CGS 3175: Internet Applications
Fall 2009

XHTML – Part 3 – Lists and Hyperlinks

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XHTML Lists

- XHTML provides three main types of lists: numbered, bulleted, and definition. These are summarized in the table below.

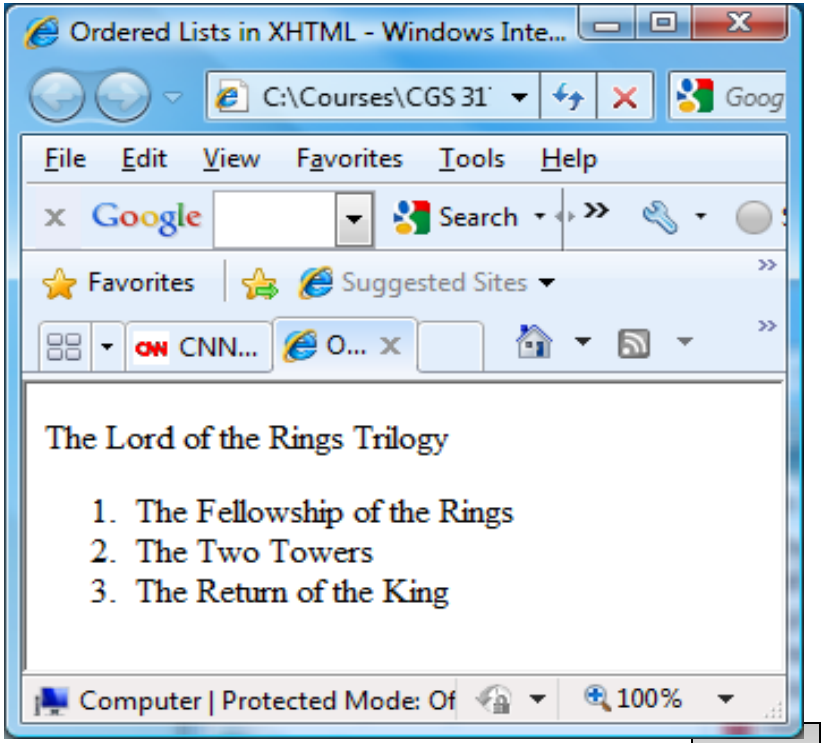
List type	XHTML element	Item element
Ordered list (numbered)	`<ol>…</ol>`	`<li>...</li>`
Unordered list (bulleted)	`<ul>…</ul>`	`<li>...</li>`
Definition list	`<dl>…</dl>`	`<dt>...</dt>` and `<dd>...</dd>`

Ordered Lists

- Ordered lists are numbered and are contained within the `<ol>…</ol>` , ordered list element.
- An ordered list may have any number of `<li>` list items appearing in the element content.
- A browser will list each of the elements in a number sequential list.
- For example:

```
<p> The Lord of the Rings Trilogy</p>
<ol>
   <li>The Fellowship of the Rings</li>
   <li>The Two Towers</li>
   <li>The Return of the King</li>
</ol>
```

Viewed in a browser

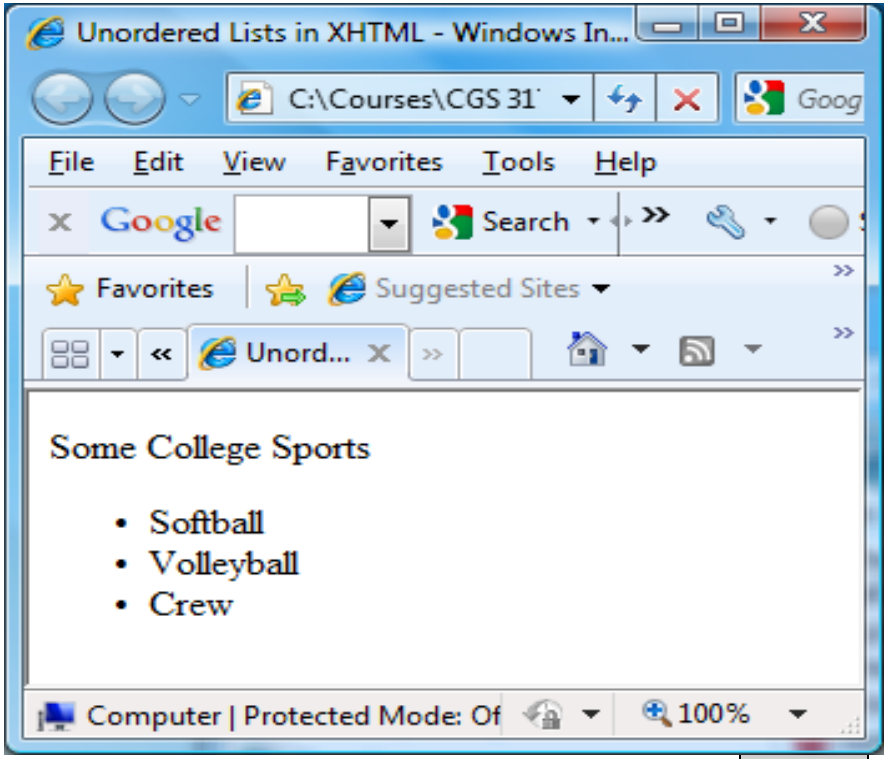


Unordered Lists

- Unordered lists are bulleted instead of numbered. An unordered list is contained within the `<ul>...</ul>` , unordered list element.
- An unordered list may have any number of `<li>` list items appearing in the element content.
- A browser will list each of the elements in a bulleted list.
- For example:

```
<p> College Sports</p>
<ul>
   <li>Softball</li>
   <li>Volleyball</li>
   <li>Crew</li>
</ul>
```

Viewed in a browser

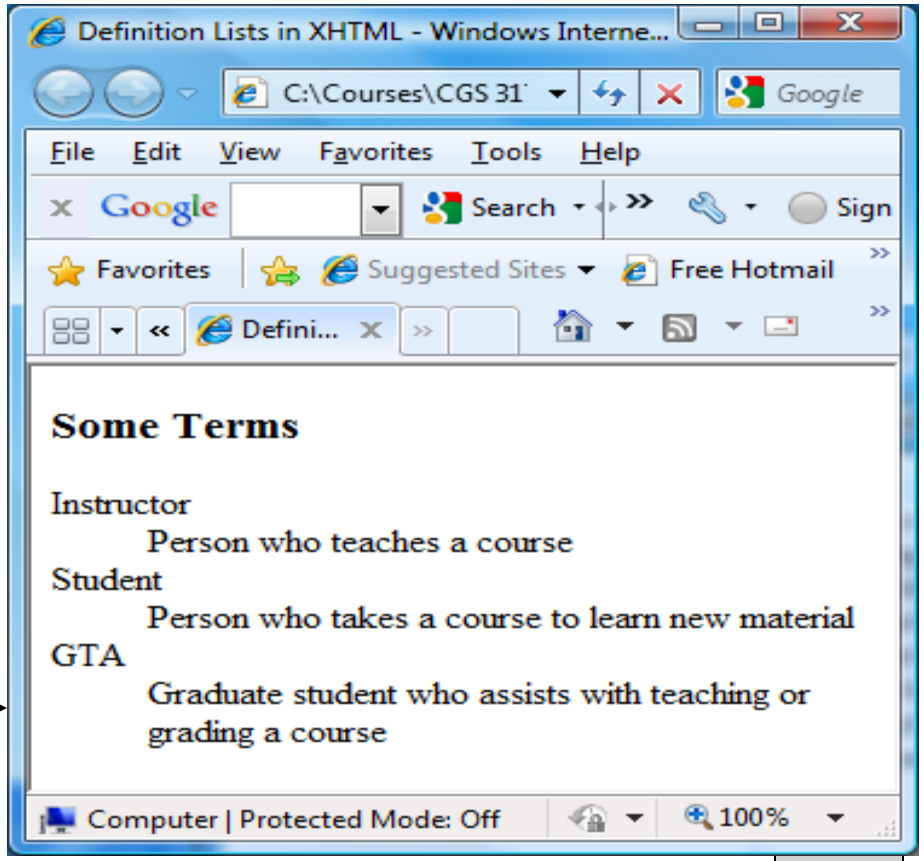


Definition Lists

- Definition lists are lists of terms and their definitions. They are a little different than ordered and unordered lists in that the items are lists in pairs.
- The `<dl>...</dl>` , surround the definition list. The name of the term appears between `<dt>` and `</dt>` tags, and the definition is between `<dd>` and `</dd>` tags.
- For example:

```
<h3> Some Terms</h3>
<dl>
  <dt>Instructor</dt><dd>Person who
      teaches a course</dd>
  <dt>Student</dt><dd>Person who
      takes a course to learn new
      material</dd>
  <dt>GTA</dt><dd>Graduate student
      who assists with teaching a
      course</dd>
</dl>
```

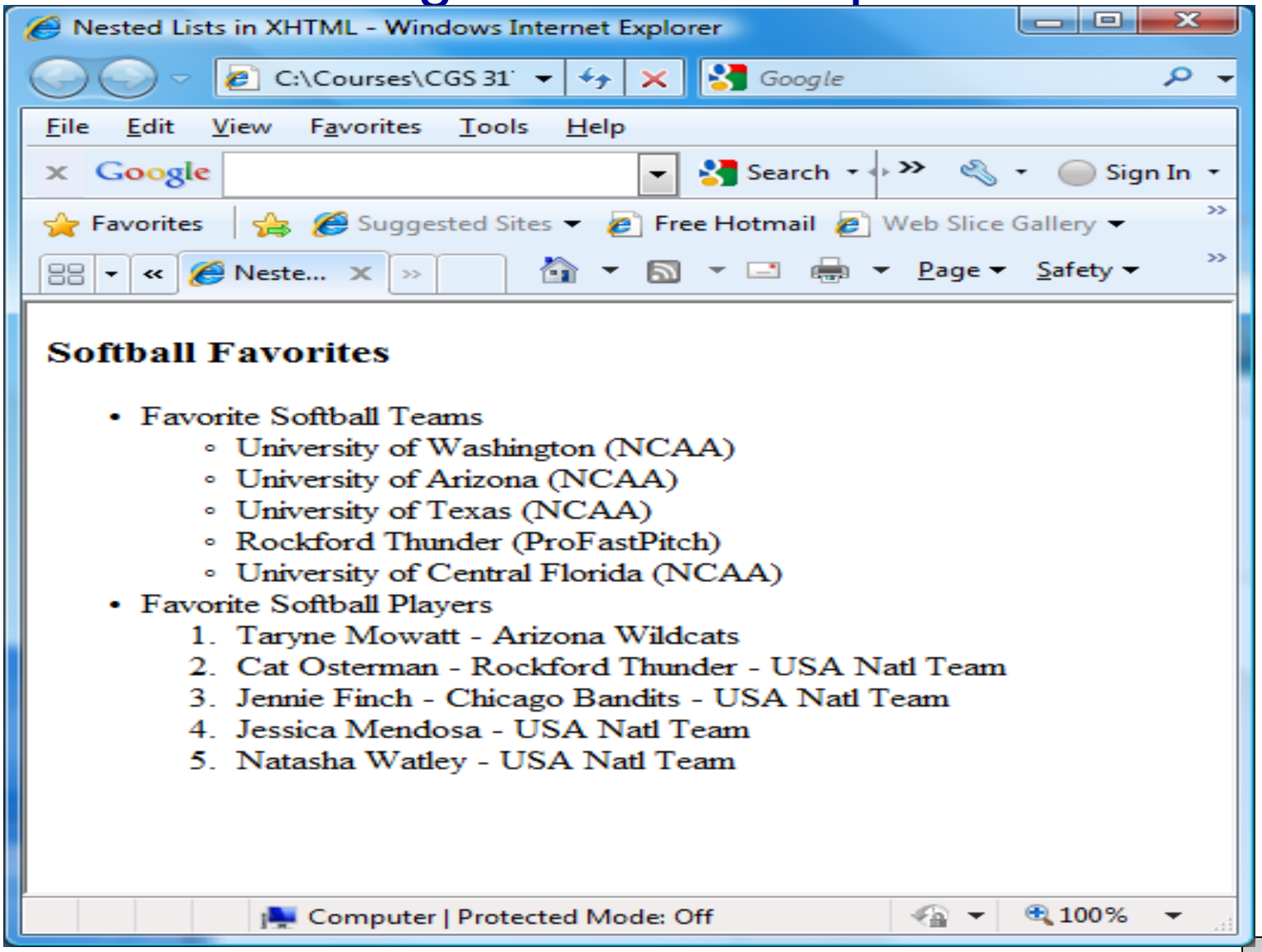
Viewed in a browser



Nesting Lists – Example

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<!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>Nested Lists in XHTML</title>
   </head>
   <body>
          <h3> Softball Favorites</h3>
          <ul>
          <li>Favorite Softball Teams
            <ul>
                    <li>University of Arizona (NCAA)</li>
                    <li>University of Texas (NCAA)</li>
                    <li>Rockford Thunder (ProFastPitch)</li>
                    <li>University of Central Florida (NCAA)</li>
            </ul>
           </li>
                     <li>Favorite Softball Players
           <ol>
                    <li>Taryne Mowatt - Arizona Wildcats</li>
                    <li>Cat Osterman - Rockford Thunder - USA Natl Team</li>
                    <li>Jennie Finch - Chicago Bandits - USA Natl Team</li>
                    <li>Jessica Mendosa - USA Natl Team</li>
                    <li>Natasha Watley - USA Natl Team</li>
          </ol>
          </li>
          </ul>
    </body>
</html>
```


Nesting Lists – Example



Hyperlinks

- A hypertext link, or hyperlink is an object in a Web page that when clicked will redirect the browser to another Web page or file.
- Usually, hyperlinks take the form of blue, underlined text, or an image.
- Special linking elements are included in the XHTML (also in HTML) specification that allow Web page authors to use images or text within a We page to create these links to other resources. The resource being linked to by the hyperlink is called the target resource.
- In addition to other Web pages, the target resource can be an image file, a multimedia file (such as an audio or video file), another section within the same page, or any Web page or file anywhere on the Internet.
- Hyperlinks provide Web page authors with a powerful means of organizing information and allow them to create very complex, cross-referenced Web sites with clickable tables of contents and menus.

Creating Hyperlinks With The <a> Element

- The <a> or anchor element in XHTML is used to create hyperlinks. These links require the user to perform an action – usually clicking on the link – in order to for the link to do anything. The clickable region of the link can consist of text or images.

- If the user never clicks the linked image or text, the link is never activated. Passively moving the cursor over the hyperlink will not activate it.

- The syntax of an anchor element is:

Value of the `href` attribute is the URL of the target resource.

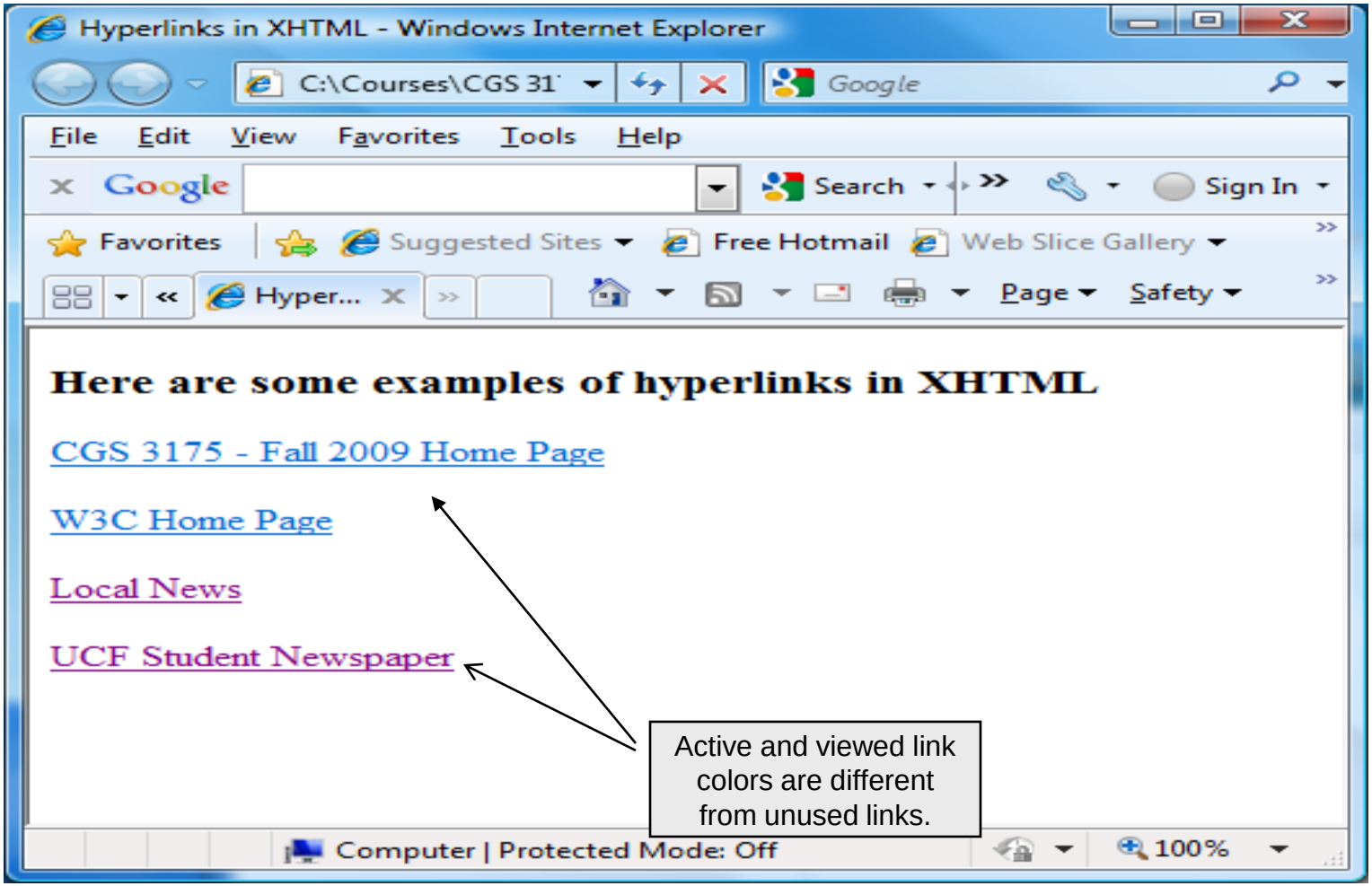
```
<a href = "http://www.cs.ucf.edu/courses/cgs3175/fall2009/index.html">
     This is a link. </a>
```

Clickable area of the link in a Web browser.

Hyperlink – Example

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<!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>Hyperlinks in XHTML</title>
   </head>
   <body>
        <div>
         <h3> Here are some examples of hyperlinks in XHTML</h3>
         <a
href="http://www.cs.ucf.edu/courses/cgs3175/fall2009/index.html">CGS 3175 -
Fall 2009 Home Page</a>
         <br /><br />
         <a href="http://www.w3c.org">W3C Home Page</a>
         <br /><br />
         <a href="http://www.cfnews13.com">Local News</a>
        </div>
    </body>
</html>
```


Hyperlink – Example



Relative versus Absolute URLs

- Relative URLs are used to link documents that reside on the same Web server. When a relative URL is used, the protocol and domain name are omitted. The link to the target resource is relative to the location of the document containing the link, or the source document.
- If the target resource resides in the same directory as the source document, you can use a link containing only the name of the target resource, as in the first example below.
- If the target resource resides in a different directory on the Web server, you must include the subdirectory information in the link, as in the second example below.

```
<a href="newpage.html">Click Here</a>

<a href="documents/newpage.html">Click Here</a>

<a href="images/mypicture.jpg">Click Here</a>
```


Relative versus Absolute URLs

- Absolute URLs are used to link documents that reside on different Web servers. When an absolute URL is used, the protocol (`http://`) and domain name (`cs.ucf.edu`) and domain name are included to direct the Web browser to the location of the new Web server. The absolute URL does not take into account any location information about the current document and can reference any target resource anywhere on the Internet.

- Below are some examples.

```
<a href="http://www.cs.ucf.edu/courses/cgs
3175/fall2009/index.html">Click Here</a>

<a
href="http://www.cs.ucf.edu/courses/cgs3175/fall2009/background.gi
f"> Click Here</a>
```


Linking Within A Single Document

- If you are working with a large document, you may want to create links to sections within that document.
- For example, you may want to create a link at the bottom of the document that links to back to the top of the document, or a link that will take you to a footnote at the bottom of a page from within the body of the document.
- You see internal linking quite often when viewing on-line tutorials, or documentation in which each chapter is linked from one to the next and even pages within a chapter are linked from one to the next.

Linking Within A Single Document

- In order to create an internal link, you will need to first create the anchor at the place where you want the link to link to. The anchor element is used with an attribute called name, which identifies the anchor, or target.

```
<a name="footnote">Footnote</a>
```

- Next, you need to create a link that looks like the relative links we've already examined, but has a # sign in front of the relative URL to tell the browser that this link exists in the current document. This link would look like:

```
<a href="#footnote">Link to footnote</a>.
```

- This would create an anchor where the footnote resides in the document, and clicking on the link would then take the user to that place within the document. The example on the next couple of pages illustrates internal links.

Linking Within A Single Document

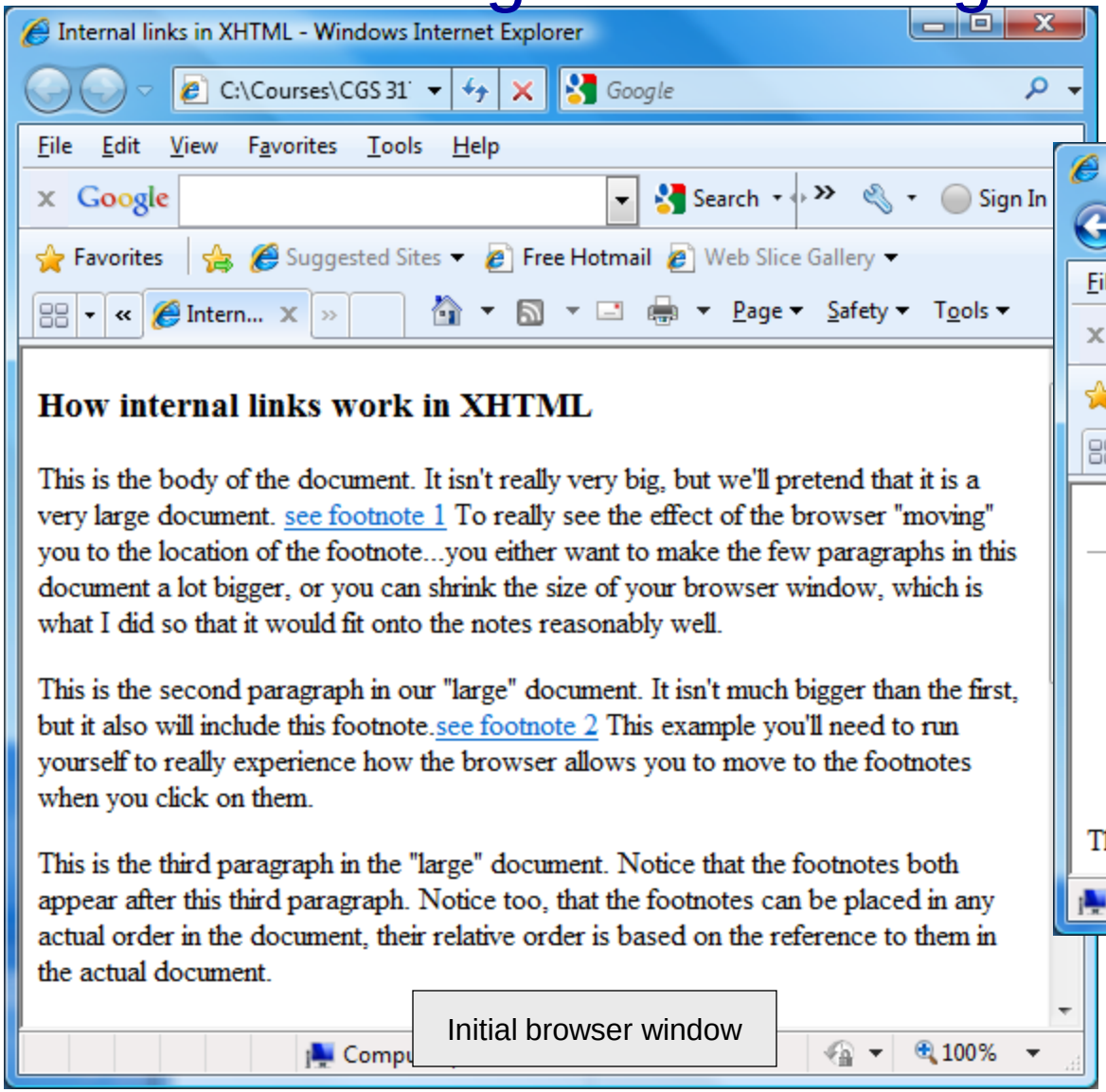
```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
   <head>
     <title>Internal links in XHTML</title>
   </head>
   <body>
          <h3> How internal links work in XHTML</h3>
          <p>
             This is the body of the document.
             It isn't really very big, but we'll pretend
             that it is a very large document <a href="#footnote1">see footnote 1</a>.
             To really see the effect of the browser "moving" you to the location of
           the footnote...you either want to make the few paragraphs in this document
             a lot bigger, or you can shrink the size of your browser window, which is
             what I did so that it would fit onto the notes reasonably well.

          </p>
          <p>
             This is the second paragraph in our "large" document.
             It isn't much bigger than the first, but it also will include
           this footnote.<a href="#footnote2">see footnote 2</a>
             This example you'll need to run yourself to really experience how the browser
             allows you to move to the footnotes when you click on them.
          </p>
```


Linking Within A Single Document

```
 This is the third paragraph in the "large" document.
              Notice that the footnotes both appear after this third paragraph.
              Notice too, that the footnotes can be placed in any actual order
            in the document, their relative order is based on the reference to
            them in the actual document.
          </p>
          <!-- spacing and horizontal rule are for effect only - neither are
required.  -->
        <div>
          <br />    <br />    <hr />    <br /> <br />
        <span><a name="footnote2">This is the second footnote</a></span>
          <br />    <br />    <br />    <br />    <br />    <hr />    <br />
          <br />  <br />  <br />  <br />  <br />  <br />
          <span><a name="footnote1">This is the first footnote</a></span>
        </div>
    </body>
</html>
```


Linking Within A Single Document



Initial browser window

After clicking footnote #1 link

Linking Within A Single Document - Returning

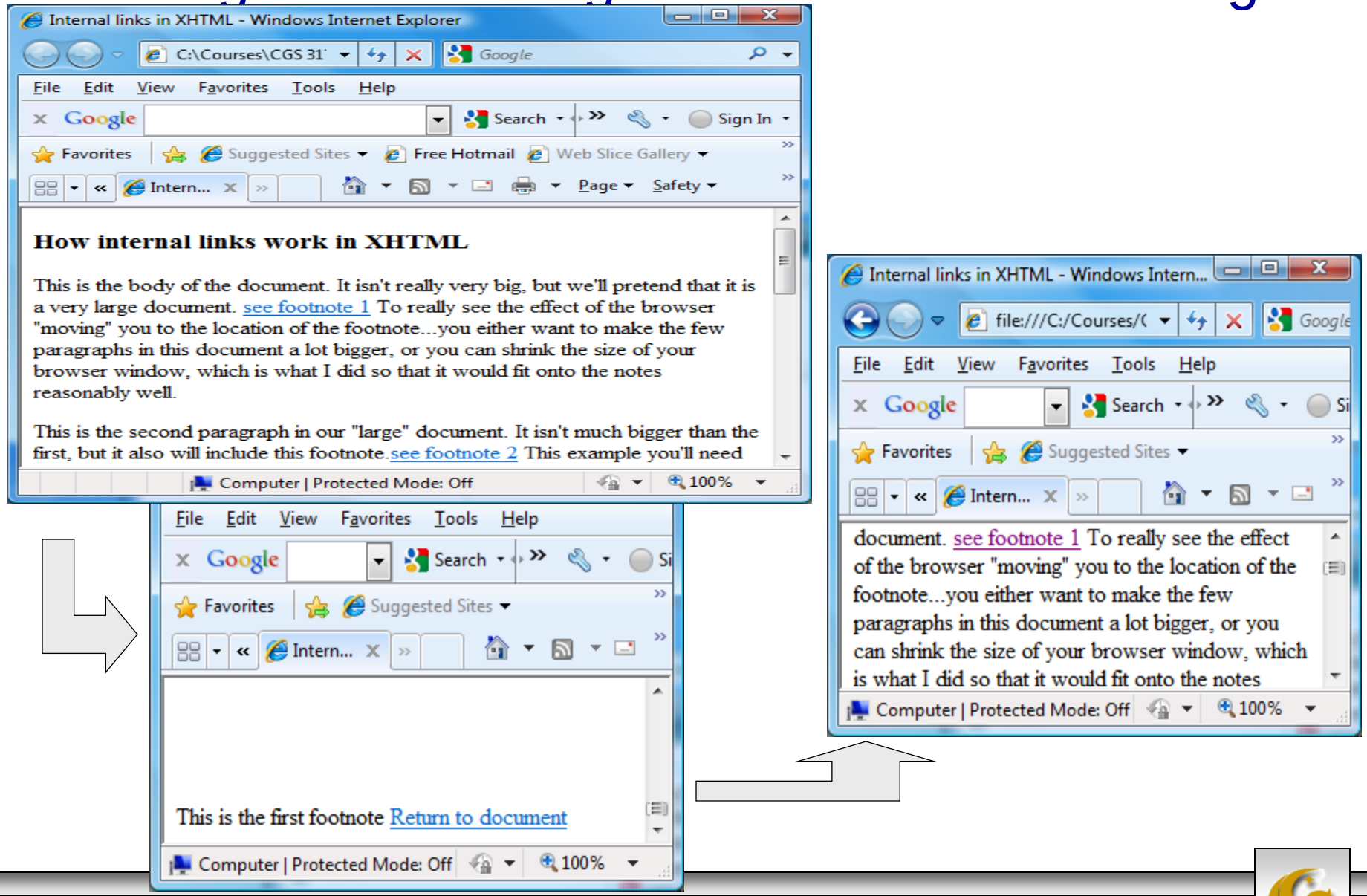
```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
   <head>
     <title>Internal links in XHTML</title>
   </head>
   <body>
          <h3> How internal links work in XHTML</h3>
          <p>
             This is the body of the document.
             It isn't really very big, but we'll pretend
             that it is a very large document. <a href="#footnote1">see footnote 1</a>
             <a name="return1"></a>
             To really see the effect of the browser "moving" you to the location of
             the footnote...you either want to make the few paragraphs in this document
             a lot bigger, or you can shrink the size of your browser window, which is
             what I did so that it would fit onto the notes reasonably well.

          </p>
          <p>
             This is the second paragraph in our "large" document.
             It isn't much bigger than the first, but it also will include
             this footnote.<a href="#footnote2">see footnote 2</a><a name="return2"></a>
             This example you'll need to run yourself to really experience how the browser
             allows you to move to the footnotes when you click on them.
          </p>
```


Linking Within A Single Document - Returning

```
          <p>
             This is the third paragraph in the "large" document.
             Notice that the footnotes both appear after this third paragraph.
             Notice too, that the footnotes can be placed in any actual order
           in the document, their relative order is based on the reference to
           them in the actual document.
          </p>
          <!-- spacing and horizontal rule are for effect only - neither are required.  -->
        <div>
          <br />    <br />    <hr />    <br /> <br />
        <span><a name="footnote2">This is the second footnote</a></span>
         <span><a href="#return2">Return to document</a></span>
          <br />    <br />    <br />    <br />    <br />    <hr />    <br />
          <br />  <br />  <br />  <br />  <br />  <br />
          <span><a name="footnote1">This is the first footnote</a></span>
                  <span><a href="#return1">Return to document</a></span>
        </div>
    </body>
</html>
```


Linking Within A Single Document - Returning

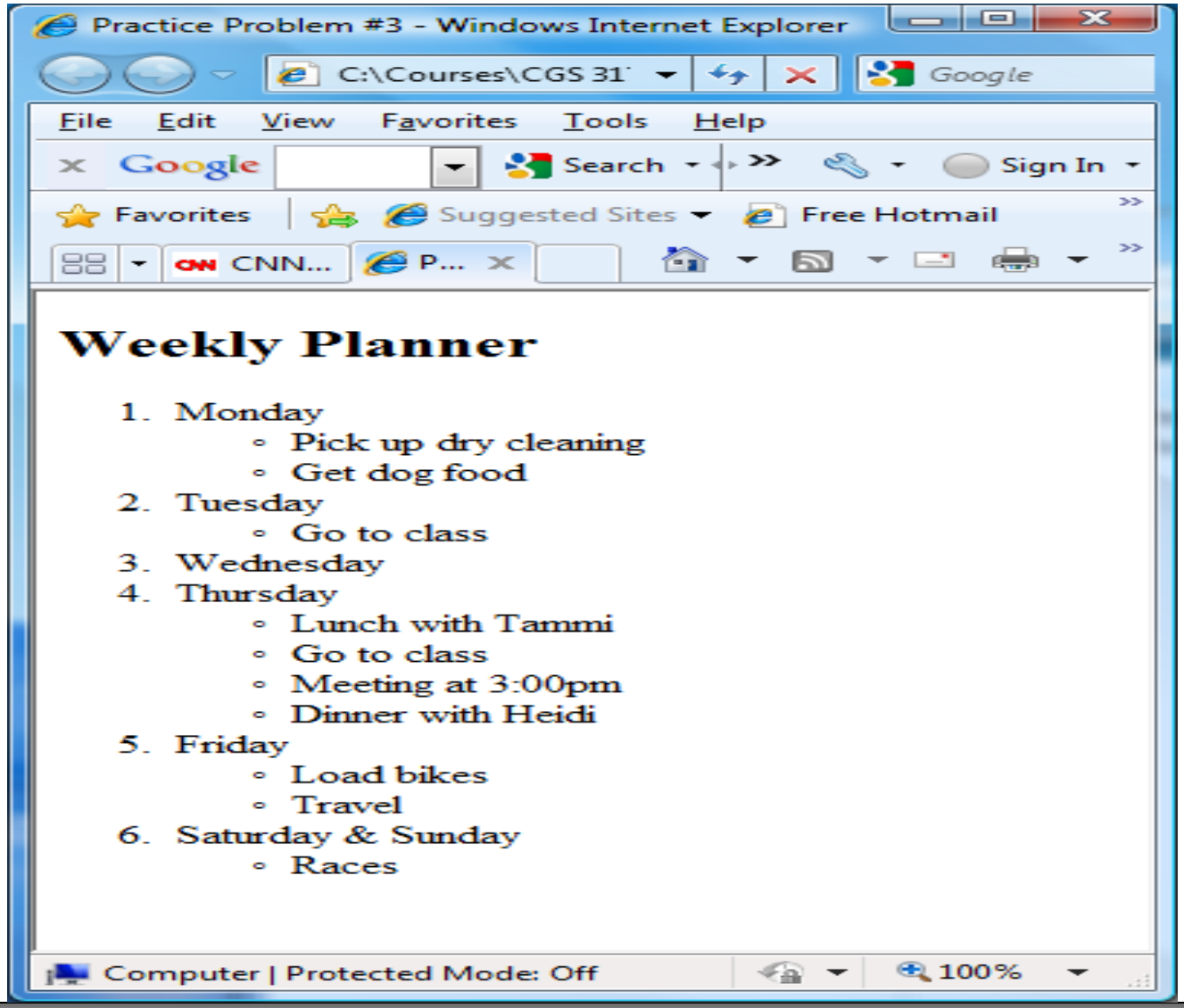


Practice Problems

1. Create an XHTML document when viewed with a browser will produce a page exactly like to the one shown on page 23.

2. Create an XHTML document that contains at least three hyperlinks to any Web pages of your choice and then verify your code at the W3C Markup Validation Web site. When viewed with a browser and you click on the links it will take you to the correct Web page. See page 24.

Practice Problem #1 Rendering



Practice Problem #4 – Output