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HTML (HyperText Markup Language)

CIS 1202

Topics

1. What is HTML
2. Boiler Plate
3. Tags
4. Attributes
5. Elements

What is HTML?

- **HyperText Markup Language** is the standard markup language used to create web pages. Along with CSS, and JavaScript, HTML is a cornerstone technology used to create web pages, as well as to create user interfaces for mobile and web applications.
- Web browsers can read HTML files and render them into visible or audible web pages. HTML describes the structure of a website semantically and, before the advent of Cascading Style Sheets (CSS), included cues for the presentation or appearance of the document (web page), making it a markup language, rather than a programming language.



“HTML - Text Editor”

An html editor is a computer program for editing html codes. Examples are the following:

Notepad, Notepad++, Dreamweaver, Sublime, VS Code, Atom and etc.



To run your web page

“HTML - Browsers”

Examples are the following:

Microsoft Edge, Mozilla Firefox, Google chrome, Safari and others

HTML- Basic Starter Document

```
<!DOCTYPE html>

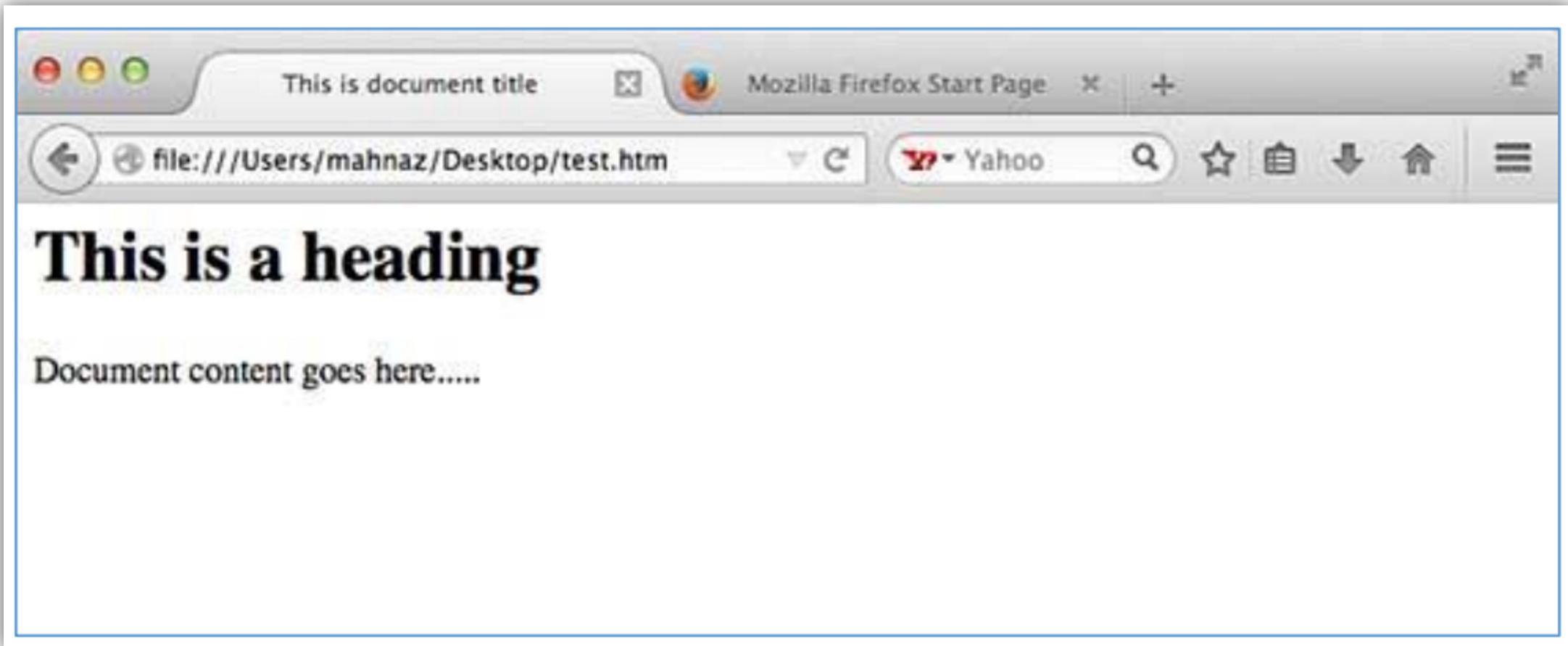
<html>
  <head>
    <title>This is document title</title>
  </head>
  <body>
    <h1>This is a heading</h1>
    <p>Document content goes here.....</p>
  </body>
</html>
```

Starter HTML or "Boiler Plate"

- **<!DOCTYPE html>** tells your browser to use the latest version of HTML, in this case HTML5. This is not considered a Tag. If you'd prefer to use HTML4 or something lower this is where you would define that.
- **<html>** represents the root of the HTML document, also acts as a container of all other HTML elements
- **<head>** contains the metadata of the webpage, or the "data" that describes "data". Typically contains the title, character set, styles, scripts, most of which are not displayed.

- **<meta charset="UTF-8">** Defines the character encoding to be used. UTF-8 is the most common character set used today. Backwards compatible with ASCII, and can represent all the characters of modern languages, UTF-8 also includes non-spoken languages like music notes, mathematical symbols, etc.
- **<body>** everything inside the body will be the content that will be shown or "rendered" on the webpage

Output in Browser



“Introductory Basic HTML Tags”

These tags are enclosed within angle braces **<Tag Name>**. Except few tags, most of the tags have their corresponding closing tags.

Tag	Description
<!DOCTYPE...>	This tag defines the document type and HTML version.
<html>	This tag encloses the complete HTML document and mainly comprises of document header which is represented by <head>...</head> and document body which is represented by <body>...</body> tags.
<head>	This tag represents the document's header which can keep other HTML tags like <title>, <link> etc.
<title>	The <title> tag is used inside the <head> tag to mention the document title.
<body>	This tag represents the document's body which keeps other HTML tags like <h1>, <div>, <p> etc.
<h1>	This tag represents the heading.
<p>	This tag represents a paragraph.

“HTML - TAGS”

An HTML tag is a code that describes how a web page is formatted.

HTML Attributes

Attributes provide additional information about html elements.

“HTML - ELEMENTS”

HTML elements are written with a start tag, with an end tag, with the **content** in between:

HTML – ELEMENTS

Start Tag	Content	End Tag
<p>	This is paragraph content.	</p>
<h1>	This is heading content.	</h1>
<div>	This is division content.	</div>

```
1  <!DOCTYPE html>
2  <html>
3  |   <head>
4  |       <title>Elements</title>
5  |   </head>
6  |
7  |   <body>
8  |
9  |       <p>Element Example</p>
10 |       <h1>Element Example</h1>
11 |
12 |   </body>
13 |</html>
```

Nested HTML Elements

HTML element
inside another HTML
element

```
<html>
  <head>
    <title>Elements</title>
  </head>

  <body>
    <h3> ELEMENTS </h3>
    <p>Element Example</p>
    <b>Element Example</b>
    <h3> NESTED ELEMENTS </h3>
    <h3>This is <i>italic</i> heading</h3>
    <p>This is <u>underlined</u> paragraph</p>
  </body>
</html>
```



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HTML – FORMATTING TAGS

If you use a word processor, you must be familiar with the ability to make text **bold**, **italicized**, or **underlined**; these are just three of the many options available to indicate how text can appear in html.

Heading Tags

Any document starts with a heading. You can use different sizes for your headings. HTML also has six levels of headings.

<h1>, <h2>, <h3>, <h4>, <h5>, <h6>

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Heading Example</title>
</head>
<body>
<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
<h4>This is heading 4</h4>
<h5>This is heading 5</h5>
<h6>This is heading 6</h6>
</body>
</html>
```

This will produce the following result:

This is heading 1

This is heading 2

This is heading 3

This is heading 4

This is heading 5

This is heading 6

<p>

The tag offers a way to structure your text into different paragraphs. Each paragraph of text should go in between an opening and a closing tag as shown below in the example:

Example

```
<!DOCTYPE html>  
  
<html>  
  
<head>  
  
<title>Paragraph Example</title>  
  
</head>  
  
<body>  
  
<p>Here is a first paragraph of text.</p>  
  
<p>Here is a second paragraph of text.</p>  
  
<p>Here is a third paragraph of text.</p>  
  
</body>  
  
</html>
```

This will produce the following result:

```
Here is a first paragraph of text.  
Here is a second paragraph of text.  
Here is a third paragraph of text.
```



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Whenever you use the element, anything following it starts from the next line.

The
tag has a space between the characters “br” and the forward slash.

```
<p>Hello<br />  
You delivered your assignment on time.<br />  
Thanks<br />  
Mahnaz</p>  
</body>  
</html>
```

This will produce the following result:

```
Hello  
You delivered your assignment on time.  
Thanks  
Mahnaz
```

<center>

You can use <center> tag to put any content centered horizontally.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Centring Content Example</title>
</head>
<body>
<p>This text is not in the center.</p>
<center>
<p>This text is in the center.</p>
</center>
</body>
</html>
```

This will produce the following result:

This text is not in the center.

This text is in the center.

<hr/>

Horizontal lines are used to visually break-up sections of a document. The **<hr /> tag** creates a line from the current position in the document to the right margin and breaks the line accordingly.

Example

```
<!DOCTYPE html>  
  
<html>  
  <head>  
    <title>Horizontal Line Example</title>  
  </head>  
  <body>  
    <p>This is paragraph one and should be on top</p>  
    <hr />  
    <p>This is paragraph two and should be at bottom</p>  
  </body>  
</html>
```

This will produce the following result:

This is paragraph one and should be on top

This is paragraph two and should be at bottom



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In cases, where you do not want the client browser to break text, you should use a nonbreaking space entity instead of a normal space.

 and

The element defines **bold** text, without any extra importance.

Example

```
<p>This text is normal.</p>  
<p><b>This text is bold</b>.</p>
```

The element defines **strong** text, with added semantic "strong" importance.

Example

```
<p>This text is normal.</p>  
<p><strong>This text is strong</strong>.</p>
```

<i> and

The <i> element defines *italic* text, without any extra importance.

Example

```
<p>This text is normal.</p>  
  
<p><i>This text is italic</i>.</p>
```

The element defines *emphasized* text, with added semantic importance.

Example

```
<p>This text is normal.</p>  
  
<p><em>This text is emphasized</em>.</p>
```

<small>

The <small> elements defines small txt

Example

```
| <h2>HTML <small>Small</small> Formatting</h2>
```

<mark>

The <mark> element defines marked or highlighted text:

Example

```
<h2>HTML <mark>Marked</mark> Formatting</h2>
```


The elements defines deleted (removed) text.

Example

```
<p>My favorite color is <del>blue</del> red.</p>
```

<ins>

The <ins> defines inserted (added) text.

Example

```
<p>My favorite <ins>color</ins> is red.</p>
```



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<sub>

- The subscript element defines _{subscripted} text.

Example

```
<p>This is <sub>subscripted</sub> text.</p>
```

<sup>

- The **superscript** element defines superscripted **text**.

Example

```
<p>This is <sup>superscripted</sup> text.</p>
```

<q>

The quotations element defines a short quotation.

Example

```
<p>WWF's goal is to: <q>Build a future where people live in harmony with nature.</q></p>
```

Browsers usually insert quotation marks around the <q> element.

<blockquote>

The block quote element defines a long quoted section.

Example

```
<p>Here is a quote from WWF's website:</p>
<blockquote cite="http://www.worldwildlife.org/who/index.html">
For 50 years, WWF has been protecting the future of nature.
The world's leading conservation organization,
WWF works in 100 countries and is supported by
1.2 million members in the United States and
close to 5 million globally.
</blockquote>
```

Browsers usually indent <blockquote> elements.

<abbr>

This element defines an abbreviation or an acronym.

Example

```
<p>The <abbr title="World Health Organization">WHO</abbr> was founded in 1948.</p>
```

Marking abbreviations can give useful information to browsers, translation systems and search-engines.

<address>

This element defines contact information (author/owner) of a document or article.

Example

```
<address>
Written by John Doe.<br>
Visit us at:<br>
Example.com<br>
Box 564, Disneyland<br>
USA
</address>
```

The <address> element is usually displayed in italic. Most browsers will add a line break before and after the element.

<cite>

This element defines the title of a work.

Example

```
<p><cite>The Scream</cite> by Edvard Munch. Painted in 1893.</p>
```

Browsers usually display <cite> elements in italic.

<bdo>

This element defines bi-directional override.

Example

```
<bdo dir="rtl">This text will be written from right to left</bdo>
```

The <bdo> element is used to override the current text direction:

HTML Attributes

- HTML elements can have **attributes**
- Attributes provide **additional information** about an element
- Attributes are always specified in **the start tag**
- Attributes come in name/value pairs like: **name="value"**

Attribute Examples

href

HTML links are defined with the `<a>` tag. The link address is specified in the `href` attribute:

```
<a href="http://www.youtube.com">This is a link </a>
<a href="facebook.com">Facebook</a>
<a href="about_us.html">about us</a>
```

- Absolute URL - points to another web site
`href="http://www.example.com/default.html"`
- Relative URL - points to a file within a web site
`href="/default.html"`
- Link to an element with a specified id within the page
`href="#top"`
- Other protocols
`https://`, `ftp://`, `mailto:`, `file:`, etc..
- A script
`href="javascript:alert('Hello');"`

source and size

HTML images are defined with the **** tag.

The filename of the source (**src**), and the size of the image (**width** and **height**) are all provided as **attributes**:

```

```

Source attribute

Image
filename

Image size



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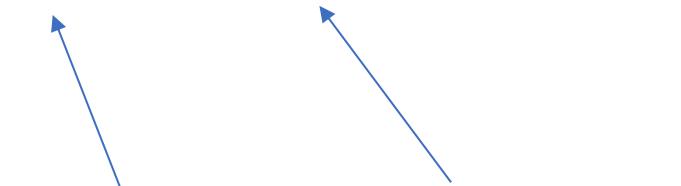
alt

The **alt** attribute specifies an alternative text to be used, when an HTML element cannot be displayed. For example, low of internet connectivity.

```

```

Alt attribute Alt value



lang

The document language can be declared in the `<html>` tag.

The language is declared in the **Lang** attribute.

Declaring a language is important for accessibility applications (**screen readers** and **search engines**)

```
<!DOCTYPE html>
<html lang="en-US">
<body>
  <h1>My First Heading</h1>
  <p>My first paragraph.</p>
</body>
</html>
```

The first two letters specify the language (en). If there is a dialect, use two more letters (US).



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title

HTML paragraphs are defined with the **<p>** tag.

In this example, the **<p>** element has a **title** attribute. The value of the attribute is "**About W3Schools**":

Example

```
<p title="About W3Schools">
W3Schools is a web developer's site.
It provides tutorials and references covering
many aspects of web programming,
including HTML, CSS, JavaScript, XML, SQL, PHP, ASP, etc.
</p>
```



style

HTML Styles

I am red

I am blue



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Setting the style of an HTML element, can be done with the **style attribute**.

The HTML style attribute has the following **syntax**:

```
style="property:value;"
```

The **property** is a CSS property. The **value** is a CSS value.

background-color

This property defines the background color for an HTML element:

Example

```
<body style="background-color:lightgrey;">  
  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>  
  
</body>
```

This example sets the background for a page to “lightgrey”:

color

This property defines the text color for an HTML element.

Example

```
<h1 style="color:blue;">This is a heading</h1>
<p style="color:red;">This is a paragraph.</p>
```

font-family

This property defines the font to be used for an HTML element.

Example

```
<h1 style="font-family:verdana;">This is a heading</h1>
<p style="font-family:courier;">This is a paragraph.</p>
```

font-size

This property defines the text size for an HTML element.

Example

```
<h1 style="font-size:300%;">This is a heading</h1>
<p style="font-size:160%;">This is a paragraph.</p>
```

text-align

This property defines the horizontal text alignment for an HTML element.

Example

```
<h1 style="text-align:center;">Centered Heading</h1>
<p>This is a paragraph.</p>
```

Values:

- left – align the text to the left
- right – align the text to the right
- center – centers the text
- justify – stretches the lines so that each line has equal width
- initial – default alignment which is the left
- inherit – inherits from the parent

margin

This property is used to create space around elements, outside of any defined borders. Can be specified as *margin-top*, *margin-bottom*, *margin-left*, *margin-right*

Values:

- auto - the browser calculates the margin
- *length* - specifies a margin in px, pt, cm, etc.
- % - specifies a margin in % of the width of the containing element
- inherit - specifies that the margin should be inherited from the parent element

Length and %:

- **margin: 25px 50px 75px 100px;** (top, right , bottom, left)
- **margin: 25px 50px 75px;** (top, right and left, bottom)
- **margin: 25px 50px;** (top and bottom, right and left)
- **margin: 25px;** (all four)
- Or can be specified individually.

padding

This property used to generate space around an element's content, inside of any defined borders. Can be specified as *padding-top*, *padding-bottom*, *padding-left* and *padding-right*.

Values:

- *length* - specifies a padding in px, pt, cm, etc.
- *%* - specifies a padding in % of the width of the containing element
- *inherit* - specifies that the padding should be inherited from the parent element

Length and %:

- **padding: 25px 50px 75px 100px;** (top, right , bottom, left)
- **padding: 25px 50px 75px;** (top, right and left, bottom)
- **padding: 25px 50px;** (top and bottom, right and left)
- **padding: 25px;** (all four)
- Or can be specified individually.

float

This property specifies how an element should float.

Values:

- none – does not float
- left – floats to the left of the container
- right – floats to the right of the container
- initial – default value which is none
- inherit – inherits property from parent

text-shadow

This adds shadow to text

text-shadow: h-shadow v-shadow blur-radius color

Values:

- h-shadow – horizontal shadow
- v-shadow – vertical shadow
- blur-radius – radius of the blur
- color – color of the shadow

Sample:

text-shadow: 2px 2px 4px #000000

position

This specifies the type of positioning method used for an element (static, relative, absolute, fixed, or sticky)

Values:

- static – default value. Elements render in order, as they appear in the document flow
- absolute – the element is positioned relative to its first positioned (not static) ancestor element
- fixed – the element is positioned relative to the browser window

- relative – the element is positioned relative to its normal position, so "left:20px" adds 20 pixels to the element's LEFT position
- sticky – the element is positioned based on the user's scroll position
- initial – sets this property to its default value
- inherit – inherits this property from its parent element

vertical-align

This property specifies the display behavior of an element.

Values:

- top – the element is aligned with the top of the tallest element on the line
- middle – the element is placed in the middle of the parent element
- bottom – the element is aligned with the lowest element on the line

Most Common Tags and Elements

Comments

You can add comments to your HTML source by using the following syntax:

```
<!-- Write your comments here -->
```

Note: There is an exclamation point (!) in the opening tag, but not in the closing tag.

Comments are not displayed by the browser, but they can help document your HTML.

With comments you can place notifications and reminders in your HTML:

Example

```
<!-- This is a comment -->  
  
<p>This is a paragraph.</p>  
  
<!-- Remember to add more information here -->
```

Comments are also great for debugging HTML, because you can comment out HTML lines of code, one at a time, to search for errors:

Example

```
<!-- Do not display this at the moment  
  
-->
```


Ordered lists are a list of numbered items.

```
<ol>
```

- This is step one.
- This is step two.
- This is step three.

```
</ol>
```

1. This is step one.
2. This is step two.
3. This is step three.

The *type* attribute allows you to change the kind of symbol that appears in the list.

- A is for capital letters
- a is for lowercase letters
- I is for capital roman numerals
- i is for lowercase roman numerals

unordered list is a list of bulleted items

```
<ul>
    <li> This is step one.
    <li> This is step two.
    <li> This is step three.
</ul>
```

- This is step one.
- This is step two.
- This is step three.

The *type* attribute allows you to change the type of bullet that appears

- *circle* corresponds to an empty round bullet
- *square* corresponds to a square bullet
- *disc* corresponds to a solid round bullet; this is the default value

<table>

```
<table style="width:100%" border="8">
  <caption>Friends</caption>
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Jill</td>
    <td>Smith</td>
    <td>50</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
  <tr>
    <td>John</td>
    <td>Doe</td>
    <td>80</td>
  </tr>
</table>
```

Friends

Firstname	Lastname	Age
Jill	Smith	50
Eve	Jackson	94
John	Doe	80

<input>

This tag specifies an input field where the user can enter data.

The **value** attribute specifies the value of the element

Attribute **types**:

checkbox
color
date
datetime-local
email
file
month
number
password
radio

range
reset
search
submit
tel
text
time
url
week



<textarea>

This defines a multi-line text input control.

A text area can hold an unlimited number of characters, and the text renders in a fixed-width font (usually Courier).

The size of a text area can be specified by the **cols** and **rows** attributes, or even better; through CSS' **height** and **width** properties.

```
<textarea rows="4" cols="50">  
    Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum  
    has been the industry's standard dummy text ever since the 1500s, when an unknown  
    printer took a galley of type and scrambled it to make a type specimen book. It has  
    survived not only five centuries, but also the leap into electronic typesetting,  
    remaining essentially unchanged. It was popularised in the 1960s with the release of  
    Letraset sheets containing Lorem Ipsum passages, and more recently with desktop  
    publishing software like Aldus PageMaker including versions of Lorem Ipsum.  
</textarea>
```

<button>

This renders a clickable element that triggers an event.

```
<button type="button">Click Me!</button>
```

Click Me!

The **span** is used to group inline-elements in a document.

```
<p>
<span style="color:blue">Lorem Ipsum</span> is simply dummy text of the printing and
typesetting industry.
</p>
```

Loremm** Ipsum is simply dummy text of the printing and typesetting industry.**

<div>

The importance of the division tag is widely used in HTML as its purpose is to make **divisions**, **containers** or **separations of content** in the web page. Though the initial output of a div tag is not directly recognizable, you can see a clear distinction when used together with a background color or borders. Common practice is to wrap content related to each other within div tags

```
<h1 style="background-color: blue;">This is a Header</h1>
```

```
<p style="background-color: blue;">
```

 Lorem ipsum dolor sit amet, consectetur adipiscing elit.

 Donec ex erat, hendrerit in ante quis,

 rhoncus viverra lorem. Etiam id nisl pharetra,
 vehicula nunc ut, sagittis quam.

```
</p>
```



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```
<div style="background-color: blue;">
    <h1>This is a Header</h1>
    <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit.
        Donec ex erat, hendrerit in ante quis,
        rhoncus viverra lorem. Etiam id nisl pharetra,
        vehicula nunc ut, sagittis quam.
    </p>
</div>
```