

## Lab 2: HTML & CSS

### **OBJECTIVES**

This lab introduces the technology basics to build a web mapping application, which are HTML and CSS. You will learn how to use HTML to structure your web pages, and CSS allows you to add the “cool stuff” to design the lay-out of your site. The core tasks in this lab are:

- Walk through the basic and advanced usage of HTML.
- Walk through the basics and advanced usage of CSS.
- Design and Develop a simple web page with HTML and CSS.

Note: You have **2 weeks** (including Chinese New Year Holidays) to finish this lab. We divided this lab into 2 parts (2 tasks and 1 assignment). You need to finish all the tasks and assignment by the due date.

**Important:** Assignment 2, 3, and 4 are consecutive work, please be remembered to **SAVE** your files.

### **TASK 1. Learn HTML**

Go through the following steps to structure a web page using HTML that talks about brown bears. Run the project for each step bulleted. Remember to **SAVE** every step of your work in time.

#### (1). Preparation for HTML.

- Always add `<!DOCTYPE html>` declaration as the very first line of code at the top of ***index.html*** file.
- Add the opening `<html>` and closing `</html>` tags below the `<!DOCTYPE html>` tag.

#### (2). Body and headings.

- Add opening `<body>` and closing `</body>` tags right below `<html>` tag.
- Add the following headings in order: `<h1>` heading that says ***The Brown Bear***, `<h2>` heading that says ***About Brown Bears***, `<h3>` heading that says ***Species***, `<h3>` heading that says ***Features***, `<h2>` that says ***Habitat***, `<h3>` that says ***Countries with Large Brown Bear Populations***, `<h3>` that says ***Countries with Small Brown Bear Populations***, and `<h2>` that says ***Media***.
- Below the `<h1>` heading that says ***The Brown Bear***, add an opening `<div>` tag. Place the closing `</div>` tag after the `<h3>` element that says ***Features***. Add an *id* attribute with the value ***"introduction"*** to this `<div>` tag. Remember to add **indentation** when you nest elements.
- Above the `<h2>` element that says ***Habitat***, add an opening `<div>` tag. Close the `</div>` tag after the `<h3>` element that says ***Countries with Small Brown Bear Populations***. Add an *id* attribute with the value ***"habitat"*** to this `<div>` tag.

- Above the `<h2>` element that says **Media**, add an opening `<div>` tag. Place the closing `</div>` tag right above the closing `</body>` tag. Add an `id` attribute with the value "media" to this `<div>` tag.

(3). Display of text.

- Below the `<h2>` element that says **About Brown Bears**, add `<p>` opening and closing tags, and inside of the tags put the following text. Remember to always add **indentation** when you nest elements inside of `<div>`s for better readability.  
`"The brown bear (Ursus arctos) is native to parts of northern Eurasia and North America. Its conservation status is currently Least Concern. There are many subspecies within the brown bear species, including the Atlas bear and the Himalayan brown bear."`
- Below the `<h3>` element that says **Features**, add a paragraph with the following text:  
`"Brown bears are not always completely brown. Some can be reddish or yellowish. They have very large, curved claws and huge paws. Male brown bears are often 30% larger than female brown bears. They can range from 5 feet to 9 feet from head to toe."`
- Under the `<h3>` element that says: **Countries with Small Brown Bear Populations**, add a paragraph with the following text:  
`"Some countries with smaller brown bear populations include Armenia, Belarus, Bulgaria, China, Finland, France, Greece, India, Japan, Nepal, Poland, Romania, Slovenia, Turkmenistan, and Uzbekistan."`

(4). Styling and formatting of text.

- In the first paragraph that starts "*The brown bear...*", emphasize *Ursus arctos* using the `<em>` tag.
- In the paragraph under **About Brown Bears**, make the words **Least Concern** strong using the `<strong>` tag.
- Add two line breaks (`<br>`) after the sentence that ends with **Least Concern**.
- Under the heading that says **Species**, create an unordered list using `<ul>`. Add the following list items to the unordered list using `<li>`: *Arctos, Collarus, Horribilis, Nelsoni (extinct)*.
- Under the heading that says Countries with **Large Brown Bear Populations**, add an ordered list using `<ol>`. Add the following list items to the ordered list using `<li>`: *Russia, United States, Canada*.
- Output:

## The Brown Bears

### About Brown Bears

The brown bear (*Ursus arctos*) is native to parts of northern Eurasia and North America. Its conservation status is currently **Least Concern**.

There are many subspecies within the brown bear species, including the Atlas bear and the Himalayan brown bear.

#### Species

- Arctos
- Collaris
- Horribilis
- Nelsoni(extinct)

#### Features

Brown bears are not always completely brown. Some can be reddish or yellowish. They have very large, curved claws and huge paws. Male brown bears are often 30% larger than female brown bears. They can range from 5 feet to 9 feet from head to toe.

#### Habitat

##### Countries with Large Brown Bear Populations

1. Russia
2. United States
3. Canada

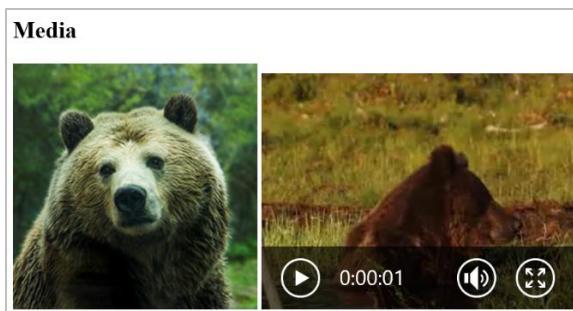
##### Countries with Small Brown Bear Populations

Some countries with smaller brown bear populations include Armenia, Belarus, Bulgaria, China, Finland, France, Greece, India, Japan, Nepal, Poland, Romania, Slovenia, Turkmenistan, and Uzbekistan.

#### Media

## (5). Display of image and video.

- Under the Media `<h2>` heading, add an image using `<img>` tags. Use the following URL as the source (`src`) for the image:  
[https://s3.amazonaws.com/codcademy-content/courses/web-101/web101-image\\_brownbear.jpg](https://s3.amazonaws.com/codcademy-content/courses/web-101/web101-image_brownbear.jpg)
- Under the image, add the following video URL and wrap it in `<video></video>` tags. Define the width of the video as "320" and the height as "240". Make sure to also include the controls attribute. In between the opening and closing `<video>` tags, add the phrase *Video Not Supported*, which will be displayed if the browser is unable to load your video.  
[https://s3.amazonaws.com/codcademy-content/courses/freelance-1/unit-1/lesson-2/htmlcss1-vid\\_brown-bear.mp4](https://s3.amazonaws.com/codcademy-content/courses/freelance-1/unit-1/lesson-2/htmlcss1-vid_brown-bear.mp4)
- Output:



## (6). Head and page titles.

- Place the `<head>` element below the opening `<html>` tag.
- Add "**Brown Bears**" as the title of your web page by using the `<title>` element.

## (7). Linking to other web pages, relative page, and same page.

- After the first paragraph, right above the heading that says Species, add a link by using `<a>` tags that says: *Learn More*. Add the following URL to the link:

[https://en.wikipedia.org/wiki/Brown\\_bear](https://en.wikipedia.org/wiki/Brown_bear)

- To make the link opened in a new window, in the link that reads *Learn More*, add the *target* attribute and set it equal to *\_blank*.
- Directly below the opening *<body>* tag, add an anchor tag that links to *index.html* with a relative path. The link should say *Brown Bear*.
- In *index.html*, transform the image on your page into a link by wrapping the image element with an anchor element. Set the *target* attribute so that the link opens in a new window. Use the same URL as before:  
[https://en.wikipedia.org/wiki/Brown\\_bear](https://en.wikipedia.org/wiki/Brown_bear)
- Under the *<h1>* element that says ***The Brown Bear***, create an unordered list with the following three list items: *Introduction, Habitat, Media*. Wrap the text of each list item in the unordered list in an anchor element. Each anchor tag should link to the corresponding *<div>* on the page ( the *<a>* element that contains the text "*Introduction*" links to *#introduction*).

(8). Comments.

- Add comment by typing the following code:  
`<!-- This is a web page about the introduction of brown bears -->`

## **TASK 2. Learn CSS**

Go through the following steps to decorate the web page by using CSS. Run the web page for each step bulleted.

(1). Preparation.

- Download the *lab2\_task2\_index\_html* file from Blackboard, and paste the HTML code in *index.html*.
- *style.css* file can be found in *css* folder.

(2). Inline styles and the *<style>* tag.

- In *index.html*, use inline styles to set the *font-family* of the first paragraph to *Arial*. Run the web page. An example is given as:  
`<p style="color: red; font-size: 20px;">I'm learning to code!</p>`
- Now we use *<style>* tag instead of inline styles to format the font style of the paragraphs. Add a *<style>* element in the head of *index.html*. Then, make sure to delete the inline styles that you added to the paragraph. Add the inline styles that you removed from the *<p>* element to the *<style>* element in the *head* by writing CSS code.

(3). Linking .css file.

- Cut the CSS code in between the opening and closing *<style>* tags and paste it directly in the new file called *style.css*. Make sure to delete the remaining *<style>* element (now empty) from *index.html*. The font style of the web page will be changed back.

- Add a `<link>` element within the `<head>` section. Add the `href` attribute to the `<link>` element and set it equal to `css/style.css`. Add the `type` attribute and set it to the correct value.

(4). Tag name.

- In `style.css`, add a selector for `<h1>` elements.
- Inside the curly braces of the `h1` selector you just declared, write:  
`color: maroon;`

(5) Class name.

- In `style.css`, add a CSS selector for the HTML element with a `class` of `title`.
- Inside the curly braces of the `.title` selector you just declared, write:  
`color: teal;`

This code will change the color of the title to teal, since the title `h1` element has a `class` of `title` in the HTML. You can see the HTML element by navigating to `index.html` on line 11.

(6). Multiple classes: we can add multiple classes to an HTML element's class attribute by separating them with a *space*.

- In `style.css`, add a `class` selector that will make the title of the page stand out more by making all of its letters uppercased. Write a class named `.uppercase`. Then, write this inside of its curly braces:  
`text-transform: uppercase;`
- Now you can add the `class` to the `title` element. Navigate to `index.html`. On line 11, there is a `<h1>` element that has a `class` of `title`. Add the `uppercase` class to this element.

(7). ID name.

- In `style.css`, add a CSS selector for an element with an id of `article-title`. Inside of its curly braces, write:  
`font-family: cursive;`  
`text-transform: capitalize;`

These two CSS attributes will make the font cursive and will capitalize the first letter of each word, while lowercasing the rest.

- Navigate to `index.html`. On line 11, add an `id` attribute to the `h1` element, and include `article-title` as its `id`. You'll see the title change to a cursive font that is not all uppercased.
- Output:



Top Vacation Spots

(8). Specificity.

- In *index.html*, delete the *id* attribute on the *h1* element on line 11.
- Navigate to *style.css*. Delete the *#article-id* ID selector and its contents.
- Navigate to *style.css*. Add a *class* selector named *.cursive*. Inside its body, write:  
*font-family: cursive;*
- Add another *class* selector named *.capitalize*. In its curly braces, write:  
*text-transform: capitalize;*
- Now, navigate back to *index.html*, and replace the *uppercase class* with the *cursive* and *capitalize classes* on the *h1* element on line 11.

(9). Chaining selectors.

- In *style.css*, write a CSS selector for *h2* elements with a class of *.destination*. Inside the selector's curly braces, write this:  
*font-family: cursive;*

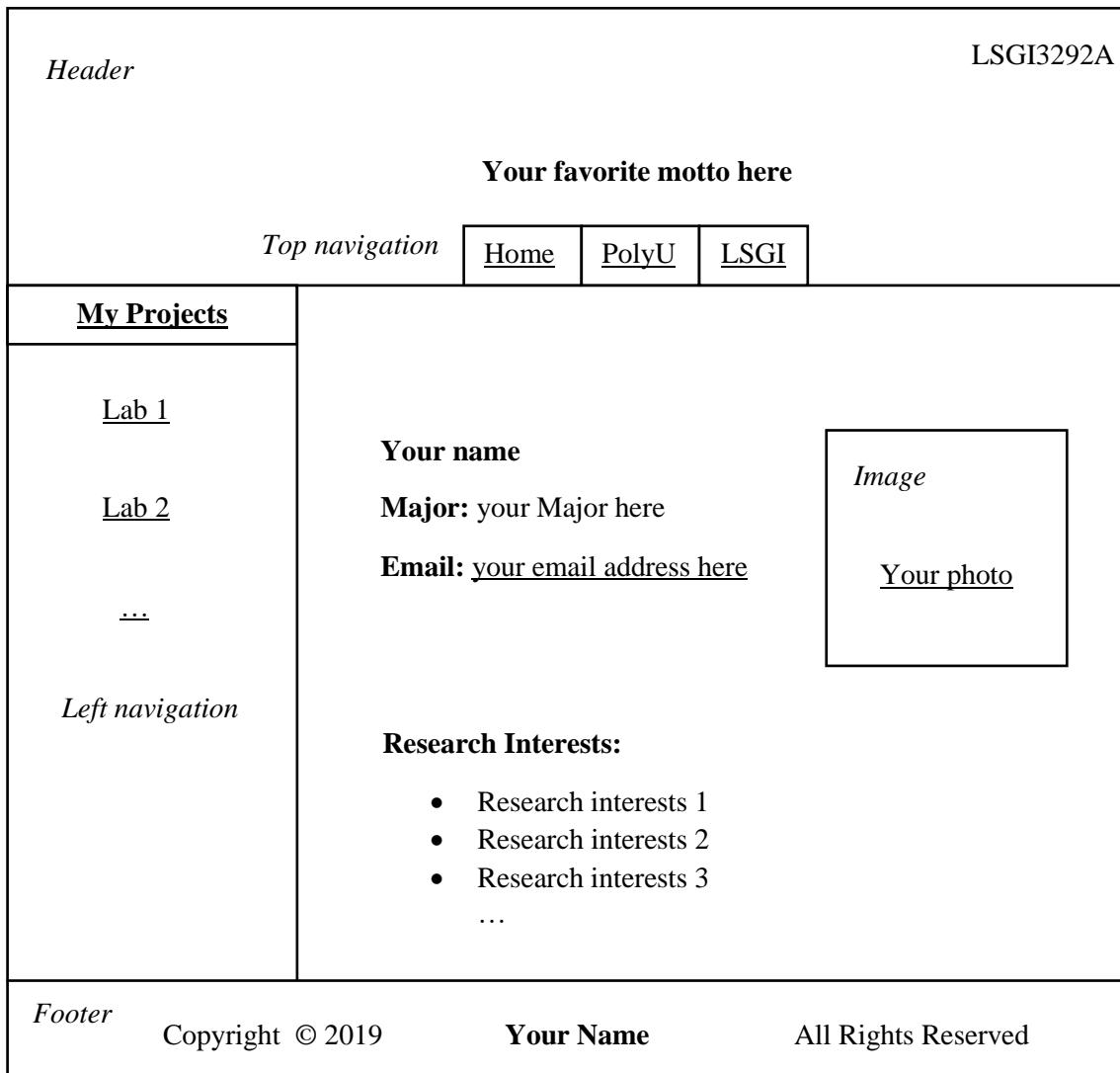
(10). Important.

- Navigate to *style.css*. Add a selector that targets all of the *h5* elements with class *.description*. Inside the curly braces of the selector, write:  
*color: teal;*
- In *style.css*, write a selector for *h5* elements. Inside of the curly braces write:  
*color: rebeccapurple;*  
Notice that the *h5* elements in the descriptions will not change color. They will continue to be teal.
- Add *!important* to the *h5* selector's color attribute that you defined in the last exercise. *!important* should go after *rebeccapurple*, and before the semicolon. Notice that the *h5* elements will now be *rebeccapurple* instead of *teal*. That's because *!important* will override any other style no matter what.

## **ASSIGNMENT 2. Design Your Professional Web Page**

Apply the skills you've learned from the lectures and labs to build up your first “professional” webpage. Use HTML and CSS to create a webpage similar to the template below. All elements appeared in the template should be included in your page, and also the approximate positioning of all elements should be laid out on the right position shown in the following image. You can use other IDEs to design your page; however, Aptana Studio 3 may be the best option because we will use it for JavaScript later.

## Layout Diagram



## Layout Diagram Notes

- (1). Words in *italics* should NOT be included in your webpage (e.g., *Header*, *Left Navigation*, *Footer*, etc.). These items are part of the diagram and are to be used for your reference only.
- (2). All words with an underline should have a clickable link.
- (3). The general content in each pane of your page (e.g. Left Navigation, Header, etc.) should match the **Layout Diagram**. For example, the Left Navigation panel should have a heading of **My Projects** and links to the tasks and assignments corresponding to each lab. The top/bottom navigation panel has three tags:

- (a). “Home” links to this index.html page;
- (b). “PolyU” links to <https://www.polyu.edu.hk/web/en/home/index.html>;
- (c). “LSGI” links to <http://www.lsgi.polyu.edu.hk/home/index.asp>;

- (4). **Program** refers to your degree program (e.g. B.S., etc.)
- (5). The position of each element (panes, content, etc.) in the **Layout Diagram** represents the approximate appearance of your page.
- (6). The **Email** item should display your email address as a clickable link.  
`<a href="mailto:youremail@somewhere.com">youremail@somewhere.com</a>`
- (7). Items that are **bolded** in the Layout Diagram should be **bolded** on your webpage. Similarly, items that use **bullet points** should have **bullet points** on your webpage.
- (8). The **Image** dimensions should be **200 pixels by 200 pixels**.
- (9). You should replace **Your favorite motto here** with one motto followed by its author. An example of the structure is given below. The styling details are up to you.

**“If I have seen further than others, it is by standing upon the shoulders of giants.”**

**By Isaac Newton**

- (10). The borders shown in the **Layout Diagram** are intended to illustrate that each pane (Header, Footer, Left Navigation, etc.) should have a **visually discernible boundary**. The decision of whether to use color alone, or color along with a visible line borderline is up to you.
- (11). Besides lecture notes and lab scripts, lots of online tutorials may help with your problems, such as in <https://www.w3schools.com/>.

### **Coding Requirements**

- (1). You must write **ALL** of your own code. Later in the semester, you will be allowed and encouraged to “borrow” part of codes from other sources (but not from your classmates) to meet your specific needs. For now, however, you **MUST** write your own script to develop this webpage.
- (2). Use **indentation** and **comments** to make your codes easy to read. In other words, your code should be easily adoptable by another web developer.
- (3). Include lines of code of comments within your document head tag. The required comments as follows:
  - (a). The **title** of our course
  - (b). **Author:** Your Name

(c). The **date** that the page was produced

(4). Organize the styling of your page in CSS file. **DO NOT** place your styling code directly in your HTML file!!!

(5). Use **relative links** for local files such as images, styles sheets, and documents. Using relative links for local files ensures that your webpage will continue to work properly when it is uploaded to the server. Relative Link explanation can be found from [here](#).

(6). The “shell” of your webpage **MUST** contain the following HTML elements:

(a). *Doctype*

(b). *html*

(c). *head*

(d). *title* (The page title should include the name of our course and your name)

(e). *body*

(7). Use **at least one** of each of the following HTML elements in the **body** of your document:

(a). *<p>*

(b). *<div>*

(8). Use at least one **tag**, one **id** and one **class** in your CSS file (refer to the lecture notes about CSS selectors).

(9). Use the same background color/font for the top/bottom navigation panel (choose your own color/font). The color/font for these two panels should be different from the rest of the webpage.

(10). Use a background color of your choice for the left navigation panel (different from the color of the top/bottom navigation). Use a background image of your own choice for the main division (where you put the image and your background information (name, program, etc.))

(11). Use a different font for the header (the type family should be different from the rest of body of the webpage)

(12). Define margin and padding for the top/left navigation panels

(13). Reproduce the content and element positioning in the **Layout Diagram** as closely as possible.

(14). Your webpage should be visually pleasing and follow basic aesthetic guidelines and design principles (recall the lectures about color and typography; for example, you should use sans serif fonts for header and serif fonts for body text. Strong complementary colors should not be combined (e.g., bright red and bright green)).

(15). Add a paragraph in bullet points to describe yourself under **Research Interests**.

## **Deliverables**

(1). All related files in Assignment 2, including:

- An HTML file (.html file extension) that contains all the content codes of your web pages.
- A CSS file (.css file extension) that contains all the codes for the formatting of your web pages.
- An MS Word Document that contains a screenshot of your webpage.
- Any images you might have used, if they are not linked to a location on the internet.
- Put all of these files in a zip folder named “StudentID\_YourName\_lab2\_assignment2.zip” and upload the zip folder. An example of folder name is “14000000D\_Chan\_Tai\_Ming\_lab2\_assignment2”.

(2). Upload the zip folder to Lab 2 on Blackboard.

**Due Date: 23:59 PM, February 10th, 2019**