Web Technology-20CS2056
Introduction to HTML

(Hyper Text Markup Language)

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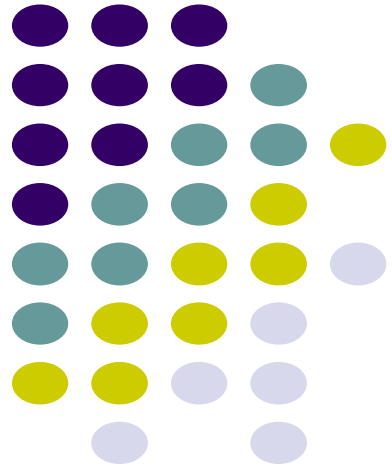


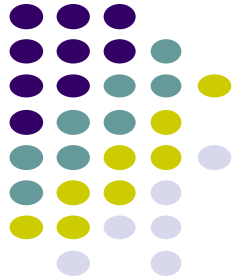
Internet

- The Internet is a **“network of networks”** is the largest computer network in the world that connects billions of computer users.
- Father of Internet
  - Vinton Cerf

WWW

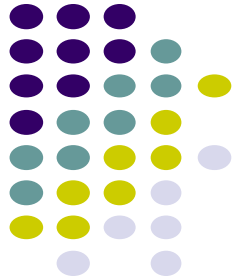
- The World Wide Web, commonly known as the Web, is a system of information repository that interlinked hypertext/hypermedia documents accessed via the Internet from all over the world.
- Creator:
  - Tim Berners-Lee,

What is Web Technology?



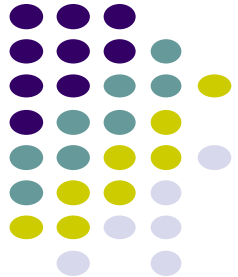
- **Web technology** refers to the means by which computers communicate with each other using markup languages and multimedia packages.
- It gives us a way to interact with hosted information, like websites.
- **Web technology** involves the use of hypertext markup language (HTML), cascading style sheets (CSS), Java Script, PHP, Angular JS, Node Js, MongoDB etc..

Website and Web Application



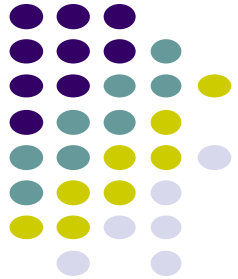
- **Website**
  - Collection of Web Pages and other files
    - A **web page** (also written as **webpage**) is a document that is suitable for the World Wide **Web** and **web** browsers.
    - A **web** browser displays a **web page** on a monitor or mobile device.
- **Web Application**
  - A **Web application** (**Web app**) is an **application** program that is stored on a remote server and delivered over the Internet through a browser interface.
  - The user makes HTTP request via browser and it is processed by server side program and generates the HTTP response to browser.

Web Page



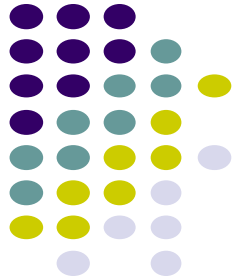
- A **web page** or **webpage** is a document, commonly written in HTML, that is viewed in an **Internet** browser.
- A **web page** can be accessed by entering a URL address into a browser's address bar.
- A **web page** may contain text, graphics, and hyperlinks to other **web pages** and files.

What is HTML?



- HTML is a **markup** language for **describing** the structure of web documents (web pages).
  - HTML stands for **H**yper **T**ext **M**arkup **L**anguage
  - A markup language is a set of **markup tags**
  - HTML documents are described by **HTML Elements(tags).**
  - Each HTML tag **describes** different document content
  - Html document must be stored with an extension **“.html”**

HTML Elements



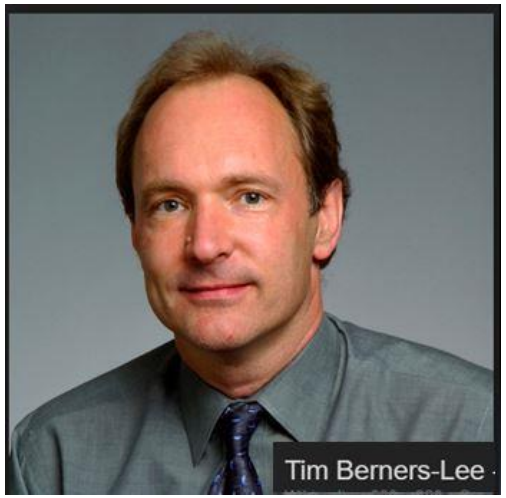
- An HTML element is defined by a start tag, some content, and an end tag:

```
<tagname>Content goes here...</tagname>
```

- The HTML element is everything from the start tag to the end tag:
  - Example

```
<html></html>

<body>Visual Content Goes Here</body>
```

Who invented HTML?



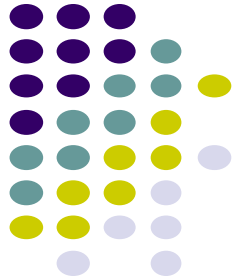
- Tim Berners-Lee
  - He invented world wide web(www) in 1989.
  - He invented HTML in 1991
  - Later, it was enhanced by W3C
    - The World Wide Web Consortium (W3C) is an international community that develops open standards to ensure the long-term growth of the Web and it is Led by Web inventor and Director Tim Berners-Lee
      - https://www.w3.org/
    - HTML5 is the latest evolution of the standard that defines HTML

HTML Document Structure

```
<!DOCTYPE html>
<html>
    <head>
        <title>Title goes here</title>
    </head>
    <body>
        All Visual contents goes here
    </body>
</html>
```

defines this document to be HTML5

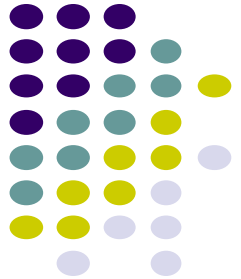
<!DOCTYPE HTML>



- All HTML documents must start with a <!DOCTYPE> declaration.
- The declaration is not an HTML tag.
- It is an "information" to the browser that the document type to be as HTML 5 standard.

Structure HTML Page

Structure of HTML Page



- <!DOCTYPE html>
  - declaration defines that this document is an HTML5 document
- <html>
  - element is the root element of an HTML page
- <head>
  - element contains meta information about the HTML page
- <title>
  - element specifies a title for the HTML page (which is shown in the browser's title bar or in the page's tab)
- <meta>
  - element tells browser about page settings.
- <body>
  - element defines the document's body, and is a container for all the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.

HTML comment tag

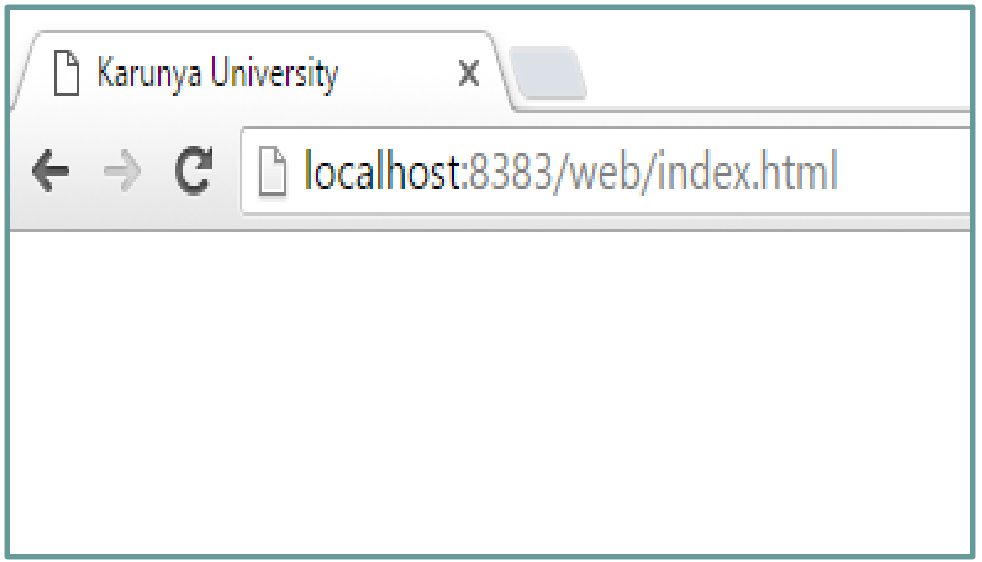
- <!-- some comments -->

```
<!DOCTYPE html>
<!-- This is a My Website -->
<html>
    <head>
        <title>My Website</title>
        <meta charset="utf-8">
    </head>
    <body>
        Welcome to My Website
    </body>
</html>
```

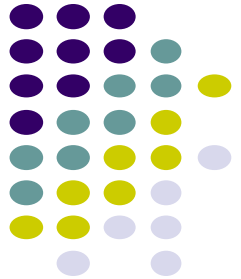
Header(<head>)

- Use the <title> tag for the title of the page.

```
<!DOCTYPE html>
<html>
    <head>
        <title>Karunya University</title>
    </head>
    <body>
        All Visual contents goes here
    </body>
</html>
```



<meta> tag



- **<meta>** tag defines metadata about an HTML document.
- **<meta>** tags always go inside the <head> element, and are typically used to specify
  - character set
  - page description
  - keywords
  - author of the document
  - viewport settings
  - Refresh time limit

<meta> tag

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="UTF-8">
        <meta http-equiv="refresh" content="10">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
        <meta name="description" content="mobile,tv,gadgets">
        <title>Document</title>
    </head>
    <body>
    </body>
</html>
```

Setting Viewport

- **What is The Viewport?**
  - The viewport is the user's visible area of a web page.
  - The viewport varies with the device, and will be smaller on a mobile phone than on a computer screen.

```
<meta name="viewport"
        content="width=device-width, initial-scale=1.0">
```

Body (<body>)

- The contents of the web page (mainly text)
  - Headings
  - Paragraphs, division and line breaks
  - Text Formatting
  - Links and Images
  - Tables
  - Fonts and Colors
  - Comments and etc
- The above tags are used inside **<body>** tag.

HTML Headings

- HTML headings are defined with the <h1> to <h6> tags.
- <h1> defines the bigger heading.
- <h6> defines the smaller heading:

HTML element	Pixel height
<h1> </h1>	32px
<h2> </h2>	24px
<h3> </h3>	18.72px
<h4> </h4>	16px
<h5> </h5>	13.28px
<h6> </h6>	12px

```
<!DOCTYPE html>
<html>
<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 is heading 1

This is heading 2

This is heading 3

This is heading 4

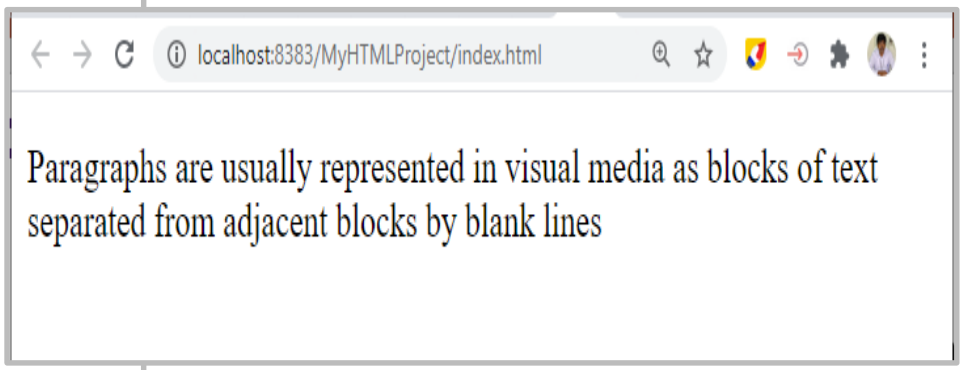
This is heading 5

This is heading 6

Paragraph

- HTML **<p>** Tag
  - Used to display any paragraph of text content in a web page.
  - Browsers automatically add a single blank line before and after each **<p>** element.

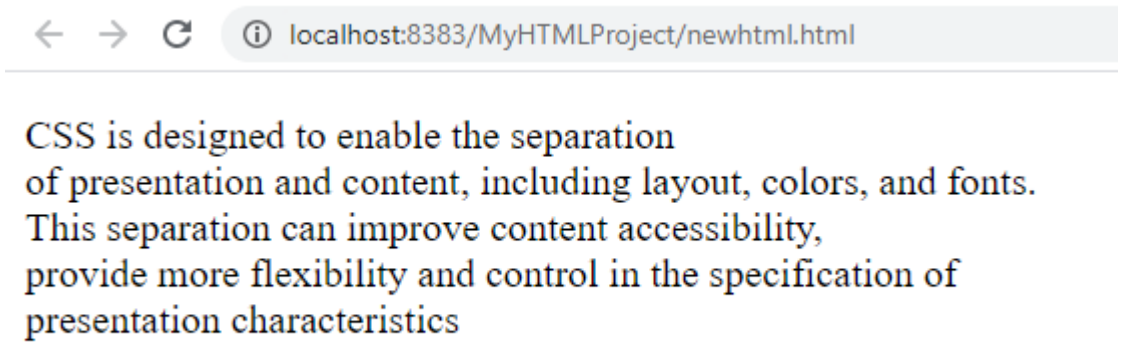
```
<!DOCTYPE html>
<!-- This is a My Website -->
<html>
    <head>
        <title>My Website</title>
        <meta charset="utf-8">
    </head>
    <body>
        <p>
            Paragraphs are usually represented in visual media as
            blocks of text separated from adjacent blocks by blank lines
        </p>
    </body>
</html>
```



Line break using <br> tag

- The <br> tag inserts a single line break.
- The <br> tag is useful for writing addresses or poems.
- The <br> tag is an empty tag which means that it has no end tag.

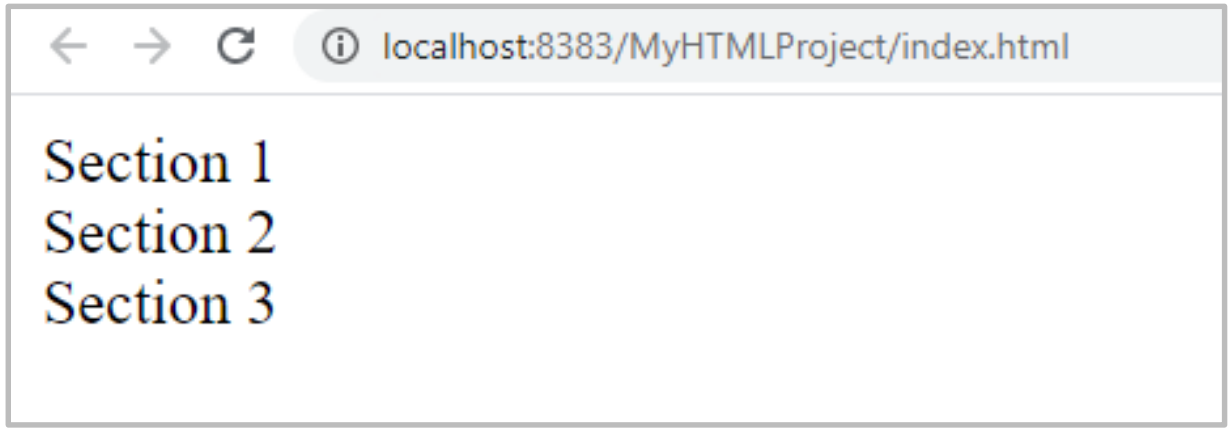
```
<body>
    <p>
        CSS is designed to enable the separation<br> of presentation and content,
        including layout, colors, and fonts.<br>This separation can improve content
        accessibility,<br> provide more flexibility and control in the specification
        of<br> presentation characteristics
    </p>
</body>
```



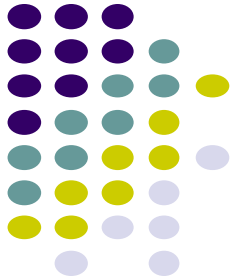
Add Section

- The ** ** tag defines a division or a section in an HTML document.
- The ** ** tag is used as a container for HTML elements

```
<!DOCTYPE html>
<!-- This is a My Website -->
<html>
    <head>
        <title>My Website</title>
        <meta charset="utf-8">
    </head>
    <body>
        <div>Section 1</div>
        <div>Section 2</div>
        <div>Section 3</div>
    </body>
</html>
```

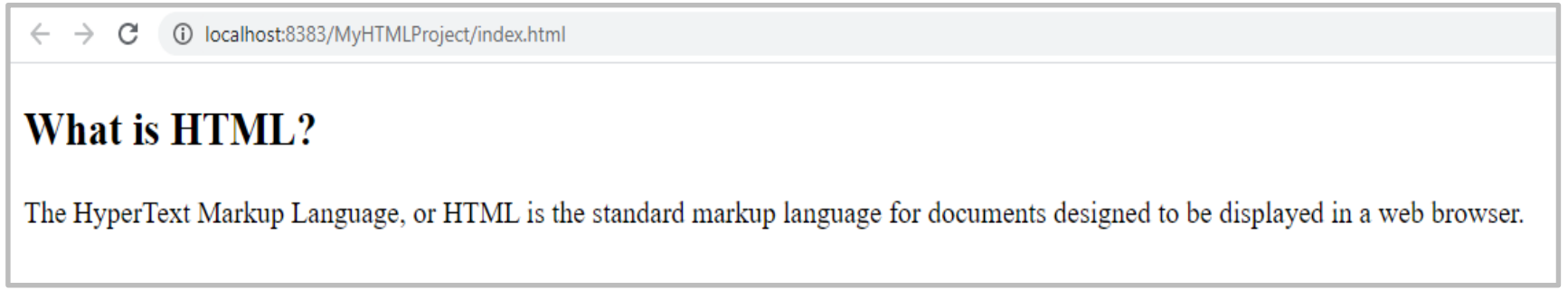


The tag



- Any sort of content can be put inside the ** ** tag!
- It is a container element.
- By default, browsers always place a line break before and after the ** ** element.

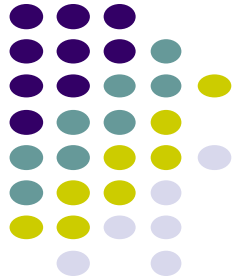
```
<body>
    <div>
        <h2>What is HTML?</h2>
        <p>
            The HyperText Markup Language, or HTML is the standard markup
            language for documents designed to be displayed in a web browser.
        </p>
    </div>
</body>
```



Horizontal Divider Line: <hr> tag

```
<body>
    <h1>The Main Languages of the Web</h1>
    <div>HTML is the standard markup language for creating Web pages.</div>
    <hr>
    <div>CSS is a language that describes how HTML elements are to be displayed on
        screen, paper, or in other media.</div>
    <hr>
    <div>JavaScript is the programming language of HTML and the Web.
        JavaScript can change HTML content and attribute values.<div>
</body>
```

HTML Attributes



- HTML attributes provide additional information for HTML elements or tag.
- All HTML elements can have attributes
- Attributes are always specified in the start tag
- Attributes usually come in name/value pairs like: name="value“
- Example attributes
  - lang - to set the language of web page
  - bgcolor – to set the background color of a web page
  - text - to set the text color
  - title - to give information about a particular element

HTML Attribute- Example

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title>My Website</title>
        <meta charset="utf-8">
    </head>
    <body bgcolor="yellow" text="blue">
        <div title='Division 1'>
            This is a Section Content
        </div>
    </body>
</html>
```

en-English

Character set – Universal Transfer Format

Attributes: background color and text color

The title attribute value will be displayed when you keep the mouse over the div element.

Other basic attributes

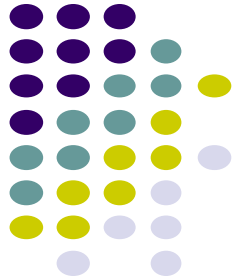
- align – to set the alignment of text content
- id – to set unique identifier to the tag or element(also used to style)
- class – to set one or more class names to style the element.

```
<body>
    <div align='center' id='d1' class="first">
        This is a Section 1 Content
    </div>
    <div align='left' id='d2' class="second">
        This is a Section 2 Content
    </div>
    <div align='right' id='d3' class="third">
        This is a Section 3 Content
    </div>
</body>
```

Example Program

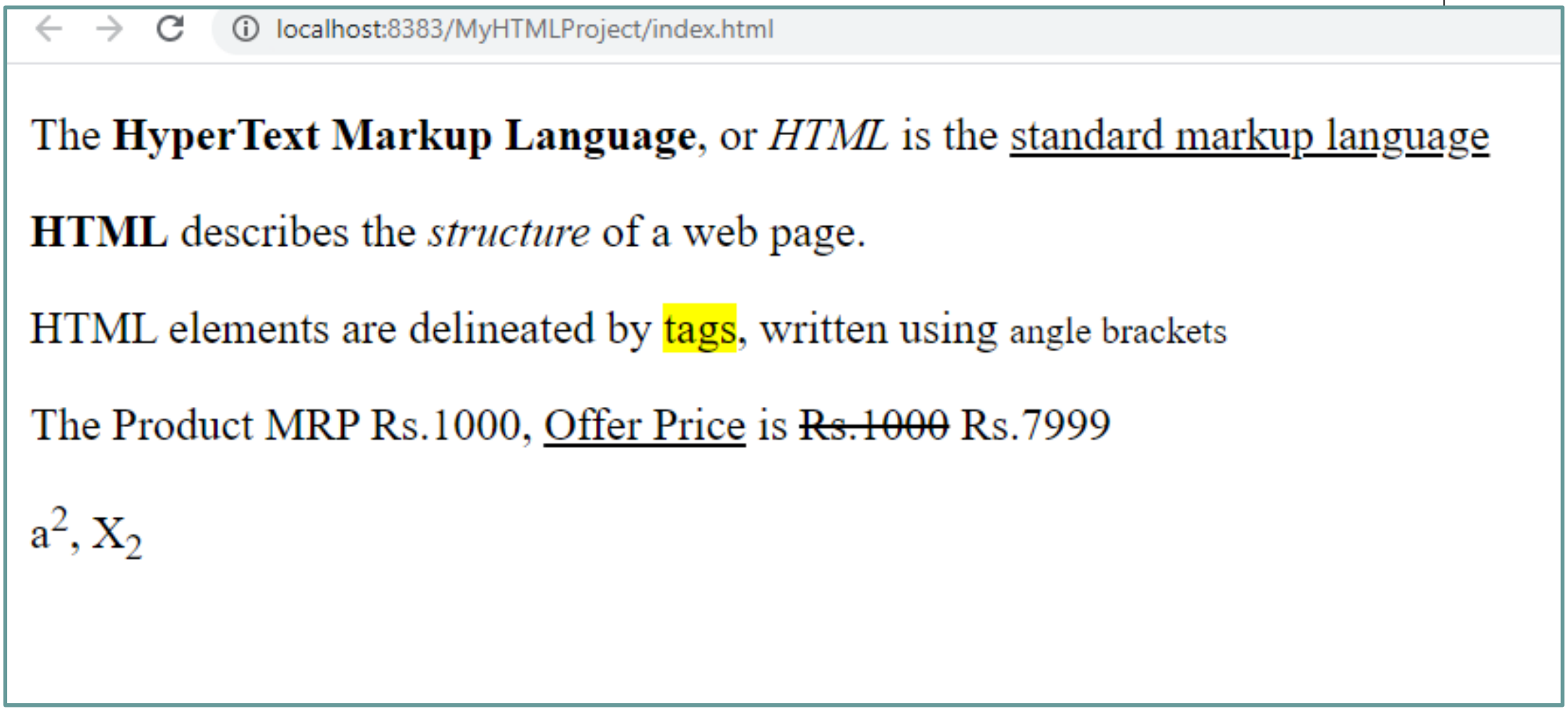
```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title>My Website</title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width,initial-scale=1.0">
        <meta http-equiv="refresh" content="10">
    </head>
    <body bgcolor="yellow" text="blue">
        <div title="Division1" align="center" id="d1">
            <p>This is sample text1</p>
            <p>This is sample text2</p>
        </div>
        <div title="Division2" align="left" id="d2">
            <p>This is sample text1</p>
            <p>This is sample text2</p>
        </div>
    </body>
</html>
```

Text Formatting Tags



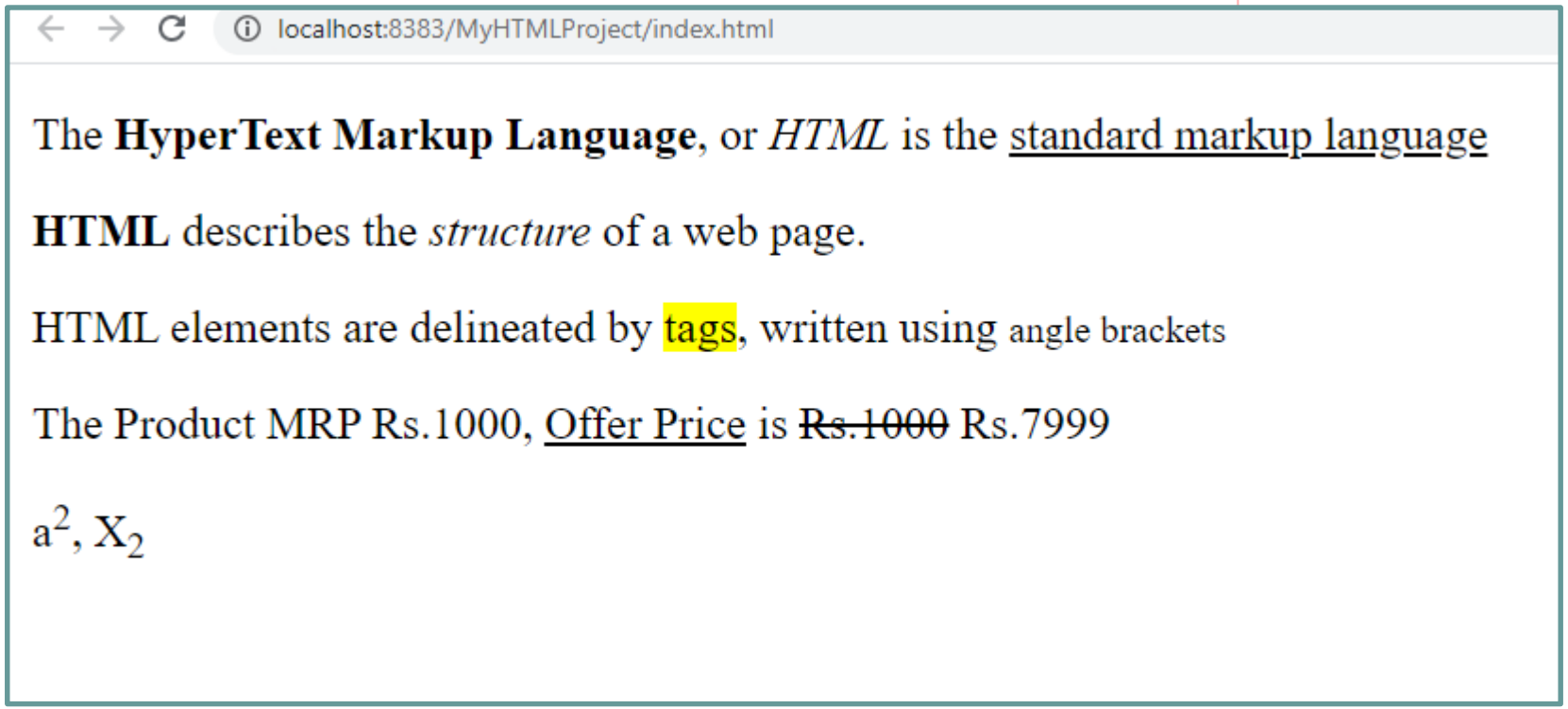
- <b> - Bold text
- <u> - Underlined text
- <i> - Italic text
- - Important text (similar to <b>)
- - Emphasized text (similar to <i>)
- <mark> - Marked text
- <del> - Deleted text
- <ins> - Inserted text (similar to <u>)
- <sub> - Subscript text
- <sup> - Superscript text

Exercise


localhost:8383/MyHTMLProject/index.html
The **HyperText Markup Language**, or *HTML* is the standard markup language
HTML describes the *structure* of a web page.
HTML elements are delineated by tags, written using angle brackets
The Product MRP Rs.1000, Offer Price is ~~Rs.1000~~ Rs.7999
a^2, X_2

Text Formatting Tags - Example

```
<body>
    <p>The <b>HyperText Markup Language</b>, or <i>HTML</i> is the <u>standard markup language</u></p>
    <p><strong>HTML</strong> describes the <em>structure</em> of a web page.</p>
    <p>HTML elements are delineated by <mark>tags</mark>, written using <small>angle brackets</small></p>
    <p>The Product MRP Rs.1000, <ins>Offer Price</ins> is <del>Rs.1000</del> Rs.7999</p>
    <p>a<sup>2</sup>, X<sub>2</sub></p>
</body>
```



Alternate tag for <del>

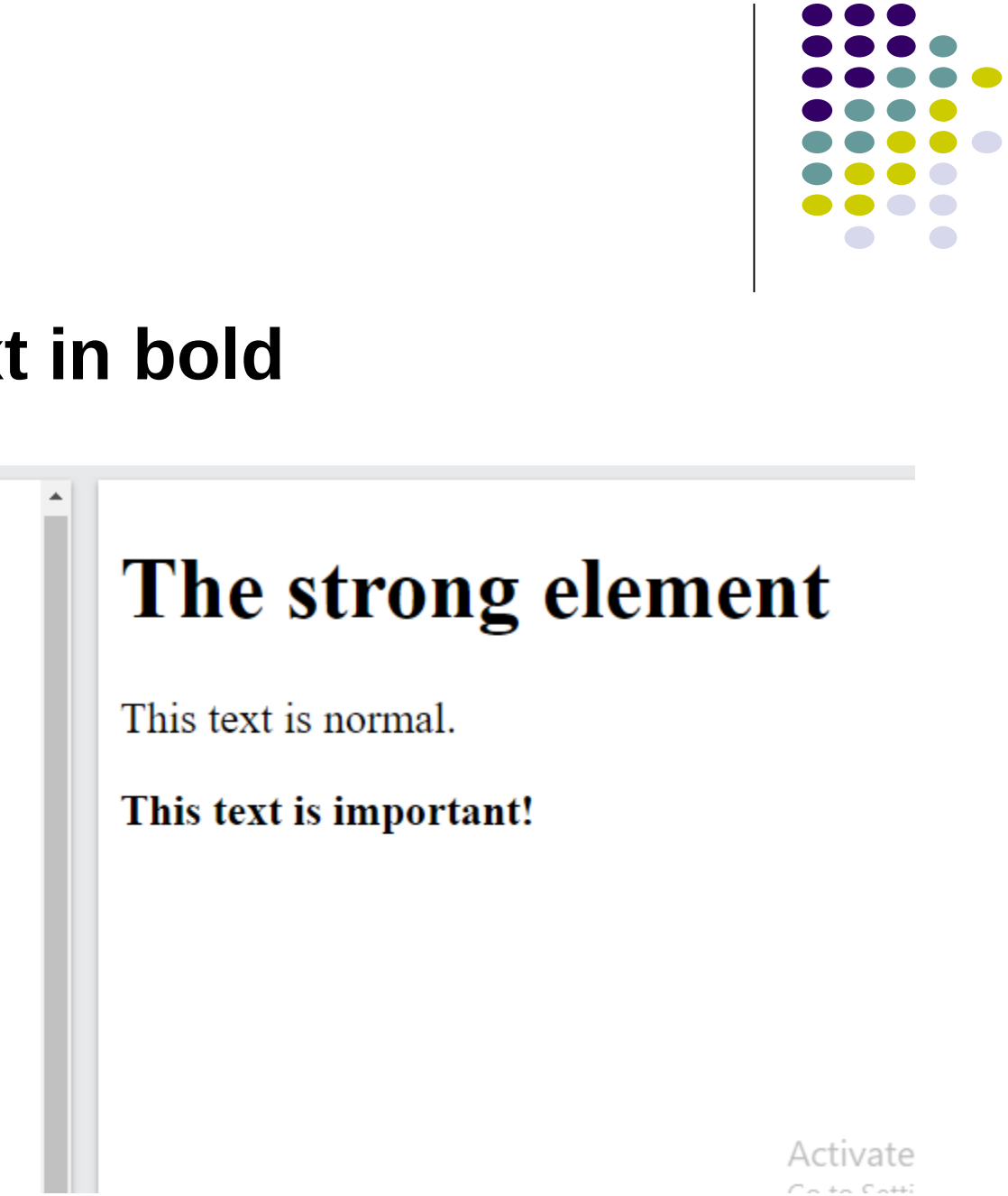
- <s> tag specifies text that is no longer correct, The text will be displayed with a line through it.

```
<!DOCTYPE html>
<html>
<body>

<h1>The s element</h1>

<p><s>Only 50 tickets left!</s></p>
<p>SOLD OUT!</p>

</body>
</html>
```

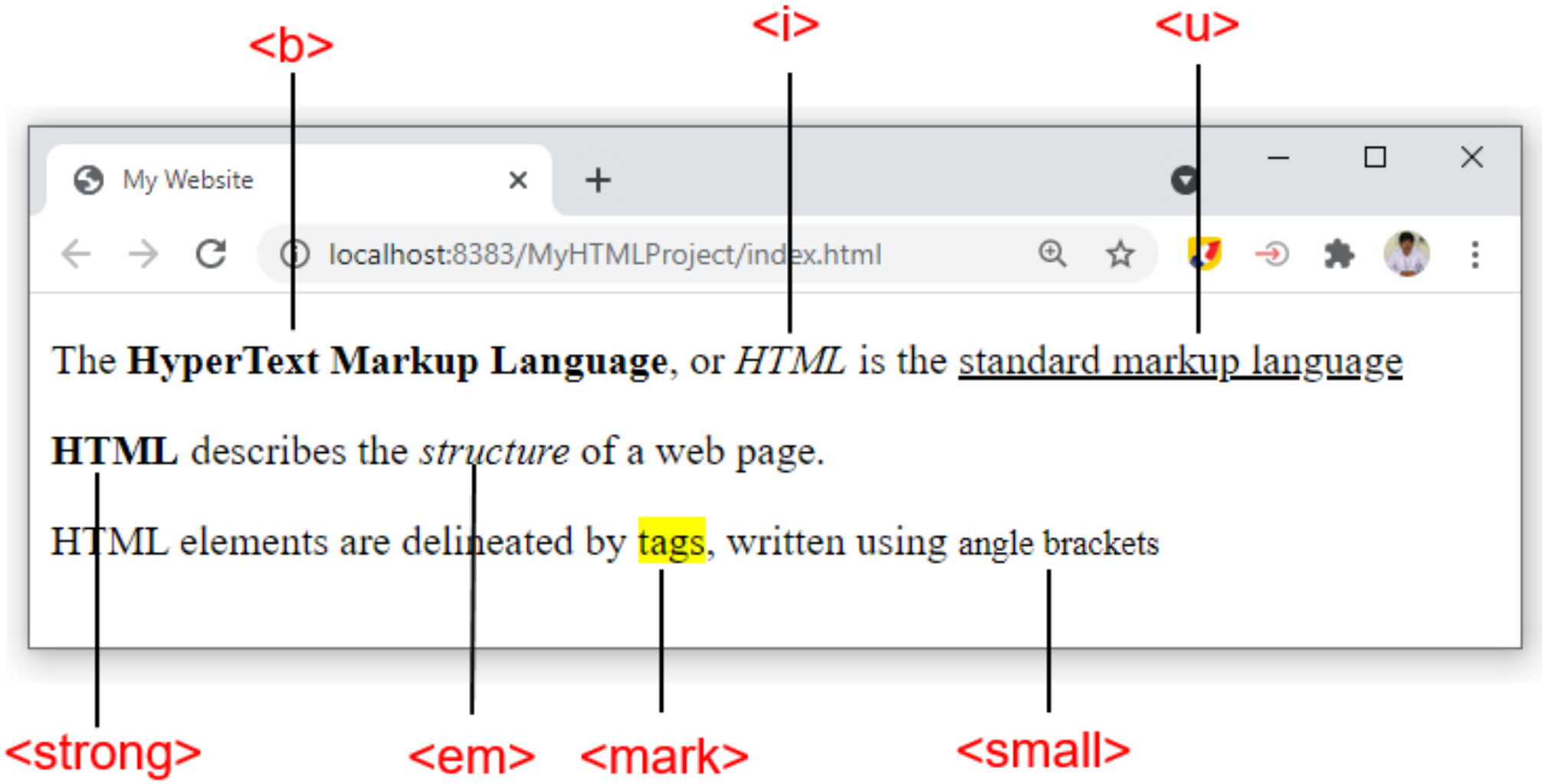
Alternate tag for <b>

- ** used to indicate a text in bold**

```
<!DOCTYPE html>
<html>
<body>

<h1>The strong element</h1>

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

<p>
  <strong>This text is important!</strong>
</p>

</body>
</html>
```



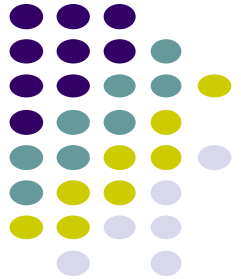
Activate


<b>
<i>
<u>
My Website
localhost:8383/MyHTMLProject/index.html
The HyperText Markup Language, or HTML is the standard markup language
HTML describes the structure of a web page.
HTML elements are delineated by tags, written using angle brackets

<mark>
<small>

<ins>
<del>
My Website
localhost:8383/MyHTMLProject/index.html
Offer Price is MRP.Rs.1000 Rs.7999
<sup>
<sub>
a2, X2
Only 50 tickets left!
SOLD OUT!
<s>

HTML Block and Inline Elements



- Every HTML element has a default display value, depending on what type of element it is.
- There are two display values:
  - **Block element**
    - A block-level element always starts on a new line.
    - A block-level element always takes up the full width available.
    - A block level element has a top and a bottom margin, whereas an inline element does not.
    - Example: <h1> to <h6>, <p>, and etc..
  - **Inline element**
    - An inline element does not start on a new line.
    - An inline element only takes up as much width as necessary.
    - Example: , <a>, <img>, and etc..

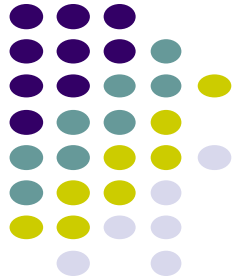
HTML Tag

- The **** tag is used to group inline-elements in a document.
- The **** tag provides no visual change by itself.
- The **** tag provides a way to add a hook to a part of a text or a part of a document.
- Example

```
<body>
    <div>
        The cost of the product is <span>Rs.5000</span>
    </div>
</body>
```

span is used to format and manage a part of content.

Display data in List format



- HTML lists allow web developers to group a set of related items in lists.
- Types of List in HTML
  - Ordered List
  - Unordered List
  - Description List

Display data in List format

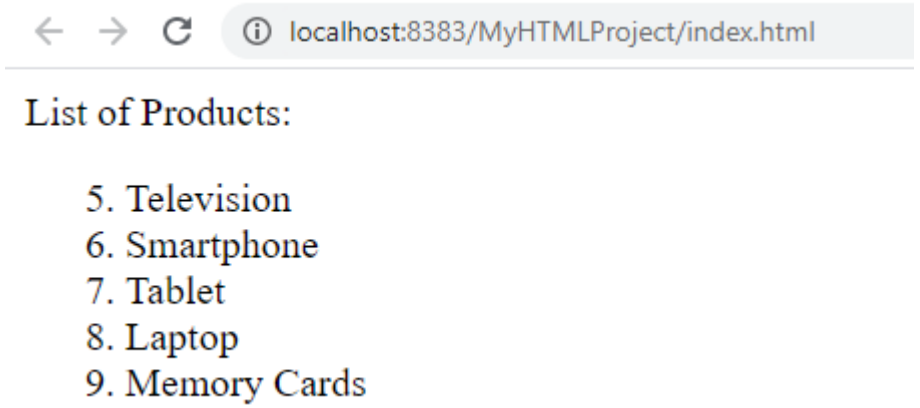
- Ordered List
  - An ordered list starts with the <ol> tag. Each list item starts with the <li> tag.
  - The list items will be marked with numbers by default:

```
<body>
    List of Products:
    <ol>
        <li>Television</li>
        <li>Smartphone</li>
        <li>Tablet</li>
        <li>Laptop</li>
        <li>Memory Cards</li>
    </ol>
</body>
```

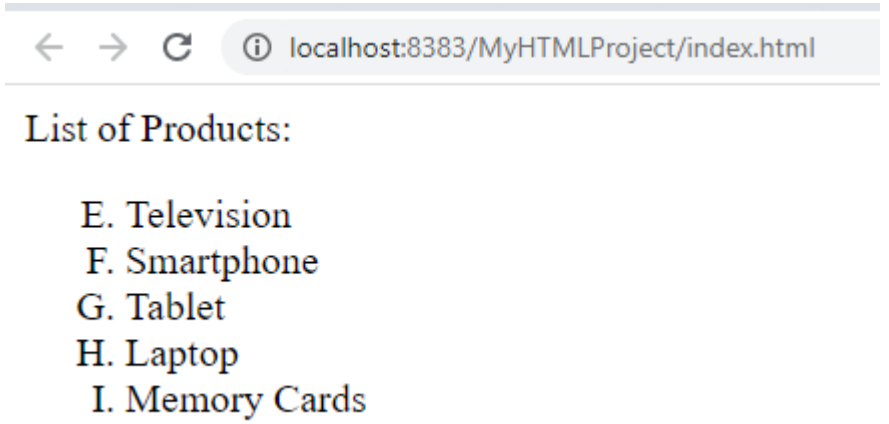
Display data in List format

- Ordered List – Change the start value and type marker
- Attributes: start, type= 1,A,a,I,i

```
<body>
    List of Products:
    <ol start="5">
        <li>Television</li>
        <li>Smartphone</li>
        <li>Tablet</li>
        <li>Laptop</li>
        <li>Memory Cards</li>
    </ol>
</body>
```



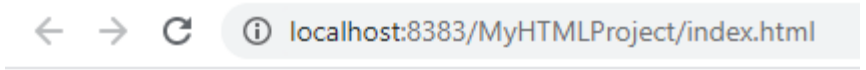

```
<body>
    List of Products:
    <ol start='5' type='A' >
        <li>Television</li>
        <li>Smartphone</li>
        <li>Tablet</li>
        <li>Laptop</li>
        <li>Memory Cards</li>
    </ol>
</body>
```



Display data in List format

- Ordered List – Change the start value and type marker
- Attributes: start, type= 1,A,a,I,i

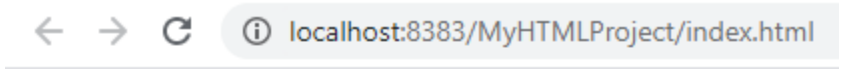
```
List of Products:
<ol  type='a' >
    <li>Television</li>
    <li>Smartphone</li>
    <li>Tablet</li>
    <li>Laptop</li>
    <li>Memory Cards</li>
</ol>
```



List of Products:

a. Television
b. Smartphone
c. Tablet
d. Laptop
e. Memory Cards

```
List of Products:
<ol  type='i' start='3' >
    <li>Television</li>
    <li>Smartphone</li>
    <li>Tablet</li>
    <li>Laptop</li>
    <li>Memory Cards</li>
</ol>
```



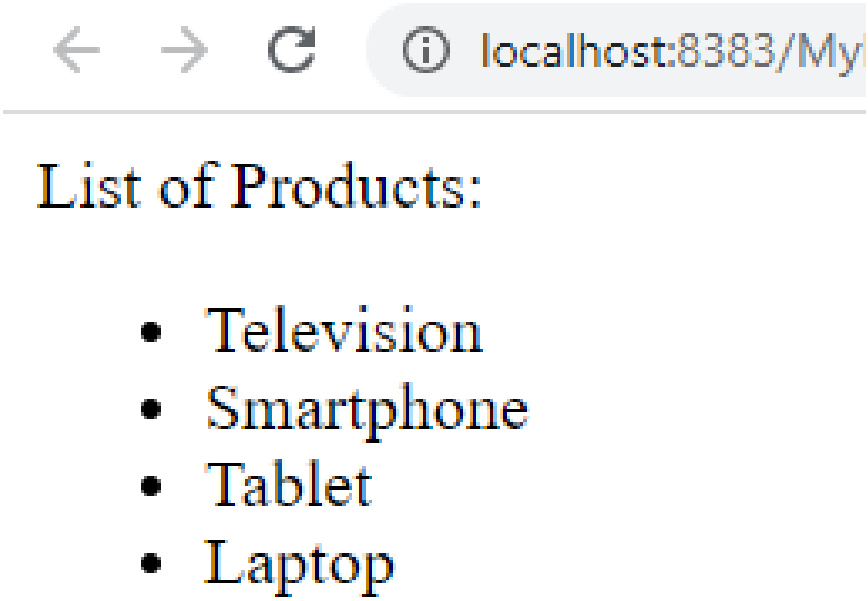
List of Products:

iii. Television
iv. Smartphone
v. Tablet
vi. Laptop
vii. Memory Cards

Display data in List format

- Unordered List
  - The <ul> tag defines an unordered (bulleted) list.
  - Use the <ul> tag together with the <li> tag to create unordered lists.

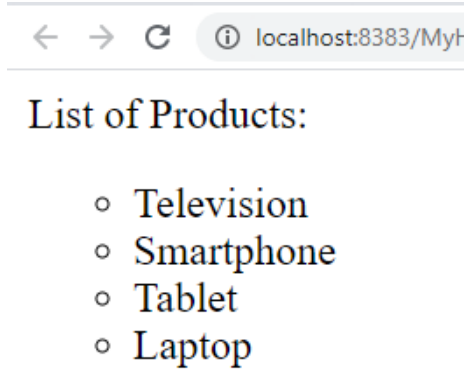
```
List of Products:
<ul>
    <li>Television</li>
    <li>Smartphone</li>
    <li>Tablet</li>
    <li>Laptop</li>
</ul>
```



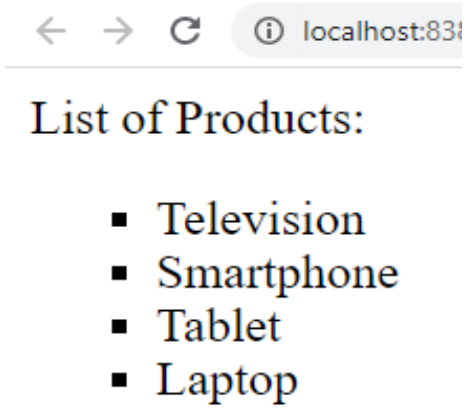
Display data in List format

- Unordered List
  - The <ul> tag has attribute called type to change the bulletin mark.
  - type may be disc(default), circle, or square

```
List of Products:
<ul type='circle'>
    <li>Television</li>
    <li>Smartphone</li>
    <li>Tablet</li>
    <li>Laptop</li>
</ul>
```




```
List of Products:
<ul type='square'>
    <li>Television</li>
    <li>Smartphone</li>
    <li>Tablet</li>
    <li>Laptop</li>
</ul>
```



Display data in List format

- Description List
  - A description list is a list of items with a description or definition of each item. The description list is created using <dl> element.
  - The <dl> element is used in conjunction with the <dt> element which specify a term, and the <dd> element which specify the term's definition.

```
<body>
    <dl>
        <dt>Bread</dt>
        <dd>A baked food made of flour.</dd>
        <dt>Coffee</dt>
        <dd>A drink made from roasted coffee beans.</dd>
    </dl>
</body>
```

Nested List

localhost:8383/manifold/demo.html
1. BreakFast
Dosai
Idly
2. Lunch
White Rice
Briyani
3. Dinner
Chappathi
Parotta

Nested Lists

- A list inside another list is called as nested list.

```
<ol>
        <li>BreakFast
            <ul>
                <li>Dosai</li>
                <li>Idly</li>
            </ul>
        </li>
        <li>Lunch
            <ul>
                <li>White Rice</li>
                <li>Briyani</li>
            </ul>
        </li>
        <li>Dinner
            <ul>
                <li>Chappathi</li>
                <li>Parotta</li>
            </ul>
        </li>
  </ol>
```