

HTML5 Semantic Elements / Information Architecture / Navigation

Essentials of Web Design
CSCI 1210

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Class Today

- HTML Semantics
- Information Architecture
- CSS Pseudo-classes
- Making a Nav bar (CSS float, pseudo-classes, and styling)

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Semantics

The study of the meanings of words and phrases in language

Thus, 'semantic elements' are elements with a meaning

Clearly describes meaning to both the browser and the developer

Non-semantic: <div> and tell nothing about their content

Semantic: <form>, <table>, clearly define their content

HTML5 Semantic Tags

HTML5 offers new semantic elements to clearly define different parts of the web page (partial list):

<header>

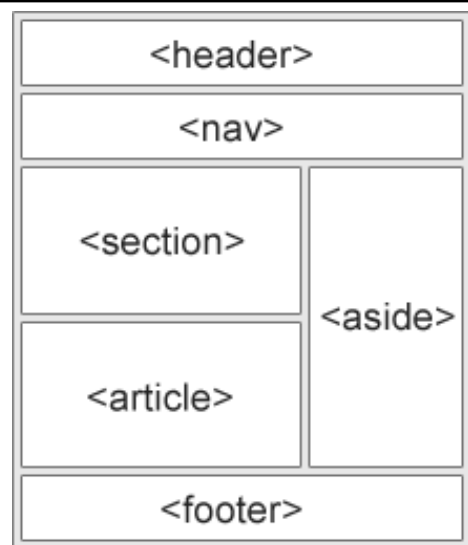
<nav>

<section>

<article>

<aside>

<footer>



Header

The <header> element specifies a header for a document or section

The <header> element should be used as a container for introductory content

You can have several <header> elements in one document

Nav

The <nav> element defines a set of navigation links

The <nav> element is intended for large blocks of navigation links

Not all links in a document should be inside a <nav> element!

<nav> is specifically for intra-site links; absolute links (to resources outside of a given site) should be styled differently

Nav

Internal Navigation

External Links

With CSS – specifically contextual selectors – we can style each different type of link to display differently

Header

LINK LINK LINK LINK LINK

Lorem ipsum dolor sit amet, gravida facilisi orci nulla. Erat dolor, sagittis blandit, maecenas quis mi suscipit, risus enim tincidunt erat. Eu justo, senectus ut mattis laoreet et. Nec ultricies ultrices iaculis non asperiores urna, nec ut dolor dignissim, sodales purus pretium eget, wisi integer molestie arcu platea, urna ut in ipsum laoreet. Aenean fusce donec, arcu elit, placerat arcu laoreet.

Nibh leo sit dui nonummy lorem augue, purus libero turpis integer, at erat conubia neque, praesent eleifend placerat ridiculus magna pulvinar ipsum. Dolor odio pretium eiusmod aliquid. Mauris amet voluptatem gravida, ullamcorper id dignissim consequat suscipit, risus pulvinar nam a nam, et viverra sed, anim tincidunt quam. Sed inceptos erat eleifend tempus, augue diam, velit suscipit, platea morbi.

Footer
[LINK](#) | [LINK](#) | [LINK](#)

May be either
(Usually internal)

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Nav

For Example:

```
nav a {
  background-color: lightblue;
  border: 1px solid black;
  color: white;
  border-radius: 3px;
}
```

Header

LINK LINK LINK LINK LINK

Lorem ipsum dolor sit amet, gravida facilisi orci nulla. Erat dolor, sagittis blandit, maecenas quis mi suscipit, risus enim tincidunt erat. Eu justo, senectus ut mattis laoreet et. Nec ultricies ultrices iaculis non asperiores urna, nec ut dolor dignissim, sodales purus pretium eget, wisi integer molestie arcu platea, urna ut in ipsum laoreet. Aenean fusce donec, arcu elit, placerat arcu laoreet.

Nibh leo sit dui nonummy lorem augue, purus libero turpis integer, at erat conubia neque, praesent eleifend placerat ridiculus magna pulvinar ipsum. Dolor odio pretium eiusmod aliquid. Mauris amet voluptatem gravida, ullamcorper id dignissim consequat suscipit, risus pulvinar nam a nam, et viverra sed, anim tincidunt quam. Sed inceptos erat eleifend tempus, augue diam, velit suscipit, platea morbi.

Footer
[LINK](#) | [LINK](#) | [LINK](#)

Remember what

nav a

↑

the space between
'nav' and 'a' does?

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Section

The <section> element defines a section in a document

According to W3C's HTML5 documentation: "A section is a thematic grouping of content, typically with a heading"

A Web site's home page could be split into sections for introduction, content, and contact information

Section

A page may be divided into a number of sections, each with a logical theme

Alternatively, a page may have one section with a number of headers that divide them logically



Article

The <article> element specifies independent, self-contained content

An article should make sense on its own, and it should be possible to read it independently from the rest of the web site

Examples of where an <article> element can be used:

Forum post

Blog post

Newspaper article

Article

An article can be used in a similar fashion as a section, with similar properties



Aside

The <aside> element defines some content aside from the content it is placed in (like a sidebar)

The aside content should be related to the surrounding content

Aside

An aside element typically includes information / elements that are of interest to visitors, but not directly related to the main content



Footer

The <footer> element specifies a footer for a document or section

A <footer> element should contain information about its containing element

A footer typically contains the author of the document, copyright information, links to terms of use, contact information, etc

You can have several <footer> elements in one document

Figure Captions

In books and newspapers, it is common to have captions with images

The purpose of a caption is to add a visual explanation to an image

With HTML5, images and captions can be grouped together in <figure>elements:

```
<figure>
  
  <figcaption>Fig. 1 – An integrated circuit chip</figcaption>
</figure>
```


Nesting Semantic Elements

In the HTML5 standard, the <article> element defines a complete, self-contained block of related elements

The <section> element is defined as a block of related elements

Can we use the definitions to decide how to nest elements? No, we cannot!

Nesting Semantic Elements

On the Internet, you will find HTML pages with <section> elements containing <article> elements, and <article> elements containing <section> elements

You will also find pages with <section> elements containing <section> elements, and <article> elements containing <article> elements

As a designer, you should pick what structure / nesting scheme best fits your content and be consistent in using it

Nesting Semantic Elements

Newspaper vs. Academic Journal

Newspaper: Several sections (i.e., Headline, Sports, Local, Entertainment, etc.),

Each section has several articles about its topic.

Articles typically include content such as headings/headers, text, images, tables, even (sometimes) asides

Nesting Semantic Elements

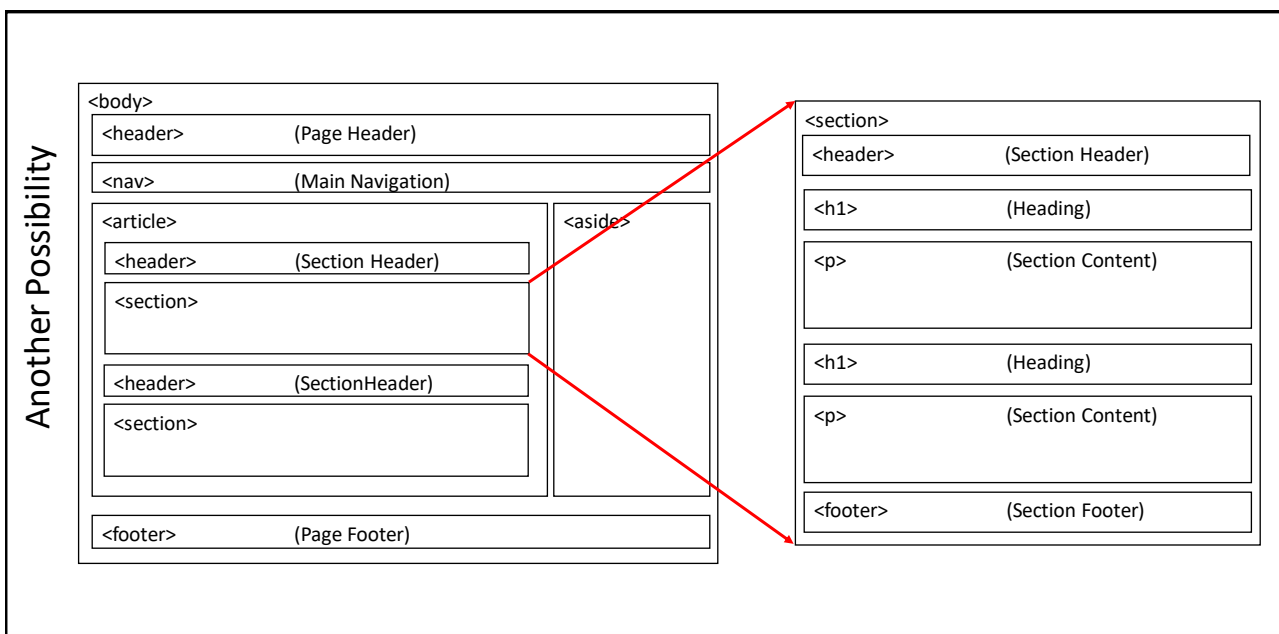
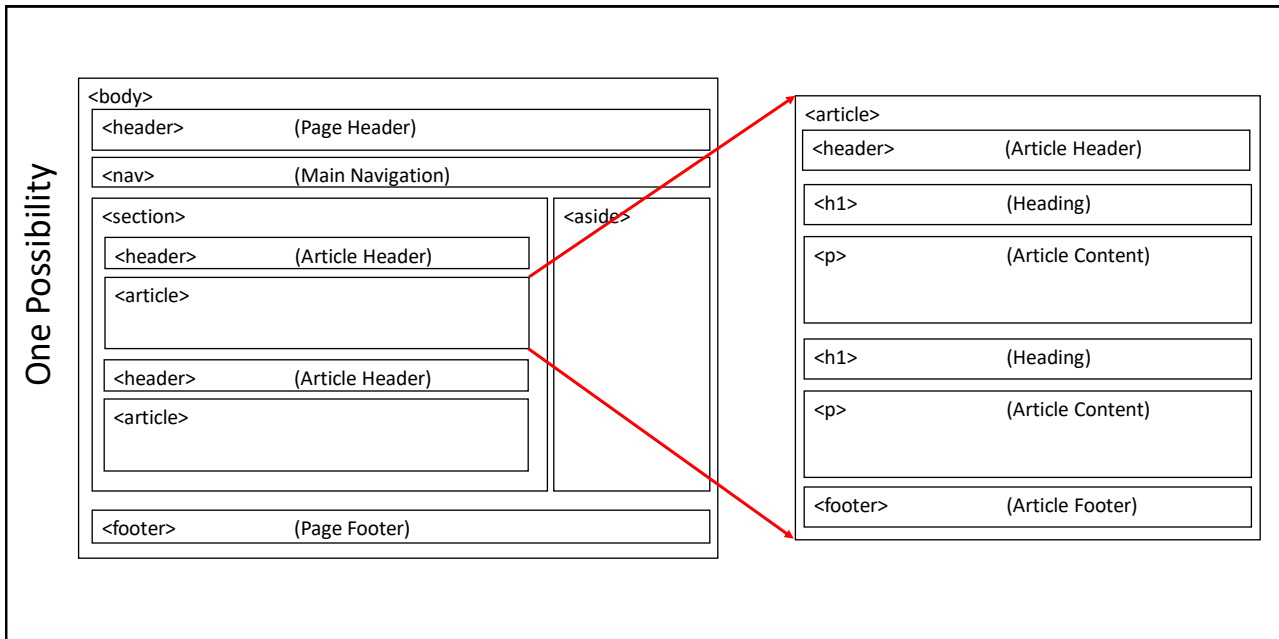
Newspaper vs. Academic Journal

Academic Journal: A single publication with a number of articles about a given area of interest

Each article can be (tends to be) rather lengthy

Often broken up into sections: Abstract, Introduction, Literature Review, Hypothesis, Methodology, Results, Conclusion, Bibliography

Each section includes text (content), images, tables, figures, lists, etc.



Why Semantic HTML5 Elements?

With HTML4, developers used their own favorite attribute names to style page elements:

header, top, bottom, footer, menu, navigation, main, container, content, article, sidebar, topnav, ...

This made it impossible for search engines to identify the correct web page content

With HTML5 elements like: `<header>` `<footer>` `<nav>` `<section>` `<article>`, this will become easier

Why Semantic HTML5 Elements?

According to the W3C, a Semantic Web:

"Allows data to be shared and reused across applications, enterprises, and communities."

HTML5 Semantic Tags

IE8 (and below) does not play nice with the new HTML5 elements. In order to use them you need to:

Download the html5shiv.js (JavaScript file)

<http://code.google.com/p/html5shiv/>

Add the following lines of code to the<head> element:

```
<!--[if lt IE 9]>
  <script src="html5shiv.js"></script>
<![endif]-->
```

HTML5 Semantic Tags

```
<!-- HTML5 shim and Respond.js for IE8 support of HTML5 elements and media queries -->
<!--[if lt IE 9]>
  <script src="https://oss.maxcdn.com/html5shiv/3.7.2/html5shiv.min.js"></script>
  <script src="https://oss.maxcdn.com/respond/1.4.2/respond.min.js"></script>
<![endif]-->
```

* From Bootstrap Framework head element. Enables use of the shiv without having to download it –
cdn=Content Delivery Network

HTML5 Semantic Tags

Older browsers may not recognize the new elements as block level container elements. Will need to add the following to your CSS:

```
header, section, footer, aside, nav, article {
    display: block;
}
```

HTML5 Semantic Tags

* From the Bootstrap main CSS file

```
article,
aside,
details,
figcaption,
figure,
footer,
header,
hgroup,
main,
menu,
nav,
section,
summary {
    display: block;
}
```

Information Architecture and Site Navigation

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Information Architecture

Science of figuring out what site should contain and how it can best be organized and presented

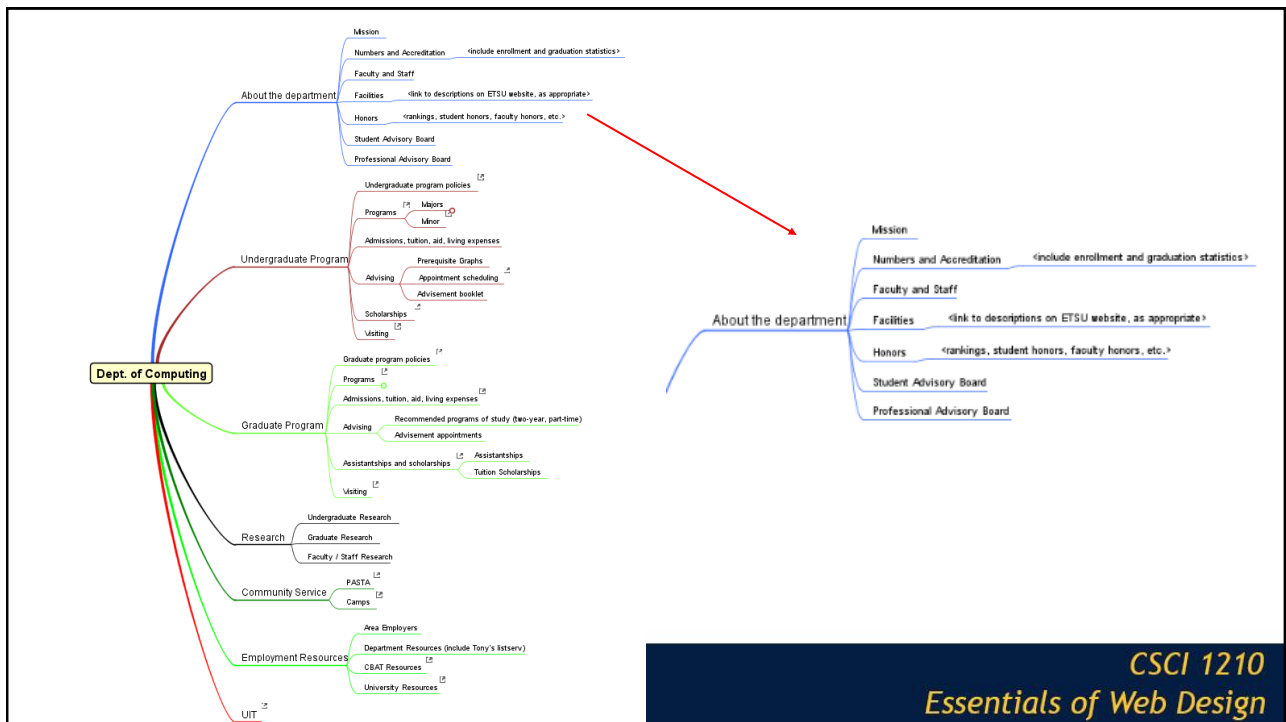
Two primary elements:

- Organizing and labeling site content
- Designing navigation through information

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Information Architecture

The more done in the initial stages to start well, less rework and redo

Challenging to take a large amount of data and make it easy to understand and move through

Must break up and organize information—structure

Information grows and changes over time—good structure plans for this

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The User's Mental Model

Users make quick assessment of site upon entry to understand how site is organized and what it contains

If too much presented, or it is poorly organized, user will feel overwhelmed or confused

The User's Mental Model

If too little presented, user may feel bored or that little value is present

If doesn't feel "in control" or have understanding of site structure, will tend to leave

We must think about navigation and organization of site like the user does

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The screenshot shows the CDW website homepage. At the top, there is a navigation bar with links for Home, About CDW, Customer Support, View Cart, and Log On. A search bar is also present. Below the navigation bar, there are several promotional banners and sections:

- wired to move... save up to \$400**: Promotion on select Satellite Pro 6100 notebooks with integrated WiFi 802.11b.
- CDW SMARTBUYS**: A list of offers including a free 32MB Bonzai drive, ADIC FastStor 2 backup, and a \$40 mail-in rebate on T-Mobile BlackBerry 6710 devices.
- NEW XTREME WIRELESS**: Advertisement for D-Link Xtreme-G 54Mbps Wireless Access Point.
- SAVE \$30 & BURN AWAY**: Offer on Yamaha CRW-F1 USB 2.0 CD-Recorder.
- NEXT GENERATION BACKUP**: Advertisement for Veritas Backup Exec 9.0 for Windows Server.
- ACER'S POWER PC**: Advertisement for Acer Power 5d minitower.
- PRODUCTIVE PRINTING**: Advertisement for HP LaserJet 4200 printer series.
- MINI SIZE COMPUTING**: Advertisement for Apple PowerBook G4.
- INCREASED RESPONSE TIME**: Advertisement for Fujitsu 36GB Ultra320 hard drives.
- FREE 64MB COMPACTFLASH**: Offer on Kodak DX4900 4.0 megapixel digital camera.

On the left side, there is a sidebar with navigation links for RESOURCES, CDW@WORK, CDWG.COM, CAREERS AT CDW, ONLINE HELP, and PRINTABLE VERSION. The bottom of the page features a dark blue banner with the text "East Tennessee Department of Computing" on the left and "CSCI 1210 Essentials of Web Design" on the right.

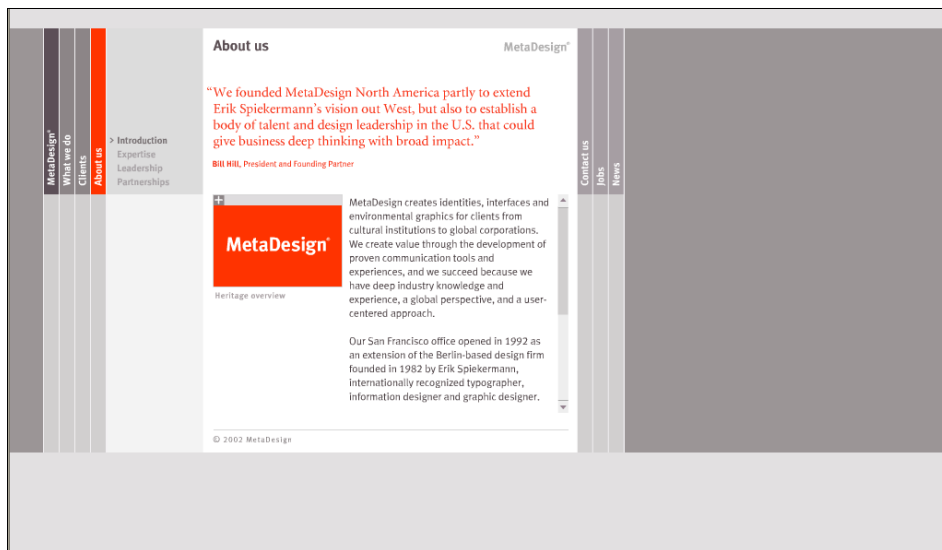
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The screenshot shows the MetaDesign website. The design is clean and minimalist, featuring a grey background with white text and a vertical orange bar on the left side. The main content area includes the following elements:

- MetaDesign** logo in the top right corner.
- A vertical navigation menu on the left with the text "MetaDesign" repeated vertically.
- A vertical navigation menu on the right with links for "What we do", "Clients", "About us", "Contact us", "Jobs", and "News".
- > Information needs design.** as the main heading.
- Text describing MetaDesign's services: "MetaDesign is internationally known for creating systemic and forward-looking design systems for corporations and institutions with complex information problems. These information design systems include identity, interaction and environmental design, and are valuable tools for conveying critical information for commerce, culture and government."
- Locations: "San Francisco Berlin Zürich".
- Copyright notice: "© 2002 MetaDesign".

The bottom of the page features a dark blue banner with the text "East Tennessee State University Department of Computing" on the left and "CSCI 1210 Essentials of Web Design" on the right.

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Information Architecture Process

Decide what information elements and functional content site must provide

Decide how above can best be grouped and organized

Plan connecting navigation among elements

Information Architecture Process

Decide succinct, descriptive terms can be used to guide navigation

Think like the user not “an insider”

Evaluate and improve resulting proposed structure

How we organize content and is just as important as the content itself, if not more so

Critical Information Architecture Issues

Labels and naming

What are things called? Be consistent to avoid confusion

Clarity and simplicity

Structure of content

What goes where?

What is the relationship between elements?

Navigation between pages

How to map mental thought process to supported navigation?

Example Exercise

Organize the following list of items:

- Refrigerator
- Socks
- Dresser
- Living room
- Dictionary
- Kitchen
- Milk
- Bookshelf
- Bedroom

Many Ways to Organize Previous

Simple alphabetic list

By size:

- Large: kitchen, bedroom, living room
- Medium: bookshelf, refrigerator, dresser
- Small: socks, dictionary, milk

By room:

- Kitchen: refrigerator, milk
- Living Room: dictionary, bookshelf
- Bedroom: dresser socks

By exact location:

- Kitchen: refrigerator: milk
- Living room: bookshelf: dictionary
- Bedroom: dresser: socks

Site Navigation

Biggest Problem: Not organizing site around the way site visitors think

Organizing site based on some inner company structure the user can't relate to

Unclear descriptions. Where will this take me?

Inconsistent link behavior

Can people find what they are looking for?

Learn how site visitors think. Structure site to match their mental model

Types of Navigation

Structural--basic linkage between pages defining overall site structure

Categorical--breaking of content into different categories understandable to user

Relational--linkage between content related in some manner in thought process

Promotional--calls attention to special items or content

Search--direct path to items specifically identified by user

Navigation

Four critical user questions:

Where am I?

Where can I go?

How will I get to my desired content?

How can I get back to where I once was?

The web's non-linear presentation of content can be confusing and overwhelming

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The screenshot displays the Yahoo! Education Directory interface. At the top, the logo reads "YAHOO! education directory". Navigation links include "Directory Home", "Yahoo!", and "Help". A breadcrumb trail is highlighted with a red box: "Business > College Organizations > Directory > Education > By Subject > Business and Economy > College and University > Organizations". Below this is a search bar with a "Search" button and radio buttons for "the Web" (selected) and "just this category".

The main content area is divided into "SITE LISTINGS" and "SPONSOR RESULTS". The "SITE LISTINGS" section contains a bulleted list of organizations:

- [American Assembly of Collegiate Schools of Business \(AACSB\)](#) - Accrediting agency for U.S. business schools and professional organization for management education.
- [Association of Business Schools](#)
- [Community of European Management Students](#) - offering networking opportunities and organized activities for CEMS students and alumni.
- [Consortium of International Double Degrees \(CIDD\)](#) - organisation promoting international business and management education and training services via partnerships between universities and industry.
- [DECA@](#)
- [Network of International Business Schools](#) - NIBS believes that the internationalization of business and the globalization of the economy are essential elements in the evolution of managerial practices.
- [Public Relations Student Society of America \(PRSSA\) \(6\)](#)

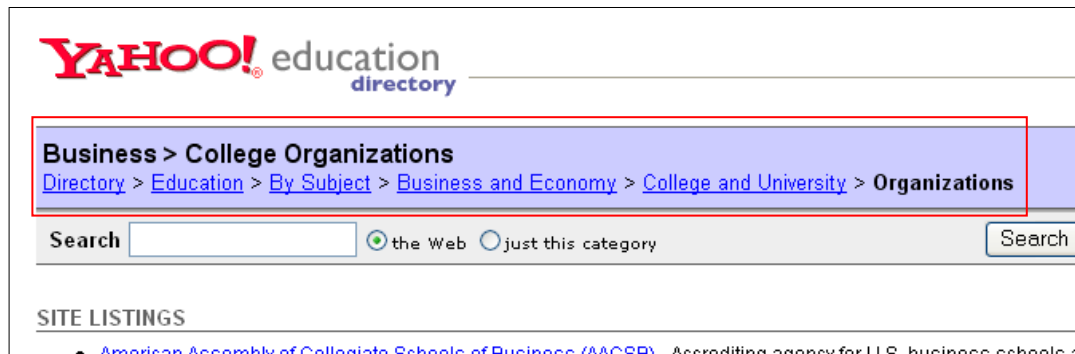
The "SPONSOR RESULTS" section features a box for "Alliance Atlantis Communications Inc." with a description: "Find information on Alliance Atlantis Communications Inc. (AACB) with ... www.hoovers.com" and a link "See your message here...". Below this, another "SPONSOR RESULTS" section lists "Alliance Atlantis Communications Inc." with details about their products and services.

At the bottom of the page, there is a copyright notice: "Copyright © 2004 Yahoo! Inc. All rights reserved. Privacy Policy · Terms of Service · Copyright Policy" and a "powered by" logo.

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Principles of Successful Navigation

Be easily learned

People don't invest time learning to use a website

Remain consistent

Should be predictable. User shouldn't feel lost

Provide feedback

Let user know where they are: "You are here"

Principles of Successful Navigation

Offer alternatives

Don't tie user to just one way of moving around

Economize action and time

People lose interest if the path is long

Use clear and understandable labels

Never use a big word when a small one will do

Pseudo Classes

Pseudo-classes

CSS pseudo-classes are designed to allow us to add special effects to some selectors

For instance, if we wanted to change the way a hyperlink looks when someone hovers over a link, we can do that with pseudo-classes

Pseudo-classes

We signify a pseudo-class with the : colon character after the tag or class

Example:

```
a:hover{color:green;}
```

```
.nav:hover{color:green;}
```

Pseudo-classes

Some examples

:link	a:link	unvisited links
:visited	a:visited	visited links
:active	a:active	active links
:hover	a:hover	moused-over links
:first-letter	p:first-letter	first letter of a paragraph
:first-line	p:first-line	first line of a paragraph

Unordered List Navigation Bar

Example of using CSS to alter a set of tags

HTML & CSS – Navigation Bar

Using HTML and CSS we can transform a basic unordered list into a navigation bar:

- [Home](#)
- [News](#)
- [Articles](#)
- [Forum](#)
- [Contact](#)
- [About](#)



Navigation Bar - HTML

```
<ul>
  <li><a href="index.htm">Home</a></li>
  <li><a href="news.htm">News</a></li>
  <li><a href="articles.htm">Articles</a></li>
  <li><a href="forum.htm">Forum</a></li>
  <li><a href="contact.htm">Contact</a></li>
  <li><a href="about.htm">About</a></li>
</ul>
```

Navigation Bar - CSS

First, remove the bullets, margins, and paddings from the list:

```
ul {  
    list-style-type: none;  
    margin: 0;  
    padding: 0;  
}
```

Navigation Bar - CSS

Second, we need to float the list items to the left:

```
li {  
    float: left;  
}
```

Navigation Bar - CSS

Last, we need to display the <a> as a block and set a width:

```
li > a {  
  display: block;  
  width: 60px;  
}
```



[Home](#) [News](#) [Articles](#) [Forum](#) [Contact](#) [About](#)

Navigation Bar - CSS

Let's make it pretty:

Remove the following CSS:

```
li > a {  
  display: block;  
  width: 60px;  
}
```

Navigation Bar - CSS

```
li > a:link,
li > a:visited {
  display: block;
  width: 100px;
  margin-right: 3px;
  line-height: 1.8rem;
  background: #00A;
  color: #FFF;
  border-radius: 10px;
  text-align: center;
  text-decoration: none;
  position: relative;
  left: 50px;
  top: -15px;
}
```

```
li > a:hover,
li > a:active,
.current {
  background-color: #A0A;
  color: #FF0;
}
```

```
<ul>
  <li class='current'><a href="index.htm">Home</a></li>
  <li><a href="news.htm">News</a></li>
  <li><a href="articles.htm">Articles</a></li>
  <li><a href="forum.htm">Forum</a></li>
  <li><a href="contact.htm">Contact</a></li>
  <li><a href="about.htm">About</a></li>
</ul>
```

Sources

- "CSS Navigation Bar", W3Schools, Retrieved from http://www.w3schools.com/css/css_navbar.asp
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