

HTML5 + CSS3 + JavaScript



Fundamentals of Web Development With HTML5, CSS3, JavaScript

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Objectives

At the end of this module, you will be able to:

- Importance of Web Development
- Web Designer Vs. Web Developer
- Front-end and Back-end Web Development
- HTML, CSS and JavaScript - An Overview
- JavaScript Frameworks - jQuery and React.JS
- Advanced Web Development Topics



Importance of Web Development

• The Internet is ubiquitous

- Accessible through mobile and desktop
- Customers/users need to find you/your business
- Builds trust in your organization and improves your reputation
- Your website is your first round-the-clock sales person!

• The Website

- Creates first impression of your business
- Create it to suit the needs of your target audience
- Reflects your expertise and reputation
- Can bring business from any part of the world!
- Call to Action – Encourage the users to give you business

▪ You need Web Development skills to create a Website!

Web Designer Vs. Web Developer

- **A Web Designer**
 - Designs the look and feel of a website (creative side of website)
 - Decides the layout, fonts, color, images and overall branding
 - Creates the visual mock-up of the website
 - Rarely does the development of a website!
 - A Right-brained (Creative) Person
- **A Web Developer**
 - Brings the website mock-up to life on the Internet (development side of website)
 - Develops the website and hosts on a web server
 - Has Web Development Skills: HTML, CSS, JavaScript, React.js, Node.js
 - A Left-brained (Logical) Person
- **Gain Web Development skills to become a Web Developer!**

Web Developer Vs. Web Designer

LEARN

RUBY	PHOTOSHOP
ANGULAR	ILLUSTRATOR
HTML&CSS	UI
PHP	BRANDING
PYTHON	TYPOGRAPHY
JAVASCRIPT	UX
SWIFT	ILLUSTRATION
WORDPRESS	INDESIGN
ANDROID	PRINT
CODE	DESIGN

Front End and Back End Web Development

- **Front End Web Development**

- Defined components on the page with HTML
- Make them look pleasing with CSS
- Enable interactivity with JavaScript
- Enhance productivity with use of frameworks

- **Back End Web Development**

- Create the page components and content dynamically on the web server
- Send the HTML + CSS + JavaScript to web browser (used by a human user)
- Generate pages by programming in Java, JavaScript, PHP, Perl, Python, Ruby
- Aim to achieve fast response times to end users

- **Front End Web Development is the focus of this webinar!**

HTML, CSS, and JavaScript – An Overview

- **HTML**

- Hypertext Markup Language
- Structure of Page



- **JavaScript**

- Interactivity with User
- Dynamic Updates in a Web Page



- **CSS**

- Cascading Style Sheets
- Presentation/Styling



Hypertext - Origins

- **HyperText**
 - Text with references (hyperlinks) to other text
- **“Hyper” - meaning**
 - Greek Origin: “over”, “beyond”
- **First Idea**
 - Vannevar Bush, USA, in 1945



A Simple HTML5 Page

- Save the following code in a test.html file

```
<!DOCTYPE html>
<html>
  <head>
    <title>This is My First Website </title>
  </head>
  <body>
    <p>Welcome to HTML5, CSS3 and JavaScript!</p>
  </body>
</html>
```

Hosting a Web Site

- A Web Site

- Serves one or more HTML Pages
 - Default Page: index.html, index.php

- Served / Hosted by a Web Server

- HTTP Web Server
 - https, apache2, Ngnix - Internet Information Server (Microsoft's)
- Web Application Server
 - Visual Studio Code (Microsoft) , Sublime Text, Atom

- Technologies

- HTML, HTTP, TCP/IP Protocols
- Operating Systems: Linux, Windows, MacOS

HTML Page

- **HTML (Web) Page / Document**
 - User Interface for the Web (site or application)
 - A plain text file – human readable
 - Transported on HTTP - **HyperText Transfer Protocol**
- **Page Types**
 - Static – ready-made pages with fixed page content
 - **File Extension:** .html, .htm
 - Dynamic – generated on the fly with varying page content
 - **Generated on the Web Server**
 - **Interspersed with JavaScript, PHP, JSP, ASP**
 - **File Extensions:** .js, .php, .jsp, .asp, .aspx

CSS - Introduction

- **Cascading Style Sheet**

- Describes the look and formatting of a page
- Used for Changing Presentation and Styling
- Can apply to a mark-up language
 - HTML, XHTML, XML, SVG

- Separates Content from *Presentation*

- Properties (*Attributes*) Styled

- Layout, Font (Typography), Color, Background
- Box Properties: Border, Margin, Padding
- Lists, Tables



CSS Syntax (Contd./-)

▪ Style Selector

- The HTML elements to which the Style rule should be applied
- It is a match expression
- Specified as:
 - Element's tag name
 - ❖ h1, p, label - case insensitive
 - Value of Element's attribute
 - ❖ id, class - Case Sensitive
 - Element's placement in the Document tree
 - ❖ Child element is nested within Parent
 - ❖ A Sibling element is at the same nesting level

CSS Syntax (Contd./-)

- CSS Declaration Block

- List of Declarations
- Enclosed in curly braces { . . . }
- Declaration
 - `property : value(s) ;`
- `property` and `value(s)` are pre-defined
- `Property name` is unique
- `Property value` – Specified in multiple formats
 - keywords (words) or mnemonics (in combination with some symbols like: #, /)
 - numerical, hexadecimal, or a combination
 - some values may have units of measure

New CSS3 Selectors

- New CSS3 Structural Pseudo-Class Selectors

3

- E:first-of-type – Selects the first element of type E for its parent

```
li:first-of-type { color: red; }
```

3

- E:last-of-type - Selects the last element of type E for its parent

```
li:last-of-type { color: yellow; }
```

3

- E:only-child - Selects if E is only the child of its parent

```
li:only-child { color: blue; }
```

3

- E:nth-child(n) - Selects nth child of the element E

```
li:nth-child(3) { color: yellow; }
```

3

- E:nth-last-child(n) - Selects nth last child of the element E

```
li:nth-last-child(2) { color: red; }
```

CSS3 – 2D Transforms

- Transformation
 - Change of position, shape and size of an element

- CSS3 Transforms
 - 2-D: Two Dimensions
 - 3-D: Three Dimensions (not covered in this course)

- Transform Operations
 - move, scale, spin, stretch and turn elements

CSS3 – 2D Transforms (Contd./-)

- Specified with **transform** attribute

- Translation – Movement along X-axis and Y-axis

- ```
transform: translate(50px, 100px);
```

- Rotation – in clock-wise direction

- ```
transform: rotate( 5deg );
```

- Scaling – increase/decrease size along width and height

- ```
transform: scale(2, 2);
```

- Skewing – tilting (turning) in X-axis and Y-axis directions

- ```
transform: skew( 10deg, 5deg );
```

CSS3 Transitions

- Changing from one style to another (on an event)

- CSS property on which the transition effect has to take place
- Time Duration over which transition has to take place (smoothly)
 - ❖ Specified in seconds (s) or milliseconds (ms)

```
p { width: 100px; }

p:hover { width: 200px; transition: width 2s; }
```

- Transition starts on events
 - ❖ Events: **hover, active, checked, focus, enabled, disabled**
 - ❖ @media queries, and **JavaScript**
- Specify multiple transitions sets with a comma

```
p { width: 200px; height: 100px; }

p:hover {
    width: 400px; height: 200px;
    transition: width 2s, height 5s; }
```

JavaScript – An Introduction

- Mocha, later renamed as LiveScript - Developed by Netscape
- Based on ECMAScript 5.1 (Ver. 6.0 is finalized in mid 2015)
- ~~Live~~Script → **Java**Script (due to Java popularity)
- Scripting Language for Web Browsers
 - Dynamically Typed
 - Interpreted by JavaScript Engine
- Can not Do (for Security Reasons)
 - Unlimited reading/writing of files from **client machine**'s file system
 - Writing to the files on the **Server**
 - Can not close a window that was not opened by **it**
 - Can not read from a web page served by **another web server**
- Microsoft's version - **JScript**



Document Object Model (DOM) (Contd./-)

- Structure and Style of a Page, Access / Update Content
- DOM + JavaScript = Dynamic HTML (on client-side)
- What JavaScript can do with DOM?
 - Change an HTML Element
 - Change an attribute of an HTML Element
 - Change the CSS style of an HTML Element
 - Remove an existing HTML element or its attributes
 - Add new a HTML Element or a new attribute to an Element
 - React to an event associated with an HTML Element
 - Create a new event listener and associate with an HTML Element

HTML DOM Methods

- DOM Methods – Finding HTML Elements

- `getElementById()` Method

- Gets the HTML Element with specified ID

- `getElementsByClassName()` Method

- Gets the HTML Elements with specified class name

```
document.getElementsByClassName("middlePara") [0].innerHTML = "Welcome  
to My Website!";
```

```
document.getElementsByClassName("middlePara") [1].innerHTML = "This is  
HTML5, CSS3 and JavaScript presentation!";
```

- `getElementsByTagName()` method

- Gets the HTML Elements with specified element tag

```
document.getElementsByTagName("p") [0].innerHTML = "Welcome to  
My Website!";
```

```
document.getElementsByTagName("p") [1].innerHTML = "This is HTML5,  
CSS3 and JavaScript presentation!";
```

jQuery - Introduction

- [jQuery Core – a Cross-Platform JavaScript Library](#)
 - Simplifies client-side JavaScript scripting for a web page
 - It is **FREE** and **Open Source**
 - Used by about 6,000 most visited [websites](#)
 - It uses the familiar [HTML DOM](#) model
- [Latest Versions](#)
 - Version 1.11.3 - has support for IE 6/7/8
 - Version 2.1.4 - has NO support for IE 6/7/8
 - Development Version
 - [For use during development of the website](#)
 - Minified Version
 - [For use in production \(live / online\) use of website](#)

jQuery - Introduction

- Why use jQuery?

- JavaScript Framework
- Separates **HTML** and **JavaScript** in a web page
- Eliminates cross-browser incompatibilities
- Simple/Short, Clean and **Easy** to read, write and understand

- What jQuery can do?

- Can **Select** Elements
 - Has Selectors are similar to CSS Selectors
- Can **Manipulate** the Selected Elements
- Can **Modify the Style** of the Selected Elements
- Supports Events, **Effects** and **Animations**
- Supports JSON Parsing and **Ajax (Asynchronous JavaScript + XML)**

jQuery Basics

- Download the latest version

- From jquery.com website

- Reference it in HTML file

- Host it on your Web Server and Use it with `<script>` tag

```
<script src="jquery-2.1.3.js"></script>
```

- Point to a Public Web Server and Use it with `<script>` tag

➤ **Google CDN Server** (recommended) **CDN – Content Delivery Network**

```
<script src="http://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js">
</script>
```

➤ Microsoft CDN Server

```
<script src="http://ajax.aspnetcdn.com/ajax/jQuery/jquery-1.11.2.min.js">
</script>
```

➤ MaxCDN CDN Server (moved from MediaTemple, before that Amazon)

```
<script src="http://code.jquery.com/jquery-2.1.3.min.js"></script>
```



- Do not put the jQuery code in the `<script>` tag that loads jQuery library

Advanced Web Programming Topics

- HTML Canvas, WebGL, SVG
- HTML5 Geolocation API
- HTML5 Drag and Drop API
- HTML5 Web Storage API
- HTML5 Web Workers
- HTML5 Server-sent Events

Job trends for Full Stack Web Developer



Questions



Thank You!!