

IT4552 – Web programming

Lesson 1-2. Introduction to HTML

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Content

1. HTML Basic
2. Structured Document
3. DOM (Document Object Model)
4. Common HTML Elements

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What is HTML? (review)

- ❖ Hypertext Markup Language
- ❖ Markup Language for web pages
 - Markup Language
 - a set of annotations to text that describe how something is to be structured
 - Hypertext
 - text with references (hyperlinks) to other text that the reader can immediately access, usually by a mouse click or key press sequence

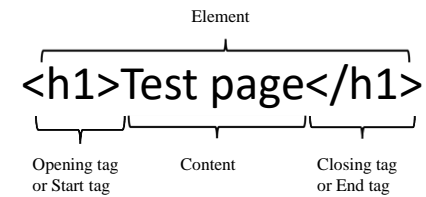
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HTML Example

```
<html>
  <head>
    <title>Test Page</title>
  </head>
  <body>
    <h1>Test Page</h1>
    <p>This is a test page.</p>
  </body>
</html>
```

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Element and Tag



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Attribute

- ❖ Most of elements can have attributes
- ❖ An attribute describes a property of an element

```
<h1 id="title">Test Page</h1>
```

Attribute name Attribute value

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Hyperlink

- ❖ A link from a document to another document
- ❖ Anchor element with href attribute
 - href has a URI, an absolute path or a relative path
 - Example:

```
<a href="http://www.yahoo.com/">Yahoo!</a>
```



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Images

❖ Insert image

- ``
- ``
- E.g. `<p>`

❖ Add a border to the image

- set attribute as ``, where *n* means the thickness of the border in pixels



Images (2)

❖ Change the size of the images

- ``, where *x*, *y* is in pixel
- E.g. `<p>` My awards here

❖ show the words over the image

- ``



Content

1. HTML Basic
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2. Structured Document

❖ Most of Documents have a structure

- Article
 - Title, Part, Chapter, Section, Paragraph, ...
- CV
 - Name, Education, Work Experiences, Skills, ...

❖ Markup Language is a way to express structured document

- Nested Elements

2.1. Nested Elements

❖ Tree structure expressed by Markup Language

```
<html>
```

```
  <head>
```

```
    <title>Test</title>
```

```
  </head>
```

```
  <body>
```

```
    <h1>Test</h1>
```

```
    <p>Paragraph</p>
```

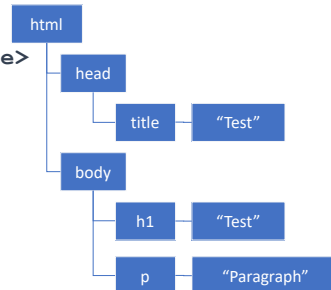
```
  </body>
```

```
</html>
```



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2.1. Nested Elements (2)

❖ Rule of Nested Elements

- Opening tags must be matched to closing tags
- The latest opening tag must be closed before other opening tag

- Correct example

```
<head><title>Title</title></head>
```

- Incorrect example

```
<head><title>Title</head></title>
```



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2.2. Global structure of HTML Document

❖ <html>

- root of document

❖ <head>

- meta information of document
 - title, meta, link, ...

❖ <body>

- content of document
 - h1-h6, p, address, ...



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```
<html>
  <head>
    <title>Test</title>
  </head>
  <body>
    <h1>Test</h1>
    <p>Paragraph</p>
  </body>
</html>
```

Content

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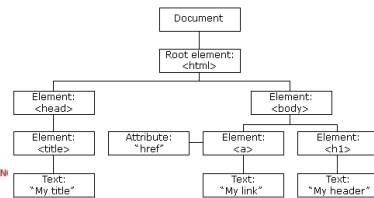


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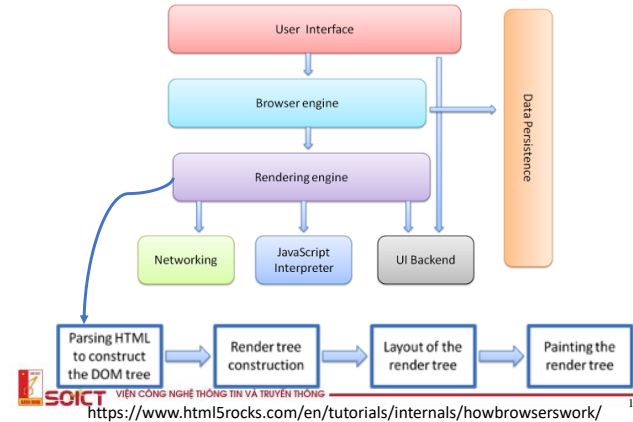
3. DOM (Document Object Model)

- ❖ API for HTML Documents
 - defines a standard way for accessing and manipulating HTML documents
 - Object Oriented
 - Supported by various programming languages
- ❖ DOM representation
 - Logical tree structure
 - Hierarchy of node objects
 - root: Document
 - Node: Element, Attr, Text,...



3. DOM (2)

- ❖ Structure of a browser



3. DOM (3)

- ❖ DOM in JavaScript
 - E.g. get all of paragraphs in the document and display the first one of them

```
var paragraphs =
  document.getElementsByTagName("p");
alert(paragraphs[0].nodeName);
```

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4. Structured HTML Elements

- ❖ List
- ❖ Table
- ❖ Emphasis

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4.1. List

- ❖ Unordered List
- ❖ Ordered List
- ❖ Definition List

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Unordered List

```
<ul>
  <li>Apple</li>
  <li>Banana</li>
  <li>Grape</li>
</ul>
```

- Apple
- Banana
- Grape

❖ Attributes: TYPE

- TYPE is DISC, CIRCLE, or SQUARE

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UL: Custom Bullets

```
<UL TYPE="DISC">
  <LI>The UL tag
    <UL TYPE="CIRCLE">
      <LI>TYPE
        <UL TYPE="SQUARE">
          <LI>DISC
          <LI>CIRCLE
          <LI>SQUARE
        </UL>
      <LI>COMPACT
    </UL>
  <LI>The LI tag
    <UL TYPE="CIRCLE">
      <LI>TYPE
        <UL TYPE="SQUARE">
          <LI>DISC
          <LI>CIRCLE
          <LI>SQUARE
        </UL>
      <LI>VALUE
    </UL>
  </UL>
```

Unordered Lists

- The UL tag
 - TYPE
 - DISC
 - CIRCLE
 - SQUARE
 - COMPACT
- The LI tag
 - TYPE
 - DISC
 - CIRCLE
 - SQUARE
 - VALUE

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Ordered List

```
<ol>
  <li>One</li>
  <li>Two</li>
  <li>Three</li>
</ol>
```

1. One
2. Two
3. Three

Attributes: TYPE, START

- TYPE: 1, a, A, i, I
- START=1 or 2 ... a or b ...



Nested Ordered Lists

```
<OL TYPE="I">
  <LI>Headings
  <LI>Basic Text Sections
  <LI>Lists
    <OL TYPE="A">
      <LI>Ordered
        <OL TYPE="1">
          <LI>The OL tag
            <OL TYPE="a">
              <LI>TYPE
              <LI>START
              <LI>COMPACT
            </OL>
          <LI>The LI tag
        </OL>
        <LI>Unordered
          <OL TYPE="1">
            <LI>The UL tag
            <LI>The LI tag
          </OL>
          <LI>Definition
            <OL TYPE="1">
              <LI>The DL tag
              <LI>The DT tag
              <LI>The DD tag
            </OL>
          </OL>
        </LI>
      </OL>
    </LI>
  </OL>
```

- I. Headings
- II. Basic Text Sections
- III. Lists
 - A. Ordered
 1. The OL tag
 - a. TYPE
 - b. START
 - c. COMPACT
 2. The LI tag
 - B. Unordered
 1. The UL tag
 2. The LI tag
 - C. Definition
 1. The DL tag
 2. The DT tag
 3. The DD tag
- IV. Miscellaneous



Definition List

```
<dl>
  <dt>Apple</dt>
  <dd>A fruit or a computer company</dd>
  <dt>Grape</dt>
  <dd>A juicy purple- or green-skinned fruit</dd>
</dl>
```

- Apple
 - A fruit or a computer company
- Grape
 - A juicy purple- or green-skinned fruit



4.2. Table

```
<table>
  <caption>Users</caption>
  <tr>
    <th>Name</th>
    <th>Email</th>
  </tr>
  <tr>
    <td>John Smith</td>
    <td>smith@example.org</td>
  </tr>
  <tr>
    <td>Amy Wine</td>
    <td>amy@yahoo.com</td>
  </tr>
</table>
```

Users

Name	Email
John Smith	smith@example.org
Amy Wine	amy@yahoo.com



4.2. Table (2)

- ❖ Adding a border
 - `<table border=10>`
- ❖ Changing the border color
 - `<table border=10 bordercolor=green>`
 - `<table border=10 bordercolorlight=green bordercolordark=red>`
- ❖ Setting the width of a cell or table
 - `<table border=0 width=320>`
 - `<table border=0 width=100%>`
 - `<td width=320> data </td>`
 - `<td width=30%> data </td>`

4.2. Table (3)

- ❖ Centering a table on a page
 - `<table border=0 width=320 align=center>`
- ❖ Aligning a cell's contents:
 - `<td align=d1 valign=d2>;`
 - d1: left, right or center
 - d2: top, bottom, middle or baseline
 - `<td align=left valign=top>`

4.2. Table (3)

- ❖ Controlling space in and around cells
 - Cellpadding=m, where m is the number of pixels desired between the contents and the walls of the cell
 - `<table cellpadding=8>`

data 11	data 12
Data 21	Data 22

peaches peaches peaches peaches peaches peaches peaches peaches peaches peaches	cherries cherries cherries cherries cherries cherries
---	---

- Cellspacing=n, where n is the number of pixels desired between each cell

- `<table cellspacing=8>`

data 11	data 12
Data 21	Data 22

peaches walnuts	cherries almonds
--------------------	---------------------

4.2. Table (4)

- ❖ Spanning a cell across columns -- `<td colspan=n>`

```
<table border= 2 bordercolor=green align=left>
<tr> <!-- first row -->
  <td> data 11 </td> <td> data 12
</td>
</tr>
<tr> <!-- second row -->
  <td> Data 21 </td>
  <td> Data 22 </td>
</tr>
<tr> <!-- third row -->
  <td colspan=2> Data 3 - last row??? </td>
</tr>
</table>
```

data 11	data 12
Data 21	Data 22
Data 3 - last row???	

4.2. Table (5)

- ❖ Spanning a cell across rows -- `<td rowspan=n>`

```
<table border= 2 bordercolor=green align=left>
  <tr> <!-- first row -->
    <td> data 11 </td> <td> data 12 </td>
  </tr>
  <tr> <!-- second row -->
    <td rowspan=2> Row 23 </td> <td> Data 21 </td>
  </tr>
  <tr> <!-- third row -->
    <td> Data 31 </td>
  </tr>
</table>
```

data 11	data 12
Row 23	Data 21
	Data 31

4.3. Emphasis

```
<p>
  Here is an emphasized <em>paragraph</em>
</p>
<p>
  This is a strongly emphasized <strong>text</strong>
</p>
```



Here is an emphasized *paragraph*

This is a strongly emphasized **text**

4.4. Quote

- ❖ Short quote: `<q>`
 - includes only text
 - IE 8 doesn't support `<q>`
- ❖ Long quote: `<blockquote>`
 - includes block-level elements like headings, lists, paragraphs or div's
 - inserts white space before and after a blockquote element

He said, "I'm lucky".



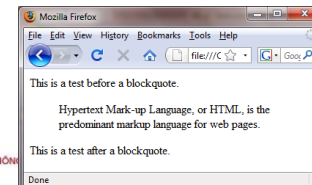
```
<p>He said, <q>I'm lucky</q>.</p>
```

4.4. Quote (2)

This is a test before a blockquote.

```
<blockquote
  cite="http://en.wikipedia.org/wiki/HTML">
  <p>Hypertext Mark-up Language - HTML, is the
    predominant markup language for web pages.</p>
</blockquote>
```

This is a test after a blockquote.



4.5. Other structuring of text

``This text is bold``

``This text is strong ``

`<big>`This text is big `</big>`

``This text is emphasized ``

`<i>`This text is italic `</i>`

`<small>`This text is small `</small>`

This text contains a`_{`2`}`

This text contains x`^{`2`}` = a x a

`<i>`, `` and ``

4.5. Other structuring of text

- ❖ dfn
- ❖ code
- ❖ samp
- ❖ kbd
- ❖ var
- ❖ cite
- ❖ br
- ❖ abbr
- ❖ acronym
- ❖ pre
- ❖ ins
- ❖ del
- ❖ sub
- ❖ sup

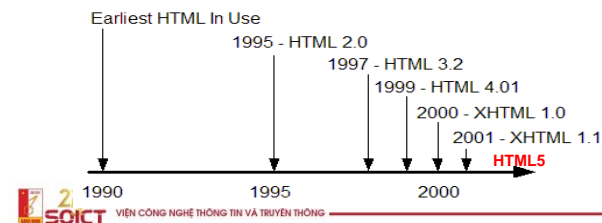
Special character

- ❖ Làm sao hiển thị các ký hiệu đặc biệt ?
- ❖ Dấu <, >, &
- ❖ Dấu nhảy kép "
- ❖ Các ký tự đặc biệt : @ © ®
- ❖

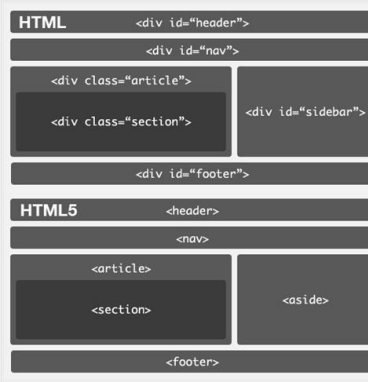
Result	Description	Entity Name	Entity Number
"	quotation mark	"	"
&	ampersand	&	&
<	less-than	<	<
>	greater-than	>	>

HTML5

- ❖ HTML5



HTML 4.0 vs HTML 5



- ❖ Simplify the process of making web applications
- ❖ Keep up with globalization and evolution of the internet
- ❖ Faster speeds and technologies like smartphones, tablets, etc



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HTML5

❖ Page Structure



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HTML5

❖ New elements

```
<article>
  <p>Tin trong ngày</p>
  <p>Công nghệ ngày càng tiến sâu vào đời sống chúng ta...</p>
</article>

<p>My family and I visited The Epcot center this summer.</p>
<aside>
  <h4>Epcot Center</h4>
  The Epcot Center is a theme park in Disney World, Florida.
</aside>

<command type="command" label="Save" onclick="save()">Save</command>
```



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HTML5

❖ New elements

```
<details>
  <summary>Copyright 1999-2011 </summary>
  <p> - by Refsnes Data. All Rights Reserved.</p>
  <p>All content and graphics on this web site are the property of the
  company Refsnes Data.</p>
</details>

▼ Copyright 1999-2011.
- by Refsnes Data. All Rights Reserved.

All content and graphics on this web site are the property of the company Refsnes
Data.

<figure>
  
  <figcaption>A view of the pulpit rock in Norway.</figcaption>
</figure>
```



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HTML5

❖ New elements

```
<header>
  <h1>Welcome to my homepage</h1>
  <p>My name is Donald Duck</p>
</header>
```

```
<footer>Copyright 1999-2050.</footer>
```

```
<hgroup>
  <h1>Welcome to my WWF</h1>
  <h2>For a living planet</h2>
</hgroup>
```

```
<p>Do not forget to buy <mark>milk</mark> today.</p>
```

```
<meter value="2" min="0" max="10">2 out of 10</meter><br/>
<meter value="0.6">60%</meter>
```



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HTML5

❖ New elements

```
<nav>
  <a href="/html5/">HTML5</a> |
  <a href="/css3/">CSS3</a> |
  <a href="/js/">JavaScript</a>
</nav>
```

```
Downloading progress:
<progress value="22" max="100"></progress>
```

Downloading progress:

```
<ruby>
  漢 <rt> 厂马` </rt>
</ruby>
```

厂马` 漢

```
<p>
  To learn AJAX, you must be familiar with the XML<wbr>Http<wbr>Request
  Object.
</p>
```



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HTML5

❖ New elements

```
<audio controls="controls">
  <source src="song.ogg" type="audio/ogg" />
  <source src="song.mp3" type="audio/mp3" />
  Your browser does not support the audio element.
</audio>
```



```
<video width="320" height="240" controls="controls">
  <source src="movie.mp4" type="video/mp4" />
  <source src="movie.ogv" type="video/ogg" />
  Your browser does not support the video tag.
</video>
```

```
<embed src="helloworld.swf" />
```



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HTML5

❖ New elements

```
<form action="demo_form.asp" method="get">
  <input list="browsers" name="browser" />
  <datalist id="browsers">
    <option value="Internet Explorer">
    <option value="Firefox">
    <option value="Google Chrome">
    <option value="Opera">
    <option value="Safari">
  </datalist>
  <input type="submit" />
</form>
```

```
<form action="demo_keygen.asp" method="get">
  Username: <input type="text" name="usr_name" />
  Encryption: <keygen name="security" />
  <input type="submit" />
</form>
```



Username: Encryption: 2048 (Cấp độ cao)

2048 (Cấp độ cao)
1024 (Loạt Trung bình)

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HTML5

❖ New elements

```
<form oninput="x.value=parseInt(a.value)+parseInt(b.value)">
  0 <input type="range" name="a" value="50" /> 100
  + <input type="number" name="b" value="50" />
  = <output name="x" for="a b"></output>
</form>
```

0  100 + 50  = 100



HTML5 - New attributes

❖ Thuộc tính ContentEditable:

- Nếu thẻ nào được gán thuộc tính này thì người dùng có thể trực tiếp sửa đổi nội dung trong thẻ đó.
- Ví dụ: <div contenteditable="true">

❖ Thuộc tính Draggable:

- Hỗ trợ kéo thả.
- Để xử lý các sự kiện kéo thả, ta cần đến sự trợ giúp của các API được xây dựng sẵn trong HTML.

❖ Thuộc tính SpellCheck:

- Hỗ trợ kiểm tra chính tả.
- Được dùng với thẻ input, textarea

Enter your text here:

<input type="text" spellcheck="true" />

<input type="submit" value="Send" />

Enter your text here:

Grop | 5

Send



HTML5

❖ Lưu trữ dữ liệu ngoại tuyến

▪ Session Storage

```
sessionStorage.setItem("key", value);
value = sessionStorage.getItem("key");
```

▪ Local Storage

```
localStorage.setItem("key", value);
localStorage.setItem("key", value);
```

▪ Web SQL Database



Question?

