**Class Exercise #6 – Part C – JavaScript**

75 points

**NOTE:** The Youtube videos for this exercise will show Class Exercise #7 on Youtube.

Instruction

1. Similar instruction to past Class Exercises instructions.

2. Please use MS Windows 10 Snipping Tool to take screen shot of the following Tasks, **screen shot of the web browser not the HTML code from the video, make sure it is legible and readable screen shot.**

2. Please put your full name in the header.

3. Please do not modify this document to another format, keep as MS Word with .docx.

4. Submit this document to eCampus > Submit Your Assignment Here > Class Exercise #6 Submit Here. Refer to the syllabi for due date.

5. In this assignment you will create the following html documents:

* Task A – TaskA.html
* Task B – TaskB.html, TaskB1.html
* Task C – TaskC.html
* Flowers.html

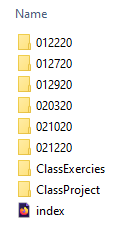
6. In regards to your index.html page, **link the index page to the all webpages in step #5 above**, like you did for Class Exercise #1, #2, etc. the index.html to basic.html and link back from basic.html to index.html.

I shouldn’t use the back or forward-arrow buttons for navigation.

7. Please place all web pages under the Assignment column in your main index page, provide description to each under the Description column and include the date when you did this, when you link from your index page to these webpages and back to index.html, post your Class Exercise assignment, link it from your index.html page, using FileZilla FTP account information, to your web directory. Please check on the web server to make sure all links are not broken.

8. File Structure – Please organize you file structure appropriately; with only one index.html file at the root of your directory, with several sub directories (022320, 023020, etc.), ClassExercises, ClassProject sub directories, and only one index.html file at this time.

Like this:



**NOTE:** flex or regular semester, please do not create sub directories of dates, but put everything inside ClassEx4 sub directory. These directories name will vary from users.

**NOTE**: Your local directory should mirror the same file structure on the FTP web server.

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**JavaScript**

**Introduction**:

The intention of this exercise is to prepare for ITSE 1311 JavaScript for Web, a course that I teach, much more in detail of JavaScript. Just a few comments:

* JavaScript is the programming language of HTML and the Web, and much more.
* JavaScript is easy to learn; this exercise will teach you JavaScript from basic skill.

**Why Study JavaScript?**

JavaScript is one of the **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 behaviour of web pages

JavaScript is one of the three “pillars” of web development.

Web pages are not the only place where JavaScript is used. Many desktop and server programs use JavaScript. Node.js is the best known. Some databases, like MongoDB and CouchDB, also use JavaScript as their programming language for OOP.

**Did You Know?**

JavaScript and [Java](https://www.w3schools.com/java/default.asp) are completely different languages, both in concept and design.

JavaScript was invented by Brendan Eich in 1995, and became an ECMA standard in 1997.  
ECMA-262 is the official name of the standard. ECMAScript is the official name of the language.

ITSE 1311 has more about the different JavaScript versions in the [JS Versions](https://www.w3schools.com/js/js_versions.asp).

**Learning Speed**

In this exercise or the ITSE 1311 JavaScript for Web, the learning speed is your choice. This is an introduction course.

If you are struggling, take a break, or reread the material.

**Always** make sure you understand **all** the codes. If you have questions, please ask.

**JavaScript References**

The link below is a reference for JavaScript, including all HTML and browser objects.

The reference contains examples for all properties, methods and events, and is continuously updated according to the latest web standards.

<https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference>

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**Task A: JavaScript Can Change HTML Content**

One of many JavaScript HTML methods is getElementById(). Please bare with me with this technical jargon.

A **method** is a [function](https://developer.mozilla.org/en-US/docs/Glossary/function) which is a [property](https://developer.mozilla.org/en-US/docs/Glossary/property) of an [object](https://developer.mozilla.org/en-US/docs/Glossary/object). There are two kind of methods: *Instance Methods* which are built-in tasks performed by an object instance, or [Static Methods](https://developer.mozilla.org/en-US/docs/Glossary/static_method) which are tasks that are called directly on an object constructor.

Soon, you will understand the above definition, for now, please read and accept this method definition. The hardest part of teaching and learning programming is because it’s so abstract. Most of our discussion are concepts with programming vocabulary.

Task A uses the method to "find" an HTML element (with id="demo") and changes the element content (innerHTML) to "Hello JavaScript":

**Task A: JavaScript Can Change HTML Content**

Create TaskA.html file for all hands-on code.

Watch these hands-on videos:

(NOTE: The Youtube videos will show Class Exercise #7, understand this is Class Exercise #6)

Class Exercise #4 - Task A - part 1 - <https://www.youtube.com/watch?v=bHzWflhM_3w>

Class Exercise #4 - Task A - part 2 - <https://www.youtube.com/watch?v=5tJCzmDd0Dg>

Class Exercise #4 - Task A - part 3 - <https://www.youtube.com/watch?v=UMgTPTXIaRY>

Class Exercise #4 - Task A - part 4 - <https://www.youtube.com/watch?v=D7ptlW2eusw>

Class Exercise #4 - Task A - part 5 - <https://www.youtube.com/watch?v=vuuTQiEzCaY>

1. Use the Windows Snipping Tool and take the screen shot your output of your web browser not the HTML code, copy/paste below:
2. Double quotes “Hello JavaScript!” or Single quotes ‘Hello JavaScript’

(insert screen shot below) - take screen shot of before and after you click the “Click Me” button.

Graphical user interface, text

Description automatically generated with medium confidence

A picture containing text

Description automatically generated

1. JavaScript can change HTML Attribute values (The Light Bulb). Please use the asset files I provide for you with document. (insert screen shot below) – take screen shot of off and on state of the light bulb.

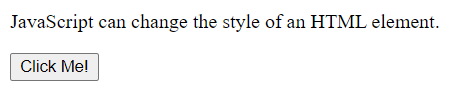
Diagram, text

Description automatically generated

Diagram, text

Description automatically generated

1. JavaScript can change HTML Styles(CSS) - Changing the style of an HTML element, is a variant of changing an HTML attribute: (insert screen shot below)



A picture containing text

Description automatically generated

1. JavaScript can hide HTML Elements – hiding HTML elements can be done by changing the display style: (insert screen shot below)

Text

Description automatically generated with low confidence

Graphical user interface, text, application

Description automatically generated

1. JavaScript Can Show HTML Elements - showing hidden HTML elements can also be done by changing the display style: (insert screen shot below)

Graphical user interface, text

Description automatically generated with medium confidence

Graphical user interface, text, application

Description automatically generated

**Task B: JavaScript Where To: Head, Body and External File**

Create a TaskB.html file for Task B.

In HTML, JavaScript code must be inserted between <script> and </script> tags.

Watch these hands-on videos:

(NOTE: The Youtube videos will show Class Exercise #7)

Class Exercise 7 - Task B - part 1 – <https://www.youtube.com/watch?v=l745A18Wtpo>

Class Exercise 7 - Task B - part 2 - <https://www.youtube.com/watch?v=PxLlKXMiq9k>

Class Exercise 7 - Task B - part 3 - <https://www.youtube.com/watch?v=0Eo60Bihxj4>

1. Use the Windows Snipping Tool and take the screen shot your output, copy/paste below:
2. The <script> Tag

NOTE: Old JavaScript examples may use a type attribute: <script type="text/javascript">.  
The type attribute is not required. JavaScript is the default scripting language in HTML. (insert screen shot below)

Text

Description automatically generated

1. JavaScript Functions and Events

A JavaScript function is a block of JavaScript code, that can be executed when "called" for.

For example, a function can be called when an event occurs, like when the user clicks a button.

JavaScript in <head> or <body>

* 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.

JavaScript in <head>

* In this exercise, a JavaScript function is placed in the <head> section of an HTML page.
* The function is invoked (called) when a button is clicked:

(insert screen shot below)

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

JavaScript in <body>

* In this code, a JavaScript function is placed in the <body> section of an HTML page.
* The function is invoked (called) when a button is clicked:

(insert screen shot below)

Graphical user interface, text

Description automatically generated

Text

Description automatically generated

1. External JavaScript file - 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.

To use an external script, put the name of the script file in the src (source) attribute of a <script> tag: <script src="<http://www.mmlab2.rlc.dcccd.edu/docs/myScript.js>"></script>

External scripts cannot contain <script> tags.

(insert screen shot below)

Graphical user interface, text, application, chat or text message

Description automatically generated

Graphical user interface, text, application

Description automatically generated

1. External JavaScript Advantages

* Placing scripts in external files has some advantages:
  + It separates HTML and code
  + It makes HTML and JavaScript easier to read and maintain
  + Cached JavaScript files can speed up page loads
* To add several script files to one page - use several script tags:

External References

1. This code uses a full URL to link to a script:

I have stored a JavaScript file on our webserver for the following tasks, the URL address is:

<http://www.mmlab2.rlc.dcccd.edu/docs/msg.js>

<http://www.mmlab2.rlc.dcccd.edu/docs/myScript.js>

**Revised:**

We can create external JavaScript file and embed it in many html page.

It provides code re usability because single JavaScript file can be used in several html pages.

An external JavaScript file must be saved by .js extension. It is recommended to embed all JavaScript files into a single file. It increases the speed of the webpage.

1. Inside the ClassEx4 sub folder, create this TaskB1.html file with the following code:

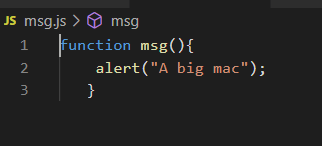
Text

Description automatically generated

**NOTE:** please disregard line 3 in the above screen shot. The domain source to the external is incorrect. The correct source should be:

1. src = “<http://www.mmlab2.rlc.dcccd.edu/docs/msg.js>”
2. Please use this external file link:   
     
   <http://www.mmlab2.rlc.dcccd.edu/docs/msg.js>

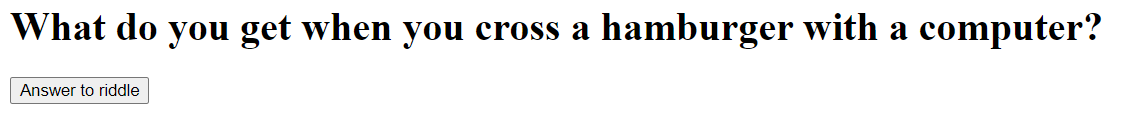
Which I have this JavaScript file on the server with the following code:



You do not need to type this code.

1. View the TaskB1.html file in Live Server and upload to web server.

(insert screen shot below)



A picture containing graphical user interface

Description automatically generated

**Task C**: **JavaScript Output or Display Possibilities**

Create a TaskC.html file for Task C exercises.

Watch these hands-on videos:

Class Exercise 7 – Part C part 1: <https://www.youtube.com/watch?v=gWArmvaLqzY>

Class Exercise 7 – Part C part 2: <https://www.youtube.com/watch?v=dzNmU2nlRrY>

JavaScript can "display" data in different ways:

* Writing into an HTML element, using innerHTML.
* Writing into the HTML output using document.write().
* Writing into an alert box, using window.alert().
* Writing a console.log(“Hello World”);

1. Using innerHTML

To access an HTML element, JavaScript can use the document.getElementById(id) method.

The id attribute defines the HTML element. The innerHTML property defines the HTML content:

(insert screen shot below)

Text

Description automatically generated

Changing the innerHTML property of an HTML element is a common way to display data in HTML.

1. Using document.write()

For testing purposes, it is convenient to use document.write():

(insert screen shot below)

A picture containing company name

Description automatically generated

1. Using document.write() after an HTML document is loaded, will **delete all existing HTML**:

(insert screen shot below)

Text

Description automatically generated

Background pattern

Description automatically generated with low confidence

The document.write() method should only be used for testing.

1. Using window.alert()

You can use an alert box to display data:

(insert screen shot below)

Graphical user interface, application, Word

Description automatically generated

1. Using the console.log(“Hello World!);

You will need to go to <https://nodejs.org/en/download/> , download and install the nodejs, watch the part 2 video.

Text

Description automatically generated

Text

Description automatically generated

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**JavaScript Programming Exercise**:

In addition to three TaskA.html, TaskB.html, TaskC.html, you will need to recreate **Flowers.html** for this exercise.

From Task A, recalled the light bulb exercise, using JavaScript, I would like for you to use the two flower asset files (RedWhiteTeaRose.jpg and WhiteRanuculus.jpg), create two buttons, these two buttons would toggle the image to swap out. Use the WhiteRanuculus.jpg as a default file, then create a button to swap out the WhiteRanuculus.jpg to RedWhiteTeaRose.jpg.

(insert screen shot below) – take screen shot of the before and after state of the flower swap.

A picture containing grass, different

Description automatically generated

A close-up of a flower

Description automatically generated with medium confidence

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**RECAP**:

After you watch all segments and complete all Tasks A, B, C and JavaScript Programming Exercise (Flowers.html). There should be total of **four** HTML files with the **four** graphic files:

* TaskA.html
* TaskB.html
* TaskC.html
* Flowers.html
* pic\_bulboff.gif
* pic\_bulbon.gif
* RedWhiteTeaRose.jpg
* WhiteRanuculus.jpg

These eight files need to be in folder with today’s date, for example, 040120.

Your last task for task is to update your current index web page with the content we currently complete for this week, please refer to the course syllabi schedule to assistance. You need to include the follow links to the index.html.

* Link to Class Exercise #6 from your index page
* Make sure all links work before I grade, points will be deducted for broken links.
* All webpage from this assignment must be link to and from the index.html.
* For the rest of the semester, we will be using Visual Studio Code, please do not use Notepad or any other Text Editor for this course.

**Please copy and paste your webpage URL in browser below:**

**(NOTE: Please do not copy and paste your local drive path, recalled that I provided this URL with your FTP account information)**

**https://www.mmlab2.rlc.dcccd.edu/imed1416-83840/web8520/**

**And**

**Please upload this document to eCampus > Submit All Assignment Here > Class Exercise #6 Submit Here** before due date!

Thanks, Dan.