

Lecture #7

NEWM N510: Web-Database Concepts

HTML (3)

kharrazi@iupui.edu
<http://www.info510.com>

Review Last Lecture

- HTML: Images
- HTML: Lists
- HTML: Tables
- HTML: Block Elements

HTML in a Nutshell

1. Web Server Overview
2. HTML Editor (NotePad++)
3. FTP Client (FileZilla)
4. HTML Introduction
5. HTML: Elements
6. HTML: Basic Tags
7. HTML: Formatting
8. HTML: Entities
9. HTML: Links (URLs)
10. HTML: Fonts
11. HTML: Colors
12. HTML: Body Attributes
13. HTML: Images
14. HTML: Lists
15. HTML: Tables
16. HTML: Block Elements
17. HTML: Head
18. HTML: DTD (Meta)
19. HTML: Styles (CSS)
20. HTML: Scripts (JS)
21. HTML: Forms (Get/Post)

Lecture in a Nutshell

1. HTML: Head
2. HTML: Styles (CSS)
3. HTML: DTD (Meta)
4. HTML: Scripts (JS)
5. HTML: Forms (Get/Post)

1. HTML Head

- The head element contains general information, also called meta-information, about a document. Meta means "information about".
- You can say that meta-data means information about data, or meta-information means information about information.
- The elements inside the head element should not be displayed by a browser.
- According to the HTML standard, only a few tags are legal inside the head section. These are: `<base>`, `<link>`, `<meta>`, `<title>`, `<style>`, and `<script>`.

HTML Head (cont.)

- Most often the meta element is used to provide information that is relevant to browsers or search engines like describing the content of your document.
- The syntax of the HTML Head is:

```
<head>  
  
<title>Title of document</title>  
<meta name="keyword" content="key1, key2, key3"></meta>  
<link rel="stylesheet" type="text/css" href="style.css"/>  
<base href="http://informatics.iupui.edu/images/"></base>  
  
</head>
```

HTML Head (cont.)

```
<html>
```

```
  <head>
```

```
    <title>Title of document</title>
```

```
    <meta name="keyword" content="key1, key2, key3"></meta>
```

```
    <meta name="description" content="The description"></meta>
```

```
    <link rel="stylesheet" type="text/css" href="style.css"/>
```

```
    <base href="http://informatics.iupui.edu/images/"></base>
```

```
  </head>
```

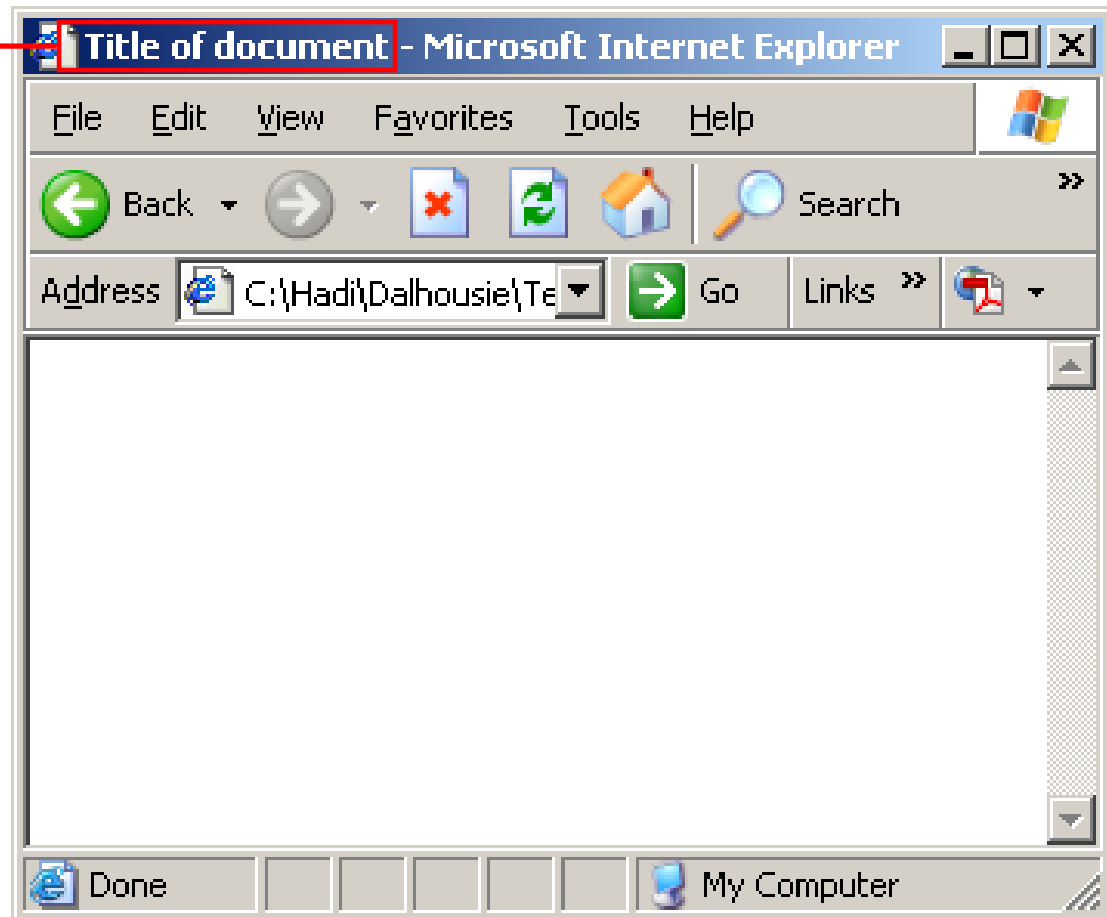
```
  <body>
```

```
  </body>
```

```
</html>
```

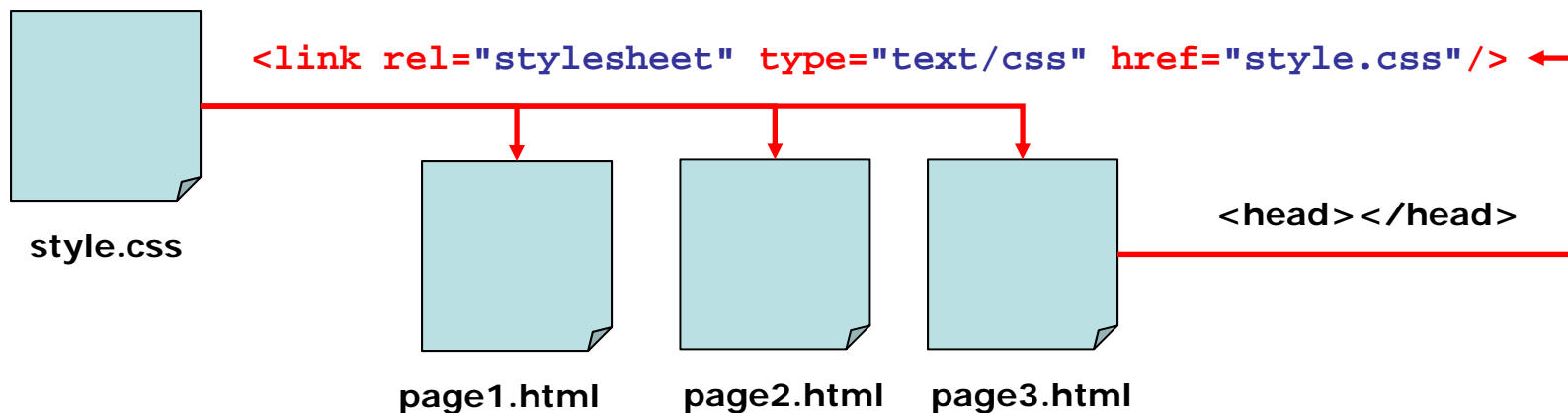
HTML Head (cont.)

Only TITLE can be seen.



2. HTML Styles (CSS)

- CSS stands for **Cascading Style Sheets**
- Styles define how to display HTML elements
- Styles are normally stored in Style Sheets
- Styles were added to **HTML 4.0** to solve a problem
- External Style Sheets can save you a lot of work
- External Style Sheets are stored in CSS files
- Multiple style definitions will **cascade** into one



HTML Styles (cont.)

Inline CSS (Styles)

```
<body style='font: 10px Verdana;'\>
```

```
  <div style='width: 300px; height:70px; background-color:#ddd;'\>
```

```
    This box has a background color of #DDD
```

```
    <br> Width is 300 px and height 70 px
```

```
  </div>
```

```
  <div style='width: 400px; height:70px; background-color:#8EE; text-align:center;'\>
```

```
    This box has a background color of #8EE <br>
```

```
    Text is aligned in center <br> Width is 400 px and height 70 px
```

```
  </div>
```

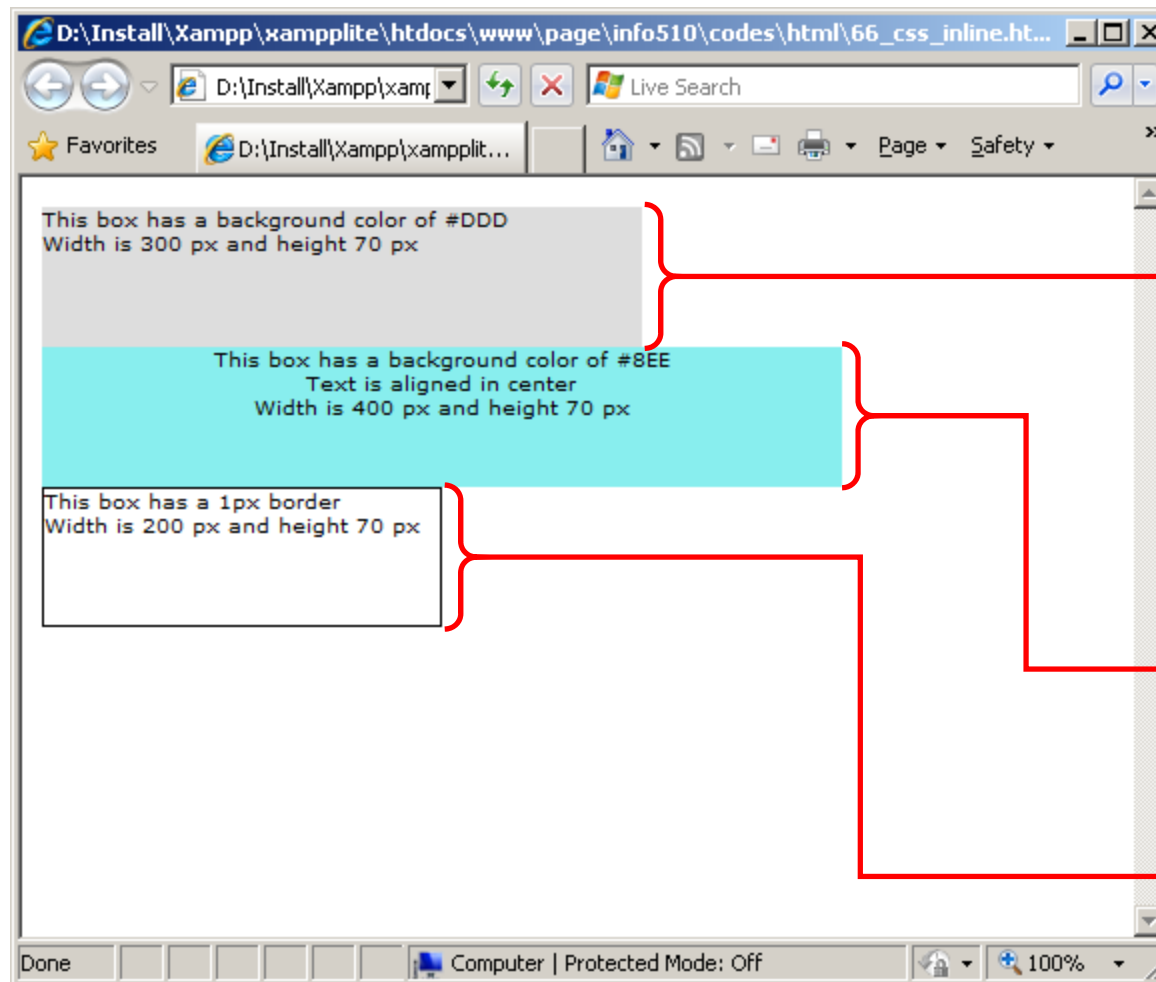
```
  <div style='width: 200px; height:70px; border:#000 solid 1px;'\>
```

```
    This box has a 1px border <br> Width is 200 px and height 70 px
```

```
  </div>
```

```
</body>
```

HTML Styles (cont.)



DIV CSS

```
width: 300px;
height: 70px;
background-color: #ddd;
```

Body CSS

```
font: 10px Verdana;
```

DIV CSS

```
width: 400px;
height: 70px;
background-color: #8EE;
text-align: center;
```

DIV CSS

```
width: 200px;
height: 70px;
border: #000 solid 1px;
```

HTML Styles (cont.)

Internal CSS (Style Tag)

```
<style>
```

```
body{font: 10px Verdana;}  
.box_type1{width:300px; height:70px; background-color:#ddd;}  
.box_type2{width:400px; height:70px; background-color:#8EE; text-align:center;}  
.box_type3{width:200px; height:70px; border:#000 solid 1px;}
```

```
</style>
```

```
<body>
```

```
  <div class='box_type1'>
```

```
    This box has a background color of #DDD <br> ...
```

```
  </div>
```

```
  <div class='box_type2'>
```

```
    This box has a background color of #8EE <br> ...
```

```
  </div>
```

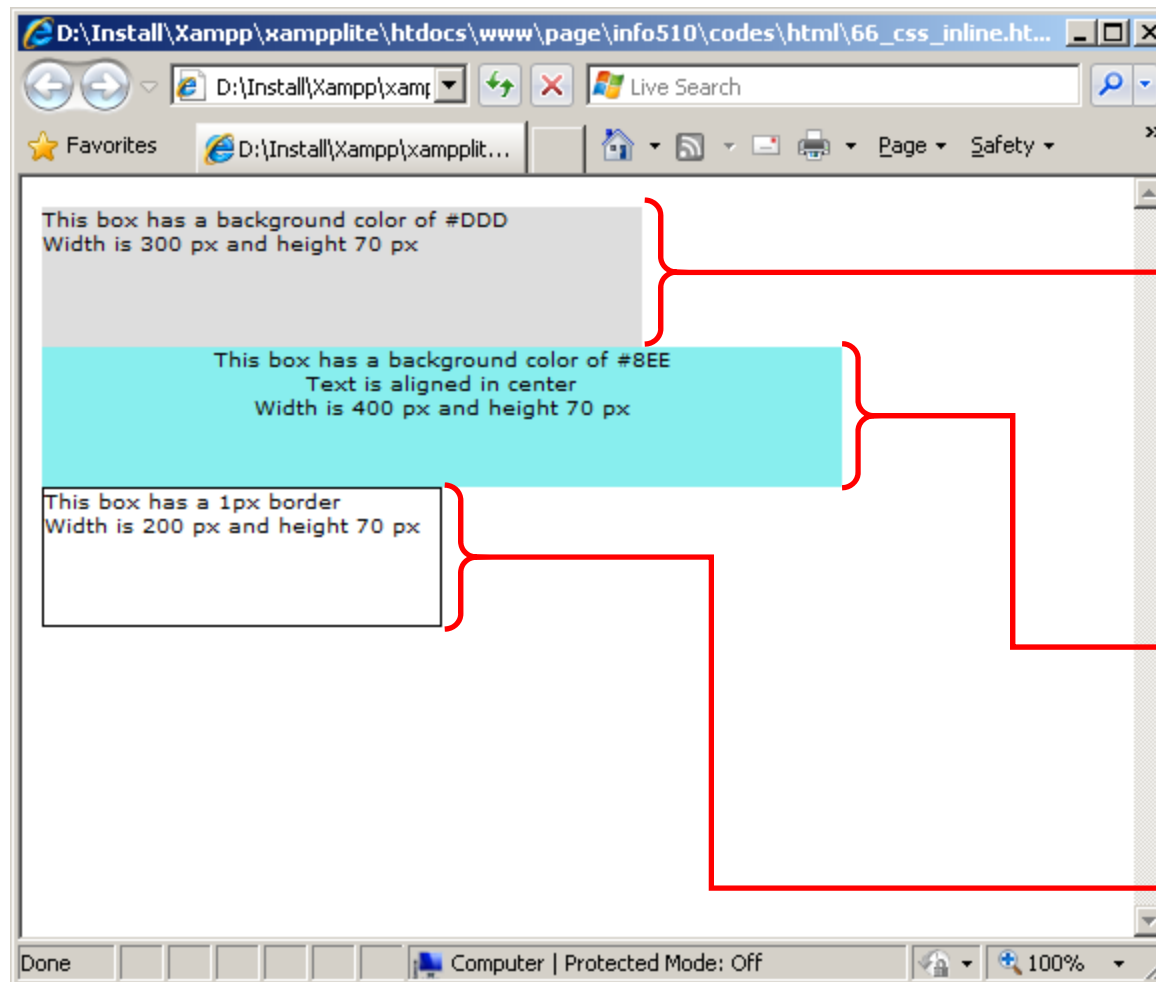
```
  <div class='box_type3'>
```

```
    This box has a 1px border <br> Width is 200 px and height 70 px
```

```
  </div>
```

```
</body>
```

HTML Styles (cont.)



Inside HTML file

```
.box_type1{
width:300px;
height:70px;
background-color:#ddd;}

body{font: 10px Verdana;}

.box_type2{
width:400px;
height:70px;
background-color:#8EE;
text-align:center;}

.box_type3{
width:200px;
height:70px;
border:#000 solid 1px;}
```

HTML Styles (cont.)

External CSS (HTML file)

```
<head>
<link rel="stylesheet" type="text/css" href="style.css"/>
</head>

<body>
  <div class='box_type1'>
    This box has a background color of #DDD <br> ...
  </div>
  <div class='box_type2'>
    This box has a background color of #8EE <br> ...
  </div>
  <div class='box_type3'>
    This box has a 1px border <br> Width is 200 px and height 70 px
  </div>
</body>
```

HTML Styles (cont.)

External CSS (CSS file – style.css)

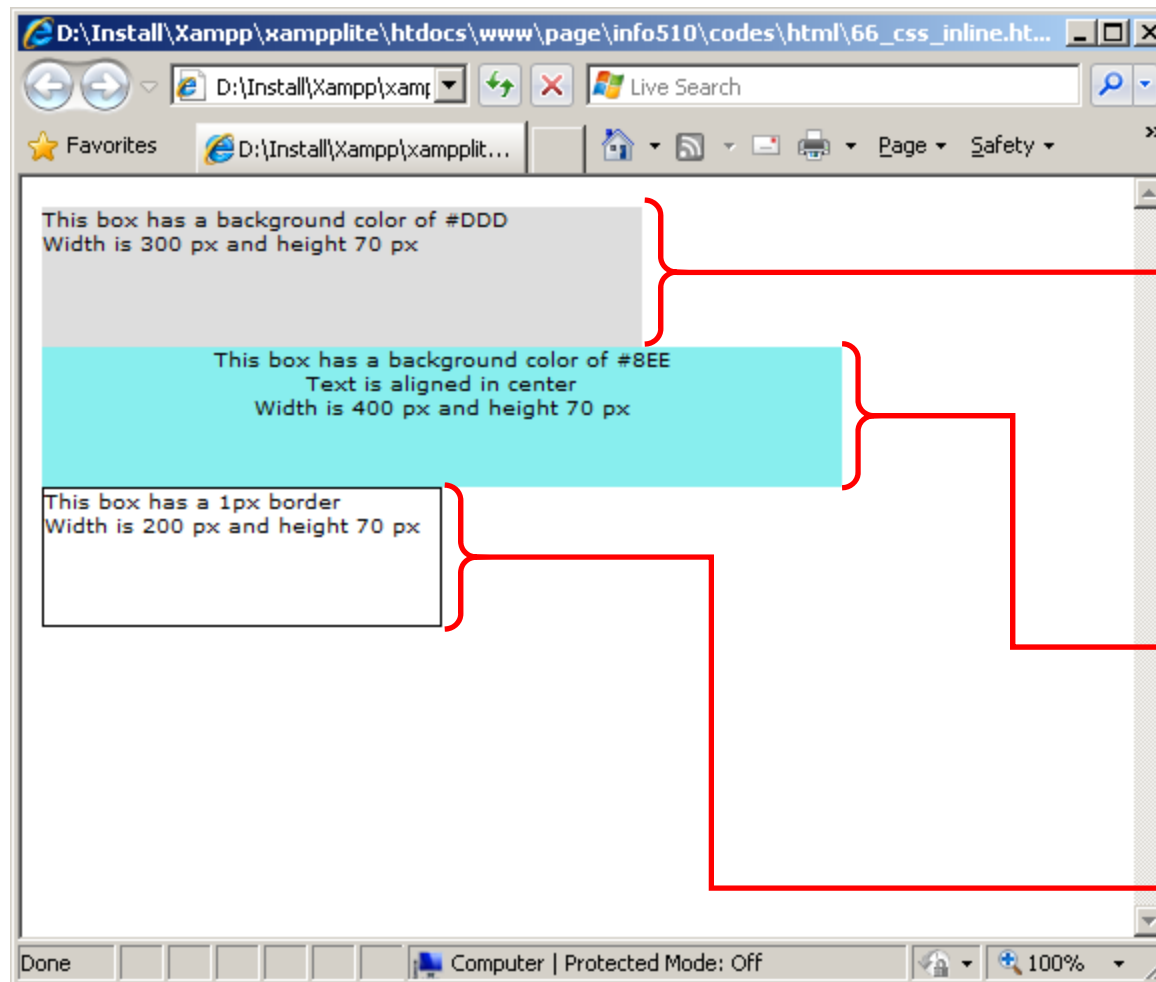
```
body
{
font: 10px Verdana;
}

.box_type1
{
width: 300px;
height: 70px;
background-color: #ddd;
}

.box_type2
{
width: 400px;
height: 70px;
background-color: #8EE;
text-align: center;
}
```

```
.box_type3
{
width: 200px;
height: 70px;
border: #000 solid 1px;
}
```

HTML Styles (cont.)



Inside CSS file

```
.box_type1{
width:300px;
height:70px;
background-color:#ddd;}

body{font: 10px Verdana;}

.box_type2{
width:400px;
height:70px;
background-color:#8EE;
text-align:center;}

.box_type3{
width:200px;
height:70px;
border:#000 solid 1px;}
```


HTML Styles (cont.)

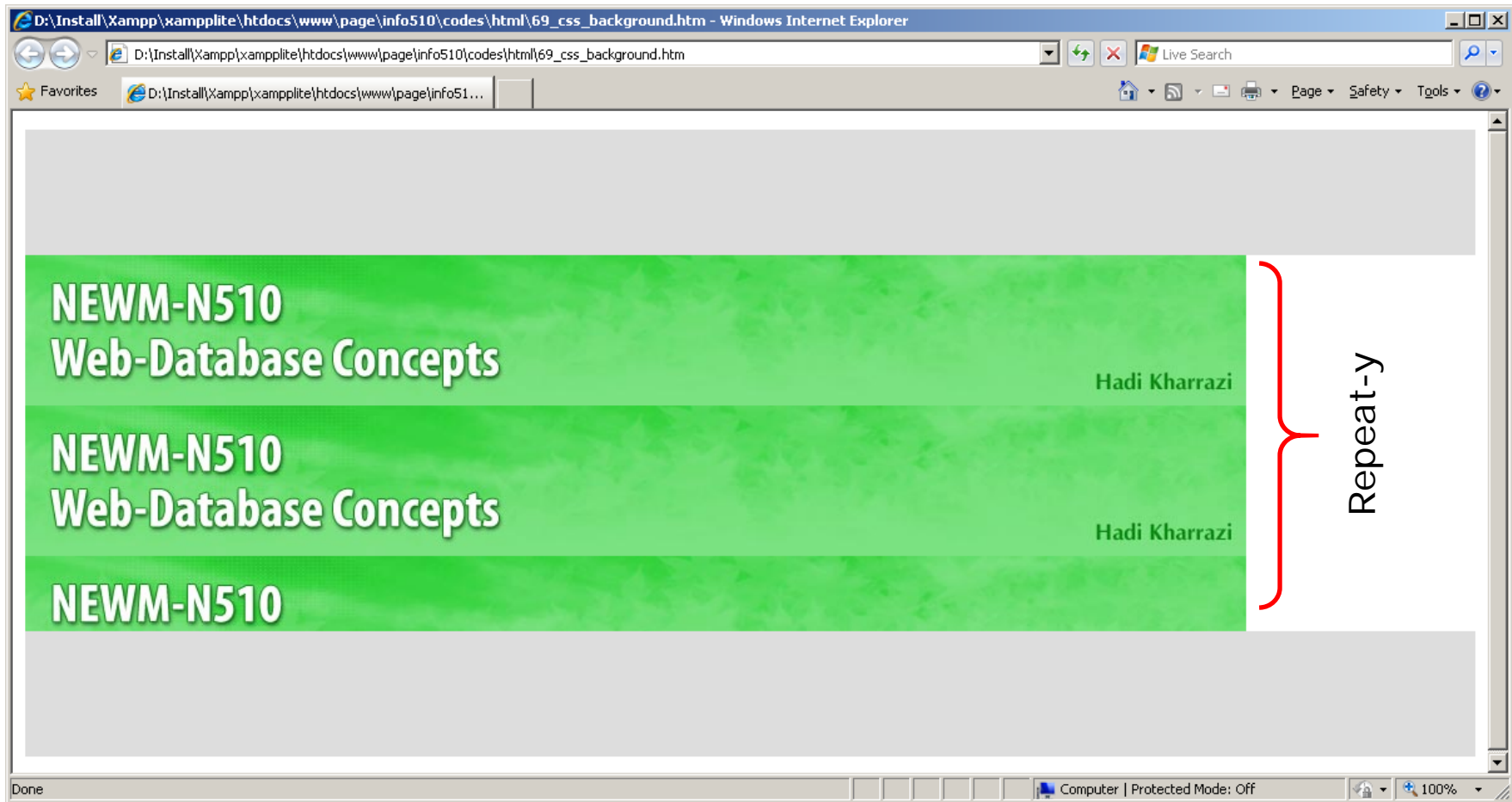
CSS Background

```
<head>
  <style>
    body{font: 10px Verdana;}
    .box_type1{height:100px; background-color:#ddd;}
    .box_type2{height:300px;
      background-image: url('http://in-info-
      web4.informatics.iupui.edu/
      ~kharrazi/tpl/images/pics/header.jpg');
      background-repeat: repeat-y;}
  </style>
</head>

<body>
  <div class='box_type1'> </div>
  <div class='box_type2'> </div>
  <div class='box_type1'> </div>
</body>
```

HTML Styles (cont.)

CSS Background



HTML Styles (cont.)

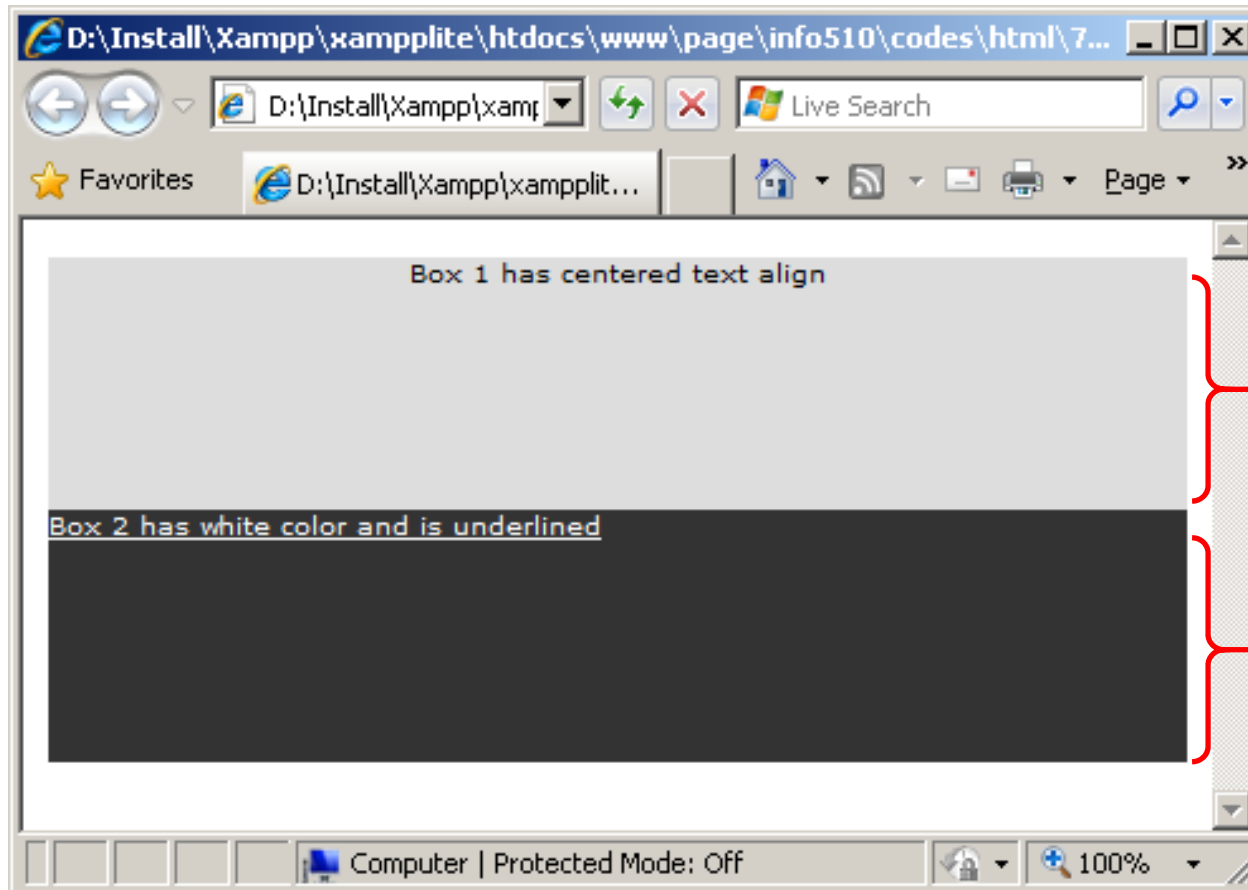
CSS Text

```
<head>
<style>
body{font: 10px Verdana;}
.box_type1{height:100px; background-color:#ddd;
           text-align: center;}
.box_type2{height:100px; background-color:#333;
           color:#FFF; text-decoration: underline;}
</style>
</head>

<body>
  <div class='box_type1'>Box 1 has centered text align</div>
  <div class='box_type2'>Box 2 has white color and is
  underlined</div>
</body>
```

HTML Styles (cont.)

CSS Text



```
.box_type1{
height:100px;
background-color:#ddd;
text-align:center;}

```

```
.box_type2{
height:100px;
background-color:#333;
color:#FFF;
text-decoration:underline;}

```

HTML Styles (cont.)

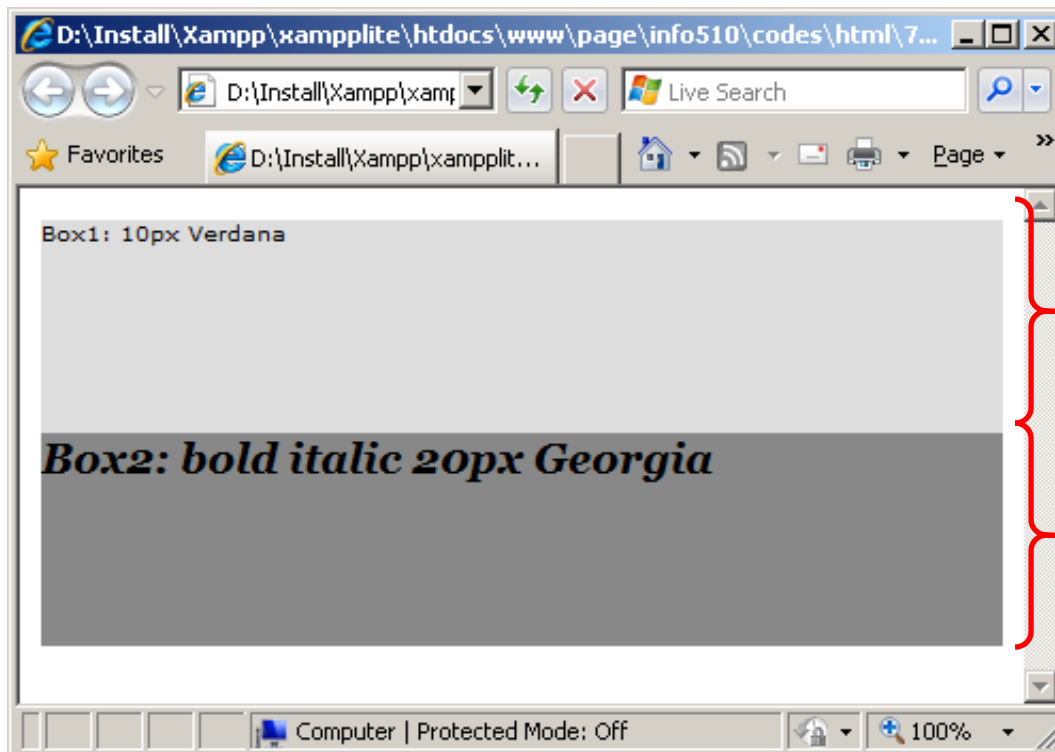
CSS Font

```
<head>
<style>
.box_type1{height:100px; background-color:#ddd;
           font:10px Verdana;}
.box_type2{height:100px; background-color:#888;
           font:bold italic 20px Georgia;}
</style>
</head>

<body>
  <div class='box_type1'>10px Verdana</div>
  <div class='box_type2'>bold italic 20px Georgia</div>
</body>
```

HTML Styles (cont.)

CSS Font



```
.box_type1{
height:100px;
background-color:#ddd;
font:10px Verdana;}
```

```
.box_type2{
height:100px;
background-color:#888;
font:bold italic 20px Georgia;}
```

HTML Styles (cont.)

CSS Width/Height

```
<html>

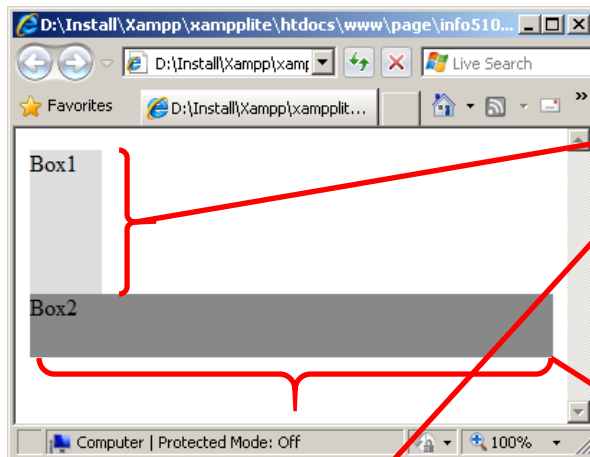
<head>
<style>
.box_type1{width:50px; height:100px; background-color:#ddd;}
.box_type2{width:100%; height:25%; background-color:#888;}
</style>
</head>

<body>
    <div class='box_type1'>Box1</div>
    <div class='box_type2'>Box2</div>
</body>

</html>
```

HTML Styles (cont.)

CSS Width/Height

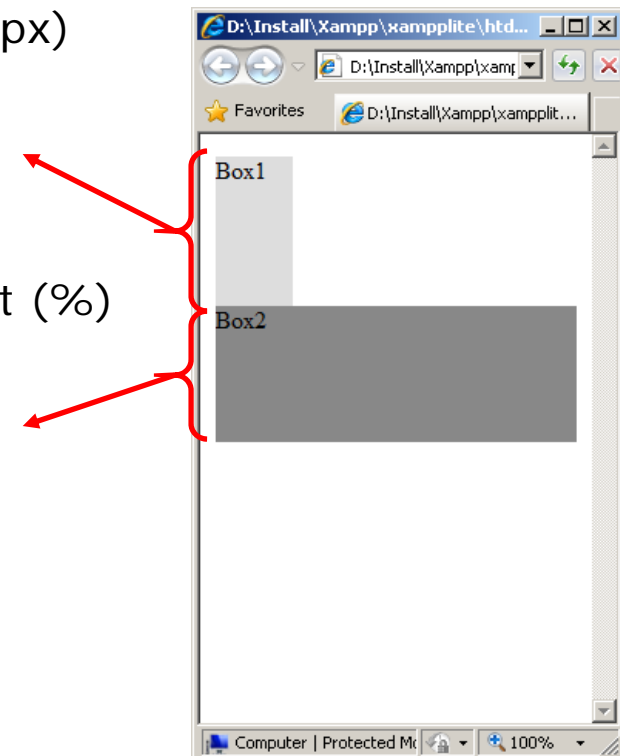
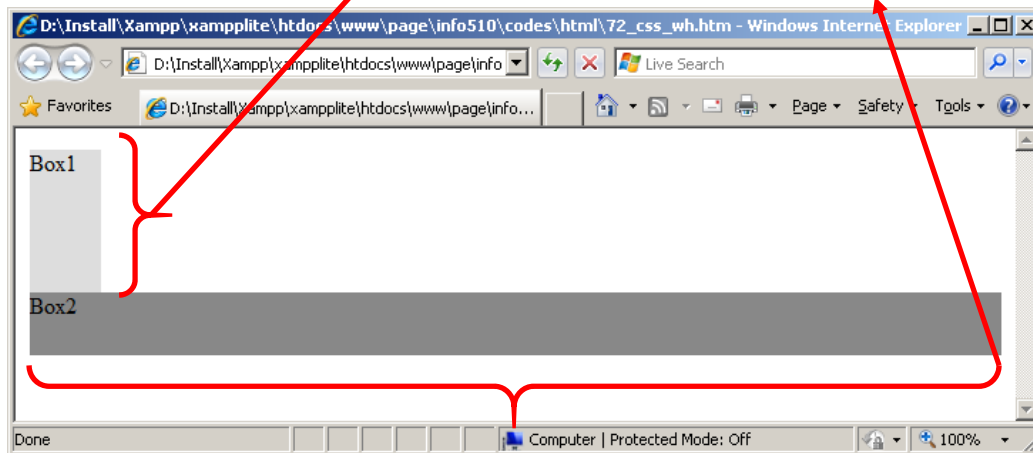


Fixed Width/Height (px)

```
.box_type1{  
width:50px;  
height:100px;  
background-color:#ddd;}
```

Flexible Width/Height (%)

```
.box_type2{  
width:100%;  
height:25%;  
background-color:#888;}
```



HTML Styles (cont.)

CSS Border

```
<html>

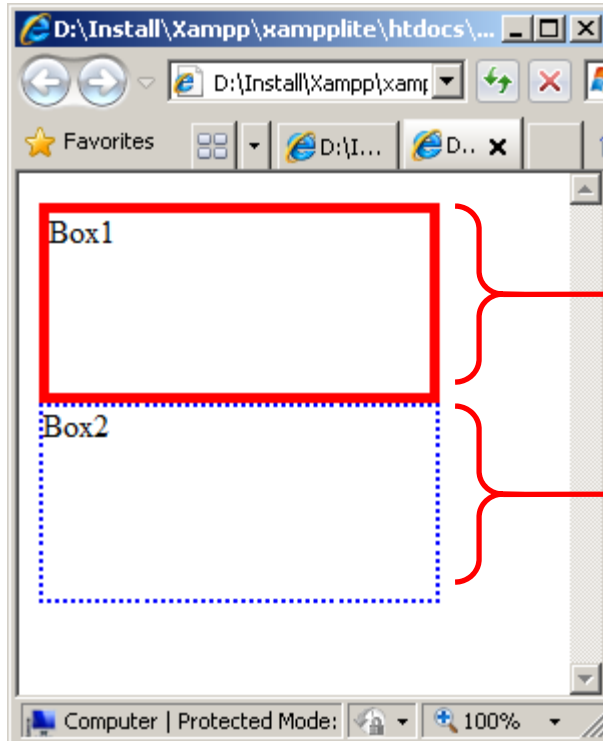
<head>
<style>
.box_type1{width:200px; height:100px; border: #F00 solid 5px;}
.box_type2{width:200px; height:100px; border: #00F dotted 2px;}
</style>
</head>

<body>
    <div class='box_type1'>Box1</div>
    <div class='box_type2'>Box2</div>
</body>

</html>
```

HTML Styles (cont.)

CSS Border



```
.box_type1{  
width:200px;  
height:100px;  
border: #F00 solid 5px;}
```

```
.box_type2{  
width:200px;  
height:100px;  
border: #00F dotted 2px;}
```

HTML Styles (cont.)

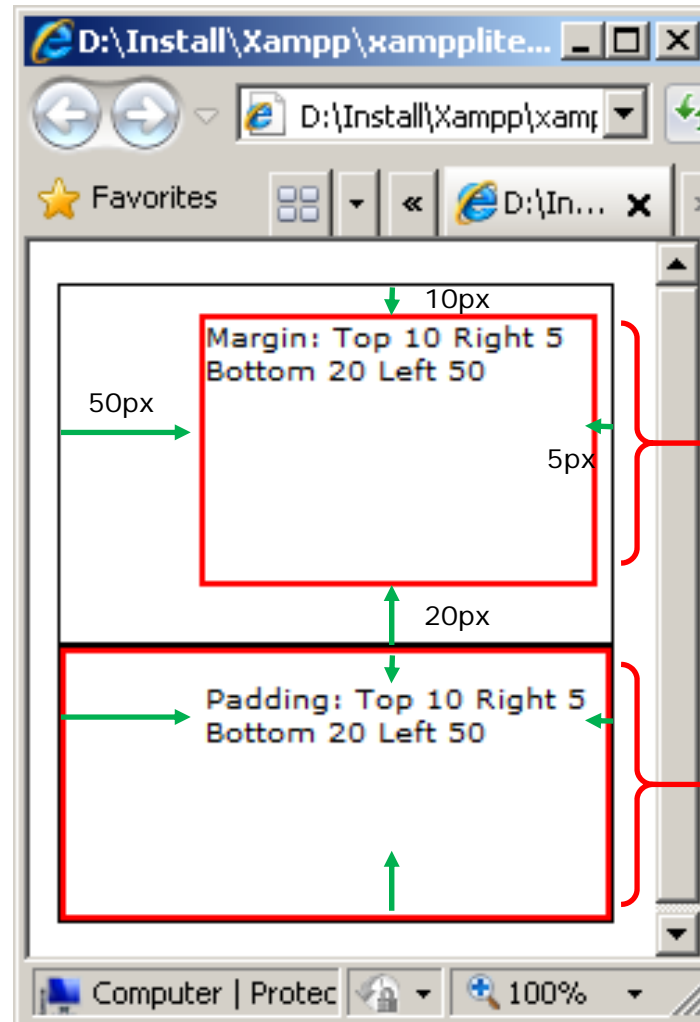
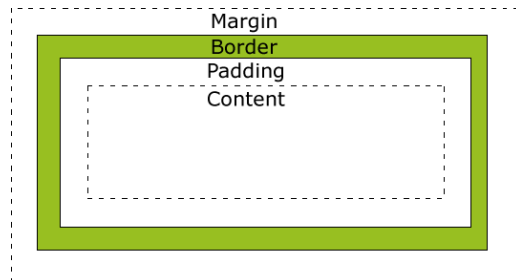
CSS Margin / Padding

```
<style>
body{font:10px Verdana;}
.box_type1{width:200px; height:100px; border: #000 solid 1px;}
.box_type2{width:100%; height:100%; border: #F00 solid 2px;
margin:10px 5px 20px 50px;}
.box_type3{width:100%; height:100%; border: #F00 solid 2px;
padding:10px 5px 20px 50px;}
</style>

<body>
  <div class='box_type1'>
    <div class='box_type2'>Margin: Top 10 Right 5 Bottom 20 Left 50</div>
  </div>
  <div class='box_type1'>
    <div class='box_type3'>Padding: Top 10 Right 5 Bottom 20 Left 50</div>
  </div>
</body>
```

HTML Styles (cont.)

CSS Margin / Padding



```
.box_type2{
width:100%;
height:100%;
border: #F00 solid 2px;
margin:10px 5px 20px 50px;}
```

```
.box_type3{
width:100%;
height:100%;
border: #F00 solid 2px;
padding:10px 5px 20px 50px}
```

3. Document Type Definition (DTD)

- DTD (Document Type Definition) defines the specification of the HTML tags you want to use. DTD can be defined
- The `<!DOCTYPE>` declaration is the very first thing in your document, before the `<html>` tag. This tag tells the browser which HTML or XHTML specification the document uses.
- HTML 4.01 specifies three document types: Strict, Transitional, and Frameset.

```
<!DOCTYPE HTML PUBLIC "name" "URL">
```

HTML Document Type Definition (cont.)

1. HTML Strict DTD:

Use this when you want clean markup, free of presentational clutter. Use this together with Cascading Style Sheets (CSS):

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

HTML Document Type Definition (cont.)

2. HTML Transitional DTD:

The Transitional DTD includes presentation attributes and elements that W3C expects to move to a style sheet. Use this when you need to use HTML's presentational features because your readers don't have browsers that support Cascading Style Sheets (CSS):

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

HTML Document Type Definition (cont.)

3. HTML Frameset DTD:

The Frameset DTD should be used for documents with frames. The Frameset DTD is equal to the Transitional DTD except for the frameset element replaces the body element:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Frameset//EN"  
"http://www.w3.org/TR/html4/frameset.dtd">
```

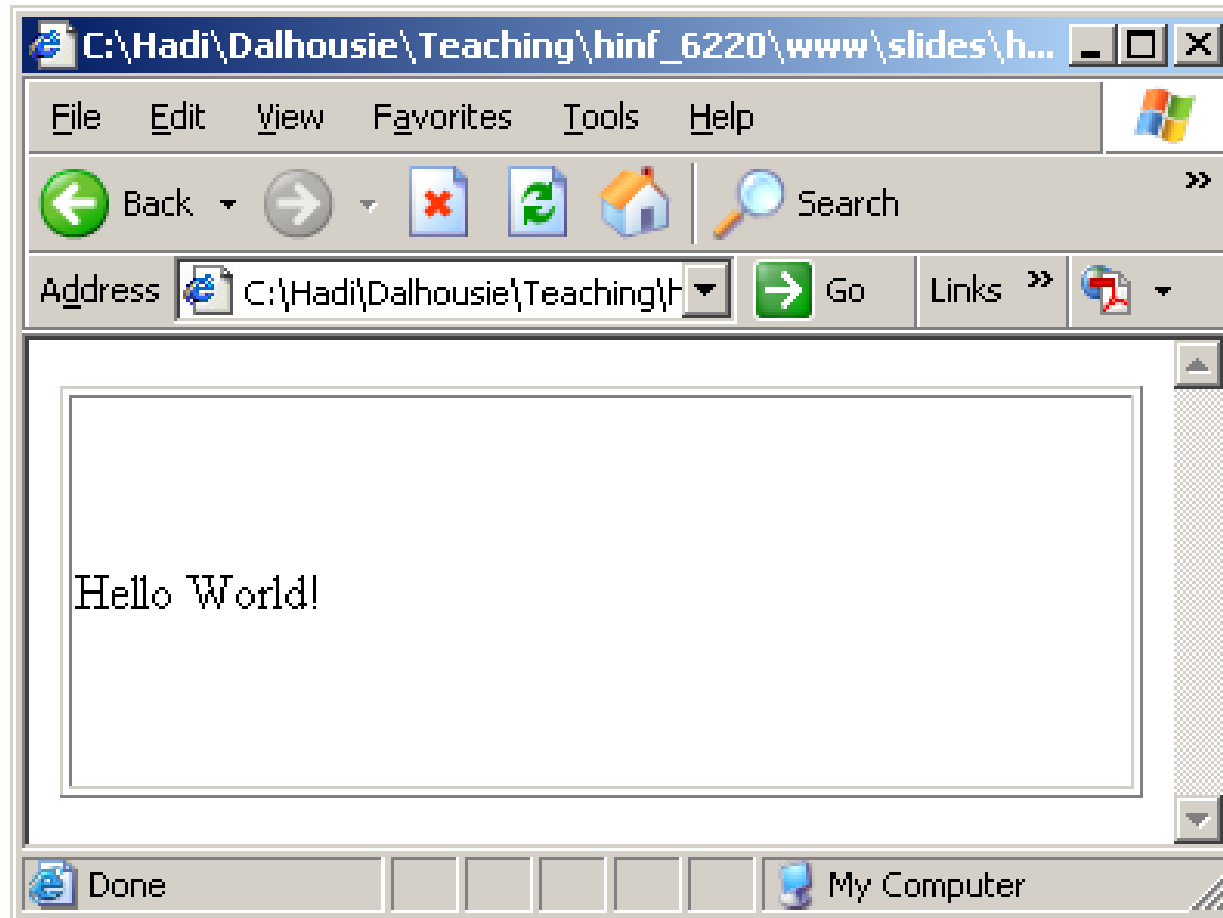

HTML Document Type Definition (cont.)

No DTD

```
<html>
  <head></head>
  <body>
    <table width='100%' height='100%' border='1'>
      <tr>
        <td>
          Hello World!
        </td>
      </tr>
    </table>
  </body>
</html>
```

HTML Document Type Definition (cont.)

No DTD



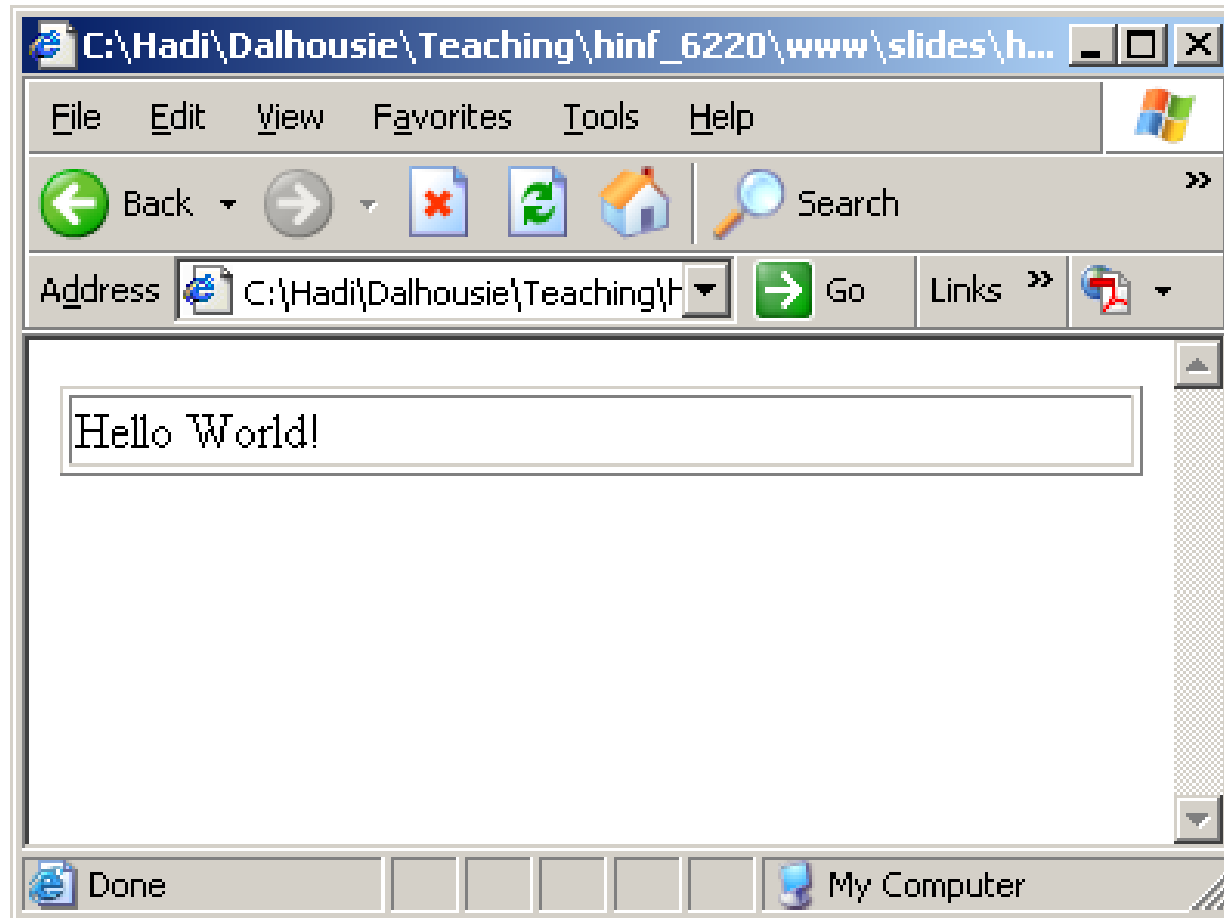
HTML Document Type Definition (cont.)

DTD

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
    "http://www.w3.org/TR/html4/strict.dtd">
<html>
  <head></head>
  <body>
    <table width='100%' height='100%' border='1'>
      <tr>
        <td>
          Hello World!
        </td>
      </tr>
    </table>
  </body>
</html>
```

HTML Document Type Definition (cont.)

DTD



4. Java Script (JS) Overview

- JavaScript is the scripting language of the Web!
- JavaScript is used in millions of Web pages to improve the design, validate forms, detect browsers, create cookies, and much more.
- JavaScript is the most popular scripting language on the internet.
- JavaScript is the most popular scripting language on the internet, and works in all major browsers, such as Internet Explorer, Mozilla, Firefox, Netscape, Opera.

Java Script Overview (cont.)

- JavaScript was designed to add interactivity to HTML pages
- JavaScript is a scripting language (a scripting language is a lightweight programming language)
- A JavaScript consists of lines of executable computer code
- A JavaScript is usually embedded directly into HTML pages
- JavaScript is an interpreted language (means that scripts execute without preliminary compilation)
- Everyone can use JavaScript without purchasing a license

Java Script Overview (cont.)

- *Are Java and JavaScript the Same?*

NO!

Java and JavaScript are two completely different languages in both concept and design!

Java (developed by Sun Microsystems) is a powerful and much more complex programming language - in the same category as C and C++.

Java Script Overview (cont.)

- **JavaScript gives HTML designers a programming tool** - HTML authors are normally not programmers, but JavaScript is a scripting language with a very simple syntax! Almost anyone can put small "snippets" of code into their HTML pages
- **JavaScript can put dynamic text into an HTML page** - A JavaScript statement like this: `document.write("<h1>" + name + "</h1>")` can write a variable text into an HTML page
- **JavaScript can react to events** - A JavaScript can be set to execute when something happens, like when a page has finished loading or when a user clicks on an HTML element
- **JavaScript can read and write HTML elements** - A JavaScript can read and change the content of an HTML element
- **JavaScript can be used to validate data** - A JavaScript can be used to validate form data before it is submitted to a server, this will save the server from extra processing
- **JavaScript can be used to detect the visitor's browser** - A JavaScript can be used to detect the visitor's browser, and - depending on the browser - load another page specifically designed for that browser
- **JavaScript can be used to create cookies** - A JavaScript can be used to store and retrieve information on the visitor's computer

Java Script Overview (cont.)

- **How to identify JS to the browser**

1. **Old Browsers**

```
<script type="text/javascript">  
<!--  
.... Commands come here ....  
-->  
</script>
```

2. **New Browsers**

```
<script type="text/javascript">  
.... Commands come here ....  
</script>
```

Java Script Overview (cont.)

- **Where to Put the JavaScript code**

1. HTML Head

```
<html>
  <head>
    <script type="text/javascript">
      ....
    </script>
  </head>
  <body>
  </body>
</html>
```

Java Script Overview (cont.)

- **Where to Put the JavaScript code**

2. HTML Body

```
<html>
  <head>
  </head>
  <body>
    <script type="text/javascript">
      ....
    </script>
  </body>
</html>
```

Java Script Overview (cont.)

- Where to Put the JavaScript code

3. HTML Head and Body

```
<html>
  <head>
    <script type="text/javascript">
      ....
    </script>

  </head>
  <body>
    <script type="text/javascript">
      ....
    </script>

  </body>
</html>
```

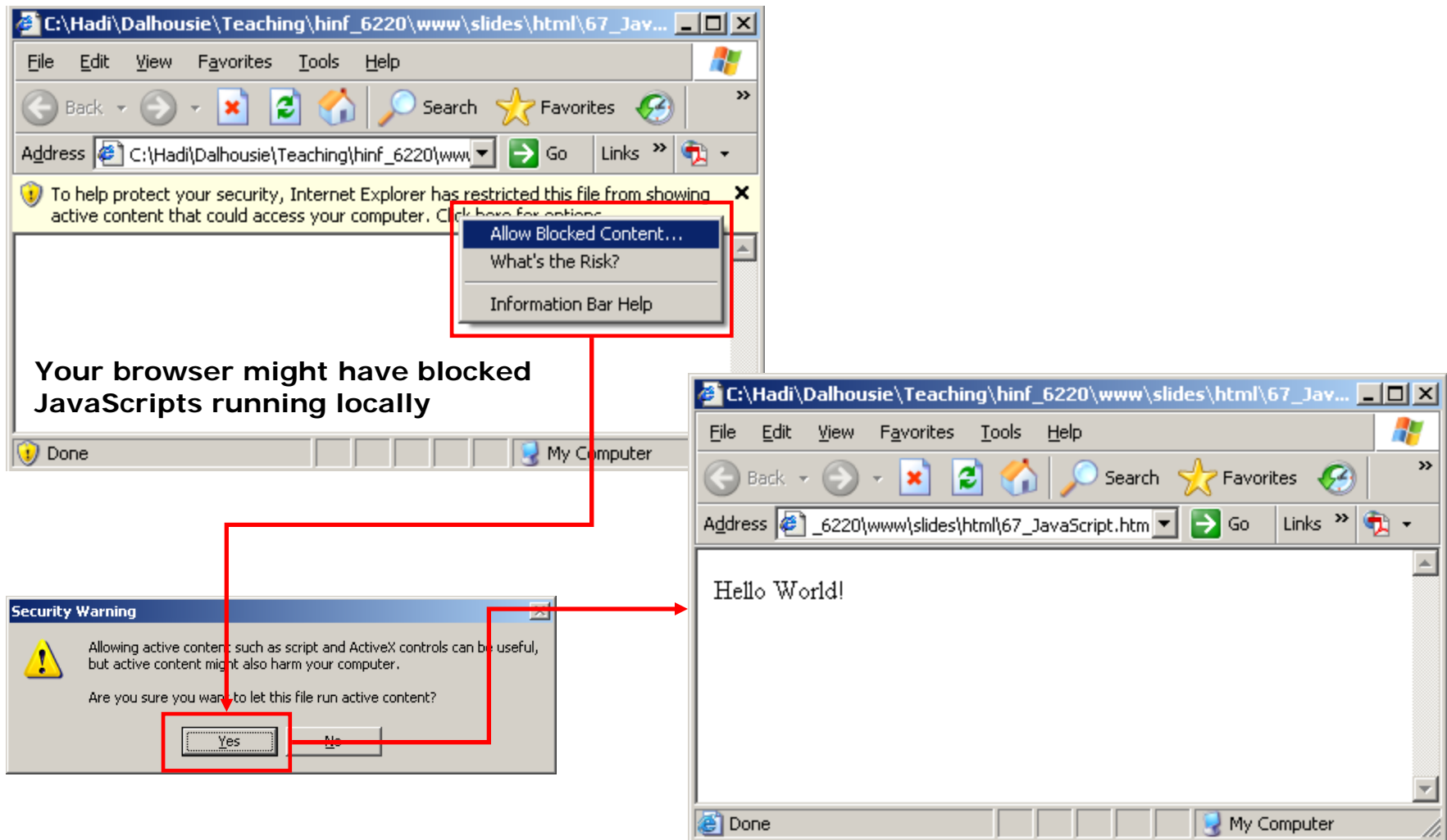
Java Script Overview (cont.)

JS - Write

```
<html>  
  <head></head>  
  <body>  
    <script type="text/javascript">  
      document.write("Hello World!")  
    </script>  
  </body>  
</html>
```

Java Script Overview (cont.)

JS - Write



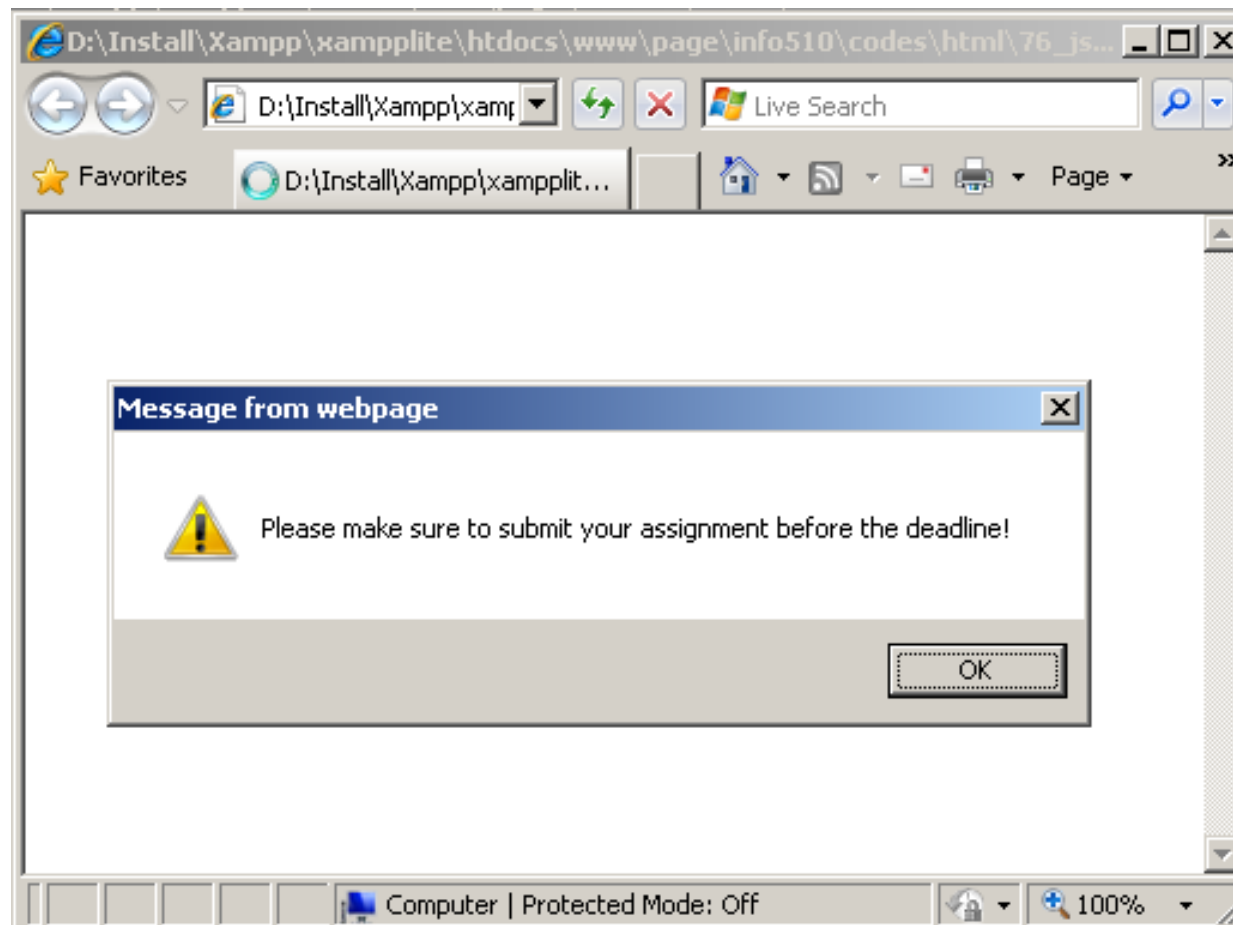
Java Script Overview (cont.)

JS - Alert

```
<html>
  <head></head>
  <body>
    <script type="text/javascript">
    alert("Please make sure to submit your assignment before
    the deadline!");
    </script>
  </body>
</html>
```

Java Script Overview (cont.)

JS - Alert



Your browser might have blocked JavaScripts running locally

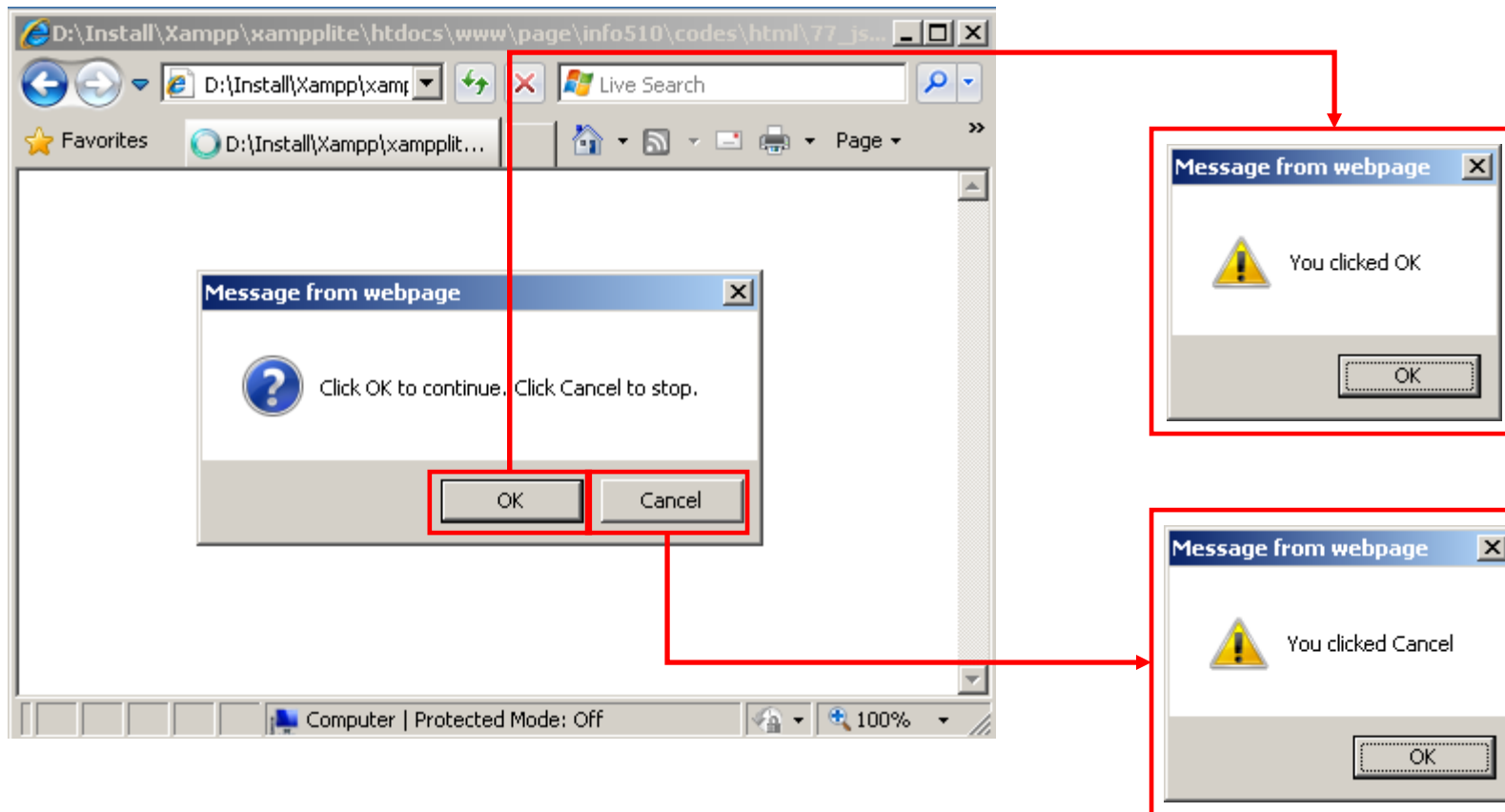
Java Script Overview (cont.)

JS - Confirm

```
<body>
  <script type="text/javascript">
    confirmed = confirm("Click OK to continue. Click Cancel to stop.");
    if (confirmed)
    {
        alert("You clicked OK");
    }
    else
    {
        alert("You clicked Cancel");
    }
  </script>
</body>
```

Java Script Overview (cont.)

JS - Confirm



Your browser might have blocked JavaScripts running locally

Java Script Overview (cont.)

JS - Ajax

AJAX (shorthand for **asynchronous JavaScript** and **XML**) is a group of interrelated web development techniques used on the client-side to create interactive web applications or rich Internet applications.

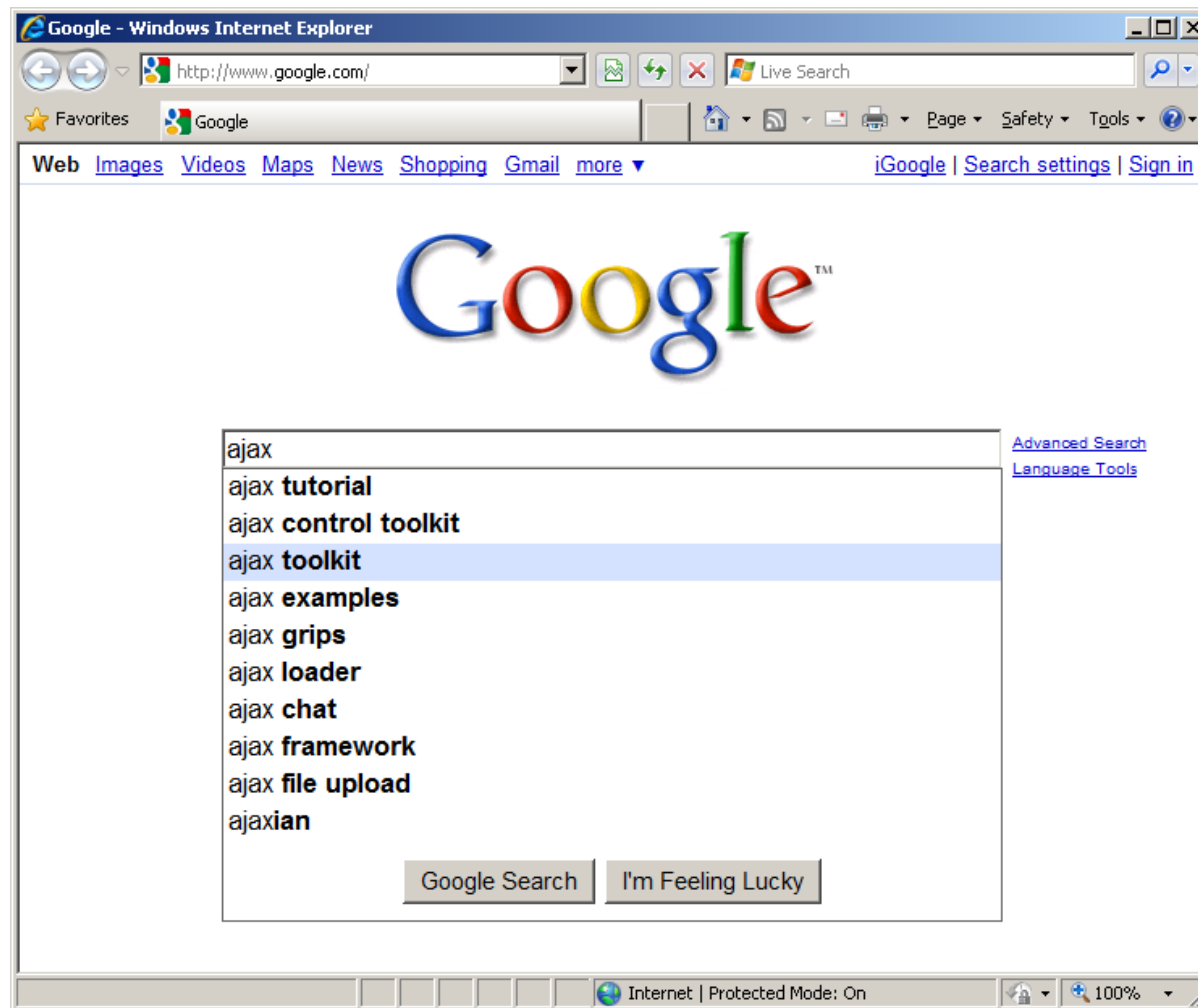
With AJAX, web applications can retrieve data from the server asynchronously in the background without interfering with the display and behavior of the existing page.

The use of AJAX techniques has led to an increase in interactive or dynamic interfaces on web pages and better quality of Web services due to the asynchronous mode.

Data is usually retrieved using the XMLHttpRequest object.

Java Script Overview (cont.)

JS - Ajax



5. HTML Forms

- A form is an area that can contain form elements.
- Form elements are elements that allow the user to enter information (like text fields, textarea fields, drop-down menus, radio buttons, checkboxes, etc.) in a form.
- A form is defined with the `<form>` tag.

```
<form name="" action="URL" method="POST/GET">  
    <input type="" name="" value="" />  
    <input type="" name="" value="" />  
    <input type="" name="" value="" />  
</form>
```

HTML Forms (cont.)

- The most used form tag is the `<input>` tag. The type of input is specified with the `type` attribute. The most commonly used input types are explained later.
- When the user clicks on the "Submit" button, the content of the form is sent to another file. The form's `action` attribute defines the name of the file to send the content to. The file defined in the `action` attribute usually does something with the received input.

```
<form name="" action="URL" method="POST/GET">  
    <input type="" name="" value="" />  
    <input type="submit" name="" value="OK" />  
</form>
```

HTML Forms (cont.)

PHP File

- In order to receive the sent data by a form, we need a server side language to process the received information. The following PHP code has been scripted to process the transferred data to check the results of a form.

```
<?php
```

```
    echo 'You passed the following variables:';
```

```
    echo '<br><br>';
```

```
    print_r ($_POST);
```

```
?>
```

Absolute path to the file: http://info510.com/page/info510/codes/html/print_data.php

HTML Forms (cont.)

`<input type='text'>`

TEXT FIELD

`<input type='radio'>`

RADIO BUTTON



`<input type='checkbox'>`

CHECKBOX



`<textarea>`

TEXT AREA

`<select> <option>`

DROP DOWN MENU

`<input type='submit'>`

SUBMIT BUTTON

`<input type='reset'>`

RESET BUTTON

HTML Forms (cont.)

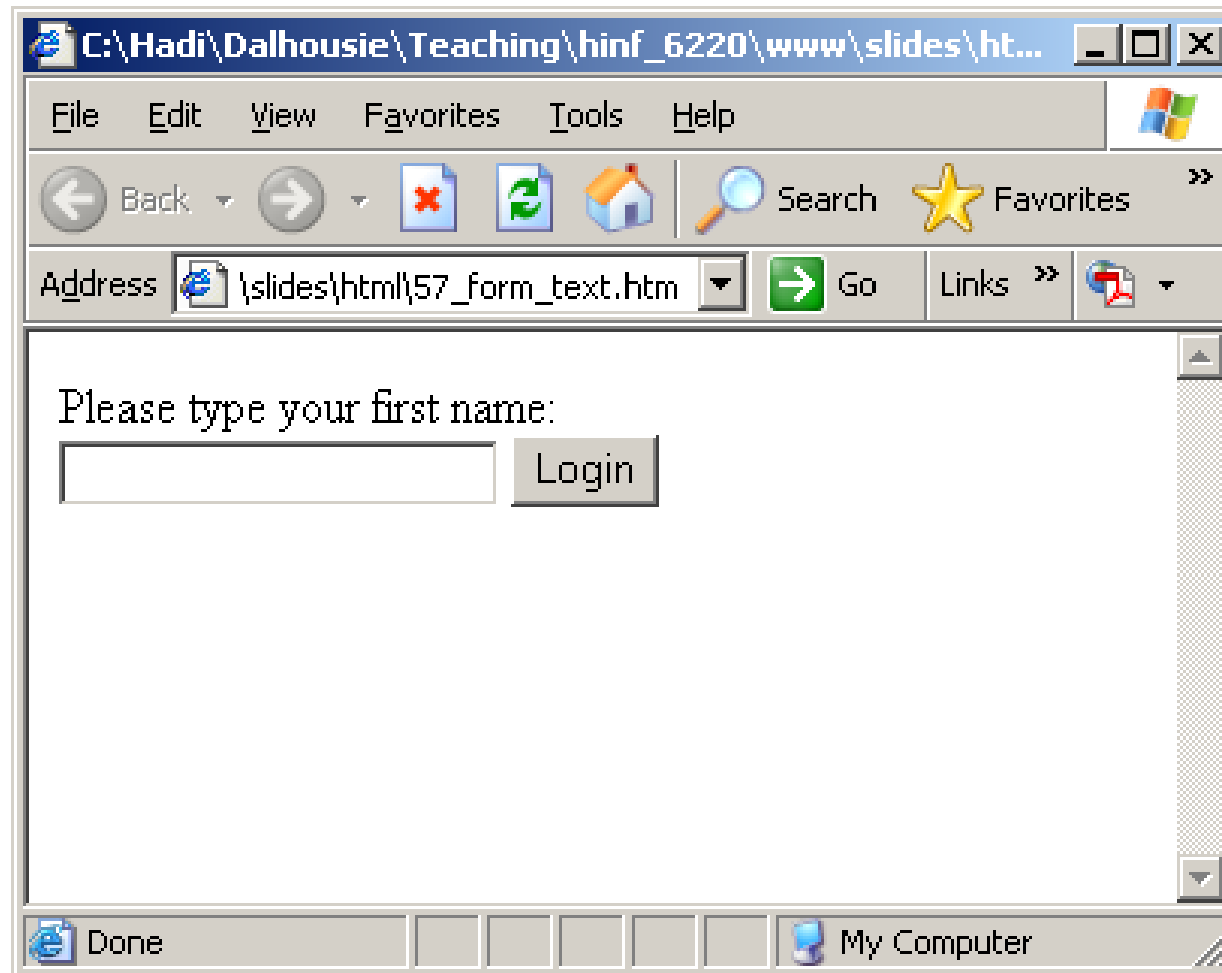
TEXT FIELD

```
<html>
  <head></head>
  <body>
    <form action="print_data.php" method="post"/>
      Please type your first name:
      <br>
      <input type="text" name="FirstName"/>
      <input type="submit" value="Login"/>
    </form>
  </body>
</html>
```

Text fields does not have a predefined value because the user has to define it (type it)

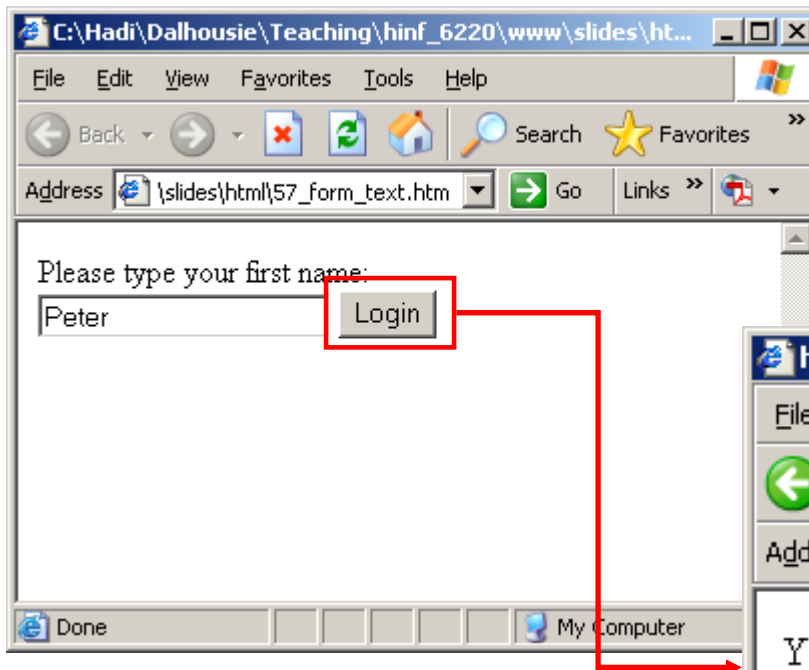
HTML Forms (cont.)

TEXT FIELD



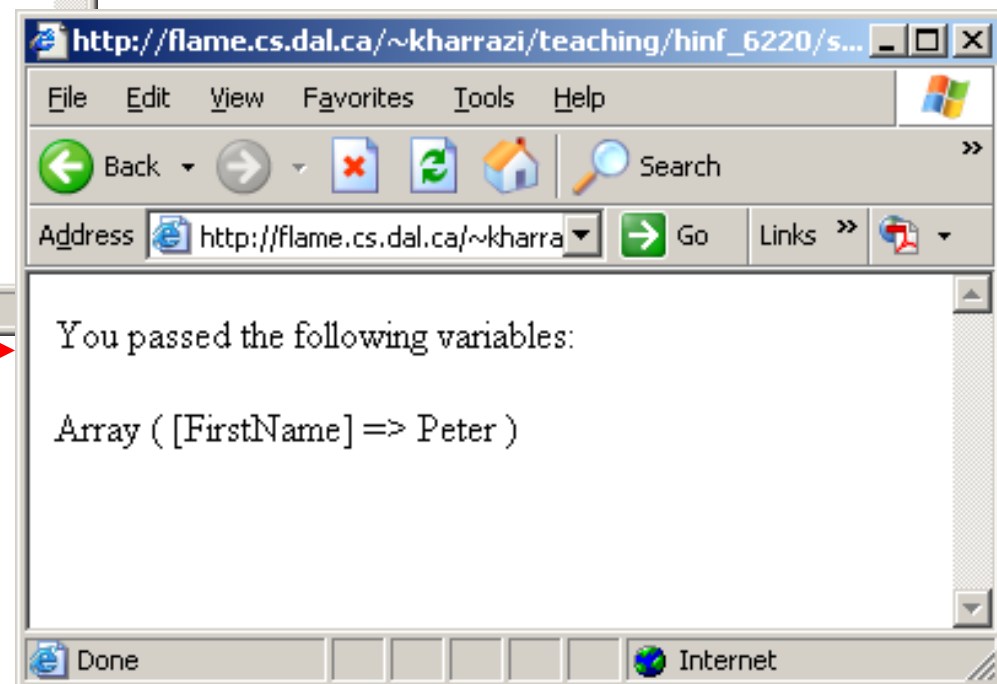
HTML Forms (cont.)

TEXT FIELD



HTML file with FORMS

PHP file receiving FORM data



HTML Forms (cont.)

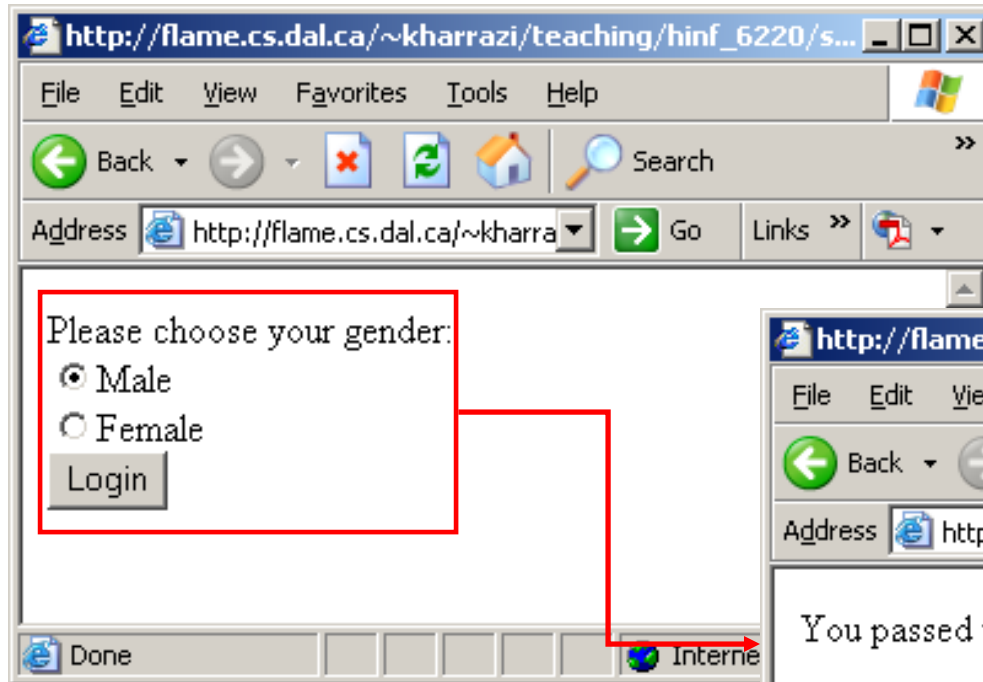
RADIO BUTTONS

```
<html>
  <head></head>
  <body>
    <form action="print_data.php" method="post">
      Please choose your gender:
      <br>
      <input type="radio" name="sex" value="M"/>Male
      <br>
      <input type="radio" name="sex" value="F"/>Female
      <br>
      <input type="submit" value="Login"/>
    </form>
  </body>
</html>
```

Radio buttons have predefined values and the user will choose one of them (only one)

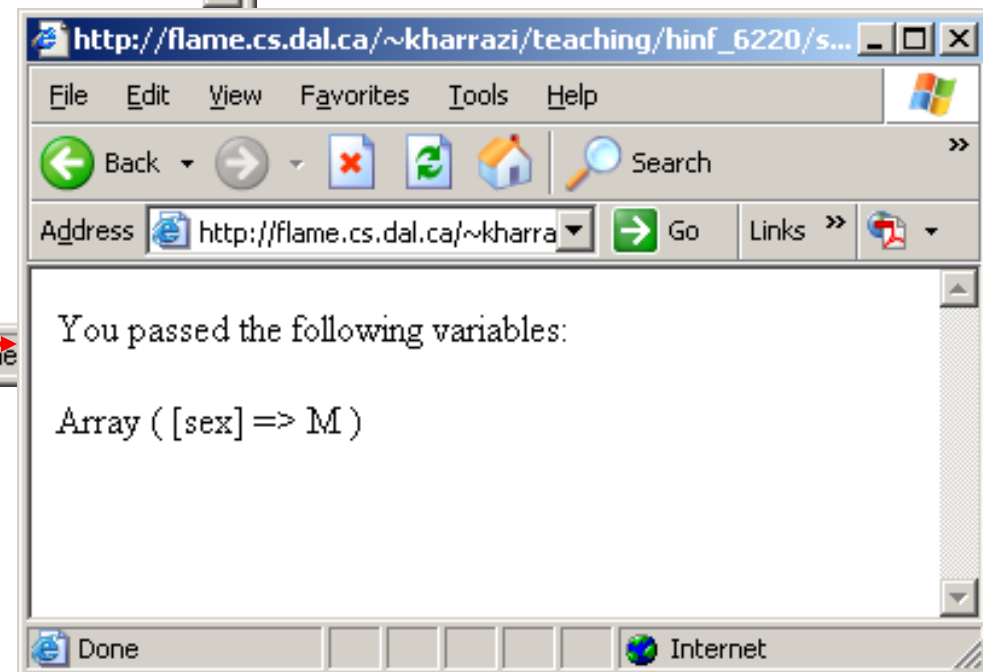
HTML Forms (cont.)

RADIO BUTTONS



HTML file with FORMS

PHP file receiving FORM data



HTML Forms (cont.)

MULTIPLE RADIO BUTTONS

```

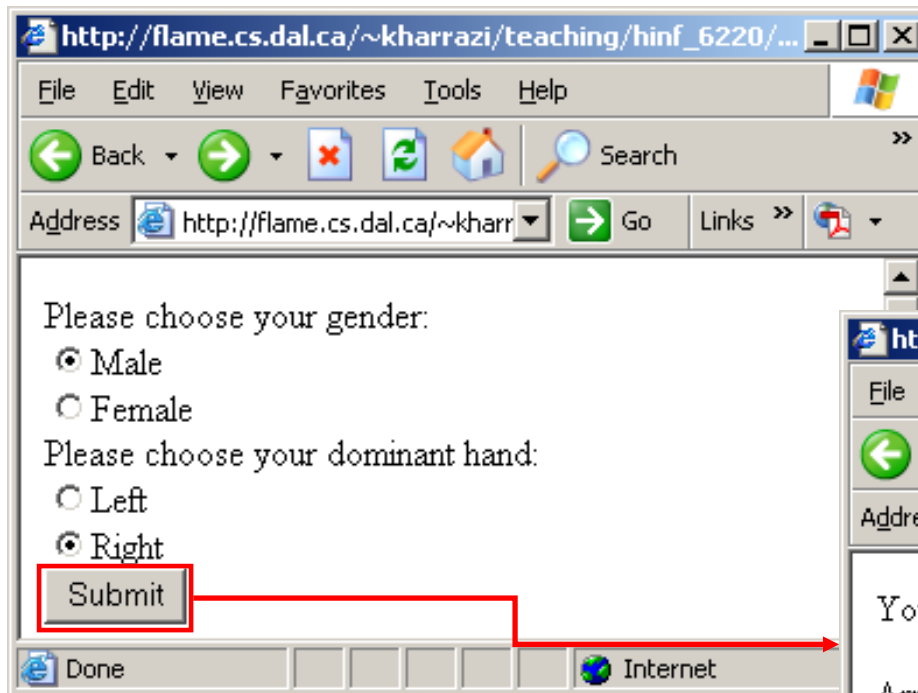
<html><head></head><body>
  <form action="print_data.php" method="post">
    Please choose your gender:
    <br>
    <input type="radio" name="sex" value="M"/>Male
    <br>
    <input type="radio" name="sex" value="F"/>Female
    <br>
    Please choose your dominant hand:
    <br>
    <input type="radio" name="hand" value="L"/>Left
    <br>
    <input type="radio" name="hand" value="R"/>Right
    <br>
    <input type="submit" value="Submit"/>
  </form>
</body></html>

```

Multiple radio buttons should be grouped based on their `name` attribute

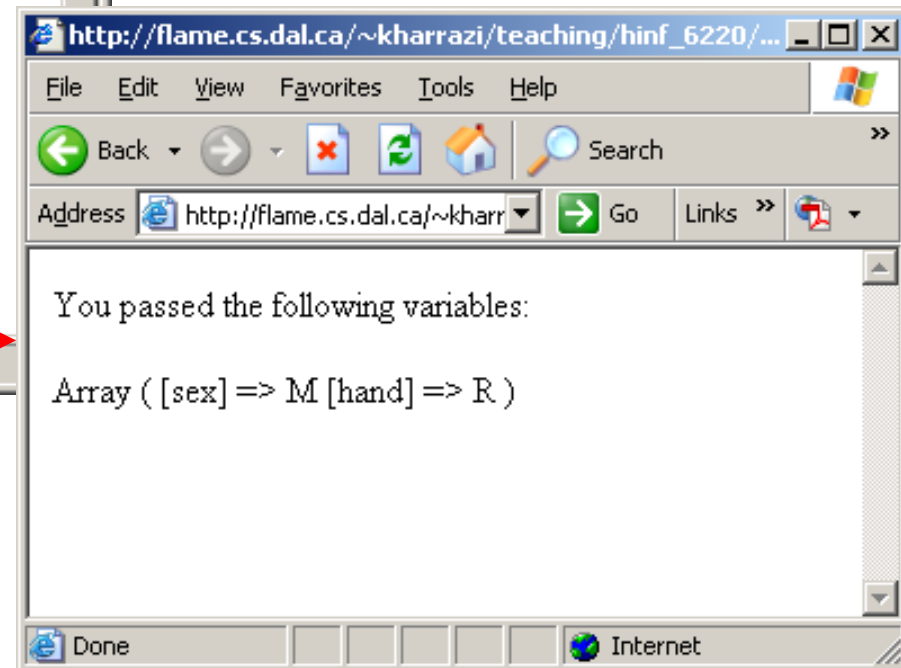
HTML Forms (cont.)

MULTIPLE RADIO BUTTONS



HTML file with FORMS

PHP file receiving FORM data



HTML Forms (cont.)

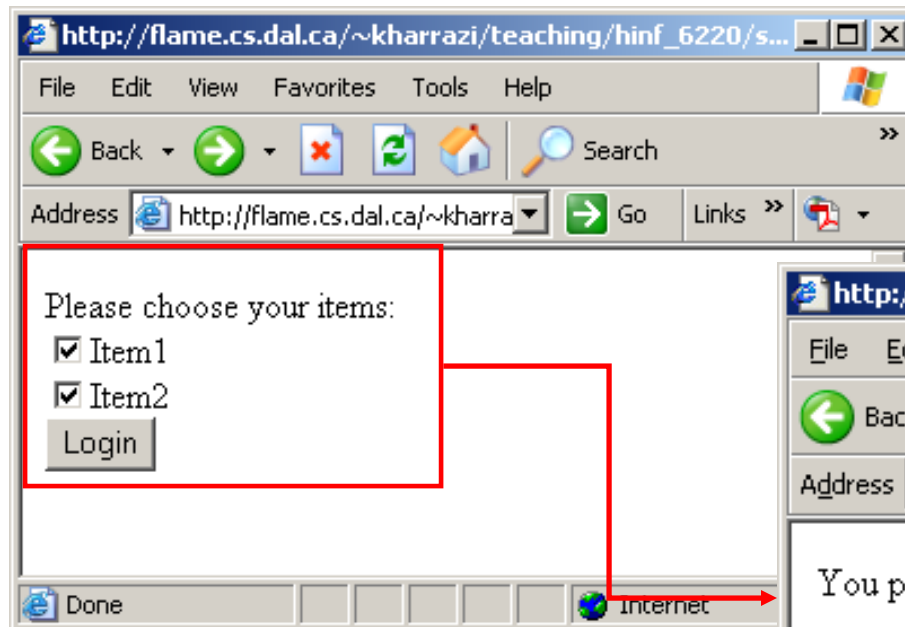
CHECKBOXES

```
<html>
  <head></head>
  <body>
    <form action="print_data.php" method="post">
      Please choose your items:
      <br>
      <input type="checkbox" name="item1" value="1"/>Item1
      <br>
      <input type="checkbox" name="item2" value="2"/>Item2
      <br>
      <input type="submit" value="Login"/>
    </form>
  </body>
</html>
```

Checkboxes have predefined values and the user can choose any of them

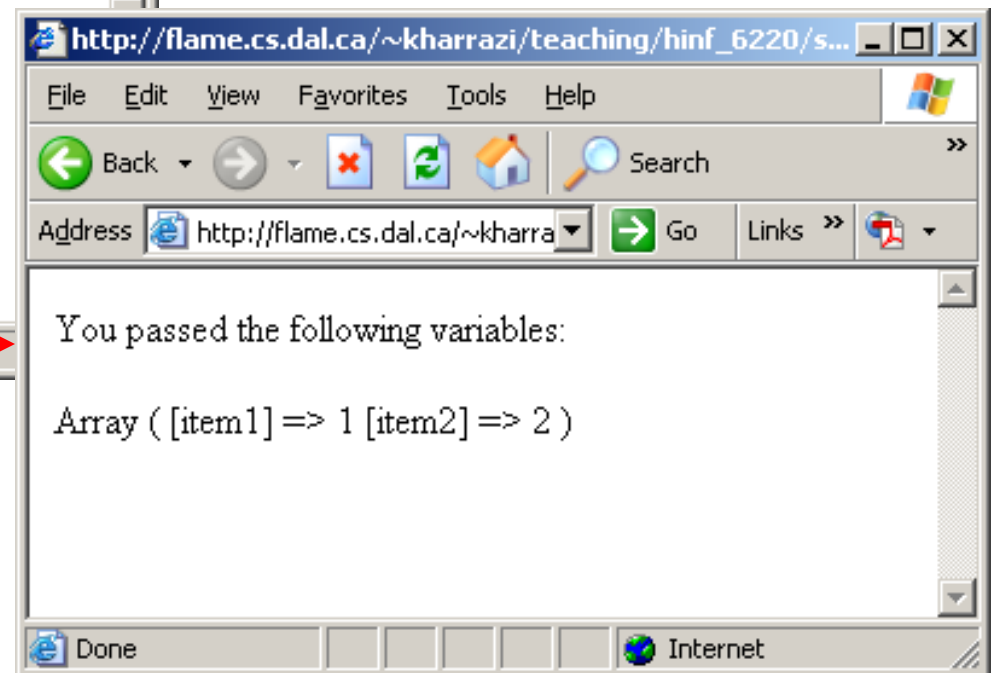
HTML Forms (cont.)

CHECKBOXES



HTML file with FORMS

PHP file receiving FORM data



HTML Forms (cont.)

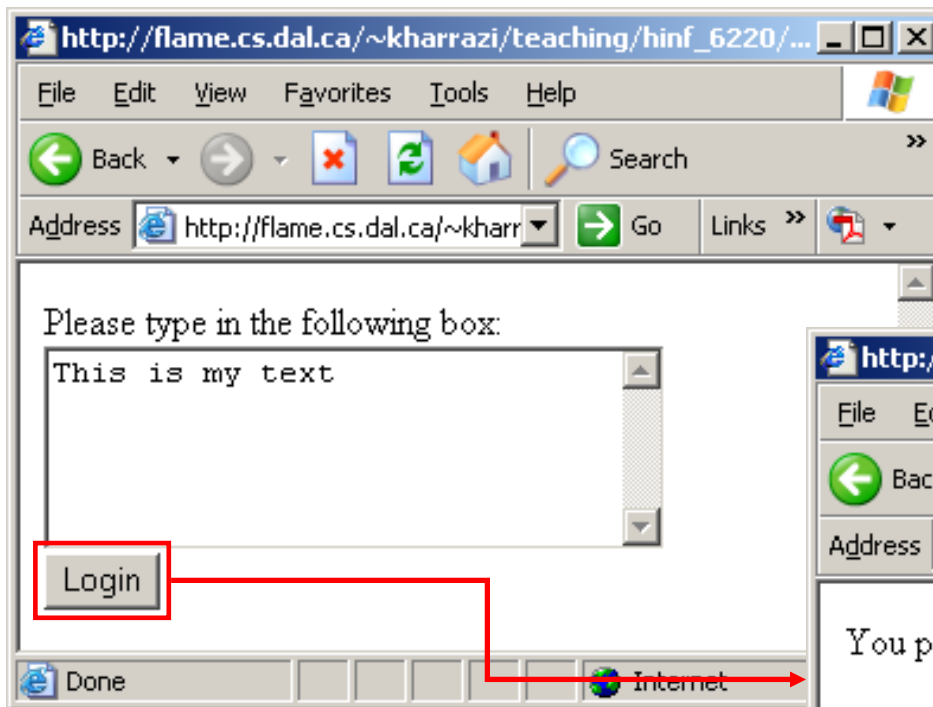
TEXTAREA

```
<html>
  <head></head>
  <body>
    <form action="print_data.php" method="post">
      Please type in the following box:
      <br>
      <textarea rows="5" cols="30" name="message">
      </textarea>
      <br>
      <input type="submit" value="Login"/>
    </form>
  </body>
</html>
```

Text-area usually does not have a predefined value and user types in it.

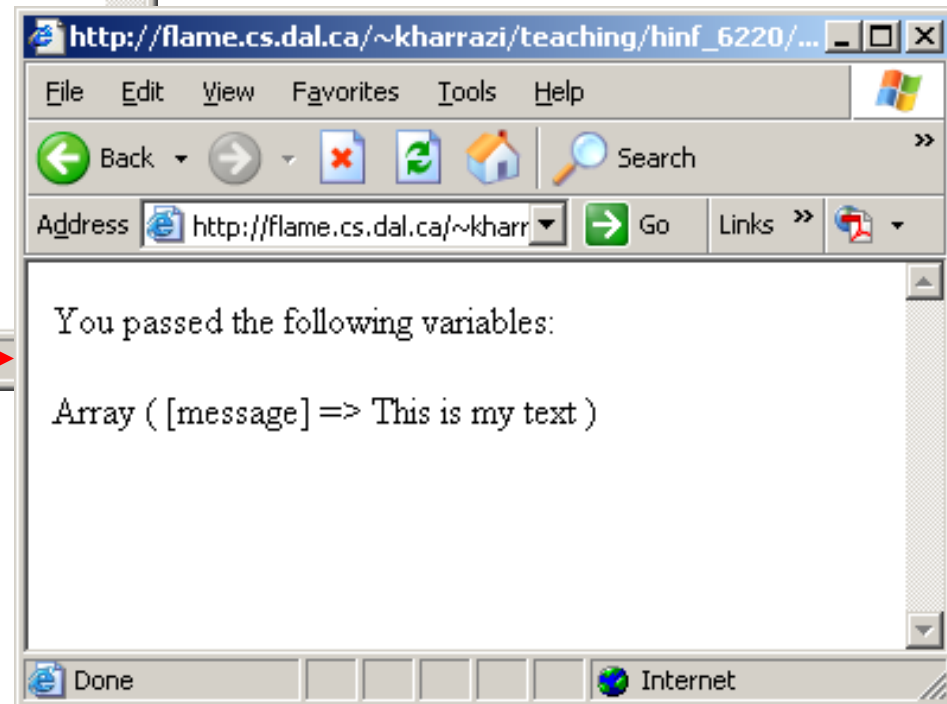
HTML Forms (cont.)

TEXTAREA



HTML file with FORMS

PHP file receiving FORM data



HTML Forms (cont.)

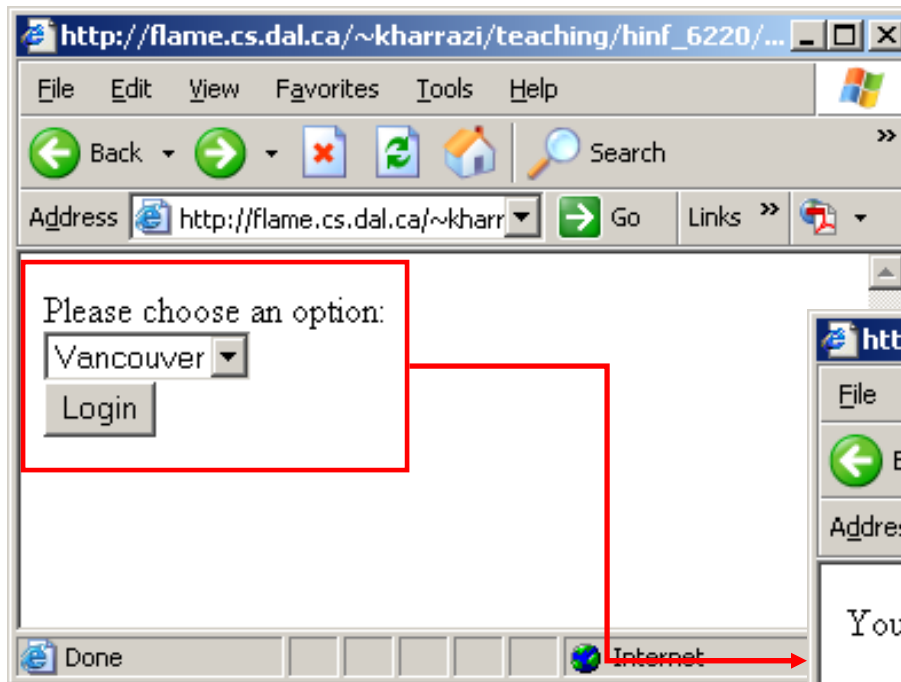
DROP DOWN MENU

```
<html>
  <head></head>
  <body>
    <form action="print_data.php" method="post">
      Please choose an option:
      <br>
      <select name="city">
        <option value="Halifax">Halifax</option>
        <option value="Montreal">Montreal</option>
        <option value="Toronto">Toronto</option>
        <option value="Vancouver">Vancouver</option>
      </select>
      <br>
      <input type="submit" value="Login"/>
    </form>
  </body>
</html>
```

Drop down menus have predefined values.

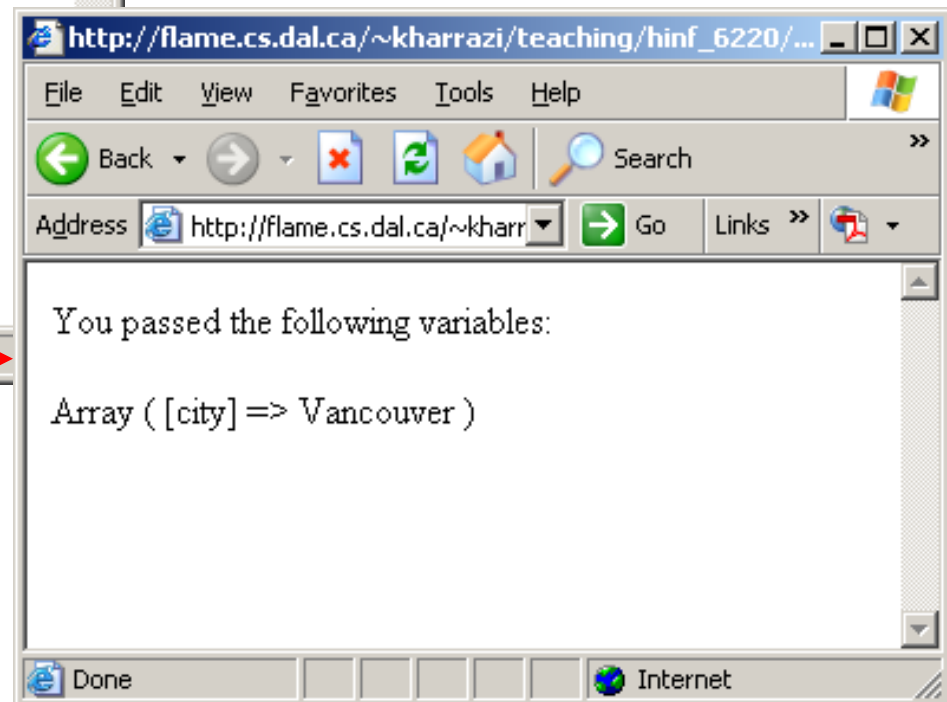
HTML Forms (cont.)

DROP DOWN MENU



HTML file with FORMS

PHP file receiving FORM data



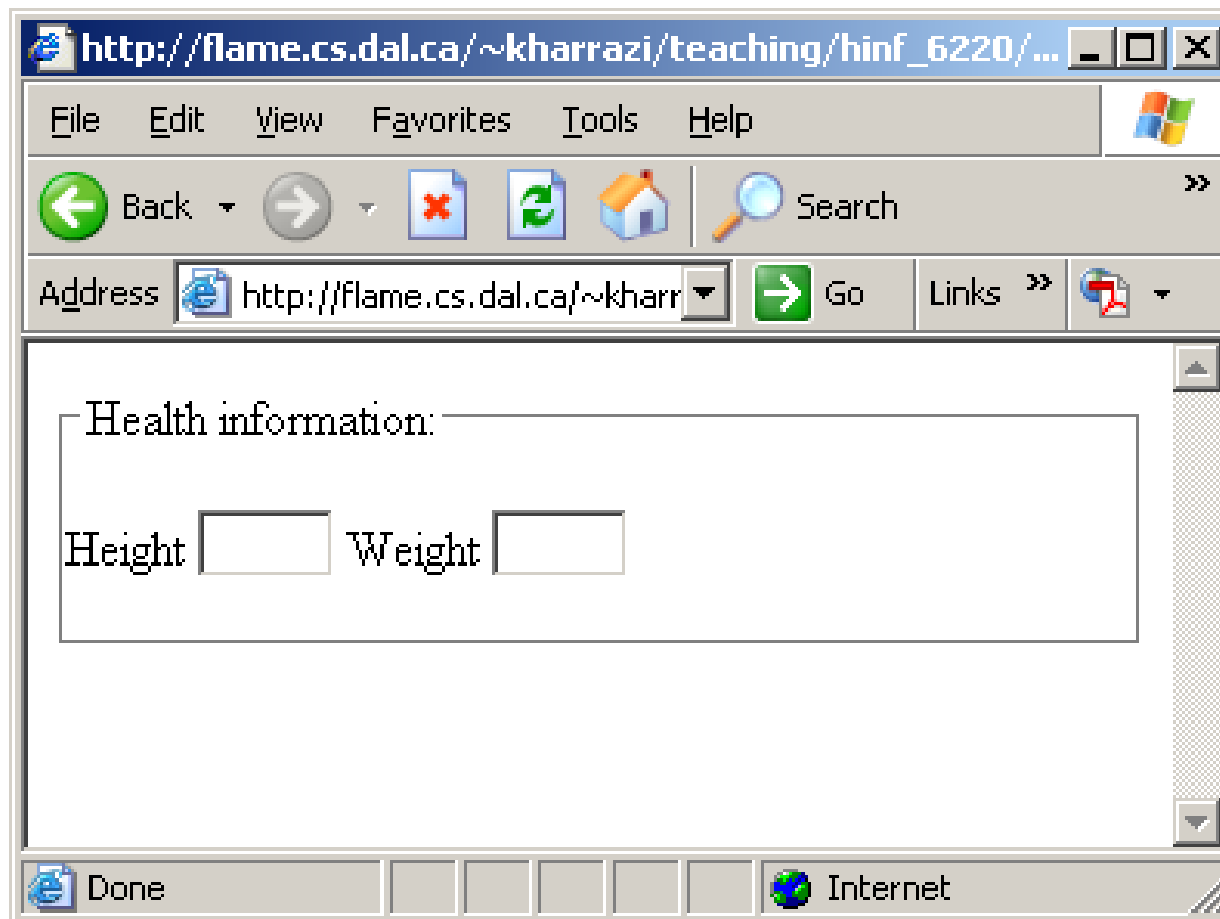
HTML Forms (cont.)

FIELD-SET

```
<html>
  <head></head>
  <body>
    <fieldset>
      <legend>
        Health information:
      </legend>
      <form>
        Height <input type="text" size="3" />
        Weight <input type="text" size="3" />
      </form>
    </fieldset>
  </body>
</html>
```

HTML Forms (cont.)

FIELD-SET



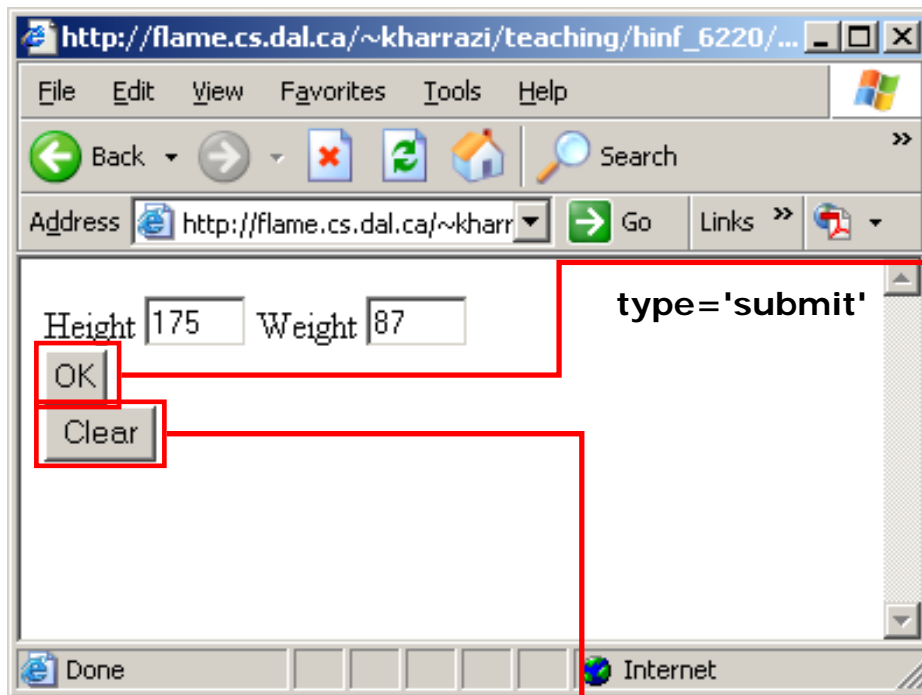
HTML Forms (cont.)

RESET

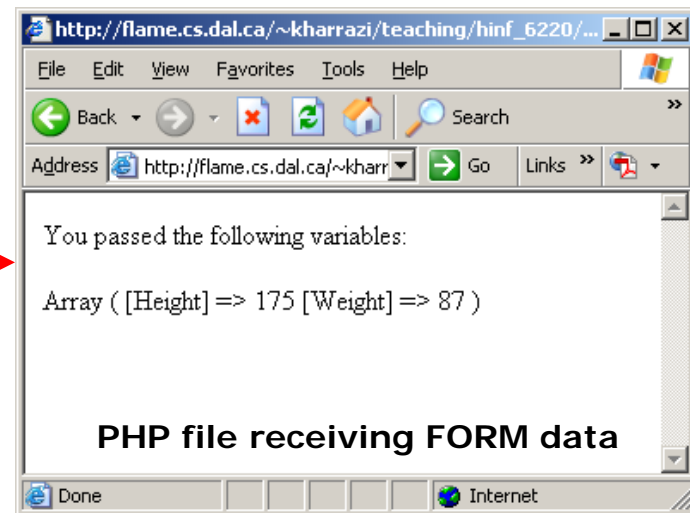
```
<html>
  <head></head>
  <body>
    <form action="print_data.php" method="post">
      Height <input type="text" size="3" name="Height"/>
      Weight <input type="text" size="3" name="Height"/>
      <br>
      <input type="submit" value="OK"/>
      <br>
      <input type="reset" value="Clear"/>
    </form>
  </body>
</html>
```


HTML Forms (cont.)

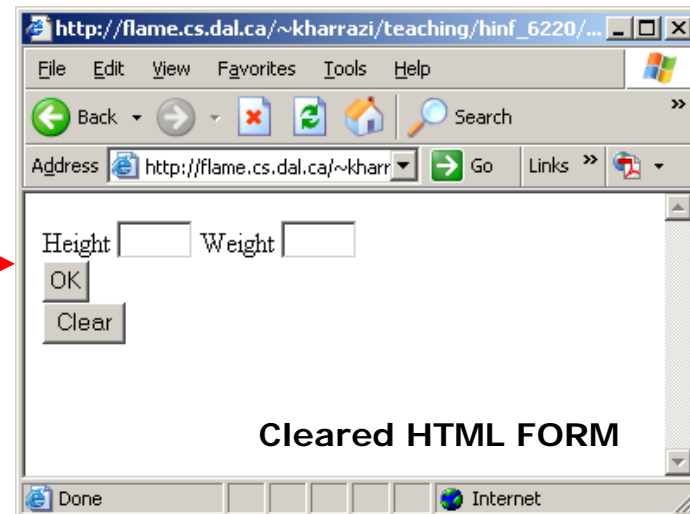
RESET



HTML file with FORMS



PHP file receiving FORM data



Cleared HTML FORM

`type='reset'`

Summary

- HTML: Head
- HTML: DTD (Meta)
- HTML: Styles (CSS)
- HTML: Scripts (JS)
- HTML: Forms (Get/Post)

Next Session

- XML
- XSL
- XSLT
- XSL-FO
- XPath
- XQuery
- XLink/XPointer
- DTD
- Schema (XSD)
- XML DOM
- XForms
- SOAP
- WSDL
- RDF
- RSS
- WAP

Exercise

- Please refer to the available text file in the slides section for this session on the course website:
- http://info510.com/core/public_page.php?page_name=slides