CS 191 \LaTeX{} Notes

Class 1
• HTML stands for hypertext markup language
• a markup language is a system for embedding tags or codes into a plain text document
• these tags tell a renderer how to display the document’s contents
• for example, the HTML on the left might be rendered by a browser to appear as seen on the right

```html
<h1>A Heading</h1>
<p>This is a paragraph.</p>
```

A Heading
This is a paragraph.
<h1>A Heading</h1>

<p>This is a paragraph.</p>

• the tags tell the renderer what kind of text it is
• the tags do not tell the renderer how to display the text
• the renderer (with hints from CSS) makes its own decisions on how to display

• the author provides the content
• the renderer controls the appearance
• HTML and CSS were invented for displaying documents in browsers
• they are the right tool for the job
• we need to use a tool for creating technical PDF documents in the computer science domain
• the right tool for that job is \textsc{\LaTeX}

• \textsc{\LaTeX} is pronounced with a long or short A in the first syllable, and the final syllable rhymes with “deck”
• the final letter is not the Roman character X, it is the Greek letter Chi, the equivalent of Roman K
The WYSIWYG Problem

- WYSIWYG editors such as Word are menu systems
- the only commands you can give are the ones in the menus
- if there isn’t a button for it, you can’t do it

- a complete markup language, such as SGML or \LaTeX, allows the user complete control down to the individual pixels (if desired)
Logical Design

- however, while you can micromanage your document down to the pixel
- you should not even think of doing that
- rather, you use \LaTeX to specify the logical design of your document
- then let \LaTeX make it look good

- by contrast Word makes it hard to specify the logical design
- and easy to mess around with local visual elements
- this results in a jumbled, disorganized document
- the reader thinks that the author’s brain are similarly jumbled and disorganized
- \LaTeX makes it easy to specify an organized, logical layout, freeing the author to concentrate on the content, not on the appearance
A LaTeX Example

• use overleaf.com for an example
**LaTeX Resources**

- [https://www.latex-tutorial.com/tutorials/](https://www.latex-tutorial.com/tutorials/)
- read the sections in the left column below
- read the sections in the right column if you wish

<table>
<thead>
<tr>
<th>Required Sections</th>
<th>Optional Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Your first document</td>
<td>00 Installation</td>
</tr>
<tr>
<td>03 Packages</td>
<td>02 Document structure</td>
</tr>
<tr>
<td>04 Math</td>
<td>13 Source code highlighting</td>
</tr>
<tr>
<td>05 Adding pictures</td>
<td></td>
</tr>
<tr>
<td>09 Tables</td>
<td></td>
</tr>
<tr>
<td>12 Drawing graphs (tikz)</td>
<td></td>
</tr>
</tbody>
</table>