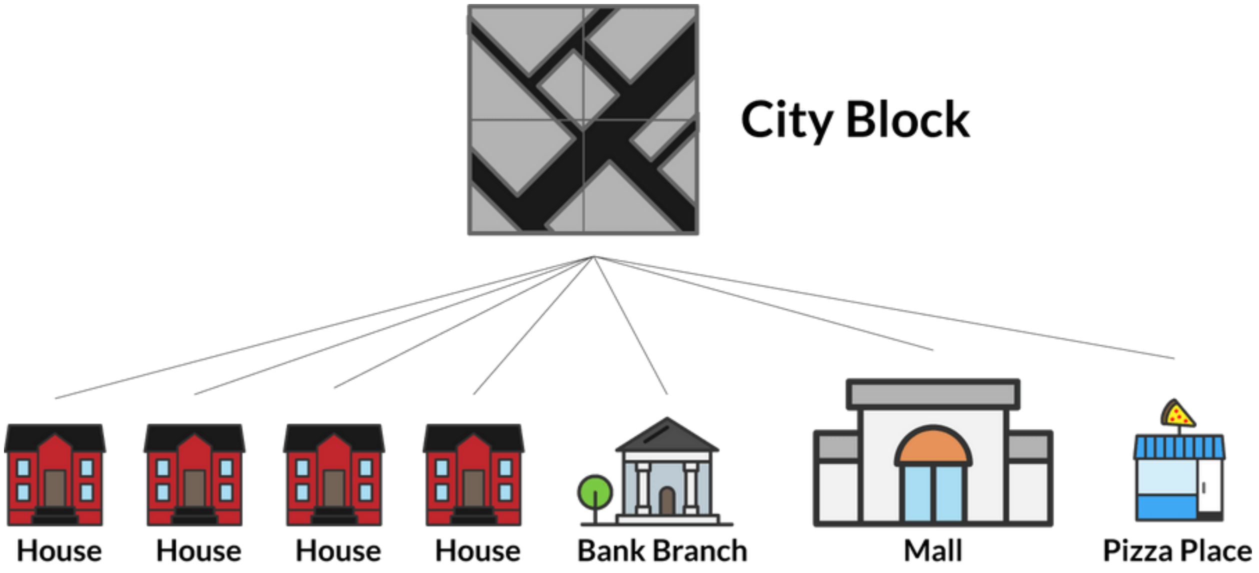
Overview of HTML, CSS and JavaScript

Unit-1

Understanding HTML, CSS and JavaScript

- Let’s imagine that you are in charge of planning the layout of a new neighborhood in the city. This neighborhood will have some residential buildings, some eateries, a bank branch and a mall.



Understanding HTML, CSS and JavaScript

- Each building actually has three parts you can change:
- 1. The structure of the building itself
- 2. The interior and exterior decoration of the building
- 3. The actual functions that visitors can perform in each building

This corresponds to the three different types of files that you can use in your first website.

Understanding HTML, CSS and JavaScript

- An **HTML file** contains the structure of the page itself. It is like the structure of the building.
- A **CSS file** contains the styling of the page. It allows you to change colors, positioning and more. It is like the design of the building. How a building should look like.
- A **JavaScript file** determines the dynamic and interactive elements on the page. It determines what happens when users click, hover or type within certain elements. This is like the functionality of the building.

Lecture (1-2)

- Fundamentals of HTML
- Creating Style Sheet
- CSS Box Model- Border properties,
- Padding properties
- Margin properties

Fundamentals of HTML

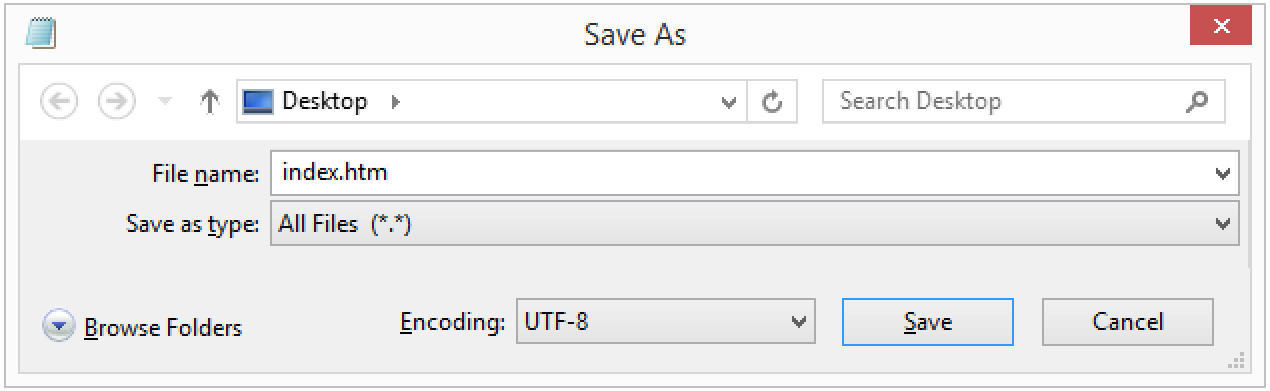
- HTML stands for **H**yper**t**ext **M**arkup **L**anguage, and it is the most widely used language to write Web Pages.
- **1. Hypertext** refers to the way in which Web pages (HTML documents) are linked together. Thus the link available on a webpage are called Hypertext.
- 2. Write HTML Using Notepad++ or sublime text or visual code studio.

Fundamentals of HTML

Step 3: Save the HTML Page

Save the file on your computer. Select **File > Save as** in the Notepad menu.

Name the file **"index.htm"** and set the encoding to **UTF-8** (which is the preferred encoding for HTML files).



Save As

File name: index.htm

Save as type: All Files (*.*)

Encoding: UTF-8

You can use either .htm or .html as file extension. There is no difference, it is up to you.

Basic HTML Document Example

```
<!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>
```

Basic HTML Document Example

The **<!DOCTYPE html>** declaration defines this document to be HTML5

The **<html>** element is the root element of an HTML page

The **<head>** element contains meta information about the document

The **<title>** element specifies a title for the document

The **<body>** element contains the visible page content

The **<h1>** element defines a large heading

The **<p>** element defines a paragraph

HTML Comment

An HTML comment begins with <!- - and the comment closes with - ->.

HTML comments are visible to anyone that views the page source code, but are not rendered when the HTML document is rendered by a browser.

HTML Tags

HTML is a markup language and makes use of various tags to format the content.

These tags are enclosed within angle braces **<Tag Name>**.

Except few tags, most of the tags have their corresponding closing tags.

For example **<html>** has its closing tag **</html>** and **<body>** tag has its closing tag **</body>** tag etc.

The <!DOCTYPE> Declaration

The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.

It must only appear once, at the top of the page (before any HTML tags).

The <!DOCTYPE> declaration is not case sensitive.

The <!DOCTYPE> declaration for HTML5 is:

<!DOCTYPE html>

HTML Basic Tags

1. Heading Tags

HTML has six levels of headings, which use the elements **<h1>, <h2>, <h3>, <h4>, <h5>, and <h6>**. While displaying any heading, browser adds one line before and one line after that heading.

Line Break Tag

- Whenever you use the **<br />** element, anything following it starts from the next line.

- This tag is an example of an **empty** element, where you do not need opening and closing tags, as there is nothing to go in between them.

- The <br /> tag has a space between the characters **br** and the forward slash

Note: If you omit this space, older browsers will have trouble rendering the line break, while if you miss the forward slash character and just use <br> it is not valid in XHTML

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Line Break  Example</title>
</head>
<body>
<p>Hello<br />
LPU<br />
Block -34<br />
CSE </p>
</body>
</html>
```

Centering Content

You can use **<center>** tag to put any content in the center of the page or any table cell.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Centring Content Example</title>
</head>
<body>
<p>Welcome to LPU</p>
<center><p>Welcome to School of CSE</p></center>
</body>
</html>
```

Paragraph Tag

The **<p>** tag offers a way to structure your text into different paragraphs. Each paragraph of text should go in between an opening <p> and a closing </p> 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><h2>Here is a second paragraph of text.</h2></p>
<p>Here is a third paragraph of text.</p>
</body>
</html>
```

HTML Links

HTML links are defined with the <a> tag:
Example:
<a href="https://www.google.com">This is a link</a>

hypertext reference, **HREF** is an HTML attribute that is used either to link to another web page, or a different portion of the same page.

HTML Images

The <img> tag is used to embed an image on the HTML document.

The attributes are as follows:

src: The file path to the image file.
width: The width of the image, in pixels.
height: The height of the image, in pixels.
alt: The text the browser will display when visitors mouse over the image. Search engines often places more weight on the text in the alt attribute.

HTML Images example

```
<!DOCTYPE html>
<html>

  <head>
    <title>HTML  Tag</title>
  </head>

  <body>
    <img src ="webdesign.jpg" alt = "HTML Image"
width="300" height="300" />
  </body>
</html>
```

Horizontal Lines

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.

For example you may want to give a line between two paragraphs as in the given example below:

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>
```

Preserve Formatting

Sometimes you want your text to follow the exact format of how it is written in the HTML document. In those cases, you can use the preformatted tag <pre>.

Any text between the opening **<pre>** tag and the closing **</pre>** tag will preserve the formatting of the source document.

Example: Preserve Formatting

```
<!DOCTYPE html>
<html>
<body>
<pre>
Text in a pre element
is displayed in a fixed-width
font, and it preserves
both      spaces and
line breaks
</pre>
</body>
</html>
```

Example: Preserve Formatting

```
<!DOCTYPE html>
<html>
<head>
<title>Preserve Formatting Example</title>
</head>
<body>
<pre>function testFunction( strText )
{
alert (strText)
}
</pre>
</body>
</html>
```

HTML Elements

An **HTML element** is defined by a starting tag. If the element contains other content, it ends with a closing tag, where the element name is preceded by a forward slash as shown below with few tags:

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

Note: There are some HTML elements which don't need to be closed, such as <img.../>, <hr /> and <br /> elements. These are known as **void elements**.

HTML Attributes

An attribute is used to define the characteristics of an HTML element and is placed inside the element's opening tag. All attributes are made up of two parts: a **name** and a **value**:

The **name** is the property you want to set. For example, the paragraph <p> element in the example carries an attribute whose name is **align**, which you can use to indicate the alignment of paragraph on the page.

The **value** is what you want the value of the property to be set and always put within quotations. The below example shows three possible values of align attribute: **left, center** and **right**.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Align Attribute  Example</title>

</head>
<body>
<p align="left">This is left aligned</p>
<p align="center">This is center
aligned</p>
<p align="right">This is right aligned</p>
</body>
</html>
```

HTML Formatting Tags

Bold Text

Anything that appears within **<b>...</b>** element, is displayed in bold as shown below:

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Bold Text Example</title>
</head>
<body>
<p>Welcome to <b>LPU</b> Jalandhar</p>
</body>
</html>
```

Italic Text

Anything that appears within **<i>...</i>** element is displayed in italicized as shown below:

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Italic Text Example</title>
</head>
<body>
<p>Welcome to  <i>LPU</i> Jalandhar</p>
</body>
</html>
```

Underlined Text

Anything that appears within **<u>...</u>** element, is displayed with underline as shown below:

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Underlined Text Example</title>
</head>
<body>
<p>Welcome to <u>LPU</u> Jalandhar</p>
</body>
</html>
```

Strike Text

Anything that appears within **<strike>...</strike>** element is displayed with strikethrough, which is a thin line through the text as shown below:

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Strike Text Example</title>
</head>
<body>
<p>This is completely <strike>bad</strike>idea</p>
</body>
</html>
```

Superscript Text

The content of a **<sup>...</sup>** element is written in superscript; the font size used is the same size as the characters surrounding it but is displayed half a character's height above the other characters.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Superscript Text Example</title>
</head>
<body>
<p>An example of <sup>superscript</sup> formatting tag</p>
</body>
</html>
```

Subscript Text

The content of a **<sub>...</sub>** element is written in subscript; the font size used is the same as the characters surrounding it, but is displayed half a character's height beneath the other characters.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Subscript Text Example</title>
</head>
<body>
<p>An example of <sub>subscript</sub> formatting tag</p>
</body>
</html>
```

Inserted and Deleted Text

Anything that appears within **<ins>...</ins>** element is displayed as inserted text.
Anything that appears within **<del>...</del>** element, is displayed as deleted text.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Inserted Text Example</title>
</head>
<body>
<p>This is an example of <del>HTML</del> and <ins>JavaScript</ins>
</p>
</body>
</html>
```

Larger Text

The content of the **<big>...</big>** element is displayed one font size larger than the rest of the text surrounding it as shown below:

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Larger Text Example</title>
</head>
<body>
<p>Welcome to <big>LPU</big> Jalandhar</p>
</body>
</html>
```

Smaller Text

The content of the **<small>...</small>** element is displayed one font size smaller than the rest of the text surrounding it as shown below:

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Smaller Text Example</title>
</head>
<body>
<p>Example of <small>small</small> formatting
tag</p><
/body>
</html>
```

Grouping Content

The **<div>** and **<span>** elements allow you to group together several elements to create sections or subsections of a page.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Div Tag Example</title>
</head>
<body>
<div align="middle" >
<p> Welcome to HTML</p>
<p> Welcome to JavaScript</p>
<p> Welcome to CSS</p>
</div>
</body>
</html>
```

The <span> element, on the other hand, can be used to group inline elements only. So, if you have a part of a sentence or paragraph which you want to group together, you could use the <span> element as follows

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Span Tag Example</title>
</head>
<body>
<p>This is the example of <span style="color:green">span
tag</span> and the <span style="color:red">div tag</span>
alongwith CSS</p>
</body>
</html>
```

Emphasized Text

Anything that appears within **<em>...</em>** element is displayed as emphasized text.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Emphasized Text Example</title>
</head>
<body>
<p>This is an example of <em>emphasized</em>
tag</p>
</body>
</html>
```

Marked Text

Anything that appears with-in **<mark>...</mark>** element, is displayed as marked with yellow ink.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Marked Text Example</title>
</head>
<body>
<p>This is an example of <mark>marked</mark>
tag</p>
</body>
</html>
```

Text Direction

The **<bdo>...</bdo>** element stands for Bi-Directional Override and it is used to override the current text direction.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Text Direction Example</title>
</head>
<body>
<p>This text will go left to right.</p>
<p><bdo dir="rtl">This text will go right to left.</bdo></p>
</body>
</html>
```

Short Quotations

The **<q>...</q>** element is used when you want to add a double quote within a sentence.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Double Quote Example</title>
</head>
<body>
<p>Welcome to  <q>LPU</q>Jalandhar</p>
</body>
</html>
```

Computer Code

Any programming code to appear on a Web page should be placed inside **<code>...</code>** tags. Usually the content of the <code> element is presented in a monospaced font, just like the code in most programming books.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Computer Code Example</title>
</head>
<body>
<p>Regular text. <code>This is code.</code> Regular text.</p>
</body>
</html>
```

Core Attributes

The four core attributes that can be used on the majority of HTML elements are:

id

title

class

style

Core Attributes

The id Attribute

The **id** attribute of an HTML tag can be used to uniquely identify any element within an HTML page. There are two primary reasons that you might want to use an id attribute on an element:

1. If an element carries an id attribute as a unique identifier it is possible to identify just that element and its content.

2. If you have two elements of the same name within a Web page (or style sheet), you can use the id attribute to distinguish between elements that have the same name.

Example

```
<p id="html"> Simple HTML Text</p>
<p id="css">HTML with  Cascading Style Sheet properties</p>
```

The title Attribute

The **title** attribute gives a suggested title for the element.

The behavior of this attribute will depend upon the element that carries it, although it is often displayed as a tooltip when cursor comes over the element or while the element is loading.

Example

```
<!DOCTYPE html>
<html>
<head>
<title>The title Attribute Example</title><
/head>
<body>
<h3 title="Hello HTML!">Titled Heading Tag Example</h3>
</body>
</html>
```

The class Attribute

The **class** attribute is used to associate an element with a style sheet, and specifies the class of element.

The value of the attribute may also be a space-separated list of class names. For example:
class="className1 className2 className3“

The style Attribute

The style attribute allows you to specify Cascading Style Sheet (CSS) rules within the element.

```
<!DOCTYPE html>
<html>
<head>
<title>The style Attribute</title>
</head>
<body><p style="font-family:arial; color:#FF0000;">Some text...</p>
</body>
</html>
```