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CS 172

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Project Proposal

For my final project, I'm thinking creating a periodic table. Not sure exactly what my plan is yet, but I think I can design it in a way that applies concepts we've learned in this class. As of now, I'm thinking of breaking this up into two parts: displaying the table, and giving the user access to the properties of each element.

For the display aspect: I would break this down into displaying the borders, and also creating an array of strings, and somehow incorporating these two parts so that the grid of strings nicely lines up with the grid of borders. Since the periodic table as one entity is constant, I don't think I'll need to create a class for it.

For allowing the user to access the properties of each element: There are a couple ideas I have. One thing that came to mind was creating a class for each element that would each contain get functions for the properties. These properties will include things like molecular weight, state of matter, atomic number, radioactivity, and perhaps a get function that could output a Lewis Dot structure of the element to give a visual of how many valence electrons it has. However, not only would it be tedious to have to create dozens of classes, I feel like this wouldn't be too challenging. For this reason, I've also thought about creating classes based on the different groups throughout the table (alkili metals, halogens, nobel gases, etc.), this would make the project a little more challenging and less repetitive. Each class would have a string elementname, and other properties of the element as private data field members. Each class' constructor could take a string argument that would be the element name (abbreviated or spelled out). Based on the users input the get functions would display the properties of the element. I would also include other mutator functions with if-statements in these classes. These mutator functions would change the private variables that are the properties of the element depending on what element the user entered.

The main challenge I'm anticipating is being able to format the grid of borders and the grid of arrays so that they line up smoothly and output a clear and neat display. I also think it will be tough to output a Lewis Dot structure of an element in a neat manner.