CSCI E-12 Assignment 1

150 points.
Due by Monday, February 25, 2013, 12 noon EST
Submit via the "Assignment 1 Dropbox" on the course site.
http://cscie12.dce.harvard.edu/dropbox

Assignment 1 focuses on creating valid markup documents and using semantic markup for text, tables, and forms. In addition, Assignment 1 offers an introduction to authoring CSS style rules to apply presentation styles to HTML/XHTML markup.

Goals:

1. **Become familiar and comfortable creating HTML/XHTML documents.** Create an HTML/XHTML document from existing text using semantic markup. Create an HTML/XHTML form and table.
2. **First step into CSS.** You will author a basic CSS document to include style rules for various XHTML elements.
3. **Use multiple browsers to test your work.** You will need to check your work in at least two HTTP clients (Web browsers, e.g. Firefox, IE, Safari, Chrome, Opera). You will need to include the "User-Agent" string of the browsers you used (there is a section in "answers.html" for this. To find the "User-Agent" string of your web browser, go to:
   http://cscie12.dce.harvard.edu/assignment_files/browser.html

Getting Started with Assignment 1

- You will submit your work via a ZIP file to the dropbox, as well as publish your work on the course web hosting server (morpheus.dce.harvard.edu).
- **Working on the course web hosting server**. Please create an obscurely named folder in your public_html directory that will contain your work for the course. The reason for the obscure name is to prevent intentional or unintentional browsing via the web of your hard work by others. For example, the user John Harvard might create a folder named VeRiTas_1636.
- Download the Assignment 1 "zip" file from the course web site and unzip it. It is located at:
   http://cscie12.dce.harvard.edu/assignments
- **Keep the file names and directory structures the same. We rely on the file names being consistent when we grade.**
   - You should see the following files/directories:
```
cscie12_assignment1
   |-- answers.html
   |-- js/
   |-- harvard_guide.css
   |-- harvard_guide_dce.html
   |-- harvard_guide.txt
   |-- lunch_special.css
   |-- lunch_special.html
   |-- us_census.html
   `-- us_census.txt
```

- **Validation**
  - o **Your XHTML/HTML should validate** using the W3C Markup Validation Service (http://validator.w3.org/). Documents should validate with no errors (warnings are acceptable). You have a choice of using HTML5, XHTML 1.0 Strict or Transitional, or HTML 4.01 Strict or Transitional, unless otherwise noted.
  - o **Your CSS should validate** using the W3C CSS Validation Service (http://jigsaw.w3.org/css-validator/). CSS should validate with no errors (warnings are acceptable).
  - o **Unicorn – W3C's Unified Validator.** You may wish to use Unicorn (http://validator.w3.org/unicorn/), W3C's unified validator, which performs a variety of checks, including markup and CSS.
- **Edit "answers.html"** to provide the fully qualified URLs of your published XHTML and CSS documents on morpheus.dce.harvard.edu.
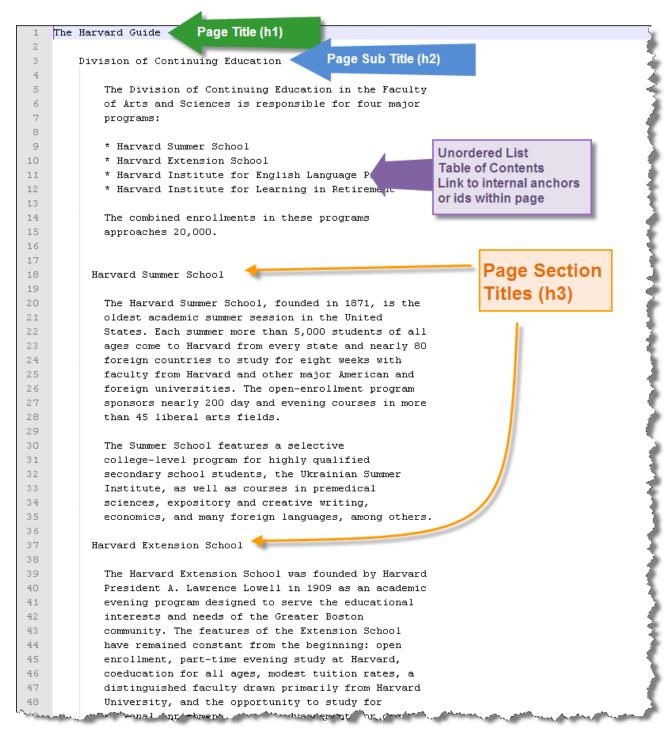 **Note that answers.html will not contain your email or name (we will know that information from the Dropbox).**
- When you are done with the assignment, zip your cscis12_assignment1 folder and submit the zip file via the "Assignment 1 Dropbox" on the course site.
  http://cscis12.dce.harvard.edu/dropbox

Part 1. Markup – "The Harvard Guide: Division of Continuing Education"

30 points. You will create an HTML5 document (note you can also use XHTML 1.0 Transitional or Strict, or HTML 4.01 Transitional or Strict) from an existing plain text document. You are given the text from a section of "The Harvard Guide" about the Division of Continuing Education. Your task is to apply markup to the text to make it into a valid HTML/XHTML document. Screenshots are given to provide clarity to the description and requirements.

The markup document you create should meet the *following requirements*:
- **File.** Use the harvard_guide_dce.html file.
- **Markup**. Validate as mentioned in the "Getting Started" section.
- **CSS.** Include a "link" element that refers to the harvard_guide.css CSS stylesheet file. You will edit this CSS file in Part 4 of this assignment.
- **Markup Semantics**.
  - o Use h1, h2, and h3 for the document titles and subtitles.
  - o Use p for paragraph text
  - o Use ul and li for lists
  - o Hypertext Links
    - ▪ Add at least five hypertext links (a element) with appropriate href values.
    - ▪ At least two of these hypertext links should have title attributes.
  - o **Table of Contents (Internal links).** Create a "table of contents" at the beginning of your XHTML document that contains links to chapter headings further down within the same document. For example, the table of contents link:
    Harvard Summer School
    would refer the browser down to the element within the same document that contains an id attribute value of "chapter1":
    <h3 id="hss">Harvard Summer School</h3>

```
 1    The Harvard Guide       Page Title (h1)
 2
 3        Division of Continuing Education      Page Sub Title (h2)
 4
 5           The Division of Continuing Education in the Faculty
 6           of Arts and Sciences is responsible for four major
 7           programs:
 8
 9           * Harvard Summer School                    Unordered List
10           * Harvard Extension School                 Table of Contents
11           * Harvard Institute for English Language P  Link to internal anchors
12           * Harvard Institute for Learning in Retireme  or ids within page
13
14           The combined enrollments in these programs
15           approaches 20,000.
16
17
18        Harvard Summer School                          Page Section
19                                                        Titles (h3)
20           The Harvard Summer School, founded in 1871, is the
21           oldest academic summer session in the United
22           States. Each summer more than 5,000 students of all
23           ages come to Harvard from every state and nearly 80
24           foreign countries to study for eight weeks with
25           faculty from Harvard and other major American and
26           foreign universities. The open-enrollment program
27           sponsors nearly 200 day and evening courses in more
28           than 45 liberal arts fields.
29
30           The Summer School features a selective
31           college-level program for highly qualified
32           secondary school students, the Ukrainian Summer
33           Institute, as well as courses in premedical
34           sciences, expository and creative writing,
35           economics, and many foreign languages, among others.
36
37        Harvard Extension School
38
39           The Harvard Extension School was founded by Harvard
40           President A. Lawrence Lowell in 1909 as an academic
41           evening program designed to serve the educational
42           interests and needs of the Greater Boston
43           community. The features of the Extension School
44           have remained constant from the beginning: open
45           enrollment, part-time evening study at Harvard,
46           coeducation for all ages, modest tuition rates, a
47           distinguished faculty drawn primarily from Harvard
48           University, and the opportunity to study for
```

Screenshot showing text to markup strategy.

The Harvard Guide

Division of Continuing Education

The Division of Continuing Education in the Faculty of Arts and Sciences is responsible for four major programs:

- Harvard Summer School
- Harvard Extension School
- Harvard Institute for English Language Programs
- Harvard Institute for Learning in Retirement

The combined enrollments in these programs approaches 20,000.

Harvard Summer School

The Harvard Summer School, founded in 1871, is the oldest academic summer session in the United States. Each summer more than 5,000 students of all ages come to Harvard from every state and nearly 80 foreign countries to study for eight weeks with faculty from Harvard and other major American and foreign universities. The open-enrollment program sponsors over 200 day and evening courses in more than 45 liberal arts fields.

The Summer School features a selective college-level program for highly qualified secondary school students, the Ukrainian Summer Institute, as well as courses in premedical sciences, expository and creative writing, economics, and many foreign languages, among others.

Harvard Extension School

The Harvard Extension School was founded by Harvard President A. Lawrence Lowell in 1909 as an academic evening program designed to serve the educational interests and needs of the Greater Boston community. The features of the Extension School have remained constant from the beginning: open enrollment, part-time evening study at Harvard, coeducation for all ages, modest tuition rates, a distinguished faculty drawn primarily from Harvard University, and the opportunity to study for personal enrichment, career advancement, or degrees or certificates.

More than 550 courses are offered each year, including health and computer sciences, liberal arts, administration and management, many foreign languages, and expository and creative writing, to nearly 13,000 students of all ages. In 91 years of operation, the Extension School has provided instruction to more than 350,000 people.

Some 5,000 degrees and certificates have been granted in the Extension School undergraduate and graduate programs.

Harvard Institute for English Language Programs

The Harvard Institute for English Language Programs was founded in 1950 to meet the language needs of post-World War II immigrants to the United States. During the academic year, the Institute offers part-time day and evening programs to non-native speakers from the Greater Boston community. During the summer session, intensive day, part-time evening, and a number of business programs are offered. The combined enrollment for the Institute's summer and academic year programs is more than 2,100.

Harvard Institute for Learning in Retirement

Example screenshot of the "The Harvard Guide: Division of Continuing Education". The unordered list of links is the table of contents, which are links to the page section headings within the document.

Part 2. Tables — United States Census Data

30 points. You will create a markup document (XHTML 1.0 Strict or XHTML 1.1) that contains data from the United States Census Bureau on the total population of the United States from 1790 to 2010. You are provided the data in a plain text format (file is us_census.txt; see screenshot on page 7) so you can get an idea of the layout and to provide you with a starting point to construct your table. You are also provided a set of style rules that will help with the table presentation (these style rules are in the style element within the head element of the us_census.html document). Also provided is some Javascript that on "mouseover" will highlight the table cell and its associated header labels, assuming you have used "scope" or "headers" correctly.

The table you construct should meet the following requirements:

- **File.** Use the us_census.html file. I have provided some basic style rules for the table that I think will be helpful.
- **Markup**. Validate as XHTML 1.1 or XHTML 1.0 Strict
- **Table Semantics**. Use table, thead, tfoot, tbody, tr, th, td, and caption elements.
- **Table Header Semantics.** Define an appropriate thead for this table.
- **Table Footer.** Should contain data attribution statement and a link to the U.S. Census Bureau (http://www.census.gov/).
- **Binding header labels to table data**. Use of "scope" attributes on the header table cells and also on the first table cell in each row (the "Year" value).
  - As an alternative to using "scope", you can use the "headers" attribute to accomplish this.

```
 1      United States Population from 1790 to 2010
 2      ----------------------------------------------------
 3      Year   Total Population
 4      ----   ----------------
 5      2010        308,745,538
 6      2000        285,230,516
 7      1990        248,709,873
 8      1980        226,542,199
 9      1970        203,302,031
10      1960        179,323,175
11      1950        151,325,798
12      1940        132,164,569
13      1930        123,202,624
14      1920        106,021,537
15      1910         92,228,496
16      1900         76,212,168
17      1890         62,979,766
18      1880         50,189,209
19      1870         38,558,371
20      1860         31,443,321
21      1850         23,191,876
22      1840         17,063,353
23      1830         12,860,702
24      1820          9,638,453
25      1810          7,239,881
26      1800          5,308,483
27      1790          3,929,214
28      ----------------------------------------------------
29      Data from United States Census Bureau (http://www.census.gov/)
30
```

Data in plain text format (us_census.txt)

United States Population from 1790 to 2010

Year	Total Population
2010	308,745,538
2000	285,230,516
1990	248,709,873
1980	226,542,199
1970	203,302,031
1960	179,323,175
1950	151,325,798
1940	132,164,569
1930	123,202,624
1920	106,021,537
1910	92,228,496
1900	76,212,168
1890	62,979,766
1880	50,189,209
1870	38,558,371
1860	31,443,321
1850	23,191,876
1840	17,063,353
1830	12,860,702
1820	9,638,453
1810	7,239,881
1800	5,308,483
1790	3,929,214

Data from United States Census Bureau

Example screenshot of the data in an XHTML table

Part 3. Forms – "Lunch Special"

40 points. You will create a web-based version of a paper form for the "Dado Tea Lunch Special". (Dado Tea is a local establishment with two locations, one in Harvard Square, across the street from the 53 Church Street Computer facility). Screenshots (see page 9) are given to provide clarity to the description and requirements. The purpose of the assignment is to focus on creating the different types of form input elements (input text, choose one, choose all that apply, pull-down menu, submit button) – using appropriate "name", "value" and "id" attributes for them, as well as using the "label" element to associate text labels with these input elements. *Any type of Javascript integration in the form is left to a future assignment and is not part of this assignment.*
The markup document you create should meet the *following requirements*:

- **File.** Use the lunch_special.html file.
- **Markup**. Validate as HTML5 (you can also use XHTML 1.0 Strict or Transitional or HTML 4.01 Strict or Transitional).
- **CSS.** Include a link element that refers to the lunch_special.css CSS file. You will edit this CSS file in Part 4 of this assignment.
- **Form Markup**.
    - **Parameter names and values.** You choose the parameter names and values for the form input elements.
    - **Action of form.** Use action="http://morpheus.dce.harvard.edu/cgi-bin/echo.cgi" in the form element.
    - **Method.** Use "post" as the method attribute value for the form element.
    - **Fieldset and Legend**. Use fieldset and legend elements to group the form into sections
    - **Labels**. Create a label element for all text, radio, and checkbox input elements
    - **Days and Sandwiches**. It is OK to list all the days of the week as the paper form does. To only allow the "Friday" choices to be available on a "Friday" is a type of form validation that is beyond the scope of this assignment (as are other types of form validation and total price computation)
    - **Input types**.
        - Text input for name
        - Radio buttons for here/to go, sandwich choice, breads, cheeses, snacks
        - Checkboxes for sandwich fillings and spreads
        - Pull-down option for drink choice
    - **Breads.** Make the default bread choice "French" (i.e. use the checked or checked="checked" attribute/value).
    - **Cheeses.** Include a "No cheese" default option for the "Cheeses" radio group. Otherwise, if you select a cheese and then change your mind that you don't want cheese, there is no way to unselect a radio group (you can choose a different choice, but can't un-select all choices)
    - **Drinks.**
        - Use optgroup elements to group the drink choices. In the example, I chose to group by "Black Tea", "Green Tea", and "Coffee".
        - The example shows the "Large Drink" choice implemented as a checkbox. You may replicate this or use a radio group with "Regular" and "Large" choices.

LUNCH SPECIAL
Monday-Friday 11am-3pm

$7.24

NAME :

○ Here   ○ To Go

SANDWICHES (choose one)

M: ○ Pesto Tofu Salad   ○ Chicken Salad
T: ○ Greek Salad Wrap   ○ Tuna Salad
W: ○ Hummus   ○ Turkey
Th: ○ Carrot-Ginger Wrap ○ Egg Salad
F: ○ Veggie   ○ Tuna Salad

BREADS (choose one)	**CHEESES (add 50¢)**
○ 7 grain	○ Feta
○ French	○ Fresh Mozzarella
○ Wheat Wrap	○ Swiss

SPREADS (✔ all that apply)	**FILLINGS (✔ all that apply)**
○ Mayonnaise	○ Tomato
○ Honey Mustard	○ Mixed Greens
○ Pesto	○ Cucumber
○ Olive	○ Red Onion

SNACKS (choose one)

○ Apple   ○ Banana
○ Potato Chips

DRINKS (choose one • add 50¢ for large drink)

HOT COFFEE	Lrg	**ICED COFFEE**	Lrg
○ Coffee		○ Coffee	
○ Decaf Coffee		○ Decaf Coffee	
HOT GREEN TEA		**ICED GREEN TEA**	
○ Sencha		○ Sencha	
○ Decaf Green		○ Decaf Green	
HOT BLACK TEA		**ICED BLACK TEA**	
○ Keemun		○ Keemun	
○ Decaf Keemun		○ Decaf Keemun	

No Substitutions

dado
tea⁺ coffee

*Paper Lunch Special form
from Dado Tea
(used with permission)*

Dado Tea Lunch Special

Monday — Friday
11am — 3pm
$7.24

Includes sandwich, snack, and drink.

Order Information

Name

[   ]

◉ Here
◉ To Go

Sandwiches

Monday
◉ Pesto Tofu Salad
◉ Chicken Salad

Tuesday
◉ Greek Salad Wrap
◉ Tuna Salad

Wednesday
◉ Hummus
◉ Turkey

Thursday
◉ Carrot-Ginger Wrap
◉ Egg Salad

Friday
◉ Veggie
◉ Tuna Salad

Sandwich Options

Breads
◉ 7 Grain
◉ French
◉ Wheat Wrap

Cheeses (add 50¢)
◉ No Cheese
◉ Feta
◉ Fresh Mozzarella
◉ Swiss

Spreads
☐ Mayonnaise
☐ Honey Mustard
☐ Pesto
☐ Olive

Fillings
☐ Tomato
☐ Mixed Greens
☐ Cucumber
☐ Red Onion

Snack and Drink

Snacks
◉ Apple
◉ Banana
◉ Potato Chip

Drinks
[Hot Black Tea - Keemun   ▾]
☐ Large drink (add 50¢)

[Place Order]

Black Tea
  Hot Black Tea - Keemun
  Hot Black Tea - Decaf Keemun
  Iced Black Tea - Keemun
  Iced Black Tea - Decaf Keemun
Green Tea
  Hot Green Tea - Sencha
  Hot Green Tea - Decaf
  Iced Green Tea - Sencha
  Iced Green Tea - Decaf
Coffee
  Hot Coffee
  Hot Decaf Coffee
  Iced Coffee
  Iced Decaf Coffee

*Example Web Lunch Special Form.
Select options with optgroups are
shown.*

Part 4. Introduction to CSS for "The Harvard Guide" and "Dado Tea Lunch Special"

50 points (25 points for each CSS stylesheet document). You will create CSS stylesheets that will be applied to your markup documents from earlier parts of the assignment ("The Harvard Guide: Division of Continuing Education" and "Dado Tea Lunch Special form"). The purpose of this part of the assignment is to begin learning how to author CSS by writing style rules for element selectors. We are expecting stylesheets that have a relatively small number of basic style rules whose effect is to simply improve the overall presentation of the markup documents.

The CSS documents you author should meet the *following requirements*:

- **Files.** Use the harvard_guide.css and lunch_special.css files.
- **CSS should validate with no errors.** Your CSS files should validate with the W3C CSS Validation Service, http://jigsaw.w3.org/css-validator/ (CSS level 2.1; no errors; warnings are acceptable).
- **Small number of CSS rules (4-6) that use element selectors to define a small number (8 to 12) property/value pairs**. We are expecting each stylesheet document to use element selectors to specify 4 sets of style rules and a dozen or so CSS property/value pairs. For example, the screenshot example of The Harvard Guide has 10 property/value pairs, and the screenshot example of the Lunch Special has screenshot has 18 property/value pairs.
- **Screenshot examples below (pages 11-12) are not meant to be reproduced exactly**. The example screenshots are just my samples, and are not meant as a rigid guide to be reproduced exactly. Feel free exercise your own creativity here, and not be bound by mine.
- **Not Expected.**
  - **"class" and "id"**. Using "class" and "id" selectors is not required.
  - **Position**. Use of CSS "positioning" properties is not required.
- **Doing more is not forbidden (but won't get you more points)**. You can author more style rules. You can add class and id attributes to your HTML/XHTML markup and apply style rules based upon class and id names.
- **Evaluation**
  - CSS 2.1 Validation with no errors.
  - Presence of 4 or more CSS rules to define 8 or more property/value pairs.
  - Do the style rules improve the look of the page?

The Harvard Guide

Division of Continuing Education

The Division of Continuing Education in the Faculty of Arts and Sciences is responsible for four major programs:

- Harvard Summer School
- Harvard Extension School
- Harvard Institute for English Language Programs
- Harvard Institute for Learning in Retirement

The combined enrollments in these programs approaches 20,000.

Harvard Summer School

The Harvard Summer School, founded in 1871, is the oldest academic summer session in the United States. Each summer more than 5,000 students of all ages come to Harvard from every state and nearly 80 foreign countries to study for eight weeks with faculty from Harvard and other major American and foreign universities. The open-enrollment program sponsors nearly 200 day and evening courses in more than 45 liberal arts fields.

The Summer School features a selective college-level program for highly qualified secondary school students, the Ukrainian Summer Institute, as well as courses in premedical science, expository and creative writing, economics, and many foreign languages, among others.

Harvard's Secondary School Program (SSP). SSP is open to all high school students who will graduate in 2010, 2011, or 2012, and meet the application and admission criteria.

Harvard Extension School

The Harvard Extension School was founded by Harvard President A. Lawrence Lowell in 1909 as an academic evening program designed to serve the educational interests and needs of the Greater Boston community. The features of the Extension School have remained constant from the beginning: open enrollment, part-time evening study at Harvard, coeducation for all ages, modest tuition rates, a distinguished faculty drawn primarily from Harvard University, and the opportunity to study for personal enrichment, career advancement, or degrees or certificates.

More than 550 courses are offered each year, including health and computer sciences, liberal arts, administration and management, many foreign languages, and expository and creative writing, to nearly 13,000 students of all ages. In 91 years of operation, the Extension School has provided instruction to more than 350,000 people.

Some 5,000 degrees and certificates have been granted in the Extension School undergraduate and graduate programs.

Harvard Institute for English Language Programs

The Harvard Institute for English Language Programs was founded in 1950 to meet the language needs of post-World War II immigrants to the United States. During the academic year, the Institute offers part-time day and evening programs to native speakers from the Greater Boston community and the summer session intensive day and evening

Example screenshot of the "The Harvard Guide: Division of Continuing Education" with a small number of CSS rules applied. Shown is a mouse hover over an "a" link with a "title" attribute.

Lunch Special

Monday — Friday
11am — 3pm
$7.24

Includes sandwich, snack, and drink.

┌─ **Order Information** ──────────────────────

Name
[   ]

○ Here
○ To Go

└──────────────────────────────────

┌─ **Sandwiches** ──────────────────────────

Monday
○ Pesto Tofu Salad
○ Chicken Salad

Tuesday
○ Greek Salad Wrap
○ Tuna Salad

Wednesday
○ Hummus
○ Turkey

Thursday
○ Carrot-Ginger Wrap
○ Egg Salad

Friday
○ Veggie
○ Tuna Salad

└──────────────────────────────────

┌─ **Sandwich Options** ──────────────────────

Breads
○ 7 Grain
⦿ French
○ Wheat Wrap

Cheeses (add 50¢)
⦿ No Cheese
○ Feta
○ Fresh Mozzarella
○ Swiss

Spreads
☐ Mayonnaise
☐ Honey Mustard
☐ Pesto
☐ Olive

Fillings
☐ Tomato
☐ Mixed Greens
☐ Cucumber
☐ Red Onion

└──────────────────────────────────

┌─ **Snack and Drink** ──────────────────────

Snacks
○ Apple
○ Banana
○ Potato Chip

Drinks
[Hot Black Tea - Keemun   ▼]
☐ Large drink (add 50¢)

└──────────────────────────────────

[**Place Order**]

Example screenshot of the "Dado Tea Lunch Special" with a small number of CSS rules applied.