



Introduction to Internet Technology and Web Programming

Computer Science 103
Boston University
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These notes are based on the lecture notes provided by [Professor Susan Worst](#).




Lecture 5-2

BU CS 103, Spring 2019



What will be Covered Today?

- ❖ Midterm Exam 1
- ❖ One Column Layout Design
 - ✓ Parts of a web page
 - ✓ Class and ID selectors
- ❖ Lab 4 Challenge
 - ✓ Block-level and inline elements
 - ✓ CSS Display property (Manipulating Display)
 - ✓ Making a Horizontal Navigation Bar



Assignments

- ❖ Deadlines
 - ✓ **Lab 3 Assignment:** due is tomorrow at 6 pm
 - ✓ **HW 2:** due is Tuesday FEB. 26 at 6 pm
- ❖ New Assignments
 - ✓ **Lab 4 Challenge:** due tomorrow at midnight.
 - ✓ **Lab 4 Assignment:** due Wednesday Feb. 27 at 6pm.



About Midterm Exam 1

- ❖ The exam is on Wednesday, March 6.
- ❖ It is at the class time, i.e. 6:30-7:30 PM (1 hour)
- ❖ It is **closed book**, **closed notes**, **no devices**, **no collaboration**.
- ❖ Covers material from Lecture 1-1 through 5-2 (**including 5-2**).
- ❖ Most questions are short answers.



Sample questions in Midterm Exam 1

- ❖ Circle the top level domain in the URL below:

<https://www.bu.edu/cs/people/faculty/>

- ❖ Give three examples of HTML elements that screen readers identify by name when reading a web page aloud.

Midterm Exam 1 Topics Include...

- ❖ Domain names
- ❖ Internet security
- ❖ Copyright
- ❖ Images
- ❖ Alt text
- ❖ Creative Commons licenses (names, abbreviations, properties)
- ❖ HTML covered so far
- ❖ CSS covered so far
- ❖ HTML and CSS terminology (acronyms, elements, attributes, selectors, etc.)
- ❖ Nesting HTML tags
- ❖ Advanced hyperlink techniques

➤ **Material covered for the first time after tonight
will not be in the Midterm Exam 1**

Practice Problems for Midterm Exam 1

- Fill in the blank. The word _____ is an abbreviation for Malicious software
 - ✓ Malware
- Fill in the blank. <p> is an example of an HTML "tag". HTML "tags" are also called _____.
 - ✓ Element
- What is the purpose of the document type declaration (DOCTYPE)?
 - ✓ It is to declare that the webpage is written in which version of HTML
- Name the 2 most common versions of HTML in use today?
 - ✓ HTML5, XHTML1.0

Practice Problems for Midterm Exam 1

- Fill in the blank. The current term of copyright for corporations is _____ years and for individuals is _____ years.
 - ✓ 95, 70 + life of author
- What does gTLD stand for? and name 4 kinds of gTLDs.
 - ✓ Generic Top-Level Domains, Unrestricted, Restricted, Sponsored and New

Practice Problems for Midterm Exam 1

- Write down one line html code to give a link to bu.edu.
 - ✓ ` BU website `
- Find the HTML errors in the following HTML code and fix them....


```
<!DOCTYPE html>
<html>
  <head>
    <title> CS 103 Midterm Exam 1
  </head>
  <body>
    <h2> HTML Learned So Far </h1>
    <ul>
      <li>How to make lists </li>
      <li>Difference between ordered and unordered
      <li>How to create list items</li>
    </ul>
  </html>
```

Practice Problems for Midterm Exam 1

- Write down one line html code to give a link to bu.edu.

✓ ` BU website `

- Find the HTML errors in the following HTML code and fix them....

```
<!DOCTYPE html>
<html>
  <head>
    <title> CS 103 Midterm Exam 1 </title>
  </head>
  <body>
    <h2> HTML Learned So Far </h1> </h2>
    <ul>
      <li>How to make lists </li>
      <li>Difference between ordered and unordered </li>
      <li>How to create list items</li>
    </ul>
  </body>
</html>
```

Any question about the midterm?

Lab 3 assignment (Part 1)

- HTML pages are nothing but combination of nested boxes inside each other.
- Think about each element as a box.

Lab 3 assignment (Part 1)

CS 103: Introduction to Web Programming

How to Create a Cool One Column Layout Web Page

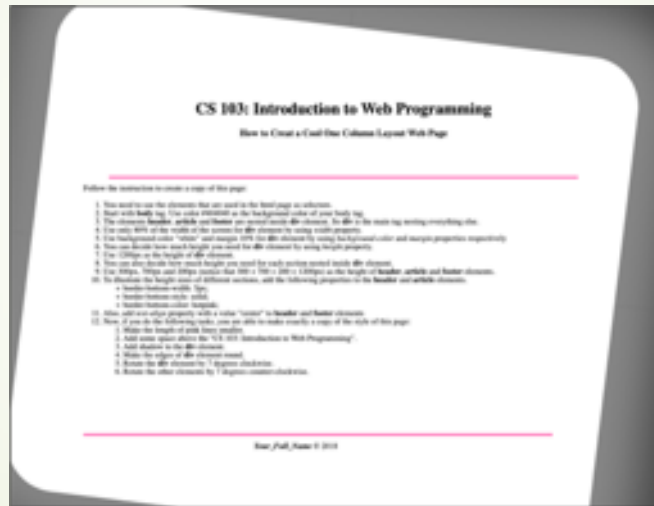
Follow the instruction to create a copy of this page:

1. You need to use the elements that are used in the html page as selectors.
2. Start with `body` tag. Use color #404040 as the background color of your body tag.
3. The elements `header`, `article` and `footer` are nested inside `div` element. So `div` is the main tag nesting everything else.
4. Rotate the other elements by 7 degrees counter-clockwise.

Your Full Name © 2018

Body: pink
 Div: black
 Header: orange
 Article: green
 Footer: yellow
 Ordered list: gray
 Strong tag: black

Lab 3 assignment (Part 1)



Lab 3 assignment (Part 2)

➤ Lets take a look at some of your submissions!



Notes for Lab 4

- ❖ In Lab 4, you are supposed to create a sample internal page of your final project website using a one-column layout. **(Internal page = not the home page)**
- ❖ The goal of this lab is for you to make preliminary decisions about your final project website's:
 - ✓ Name
 - ✓ Typefaces
 - ✓ Text and background colors
 - ✓ Main navigation menu items
 - ✓ Whether you will use a copyright statement or a Creative Commons license in the footer. You must choose one or the other.

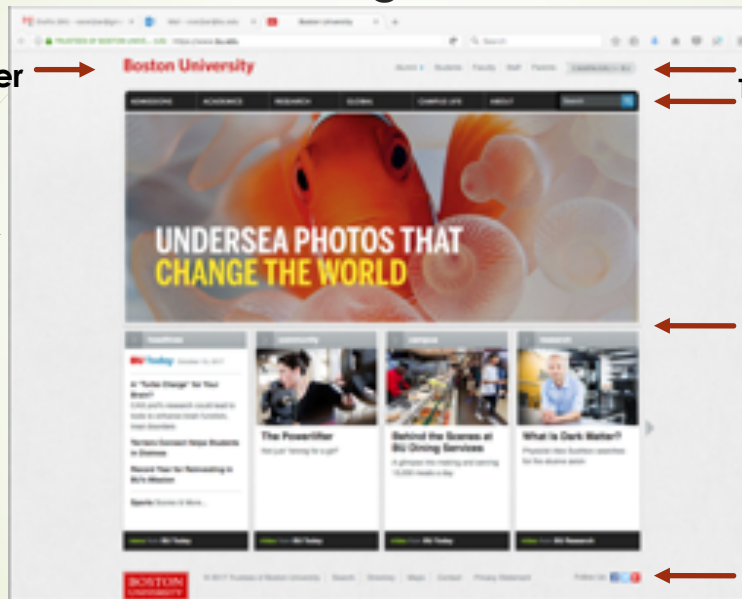


Parts of a Web Page

- ❖ As you create your first design for your final project, here are considerations for:
 - ✓ **The header**
 - ✓ **The navigation menu**
 - ✓ **The main content area**
 - ✓ **The footer**

Parts of a Web Page

The header



The navigation menu

The main content area

The footer

Parts of a Web Page

```
<!DOCTYPE html>
<html>
  <head>
    <title> lecture notes | CS 103 </title>
    <link rel="stylesheet" type="text/css" href="web.css">
  </head>
  <body>
  </body>
</html>
```

```
<!DOCTYPE html>
<html>
  <head>
    <title> lecture notes | CS 103 </title>
    <link rel="stylesheet" type="text/css" href="web.css">
  </head>
  <body>
    <header>
    </header>

    <nav>
    </nav>

    <!-- main content -->

    <footer>
    </footer>
  </body>
</html>
```



The Header

- ❖ The header is the part of the web page, usually on the top, that includes the **name of the website** and **the tag line**.
- ❖ Make sure the combination of the website name and tag line explain what the website is about
- ❖ Unless your website is famous, it probably needs a tag line

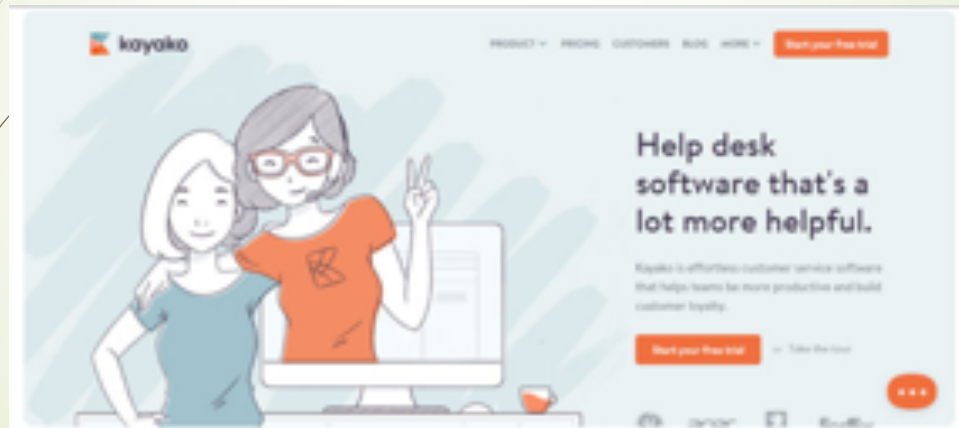


Tag Line Examples

- ❖ Some local websites with helpful tag lines:
 - ✓ **The Daily Free Press** (<http://dailyfreepress.com/>)
 - ✓ **T. Anthony's** (<http://www.tanthonypizzeria.com/>)

Tag Lines: What to Avoid

- ❖ Avoid vague phrases, clichés, and hyperbole



Keeping the Words Straight


Name	HTML tag	What Is It?
Head	<head>	The part of the web page containing the <title> and <link> tags and other data about the page. Not visible in the browser
Header	<header>	The part of the web page that displays the site's identity. Typically appears on every page of a website.
Heading	<h1>, <h2>, <h3>, <h4>, <h5>, <h6>	A "headline" or "title" for the content below it.

Navigation Menu

- ❖ Creating a navigation menu requires thinking about what kind of content you want to have on your site
- ❖ Researching comparable websites can give you ideas about what users will expect to find on your website

Navigation Menu





Main Content Area

- ❖ Your main content area should include:
 - The title of the page, as an `<h1>` heading
 - For your lab 4:
 - ✓ A draft of real content for a page of your final project
 - ✓ If you have not settled on a project idea yet, choose one of the possibilities.



Footer

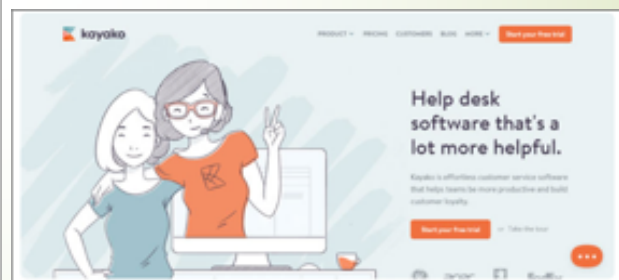
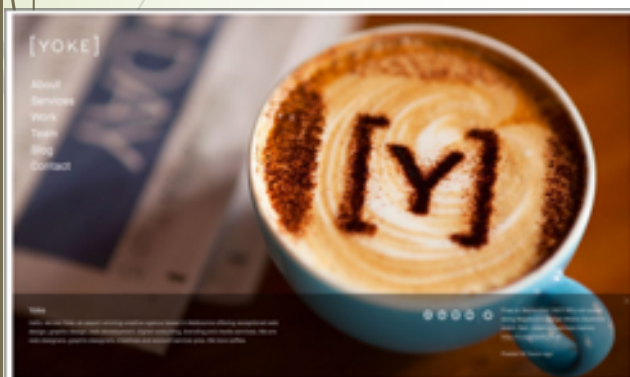
- ❖ Will you use a Creative Commons license or a copyright statement?

Footer



Lab 4 Challenge:

Making a Horizontal Navigation Bar



Creating a Horizontal Navigation Menu (Setting Up the THML)

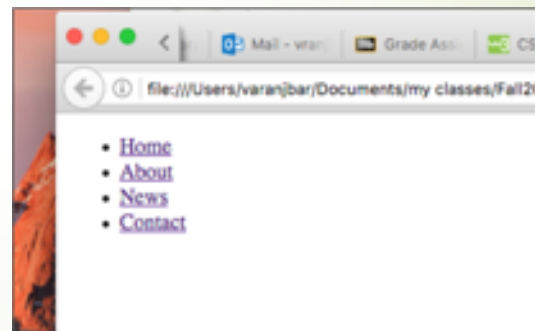
❖ In the HTML file

1. Write your navigation menu as an unordered list ().
2. Add hyperlinks to the menu items.

Creating a Horizontal Navigation Menu (Setting Up the THML)

❖ A Class Demonstration

```
<!DOCTYPE html>
<html>
  <head>
    <title> CS 383 | Lab 4 Assignment </title>
    <link rel="stylesheet" type="text/css" href="nav.css">
  </head>
  <body>
    <header>
    </header>
    <nav>
      <ul>
        <li><a href="#">Home</a></li>
        <li><a href="#">About</a></li>
        <li><a href="#">News</a></li>
        <li><a href="#">Contact</a></li>
      </ul>
    </nav>
    <footer>
    </footer>
  </body>
</html>
```



“Block” and “Inline” Display

- ❖ Most HTML tags display as either “**block**” or “**inline**” by default
 - Properties of block display
 - ✓ Starts on a new line
 - ✓ Forces the element that follows to start on a new line
 - ✓ Takes up the whole width of the containing element unless a specific width is set

Examples of “Block-Level” Elements

`<p>`
``
``
``
`<table>`
`<tr>`
`<h1>...<h6>`
`<hr>`

- ✓ Starts on a new line
- ✓ Forces the next element to start on a new line
- ✓ Takes up the whole width



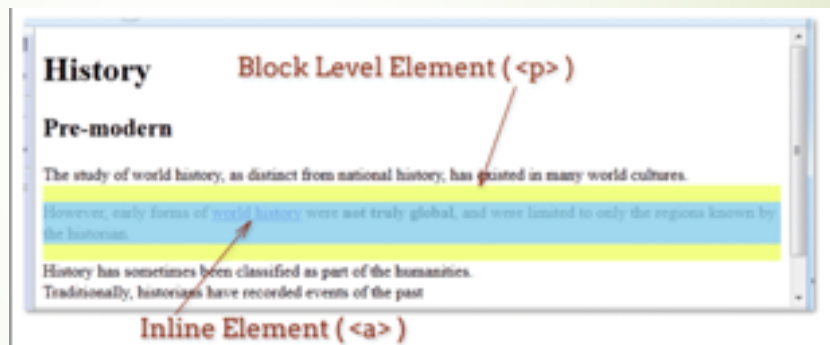
“Inline” Display

- ❖ Inline elements do not start on a new line
- ❖ They do not force the next element to start on a new line (with one exception).

Examples of “Inline” Elements

 <a>

 <td>
 <th>



Manipulating Display

- ❖ It is possible to override the default display of an HTML element by setting the display property in CSS.

display: block; /* display as a block element */

display: inline; /* display as an inline element */

display: none; /* do not display */

- ❖ By changing the display property, we can make block-level elements behave like inline elements and vice versa.
- ❖ We can also make elements disappear by setting the display property to none.

Application: Horizontal Navigation Menu

- ❖ By default, is a block level element
- ❖ If we will reverse that we will have a horizontal navigation menu
- ❖ Setting the display property for **list items** in CSS is a common technique for creating a horizontal navigation menu

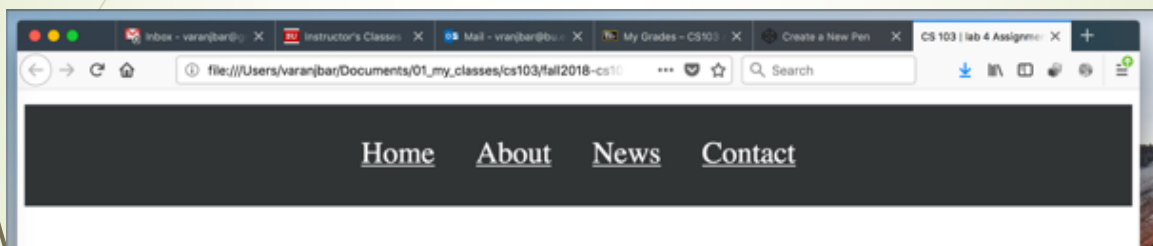
Creating a Horizontal Navigation Menu (Setting up the CSS)

❖ In the CSS file

1. Set the `` to display as inline. (This makes the list horizontal.)
2. Set the list-style-type on the `` element to none. (This removes the bullets.)
3. Remove the default left padding on the `` element. Set a background color if desired.
4. Add right and left padding on the `` element to add spacing.
5. Add top and bottom padding on the `` element to add spacing.

Creating a Horizontal Navigation Menu (Setting up the CSS)

❖ You are supposed to do it tomorrow in the lab



Lab 4 Assignment: CSS Layout

- ❖ We need to learn some new techniques:
 - ✓ Class and ID selectors

ID and Class Attributes

- ❖ As you learned in Lab 3, you can accomplish a lot using just HTML elements as selectors

```
body {background-color: hsla(193, 100%, 50%, 0.63);}
h1 {
  color: hsla(7, 100%, 50%, 0.57);
  margin-top: 20px;
  margin-bottom: 20px;
  padding-top: 30px;
  padding-bottom: 30px;
  padding-left: 30px;
  border-style: solid;
  border-width: 5px;
}
h2 { padding-left: 40px;}
h2 { padding-left: 50px;}
h3 { padding-left: 60px;}
p {
  padding-left: 70px;
  font-size: 1.1em;
}
```

- ❖ However, that method has some limitations.

Limitations of HTML Selectors

- ❖ Sometimes you want to treat the same HTML element differently within a page

```
<!DOCTYPE html>
<html>
  <head>
    <title> lecture 5-2 | CS 103 </title>
    <link rel="stylesheet" type="text/css" href="web.css">
  </head>
  <body>
    <h1>Lecture 5-2 </h1>
    <h2>More about Cascading Style Sheets (CSS)</h2>
    <h3>CSS colors</h3>

    <p>There are 4 different method to apply colors to texts
    including name of the color, hex codes, rgb colors and hsl codes</p>

    <p>Transparency is another important element of colors in HTMLs</p>
  </body>
</html>
```

```
body {background-color: hsla(193, 100%, 50%, 0.63);}

p {
  padding-left: 70px;
  font-size: 1.1em;
}
```

Limitations of HTML Selectors

- ❖ Sometimes you want to style a group of elements with one set of rules
- ❖ Sometimes you want to style just part of an element
- ❖ **Class** and **ID** attributes help with that.
- ❖ They can be used as selectors.

ID attribute

```
<ul>  
  <li id="favorite">Breakfast</li>  
  <li>Lunch</li>  
  <li>Dinner</li>  
</ul>
```

- ❖ Used to style **one particular** occurrence of something on a page
- ❖ ID Name (value) must not contain spaces

ID Attribute as a Selector

- ❖ To apply a style to an **ID** attribute ("favorite" in this example), use a pound sign followed by the name of the ID attribute as your selector, with no space in between:

#favorite { color: red; }

- ❖ Or, to be even more specific, use the element followed by # followed by the ID value

li#favorite { color: red }

ID attribute

```
<!DOCTYPE html>
<html>
  <head>
    <title> </title>
    <link rel="stylesheet" type="text/css" href="web.css">
  </head>

  <body>
    <ul>
      <li id="favorite">Breakfast</li>
      <li>Lunch</li>
      <li>Dinner</li>
    </ul>
  </body>
</html>
```

```
body {background-color: hsla(193, 100%, 50%, 0.63);}
#favorite { color: red; }
```

- Breakfast
- Lunch
- Dinner

Class Attribute

- ❖ Class attributes can be used to style multiple particular occurrences of something on a page.
- ❖ The name must not contain spaces either.

```
<ul>
```

```
  <li class="writing-intensive">Anthropology</li>
```

```
  <li class="writing-intensive">English</li>
```

```
  <li>Computer Science</li>
```

```
  <li>Accounting</li>
```

```
</ul>
```


Class Attribute as a Selector

- ❖ To apply a style to a class attribute ("writing-intensive" in this example), use a period followed by the name of the class attribute as your selector:

.writing-intensive { color: green; }

- ❖ Or, to be even more specific, use the element followed by . followed by the name of the class attribute

li.writing-intensive { color: green; }

For Next Time

- ❖ Enjoy the lab tomorrow!
- ❖ Do not forget that the lab 4 challenge due is the same day as lab session (Thursday) at midnight.




Some Review Question for Midterm Exam 1



What is the purpose of Web accessibility?

- A. Helping screen readers
- B. Helping search engines
- 😊 C. Providing equal access to web information and functionality for all users




It's OK to omit the alt attribute for images that

- A. are decorative
- B. are links
- C. have captions
- D. have words in them
- 😊 E. It's never OK





The null alt attribute looks like:

- 😊 A. alt=""
- B. alt=" "
- C. alt="null"
- D. alt=





It's OK to use a null alt attribute for images that...

-  A. are decorative
- B. are links
- C. have words in them
- D. It's never OK





When an image is used as a link, the alt text should describe:

- A. What the image looks like
-  B. Where the link goes
- C. Both A and B




Screen readers do not explicitly announce which of these HTML elements?

- A. <a>
- B. <h1>
- C.
-  D. <p>



Screen readers announce the number of items in a list

-  A. True
- B. False




Why is having a long, complex password not enough?

- A. Keylogger software
- B. Phishing sites
- C. The website storing your passwords could be hacked
- 😊 D. All of the above.





The growth of malware was sparked by the need to

- A. Undertake political protests
- B. Steal identities
- C. Steal intellectual property
- 😊 D. Send spam




A "botnet" is a network of compromised computers controlled by another computer

-  A. True
B. False




The "bot" in a "botnet" refers to

-  A. The compromised computer that receives commands
B. The command and control center
C. The person who created the network
D. The owner of the compromised computer



What does "cascading" refer to?

- A. The ease of creating rules
- 😊 B. The order in which conflicting rules are applied
- C. The enormous number of possible rules
- D. None of the above.



Applying certain styles for the body element (by CSS) will affect paragraph elements because of...

- 😊 A. Inheritance
- B. Usability
- C. The cascade
- D. Cascading