

Introduction to HTML

Hypertext Markup Language

超文本标识语言

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<http://ucloer.eprints-hosting.org/54/>

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HTML

(for construction of web pages)

HTML构建网页

- Hypertext Markup (HTML)
超文本标识语言
是一种用来制作超文本文档的简单标记语言
用HTML编写的超文本文档称为HTML文档
- HTML provides structure and organises documents
HTML提供结构和组织文档
- CSS is for styling, formatting, positioning of content
层叠样式表用来设计内容的样式、位置
- Two separate functions 两种不同功能

HTML

- A simple text file with the extension .html
扩展名 .html
- Home page / landing page / First page
 - Always must be named: **index.html**
 - Why? That is what the server looks for.
 - 主页/引导页/首页必须命名为index.html
 - 为什么? 便于服务器发现

Writing HTML 手工直接编写

Simple text editor 简单的网页编辑器

Free programs: 免费软件

- MS Notepad will work but limited functionality
- [Notepad2](#) – no installation needed

- [TextWrangler](#) (Mac)
- [jEdit](#) (Java-based)

- Important to learn the basics before using software
用这些软件之前学习网页制作的基本知识很重要

Basic (minimum) structure of a web page:

```
<html>                                     <元素>
  <head>
    <title>
      网页的标题
      [page title (note where this is displayed)]
    </title>
  </head>

  <body>
    这是网页的主体部分（浏览器中所有显示的内容）
    [page content goes here]
    [i.e. everything displayed in the browser]
  </body>
</html>
```

HTML 文件一般分为两个部分：头部和主体

头部

```
<html>
```

```
<元素>
```

```
<head>
```

```
--头标元素
```

```
<title>
```

```
--标题元素
```

网页的标题

(内容将显示在浏览器窗口的标题栏)

[page title (note where this is displayed)]

```
</title>
```

```
</head>
```

HTML文件一般分为两个部分：头部和主体

主体

`<body>`

HTML文件的主体

[page content goes here]

[i.e. everything displayed in the

browser]

`</body>`

Basic (minimum) structure of a web page:

```
<html>                                     <元素>
  <head>
    <title>
      网页的标题
      [page title (note where this is displayed)]
    </title>
  </head>

  <body>
    这是网页的正文
    [page content goes here]
    [i.e. everything displayed in the browser]
  </body>
</html>
```

Basic (minimum) structure of a web page

网页最小结构



Template for a basic XHTML page 基本XHTML模板

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
<head>
```

```
<meta http-equiv="content-type" content="text/html; charset=UTF-8" />
```

```
<meta http-equiv="Content-Language" content="en-gb" />
```

```
<title> TITLE OF THE DOCUMENT 网页的标题 </title>
```

```
</head>
```

```
<body>
```

```
<p> CONTENT OF THE WEBPAGE 这是网页的主体 </p>
```

```
</body>
```

```
</html>
```

Note: all tags lower case – open and close (except empty elements)

Basic XHTML page



XHTML

- Describe content of document 描述文件内容
- NOT how to style 非样式设计
- Style and position of content with CSS 层叠样式表

Elements and attributes

元素与属性

- All names are in US English
所有元素与属性都以美式英语命名

Elements and attributes 元素和属性

- Elements <元素> 标记开头
 - Start tag <p>
 - End tag </p>
 - Content goes within those tags (some text)
- Attributes <属性>
 - Describe the element (tell you something about it)
- Values <值>
 - Syntax:

Attribute_name="attribute value"

Eg: <h2 class="style1">second level heading</h2>

Block-level and line-level tags

区块标签和内联标签

- block-level 区块级别

`<h1>` `</h1>` (h1, h2, h3, h4, h5)

[note numbers = hierarchy of headings not heading 1,2,3]

`<p>` `</p>`

`<table>` `</table>`

`<div>` `</div>` (exception to rule)

- line-level 线级别

`` ``

`` ``

Nesting elements 嵌套元素

<body>

<p>

Some text



 Some text



</p>



</body>

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https://upload.wikimedia.org/wikipedia/commons/0/0a/Russian_Dolls.jpg

Empty elements 空元素

- Note space before `/>`
空元素可以不写成开始标签和结束标签的形式
- `
` line break - forces white space
- `<hr />` horizontal rule
- `` link to an image

Adding lists to your web

常用的列表有3种格式

[有序列表]

```
<ol>
```

```
  <li> list item </li>
```

```
  <li> another list item </li>
```

```
</ol>
```

[无序列表]

```
<ul>
```

```
  <li> list item </li>
```

```
  <li> another list item </li>
```

```
</ul>
```

Adding lists to your webpage

在网页上添加列表

- ordered list: [有序列表]

```
<ol>
```

```
  <li> list item </li>
```

```
  <li> another list item </li>
```

```
</ol>
```

- unordered list: [无序列表]

```
<ul>
```

```
  <li> list item </li>
```

```
  <li> another list item </li>
```

```
</ul>
```

Definition list 定义列表

```
<dl> [开始, 列表条目用]
  <dt> definition term </dt>
    <dd> definition text </dd>
  <dt> definition term </dt>
    <dd> definition text </dd>
  <dt> definition term </dt>
    <dd> definition text </dd>
</dl>
```

Definition list output 定义列表

Definition term
Definition text

Definition term
Definition text

Definition term
Definition text

Adding navigation 添加导航

- Link to outside website 链接到外部网站
`link to Baidu`
- Links within the page 网页内部的链接
`back to top of page`
Needs a *bookmark* to link to: ``
- Link to another page in the same site 链接到相同网站的另一个网页
(assumes files are in the same folder)
(假设文件在一个文件夹)
`link to second page`

Navigation menu 导航菜单

- Unordered List (Vertical) menu: 无序列表

```
<ul>
```

```
  <li><a href="index.html">Home page</a></li>
```

```
  <li><a href="page2.html">second  
page</a></li>
```

```
  <li><a href="page3.html">third page</a></li>
```

```
</ul>
```

- Line of Links (Horizontal) menu: 链接菜单

```
<div id="navigation">
```

```
  <a href="index.html">Home page</a> |
```

```
  <a href="page2.html">second page</a> |
```

```
  <a href="page3.html">third page</a>
```

```
</div>
```


Adding images to your pages

添加图像

- Syntax 句法

```

```

- Example 举例

```

```

Adding tables

添加表格

Demonstration of Table
with no styling

Head 1	Head 2	Head 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3

Demonstration of Table with
Row Shading and Borders

Head 1	Head 2	Head 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3
Cell 1	Cell 2	Cell 3

Note: tables are for TABULAR DATA ONLY and NOT for positioning content

注意：表格只用来记录表格数据，不是用来定位内容。

Structure of a table 表格结构

```
<table>
```

```
  <tr>
```

```
    <td> Column 1 data </td>
```

```
    <td> Column 2 data </td>
```

```
  </tr>
```

```
  <tr>
```

```
    <td> Column 1 Data </td>
```

```
    <td> Column 2 Data </td>
```

```
  </tr>
```

```
</table>
```

Table headings 表格的表头

```
<table>
  <tr>
    <th> Column 1 Heading </th>
    <th> Column 2 Heading </th>
  </tr>
  <tr>
    <td> Column 1 Data </td>
    <td> Column 2 Data </td>
  </tr>
</table>
```

Adding extra information 添加其他表格信息

`<table summary="description of the content">`

`<caption> a caption for my table </caption>`

NB: the caption must be INSIDE the table and immediately following the `<table>` tag.

注意：caption标签必须在表格之内并且紧随table标签之后

```
<table summary="a description of the content">
```

```
<caption> a caption for my table </caption>
```

```
<tr>
```

```
  <th> Column 1 Heading </th>
```

```
  <th> Column 2 Heading </th>
```

```
</tr>
```

```
<tr>
```

```
  <td> Column 1 Data </td>
```

```
  <td> Column 2 Data </td>
```

```
</tr>
```

```
</table>      [Question: why go to the trouble of doing this?]
```

[思考：为什么要多此一举?]

Special characters

特殊字符

- How would you display `< or >` in html?
在HTML语言中如何表现`<or>`?
- Non-standard characters or ones with a function in html that need special treatment
有含义的非标准元素在HTML中需要特别对待

Using special characters

使用特殊字符

- Non-standard characters or ones with a function in html need special treatment
有含义的非标准元素在HTML中需要特别对待
- Syntax: ampersand+code+semi-colon

Eg: & = &

< = <

> = >

" = "

Also other languages:

é = é

[For more see: http://www.w3schools.com/html/html_entities.asp]

Adding extra information to links

在链接里添加额外信息

- **A title attribute:** 标题属性

This will show up in a *tooltip*

```
<a href="http://www.baidu.com" title="a link to Baidu">link to Baidu</a>
```

- **Opening in a new window:** 在新窗口打开

```
<a href="http://www.baidu.com" title="a link to Baidu. Opens in a new window" target="_blank" >link to Baidu</a>
```

Structural divisions of the webpage

网页结构划分

- The `<div>` element defines logical and structural divisions of a webpage
`<div>`定义网页的逻辑和结构分区
- EG: header (页眉), footer (页脚), content etc.
- `<div id="header">stuff in the header</div>`
- `<div id="content">main page content</div>`
- `<div id="footer">stuff in the footer</div>`

Multi-page website

多页网站

- Organise your material
组织你的内容
 - break the content into individual parts
将内容分解成独立的部分
- Select pages and file names (headings)
选择页和文件的名称（标题）
- Always name first page: **index.html**
- Make file names meaningful 文档命名合理化
short / lower case / letters & numbers / no spaces /
underscores / start with letter
短/小写/字母及数字/无空格/下划线/由字母开始

Adding comments in your markup

在标记中添加评论

<!-- anything here will be ignored by the browser -->
<!--评论中的内容不会显示在浏览器中-->

e.g. <!-- list starts here -->
<!-- list ends here -->
<!-- edited up to here -->
<!-- check the formatting of these footnotes -->

Validating HTML

验证HTML

- W3c Markup Validation Service
- <https://validator.w3.org/>



Markup Validation Service

Check the markup (HTML, XHTML, ...) of Web documents

Validate by **URI**

Validate by **File Upload**

Validate by **Direct Input**

Validate by URI

Validate a document online:

Address:

▶ [More Options](#)

Check

This validator checks the [markup validity](#) of Web documents in HTML, XHTML, SMIL, MathML, etc. If you wish to validate specific content such as [RSS/Atom feeds](#) or [CSS stylesheets](#), [MobileOK content](#), or to [find broken links](#), there are [other validators and tools](#) available. As an alternative you can also try our [non-DTD-based validator](#).



The W3C validators rely on community support for hosting and development.

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This service runs the W3C Markup Validator, [v1.3+hg](#).

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Examples of University Homepage

大学主页示例

- Screenshot of University homepage

HTML code of the University Homepage

大学主页的HTML代码

- Screenshot of code behind University homepage
- (View source)

Repeat for each institution

Show search engine search results along with the text being displayed 搜索引擎结果及显示文本

- Google
- Bing
- Baidu

- Where does this text come from?
这些文本从何而来
- It is not displayed on the webpage.
在网页上没有显示

- Show the institution home page again
- Where does that text come from

- Show source code for that page
- Indicate `<meta name="description" content="...">`

HTML5 – the way forward

HTML5-前进之路



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- W3C release standard for HTML5 (2014)
 - HTML 5.0, HTML 5.1, HTML 5.2 ([living standard](#))
- W3School HTML5 (Chinese)
- <http://www.w3school.com.cn/html5/index.asp>

Screenshot of W3school HTML5 page

W3school HTML5网页截图

- <http://www.w3school.com.cn/html5/>

Template for a basic HTML5 page

基本的HTML5模板

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <meta charset="UTF-8">
```

```
    <title> TITLE OF THE DOCUMENT 网页的标题</title>
```

```
  </head>
```

```
  <body>
```

```
    <p> CONTENT OF THE WEBPAGE 这是网页的主体</p>
```

```
  </body>
```

```
</html>
```

HTML5 and CSS3



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- Get the basics right first
 - HTML / XHTML
 - CSS
-
- Latest standards: HTML5 and CSS3

HTML5



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- Browser support – limited in older versions
 - Need up to date browser 需要较新版本的浏览器
 - Some functions not supported 不支持某些功能
- Retains some features and dumps others
保留和舍弃部分特征
 - Simplifies `<doctype>` definition
 - `<!DOCTYPE html>`
 - `<meta charset="UTF-8">`
 - Clear separation of content & style 内容与形式的分离
 - No style tags so forces use of CSS 必须使用CSS样式
 - New features being developed all the time 新特征随时更新

Differences between HTML5 & XHTML document outline

HTML5与XHTML文档大纲不同之处

- XHTML: `<h1>` `<h2>` `<h3>` to structure content
 - `<div>`
 - Based on hierarchy 基于层级
- HTML5: sectioning elements 切片元素
 - `<article>` `<aside>` `<nav>` `<section>`
 - These can include `<h1>` `<h2>` etc within these elements
 - 可以在这些元素中插入`<h1>``<h2>`标签

Examples of new semantic elements HTML5

新HTML5语义元素示意

- W3Schools: HTML5 Semantic Elements
- https://www.w3schools.com/html/html5_semantic_elements.asp

Flash is DEAD

放弃Flash

- Do NOT use it! 不要用!
- Image of Flash on a gravestone
 - Adobe's multimedia browser plugin (open door to malware)
 - Steve Jobs: kills battery so not used in iOS
 - YouTube (2015) stop serving Flash videos
 - Mozilla (Firefox) block Flash (2016)
 - Google Chrome blocking soon (2016)

HTML Element Reference

HTML元素参考

- Page showing new HTML5 tags HTML5新标签
- W3schools: <https://www.w3schools.com/tags/>

HTML Element Reference in Chinese

中文HTML元素参考

- Page showing new HTML5 tags HTML5新标签
- With a description in Chinese
- W3school: <http://www.w3school.com.cn/tags/>

Validating HTML5

验证HTML5

- Standard W3C validator: HTML & XHTML only
 - According to document type 根据文件类型
- Use Nu HTML Checker:
<https://validator.w3.org/nu/>
 - Use text input 使用文本输入
- There are several other Validator.nu sites 其他验证网站
 - Baidu to try them out
 - E.g.: <http://html5.validator.nu>
 - Again use text input



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CSS3

- Latest standard for CSS CSS最新标准
- Backwards compatible with earlier versions
与较早版本的CSS兼容
- Less markup 更少的标记
- Download and display faster on tablets and smart phones
在平板电脑和智能手机上下载和呈现速度更快



CSS3

- New features 新特征
- 2D / 3D
- Animations 动画
- Video 视频

- Allows you to style new HTML5 elements
允许给HTML5元素添加样式

CSS3

- Allows you to style new HTML5 elements
允许给HTML5元素添加样式
- See: W3 CSS3 Introduction
 - <http://www.w3school.com.cn/css3/index.asp>

W3Schools pages on CSS

- https://www.w3schools.com/css/css_intro.asp

W3School pages on CSS and CSS3 in Chinese

- W3school CSS:
<http://www.w3school.com.cn/css/index.asp>
- W3schools CSS3:
<http://www.w3school.com.cn/css3/index.asp>

CSS3 validation

验证CSS3

- W3C CSS Validation Service W3C CSS验证服务
 - <https://jigsaw.w3.org/css-validator/>
 - Use direct input and copy paste code
直接输入和拷贝粘贴代码
 - If using CSS3 make sure you select 'More Options'
如果使用CSS3，确保你选择了‘更多选项’
 - Then CSS level 3
然后选择CSS3

W3School HTML Tutorials

W3School HTML 教程

- HTML <http://www.w3school.com.cn/html>
- XHTML <http://www.w3school.com.cn/xhtml>
- HTML5 <http://www.w3school.com.cn/html5>