

COURSE TITLE:

**INTERNET PROGRAMMING AND WEB
OPTIMIZATION**

CSC3502

CHAPTER ONE:

INTRODUCTION TO WEB

The Internet or simply the Net is a worldwide network of computer networks. It is an interconnection of large and small networks around the globe.

1.1 APPLICATION OF INTERNET :

- 1) Exchange messages using ***e-mail*** (Electronic mail).
- 2) ***Transfer files*** as well as software.
- 3) ***Browse*** through information on any topic on web.
- 4) Communicate in real time (***chat***) with others connected to Internet.
- 5) Search databases of government, individuals and organizations.
- 6) ***Read news*** available from leading news groups.
- 7) Send or receive animation and picture files from distant places.
- 8) Set up a site with information about your ***company's products and services***.

1.2 WHAT ARE THE REQUIREMENTS FOR INTERNET CONNECTION?

Connecting to Internet requires an IP access, for that, the following hardware and software are required:

A. Personal computer or other terminal equipments:

Personal Assistant (PDA), USB modem, a mobile phone, etc

B. A channel of communication:

- * Fiber optics
- *(Dial-up connection) Ground telephone line: analogical line,
- * Digital Subscriber Line, DSL
- * Broadband connection through UTP cable
- * Mobile telephone: 3G +, 3G, Edge, GPRS, GSM
- * Satellite connection via Microwave antenna
- * Wi-Fi (wireless connection)
- * ISDN (Integrated Services Digital Network, ISDN)

C. Network protocol

A protocol is a set of rules that define a language that make possible the communication between computers

Web Technologies

- HTTP / HTTPS (URL, GET/POST)
- Client-side:
 - HTML / XHTML (Extensible HyperText Markup Language)
 - JavaScript / VBScript (client-side scripting)
 - Applets / ActiveX controls
- Server-side:
 - PHP
 - Python
 - JSP (Java Server Pages)
 - ASP (Active Server Pages)
 - ASP.NET (next generation of ASP)

HTML

- HTML consists of standardized “tags” that are used to define the structure of information on the Web pages.
- HTML stands for **H**yper **T**ext **M**arkup **L**anguage, which is the most widely used language on Web to develop web pages.
- HTML was created by Berners-Lee in late 1991 but "HTML 2.0" was the first standard HTML specification which was published in 1995. HTML 4.01 was a major version of HTML and it was published in late 1999. Though HTML 4.01 version is widely used but currently we are having HTML-5 version which is an extension to HTML 4.01, and this version was published in 2012.

- **Hypertext** refers to the way in which Web pages (HTML documents) are linked together. Thus, the link available on a webpage is called Hypertext.
- The **mark up** is the instructions for displaying or printing the text.
- HTML is a **Mark up Language** which means you use HTML to simply "mark-up" a text document with tags that tell a Web browser how to structure it to display.
- Markup languages are designed for the processing, definition and presentation of text.
- The language specifies code for formatting, both the layout and style, within a text file.

HTML	XHTML
Tags aren't extensible	Tags are extensible
Tags are not case-sensitive	Only lowercase tags are allowed
Possible to leave off an ending tag like </body>	Tags should appear in pairs
Overlapping tags	No overlapping tags

Mark up Vs Programming language

- A markup language is used to control the *presentation* of data, like "represent these user names as a bullet list or as a table".
- A programming language is used to *transform data*. It does so by creating CPU instructions that rewrite the input data into the output; hopefully, the *desired* output.

Browsers



- web browser is a program that interprets coding language and displays the information on your computer screen.
- The appearance of a web page many differ between browsers.
- The browser does not display the HTML tags, but uses them to interpret and determine how to display the document on the web.

Example browsers:

Mosaic, netscape, internet explorer, opera, Mozilla Firefox, safari, Google chrome.

Text Editors

- For learning HTML can use a text editor like
Notepad (PC) or
TextEdit (Mac).
NotePad ++,
PSPad.
- HTML can also be edited by using professional HTML editors like:
Microsoft WebMatrix
Sublime Text
Microsoft FrontPage
Macromedia Dreamweaver
Netscape Composer
Microsoft Word
Visual Studio

HTML Document

- **HTML Documents = Web Pages**
- HTML documents **describe web pages**
- HTML documents **contain HTML tags** and plain text
- HTML documents are also **called web pages**

HTML Tags

- HTML tags are used to mark-up HTML elements .
- HTML tags are keywords surrounded by **angle brackets** like:
<Tag Name>
- The decision about the structure of the text is made by the browser based on the tags, marks that are embedded into the text.
- Most of the HTML tags normally come in pairs like:
* and *
- The first tag in a pair is the **start tag**, the second tag is the **end tag**
- Start and end tags are also called **opening tags** and **closing tags**
- There are some HTML tags which don't need to be closed, such as *<img.../>*, *<hr />* and *
* elements. These are known as **void** elements.
- HTML tags are not case sensitive, ** means the same as **

HTML Tags

- Though I said that HTML tags are not case sensitive, `` means the same as ``, the World Wide Web Consortium (W3C), the group responsible for developing web standards, recommends lowercase tags in their HTML 4 recommendation, and XHTML (the next generation HTML) requires lowercase tags.

HTML – ELEMENTS

❖ An HTML element is defined by a starting tag. If the element contains other content, it ends with a closing tag, where the element name is preceded by a forward slash as shown below with few tags:

Start Tag	Content	End Tag
<code><p></code>	This is paragraph content.	<code></p></code>
<code><h1></code>	This is heading content.	<code></h1></code>
<code><div></code>	This is division content.	<code></div></code>
<code>
</code>		

HTML Tag vs. Element

An HTML element is defined by a starting tag. If the element contains other content, it ends with a closing tag.

For example, `<p>` is starting tag of a paragraph and `</p>` is closing tag of the same paragraph but `<p>This is paragraph</p>` is a paragraph element.

Basic HTML Document

Following is an example of an HTML document:

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <title> Learning about Web</title>
```

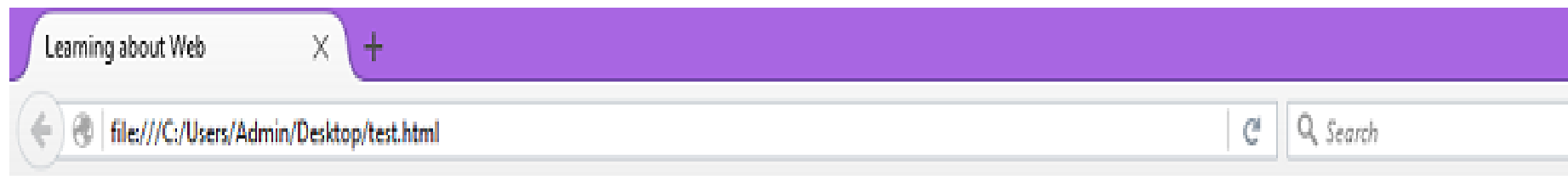
```
  </head>
```

```
  <body>
```

```
    Welcome to my first web page.
```

```
  </body>
```

```
</html>
```



Welcome to my first web page.

Editing, saving and Opening HTML Document

Saving

- When you save an HTML file, you can use either the **.htm** or the **.html** extension.
- The .htm extension comes from the past when some of the commonly used software only allowed three letter extensions. It is perfectly safe to use either .html or .htm, but be consistent. sample.htm and sample.html are treated as different files by the browser.
- An HTML file must have an htm or html file extension.

Example:

sample.html

Or

sample.htm

HTML Document Structure

- A typical HTML document will have the following structure:

Document declaration tag

```
<html>
```

```
<head>
```

Document header related tags

```
</head>
```

```
<body>
```

Document body related tags

```
</body>
```

```
</html>
```

Composition of a HTML Document

- An HTML document consists of three main parts:
 - the DOCTYPE
 - the Head
 - the Body

The <!DOCTYPE> Declaration

- **Must be the very first line of your file**, before <html>. NOT an HTML tag; it is an instruction to your web browser
- The <!DOCTYPE> declaration tag is a **document type** declaration that is used by the web browser to understand the document type and the version of HTML used in the document. Current version of HTML is 5 and it makes use of the following declaration:
 <!DOCTYPE html>
- There are many other declaration types which can be used in HTML document depending on what version of HTML is being used.

<html> (required)

- The text between <html> and </html> describes the web page/the document.
- This tag encloses the complete HTML document and mainly comprises of document header which is represented by <head>...</head> and document body which is represented by <body>...</body> tags.
- **<html>** ,This tag tells your browser that this is the start of an html document. The last tag in your document is **</html>**. This tag tells your browser that this is the end of the html document.

<head> (required)

- This tag is placed at the top of document immediately after the <html> tag.
- It ***represents the document's header*** which can keep other HTML tags like <title>, <link>, <meta>, <script>, <style>, <!--comment--> etc.
- Header information is not displayed in the browser window.

<title> (required)

- The <title> tag is used inside the <head> tag to mention the document title which is used to uniquely identify each document and is also displayed in the title bar of the browser window
 - may also be used as title of page when page is bookmarked
 - should be meaningful and uniquely identify the page.

<body> (required)

- The BODY *element contains the main content of your HTML page. It keeps other HTML tags like <h1>, <div>, <p> etc.*
- follows the <head>...</head> portion of the document
- any attributes set on this tag will apply to the entire page

Heading tags

- This tag represents the heading.
- While displaying any heading, browser adds one line before and one line after that heading.
- Any document starts with a heading. You can use different sizes for your headings. HTML also has six levels of headings, which use the elements `<h1>`, `<h2>`, `<h3>`, `<h4>`, `<h5>`, and `<h6>`.

Example:

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <title>Heading Example</title>
```

```
  </head>
```

```
  <body>
```

```
    <h1>This is heading 1</h1>
```

```
    <h2>This is heading 2</h2>
```

```
    <h3>This is heading 3</h3>
```

```
    <h4>This is heading 4</h4>
```

```
    <h5>This is heading 5</h5>
```

```
    <h6>This is heading 6</h6>
```

```
  </body>
```

```
</html>
```



This is heading 1

This is heading 2

This is heading 3

This is heading 4

This is heading 5

This is heading 6

Paragraph tag

- included as an element inside the `<body>...</body>` section
- This tag represents a paragraph.
- The `<p>` tag offers a way to structure your text into different paragraphs. Each paragraph of text should go in between an opening `<p>` and a closing `</p>` tag
- HTML adds one line before and one line after a paragraph.

Example:

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>Paragraph Example</title>
```

```
</head>
```

```
<body>
```

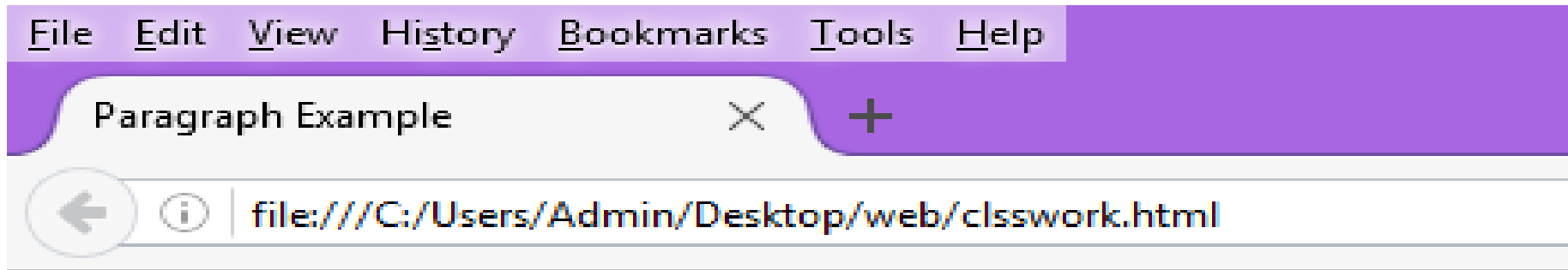
```
<p>Here is a first paragraph of text.</p>
```

```
<p>Here is a second paragraph of text.</p>
```

```
<p>Here is a third paragraph of text.</p>
```

```
</body>
```

```
</html>
```



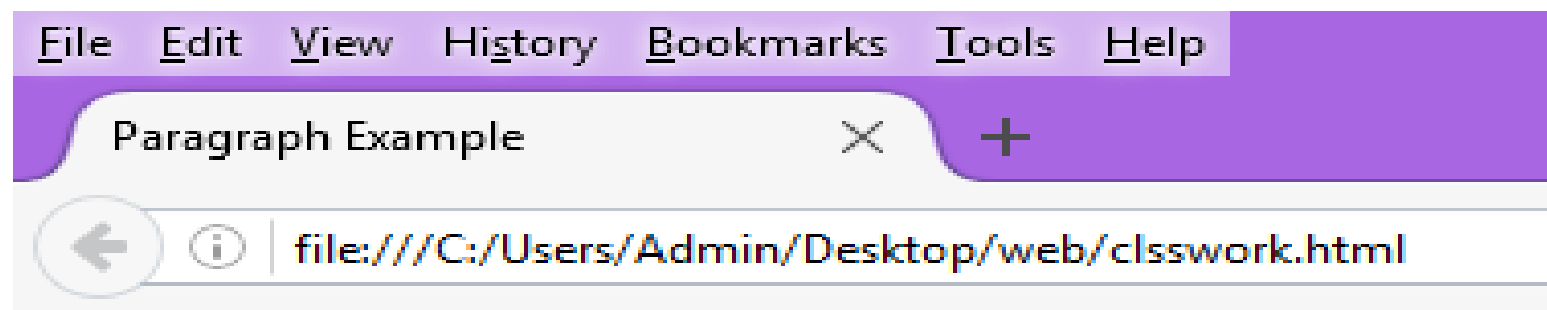
Here is a first paragraph of text.

Here is a second paragraph of text.

Here is a third paragraph of text.

Example: Heading and paragraphs

```
<!DOCTYPE html>
<html>
<head>
<title>Paragraph Example</title>
</head>
<body>
<h2> Demonstrating paragraphs</h2>
<p>Here is a first paragraph of text.</p>
<p>Here is a second paragraph of text.</p>
<p>Here is a third paragraph of text.</p>
</body>
</html>
```



Paragraph Example

Here is a first paragraph of text.

Here is a second paragraph of text.

Here is a third paragraph of text.

Line break tag

- The `
` tag has no closing tag.
- Whenever you use the `
` element, anything following it starts from the next line. This tag is an example of an empty element, where you do not need opening and closing tags, as there is nothing to go in between them.
- The `
` tag has a space between the characters `br` and the forward slash. If you omit this space, older browsers will have trouble rendering the line break, while if you miss the forward slash character and just use `
` it is not valid in XHTML.

Example:

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <title>Line Break  Example</title>
```

```
  </head>
```

```
  <body>
```

```
    <p>Hello<br /> Practice html everyday for at least 2 hours.
```

```
      <br /> Thanks.<br /> Your Instructor.
```

```
    </p>
```

```
  </body>
```

```
</html>
```

File Edit View History Bookmarks Tools Help

Line Break Example



file:///C:/Users/Admin/Desktop/web/clsswork.html

Hello

Practice html everyday for at least 2 hours.

Thanks.

Your Instructor.

Self closing tags

- `<area />`
- `<base />`
- `<hr />`
- ``
- `<input />`
- `<link />`
- `<meta />`

HTML Basics

Questions?

The background of the slide is decorated with several 3D-style question marks in various colors including blue, orange, pink, red, purple, and black. These question marks are scattered around the central text, with some appearing larger and more prominent than others, creating a playful and thematic visual effect.