Markup Languages:
XHTML 1.0

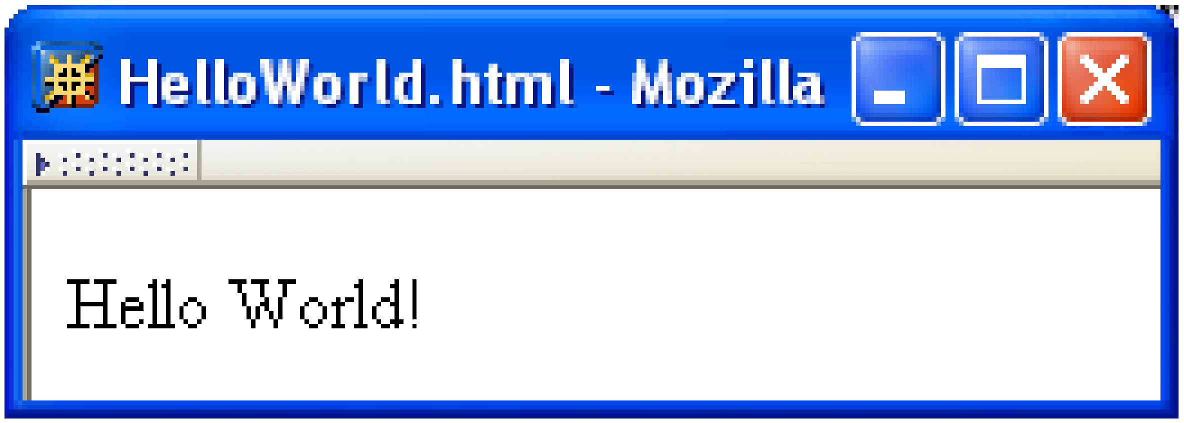
HTML “Hello World!”

Document Type Declaration

Document Instance

```
<!DOCTYPE html
        PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
        "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <title>
      HelloWorld.html
    </title>
  </head>
  <body>
    <p>
      Hello World!
    </p>
  </body>
</html>
```

HTML "Hello World"



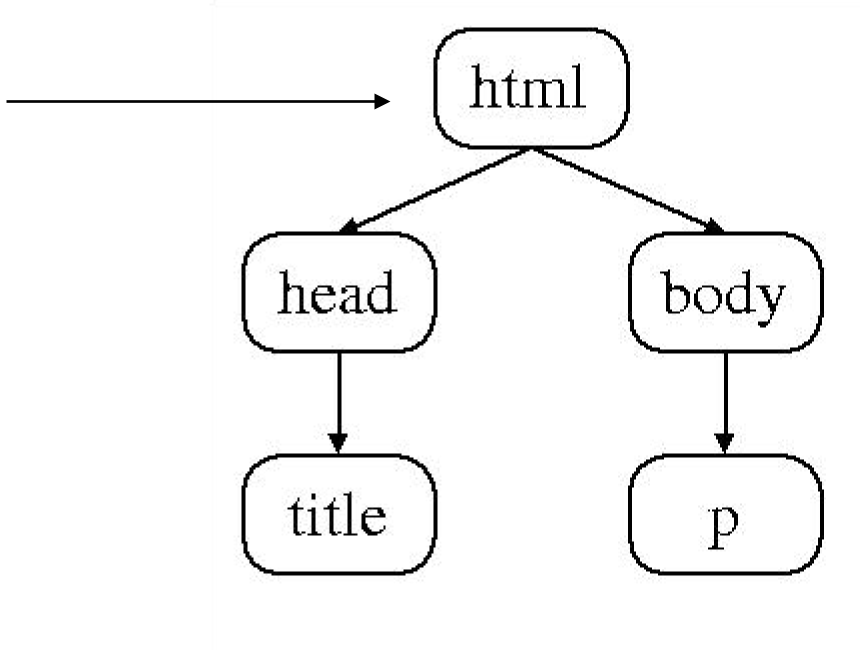
Hello World!

HTML Tags and Elements

- Any string of the form < … > is a *tag*
- All tags in document instance of Hello World are either end tags (begin with </) or start tags (all others)
  - Tags are an example of markup, that is, text treated specially by the browser
  - Non-markup text is called character data and is normally displayed by the browser
- String at beginning of start/end tag is an element name
- Everything from start tag to matching end tag, including tags, is an element
  - Content of element excludes its start and end tags

HTML Element Tree

Root Element



HTML Root Element

- Document type declaration specifies name of root element:
  `<!DOCTYPE html`
- Root of HTML document must be `html`
- XHTML 1.0 (standard we will follow) requires that this element contain the xml namespace `xmlns` attribute specification (name/value pair)

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

HTML head and body Elements

- The body element contains information displayed in the browser client area
- The head element contains information used for other purposes by the browser:
  - title (shown in title bar of browser window)
  - scripts (client-side programs)
  - style (display) information
  - etc.

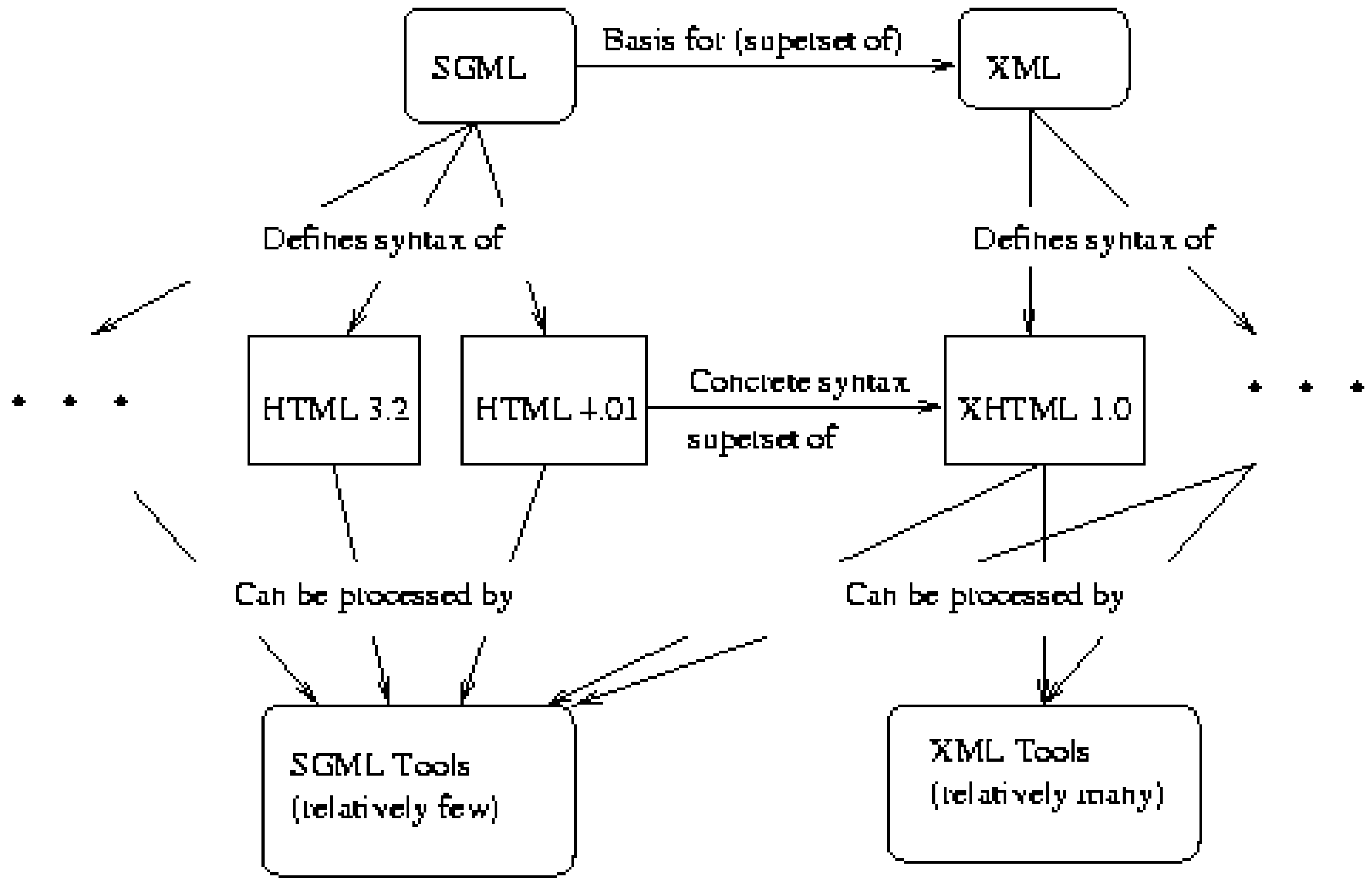
HTML History

- 1990: HTML invented by Tim Berners-Lee
- 1993: Mosaic browser adds support for images, sound, video to HTML
- 1994-~1997: "Browser wars" between Netscape and Microsoft, HTML defined operationally by browser support
- ~1997-present: Increasingly, World-Wide Web Consortium (W3C) recommendations define HTML

HTML Versions

- HTML 4.01 (Dec 1999) syntax defined using Standard Generalized Markup Language (SGML)
- XHTML 1.0 (Jan 2000) syntax defined using Extensible Markup Language (XML)
- Primary differences:
  - HTML allows some tag omissions (e.g., end tags)
  - XHTML element and attribute names are lower case (HTML names are case-insensitive)
  - XHTML requires that attribute values be quoted

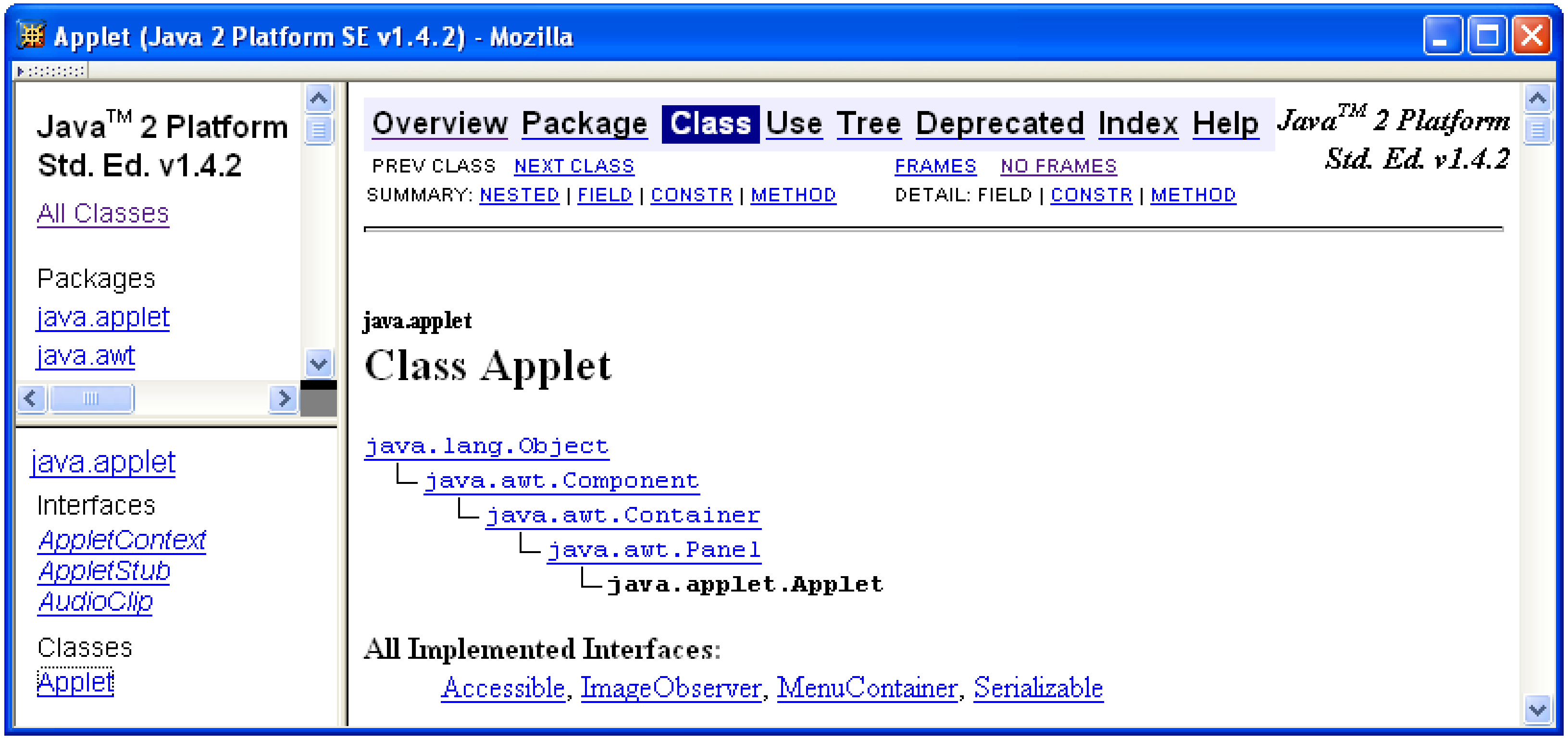
SGML and XML


SGML
Basis for (superset of)
XML
Defines syntax of
Defines syntax of
. . .
HTML 3.2
HTML 4.01
Concrete syntax
superset of
XHTML 1.0
. . .
Can be processed by
Can be processed by
SGML Tools
(relatively few)
XML Tools
(relatively many)

HTML “Flavors”

- For HTML 4.01 and XHTML 1.0, the document type declaration can be used to select one of three “flavors”:
  - Strict: W3C ideal
  - Transitional: Includes deprecated elements and attributes (W3C recommends use of *style sheets* instead)
  - Frameset: Supports frames (subwindows within the client area)

HTML Frameset



Applet (Java 2 Platform SE v1.4.2) - Mozilla

Java™ 2 Platform
Std. Ed. v1.4.2

All Classes

Packages
java.applet
java.awt

java.applet

Interfaces
AppletContext
AppletStub
AudioClip

Classes
Applet

Overview Package **Class** Use Tree Deprecated Index Help

Java™ 2 Platform Std. Ed. v1.4.2

PREV CLASS NEXT CLASS FRAMES NO FRAMES
SUMMARY: NESTED | FIELD | CONSTR | METHOD DETAIL: FIELD | CONSTR | METHOD

java.applet
Class Applet

```
java.lang.Object
  └java.awt.Component
      └java.awt.Container
          └java.awt.Panel
              └java.applet.Applet
```

All Implemented Interfaces:
Accessible, ImageObserver, MenuContainer, Serializable

Screen shots are reproduced by permission of Sun Microsystems Inc. All rights reserved.

HTML Document Type Declarations

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

- XHTML 1.0 Frameset:
  <!DOCTYPE html
  PUBLIC "-//W3C//DTD XHTML 1.0 Frameset//EN“
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-frameset.dtd">

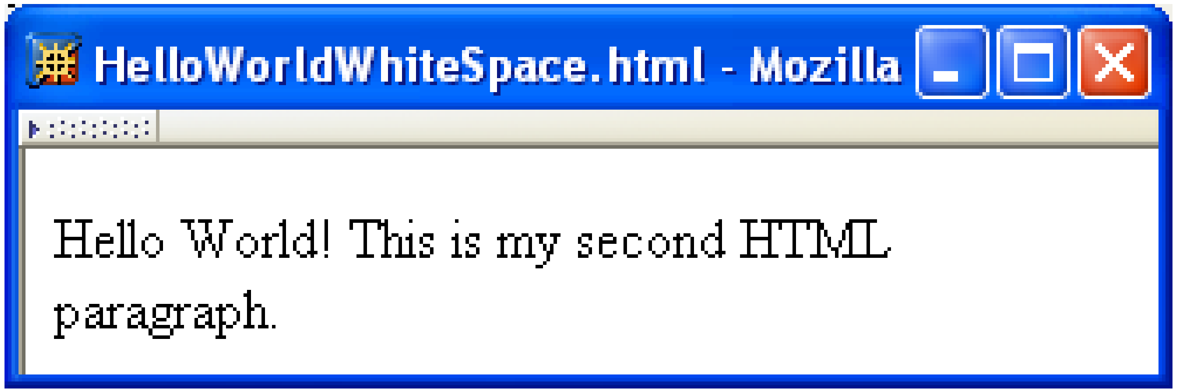
- HTML 4.01 Transitional:
  <!DOCTYPE HTML
  PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN“
  "http://www.w3.org/TR/html4/loose.dtd">

XHTML White Space

- Four white space characters: carriage return, line feed, space, horizontal tab
- Normally, character data is normalized:
  - All white space is converted to space characters
  - Leading and trailing spaces are trimmed
  - Multiple consecutive space characters are replaced by a single space character

XHTML White Space

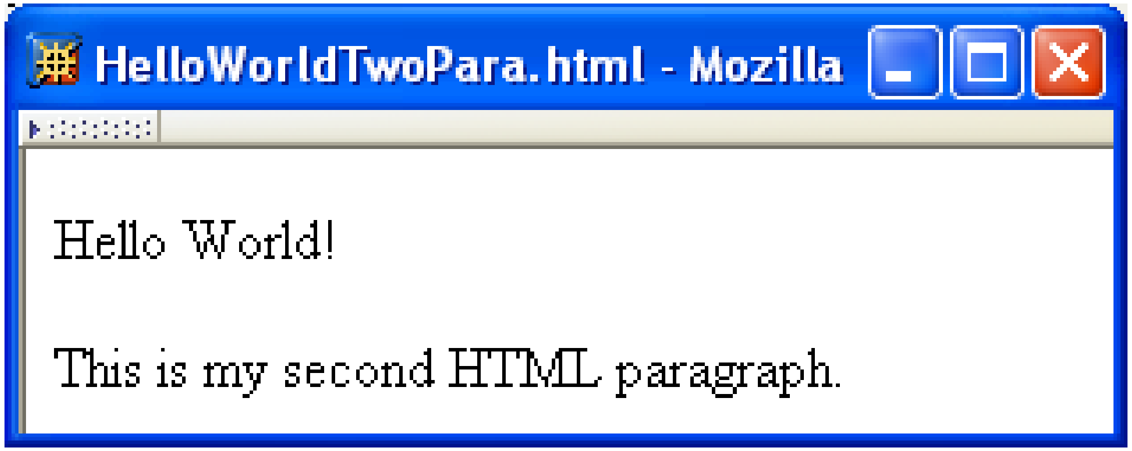
```
<body>
  <p>
    Hello World!

    This is my second HTML paragraph.
  </p>
</body>
```



Hello World! This is my second HTML paragraph.

XHTML White Space

```
<p>
  Hello World!
</p>
<p>
  This is my second HTML paragraph.
</p>
```



Hello World!

This is my second HTML paragraph.

Unrecognized HTML Elements

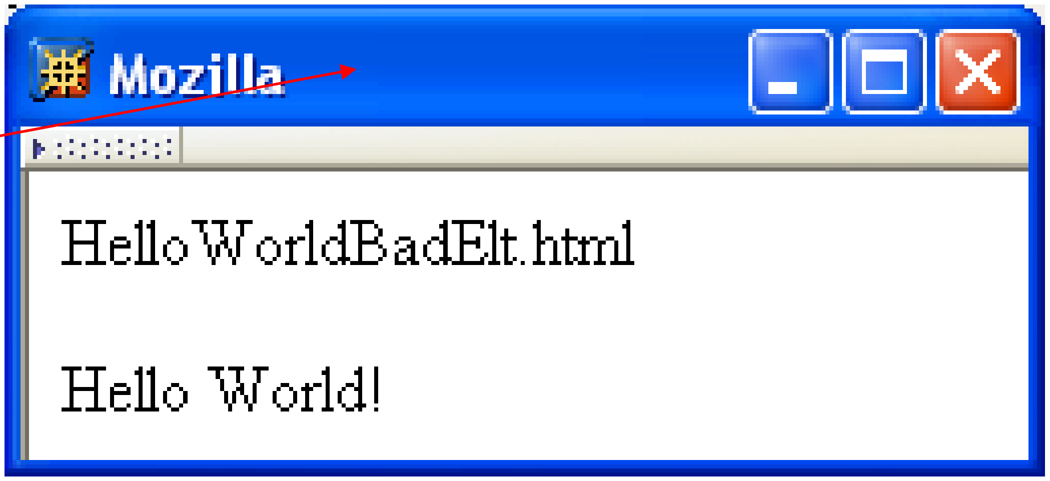
Misspelled element name →

```
<!DOCTYPE html
        PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
        "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <titl>
      HelloWorldBadElt.html
    </title>
  </head>
  <body>
    <p>
      Hello World!
    </p>
  </body>
</html>
```

Unrecognized HTML Elements

Belongs here

`title` character data



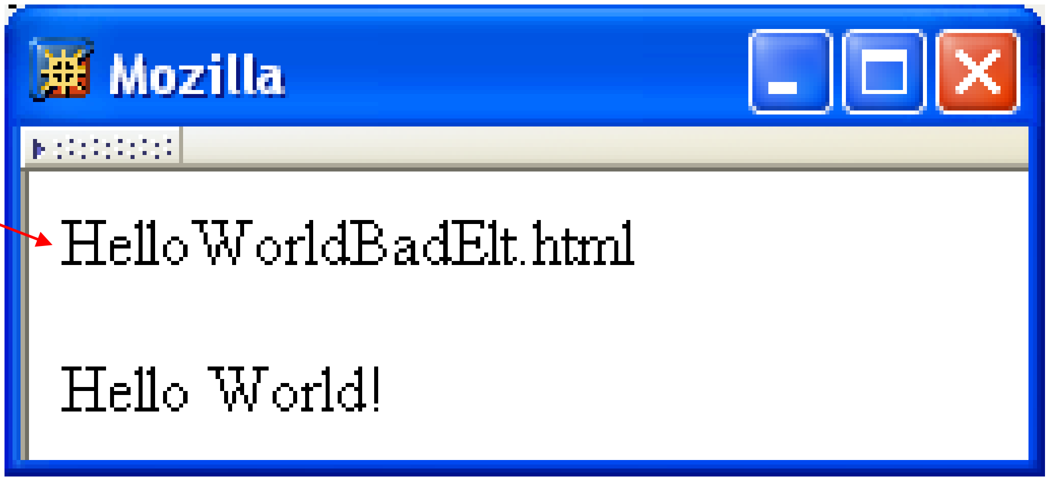
HelloWorldBadElt.html

Hello World!

Unrecognized HTML Elements

`title` character data

Displayed here



HelloWorldBadElt.html

Hello World!

Unrecognized HTML Elements

- Browsers ignore tags with unrecognized element names, attribute specifications with unrecognized attribute names
  - Allows evolution of HTML while older browsers are still in use
- Implication: an HTML document may have errors even if it displays properly
- Should use an HTML validator to check syntax

Unrecognized HTML Elements

Example for non-frame browsers (old)

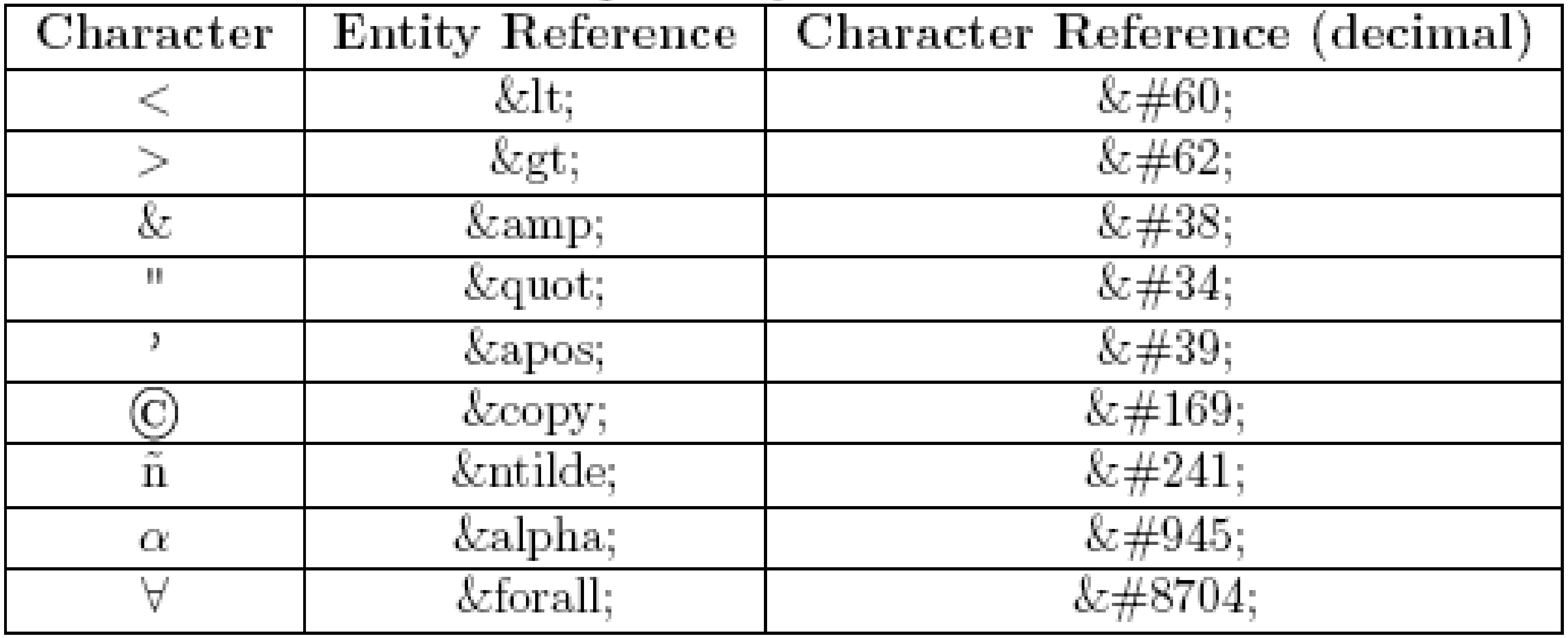
```
<HTML>
        <HEAD>
                <TITLE>A simple frameset document</TITLE>
        </HEAD>
        <FRAMESET cols="20%, 80%">
                <FRAME src="contents_of_frame1.html“ />
                <FRAME src="contents_of_frame2.html“ />
                <NOFRAMES>
                        <P>This doc contains frames</P>
                </NOFRAMES>
        </FRAMESET>
</HTML>
```

HTML References

- Since < marks the beginning of a tag, how do you include a < in an HTML document?
- Use markup known as a reference
- Two types:
  - Character reference specifies a character by its Unicode code point
    - For <, use `&#60;` or `&#x3C;` or `&#x3c;`
  - Entity reference specifies a character by an HTML-defined name
    - For <, use `&lt;`

HTML References

TABLE 2.2: Example entity and character references.



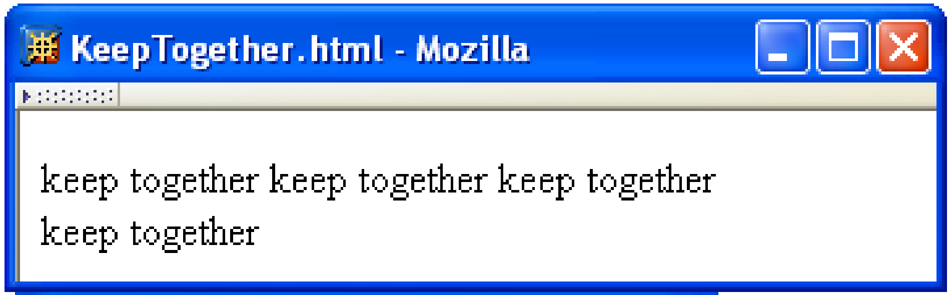
Character	Entity Reference	Character Reference (decimal)
<	&lt;	&#60;
>	&gt;	&#62;
&	&amp;	&#38;
"	&quot;	&#34;
’	&apos;	&#39;
©	&copy;	&#169;
ñ	&ntilde;	&#241;
α	&alpha;	&#945;
$\forall$	&forall;	&#8704;

HTML References

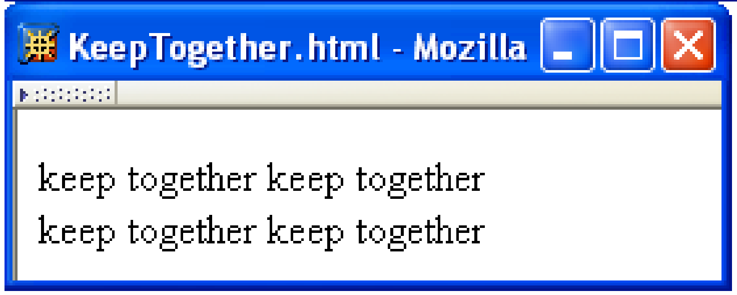
- Since < and & begin markup, within character data or attribute values these characters must ***always*** be represented by references (normally `&lt;` and `&amp;`)
- Good idea to represent > using reference (normally `&gt;`)
  - Provides consistency with treatment of <
  - Avoids accidental use of the reserved string `]]>`

HTML References

- Non-breaking space (`&nbsp;`) produces space but counts as part of a word
  - Ex: keep&nbsp;together keep&nbsp;together …



keep together keep together keep together
keep together



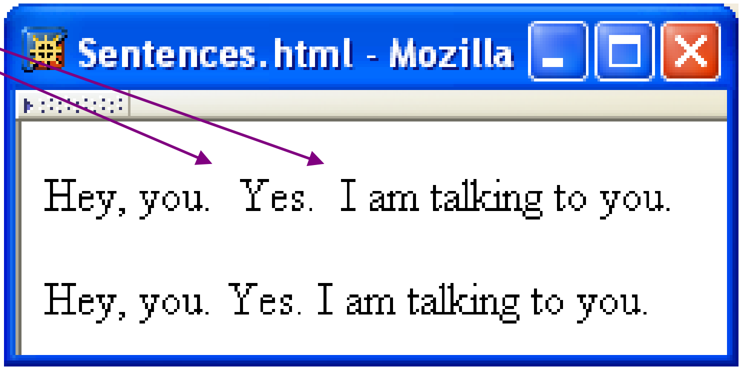
keep together keep together
keep together keep together

HTML References

- Non-breaking space often used to create multiple spaces (not removed by normalization)

```
<p>
  Hey, you.&nbsp; Yes.&nbsp; I am talking to you.
</p>
<p>
  Hey, you.  Yes.  I am talking to you.
</p>
```

&nbsp; + space displays as two spaces



```
Hey, you.  Yes.  I am talking to you.

Hey, you. Yes. I am talking to you.
```

XHTML Attribute Specifications

- Example:

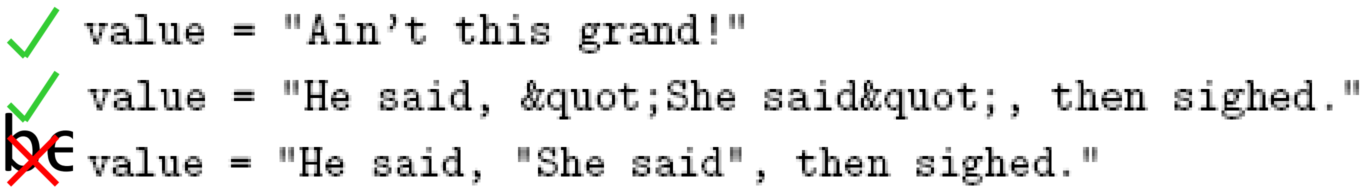
```
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
```

  - Valid attribute names specified by HTML recommendation (or XML, as in xml:lang)
  - Attribute values must be quoted (matching single or double quotes)
  - Multiple attribute specifications are space-separated, order-independent

XHTML Attribute Values

- Can contain embedded quotes or references to quotes

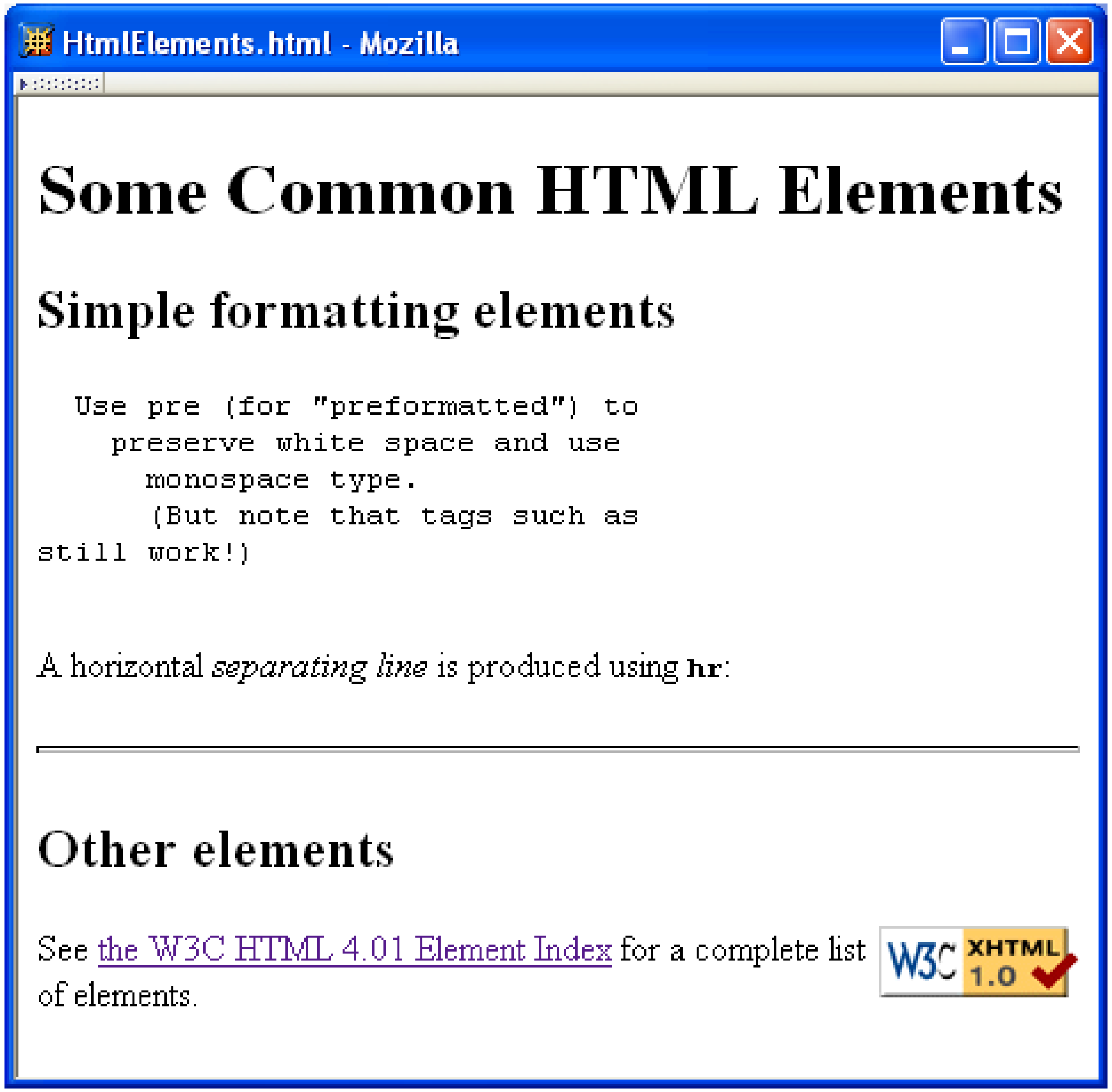
- May be



```
✓ value = "Ain't this grand!"
✓ value = "He said, &quot;She said&quot;, then sighed."
✗ value = "He said, "She said", then sighed."
```

  - Best to normalize attribute values yourself for optimal browser compatibility

Common HTML Elements



Some Common HTML Elements

Simple formatting elements

```
   Use pre (for "preformatted") to
     preserve white space and use
       monospace type.
        (But note that tags such as
still work!)
```

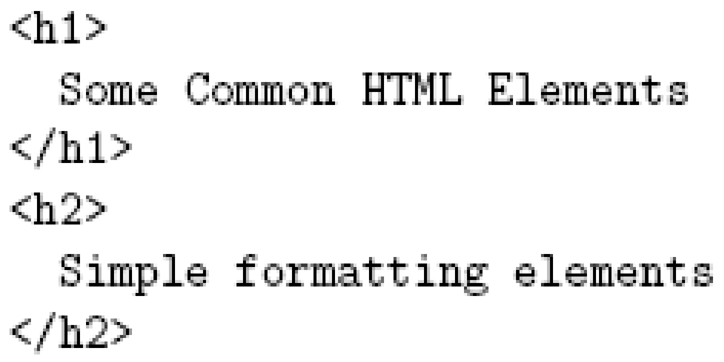
A horizontal *separating line* is produced using **hr**:

Other elements

See the W3C HTML 4.01 Element Index for a complete list of elements.

Common HTML Elements

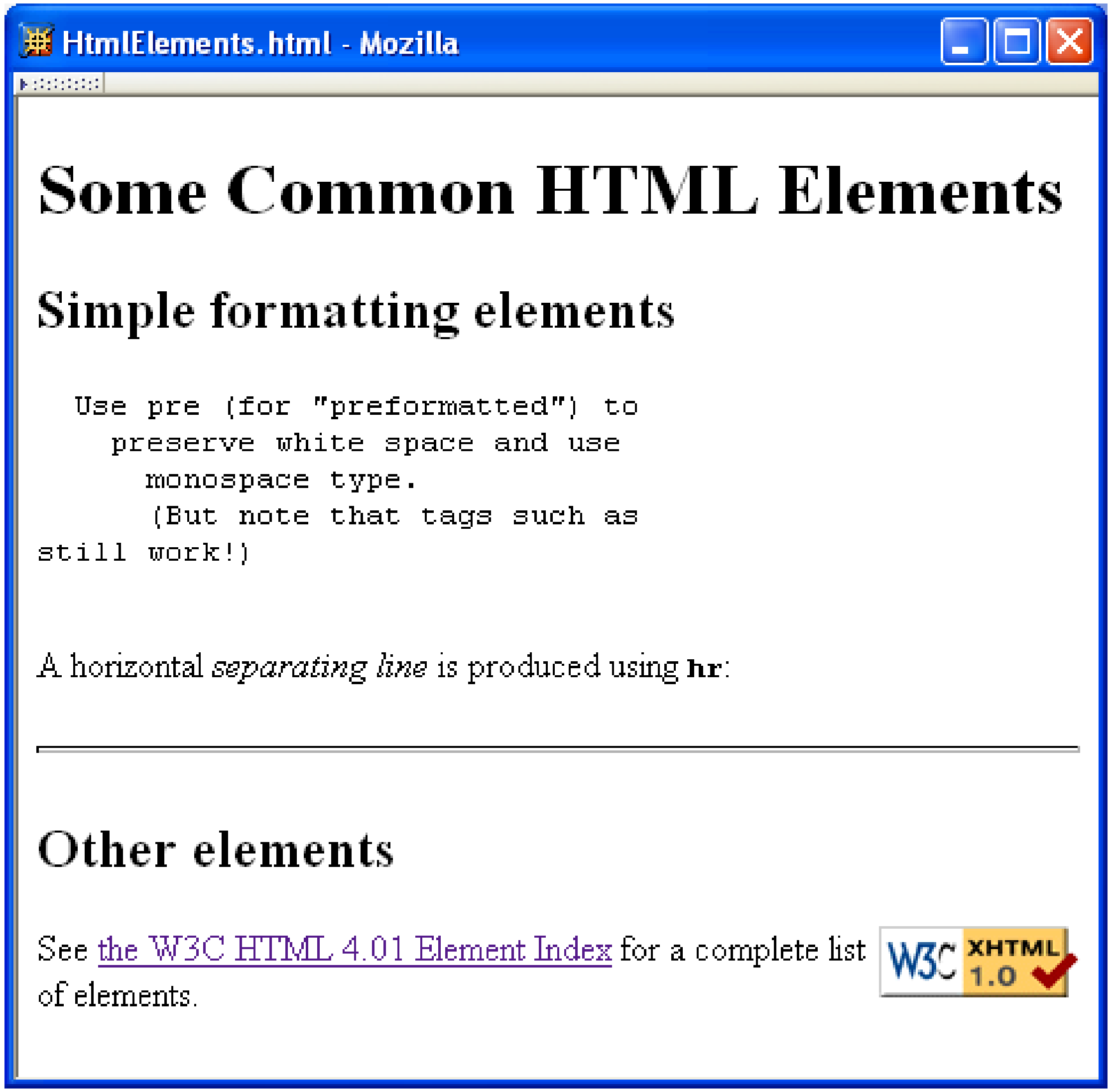
- Headings are produced using h1, h2, …, h6 elements:



```
<h1>
  Some Common HTML Elements
</h1>
<h2>
  Simple formatting elements
</h2>
```

- Should use h1 f xt highest, etc.
  - Change style (next chapter) if you don’t like the “look” of a heading

Common HTML Elements



Some Common HTML Elements

Simple formatting elements

```
  Use pre (for "preformatted") to
    preserve white space and use
      monospace type.
       (But note that tags such as
still work!)
```

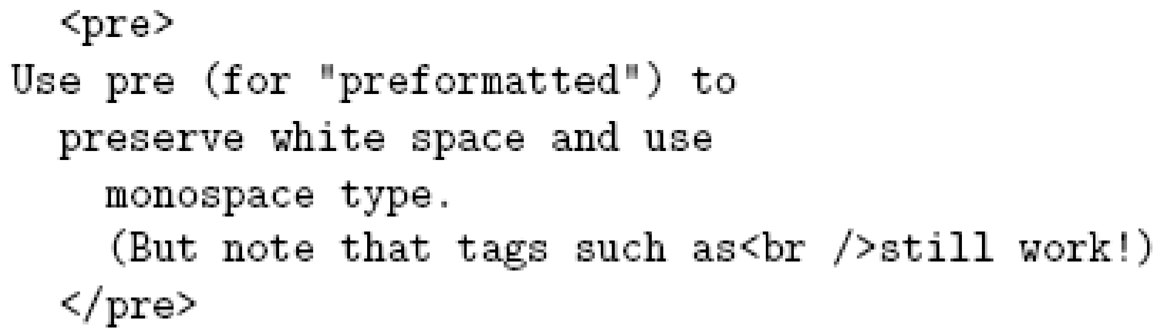
A horizontal *separating line* is produced using **hr**:

Other elements

See the W3C HTML 4.01 Element Index for a complete list of elements.

Common HTML Elements

- Use `pre` to retain format of text and display using monospace font:



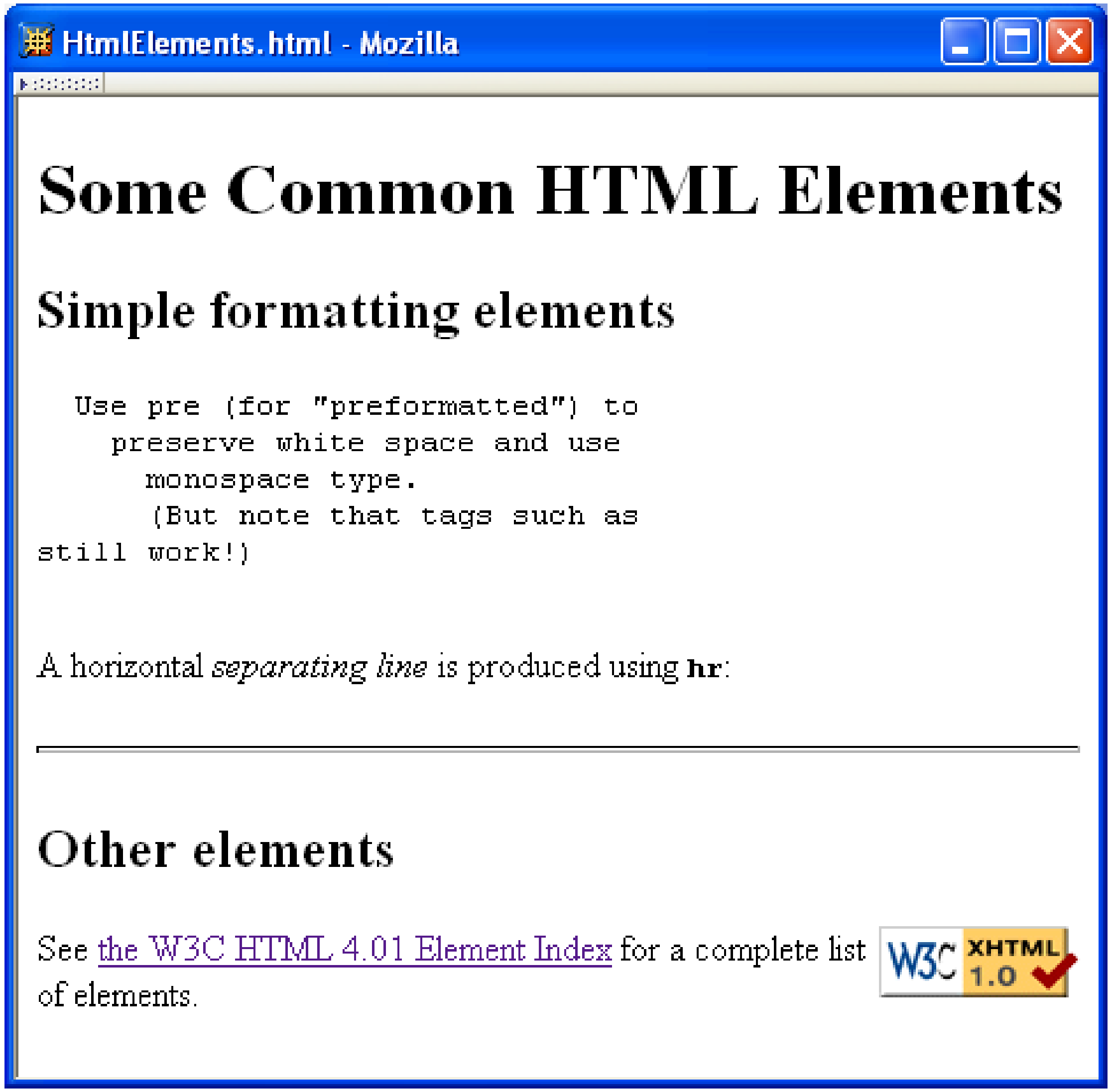
```
  <pre>
Use pre (for "preformatted") to
  preserve white space and use
    monospace type.
    (But note that tags such as<br />still work!)
  </pre>
```

- Note th
  `<br />`) is still treated as markup!

Common HTML Elements

- `br` element represents line break
- `br` is example of an empty element, i.e., element that is not allowed to have content
- XML allows two syntactic representations of empty elements
  - Empty tag syntax <br /> is recommended for browser compatibility
  - XML parsers also recognize syntax <br></br> (start tag followed immediately by end tag), but many browsers do not understand this for empty elements

Common HTML Elements



Some Common HTML Elements

Simple formatting elements

```
   Use pre (for "preformatted") to
      preserve white space and use
         monospace type.
          (But note that tags such as
still work!)
```

A horizontal *separating line* is produced using **hr**:

Other elements

See the W3C HTML 4.01 Element Index for a complete list of elements.

Common HTML Elements

- Text can be formatted in various ways:
  - Apply style sheet technology (next chapter) to a span element (a styleless wrapper):

```
<span style="font-style:italic">separating line</span>
```

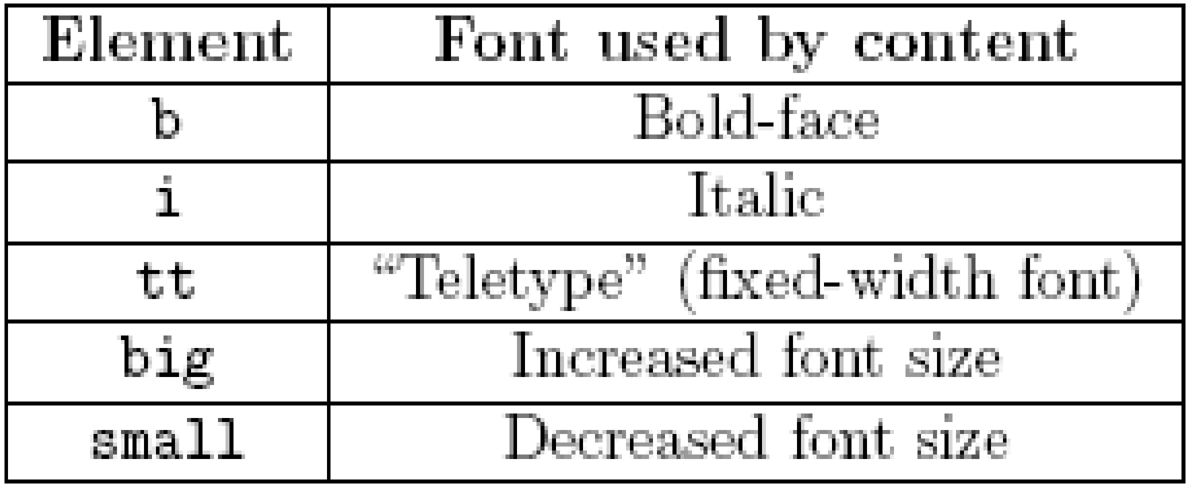
  - U [illegible] cs of text (not style directly):

```
<strong>hr</strong>
```

  - Use a font style element
    - Not recommended, but frequently used

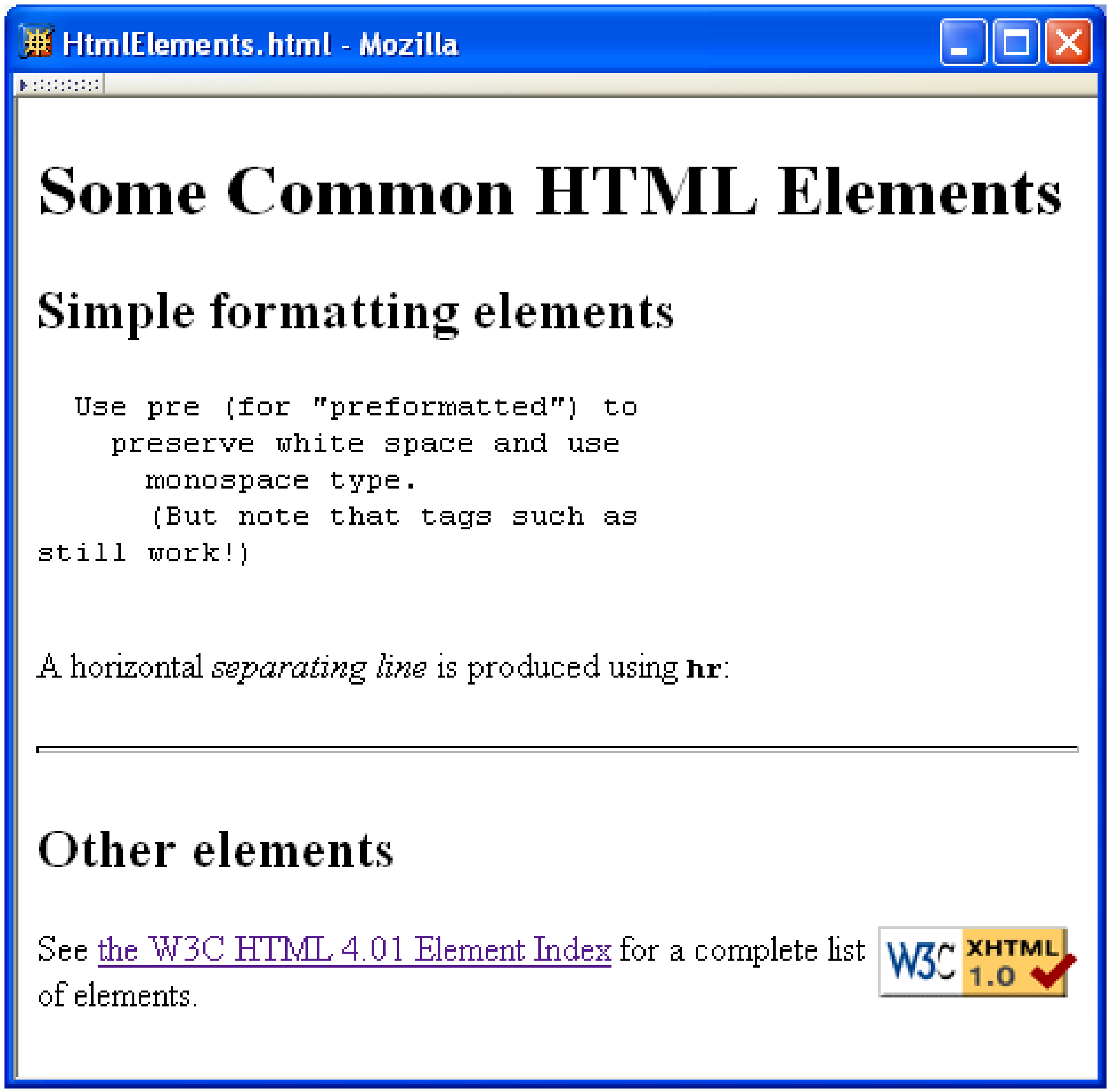
Common HTML Elements

TABLE 2.3: HTML font style elements.



Element	**Font used by content**
`b`	Bold-face
`i`	Italic
`tt`	"Teletype" (fixed-width font)
`big`	Increased font size
`small`	Decreased font size

Common HTML Elements



Some Common HTML Elements

Simple formatting elements

```
  Use pre (for "preformatted") to
    preserve white space and use
      monospace type.
       (But note that tags such as
still work!)
```

A horizontal *separating line* is produced using **hr**:

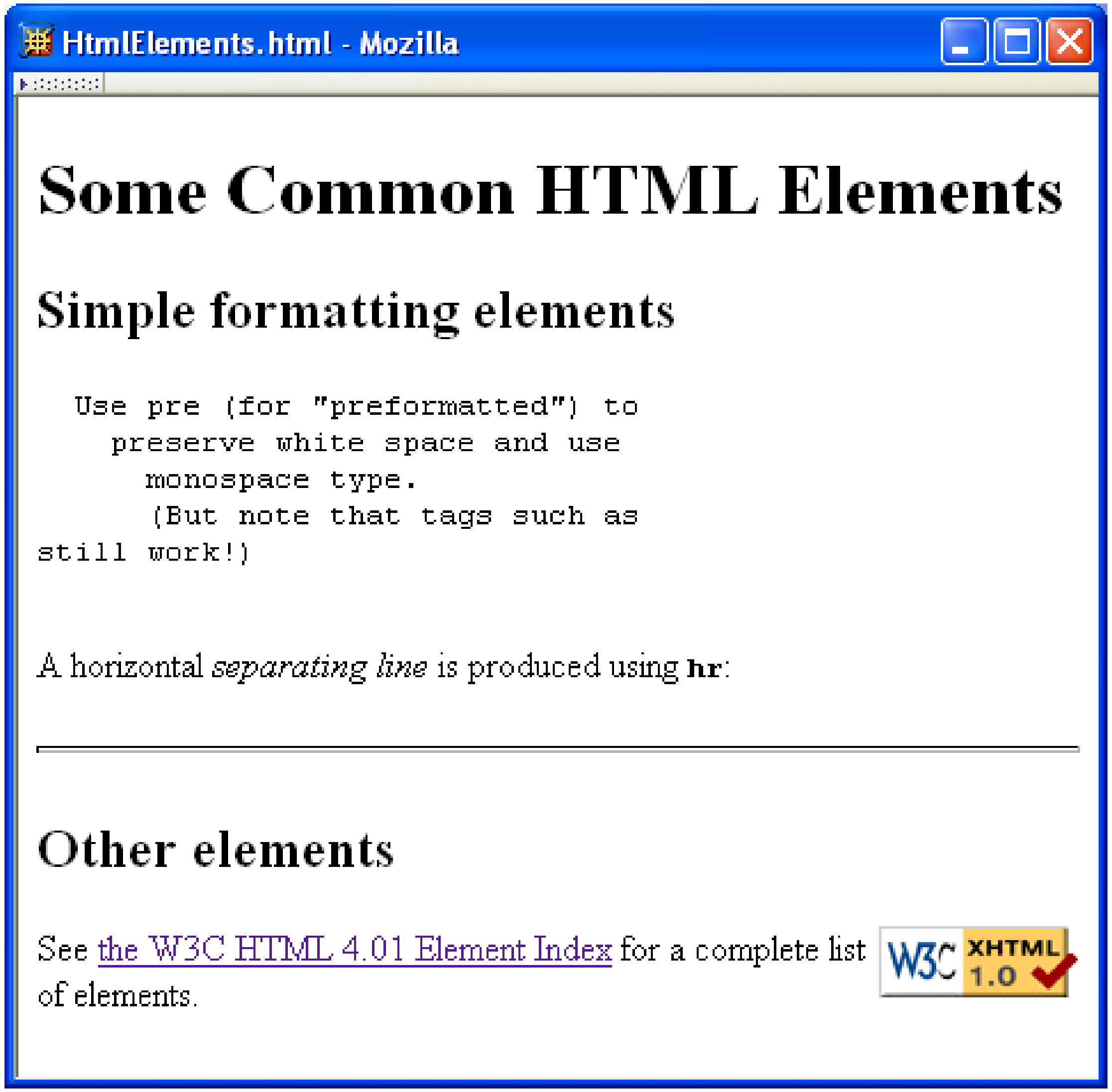
Other elements

See the W3C HTML 4.01 Element Index for a complete list of elements.

Common HTML Elements

- Horizontal rule is produced using hr
- Also an empty element
- Style can be modified using style sheet technology

Common HTML Elements



Some Common HTML Elements

Simple formatting elements

```
  Use pre (for "preformatted") to
    preserve white space and use
      monospace type.
      (But note that tags such as
still work!)
```

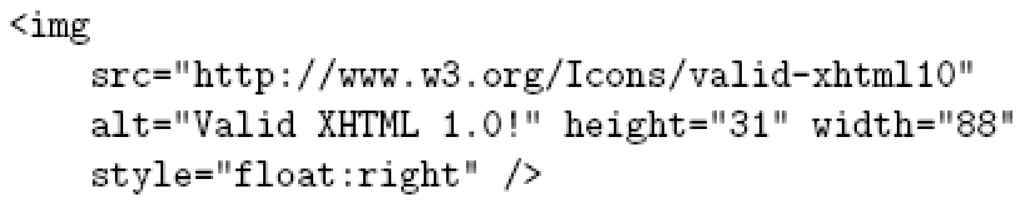
A horizontal *separating line* is produced using **hr**:

Other elements

See the W3C HTML 4.01 Element Index for a complete list of elements.

Common HTML Elements

- Images can be embedded using `img` element



```
<img
    src="http://www.w3.org/Icons/valid-xhtml10"
    alt="Valid XHTML 1.0!" height="31" width="88"
    style="float:right" />
```

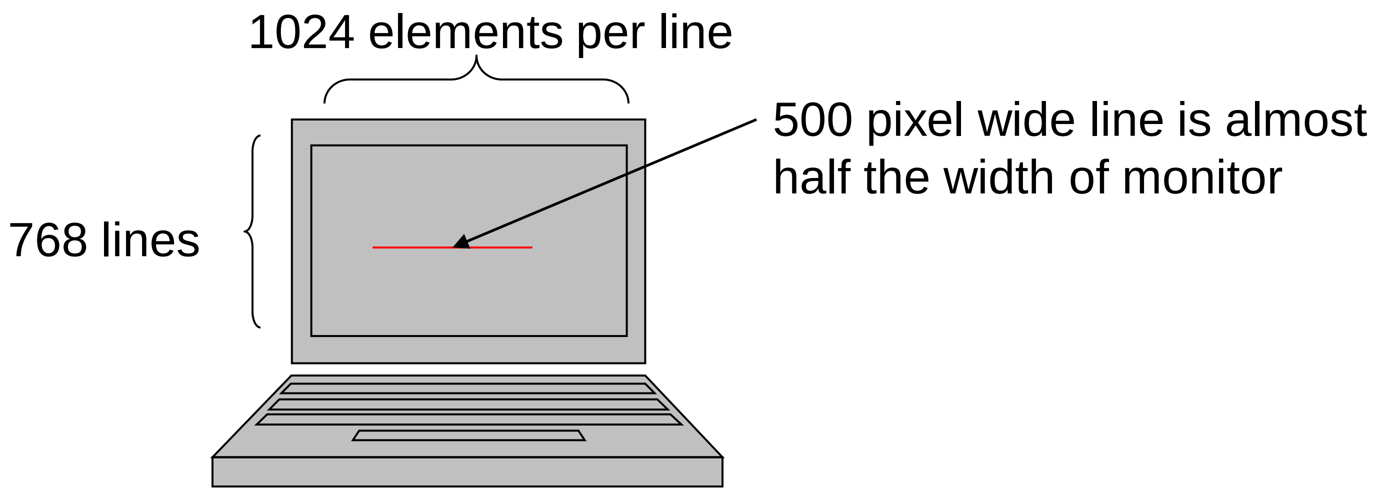
- Attributes:
  - `src`: URL of image file (required). Browser generates a GET request to this URL.
  - `alt`: text description of image (required)
  - `height` / `width`: dimensions of area that image will occupy (recommended)

Common HTML Elements

- If height and width not specified for image, then browser may need to rearrange the client area after downloading the image (poor user interface for Web page)
- If height and width specified are not the same as the original dimensions of image, browser will resize the image
- Default units for height and width are “picture elements” (pixels)
  - Can specify percentage of client area using string such as “50%”

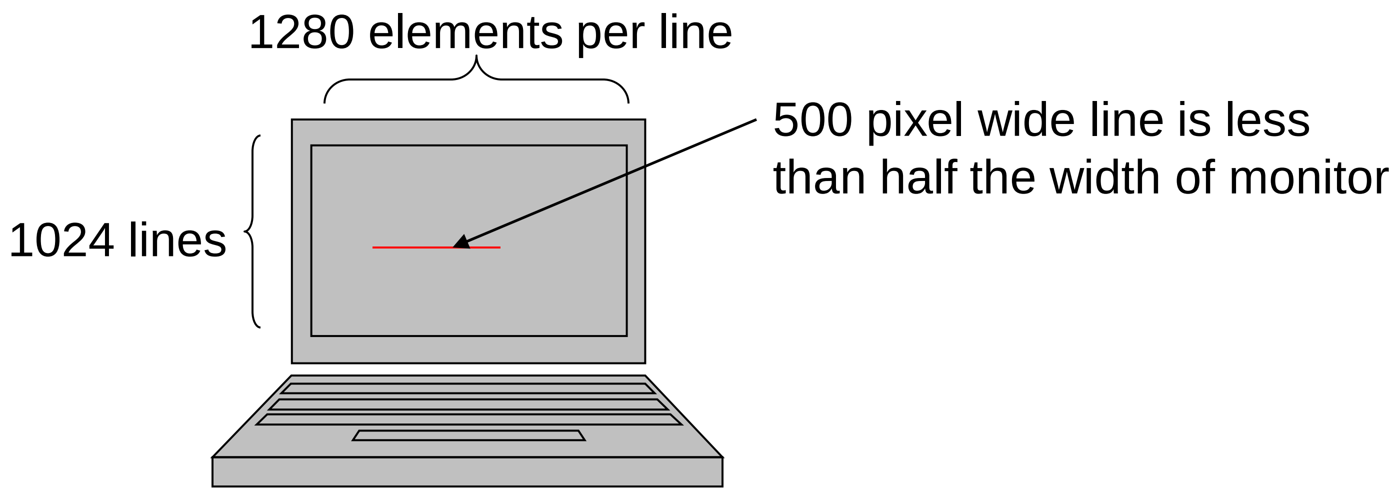
Common HTML Elements

- Monitor resolution determines pixel size

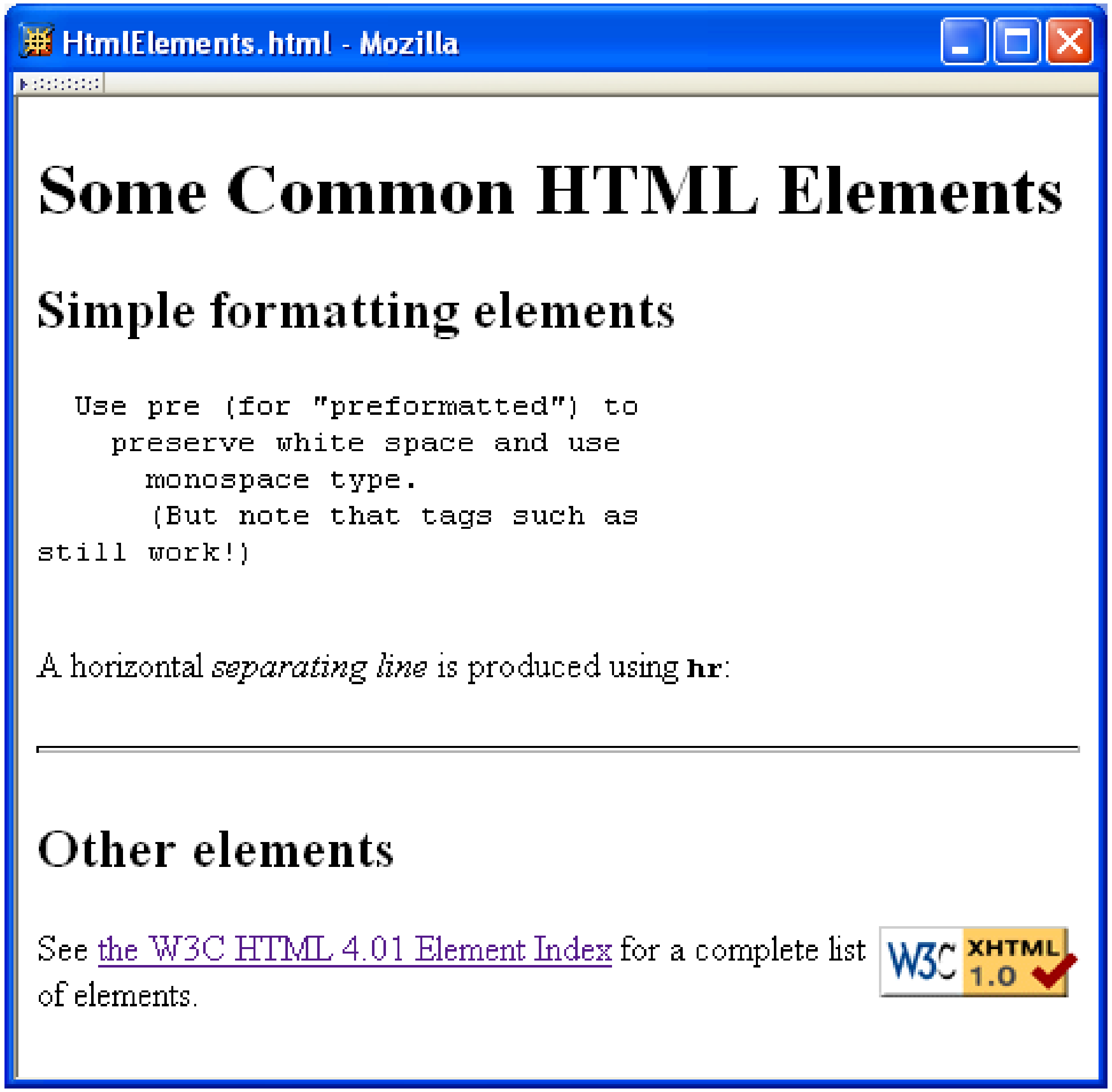


Common HTML Elements

- Monitor resolution determines pixel size



Common HTML Elements


HtmlElements.html - Mozilla

Some Common HTML Elements

Simple formatting elements

```
   Use pre (for "preformatted") to
     preserve white space and use
       monospace type.
        (But note that tags such as
still work!)
```

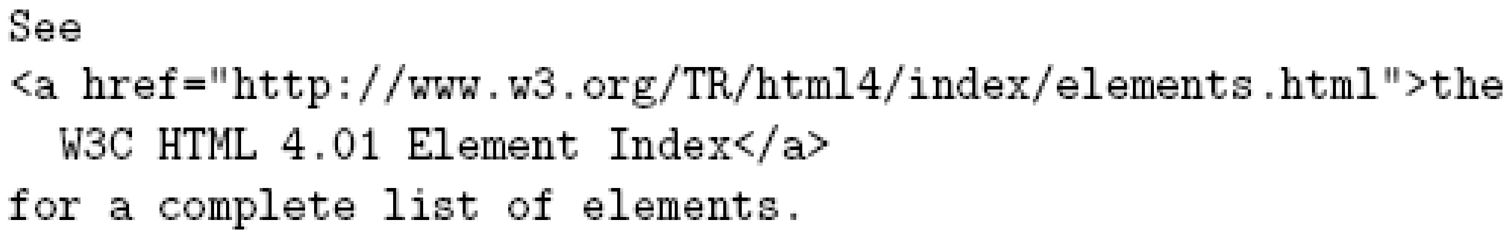
A horizontal *separating line* is produced using **hr**:

Other elements

See the W3C HTML 4.01 Element Index for a complete list of elements.

Common HTML Elements

- Hyperlinks are produced by the anchor element a

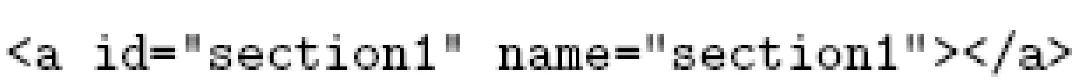


```
See
<a href="http://www.w3.org/TR/html4/index/elements.html">the
  W3C HTML 4.01 Element Index</a>
for a complete list of elements.
```

- C
request to URL specified in `href` attribute and render response in client area
- Content of anchor element is text of hyperlink (avoid leading/trailing space in content)

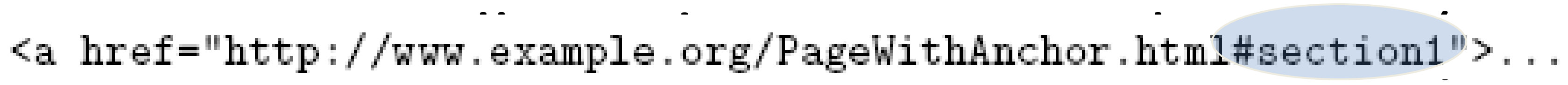
Common HTML Elements

- Anchors can be used as source (previous example) or destination

- The f 

```
<a id="section1" name="section1"></a>
```

  d to reference a destination anchor



```
<a href="http://www.example.org/PageWithAnchor.html#section1">...
```

near) top of client area

Common HTML Elements

- Comments are a special form of tag

```
<!-- Notice that img must nest within a "block" element,
     such as p -->
```

- Not allowed to use -- within comment

✗
```
<!-- This is NOT
  -- a good comment.
  -->
```

✗
```
<!-- Can't end with more than two dashes! --->
```

Nesting Elements

- If one element is nested within another element, then the content of the inner element is also content of the outer element

- XHT `<tt><strong>hr</strong></tt>` properly nested

✗ `<tt><strong>hr</tt></strong>`

Nesting Elements

- Most HTML elements are either block or inline
  - Block: browser automatically generates line breaks before and after the element content
    - Ex: `p`,`div`
  - Inline: element content is added to the "flow"
    - Ex: `span`, `tt`, `strong`, `a`

Nesting Elements

- Syntactic rules of thumb:
  - Children of body must be blocks
  - Blocks can contain inline elements
  - Inline elements *cannot* contain blocks
- Specific rules for each version of (X)HTML are defined using SGML or XML (covered later)

Relative URL’s

- Consider an `<img>` start tag containing attribute specification

- This is an `src="valid-xhtml10.png"` URL: it is interpreted relative to the URL of the document that contains the `img` tag
  - If document URL is http://localhost:8080/MultiFile.html then relative URL above represents absolute URL http://localhost:8080/valid-xhtml10.png

Relative URL's

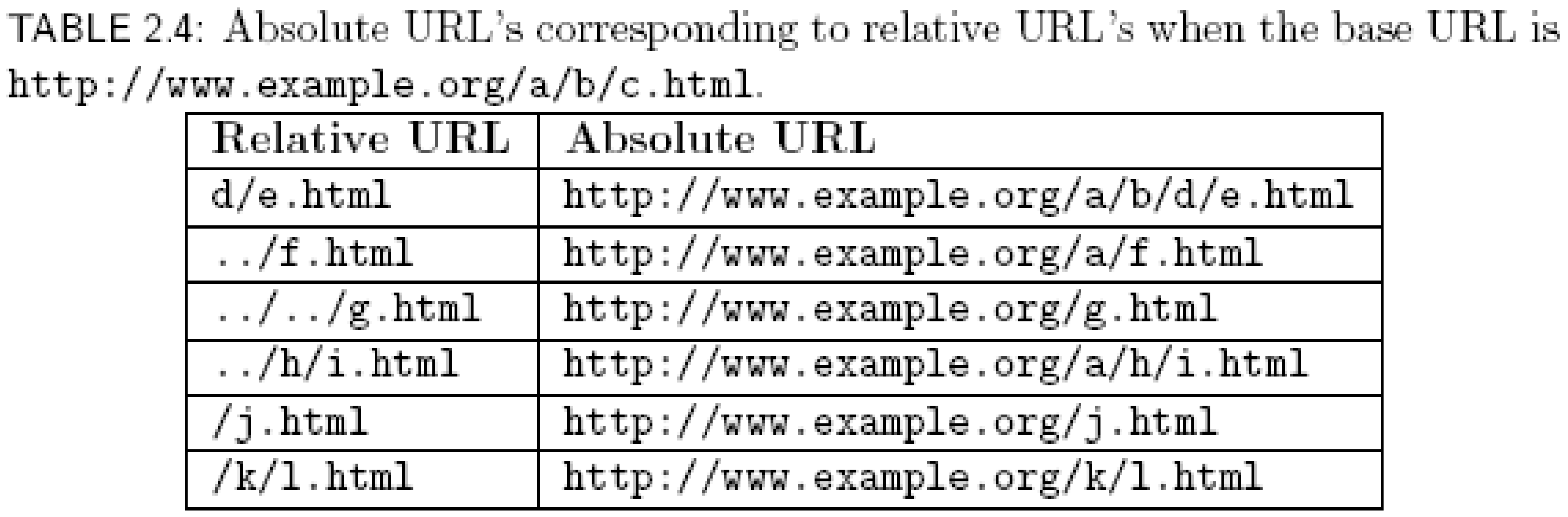


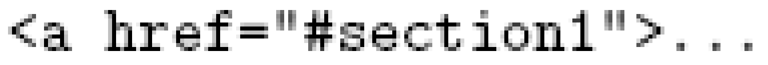
TABLE 2.4: Absolute URL's corresponding to relative URL's when the base URL is `http://www.example.org/a/b/c.html`.

Relative URL	Absolute URL
`d/e.html`	`http://www.example.org/a/b/d/e.html`
`../f.html`	`http://www.example.org/a/f.html`
`../../g.html`	`http://www.example.org/g.html`
`../h/i.html`	`http://www.example.org/a/h/i.html`
`/j.html`	`http://www.example.org/j.html`
`/k/l.html`	`http://www.example.org/k/l.html`

Relative URL’s

- Query and fragment portions of a relative URL are appended to the resulting absolute URL
  - Example: If document URL is
    http://localhost:8080/PageAnch.html
    and it contains the anchor element

    then the corresponding absolute URL is
    http://localhost:8080/PageAnch.html#section1

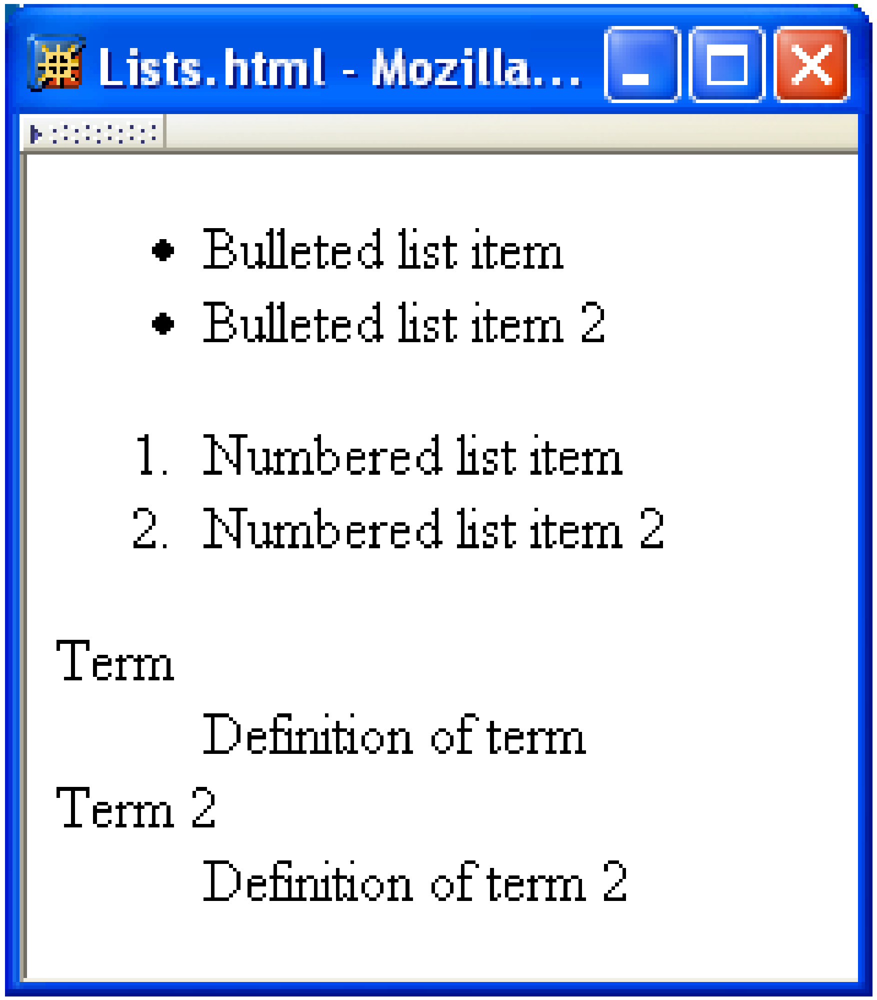


```
<a href="#section1">...
```

Relative URL’s

- Advantages:
  - Shorter than absolute URL’s
  - Primary: can change the URL of a document (e.g., move document to a different directory or rename the server host) without needing to change URL’s within the document
- Should use relative URL’s whenever possible

Lists

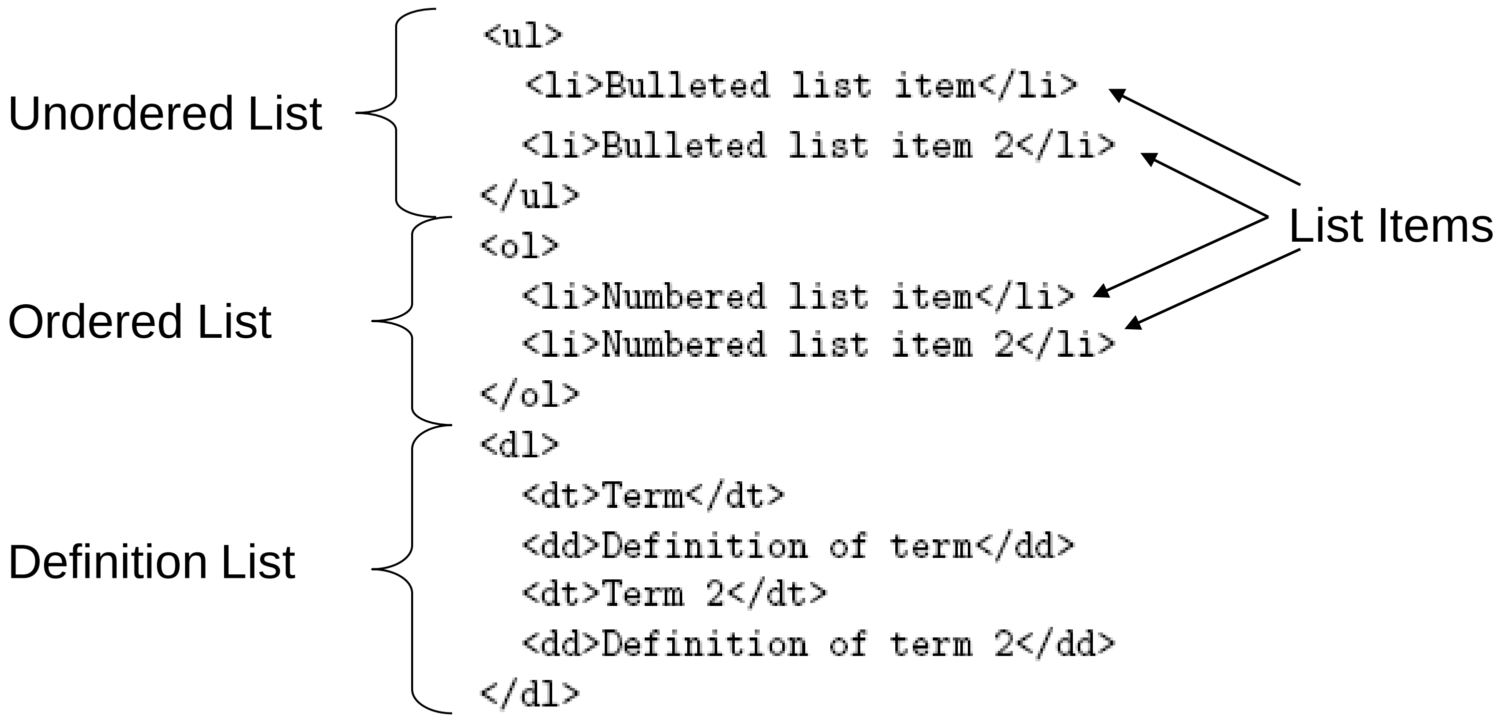


- Bulleted list item
- Bulleted list item 2

1. Numbered list item
2. Numbered list item 2

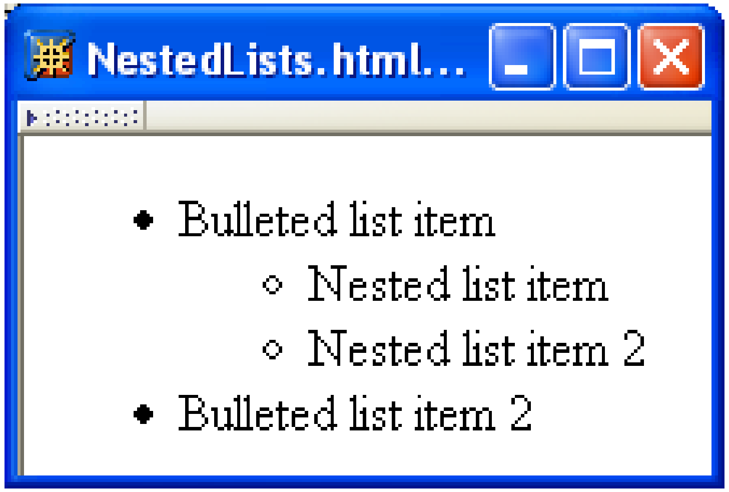
Term
    Definition of term
Term 2
    Definition of term 2

Lists



```
<ul>
  <li>Bulleted list item</li>
  <li>Bulleted list item 2</li>
</ul>
<ol>
  <li>Numbered list item</li>
  <li>Numbered list item 2</li>
</ol>
<dl>
  <dt>Term</dt>
  <dd>Definition of term</dd>
  <dt>Term 2</dt>
  <dd>Definition of term 2</dd>
</dl>
```

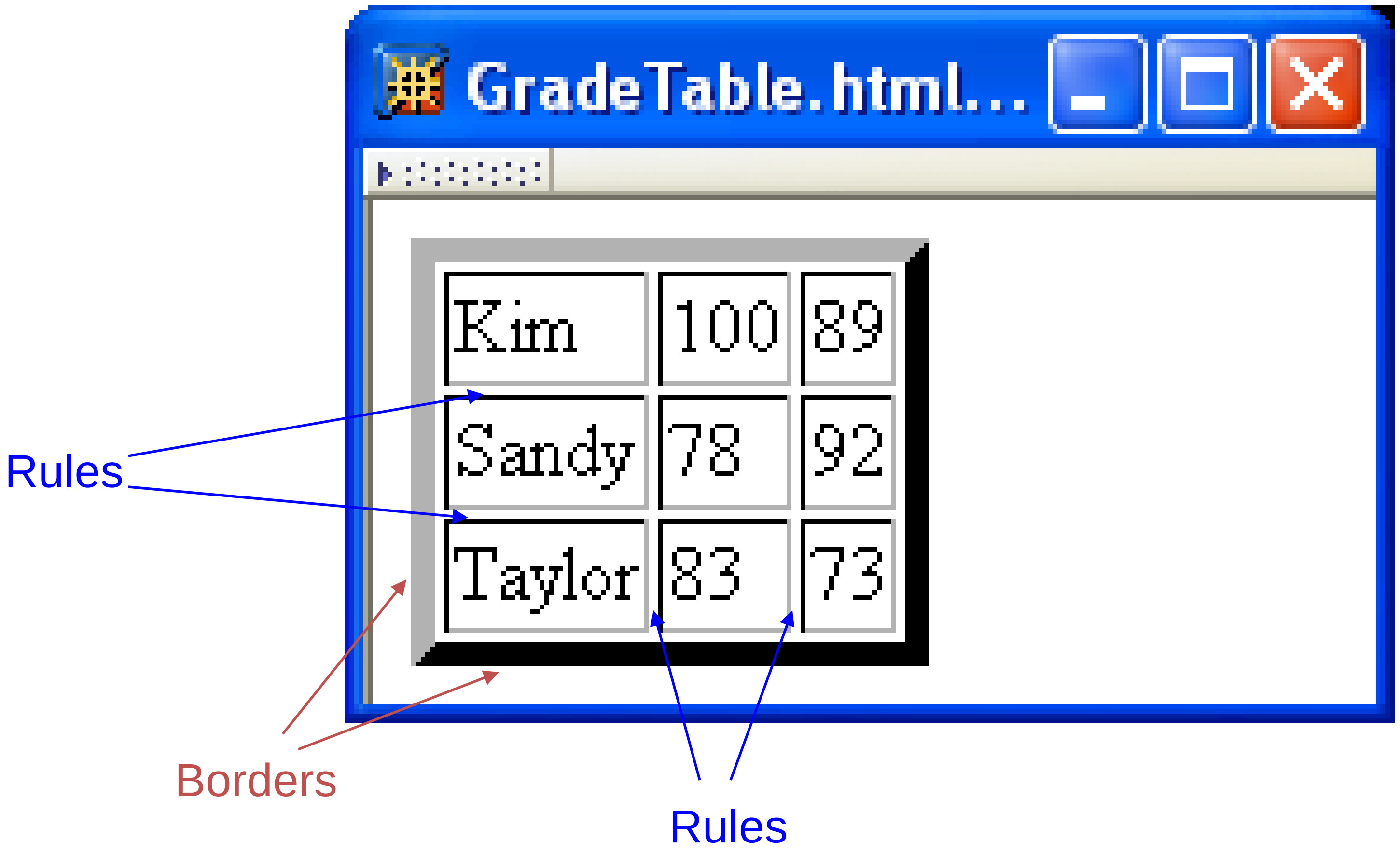
Lists



- Bulleted list item
  - Nested list item
  - Nested list item 2
- Bulleted list item 2

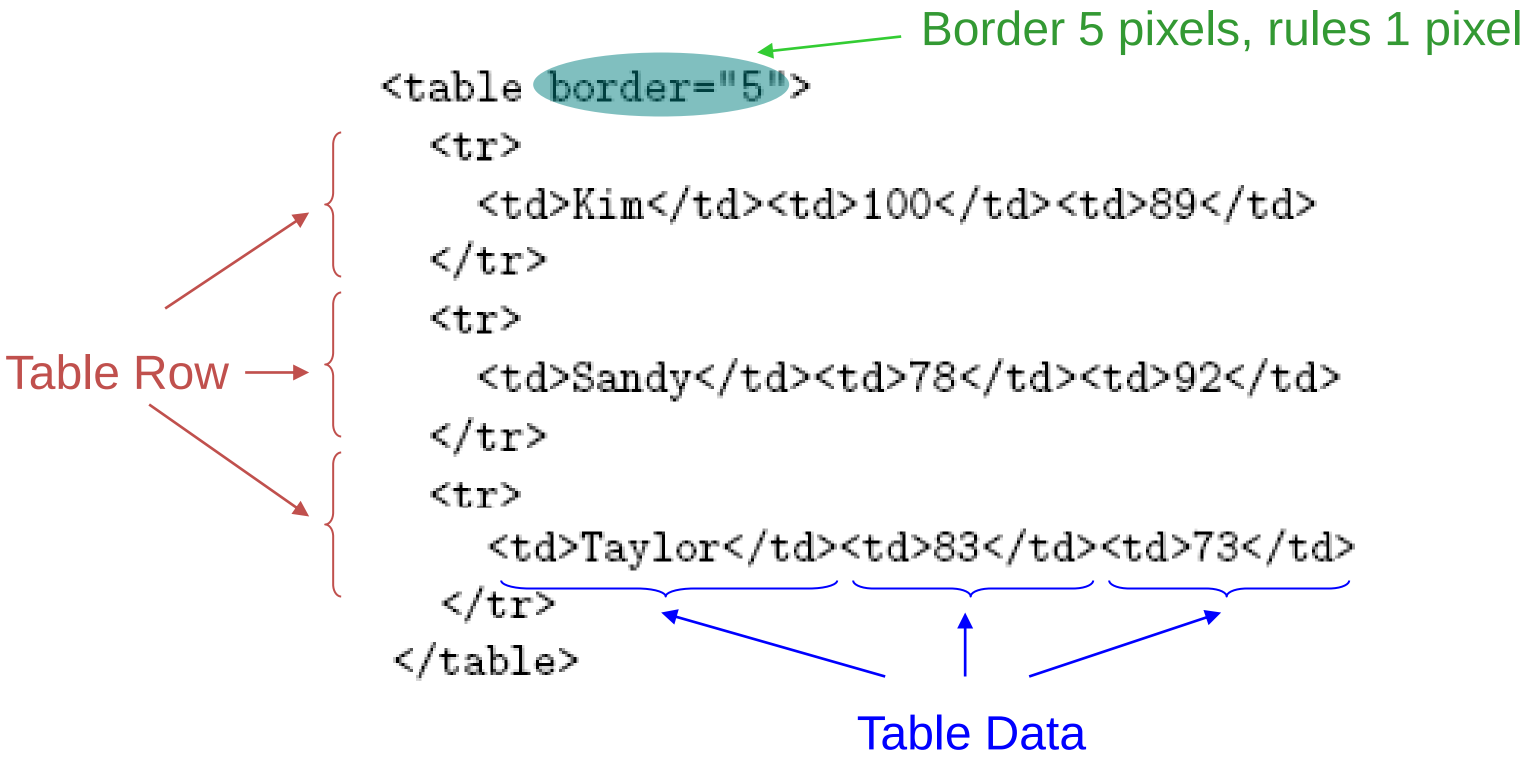
```
<ul>
  <li>Bulleted list item
    <ul>
      <li>Nested list item</li>
      <li>Nested list item 2</li>
    </ul>
   </li>
   <li>Bulleted list item 2</li>
 </ul>
```

Tables



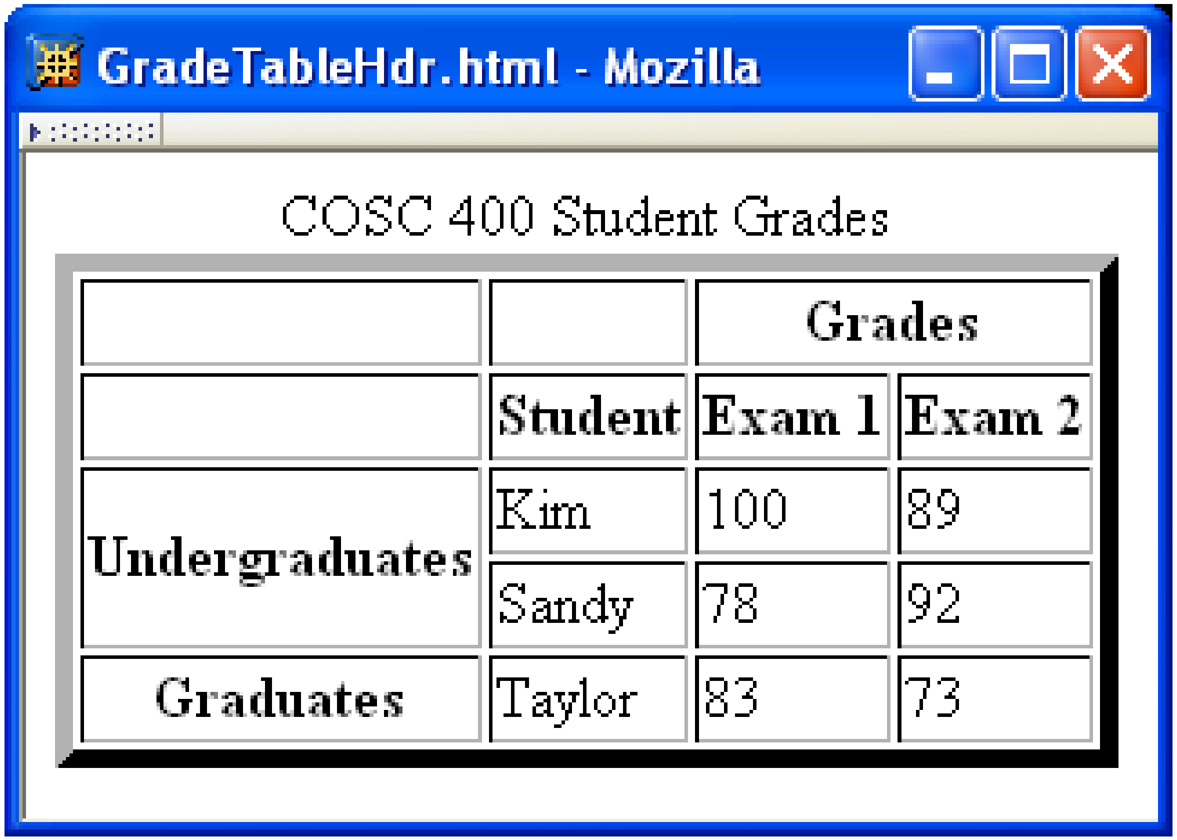
Kim	100	89
Sandy	78	92
Taylor	83	73

Tables



```
<table border="5">
  <tr>
    <td>Kim</td><td>100</td><td>89</td>
  </tr>
  <tr>
    <td>Sandy</td><td>78</td><td>92</td>
  </tr>
  <tr>
     <td>Taylor</td><td>83</td><td>73</td>
   </tr>
 </table>
```

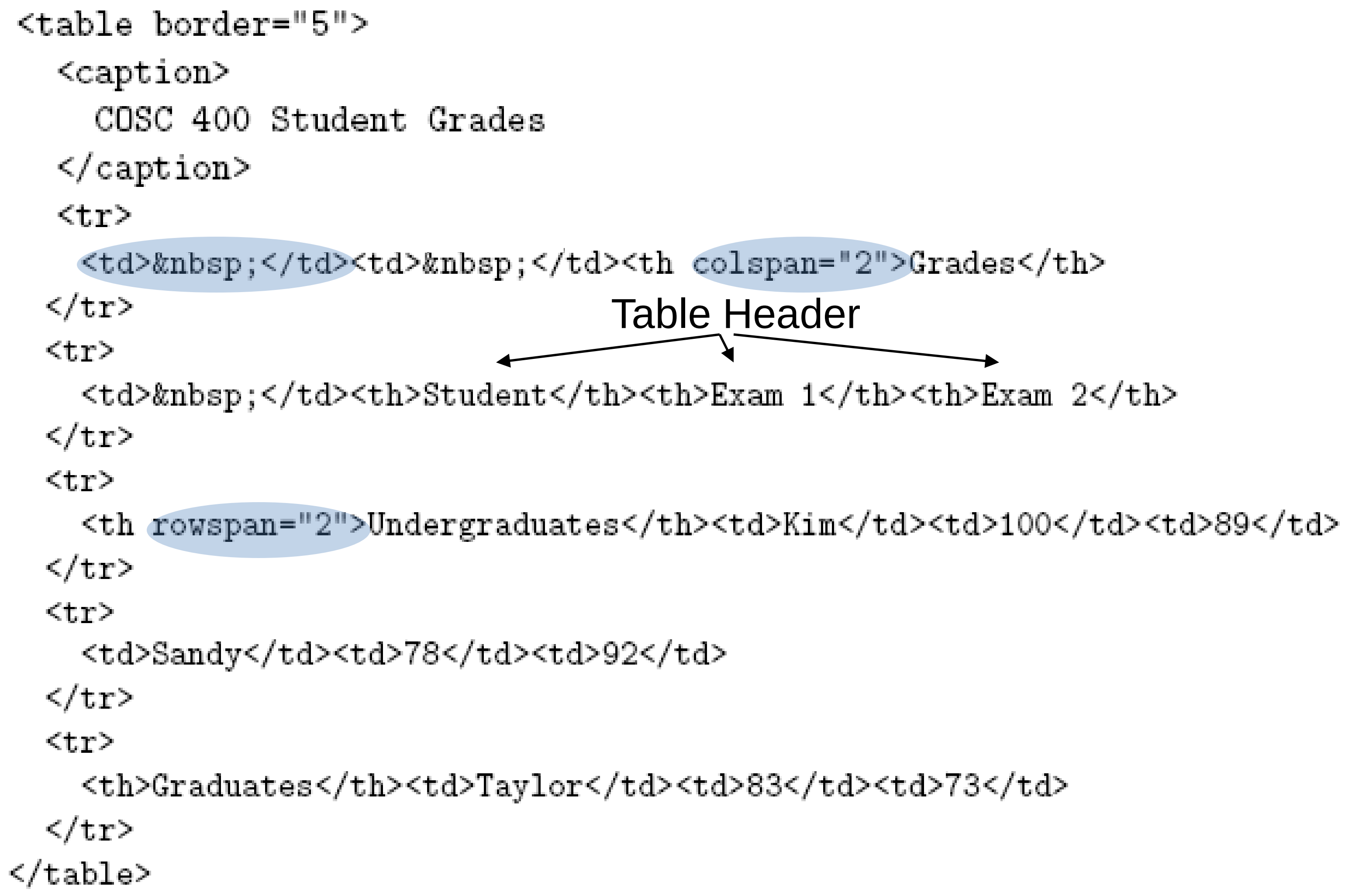
Tables



COSC 400 Student Grades

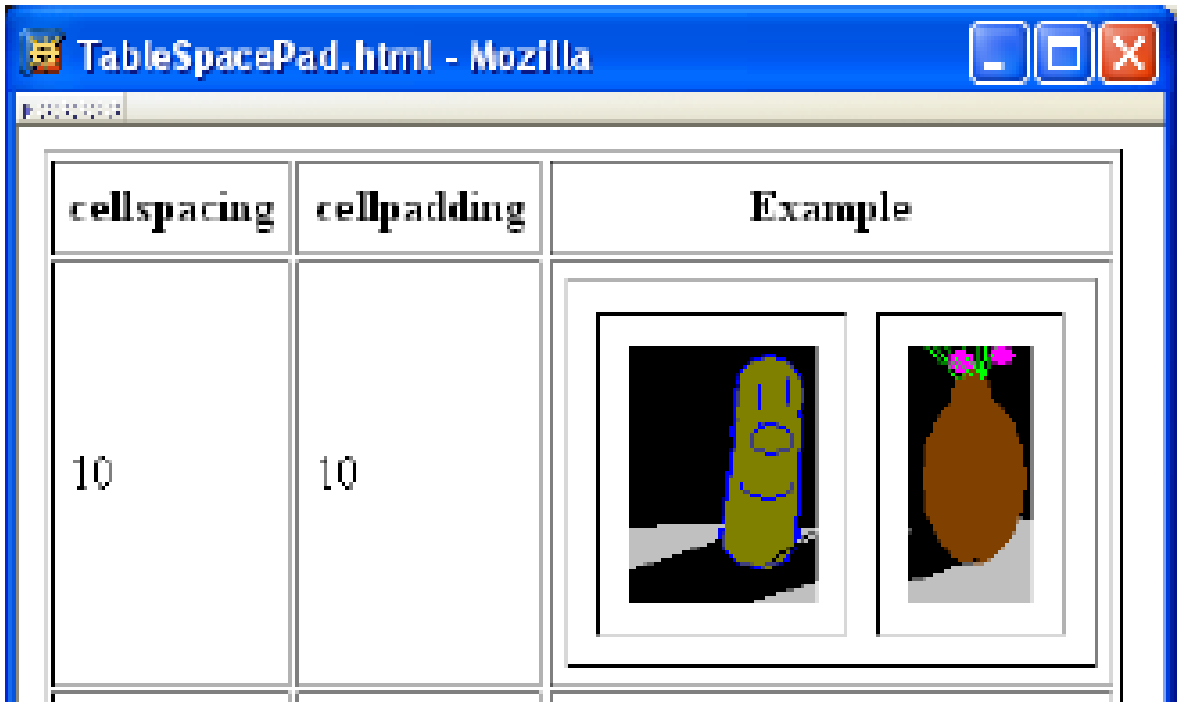
		Grades	
	Student	**Exam 1**	**Exam 2**
Undergraduates	Kim	100	89
	Sandy	78	92
Graduates	Taylor	83	73

Tables



```
<table border="5">
  <caption>
    COSC 400 Student Grades
  </caption>
  <tr>
    <td>&nbsp;</td><td>&nbsp;</td><th colspan="2">Grades</th>
  </tr>
  <tr>
    <td>&nbsp;</td><th>Student</th><th>Exam 1</th><th>Exam 2</th>
  </tr>
  <tr>
    <th rowspan="2">Undergraduates</th><td>Kim</td><td>100</td><td>89</td>
  </tr>
  <tr>
    <td>Sandy</td><td>78</td><td>92</td>
  </tr>
  <tr>
    <th>Graduates</th><td>Taylor</td><td>83</td><td>73</td>
  </tr>
</table>
```

Tables

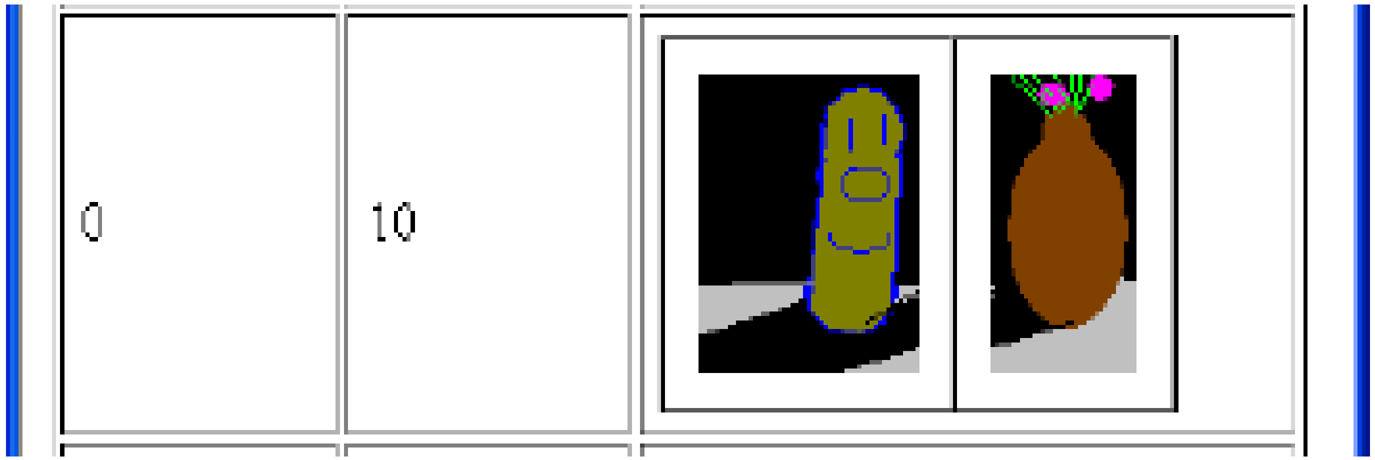


cellspacing	cellpadding	Example
10	10	

```
<table border="1" cellspacing="10" cellpadding="10">
```

Tables

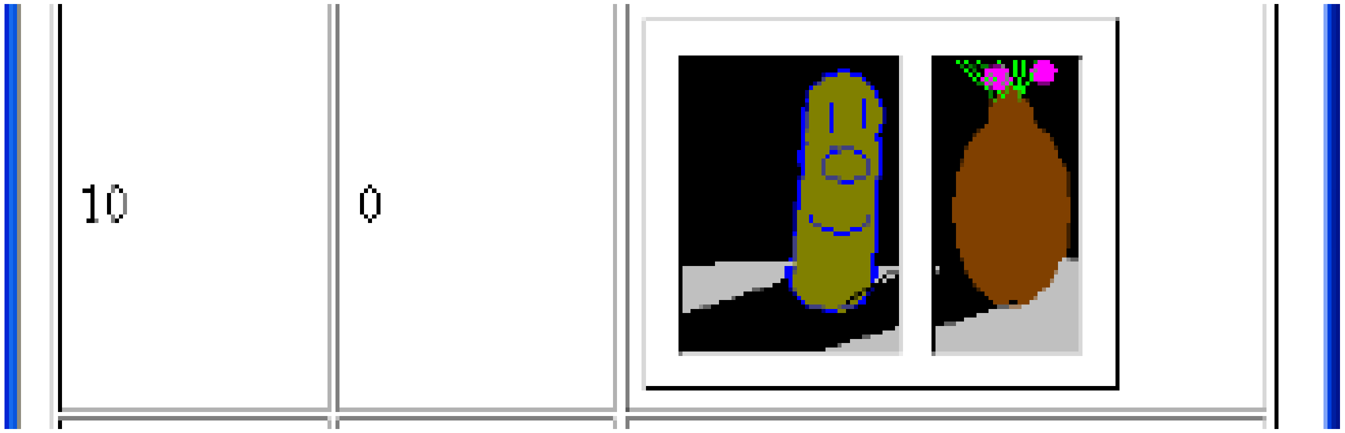
cellspacing cellpadding



0	10	

Tables

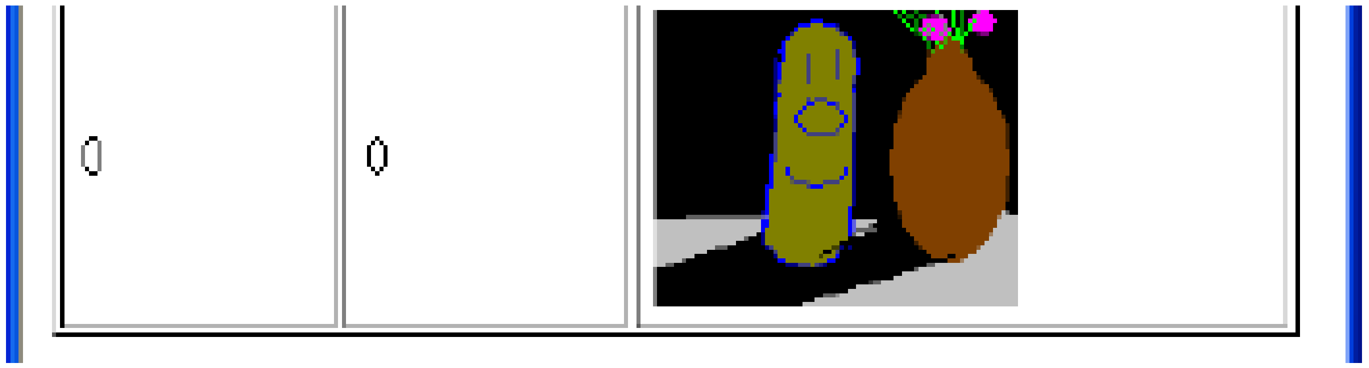
cellspacing cellpadding



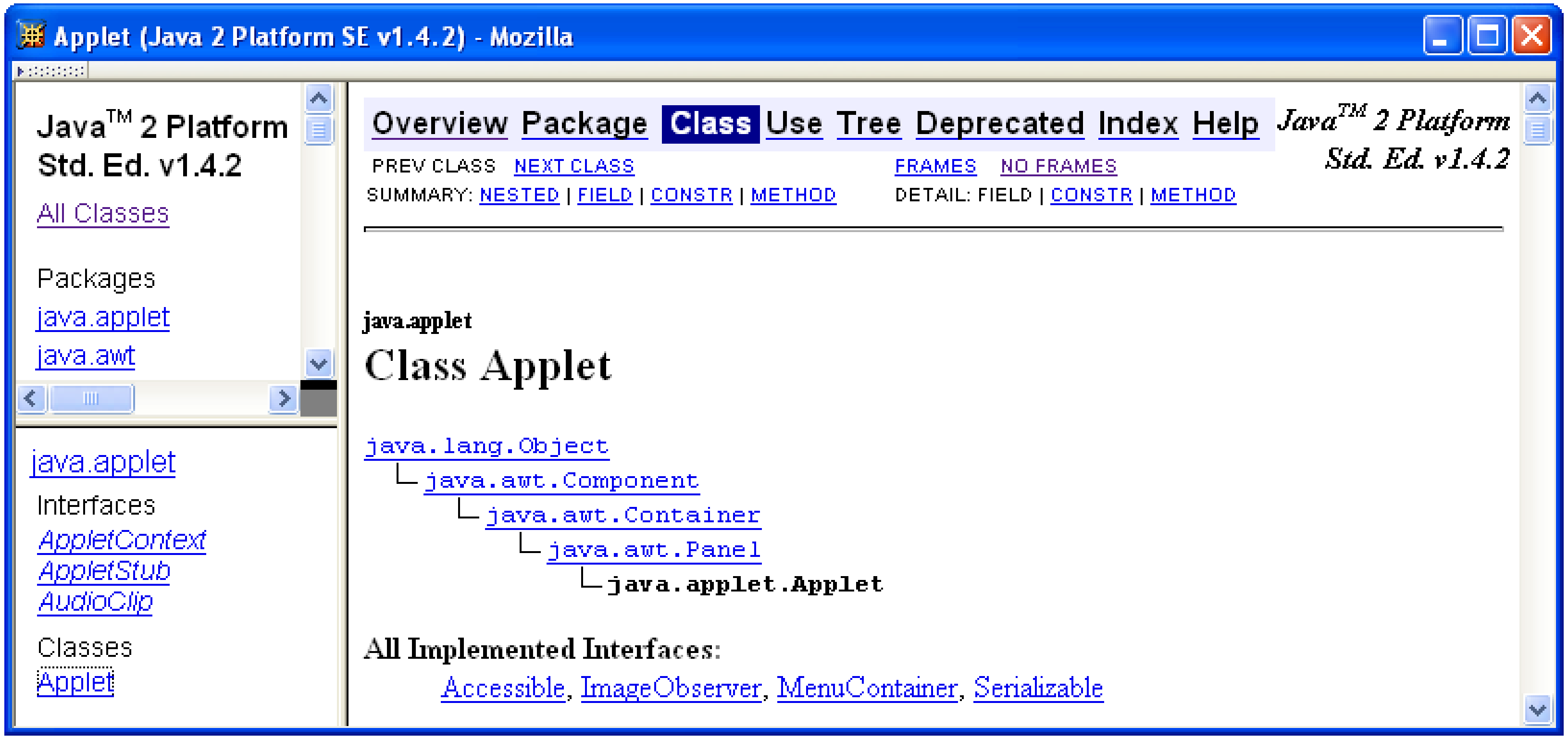
10	0	

Tables

cellspacing cellpadding



Frames



Applet (Java 2 Platform SE v1.4.2) - Mozilla

Java™ 2 Platform
Std. Ed. v1.4.2

All Classes

Packages
java.applet
java.awt

java.applet

Interfaces
AppletContext
AppletStub
AudioClip

Classes
Applet

Overview Package **Class** Use Tree Deprecated Index Help

Java™ 2 Platform Std. Ed. v1.4.2

PREV CLASS NEXT CLASS FRAMES NO FRAMES
SUMMARY: NESTED | FIELD | CONSTR | METHOD DETAIL: FIELD | CONSTR | METHOD

java.applet
Class Applet

```
java.lang.Object
  └java.awt.Component
      └java.awt.Container
          └java.awt.Panel
              └java.applet.Applet
```

All Implemented Interfaces:
Accessible, ImageObserver, MenuContainer, Serializable

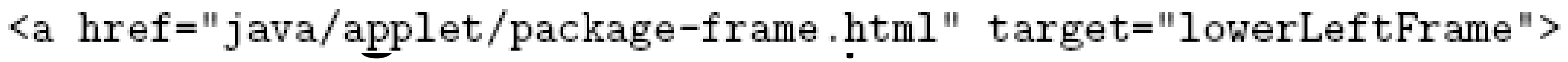
Frames

```
<!DOCTYPE html
   PUBLIC "-//W3C//DTD XHTML 1.0 Frameset//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-frameset.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <title>Java 2 Platform SE v1.4.2</title>
  </head>
  <frameset cols="20%,80%">
    <frameset rows="1*,2*">
      <frame src="overview-frame.html"
        id="upperLeftFrame" name="upperLeftFrame"></frame>
      <frame src="allclasses-frame.html"
        id="lowerLeftFrame" name="lowerLeftFrame"></frame>
    </frameset>
    <frame src="overview-summary.html"
        id="rightFrame" name="rightFrame"></frame>
  </frameset>
</html>
```

1/3,2/3 split

Frames

- Hyperlink in one frame can load document in another:

- V[illegible]


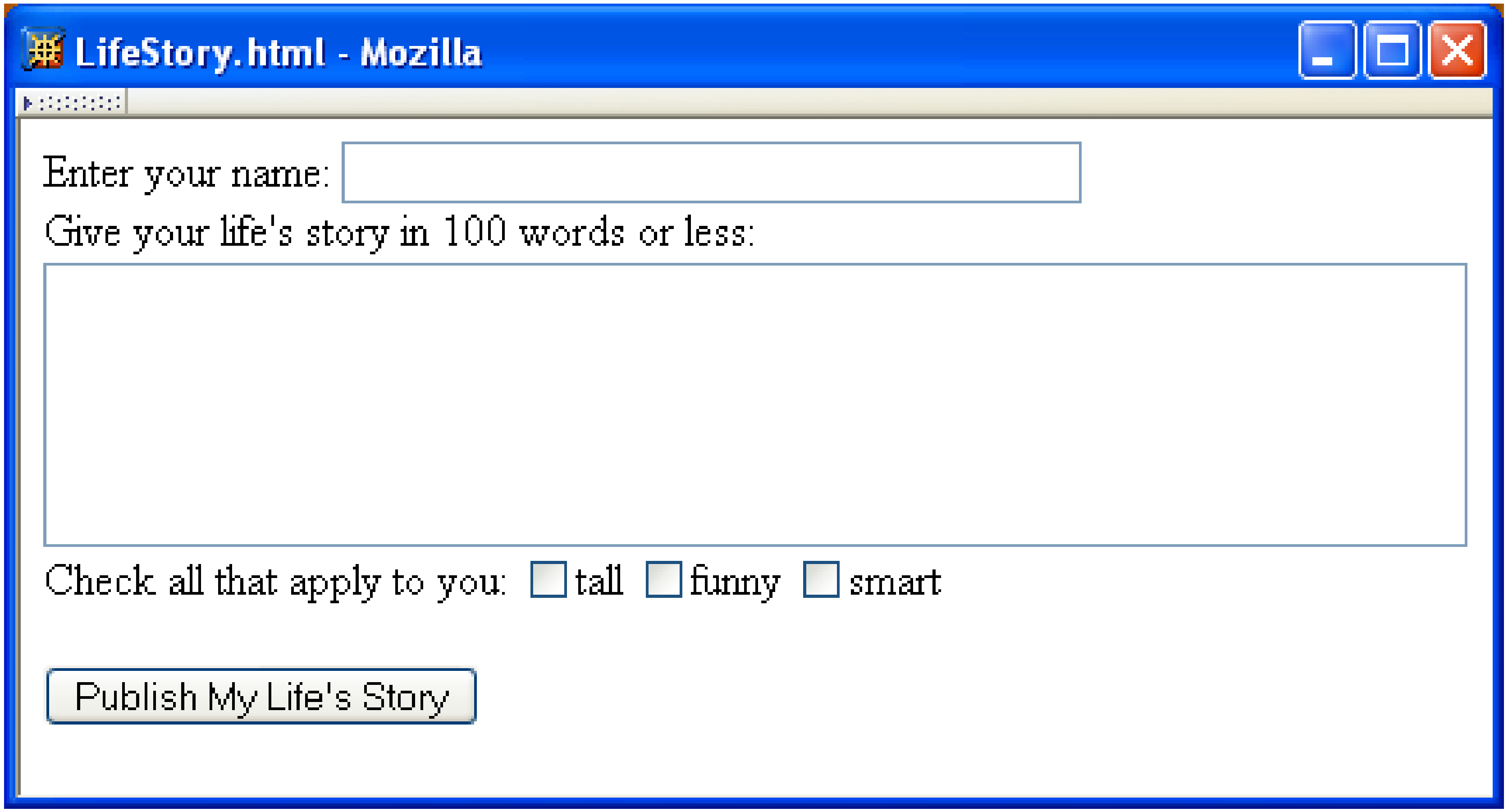
```
<a href="java/applet/package-frame.html" target="lowerLeftFrame">
```

  id/name of a frame

Frames

- User interface issues:
  - What happens when the page is printed?
  - What happens when the Back button is clicked?
  - How should assistive technology "read" the page?
  - How should the information be displayed on a small display?
- Recommendation: avoid frames except for applications aimed at "power users"

Forms



LifeStory.html - Mozilla

Enter your name:

Give your life's story in 100 words or less:

Check all that apply to you: ☐ tall ☐ funny ☐ smart

Forms

Each form is content of a `form` element

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Forms

`action` specifies URL where form data is sent in an HTTP request

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Forms

HTTP request method (lower case)

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life’s story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Forms

- The XHTML grammar require any child of the *form* element to be a block
- Many form elements are actually *inline*, so including a block element on top such a *div* or a table is a simple way to be compliant with the grammar

Forms

```
<form action="http://www.example.org" method="get">
 <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

`div` is the block element analog of `span` (no-style block element)

Forms

```
<form action="http://www.example.org" method="get">
 <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Form control elements must be content of a block element

Forms

Text field *control* (form user-interface element)

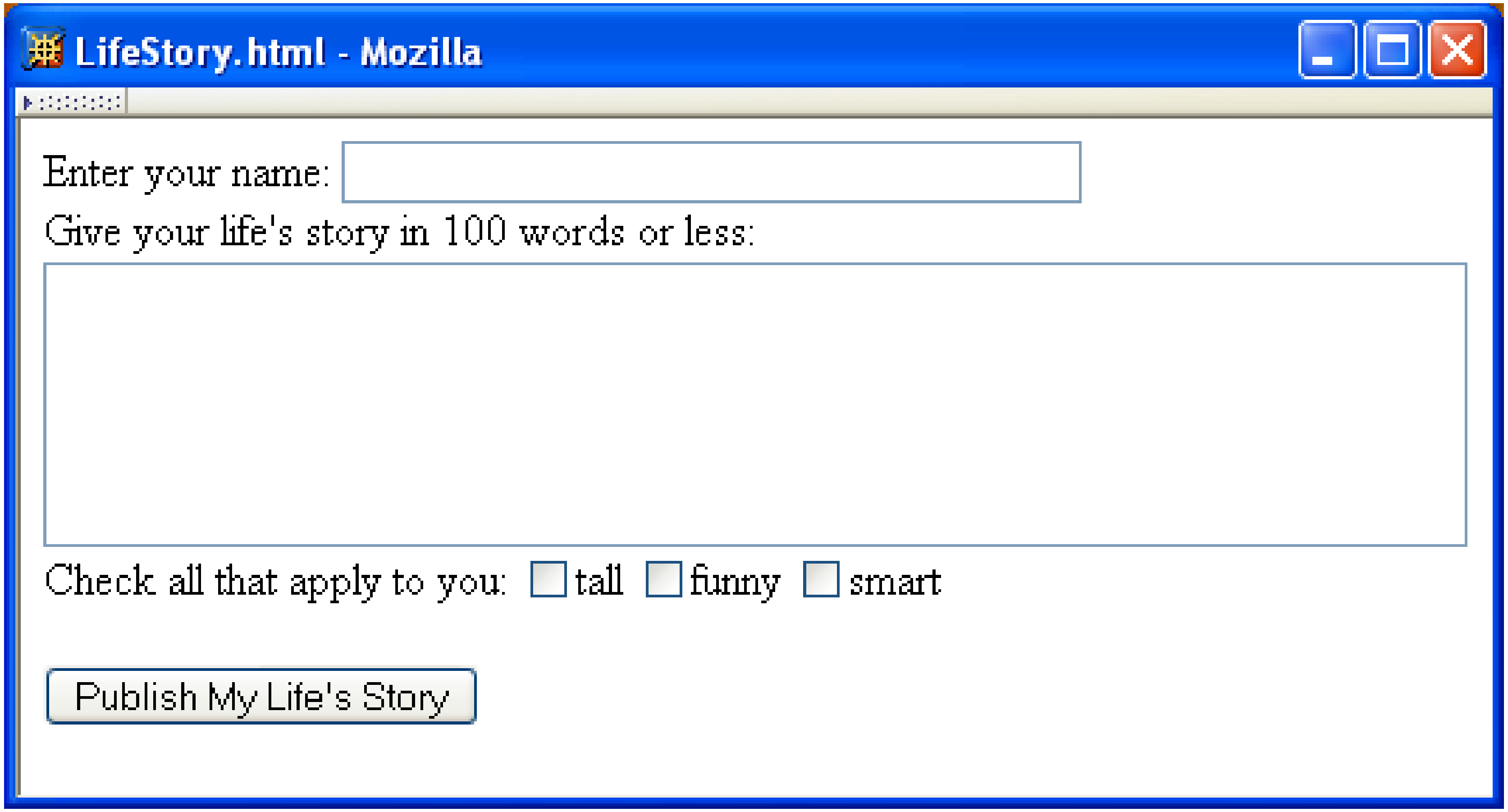
```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Forms

Text field used for one-line inputs

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Forms


LifeStory.html - Mozilla

Enter your name: [ ]

Give your life's story in 100 words or less:

[ ]

Check all that apply to you: ☐ tall ☐ funny ☐ smart

[Publish My Life's Story]

Forms

Name associated with this control's data in HTTP request

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Forms

Width (number of characters) of text field

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Forms

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

`input` is an empty element

Forms

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Use `label` to associate text with a control

Only one control inside a label element!

Forms

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

Form controls are inline elements

Forms

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life's story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

`textarea` control used for multi-line input

Forms

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life’s story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

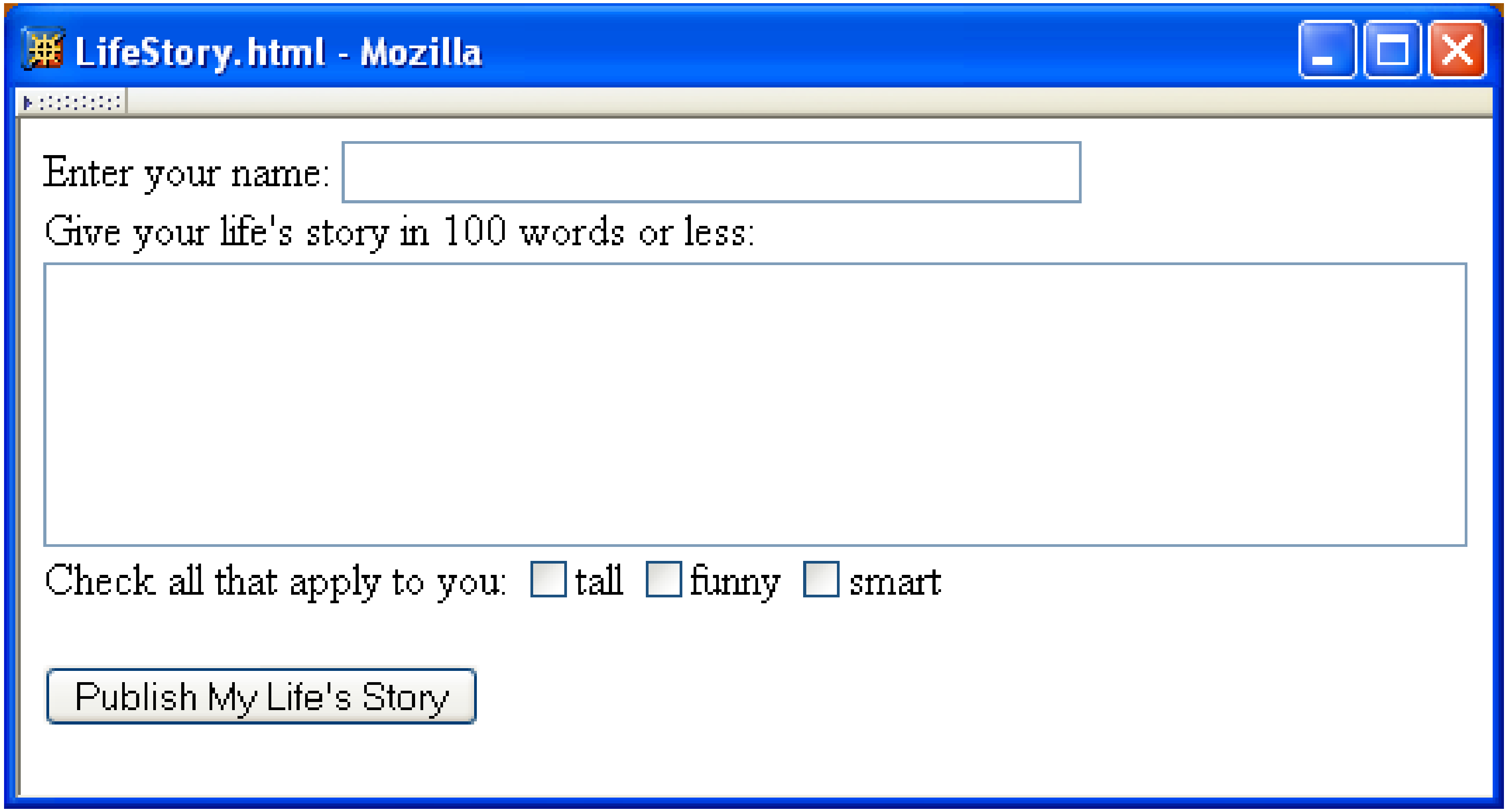
Height and width in characters

Forms

```
<form action="http://www.example.org" method="get">
  <div>
    <label>
      Enter your name: <input type="text" name="username" size="40" />
    </label>
    <br />
    <label>
      Give your life’s story in 100 words or less:
      <br />
      <textarea name="lifestory" rows="5" cols="60"></textarea>
    </label>
    <br />
```

`textarea` is not an empty element; any content is displayed

Forms



Enter your name:

Give your life's story in 100 words or less:

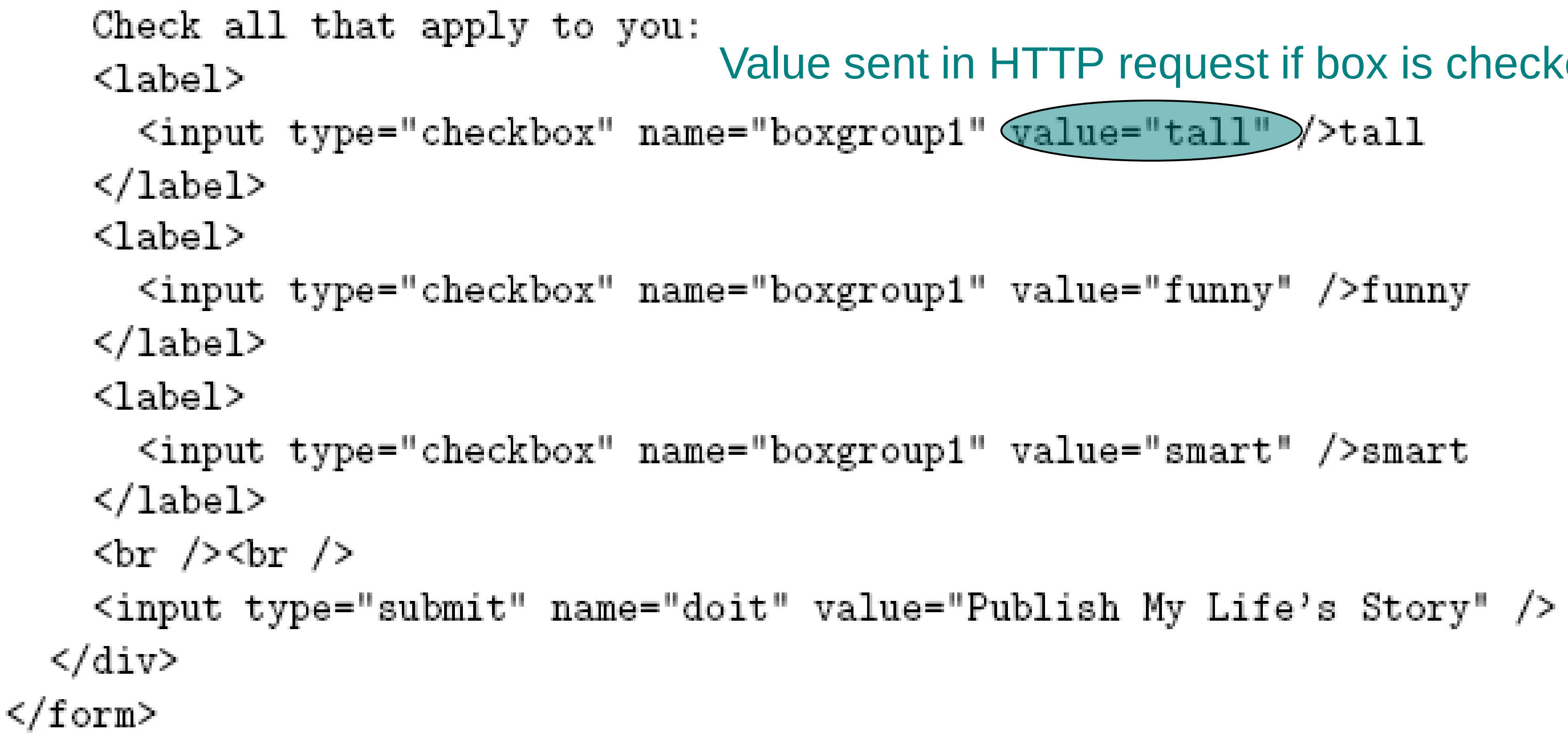
Check all that apply to you: ☐ tall ☐ funny ☐ smart

Forms

Checkbox control

```
  Check all that apply to you:
  <label>
    <input type="checkbox" name="boxgroup1" value="tall" />tall
  </label>
  <label>
    <input type="checkbox" name="boxgroup1" value="funny" />funny
  </label>
  <label>
    <input type="checkbox" name="boxgroup1" value="smart" />smart
  </label>
  <br /><br />
  <input type="submit" name="doit" value="Publish My Life's Story" />
 </div>
</form>
```

Forms



```
    Check all that apply to you:
    <label>
      <input type="checkbox" name="boxgroup1" value="tall" />tall
    </label>
    <label>
      <input type="checkbox" name="boxgroup1" value="funny" />funny
    </label>
    <label>
      <input type="checkbox" name="boxgroup1" value="smart" />smart
    </label>
    <br /><br />
    <input type="submit" name="doit" value="Publish My Life's Story" />
  </div>
</form>
```

Value sent in HTTP request if box is checked

Forms

Controls can share a common name

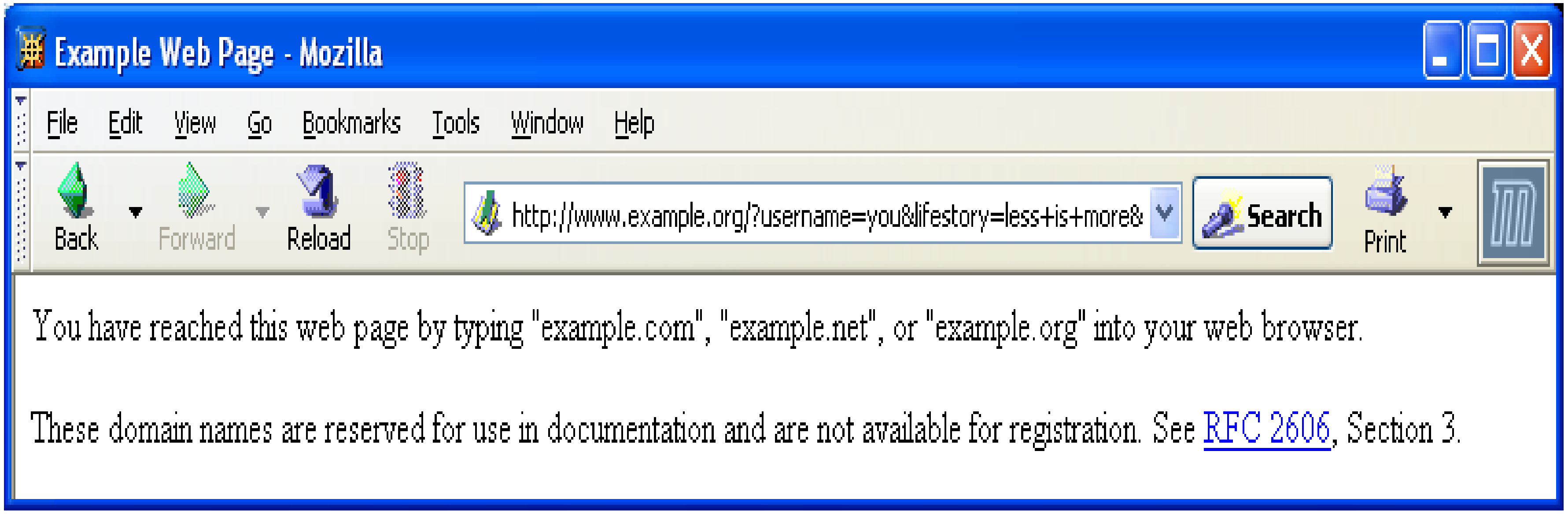
```
    Check all that apply to you:
    <label>
      <input type="checkbox" name="boxgroup1" value="tall" />tall
    </label>
    <label>
      <input type="checkbox" name="boxgroup1" value="funny" />funny
    </label>
    <label>
      <input type="checkbox" name="boxgroup1" value="smart" />smart
    </label>
    <br /><br />
    <input type="submit" name="doit" value="Publish My Life's Story" />
  </div>
</form>
```

Forms

```
    Check all that apply to you:
    <label>
      <input type="checkbox" name="boxgroup1" value="tall" />tall
    </label>
    <label>
      <input type="checkbox" name="boxgroup1" value="funny" />funny
    </label>
    <label>
      <input type="checkbox" name="boxgroup1" value="smart" />smart
    </label>
    <br /><br />
    <input type="submit" name="doit" value="Publish My Life's Story" />
  </div>
</form>
```

Submit button: form data sent to action URL if button is clicked

Forms

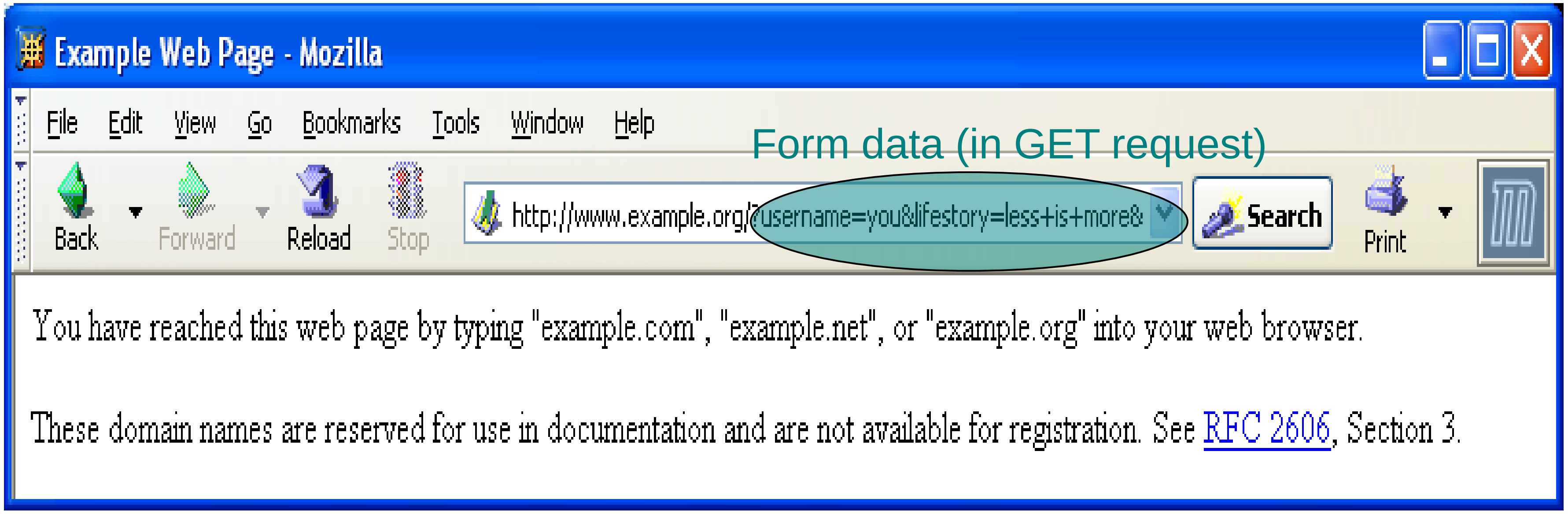


http://www.example.org/?username=you&lifestory=less+is+more&

You have reached this web page by typing "example.com", "example.net", or "example.org" into your web browser.

These domain names are reserved for use in documentation and are not available for registration. See RFC 2606, Section 3.

Forms


Example Web Page - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
Search
Print
Form data (in GET request)

http://www.example.org/?username=you&lifestory=less+is+more&

You have reached this web page by typing "example.com", "example.net", or "example.org" into your web browser.

These domain names are reserved for use in documentation and are not available for registration. See RFC 2606, Section 3.

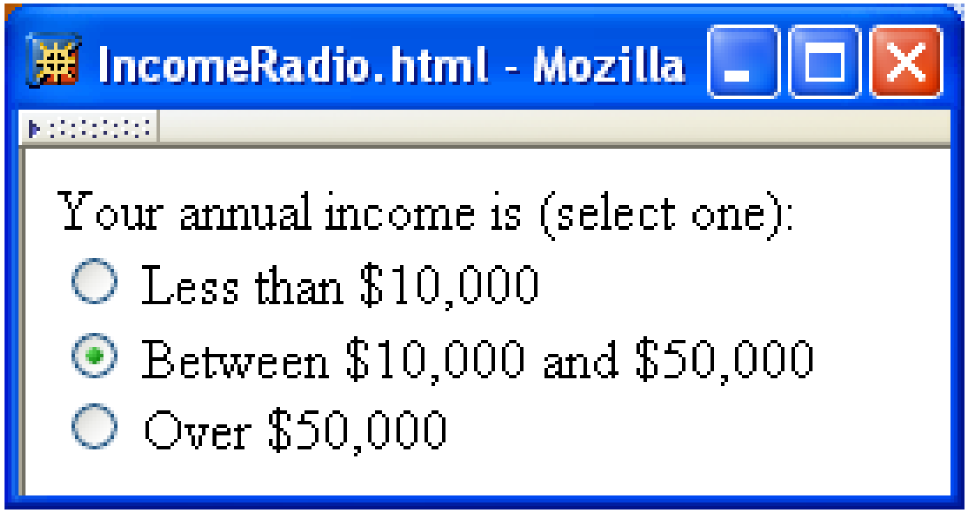
Forms

```
    Check all that apply to you:
    <label>
      <input type="checkbox" name="boxgroup1" value="tall" />tall
    </label>
    <label>
      <input type="checkbox" name="boxgroup1" value="funny" />funny
    </label>
    <label>
      <input type="checkbox" name="boxgroup1" value="smart" />smart
    </label>
    <br /><br />
    <input type="submit" name="doit" value="Publish My Life's Story" />
  </div>
</form>
```

Displayed on button and sent to server if button clicked

Forms

Radio buttons: at most one can be selected at a time.



Your annual income is (select one):

( ) Less than $10,000

[✓ Between $10,000 and $50,000]

( ) Over $50,000

Forms

Radio button control

```
Your annual income is (select one):<br />
<label>
  <input type="radio" name="radgroup1" value="0-10" />
    Less than $10,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="10-50"
        checked="checked" />
    Between $10,000 and $50,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="&gt;50" />
    Over $50,000
</label>
```

Forms

```
Your annual income is (select one):<br />
<label>
  <input type="radio" name="radgroup1" value="0-10" />
    Less than $10,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="10-50"
          checked="checked" />
    Between $10,000 and $50,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="&gt;50" />
    Over $50,000
</label>
```

All radio buttons with the same name form a *button set*

Forms

```
Your annual income is (select one):<br />
<label>
  <input type="radio" name="radgroup1" value="0-10" />
    Less than $10,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="10-50"
          checked="checked" />
    Between $10,000 and $50,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="&gt;50" />
    Over $50,000
</label>
```

Only one button of a set can be selected at a time

Forms

```
Your annual income is (select one):<br />
<label>
  <input type="radio" name="radgroup1" value="0-10" />
    Less than $10,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="10-50"
        checked="checked" />
    Between $10,000 and $50,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="&gt;50" />
    Over $50,000
</label>
```

This button is initially selected (checked attribute also applies to check boxes)

Forms

```
Your annual income is (select one):<br />
<label>
  <input type="radio" name="radgroup1" value="0-10" />
    Less than $10,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="10-50"
          checked="checked" />
    Between $10,000 and $50,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="&gt;50" />
    Over $50,000
</label>
```

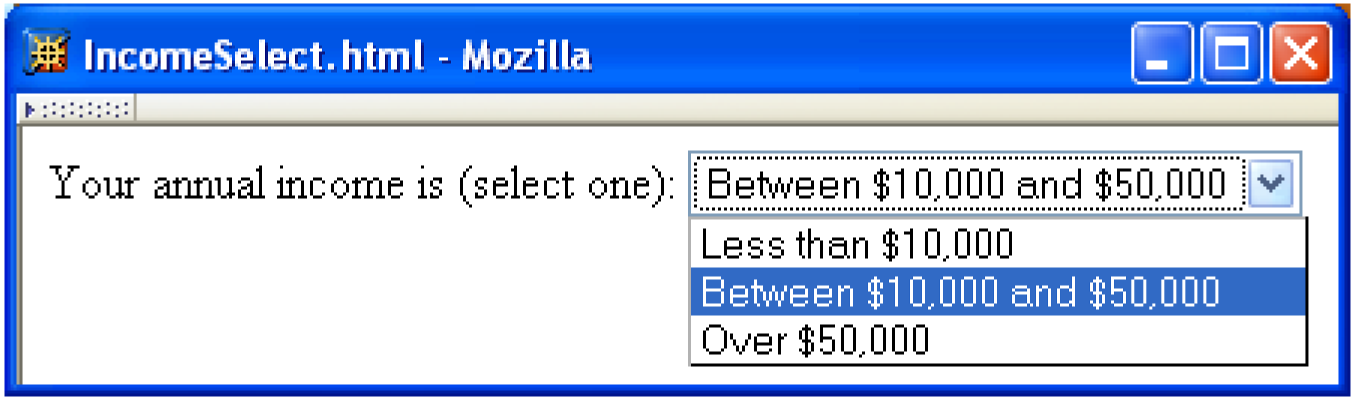
Boolean attribute: default false, set true by specifying name as value

Forms

```
Your annual income is (select one):<br />
<label>
  <input type="radio" name="radgroup1" value="0-10" />
    Less than $10,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="10-50"
          checked="checked" />
    Between $10,000 and $50,000
</label><br />
<label>
  <input type="radio" name="radgroup1" value="&gt;50" />
    Over $50,000
</label>
```

Represents string: >50

Forms

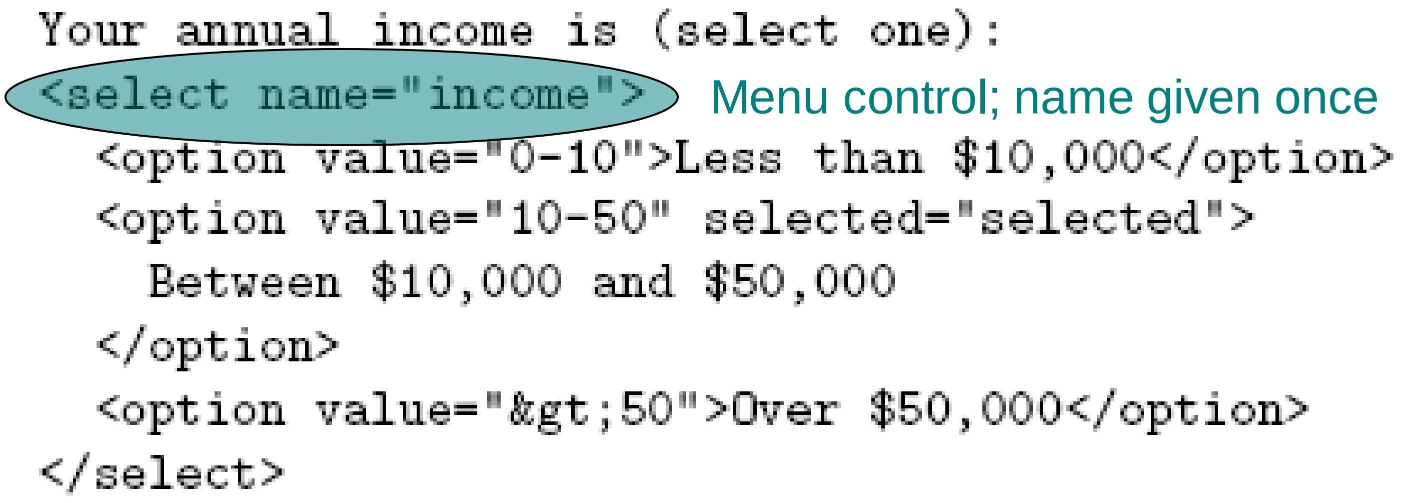


Your annual income is (select one): Between $10,000 and $50,000

- Less than $10,000
- Between $10,000 and $50,000
- Over $50,000

Menu

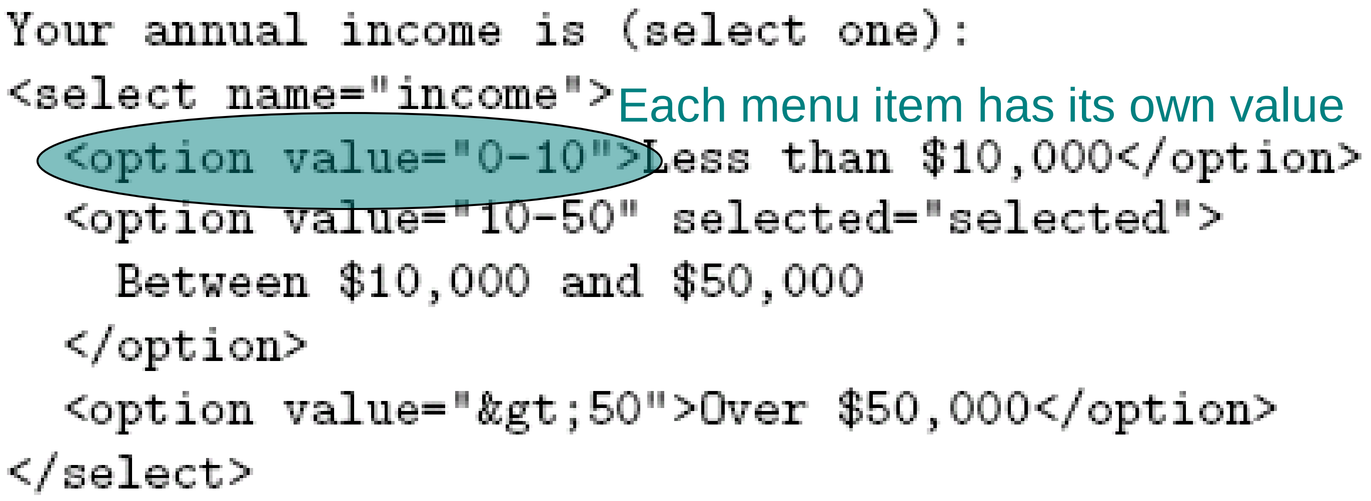
Forms



```
Your annual income is (select one):
<select name="income">
  <option value="0-10">Less than $10,000</option>
  <option value="10-50" selected="selected">
    Between $10,000 and $50,000
  </option>
  <option value="&gt;50">Over $50,000</option>
</select>
```

Menu control; name given once

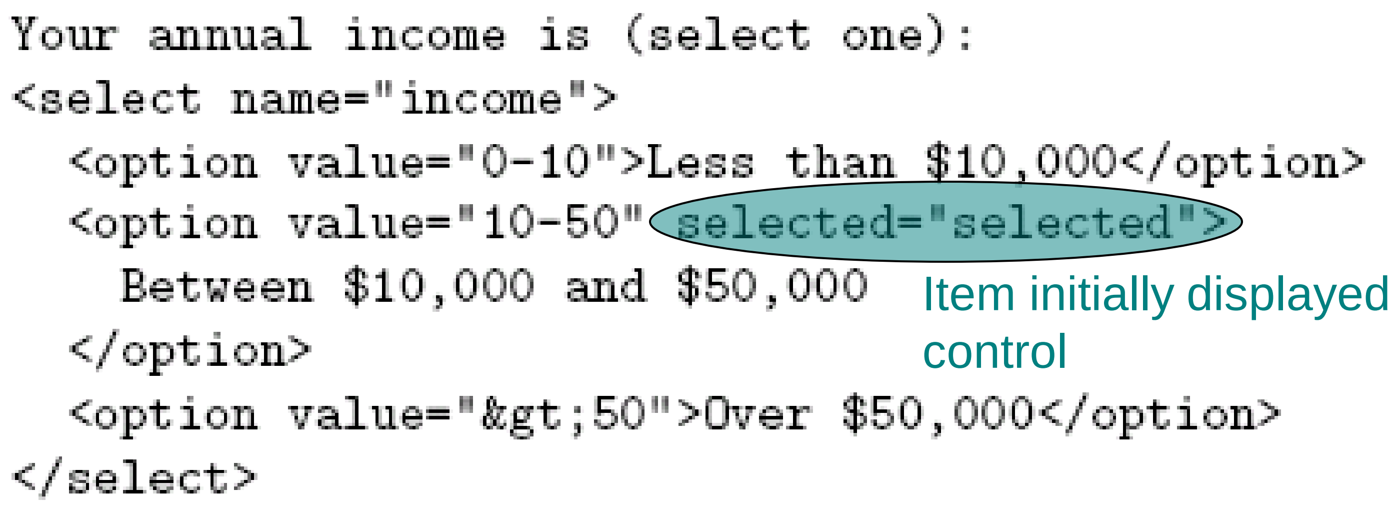
Forms



```
Your annual income is (select one):
<select name="income">
  <option value="0-10">Less than $10,000</option>
  <option value="10-50" selected="selected">
    Between $10,000 and $50,000
  </option>
  <option value="&gt;50">Over $50,000</option>
</select>
```

Each menu item has its own value

Forms

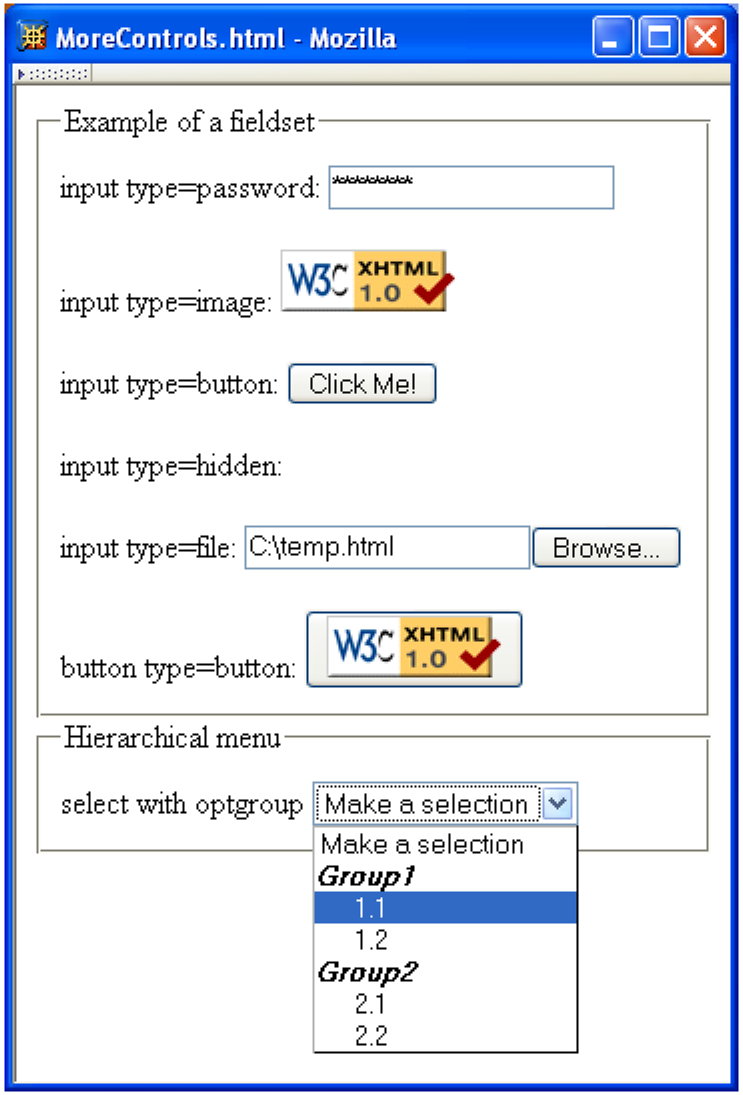


```
Your annual income is (select one):
<select name="income">
  <option value="0-10">Less than $10,000</option>
  <option value="10-50" selected="selected">
    Between $10,000 and $50,000
  </option>
  <option value="&gt;50">Over $50,000</option>
</select>
```

Item initially displayed in menu control

Forms

- Other form controls:
  - Fieldset (grouping)
  - Password
  - Clickable image
  - Non-submit buttons
  - Hidden (embed data)
  - File upload
  - Hierarchical menus



Example of a fieldset

input type=password: ********

input type=image:

input type=button: Click Me!

input type=hidden:

input type=file: C:\temp.html Browse...

button type=button:

Hierarchical menu

select with optgroup Make a selection

Make a selection
Group1
1.1
1.2
Group2
2.1
2.2