HTML
An Initial Overview

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What is HTML?

HTML stands for Hyper Text Markup Language. Webpages are written using HTML, CSS, Javascript, etc. Today we will focus on HTML.

HTML files are stored on a server and when a web browser visits a website, the browser downloads the html file, parses the contents, and renders the website according to the html instructions.
**HTML Tags**

**HTML tags** are keywords telling the browser how to handle certain instruction. The syntax is,

```html
<tag>content</tag>
```

This tells the browser that *content* should be interpreted as *tag*. Notice the slash in the end tag.

Tag can have attributes that modify their behavior. These always go in the start tag. You will see examples of attributes as we progress.

```html
<tag att1="..." att2="...">content</tag>
```
The following is a simple example of an html document.

```html
<!DOCTYPE html>
<html>
<body>
<h1> My First HTML Document </h1>
<p> You can insert text in these paragraph tags. </p>
<p> Add as many paragraphs as you like. </p>
</body>
</html>
```

Be sure to include the DOCTYPE tag. Put anything you want to display between the **body** tags.
Header and Body

The following shows the structure of an html document

```html
<html>
<head>
...
Put meta information here
...
</head>

<body>
...
Put display content here
...
</body>
</html>
```
Header Information

The header can contain many items, but for now you may want to use the title tag to add a title to your page,

```html
<head>
<title>Patrick’s Page</title>
</head>
```

This will tell the browser the name of your page so it can display it on the tab bar.
There are several headings available to you for your HTML document. Using different headings adds organization to your site. All the headings have similar tags.

```html
<h1> Heading 1 </h1>
<h2> Heading 2 </h2>
<h3> Heading 3 </h3>
```

There are 6 different heading styles. Search engines will use headings to index the content of your page. For emphasized separation, use the horizontal tag which produces a horizontal line on your document.

```html
<p> This is a paragraph </p>
<hr>
```
We’ve already seen the paragraph.

<p> This is a paragraph </p>
Links and Images

To add a hyperlink to your site, use the following syntax,

\[<a \text{href}="http://mason.gmu.edu/~poneil">Click this link</a>\]

Be sure to include \textit{http} or the browser will assume you are referencing a local file. To add an image to your site, use the following syntax,

\[<\text{img src}="image.png" \text{alt}="text" \text{width}="104" \text{height}="142">\]
Whitespace

The `<br>` tag produces a line break. This can be very useful since HTML does not care about whitespace. If you have a block of text which you want to follow your specific formatting, you can use the `pre` formatting tag,

```html
<pre>
This will add new lines, wherever I put new lines. It will not reformat what I have written.
</pre>
```
So far we have covered,

- **Title**: `<title>...</title>` (Use in `<head>`)  
- **Headings**: `<h1>...</h1>`, `<h2>...</h2>`, `<h3>...</h3>`  
- **Paragraphs**: `<p>...</p>`  
- **Links**: `<a href="...">Click Text</a>`  
- **Images**: `<img src="..." alt="..." width="..." height="...">`  
- **Line Breaks**: `<br>`  
- **Preformatted Text**: `<pre>...</pre>`
To add comments to your HTML file, use the following syntax,

<!-- This is a comment -->

<!-- And this is a multi-line comment -->

Note that like comments in all programming languages, the compiler (in this case, the browser) will ignore the comment. These are only to help you.
If you want to add emphasis to your document, you may want to format your text. Here are some examples,

<p>This is <b>bold text</b>. This is <i>italics text</i>. This is <em>empasized</em>. This is <strong>strong text</strong>.</p>

There are quite a few other formatting options.
Stylizing with CSS

Using only HTML will leave your webpage looking boring. To add life to your site, you need to use CSS. We could easily devote another workshop to CSS so we will only cover some basics here.

Usually, CSS instructions are placed in a separate CSS file. We will not be doing that here. Instead, we will use the **style** tag in the head.

```html
<head>
<style>
body {background-color:green}
h1 {color:white}
</style>
</head>
```
You can also add CSS style inline using the `style` attribute.

```
<body style="background-color:green">
```

You can use CSS to change fonts, including size and color, as well as align text.
I will now walk you through how to use the GMU Mason server to host your site. To learn more about producing high quality webpages, I suggest you learn more about...

- **HTML**: We just scratched the surface.
- **CSS**: This adds style to your webpages.
- **Javascript**: This allows you to run code in browser.
- **SQL and PHP/Python**: Learning these tools will allow you to make a highly interactive website.

Web development is an enormous field and is changing rapidly. Keep in mind that standards will change over time.