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Web Project Proposal

For our web project, we will use the exoplanet data set found at http://exoplanet.eu/catalog/. The exportable data table includes many more columns than the one shown on the website, including information on planet name, mass, radius, orbital elements, discovery date and method, and information on the star it orbits. A more extensive version of this data set can be found at http://exoplanet.eu/catalog/all_fields/. But even this version doesn't encompass all that is available in the catalog.

We assume the ability to use this data based on multiple elements. First, there are multiple download links on the catalog page, implying that one of the main purposes of the site is to allow others access to the information. Second, the readme page available at http://exoplanet.eu/readme/ appears to assume that astronomers will use the information for their own purposes. We have also emailed the team in charge of exoplanet.eu to verify our right to the information.

Multiple audiences may be interested in using our web page. The main categories that we will address are professional astronomers and researching students, as these categories are the most likely to use the web page and have different enough interests to warrant specific attention to both audiences.

Professional astronomers will typically be more interested in the quantitative data of one exoplanet, such as orbital elements and position. Their goals will center around finding out this information and using it to further their own research, understanding, and grasp on modern exoplanets as they will already have familiarity with the material they are studying.

Researching students may be more interested in patterns between exoplanets, and depending on field of study may focus on radius, mass, distance from star, chemicals, or detection method. Their goals will center around learning more about exoplanets and becoming more familiar with some of the terminology and obtaining further knowledge on exoplanets as a whole.

After analysis on our audience, we created several different user stories and scenarios. From those we extracted the most common and most necessary requirements, both functional and non-functional.

Functional requirements:
- search function allowing for search of one or multiple variables
- display table queried from database
- allow user to choose which columns to show on table
- allow user to sort table by column
- allow user to return to search page

Non-functional requirements:
- able to return database results within 2s
- easily readable table
- accessible using multiple forms of technology
- easily understandable search fields

Then we looked at the user stories again to reach a conclusion on what the best way to go about meeting those requirements was, from a feature standpoint. We will utilize search conventions by having search fields, an intuitive way for our audience to interact with our database. We also prioritized a description of each column, allowing users to know what units are in each and more information on what the columns represent, for our target audience of researching students. Then we decided that a toggle feature would assist in research and information that both professional astronomers and students would want to access. This feature would allow for users to search a range of values, as it would be uncommon for them to be able to know exactly the magnitude of a planet that they want information on.

Prioritized features:
- Well labeled search fields
- A valid and descriptive explanation and units for columns in table as well as what each column is signifying
- A tool to search by range for multiple variables (ex. min/max inputs for magnitude)

Some of these requirements and features may shift as we learn more about the audience and the database itself, but these are the requirements we will hit to have a successful exoplanet database search engine.

We have created mockups of the front page and results page. The front page will also be the search page, since that is the main purpose of this web page. Both pages will have the logo in the top left and links to the "About the data" and "About us" pages. We have chosen to not include the about pages in the mockups as the primary structure of those will be text.

The search/home page will have multiple search fields that the user can input in only one or in many, as desired. There is also an option to "show all on table" which is a way for the user to select whether or not they want to only show the default search table (for the category that they are searching) or if they would like all the information that has been gathered on one star to be shown.

Shown left: Mockup of Exoplanet Database home page

The results page will be very simple and only show the table with the columns of information that the user wishes. The heading on the website will stay the same so as to not confuse a user after they search. The table will be organized based on their particular query or a column of the user's choosing.

Shown right: Mockup of Exoplanet Database results page