Coursework Report

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Abstract

This report will talk you through the web application Solar Explorer. This project was set for coursework one of Advanced Web Technologies and here you will find details on the design of the web application, any enhancements made along with the evaluation etc.

Keywords – Solar Explorer, Web App, Advanced Web Technologies, SET09103

1   Title

Solar Explorer

2   Introduction

Solar Explorer is a web application designed for young adults of school age who may be learning about our solar system. This web app was designed to be simple to use and full of quick facts about the Sun, its planets and their moons within our solar system.

2.1   Menu Layout

By using a simple drop down menu across the top of each page, the users can easily navigate their way around the web app and find the useful information they are looking for. If a user wishes, the can also pull down a list of all planets by typing into the address bar of their browser window the URL or the web app followed by planetlist or moonlist for example: http://set09103.napier.ac.uk:9135/planetlist.

2.2   Re directions

Another feature of this web app is the redirects for pages that could be confused if a user tried to type in the URL manually. For instance, the Moon is usually referred to as The Moon, so if a user happens to try and type http://set09103.napier.ac.uk:9135/themoon then they would normally be met by an Error Page Not Found. Instead, we have included a redirect within the apps code so that the user would be directed to http://set09103.napier.ac.uk:9135/moons/moon.html/ instead of the 404 Error and the same applies with the Sun too. For this the user would be directed to http://set09103.napier.ac.uk:9135/stars/sun.html/

2.3   Working URL's

The working URLS within this app at the moment are the main page - http://set09103.napier.ac.uk:9135, the Sun page /stars/sun.html/, Mercury page /planets/mercury.html/ and the Moon page /moons/moon.html/.

2.4   Customer Error Codes

The last feature of this app are custom error codes. We choose the most common error codes and wrote custom error messages for them such as 404 page not found. These can be seen within the app.py file.

2.5   GET Request

Users of the web app can pull a list of all planets or moons by simply typing the main page URL along with /moonlist or planetlist. When this list is requested, the user will see a bullet point list of all objects and links to those object pages.

2.6   Main Page Screenshot

The following is a screenshot from the current working model of the Solar Explorer web app -
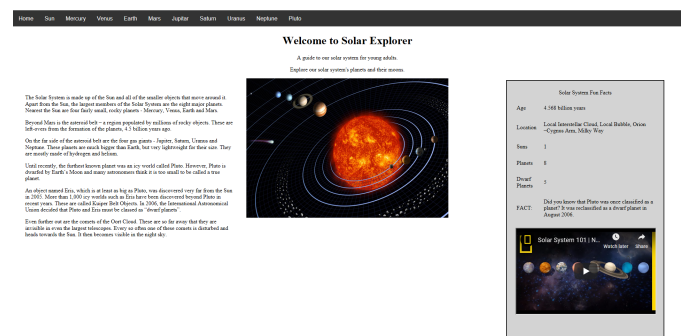

Figure 1: **Main page screenshot**

3   Design

This web app is structured as it is as it was felt that an easily navigated web app for the targeted user demographic would be most useful. Almost every website uses drop down menus of some sort and by setting it this way, we can easily see all the stars in the solar system followed by the planets and within each planets menu, their corresponding moons.

3.1   URL Hierarchy

The URL hierarchy is set out in the same way as the navigation. Within the templates folder we have the index page (Main page) of our web app and we then have three sub folders. One for stars, another for planets and then another for moons. Keeping it organized this way will allow for easier changes or additions to be made to our web app in the future.
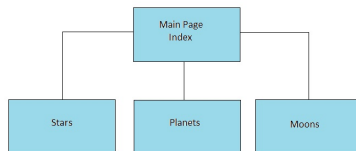
Figure 2: **URL hierarchy map**

4   Enhancements

The first main enhancement would be to finish off all other moons and planets pages as for now there are only a select few working to demonstrate how this app functions.

4.1   Add Search Function
In the future it would be an idea to add a search function to this app so that users can also search for a planet or moon instead of having to click through the menus looking for something specific. If a search function was added then the user would simply be able to type in the name of the object they are looking for then submit and they web app would then give page suggestions corresponding the the user search.

4.2   Include use of NASA API
Another idea for enhancing the app would be to add in usage of the NASA API to allow users to pull down information from NASA that relates to their searches also. This can vastly improve the web app experience and make it a lot more informative and useful. One particular part about the NASA API that would come in useful would be the near earth asteroids. Every day this is updated and would allow users to check what asteroids are passing through our solar system close to earth. Users can see they name, size, speed and how close the asteroids are to Earth.

5   Critical Evaluation

Looking at the critical evaluation stage for the web app, the feature that could work better would be the navigation layout. Instead of having the menu bar having the home link immediately followed by the Sun and then planets, it would perhaps make more sense having this redesigned in some way so that users are taken on a tour of some sort starting with the sun then followed by the planets. The interactive part would the come from the user clicking images of planets or moons to bring up information about the objects selected. Though doing it this way would require a lot of graphical animation knowledge.]

However, while saying that, the current navigation does allow users to navigate to any planet or moon that they wish and explore in a fun way at the same time. It is just felt that the app lacks a more interactive approach.

The layout of each page was intended to look the same throughout the app, this allows for easy editing of any page within the app and also makes for easier reading too. Though it is felt that better knowledge of HTML and CSS from the creators side would have allowed for something more interesting to be done.

6   Personal Evaluation

Going into this task the creator of this web app knew very little regarding HTML and CSS and knew nothing about Python Flask. Combining the lot to make a functioning web app seemed like a very daunting task but one that has started to take shape and help improve the knowledge of the creator very well.

Studying the module workbook given out allowed for learning new skills such as routing and redirecting etc. Practicing what was in the book and adapting it to different solutions proved to be successful to allow for a submitted prototype app.

Going back to learning HTML and CSS was something else to overcome this coursework outcome. Using sites like W3 Schools and buying a book from Amazon allowed for this to be done and of course referencing old coursework too.

7   References

[1] Learning HTML - https://www.w3schools.com/ [2] Book - HTML and CSS design and build websites by Jon Duckett [3] Free to use Images - Nasa Images for page - https://www.nasa.gov/multimedia/imagegallery/index.html [4] Solar System, Sun, Planets and Moons info with help of - https://www.wikipedia.org/