Front End Development Diploma in CSF 2021/22 Semester 2	Week 8 2 Hours
Introduction to AJAX	

Activities

Materials

1. Download the following file from MeL for this practical exercise:
   - Book.xml

References:

- Week 8 Lecture Slide 6
- An Introduction to AJAX for Front-End Designers from

  https://webdesign.tutsplus.com/tutorials/an-introduction-to-ajax-for-front-end-designers--cms-25099

Task 1: Display information from a server using onclick() event

1. Create a new project from Blank Solution template in Visual Studio and name it as **Week8_1_Practical**.
2. Change to the Folder View.
3. Add folders **css**, **js** and **txt** into the project.
4. Add a new HTML page and name it as **ajax**.
5. In the ajax.html file,
   a) Add meta tag for author and your name as content.
   b) Add meta tag for description and “Week 8 Practical – AJAX Demo” as content.
   c) Add the title “AJAX Demo”.
   d) Add the following to the <body> element of ajax.html.

```
<section id="demo">
     <h1>Let AJAX change this text</h1>
     <button type="button" onclick="loadDoc()">Change Content</button>
</section>
```

This creates a button that calls a JS function loadDoc() when the button is clicked.

6. Add a new JavaScript File to the **js** folder and name it as **ajax**.
7. Copy the following **loadDoc()** function from w3schools to **ajax.js**.

```
function loadDoc() {
  var xhttp = new XMLHttpRequest();
  xhttp.onreadystatechange = function() {
    if (this.readyState == 4 && this.status == 200) {
     document.getElementById("demo").innerHTML = this.responseText;
    }
  };
  xhttp.open("GET", "ajax_info.txt", true);
  xhttp.send();
}
```

Refer to https://developer.mozilla.org/en-US/docs/Web/API/XMLHttpRequest/readyState for details of readyState values.

Refer to https://developer.mozilla.org/en-US/docs/Web/HTTP/Status for values of status.

8. Link **ajax.js** to **ajax.html**.
   Reference material to link javascript to html.
   https://www.freecodecamp.org/news/link-javascript-to-html-with-the-src/

   Reference on XMLHttpRequest Object Properties
   https://www.w3schools.com/xml/ajax_xmlhttprequest_create.asp

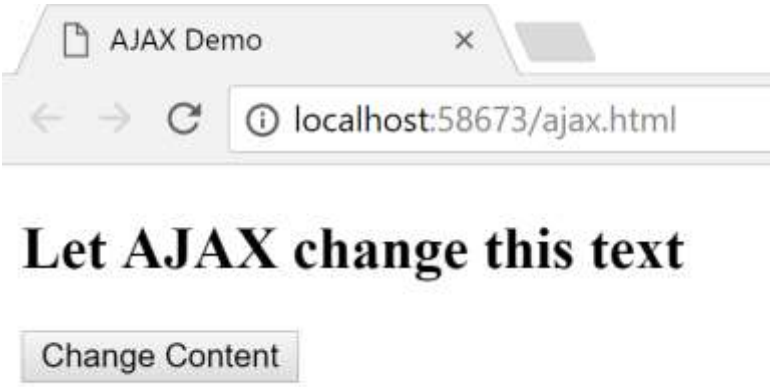
9. Add a new Text File into **txt** folder and name it as **ajax_info**.

10. Copy the following contents to ajax_info.txt.

```
<h1>AJAX</h1>
<p>AJAX is not a programming language.</p>
<p>AJAX is a technique for accessing web servers from a web page.</p>
<p>AJAX stands for Asynchronous JavaScript And XML.</p>

<p></p>
<em>Source: https://www.w3schools.com/xml/ajax_intro.asp</em>
```

Notice that you can add styling to the text file.

11. Save the files and view the ajax.html file in browser. You will see the display as follows.



12. When you click the button “Change Content”, contents from ajax_info.txt will replace the contents of the web page as shown below.

Add a stylesheet to style the following elements:

- A font for the body
- h1 – font size and colour
- p – a different font size and colour
- em – a different font colour

13. Save the files and view the HTML page in the Browser.

14. Zipped the entire **Week8_1_Practical** folder and submit in MEL submission.

(Zip filename format as instructed in ppt slides)

Task 2: Display information from an external server

In this task you will follow the tutorial from:

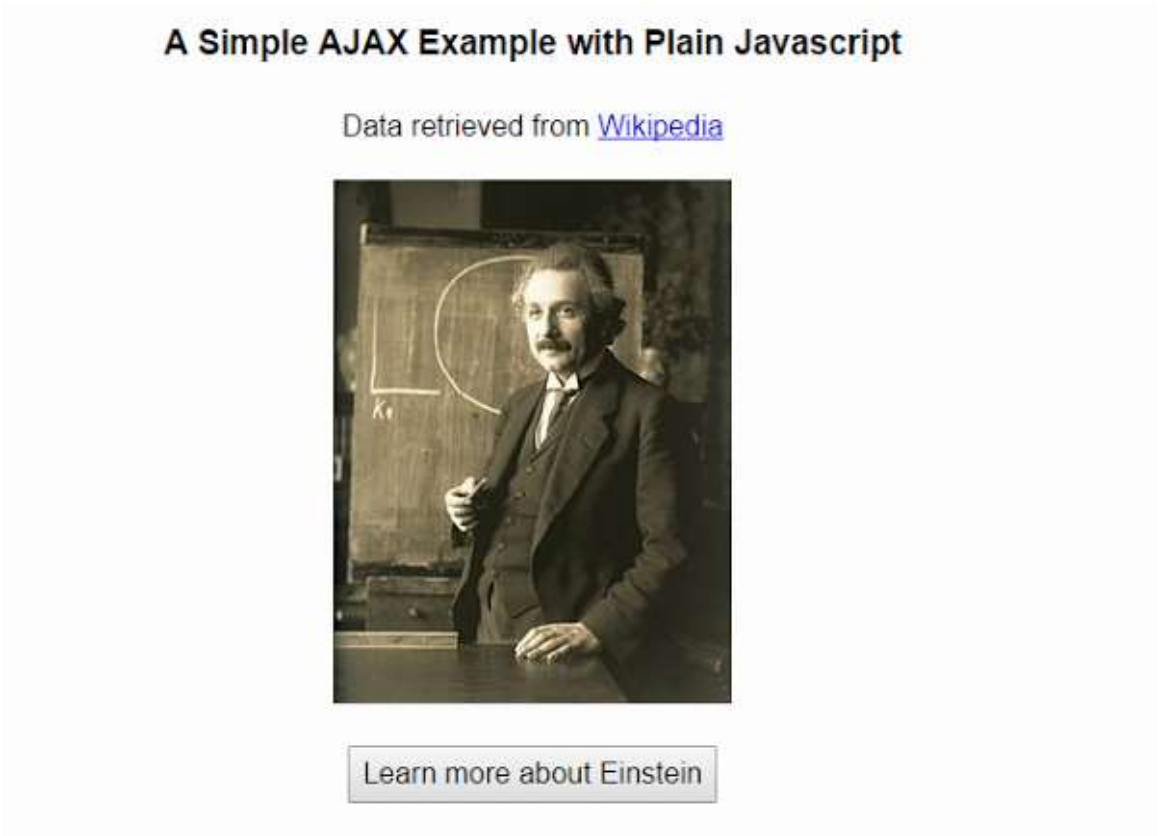
https://webdesign.tutsplus.com/tutorials/an-example-of-ajax-with-vanilla-javascript--cms-25763.

1. Create a new project from Blank Solution template in Visual Studio and name it as **Week8_2_Practical**.
2. Add a new HTML page and name it as **index**.
3. In the **index.html** file,
   a. Add meta tag for author and your name as content.
   b. Add meta tag for description and "Week 8 Practical – AJAX with Vanilla JavaScript" as content.
   c. Add the title "AJAX Example with JavaScript".
   d. Copy the HTML code from the **HTML** tab from link above (at the end of the page) into the <body> element of **index.html**.
4. Add a new Style Sheet to the **css** folder and name it as **styles** and copy the contents from **SCSS** tab into this file.

   Remember to click VIEW COMPLETED button to convert SCSS code to CSS before copying**.**
5. Add a new JavaScript File to the **js** folder and name it as **scripts** and copy the JavaScript code from **JS** tab into this file.
6. Link **styles.css** and **scripts.js** to **index.html** as below.

```
<link rel="stylesheet" href="css/styles.css" />
<script src="js/scripts.js" defer></script>
```

7. Save the files and view the HTML file in browser. You should see the web page as in the next page.



8. Click the button **Learn more about Einstein**.

   When you click the button, the button is hidden and the text in Bio.txt at the link below will appear on the page

https://s3-us-west-2.amazonaws.com/s.cdpn.io/162656/Bio.txt

9. Save the files and view the HTML page in the Browser.
10. Zipped the entire **Week8_2_Practical** folder and submit in MEL submission.

    (Zip filename format as instructed in ppt slides)

Task 3: Reading XML data using jQuery

In this task you will learn to read XML data and display it in a table using jQuery.

1. Create a new project from Blank Solution template in Visual Studio and name it as **Week8_3_Practical**.
2. Add a new HTML Page to the project and name it as **books.html**.
3. Add a new Style Sheet to the **css** folder and name it as **books.css**.
4. Add a new JavaScript file to the **js** folder and name it as **books.js**.
5. Download **books.xml** file from MeL into **txt** folder of the project.
6. Add the code from the Appendix to the respective files. Ensure that you understood the codes and not blindly copy.
7. Save the files.
8. View the books.html in browser. You should see the output as in the Appendix.
9. Zipped the entire **Week8_3_Practical** folder and submit in MEL submission.

   (Zip filename format as instructed in ppt slides)

Note: You can see the output only when you run the HTML file within Visual Studio. Alternatively you can open the HTML file in Microsoft Edge.

Task 4: jQuery Slide Show

1. Create a new project from Blank Solution template in Visual Studio and name it as **Week8_4_Practical**.
2. Add a new HTML Page to the project and name it as **jQuerySlideshow.html**.
3. Add the following to the <head> element.

```
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>

<script>
	function fadeImage(I) {
		var Image = '#' + I; //String concatenation
		$(Image).fadeIn();
		$(Image).fadeOut(3000, function () { fadeImage((I == 1) ? 3 : I - 1); });
	}
</script>
```

4. Add the following to the <body> element.

```
<body onload="fadeImage(3);">
	<img id="1" src="images/1.jpg"/>
	<img id="2" src="images/2.jpg"/>
	<img id="3" src="images/3.jpg"/>
</body>
```

5. Add 3 images from Week 7 Practical exercise to the images folder of the project and rename them as 1, 2 and 3.
6. Add styling for the image to be positioned at top left corner with absolute positioning with suitable width and height.

7. Save the file and View in Browser.

   You'll notice the image fades and the next image appears in 3 seconds. You may play with the timing by changing the value.

8. Add another 2 images to the images folder and modify the HTML file to display 5 images.
9. Save the file and View in Browser.

10. Zipped the entire **Week8_4_Practical** folder and submit in MEL submission.

    (Zip filename format as instructed in ppt slides)

== End of Worksheet ==

Appendix

books.html

```
<!DOCTYPE html>

<html lang="en" xmlns="http://www.w3.org/1999/xhtml">
<head>
    <meta charset="utf-8" />
    <title>Reading XML Data Using jQuery</title>
    <script src="http://ajax.aspnetcdn.com/ajax/jQuery/jquery-
  3.2.1.js" type="text/javascript"></script>
    <script type="text/javascript" src="js/books.js"></script>
    <link rel="stylesheet" href="css/books.css" />
</head>
<body>
    <input type="button" id="btn" value="Generate table" onclick="generateTable()">
    <div id="content"></div>
</body>
</html>
```

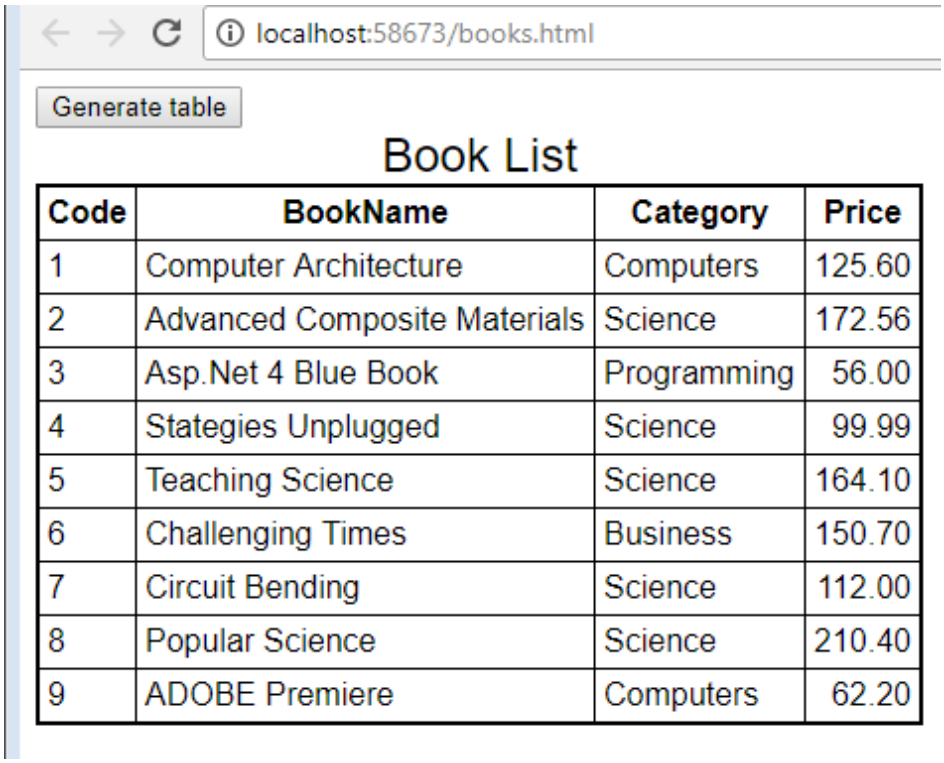
books.css

```
table {
    font-family: Arial;
    border: solid 2px;
    border-collapse: collapse;
}

th, td {
    border: solid 1px;
    padding: 4px;
}

caption{
    font-size: 1.5em;
}
```

books.js

```
// JavaScript source code
function generateTable() {
    $(document).ready(function () {
        $.get('txt/books.xml', function(d) {
            var data = "";
            //Defining table header row
            var startTag = "<table><caption>Book List</caption><tr><th>Code</th><t
  h>BookName</th><th>Category</th><th>Price</th></tr>";
            var endTag = "</table>";
            //Extracting from XML file into the table
            $(d).find('List').each(function() {
                var $url = $(this);
                var Code = $url.find('Code').text();
                var BookName = $url.find('BookName').text();
                var Category = $url.find('Category').text();
                var Price = $url.find('Price').text();
                data += '<tr><td>' + Code + '</td>';
                data += '<td>' + BookName + '</td>';
                data += '<td>' + Category + '</td>';
                data += '<td  style=\"text-align: right\">' + Price + '</td></tr>';
            })
            // Writing to the HTML page
            $("#content").html(startTag + data + endTag);
            ;
        });
    });
}
```

Output



Code	BookName	Category	Price
1	Computer Architecture	Computers	125.60
2	Advanced Composite Materials	Science	172.56
3	Asp.Net 4 Blue Book	Programming	56.00
4	Stategies Unplugged	Science	99.99
5	Teaching Science	Science	164.10
6	Challenging Times	Business	150.70
7	Circuit Bending	Science	112.00
8	Popular Science	Science	210.40
9	ADOBE Premiere	Computers	62.20