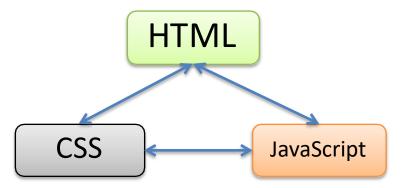
Web Programming





The Web Programming Triangle



Use **HTML** to define the content of web pages

Web

Programming

CSS

JavaScript

Use **CSS** to specify the layout of web pages

Use **JavaScript** to program the behavior of web pages

Web Architecture

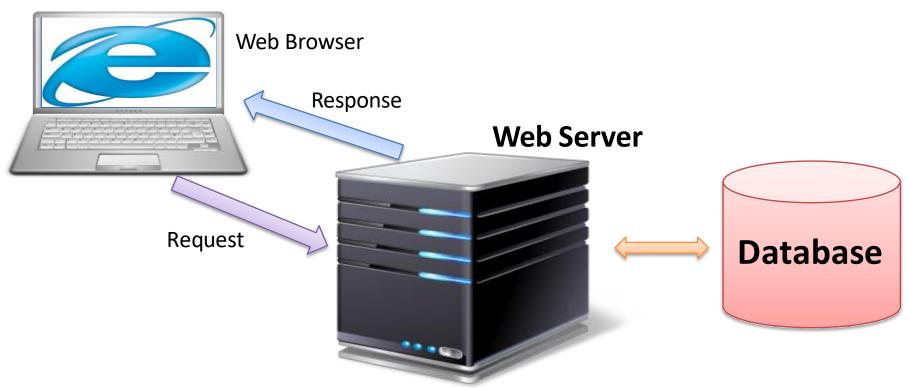


Server-side

Web Server

Client-Server Example





Internet Information Services (IIS), Apache, etc.

Web Platform

The Web Browser creates the visual web page you see in the browser based on

```
the HTML code
    <!DOCTYPE html>
    <html>
                                                      My First Heading
    <body>
    <h1>My First Heading</h1>
    My first paragraph.
                                                      My first paragraph.
    </body>
                                                            HTML, CSS,
    </html>
                                                            JavaScript Client-side
                                   Web Browser
                                             Web Page (HTML)
The code runs on the server and converted to
HTML before sending to client (Web Browser)
                                    Web Server
                                                                Server-side
                 ASP.NET, PHP, ...
```

Internet Information Services (IIS), Apache, etc.

HTML

- HyperText Markup Language (HTML)
- The Visual Appearnce of a Web Site

"Web Browser Language": All Web Browser

understand HTML

- HTML 5 is the latest
- Maintained by W3C
 - World Wide Web Consortium

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Title of the document</title>
  </head>
  <body>
    Content of the document.....
  </body>
</ht.ml>
```



HTML Page Structure

```
<html>
  <body>
                                           <!DOCTYPE html>
     <h1>This is a heading</h1>
                                           <html>
                                           <body>
     This is a paragraph.
                                           <h1>This is a heading</h1>
     This is another paragraph.
  </body>
                                           This is a paragraph.
</html>
                                           This is another
                                           paragraph.
                                           </body>
                                           </html>
```

HTML Editors

Professional HTML editors:

- Adobe Dreamweaver
- CoffeeCup HTML Editor
- •

For the simple examples in this Tutorial we only need Notepad (Windows) or TextEdit (Mac)

My First HTML Web Page

<tagname>content</tagname>

```
<!DOCTYPE html>
<html>
<body>
<h1>My First Heading</h1>
My first paragraph.
</body>
</html>
```

- The DOCTYPE declaration defines the document type
- The text between <html> and
 </html> describes the web document
- The text between <body> and </body> describes the visible page content
- The text between <h1> and </h1> describes a heading
- The text between and describes paragraph

Students: Create this HTML Code in e.g., NotePad and Save the File as .htm. Then Open the File in a Web Browser (just double-click on the file).

```
<!DOCTYPE html>
<html>
<body>
<h1>This is a heading</h1>
<a href="http://www.google.com">This is a link to Google</a>
</body>
</html>
```

```
<!DOCTYPE html>
<html>
<body>
<h1>This is a heading</h1>
<img src="myimage.jpg" alt="blabla" width="104" height="142">
</body>
</html>
```

HTML Tags

Hyperlink:

```
<a href="http://www.google.com">This is a link to Google</a>
```

Bold Text:

```
<br/>this is my Text</b>
```

Headers:

```
<h1>This is my Header</h1>
```

Title:

```
<title>This is my Title</title>
```

Image:

Paragraph:

```
My first paragraph.
```

Line Break:

```
This is my Text
<br>
This is also my Text
```

Comments:

```
<!-- Write your comments here -->
```

```
<img src="myimage.jpg" alt="blabla" width="104" height="142">
```



Students: Try these Examples

CSS

- CSS Cascading Style Sheets
- Styles define how to display HTML elements
- CSS is used to control the style and layout of multiple Web pages all at once

```
body {
    background-color: #d0e4fe;
}
h1 {
    color: orange;
    text-align: center;
}
p {
    font-family: "Times New Roman";
    font-size: 20px;
}
```

Why CSS is needed

- HTML was never intended to contain tags for formatting a document.
- HTML was intended to define the content of a document, like:
- <h1>This is a heading</h1>
- This is a paragraph.
- When tags like , and color attributes were added to the HTML 3.2 specification, it started a nightmare for web developers. Development of large web sites, where fonts and color information were added to every single page, became a long and expensive process.
- To solve this problem, the World Wide Web Consortium (W3C) created CSS.
- In HTML 4.0, all formatting could be removed from the HTML document, and stored in a separate CSS file.
- All browsers support CSS today.

HTML + CSS Example

```
<!DOCTYPE html>
< ht.ml>
<head>
<style>
body {
    background-color: #d0e4fe;
h1 {
    color: orange;
    text-align: center;
p {
    font-family: "Times New Roman";
    font-size: 20px;
</style>
</head>
<body>
<h1>My First CSS Example</h1>
This is a paragraph.
</body>
</html>
```



Students: Create this Code in e.g., NotePad and Save the File as .htm.

Then Open the File in a Web Browser (just double-click on the file).

Change color, etc. and see what happens.

CSS Syntax



A CSS declaration always ends with a semicolon, and declaration groups are surrounded by curly braces, e.g.:

```
p {color:red;text-align:center;}
```

CSS Classes | p.center {

```
.center {
    text-align: center;
    color: red;
```

<!DOCTYPE html>

text-align: center;

<h1 class="center">My Heading</h1> My Paragraph

color: red;

<html> <head>

<style>

.center {

</style>

</head> <body>

</body>

</html>

```
color: red;
<!DOCTYPE html>
<html>
<head>
<style>
.center {
   text-align: center;
   color: blue;
p.center {
   text-align: center;
   color: red;
</style>
</head>
<body>
<h1 class="center">My Heading</h1>
My Paragraph
</body>
</html>
```

text-align: center;



Students: Try these Examples

Three Ways to Insert CSS

There are three ways of inserting a style sheet:

- External style sheet (Recommended!!)
 - An external style sheet is ideal when the style is applied to many pages. With an external style sheet, you can change the look of an entire Web site by changing just one file.
 - An external style sheet can be written in any text editor. The file should not contain any html tags.
 - The style sheet file must be saved with a .css extension

Internal style sheet

- An internal style sheet should be used when a single document has a unique style.
- You define internal styles in the head section of an HTML page, inside the <style> tag

Inline style

 An inline style loses many of the advantages of a style sheet (by mixing content with presentation). Use this method sparingly!

Internal Style Sheet Example

You define internal styles in the head section of an HTML page, inside the <style> tag, like this:

```
<head>
<style>
body {
    background-color: linen;
    color: maroon;
    margin-left: 40px;
</style>
</head>
```

Students: Try this Example

```
<!DOCTYPE html>
<html>
<head>
<style>
body {
    background-color: linen;
h1 {
    color: maroon;
   margin-left: 40px;
</style>
</head>
<body>
<h1>This is a heading</h1>
This is a paragraph.
</body>
</html>
```

External Style Sheet Example

Each HTML page must include a link to the style sheet with the <link> tag. The k> tag goes inside the head section:

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

An example of a style sheet file called "myStyle.css", is shown below:

```
body {
    background-color: lightblue;
}

h1 {
    color: navy;
    margin-left: 20px;
}
```



Students: Try this Example

Text Color

body { color: blue; } h1 { color: #00ff00; } h2 { color: rgb(255,0,0);

CSS Properties

Text Alignment

```
h1 {
    text-align: center;
}

p.date {
    text-align: right;
}

p.main {
    text-align: justify;
}
```

Background Color

```
body {
    background-color: lightblue;
}
```

Text Size

```
h1 {
    font-size: 40px;
}

h2 {
    font-size: 30px;
}

p {
    font-size: 14px;
}
```

Text Font

```
p {
    font-family: "Times New Roman", Times, serif;
}
```



Students: Create a Style Sheet (.CSS) and a HTML page where you use these Properties

CSS Example

http://www.w3schools.com/css/demo default.htm

Welcome to My Homepage

Use the menu to select different Stylesheets

Stylesheet 1

Stylesheet 2

Stylesheet 3

Stylesheet 4

No Stylesheet

Same Page Different Stylesheets

This is a demonstration of how different stylesheets can change the layout of your HTML page. You can change the layout of this page by selecting different stylesheets in the menu, or by selecting one of the following links:

Stylesheet1, Stylesheet2, Stylesheet3, Stylesheet4.

No Styles

This page uses DIV elements to group different sections of the HTML page. Click here to see how the page looks like with no stylesheet:

No Stylesheet.

View Stylesheets

The stylesheets uses CSS syntax to layout the HTML page. Take a look at the stylesheets used in this demonstration:

Stylesheet1, Stylesheet2, Stylesheet3, Stylesheet4.

Side-Bar

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi.



Students: Open this Example and see how different styles totally changes the display and layout of a HTML page

JavaScript

- JavaScript is the programming language of the Web.
- All modern HTML pages are using JavaScript.
- JavaScript is the default scripting language in all modern browsers, and in HTML5.
- JavaScript is probably the most popular programming language in the world.
- It is the language for HTML, for the Web, for computers, servers, laptops, tablets, smart phones, and more.
- JavaScript can Change HTML Elements! which makes it very powerful!

Why JavaScript?

JavaScript is one of **3 languages** all web developers **must** learn:

- 1. **HTML** to define the content of web pages
- 2. **CSS** to specify the layout of web pages
- 3. JavaScript to program the behavior of web pages

This tutorial is about JavaScript, and how JavaScript works with HTML and CSS.

JavaScript Example

```
<html>
<body>
                                                  Students: Try this Example
<h1>
                    </h1>
                                                  >
<button type="button"</pre>
                                                </button>
onclick="myFunction()">
<script>
</script>
```

<!DOCTYPE html>

</body> </html>

My First JavaScript

JavaScript can change the content of an HTML element:

Click Me!

Hello JavaScript!

```
<html>
                                                 JavaScript Example 2
<body>
Please input a number between 1 and 10:
<input id="numb" type="number">
<button type="button" onclick="myFunction()">Submit</button>
Please input a number between 1 and 10:
<script>
function myFunction() {
                                                       20
                                                                                     Submit
   var x, text;
   // Get the value of input field with id="numb"
                                                      Input not valid
   x = document.getElementById("numb").value;
   // If x is Not a Number or less than one or greater than 10
   if (isNaN(x) | | x < 1 | | x > 10) {
      text = "Input not valid";
   } else {
      text = "Input OK";
   document.getElementById("demo").innerHTML = text;
                                                        Students: Try this Example
</script>
</body>
</html>
```

<!DOCTYPF html>

JavaScript Comments

```
// Change heading:
document.getElementById("myH").innerHTML = "My First
Page";
// Change paragraph:
document.getElementRvTd("mvP") innerHTML - "Mv first naragraph
                      var x = 5; // Declare x, give it the value of 5
                      var y = x + 2; // Declare y, give it the value of x +
 /*
 The code below will change the heading with id = "myH" and the paragraph with id = "myP" in my web page:
 document.getElementById("myH").innerHTML = "My First Page";
 document.getElementById("myP").innerHTML = "My first paragraph.";
```

Using Comments to Prevent Execution:

```
//document.getElementById("myH").innerHTML = "My First Page";
document.getElementById("myP").innerHTML = "My first
paragraph.";
                    document.getElementById("myH").innerHTML = "My First Page";
                    document.getElementById("myP").innerHTML = "My first paragraph.";
                    */
```

JavaScript Placement



- You can place any number of scripts in an HTML document. Scripts can be placed in the <body>, or in the <head> section of an HTML page, or in both.
- It is a good idea to place scripts at the bottom of the <body> element. This improves page load, because HTML loading is not blocked by scripts loading.
- Scripts can also be placed in external files. External scripts are practical when the same code is used in many different web pages. JavaScript files have the file extension.js.

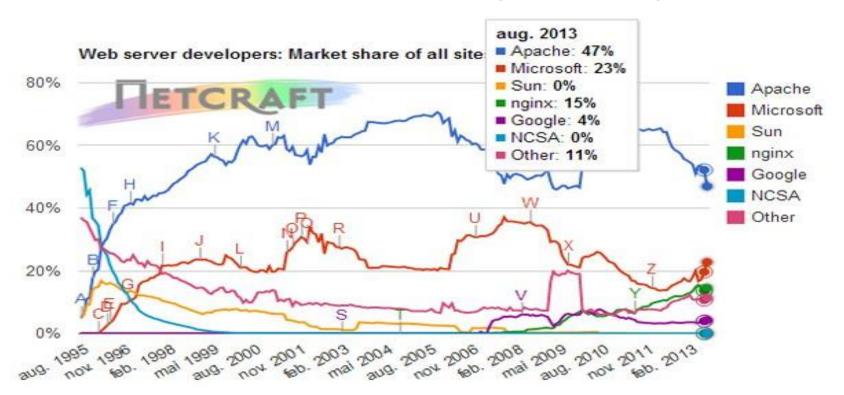
Web Server

The term web server can refer to either the hardware (the computer) or the software (the computer application) that helps to deliver web content that can be accessed through the Internet.

The most common use of web servers is to host websites, but there are other uses such as gaming, data storage or running enterprise applications.

- **IIS** Internet Information Services
 - Microsoft Windows
- Apache Web Server
 - Open Source
 - Cross-platform: UNIX, Linux, OS X, Windows, ...
- Nginx (pronounced "engine x") Has become very popular latly
- GWS (Google Web Server)
- ...

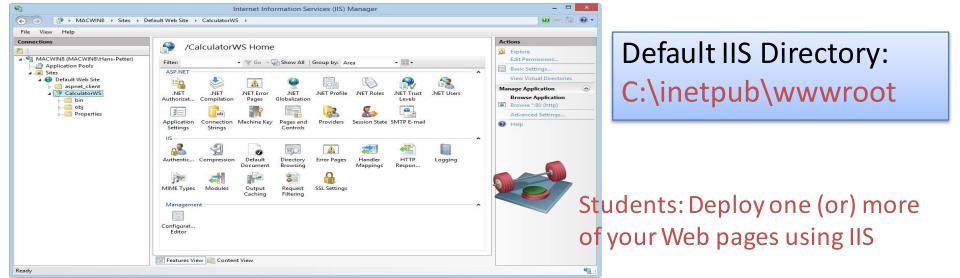
Web Server Popularity



http://www.digi.no/921119/under-halvparten-bruker-apache

Internet Information Services (IIS)

- IIS Internet Information Services
- Web Server that host the Web Pages/Web Site
- Make sure to have the IIS Role installed with ASP.NET sub components



```
<!DOCTYPE html>
                                                  IIS Deployment
<html>
<body>
                                                           Test.htm - Notepad
<h1>My First Heading</h1>
                                                         Edit Format View Help
                                                    k!DOCTYPE html>
                                                    <html>
My first paragraph.
                                                    <body>
                                                    <h1>My First Heading</h1>
</body>
</html>
                                                    My first paragraph.
     MvWebSite
       File
             Home
                    Share
                           View
                X Cut
                                                                          Open -
                                                                                  -
                                                       Mew item ▼
                                                       ₹ Easy access ▼
                                                                                  88 5
                Vi... Copy path
                                                                   Properties
       Copy
           Paste
                                                   New
                                                                          History
                                                                                  88
                Paste shortcut
                                                   folder
                                                                        Open
                    ▶ This PC ▶ Local Disk (C:) ▶ inetpub ▶ wwwroot ▶ MyWebSite
           Development
                                                                 Date modified
                                                                               Type
                                   Name
           Development-hansha-PC
                                   Test.htm
                                                                               HTML Do
                                                                 2014-11-13 11:23 ...
           Documents
           Dokumenter
           Lab
```

IIS Deployment Add Application Internet Information Services (II Site name: Default Web Site ▶ MACWIN8 ▶ Sites ▶ Default Web Site ▶ Path: Help Alias: Application pool: Connections Default Web Site Home DefaultAppPool MyWebSite Select... ■ . ● MACWIN8 (MACWIN8\Hans-Petter) Example: sales Filter: ▼ Go → Show All Application Pools Physical path: ASP.NET △ Sites C:\inetpub\www.root\MyWebSite Default Web Explore aspnet c Edit Permissions... Calculate .NET NET Pro JET Error Pass-through authentication Pages Globalization MyWebS 🧟 Add Application... Test Settings... Connect as... SchoolW Add Virtual Directory... Enable Preload Edit Bindings... nection Machine Key Pages and Provide Controls Manage Website OK Cancel Refresh 404 Remove 金 統 Attp://localhost/MyWebSite/Test.htm D + C Iocalhost \times My First Heading Test your Web Page in your Web browser My first paragraph. "localhost" is your personal computer, you cam also use your IP address.



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the world's largest web development site



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- >> Learn AngularJS
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- » Learn Google Maps

Server Side

- » Learn SOL
- » Learn PHP
- » Learn ASP
- >> Learn ASP.NET
- >> Learn VBScript
- » Learn AppML

XML Tutorials

- >> Learn XML
- >> Learn DTD
- >> Learn Schema
- » Learn XML DOM
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- » Learn XSLT
- >> Learn XQuery
- » Learn XSL-FO
- >> Learn SVG
- » Learn RSS
- » Learn WSDL

WEB Building

- >> Web Building
- » Web Statistics
- >> Web Validation
- >> Web Certificates



HTML Tutorial

SQL Tutorial

SQL Reference

HTML Tag Reference

HTML

SOL



CSS Tutorial

CSS Reference



PHP Tutorial

PHP Reference

Learn Web Building

Learn how to create a website on your own computer Learn the basics of web building in less than a day Learn how to add a database to your website

Web Building Tutorial

Web Certificates

1000+ Examples



Color Picker



JavaScript Tutorial

JavaScript Reference



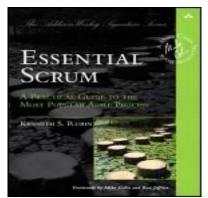
JQuery Tutorial

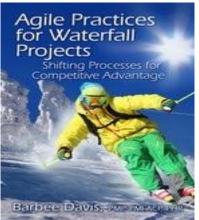
JQuery Reference

References

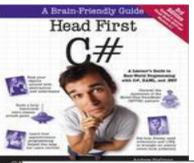
- >> HTML/HTML5 Tags
- >> HTML Colors
- >> HTML Characters
- » HTML Symbols
- » CSS 1,2,3
- » CSS3 Support
- >> JavaScript
- >> HTML DOM
- » jQuery
- » iOuery Mobile
- » Google Maps
- » PHP
- » SOL
- >> ASP.NET
- » XML DOM
- » XSLT
- >> XPath
- » SVG

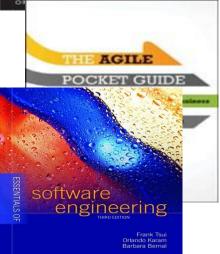
eBooks from Safari Books Online

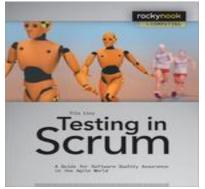


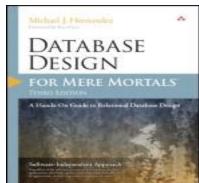


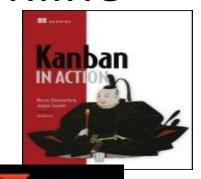
http://proquest.safaribooksonline.com/?uicode=telemark











Larry Rockoff



. . .

References

- HTML Tutorial: http://www.w3schools.com/html
- CSS Tutorial: http://www.w3schools.com/css
- JavaScript Tutorial: http://www.w3schools.com/js