

Working with HTML, CSS, & JavaScript

HTML, CSS and JavaScript are the languages of the World Wide Web. These languages are used to create webpages that can be readily shared across the Internet. HTML is the language that adds structure and content to your webpage. CSS adds style, layout, and animations to webpages. And JavaScript adds dynamic & interactive behavior to webpages.

Exercise #1: Adding Structure & Content

This table lists HTML elements used in this exercise.

Element type	Start tag	End tag	Purpose
Section	<section>	</section>	adds a section container to your webpage
Paragraph	<p>	</p>	adds text
Text Area	<textarea>	</textarea>	adds a text input area
Image			adds an image
Input	<input>		adds a button, checkbox, or radio button
Iframe	<iframe>	</iframe>	adds video & webpages to your webpage

The syntax for HTML elements follow this pattern:

<start tag *attributes* **>** content **<end tag>**

- start tag: marks the start of an element;
- attributes: identify or modify the element; e.g. id, width, height are attributes. All attributes are located within the start tag;
- content: the data to be displayed in the webpage;
- end tag: marks the end of an element.

The elements in the above table have the following syntax:

<section *attributes* **>** content **</section>**

<p *attributes* **>** content **</p>**

However, there are some exceptions to the standard syntax:

<img *attributes* **>** -- no content or end tag

<textarea *attributes* **>** **</textarea>** -- no content

<input *attributes* **>** -- no content or end tag

<iframe *attributes* **>** **</iframe>** -- no content

Task #1: Add text to a webpage

In this task, you will use the **paragraph** element to add text to the section headings in your webpage. The **paragraph** element has the following syntax:

```
<p attributes > content </p>
```

Refer to http://www.w3schools.com/html/html_paragraphs.asp for more help with the **paragraph** element.

Follow these steps to add text to the section headings in your webpage:

1. **Remember:** the content must be placed between the start and end tags of the element, e.g. `<p>my content</p>`
2. Open the file **basic.html** in your **day1** folder.
3. Find the element with the start tag `<p id="para1">` and add the following content:
Slideshow...
4. Find the element with the start tag `<p id="para2">` and add the following content:
Image Library...
5. Find the element with the start tag `<p id="para3">` and add the following content:
3D Simulation...
6. Find the element with the start tag `<p id="para4">` and add the following content:
Another 3D Simulation...
7. Find the element with the start tag `<p id="para5">` and add the following content:
Video Library...
8. Save your changes and refresh the webpage
9. Verify that the new content you just added is visible the webpage.
10. When you've completed this task, continue on with the next task.

Task #2: Add images to a webpage

In this task, you will use the **image** element to add images to sections 1 and 2 in your webpage. The **image** element has the following syntax:

```
<img attributes >
```

Refer to http://www.w3schools.com/tags/tag_img.asp for more help with the **image** element.

Follow these steps to add images to sections 1 and 2 in your webpage:

1. **Remember:** attributes must be placed within the start tag of the element, e.g. ``
2. Find the element with the start tag `<section id="sect1">` and add four image elements to its content. Add the following **attributes** to the first image:

```
src="img/surf1.jpg" alt="image #1"
```

Add the following **attributes** to the second image:

```
src="img/surf2.jpg" alt="image #2"
```

Add the following **attributes** to the third image:

```
src="img/surf3.jpg" alt="image #3"
```

Add the following **attributes** to the fourth image:

```
src="img/NeverEndingWave.gif" alt="image #4"
```

3. Find the element with the start tag `<section id="sect2">` and add four image elements to its content. Add the following **attributes** to the first image:

```
src="img/surf1.jpg" alt="image #1"
```

Add the following **attributes** to the second image:

```
src="img/surf2.jpg" alt="image #2"
```

Add the following **attributes** to the third image:

```
src="img/surf3.jpg" alt="image #3"
```

Add the following **attributes** to the fourth image:

```
src="img/NeverEndingWave.gif" alt="image #4"
```

4. Save your changes and refresh the webpage
5. Verify that the new **images** are visible in the webpage.
6. When you've completed this task, continue on with the next task.

Task #3: Add video to a webpage

In this task, you will use the **iframe** element to add a video to section 5 of your webpage. The **iframe** element has the following syntax:

```
<iframe attributes > </iframe>
```

Refer to http://www.w3schools.com/tags/tag_img.asp for more help with using the **iframe** element.

Follow these steps to add a video to section 5 of your webpage:

1. **Remember:** attributes must be placed within the start tag of the element, e.g. `<iframe attributes></iframe>`
2. Find the element with the start tag `<section id="sect5">` and **add an *iframe* element** to its content. Add the following **attributes** to the **iframe** element:

`src="https://www.youtube.com/embed/VlrBecB746c?rel=0" frameborder="0" allowfullscreen`

3. Save your changes and refresh the webpage
4. Verify that a **video** has been added to the webpage
5. When you've completed this task, continue on with the next Exercise.

Exercise #2: Working with Style & Animation

Cascading Style Sheets (CSS) are used to add styling & basic animation capabilities to webpages. This exercise will help you to incorporate these features into your webpage.

This table lists HTML elements used in this exercise.

Element	Start tag	End tag	Purpose
Head	<code><head></code>	<code></head></code>	contains links to CSS & JavaScript files, etc.
Title	<code><title></code>	<code></title></code>	adds a title to your webpage
Link	<code><link></code>		links to an external CSS file
Script	<code><script></code>	<code></script></code>	links to an external JavaScript file

The syntax for these element are:

```

<head>content</head>          -- no attributes
<script attributes></script>   -- no content
<link attributes>              -- no content or end tag
  
```

Task #1: Add basic styling rules to a webpage

In this task, you will use the **link** element to include CSS styling rules into your webpage. The styling rules are located in an external CSS file and the **link** element tells the web browser where to find the CSS file. The **link** element has the following syntax:

```
<link attributes>
```

Refer to http://www.w3schools.com/tags/tag_link.asp for more help with using the **link** element.

Follow these steps to **link** your webpage to an external CSS file:

1. **Remember:** attributes must be placed within the start tag of the element, e.g. `<link attributes>`
2. Open the file **basic.html** in your **day1** folder.
3. Find the **head** element at the top of the HTML file and **add a link element** to its content.
4. Add the following **attributes** to the **link** element:
`rel="stylesheet" type="text/css" href="css/basic.css"`
5. Save your changes and refresh the webpage.
5. When you've completed this task, continue on with the next task.

Task #2: Modify CSS style rules for your webpage

CSS style rules define the appearance (i.e. size, color, font, shadow, etc.) of elements in your webpage. A CSS style rule has the following syntax:

```
selector {  
    property: value;  
    property: value;  
    property: value;  
}
```

The following CSS style rule applies to **all paragraph** elements in your webpage. This styling rule sets the **paragraph** text color to purple, and the background color to gold:

```
p {  
    color: purple;  
    background-color: gold;  
}
```

The next CSS style rule applies to those elements with the attribute **class="section_title"**:

```
.section_title {  
    color: white;  
    background-color: blue;  
}
```

The next CSS style rule applies to only the element with **id="para1"**:

```
#para1 {  
    color: black;  
    background-color: red;  
}
```

Refer to <http://www.w3schools.com/cssref/default.asp> for more help with CSS style rules.

Refer to http://www.w3schools.com/cssref/css_colornames.asp for a list of CSS **color names**.

Refer to http://www.w3schools.com/cssref/css_websafe_fonts.asp for a list of Websafe **fonts**.

Follow these steps to make changes to your basic styling rules:

1. Open the file **basic.css** in your **day1/css** folder.
2. Find the CSS style rule for the **body** element.
3. Add the following properties & value to the CSS style rule:

background-image: url(http://maui.hawaii.edu/wp-content/uploads/2012/10/UHMC-Campus.jpg);

background-size: 100% auto;

background-repeat: no-repeat;

4. Save changes to **basic.css** file and refresh your webpage.
5. Verify that your webpage displays the following feature:
 - a background image of UH Maui College
6. Experiment with the following CSS style rules in **basic.css**. Make the following changes,
 - in the style rule for the **#title** element, change the following properties:
color: gold;
background-color: black;
 - in the style rule for the **section_title** class, change the following properties:
font-family: "Comic Sans MS", cursive, sans-serif;
font-size: 2em;
text-shadow: 10px 10px 15px white;
7. Save your changes, then refresh your webpage to see the changes to your webpage.
8. Reset CSS styles back to their original values:
 - in the style rule for the **#title** element, change the following properties:
color: cornsilk;
background-color: transparent;
 - in the style rule for the **section_title** class, change the following properties:
font-size: 1.5em;
text-shadow: 5px 5px 10px dimgrey;
9. When you've completed this task, continue on with the next task.

Task #3: Add Google Fonts to a webpage

In this task, you will use the Google Fonts website to create a collection of fonts and then add the collection to your webpage using a **link** element.

Follow these steps to use Google Fonts in your webpage:

1. Go to the Google Fonts website: <https://www.google.com/fonts>
2. Select the **Poster** tab.
3. Scroll down the page until you find the **Indie Flower** font. Add this font to your collection.
4. Continue down the page until you find the **Lobster** font. Add this font to your collection.
5. Click the **Review** button at the bottom of the page.
6. Verify that you see the Indie Flower and the Lobster fonts in your collection.
7. Click the **Use** button at the bottom of the page.
8. Scroll down the page until you find **3. Add this code to your website**
9. Copy the **link** element and paste it to the content of the **head** element in **basic.html**.
10. In the **link href** attribute, change **http** to **https**
11. Scroll down the page until you find **4. Integrate the fonts into your CSS**
12. Copy **font-family: 'Lobster', cursive;** and paste it to the **#title** rule in **basic.css**.
13. Copy **font-family: 'Indie Flower', cursive;** and paste it to the **section_title** class.
14. Remove **font-family: "Comic Sans MS", cursive, sans-serif;** from the **section_title** class.
15. Save your changes and refresh the webpage.
16. When you've completed this task, continue on with the next task.

Task #3: Add animation to a webpage

In this task, you will use the **link** element to add a CSS animation file to your webpage. The **link** element has the following syntax:

```
<link attributes>
```

Refer to http://www.w3schools.com/tags/tag_link.asp for more help with using the **link** element.

Follow these steps to **link** your webpage to a CSS file that activates animation features:

1. Open the file **basic.html** in your **day1** folder.
2. Find the **head** element and **add a link element** to its content.
3. Add the following **attributes** to the **link** element:

```
rel="stylesheet" type="text/css" href="css/animation.css"
```

4. Save changes and refresh the webpage
5. Verify that your webpage exhibits the following behavior:
 - title text is moving from left to right across the top of your webpage.
 - image resizing enabled in Image Library section
 - video resizing enabled in Video Library section

Task #4: Add a title to a webpage

In this task, you will use the **title** element to add a title to your webpage. The **title** element has the following syntax:

```
<title>content</title>
```

Follow these steps to add a *title* to your webpage:

6. Open the file **basic.html** in your **day1** folder.
7. Find the **head** element and **add a title element** to its content.
8. Add the following content to the **title** element:

My Webpage

9. Save changes and refresh the webpage
10. Verify that the title display in your webpage's browser tab.

Task #5: Modify the animation rules for your webpage

Follow these steps to make changes to your animation rules:

1. Open the file **animation.css** in your **day1/css** folder.
2. Experiment with making changes to the following CSS rules:
 - **#sect2 img**
change **transition** to transform 5s
 - **#sect5 iframe:hover**
change **height** to 400px
3. Save your changes to the **animation.css** file and then refresh your webpage to see how your changes affect the animations.
4. Reset CSS rules back to original settings.:
 - **#sect2 img**
change **transition** to transform 1s
 - **#sect5 iframe:hover**
change **height** to 200px

5. Save your changes to the **animation.css** file and then refresh your webpage to see how your changes affect the animations.

Exercise #3: Adding Complex Behavior

This table lists HTML elements used in this exercise.

Element	Start tag	End tag	Purpose
Script	<script>	</script>	links to an external JavaScript file

Add JavaScript to a webpage

In this task, you will use the **script** element to add a Slideshow to your webpage. The **script** element has the following syntax:

```
<script attributes></script>
```

Refer to http://www.w3schools.com/tags/tag_script.asp for help with using the **script** element.

Follow these steps to add a Slideshow to your webpage:

1. Open the file **basic.html** in your **day1** folder.
2. Find the **head** element and add a **script** element to its content.
3. The **script** element should contain the following **attributes**:

```
type="text/javascript" src="js/basic.js"
```
4. Save your changes and refresh the webpage
5. Verify that your webpage exhibits the following behavior:
 - images changing in Slideshow section

Exercise #4: Embed External Webpages

This table lists HTML elements used in this exercise.

Element type	Start tag	End tag	Purpose
Iframe	<iframe>	</iframe>	adds video & webpages to your webpage

The **iframe** element can be used to embed external webpages into your webpage. The **iframe** element has the following syntax:

```
<iframe attributes></iframe>
```

Follow these steps to add two external webpages into your webpage:

1. Find the element with start tag `<section id="sect3">` and add an **iframe** element to its content.

The **iframe** should contain the following *attributes*:

```
src="https://googledrive.com/host/0B0wBpavttwoLUF11WDIEMVhOMIU/examples/webgl_animation_cloth.html" frameborder="0" allowfullscreen
```

2. Find the element with start tag `<section id="sect4">` and add an **iframe** element to its content.

The **iframe** should contain the following *attributes*:

```
src="https://googledrive.com/host/0B0wBpavttwoLUF11WDIEMVhOMIU/examples/webgl_buffergeometry_lines.html" frameborder="0" allowfullscreen
```

3. Save your changes and refresh the webpage.
4. Verify that the two **3D simulation webpages** have been added to the webpage.

Exercise #5: Make It Your Own

1. Use your own content to customize your webpage.
 - change text heading for each section
 - add/change images in sections #1 and #2
 - replace the video with your own
 - replace the embedded websites with your own
2. You can use your own images or use Google Images.
3. You can use video from YouTube. See instructor for help.
4. You can use websites from anywhere on the Web.

All Content Must Be Rated G or PG, suitable for viewing at the Ho'ike

Exercise #6: Continue Experimenting with CSS properties

Continue working with CSS properties by following the steps in Exercise #2. Make changes to other properties and see the effect your changes have on the **Style & Layout** of your webpage.

Refer to the following websites for detailed help with using CSS properties.

Refer to <http://www.w3schools.com/cssref/default.asp> for more help with CSS rules.

Refer to http://www.w3schools.com/cssref/css_colornames.asp for a list of CSS color names.