

# COMPSCI 326

# Web Programming

HyperText Markup Language (HTML)

# Markup Languages

- **What is a markup language?**

- ♦ Not a programming language
- ♦ A language to annotate text
  - \* Syntactically distinguishable
  - \* Instructions contained within content to describe content

- **HyperText Markup Language**

- ♦ HTML is a markup language!
- ♦ Based on SGML
- ♦ Generalized by XML



# HTML Versions

- **HTML Versions**

- ◆ HTML 2.0 (1995)
- ◆ HTML 3.2 (1997)
- ◆ HTML 4.0 (1997)
- ◆ HTML 4.01 (1998, 3 versions)
- ◆ ISO HTML (2000)
- ◆ HTML5

# HTML



# HTML5

- **Industry Momentum**

- ◆ Best supported HTML version
- ◆ Unification of browser incompatibilities

- **Motivation**

- ◆ More precise definition of behavior
- ◆ More integration with JavaScript
- ◆ Provides a rich environment

- **What exactly is HTML5?**

# HTML



# HTML5: Not just HTML

- HTML5 Features
  - ♦ A collection of individual features described in many different specifications.
- HTML5 Detection
  - ♦ Not *really* possible
  - ♦ Need to detect support for individual features
    - \* 2D Canvas
    - \* WebGL
    - \* Drag-and-Drop
    - \* Geolocation

# HTML Tags

- Tags
  - ♦ Start Tag: <tagname>
  - ♦ End Tag: </tagname>
  - ♦ Singleton Tag: <tagname> or <tagname/>
- Content
  - ♦ A start and end tag surrounds content
    - \* <T> *content* </T>
    - \* Where *content* can be character data or nested tags

# Tag Attributes

- Start tags may have additional properties
- These properties can related to anything (tag dependent)
  - ♦ URL of image
  - ♦ URL of another resource (hyperlink)
  - ♦ Styling information
  - ♦ Behavior
  - ♦ Identification of tags or groups of tags
  - ♦ User/framework defined

```
<a href=http://www.google.com>A link to google</a>
```

# HTML Example

Regular Text

This course studies a variety of web technologies including HTML5, CSS, and JavaScript



`<p>This course studies a variety of web technologies including HTML5, CSS, and JavaScript</p>`

HTML Text



# HTML5 Main Structure

- **First, the DOCTYPE**

- Tells the browser which version of html used
- For HTML5 it is:

```
<!doctype html>
```

- For HTML 4.01, XHTML it looks something like this:

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

# HTML5 Main Structure

- **Character Encoding**

```
<!doctype html>  
<meta charset=utf-8>
```

Provides additional information to web server, web client, or both

Indicates the character set used in the document you are writing

Content-Type: text/html; charset=utf-8

The web server might use this to set the Content-Type

# HTML5 Main Structure

- **Character Encoding**

It also does not force you to use an '/' for a singleton tag

```
<!doctype html>  
<meta charset=utf-8>|
```



HTML5 does not require you to quote the value of an attribute

# HTML5 Main Structure

- The basic structure of an HTML5 document:

```
<!doctype html>
<meta charset=utf-8>
<html>
<head>
<title>Message</title>
</head>
<body>
<p>If you don't know where you are going,
    any road will take you there.</p>
</body>
</html>
```

The html tag defines the  
start of an html document

# HTML5 Main Structure

- The basic structure of an HTML5 document:

```
<!doctype html>
<meta charset=utf-8>
<html>
<head>
<title>Message</title>
</head>
<body>
<p>If you don't know where you are going,
    any road will take you there.</p>
</body>
</html>
```

The head tag defines meta information *about* the html document.

# HTML5 Main Structure

- The basic structure of an HTML5 document:

```
<!doctype html>
<meta charset=utf-8>
<html>
<head>
<title>Message</title>
</head>
<body>
<p>If you don't know where you are going,
    any road will take you there.</p>
</body>
</html>
```

The title tag defines the *title* of the document.

This is the text that appears at the top of the browser window.

# HTML5 Main Structure

- The basic structure of an HTML5 document:

```
<!doctype html>
<meta charset=utf-8>
<html>
<head>
<title>Message</title>
</head>
<body>
<p>If you don't know where you are going,
    any road will take you there.</p>
</body>
</html>
```

The body tag defines the main content area of the document.

# HTML5 Main Structure

- The basic structure of an HTML5 document:

```
<!doctype html>
<meta charset=utf-8>
<html>
<head>
<title>Message</title>
</head>
<body>
<p>If you don't know where you are going,
    any road will take you there.</p>
</body>
</html>
```

The paragraph tag is an example of a structural tag that allows you organize content.



# HTML5 Main Structure

- The basic structure of an HTML5 document:

```
<!doctype html>
<meta charset=utf-8>
<html>
<head>
<title>Message</title>
</head>
<body>
<p>If you don't know where you are going,
any road will take you there.</p>
</body>
</html>
```

Then we have character  
data.

# HTML5 Main Structure

- The basic structure of an HTML5 document:

```
<!doctype html>
<meta charset=utf-8>
<html>
<head>
<title>Message</title>
</head>
<body>
<p>If you don't know where you are going,
    any road will take you there.</p>
</body>
</html>
```

**Lowercase tag names  
are preferred in html5.**

# HTML5 Main Structure

- Let us be terse:

```
<!doctype html>  
<meta charset=utf-8>  
<title>Message</title>  
<p>If you don't know where you are going,  
any road will take you there.</p>
```

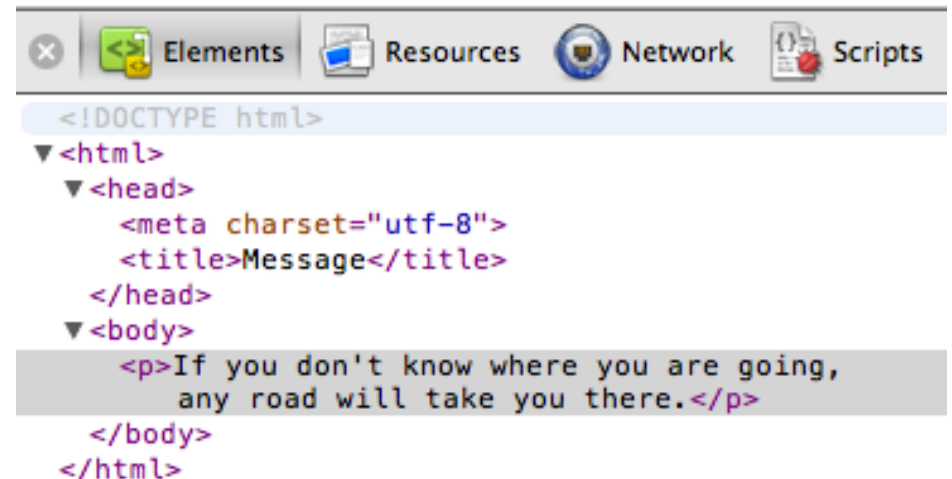
- HTML5 allows you to drop  
<html>, <head>, and <body> tags
- Browsers assume them anyway

# HTML5 Main Structure

- Let us be terse:

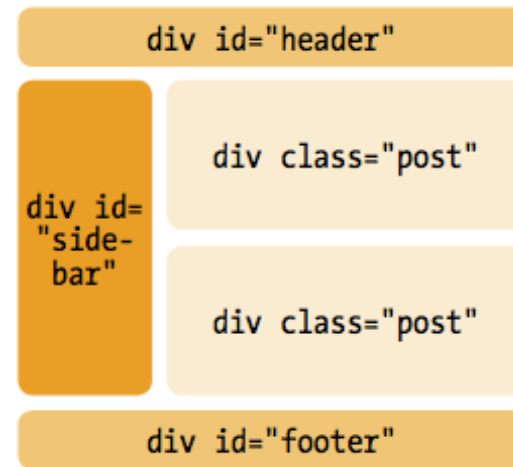
```
<!doctype html>
<meta charset=utf-8>
<title>Message</title>
<p>If you don't know where you are going,
    any road will take you there.</p>
```

- Chrome developer tools confirms this:



# HTML Example

```
<!-- Classic HTML4 Blog Document -->
<html>
<head>
  <title>My Blog</title>
</head>
<body>
  <div id="header">
    <h1>My Blog</h1>
  </div>
  <div id="sidebar">
    <h2>Menu</h2>
    <ul>
      <li><a href="archive.html">Archives</a></li>
    </ul>
  </div>
  <div class="post">
    <h2>Thu Jan 19 12:19:46 EST 2012</h2>
    <p>Still getting ready for 391WP!</p>
  </div>
  <div class="post">
    <h2>Thu Jan 18 10:19:46 EST 2012</h2>
    <p>Getting ready for 391WP!</p>
  </div>
  <div id="footer">
    <p>This is copyright by Tim Richards.</p>
  </div>
</body>
</html>
```



Here we use the *semantically neutral* **div** element to introduce user defined semantics with class and id attributes



# Examples

HTML

# HTML, DOM, & Browser

You can easily see the DOM from Chrome's Developer Tools

