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The problem I solved was creating a converter that converts html to latex. This allows me to create pdfs off of a website's programming. It also helped me learn more about html, latex, and lex.

My approach to solving this problem consisted of me doing research on all three languages, as I have no prior experience with lex or latex, and a very small amount in html. This included assignment readings, online videos, and useful manual websites.

I decided to go head down (Pun intended) by starting with the headers. I used the example, and practically copied and pasted it for header 2 and header 3. I simply replaced and manipulated some of the strings to fit them.

Next I started to work on pre. I used something similar to how the comment was shown. I used BEGIN PRE and had it find everything, including whitespace, after <pre>. This only stopped once </pre> was found, and whitespace would stop being picked up. I also had `\begin{verbatim}` with <pre> and `\end{verbatim}` with </pre>.

Next up was the PARA, which was relatively easy but long. Figuring out how preworked helped with creating para. Para starts with <p>. Para just has it so that every character is typed until we discover a tag. If a tag is found, the latex version of it will be printf. Once </p> is found, it no longer tries to use the tags.

Finally, the unorganized and organized lists. Originally, I create a BEGIN UL and BEGIN OL for both of them, but I kept running into trouble, as I also moved into BEGIN LI and couldn't figure out how to get back into the correct list type. Eventually, I decided I didn't need UL or OL, I just needed to type `\begin{***}` whenever <ul> or <ol> show up and `\end{***}` for </ul> and <ol>. <li> starts an item by typing `\item`, and BEGIN LI starts. I copied and pasted PARA for this, and used it for tags within LI. Then, when </li> comes, we leave LI.

I debugged my system by looking at what errors I was giving. If it was a syntax error, I knew that my code didn't work because of a misunderstanding of lex. If I had an error when testing, it would be a misunderstanding of latex or html. I adjusted the test.html in order to filter certain parts of my code to determine which parts were messing up, and could typically decipher into one of the different tags.

My biggest issue I had was lack of knowledge, and having to learn all three different languages. The issue is not too difficult to fix, just simply time consuming, as there is a lot to learn about them.

My biggest issue while writing had to be with both pre and lists. Pre simply because that is when I started using the BEGIN function, which is the syntax I have the most difficulty understanding, and lists, as I couldn't figure out how to connect li with ul and ol. I had to use an alternative method to solve my lists problem, and I continued to have trouble with pre til the end of the project.

I also had difficulty with much of the syntax, as a small typo can be difficult to find sometimes. My debugging methods very much helped me find the problems once I discovered them, however.