Kofax Kapow 10.3 Training and Certification

Module 4 – Prerequisite Knowledge

Helpful background knowledge and skills

Kofax Kapow™

KOFAX

Module Overview

- HTML (hypertext markup language)
  - Tags
  - HTML Elements
  - Attributes
  - Structure
- CSS (cascading style sheets)
- JavaScript
- XML (extensible markup language)
- HTTP (hypertext transport protocol)
- SQL and other Relational Databases
- Microsoft Excel
- CSV files (comma separated values)
- String Concantenation
- Regular Expressions

Overview

- Robots developed with Kapow, in most cases, interact with web pages or remote desktops to either execute tasks or extract data.
- While it is not required to have experience with web development when developing robots that interact with web pages, being knowledgeable of the technologies used for web pages is helpful for developing successful robots.
- Many of these technologies will be used during training. In order to fully embrace the value of Kapow training you should have a basic understanding of these technologies.

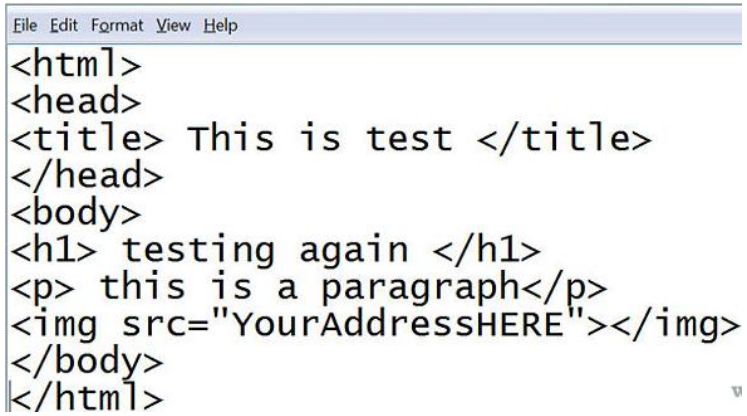
HTML

- HTML is an acronym for **H**yper **T**ext **M**arkup **L**anguage and is the language used for describing web pages. HTML documents contain HTML tags and plain text.
- The HTML tags, sometimes referred to as elements, describe document content. In more formal terms an HTML element is everything between the start tag and the end tag, including the tags.

Tags

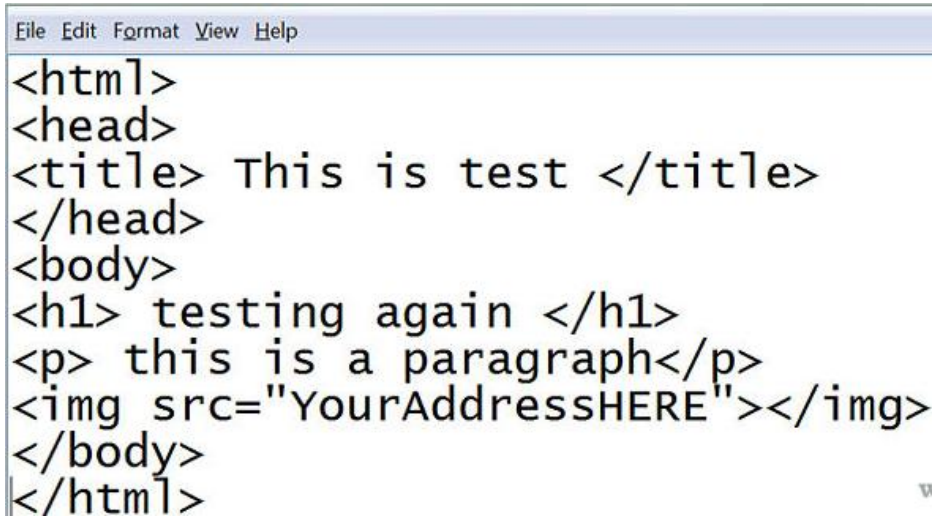
- HTML tags are keywords surrounded by angle brackets like <html> and usually come in pairs like <html></html>.
- The first tag is known as the start tag, the second tag is known as the end tag. The end tag is written like the start tag with a forward slash before the tag name. The start and end tags are also referred to as opening and closing tags.
- **<tagname>** *content* **</tagname>**

Start tag *End tag*



HTML Elements

- HTML elements are everything between the start tag and end tag including the tags.
- For example, you would say everything between the start tag and the end tag is the element.
- **<tagname>** *content* **</tagname>**
- *Start tag <<<<<<<<<element>>>>>>>>>End tag*



Attributes

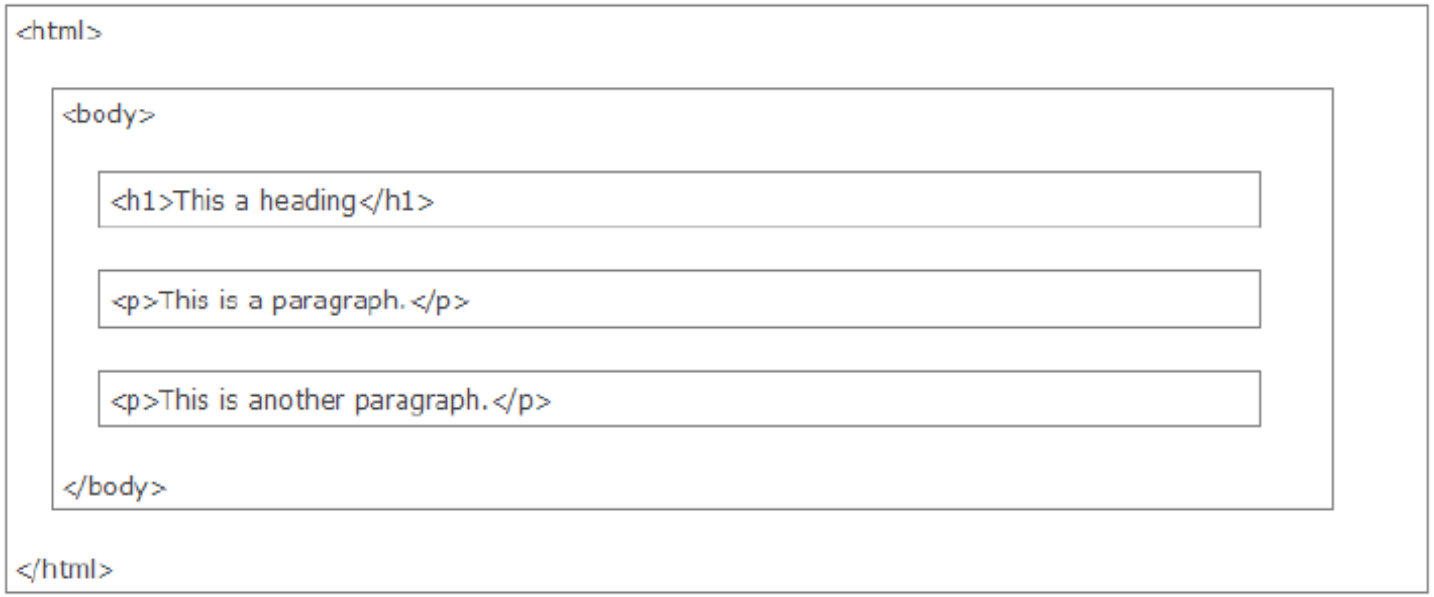
- HTML tags can have attributes, which provide additional information about an element.
- Attributes are always found in the start tag and come in name\value pairs like: name=”value”.
- **<tagname attribute=attribute_value>** *content* **</tagname>**

  Start tag *End tag*

- Some common attributes you may see in HTML tags are: id, class, style, src, href.

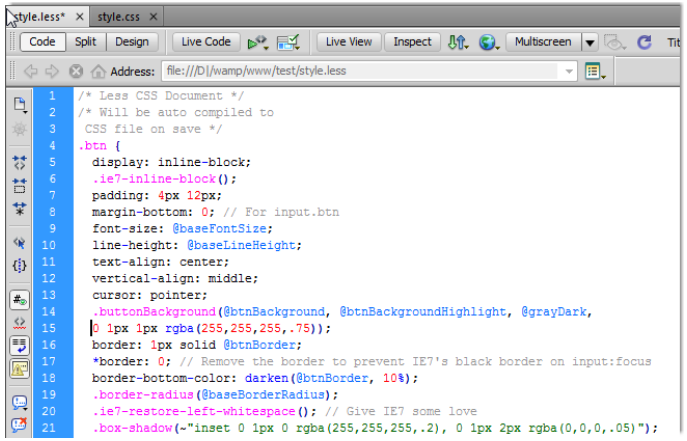
Structure

- The structure of a web page is composed of several HTML elements.
- The HTML elements can be “nested” inside another HTML element. This is a simple visualization of the structure of an HTML document or web page.



CSS

- Known as Cascading Style Sheets, they define how to display HTML elements. CSS control display of an element in one of three ways using tag attributes.
- The tag attributes are id, class and style. CSS on web pages loaded by a robot can hide elements with which you may want to interact.
- Understanding how CSS are used to handle the display of HTML can provide benefits when developing robots and accessing elements that may not be visible when the page is loaded in the browser.



JavaScript

- JavaScript is the scripting language for web pages. Most modern HTML pages use JavaScript in many different ways to manage interaction with the page or dynamic presentations.
- Kapow allows you to develop direct interactions with JavaScript events as well as inject custom JavaScript to execute in the loaded page.
- JavaScript is also used for “behind the scenes” executions called AJAX (**A**synchronus **J**avaScript **A**nd **X**ML).
  - With AJAX, web applications can send data to and retrieve from a server asynchronously (in the background) without interfering with the display and behavior of the existing page.
  - Having a comfort level to read and understand JavaScript will allow you to be able to manually execute and extract data from these kinds of AJAX calls in your robot development.

XML

- XML stands for e**X**tensible **M**arkup **L**anguage and is designed to transport and store data.
- JSON stands for **J**avaScript **O**bject **N**otation and is a syntax for storing and exchanging text information similar to XML.
  - JSON, is an open standard format that uses human-readable text to transmit data objects consisting of attribute–value pairs. It is used primarily to transmit data between a server and web application, as an alternative to XML.
- Robots can extract data directly from XML files or retrieved XML data packages of web services, REST or AJAX executions.
  - **Re**presentational **S**tate **T**ransfer (REST) is a software architecture style consisting of guidelines and best practices for creating scalable web services.
- JSON data format may be received from web services, REST or AJAX calls, allowing robots to extract specified data elements.

HTTP

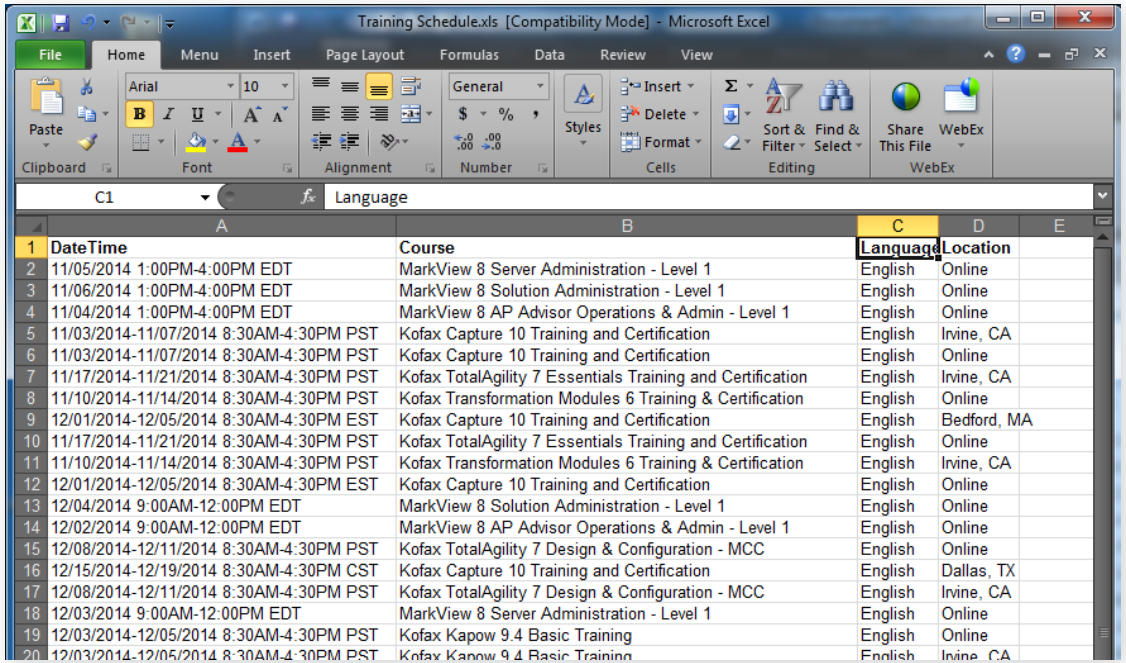
- HTTP is a network protocol for the Web and stands for **H**ypertext **T**ransfer **P**rotocol.
- The Kapow browser engine is an HTTP client because it sends requests to an HTTP server similar to your normal web browser.
  - There are two browser engines built in to Kapow:
    - Default engine
    - Classic engine
  - You may migrate robots from Default to Classic engine and vice versa.
  - Using a Device Autormation step allows you to use a third, embedded Chromium browser

SQL and Other Relational Databases

- SQL stands for **S**tructured **Q**uery **L**anguage and is an industry standard database access language.
- Kapow robots can communicate with databases using SQL to retrieve data, create new data and alter data by updating or deleting records.
- When working with relational databases it is important to have a solid understanding of database concepts and the specific database with which you are working.
- *NOTE: JDBC drivers must be uploaded to Kapow using the Management Console before using any database other than the included Development Database.*

Microsoft Excel

- Kapow can be used to open and extract data from and write data to Excel files.
- To be proficient in using Excel files you should understand how cell referencing works in Excel.
  - For example, **`Sheet2!A:A`** is a reference to all rows of the first column in the second sheet.



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3	11/06/2014 1:00PM-4:00PM EDT	MarkView 8 Solution Administration - Level 1	English	Online	
4	11/04/2014 1:00PM-4:00PM EDT	MarkView 8 AP Advisor Operations & Admin - Level 1	English	Online	
5	11/03/2014-11/07/2014 8:30AM-4:30PM PST	Kofax Capture 10 Training and Certification	English	Irvine, CA	
6	11/03/2014-11/07/2014 8:30AM-4:30PM PST	Kofax Capture 10 Training and Certification	English	Online	
7	11/17/2014-11/21/2014 8:30AM-4:30PM PST	Kofax TotalAgility 7 Essentials Training and Certification	English	Irvine, CA	
8	11/10/2014-11/14/2014 8:30AM-4:30PM PST	Kofax Transformation Modules 6 Training & Certification	English	Online	
9	12/01/2014-12/05/2014 8:30AM-4:30PM EST	Kofax Capture 10 Training and Certification	English	Bedford, MA	
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11	11/10/2014-11/14/2014 8:30AM-4:30PM PST	Kofax Transformation Modules 6 Training & Certification	English	Irvine, CA	
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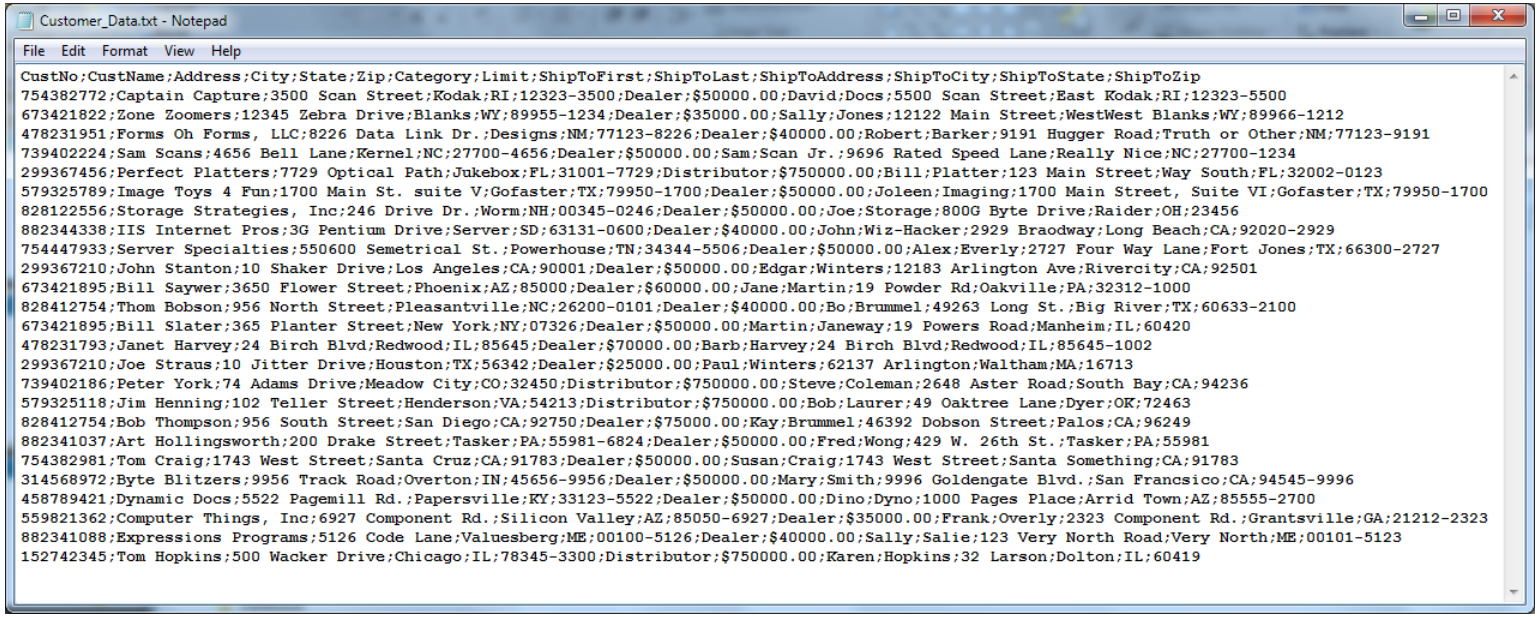
13	12/04/2014 9:00AM-12:00PM EDT	MarkView 8 Solution Administration - Level 1	English	Online	
14	12/02/2014 9:00AM-12:00PM EDT	MarkView 8 AP Advisor Operations & Admin - Level 1	English	Online	
15	12/08/2014-12/11/2014 8:30AM-4:30PM PST	Kofax TotalAgility 7 Design & Configuration - MCC	English	Online	
16	12/15/2014-12/19/2014 8:30AM-4:30PM CST	Kofax Capture 10 Training and Certification	English	Dallas, TX	
17	12/08/2014-12/11/2014 8:30AM-4:30PM PST	Kofax TotalAgility 7 Design & Configuration - MCC	English	Irvine, CA	
18	12/03/2014 9:00AM-12:00PM EDT	MarkView 8 Server Administration - Level 1	English	Online	
19	12/03/2014-12/05/2014 8:30AM-4:30PM PST	Kofax Kapow 9.4 Basic Training	English	Online	
20	12/03/2014-12/05/2014 8:30AM-4:30PM PST	Kofax Kapow 9.4 Basic Training	English	Irvine, CA	

CSV Files

- Comma-separated values or character-separated values files store tabular data in plain-text form.
- Kapow can utilize CSV files as both input data and as output data.
- Native looping capabilities provide an efficient way to parse and extract data from CSV input.



String Concatenation

- String concatenation is the operation of joining two character strings end-to-end.
  - For example, the concatenation of “Kapow” and “Robots” is “KapowRobots”, written in terms of an expression as **`“Kapow” + “Robots”`**.
- Kapow provides mechanisms through expressions and built-in converters that allow you to concatenate strings from retrieved or extracted information.

Regular Expressions

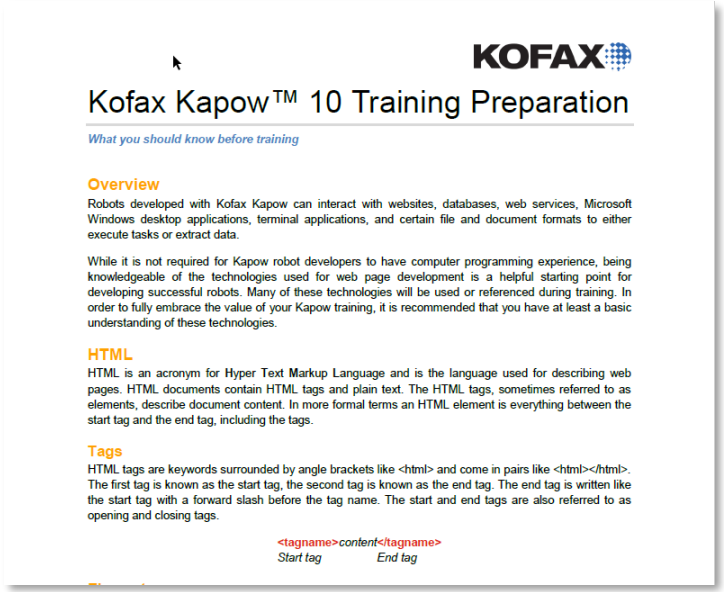
- A Regular expression, also known as a regex, is a sequence of characters that forms a search pattern that is used for pattern matching with strings.
- *Patterns* (in Kapow) utilize regexes for matching data; a powerful tool that can be used when building Kapow Robots. They can provide a more accurate and robust way to find tags and extract data.

Examples:

- `.at` matches any three-character string ending with "at", including "hat", "cat", and "bat".
- `[hc]at` matches "hat" and "cat".
- `[^b]at` matches all strings matched by `.at` except "bat".
- `[^hc]at` matches all strings matched by `.at` other than "hat" and "cat".
- `^[hc]at` matches "hat" and "cat", but only at the beginning of the string or line.
- `[hc]at$` matches "hat" and "cat", but only at the end of the string or line.
- `\[.\]` matches any single character surrounded by "[" and "]" since the brackets are escaped, for example: "[a]" and "[b]".
- `s.*` matches any number of characters preceded by s, for example: "saw" and "seed".

Training Prep Document

- Included in your class resources is a document called “Kapow 10 – Software Training Preparation.pdf.”
- It includes definitions and basic information about the technologies just covered.
- It also includes hyperlinks to free tutorials for areas in which your knowledge or experience might be lacking.



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Kofax Kapow™ 10 Training Preparation

What you should know before training

Overview

Robots developed with Kofax Kapow can interact with websites, databases, web services, Microsoft Windows desktop applications, terminal applications, and certain file and document formats to either execute tasks or extract data.

While it is not required for Kapow robot developers to have computer programming experience, being knowledgeable of the technologies used for web page development is a helpful starting point for developing successful robots. Many of these technologies will be used or referenced during training. In order to fully embrace the value of your Kapow training, it is recommended that you have at least a basic understanding of these technologies.

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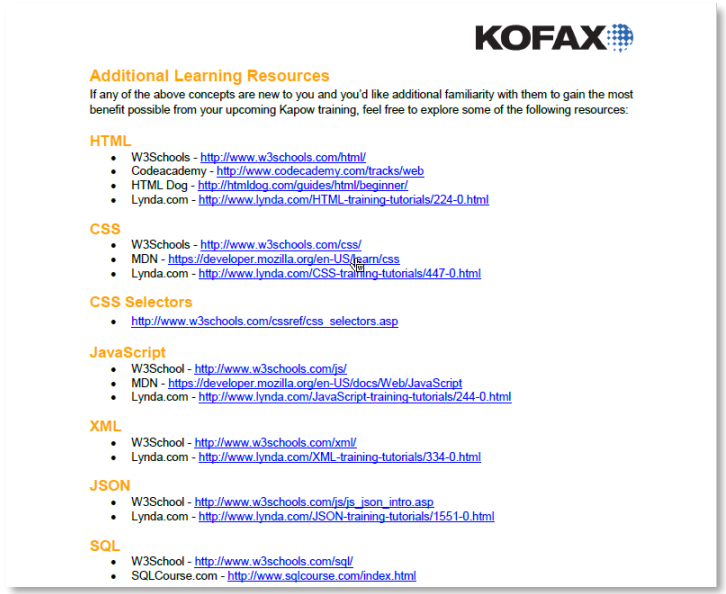

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Additional Learning Resources

If any of the above concepts are new to you and you'd like additional familiarity with them to gain the most benefit possible from your upcoming Kapow training, feel free to explore some of the following resources:

HTML

- W3Schools - http://www.w3schools.com/html/
- Codeacademy - http://www.codecademy.com/tracks/web
- HTML Dog - http://htmldog.com/guides/html/beginner/
- Lynda.com - http://www.lynda.com/HTML-training-tutorials/224-0.html

CSS

- W3Schools - http://www.w3schools.com/css/
- MDN - https://developer.mozilla.org/en-US/docs/Learn/css
- Lynda.com - http://www.lynda.com/CSS-training-tutorials/447-0.html

CSS Selectors

- http://www.w3schools.com/cssref/css_selectors.asp

JavaScript

- W3School - http://www.w3schools.com/js/
- MDN - https://developer.mozilla.org/en-US/docs/Web/JavaScript
- Lynda.com - http://www.lynda.com/JavaScript-training-tutorials/244-0.html

XML

- W3School - http://www.w3schools.com/xml/
- Lynda.com - http://www.lynda.com/XML-training-tutorials/334-0.html

JSON

- W3School - http://www.w3schools.com/js/js_json_intro.asp
- Lynda.com - http://www.lynda.com/JSON-training-tutorials/1551-0.html

SQL

- W3School - http://www.w3schools.com/sql/
- SQLCourse.com - http://www.sqlcourse.com/index.html

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Demonstration and Lab

Document Review