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 8-1

BU CS 103, Spring 2019

What will be Covered Today?

➢ More CSS Techniques:
- ❖ for **lab6 assignment**
  - ✓ CSS pseudoclass selectors
- ❖ for **lab7 challenge**
  - ✓ Positioning
  - ✓ CSS background Images
  - ✓ Z-index property
  - ✓ Transition property

➢ A demonstration for lab7 challenge

Assignments

❖ New Assignments
- ➢ **HW 4** was posted today
  - ✓ Due next Monday at 6:00 pm.

❖ Deadlines
- ➢ **Lab 6 Assignment** due is Wednesday at 6:00 pm.

❖ Grades
- ✓ **HW 3** was posted on BB.
- ✓ **Lab 5 Assignment** was posted on BB.
- ✓ **Lab 6 Challenge** was posted on BB.

Midterm Exam 1 Statistics

❖ The following is the characteristics of the exam:
- ➢ Average: 78
- ➢ **Median: 83**
- ➢ Max: 98
- ➢ Min: 35
  - ✓ 90 < < 98: 21 students
  - ✓ 80 < < 90: 21 students
  - ✓ 70 < < 80: 15 students
  - ✓ 60 < < 70: 11 students
  - ✓ 35 < < 60: 11 students

❖ The minimum midterm grade can be replaced by your final exam grade.

More CSS Techniques:
css pseudoclass selectors

❖ Combining CSS selectors for more power
- ➢ CSS Grouping
- ➢ CSS Nesting
- ➢ Combining HTML and Class Selectors
- ➢ Combining HTML and ID Selectors

❖ **CSS pseudoclass selectors**

Pseudo-Class Selectors

❖ **Pseudo classes** are bolted on to selectors **to specify a state or relation to the selector.**

❖ They take the form of:

selector:pseudoclass { property: value; }

simply with a colon in between the selector and the pseudoclass.

❖ Pseudoclass selectors control the style of elements specially **hyperlinks** in CSS

Pseudo-Classes for Hyperlinks

❖ The pseudoclasses used for hyperlinks are:

a:link   a link that has not been visited by this user in this browser

a:visited   a visited link

a:hover   a link as it is being hovered over

a:focus   a link that is being selected by mouse or keyboard

a:active   a link as it is being clicked on

Pseudo-Classes for Hyperlinks, cont.

❖ **Note:**
1. **a:hover** MUST come after **a:link** and **a:visited** in the CSS in order to be effective!
2. **a:active** MUST come after **a:hover** in the CSS definition in order to be effective!
3. **Pseudo-class** names are not case-sensitive.

❖ It is required to specify the pseudo classes in this order in your CSS:
➢ Link
➢ Visited
➢ Hover
➢ Focus
➢ active

Note on Visited Links

❖ If a user does not have his/her web browser set to remember history, visited and unvisited links will look the same.

Pseudo-Classes for Hyperlinks

❖ Lets experience it!

Pseudo-Class Selectors & Lab 6 Assignment

➢ You are given very sophisticated CSS styling in lab 6 assignment by using
  ✓ hovering property (pseudoclass selectors)
  ✓ Color Property
  ✓ Display Property
  ✓ Positioning
  ✓ Transition and transform properties
  ✓ …

3/18/19

Lab 6 Assignment: what does it need to include?

➢ You do not need to make a hoverable image from scratch.

➢ Instead, you are supposed to use the given CSS files to make a hoverable photo gallery as a part of a real webpage.

➢ Your assignment must include:

> A layout including all of the required tags.

> Real content including hearer, tag line, navigation, main content, footer …

> A hoverable photo gallery by using the given css files

Lab 6 Assignment: How to make it?

1. Make the layout and all your content. (responsive)
2. Play around the given HTML/CSS files.
3. Make a separate responsive hoverable photo Gallery
4. Add the photo gallery to your layout.

For Lab 7 Challenge ...

You will need to learn four new CSS techniques:
- ✓ Positioning
- ✓ CSS background Images
- ✓ Z-index property
- ✓ Transition property

CSS positioning

❖ **Positioning** is a way to move the elements (boxes) to the left, right, top or bottom.

➤ **Static positioning** essentially means "no positioning." The document will flow as it normally would.

➤ **Relative positioning** will cause offset from the initial position.

➤ **Fixed positioning** removes the normal flow and place the content relative to the browser window. The content will not scroll with the rest of the page's content.

➤ **Absolute positioning** removes the normal flow and positions the content in relation to the browser or the containing box with a relative positioning.

➤ See W3Schools.com for examples.

https://www.w3schools.com/css/css_positioning.asp

Static Positioning

❖ Essentially means "no positioning." The document will flow as it normally would.

Fixed Positioning

❖ **Fixed** positioning is used when you want something to stay in the same place in relation to the browser window, rather than having it scroll with the page

➤ Usually fixed to one of the edges of the screen (top, left, right, or bottom)

➤ Examples:

✓ HTMLDog navigation menu – fixed to the top

✓ Ad-blocker notice on Slate.com – fixed to the bottom

Absolute and Relative Positioning

❖ A good example:

https://www.w3schools.com/css/tryit.asp?filename=trycss_position_absolute

❖ Another good example:
https://codepen.io/azadeh83/pen/oaWpzd?editors=1100

More about Positioning

❖ And the step-by-step process to create it:
http://htmldog.com/guides/css/intermediate/layout/
(Scroll to bottom of page for examples)

Tinkering with Positioning

❖ CSS layout is tricky and takes practice

❖ Solving problems takes time and patience

❖ Even experienced coders may not be able to quickly identify what is wrong

❖ Make lots of backups so you can go back if you need to

❖ Change one thing at a time, then test

❖ Comment out code rather than deleting it – makes it easier to undo changes

❖ The Firefox developer tools very helpful

CSS Background Images

❖ Images used purely for decoration (no content) can be specified in CSS as background images, instead of using the <img> tag

body { background-image: url("*url of image*"); }

More on Background Images

❖ Background images do not have alt text – so cannot be used to present content
  ➢ Not accessible to screen readers
  ➢ Not findable by search engines
❖ Background images are not clickable
  ➢ Can't be used as links
❖ When using a background image, always specify a background color that is similar to the color of the image, even if the image is not transparent. (Why?)

How to Tell If an Image is Background or Not ?

1. Look at the source code
   ❖ Background image will be in the CSS
   ❖ Content image will be in the HTML, using the img tag

2. When viewing a web page in Firefox
   ❖ Right-click (PC) or control-click (Mac) on the image
   ❖ You will see an option to "View Background Image" if there is one
   ❖ Otherwise, you will see "View Image Info"

CSS Background Images

❖ We've described how to set the URL of a CSS background image

❖ What else can you specify?

➢ background-repeat

➢ background-attachment

➢ background-position

➢ background-size

Background-repeat

❖ If background-repeat is not specified, the image will repeat in both directions

❖ Other possible values:

➢ Repeat

➢ Repeat-x (repeat along x axis)

➢ Repeat-y (repeat along y axis)

➢ No-repeat

Background-attachment

❖ If not specified, the image will scroll with the rest of the page
❖ Possible values:
  ➢ Scroll – the background image moves with the page
  ➢ Fixed – the background image stays in one place

Background-position

❖ If not specified, the image will be positioned in the upper left
❖ If specified, you can specify two values using
  ➢ Words (left, right, center, top, bottom)
  ➢ Percentages
  ➢ Coordinates
❖ The first value is the horizontal position; the second value is the vertical position

Background-size

❖ Specify the size of a background image
❖ If not specified, the image will appear at its natural size
❖ Other values
  ➢ Auto – natural size
  ➢ Cover – fill the whole area. (Some parts of image may be cut off.)
  ➢ Contain – make the image as large as possible while fitting inside the area
  ➢ Specify width and height in units or percentages
❖ Example:
  background-size: 40px 100px

Background Shorthand Property

❖ It is usually used as part of the background shorthand property, which also specifies background-color, background-repeat, background-position etc.

body { background: color url("url") repeat attachment position; }

More CSS Techniques: Transition Property

➢ Transition property is used along with pseudo class selectors such as hover.

➢ There are four transition properties:
- ✓ **transition-property: width;**
- ✓ **transition-duration: 2s;**
- ✓ **transition-timing-function: linear;**
- ✓ **transition-delay: 1s;**

➢ And the shorthand property for transition is:

div {transition: width 2s linear 1s;}

➢ More information:

https://www.w3schools.com/css/css3_transitions.asp

Z-index property

➢ The z-index property specifies the order of an element.

➢ An element with greater order is always in front of an element with a lower order.

➢ **Note:** z-index only works on positioned elements (position:absolute, position:relative, or position:fixed).

➢ More information:

https://css-tricks.com/almanac/properties/z/z-index/

➢ Some Amazing Examples:

http://cs-people.bu.edu/jithvan/bug/

http://matthew.wagerfield.com/parallax/

A Demonstration for Lab 7 Challenge

For next time

❖ Come to my Tomorrow's office hours if you have any question
❖ See you on Wednesday