XHTML: An Introduction

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2005–2006
Good-bye Cruel World!

<?xml version="1.0" encoding="utf-8"?>
<!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" xml:lang="en" lang="en">
<head>
<title>My first HTML document</title>
</head>
<body>
<h2>My Very First HTML Document</h2>
<p>Good-bye, <i>Cruel World</i>!</p>
<p>Hi from <a href="http://www.ing2.unibo.it/">Cesena</a>!</p>
<p>Page written by: <cite>Andrea Omicini</cite></p>
</body>
</html>
My Very First HTML Document

Good-bye, *Cruel World*!

Hi from *Cesena*!

Page written by: *Andrea Omicini*  
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What is HTML?

- It is a markup language
- allows you to annotate text, and to embody annotations in along with text in a document
- annotations label text properties
  - e.g., printing properties as annotations, in order to separate them from content
- SGML subset
  - Standard Generalized Markup Language
- A family of standards
  - W3C: consortium in charge of Web standards
    - http://w3c.org/Markup
  - Develops over time
    - either official or proprietary extensions
    - proposals, drafts, releases and recommendations
Versions

- From 1.0, 2.0, 3.2, 4.0 to 4.01
  - HTML 4.01 is the last recommendation
    - http://www.w3.org/TR/html4/
- XHTML 1.0 current standard
  - defined based on HTML 4.01
  - as more or less its XML-compliant version
    - http://www.w3.org/TR/xhtml1/
- XHTML 2.0 still ongoing work
  - http://www.w3.org/TR/xhtml2/
- 27/5/2005: 7th public Working Draft of XHTML 2.0 has been published
  - http://www.w3.org/TR/2005/WD-xhtml2-20050527/
XHTML™ 2.0

W3C Working Draft 27 May 2005

This version:
http://www.w3.org/TR/2005/WD-xhtml2-20050527

Latest version:
http://www.w3.org/TR/xhtml2

Previous version:
http://www.w3.org/TR/2004/WD-xhtml2-20040722

Diff-marked version:
xhtml2-diff.html

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This document is also available in these non-normative formats: Single XHTML file, PostScript version, PDF version, ZIP archive, and Gzip'd TAR archive.

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From SGML to HTML

- SGML is a very intricated markup language
  - Web needs just a subset of it
- SGML is also a meta-markup language
  - can be used to define other markup languages
    - by defining their own DTD (Document Type Definition)
- HTML is defined via a SGML DTD
  - [http://www.w3.org/TR/html4/sgml/dtd.html](http://www.w3.org/TR/html4/sgml/dtd.html)
HTML / XHTML Document

- Suffix .html (or .htm, for windoze fault)
- Text file
- How can I create my own HTML file?
  - with any text editor, saving text with .html suffix
  - with any word processors allowing “Save as Text”
  - with any web-page creation tool
    - Composer, Dreamweaver, etc.
    - please no FrontPage
- How does computer see the HTML file?
  - in the same way as we do?
  - different levels of “perception”
    - OS, editors, browsers, ...
Elements & Tags

- An HTML document contains elements & sections delimited by tags.
- Generally, tags delimit start & end of a section / element.
  - `<tag>section or element</tag>`
- It is obviously of help to learn the main HTML tags.
- Tags may contain further specifications called attributes.
  - some of them required, some optional
  - `<img src="mypicture.jpg"/>`
    - src is mandatory
    - no closing tag, `/>` is used
- `<p>` is a tag, `<p>Paragraph</p>` is an element
Some Details

- White spaces have no meaning if not within strings.
- HTML is not case sensitive. `<p>` or `<P>`, it is the same.
- This does not hold for XHTML! `<p>` is correct, `<P>` is wrong.
Types of Tags

- Section tag
- Header tag
- Content tag
- Styling tag
- Empty elements
- Anchor / Hyperlink tags
Section Tags

- dividing HTML document in sections
- root tag
  - `<html>` starts HTML document
    - may not be the beginning of the HTML file...
  - `</html>` ends it
    - while the file might go on...
- 2 sections: Header & Body
  `<html>`
  `<head> ... </head>`
  `<body> ... </body>`
  `</html>`
Header tags

- within the header, between `<head>` and `</head>`
- not displayed directly by the browser
- main header tags
  - `<title>` defines page title
    - in the title bar of the browser window
  - `<meta />` carries meta-information on the document content
    - e.g.: `<meta name="author" content="Andrea Omicini" />`
    - like a comment, but can be referenced and used
Content tags

- within the body, between `<body>` and `</body>`
- used by browser for display
- most of the useful tags
  - `<p>` for paragraphs
  - `<table>` for tables
  - `<h1>` for 1st-level headers
    - `<h2>`, `<h3>`, ... next levels
  - comments
    - `<!-- this is a comment -->`
Styling tags

two kinds
- based on the content nature
- based on formatting

content-based: examples
- `<blockquote>` contains a block for a quotation
- `<cite>` contains a reference to a citation

format-based: examples
- `<b>` bold, `<i>` italic

sometimes no differences in display by browsers
- `<em>`, `<cite>`, `<i>`, `<dfn>`

but the source shows the differences in markup
that could be used anyway for some reasons
Empty tags

In XHTML

- `<br />` line break
- `<hr />` horizontal rule
- `<img />` inline image

In HTML, `<br>` & `<hr>` are ok

- In XHTML they should be “closed” somehow

Pay attention to attributes!

- required & optional
  - e.g., attribute `src` in `img` is required
- take a close look to specifications
  - check when needed

exploit tools!

- along with their embedded knowledge
Anchor / Hypertext tags

tag <a> for both
   “anchor” denotes portions of a document
e   to be directly referred to with #
   “hypertextual reference” denotes other docs
      or portions of them
   obviously contains an URL
<a name="NAME">…</a>
<a href="URL">…</a>

relative / absolute URL
<a href="URL#NAME"> denotes an anchor within an href

Pay attention to quotes!
Limits of HTML (1)

- Content intermixed with presentation
- from 1.0 to 4.01 things have improved
- but too many biases from browsers
  - to be absolutely AVOIDED
  - in general
  - here in this course for sure :)
- Not “well-formed”
- as XML is instead
- too much forgiving
  - elements can be interleaved, tag can be wrong, closing tags or attributes may be missing, etc...
Limits of HTML (2)

- It is more a sort of “structural” markup language
  - describes text structure
  - structural markup
  - more than the nature of content
    - descriptive / semantic markup
  - not easy to adapt to the different natures of media
- That is why we are moving to XML through XHTML
- Goal: a language
  - disciplined and easy to check
  - powerful but simple
  - descriptive
XML in short

- Extensible markup language
- to define markup languages
- XML application
- a markup language defined via XML
- XHTML is an XML application
- Essential remark: XML has no predefined tag / elements
- anyone can define tags and structures that better fits the chosen contents
Fundamental Parts of a XML Document

1. XML Document (properly said)
   - content built according to XML rules
2. Document Type Definition (DTD)
   - which tags and their meaning
3. Style Sheet
   - for presentation
Benefits of XML

- Portable
  - text format, any platform and many applications to read & write it
- Configurable / Extensible
  - anybody can define his/her own markup language
- Self-descriptive
  - an XML document is self-contained: presentation, meaning, data & their structure
XHTML = HTML + XML

- XHTML defined using XML as a meta-language
- HTML defined instead in SGML
- Vocabulary taken from HTML, syntax from XML
- Backward compatibility
  - In particular, in the “human legacy”
- XML properties
  - Well-formed, not error-prone, extensible via XML
XHTML - HTML = ?

- XML Prologue
  - first element of the XHTML document
    - `<?xml version="1.0" encoding="UTF-8"?>`
      - like corresponding `<meta />` for old browser
- Document type declaration
  - what is the document DTD?
    - `<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
      "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd"`
Other differences

Recommendation: define the namespace to give meaning to tags. We could write:

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

...and then the same all the others...

However, it seems easier to write:

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

...also, we could add our namespaces and declare the languages.

Other

- case sensitivity
- full nesting
- required elements: `<head>`, `<body>`, `<html>`, `<title>`
What should we learn from the lab activity?

- Structure of the HTML / XHMTL document
  - header, body, and their content
- Inline elements, comments, lists, special chars
- Attributes
  - shared by most elements
  - attributes to affect presentation
- Anchors / Hypertextual references
- Images
- Tables
- Forms
- Frames, perhaps