met, plus part of the extra requirement involving the plot settings. On the other hand, the bug with the menu bar has not been solved. A drawback in using the chart js library has been found, namely that it is more difficult to change options than initially expected. For that, a class named “configChart” has been created. This class enables an easier access and manipulation of a chart configuration

Fifth day - Thursday

Tasks: fix menu sidebar, unit testing for the csv libraries, display plot in different ways, clean code and write documentation.

Problems: When implementing the functionality for displaying a plot in different ways, I found out that when making a new plot in the same element, the older one is not deleted, and as a consequence the new one does not exhibit the desired behaviour. I could find and alternative by resetting the configuration chart , but took me most of the day, and hence not being able to finish some tasks

Overview: Menu bar fixed, and the plot can now be displayed in different ways. On the other hand, I was unable to write part of the documentation and also unable to clean and refactor code . The implementation of the tests is not finished.

Extra - Weekend

Task : finish the documentation, write more queries using the NASA api, finish unit testing

Problems: No major problems were encountered

Overview: Queries implemented for downloading data and information about current astronomy picture of the day. Three classes of unit testing and 13 tests implemented, Documentation finished

LESSONS LEARNED

- Importance of time management
- Api requests using php
- Develop a project using more than one html document with the help of superglobal variables
- Usage of the library chart.js
- Usage of the library particles.js
- Confidence gained and a big improvement when performing unit testing in php. Assertions used for checking that the folder structure is preserved, the permissions of files or the data type of variables.

PROBLEMS ENCOUNTERED

- Time management. Because my initial design had some flaws, I spent some time in the third and fourth days rethinking some parts of the project and hence, spending time and effort without a clear goal in mind.
- Chart js. Although plotting is straightforward, customizing the plot settings can be tricky due to its extensive set of options.
- Responsiveness: Because the charts, as well as the images may have different sizes, it was difficult to establish a framework where the elements would be displayed properly and responsive to changes in screen size.