Week1- Lecture Topics

Native, Hybrid and web apps

Quick recap of technologies – development environments and SDK

The Internet, World Wide Web, and Markup

Markup – HTML / HTML5

Goals

- Design / UX / Storyboard / Content
- Mobile app and web development
- Development tools, technologies, and standards
- Coding, debugging, and programming
- Production process of new mobile apps
- Bring it together in a final project
- Strong foundation for future work

The Course

Markup (XHTML, HTML, HTML5)

Style (CSS)

Functionality (JavaScript CSS3 / HTML5)

Functionality (JavaScript frameworks)

Mobile Functions (jQuery and jQuery Mobile)

Geolocation

Native wrapping (PhoneGap)

Optimizing app performance

Packaging app for release in app stores

The Web is no longer
limited to our desktops and laptop PCs
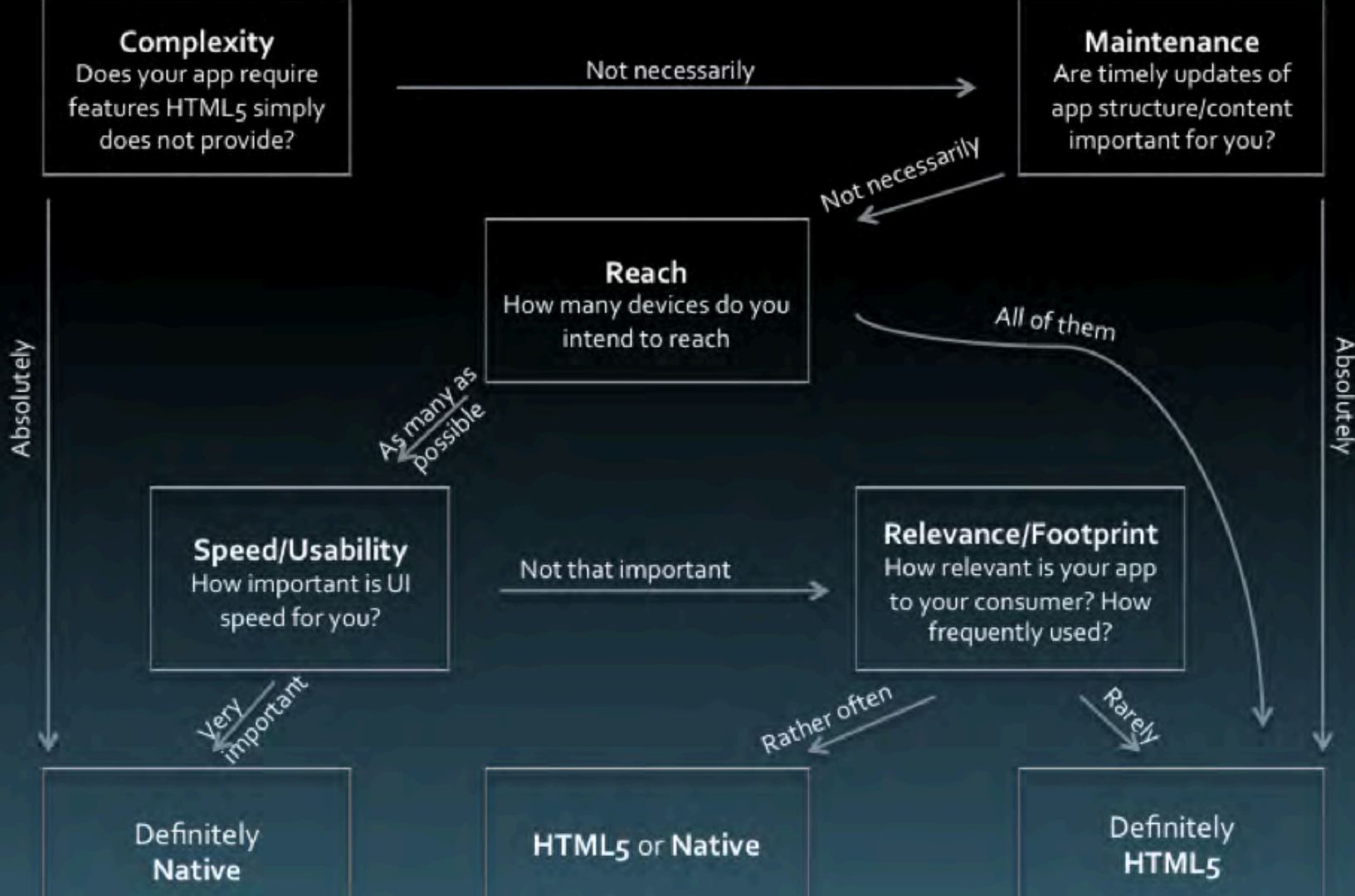2013

Business Insider Slides

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Native Aps   vs   Web Apps

- Takes advantage of smart phone functionality / hardware (camera, GPS, scan feature, etc.)

- Personalization is important

- Complex/unique/tailored design and UI

- Monetized content / potential purchases

- Massive data transfer

- Limited budget (quicker to develop and deploy)

- Search Engines Optimization (visibility and traffic increase)

- App store approval

- No frequent painful updates

- Universal accessibility (cross platform/device distribution)

- Requires very little device knowledge

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Complexity
Does your app require features HTML5 simply does not provide?

Not necessarily →

Maintenance
Are timely updates of app structure/content important for you?

Not necessarily ↓

Reach
How many devices do you intend to reach

All of them →

Absolutely ↓ (left)

As many as possible ↓

Absolutely ↓ (right)

Speed/Usability
How important is UI speed for you?

Not that important →

Relevance/Footprint
How relevant is your app to your consumer? How frequently used?

Very important ↓

Rather often ↙

Rarely ↘

Definitely **Native**

HTML5 or **Native**

Definitely **HTML5**

Web vs Native

App:

How many platforms do you want to support?

How important is performance?

How important is the user experience?

Which hardware APIs do you need access to?

Team:

How many codebases do you want to have?

What languages/technologies do you know?

How much money do you want to spend?

Web + Native = Hybrid Apps

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Quick Recap of Technologies - Web

HTML

CSS

JavaScript

JavaScript frameworks

jQuery

jQuery Mobile

Ajax

jQTouch

Sencha Touch

…

iOS

Objective-C

Xcode Tools

    Xcode

    Interface Builder

    Instruments

    Frameworks –Address Book UI F., Map Kit F., Message UI F., UIKit F., Even Kit UI F…
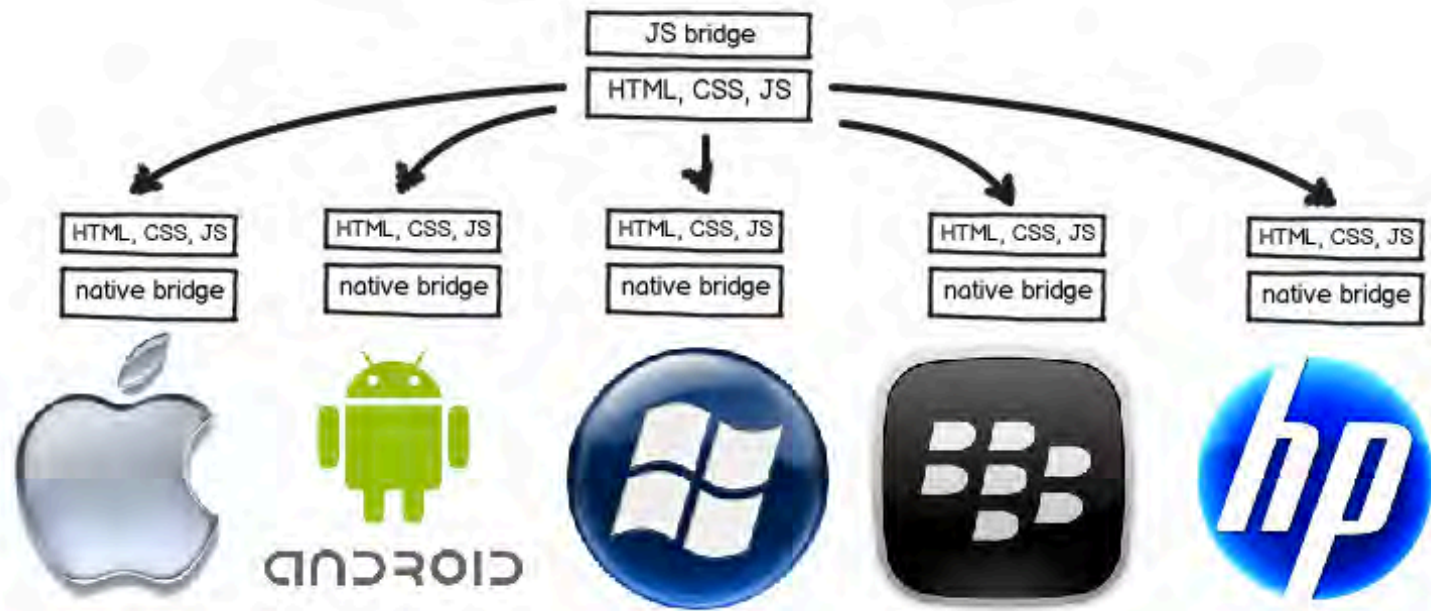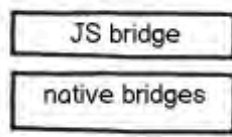
iPhone Simulator

iOS Reference Library

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Platform	Language	IDE
iOS	Objective C	XCode
Android	Java	Eclipse
Windows	.NET	Visual Studio
Blackberry	Java	BB JDE
hpWebOS	C/C++/HTML5	?

JS bridge

HTML, CSS, JS

HTML, CSS, JS — native bridge

HTML, CSS, JS — native bridge

HTML, CSS, JS — native bridge

HTML, CSS, JS — native bridge

HTML, CSS, JS — native bridge
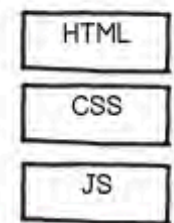
ANDROID

Bridge SDK

JS bridge

native bridges

+

Web Framework

HTML

CSS

JS

= Hybrid App

Hybrid Apps

Bridge SDK and Web using Wrappers

PhoneGap
Titanium
Xamarin
appMobi
Trigger.io…

Hybrid Apps – Web Frameworks

Jquery Mobile

Ajax

jQTouch

Wink

Sencha Touch

Lungojs

GWT Mobile…
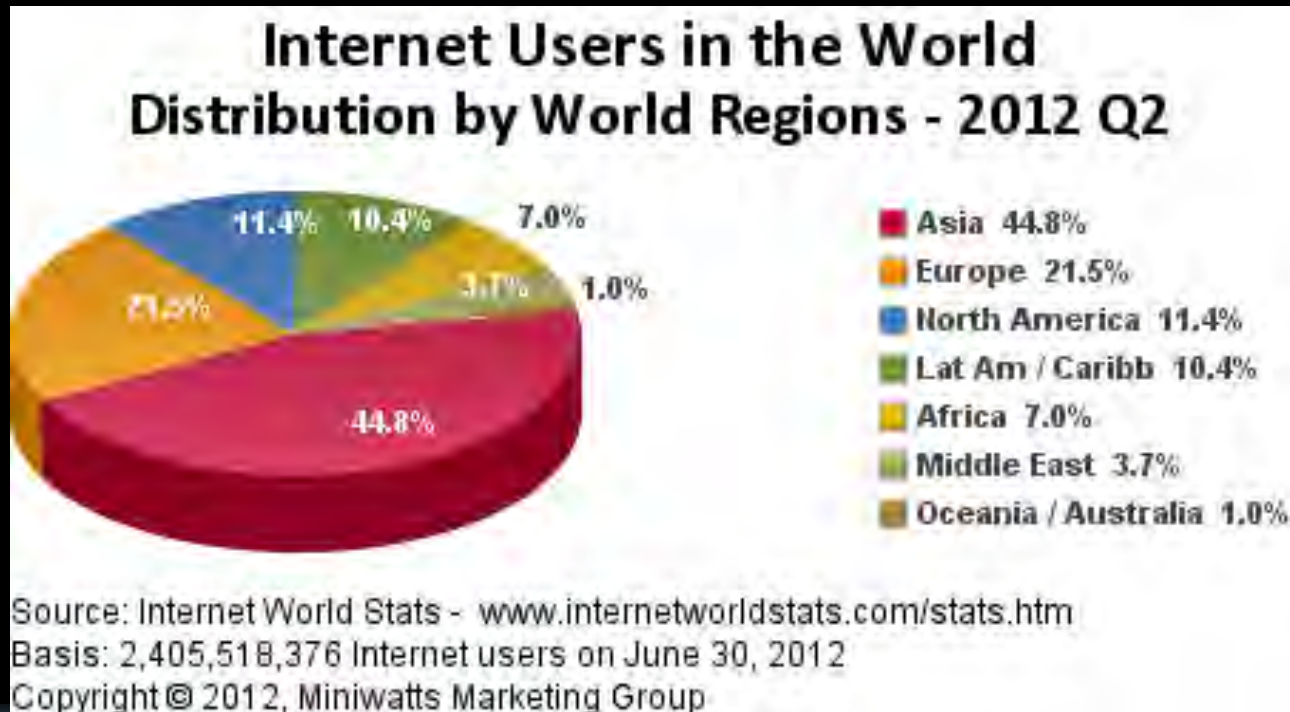
Web + Native = Hybrid Apps

HTML5 /CSS3/JavaScript…+ iOS (Objective-C) = Hybrid Apps

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2.4 billion Internet users world-wide (34% of world population)

Internet Users in the World
Distribution by World Regions - 2012 Q2

Asia 44.8%
Europe 21.5%
North America 11.4%
Lat Am / Caribb 10.4%
Africa 7.0%
Middle East 3.7%
Oceania / Australia 1.0%

Source: Internet World Stats - www.internetworldstats.com/stats.htm
Basis: 2,405,518,376 Internet users on June 30, 2012
Copyright © 2012, Miniwatts Marketing Group
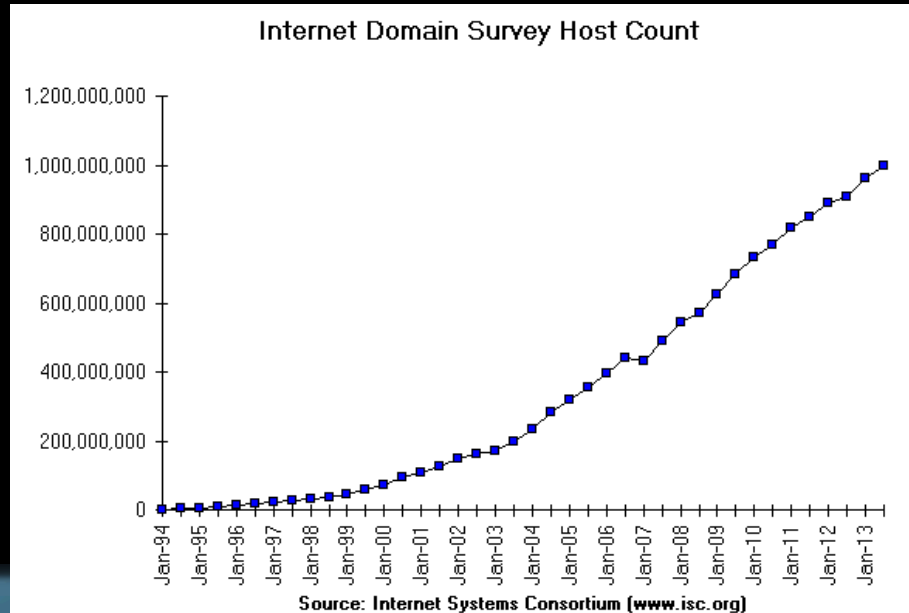
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The Internet

66% of American adults have broadband at home.
82% of American adults use the Internet Over 1000 million Internet hosts as of Jan 2013, ISC Internet Domain Survey

Internet Domain Survey Host Count
Source: Internet Systems Consortium (www.isc.org)

The Internet Traffic Types

Web
- HTTP

Video
- RTMP
- RTSP

Email
- SMTP
- POP
- IMAP

File Transfer
- FTP
- SFTP
- FTP over SSH

Login
- Telnet
- SSH

World Wide Web Features

- HyperText Information System

- Cross-Platform and Cross-Device

- Distributed Around 187 million active sites as of January 2013.

- Open Standards Internet, TCP/IP, HTTP, (X)HTML, CSS, Javascript

- Open Source Apache HTTP Server, Mosaic, Netscape, Firefox, JavaScript, Perl, PHP, etc.

- Web Browser: provides a single interface to many services Information, Communication, Shopping, Banking, ...

- Dynamic, Interactive, Evolving

URL- Uniform Resource Locator

http://www.evl.uic.edu/datsoupi/421/index.html
| | | | | |

Protocol

     world wide web

       domain name

          directory (folder)

             subdirectory

               webpage (file)

URL- Uniform Resource Locator

http://www.evl.uic.edu/datsoupi/421/index.html

| | | | | | |

Protocols

http- hyper text transfer protocol

https - Hypertext Transfer Protocol Secure

FTP – File Transfer Protocol

TCP - Transmission Control Protocol

UDP - User Datagram Protocol

http://www.evl.uic.edu/datsoupi/421/index.html
| | | | | |

domain name

DNS connection

.edu – educational

.com – commercial

.net – network

.org – non profit organization

.gov – government

.mil - military

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Structure (Content)	+	Style	+	Function

Markup (XHTML, HTML)

– Structure
– Content

   text

   images

   media

CSS

- Style
- Presentation
- Appearance

page layout

Javascript frameworks

- Actions
- Events

scripts

database inter.

School of Design – Markup (XHTML)

- Schools
  School of Architecture School of Art & Art History School of Design School of Theatre & Music
- Partners
  Gallery 400 Jane Addams Hull-House Museum UIC Innovation Center Programs
- About
  Dean's Message History Facilities/Resources Publications

- Calendar
- News

- Admissions
  Undergraduate Admissions Graduate Admissions
- Giving
  Make a Difference Meet the Advancement Team Ways to Give Make Your Gift
- Directory

- Information for ∨
  Current Students Faculty/Staff

- Schools
- About
- News
- Support

- Partners
- Calendar
- Admissions
- Directory

School of Design – Markup +Style

ArchDesig**Arts**
at Chicago

Schools
Partners
About

Calendar
News

Admissions
Giving
Directory

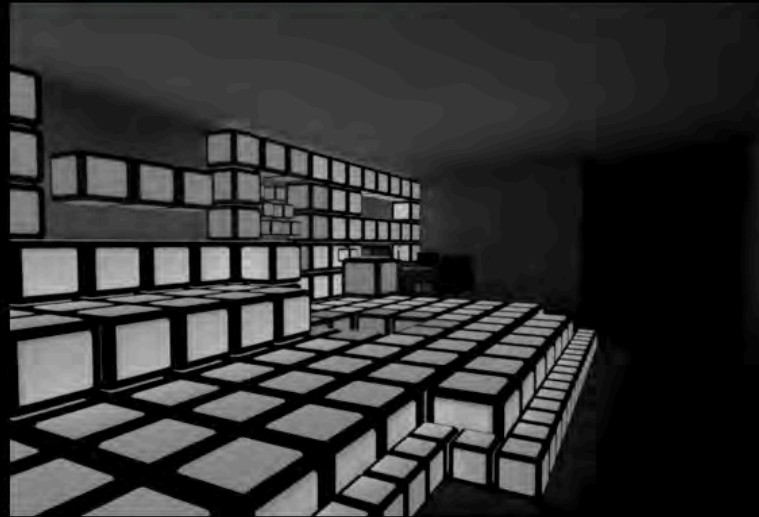Information for ∨

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School of
Architecture

School of Art & Art
History

School of Design

School of Theatre
& Music

The practice of design is a responsibility and a privilege. It is an
independent pursuit that precipitates collective action. Design

School of Design – Markup +Style+ Function

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at Chicago

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Home > Schools > School of Design

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School of
Architecture

School of Art & Art
History

School of Design

School of Theatre
& Music

The practice of design is a responsibility and a privilege. It is an
independent pursuit that precipitates collective action. Design

XHTML (Extensible Hyper Text Markup Language)
is a family of XML markup languages that extend
the widely used Hypertext Markup Language (HTML),
the language in which web pages are written.

XHTML– Extensible Hyper Text Markup Language

```html
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML+RDFa 1.0//EN"
   "http://www.w3.org/MarkUp/DTD/xhtml-rdfa-1.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" version="XHTML+RDFa 1.0" dir="ltr"
  xmlns:content="http://purl.org/rss/1.0/modules/content/"
  xmlns:dc="http://purl.org/dc/terms/"
  xmlns:foaf="http://xmlns.com/foaf/0.1/"
  xmlns:og="http://ogp.me/ns#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"|
  xmlns:sioc="http://rdfs.org/sioc/ns#"
  xmlns:sioct="http://rdfs.org/sioc/types#"
  xmlns:skos="http://www.w3.org/2004/02/skos/core#"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema#">

<head profile="http://www.w3.org/1999/xhtml/vocab">
    <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="shortcut icon" href="http://cada.uic.edu/sites/default/files/favicon.png" type="image/png" />
<link rel="shortlink" href="/node/36" />
<link rel="canonical" href="/design" />
<meta name="Generator" content="Drupal 7 (http://drupal.org)" />
  <title>School of Design | cada.uic.edu | </title>
  <style type="text/css" media="all">@import url("http://cada.uic.edu/modules/system/system.base.css?mw7ig5");
@import url("http://cada.uic.edu/modules/system/system.menus.css?mw7ig5");
@import url("http://cada.uic.edu/modules/system/system.messages.css?mw7ig5");
@import url("http://cada.uic.edu/modules/system/system.theme.css?mw7ig5");</style>
<style type="text/css" media="all">@import url("http://cada.uic.edu/modules/comment/comment.css?mw7ig5");
@import url("http://cada.uic.edu/modules/field/theme/field.css?mw7ig5");
@import url("http://cada.uic.edu/modules/node/node.css?mw7ig5");
@import url("http://cada.uic.edu/modules/search/search.css?mw7ig5");
@import url("http://cada.uic.edu/modules/user/user.css?mw7ig5");
@import url("http://cada.uic.edu/sites/all/modules/views/css/views.css?mw7ig5");</style>
<style type="text/css" media="all">@import url("http://cada.uic.edu/sites/all/modules/ctools/css/ctools.css?mw7ig5");
@import url("http://cada.uic.edu/sites/all/modules/eventwork/css/custom.css?mw7ig5");</style>
<style type="text/css" media="all">@import url("http://cada.uic.edu/sites/all/themes/cadaweb/assets/css/style.css?mw7ig5");
@import url("http://cada.uic.edu/sites/all/themes/cadaweb/assets/css/typography.css?mw7ig5");
@import url("http://cada.uic.edu/sites/all/themes/cadaweb/assets/css/layout.css?mw7ig5");
@import url("http://cada.uic.edu/sites/all/themes/cadaweb/assets/css/component.css?mw7ig5");</style>
<style type="text/css" media="print">@import url("http://cada.uic.edu/sites/all/themes/cadaweb/assets/css/print.css?mw7ig5");</style>

<!--[if lt IE 7]>
<link type="text/css" rel="stylesheet" href="http://cada.uic.edu/sites/all/themes/cadaweb/fix-ie.css?mw7ig5" media="all" />
<![endif]-->

  <!-- dropdown menu -->

  <script type="text/javascript" src="http://cada.uic.edu/sites/all/themes/cadaweb/assets/js/modernizr.custom.js"></script>
<script type="text/javascript">

var timeout         = 10;
var closetimer      = 0;
```

XHTML– Document Structure

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML+RDFa 1.0//EN"
    "http://www.w3.org/MarkUp/DTD/xhtml-rdfa-1.dtd">
 <html>
   <head>
     <title>School of Design | cada.uic.edu | </title>
   </head>
   <body>
           <!-- content goes here -->
   </body>
</html>
```

XHTML vs HTML

Document Structure

       XHTML <!DOCTYPE ....> is mandatory

       The XML namespace attribute in <html> is mandatory

       <html>, <head>, <title>, and <body> is mandatory

XHTML Elements

       XHTML elements must be properly nested

       XHTML elements must always be closed

       XHTML elements must be in lowercase

       XHTML documents must have one root element

XHTML Attributes

       Attribute names must be in lower case

       Attribute values must be quoted

       Attribute minimization is forbidden

History of HTML

Tim Berners-Lee developed html in 1992 while at CERN, the European Laboratory for Particle Physics in Geneva in Switzerland.

He is currently the Director of the World Wide Web Consortium, the group that sets technical standards for the Web.

SIR TIM BERNERS-LEE
INVENTOR OF THE WORLD WIDE WEB

HTML5 : Past, Present & Future

Web and Mobile Applications

Timeline of Web Technologies

1991	1994	1996	1997	1998	2000	2002	2005	2009
HTML	HTML 2	CSS 1	HTML 4	CSS 2	XHTML 1	Tableless Web	AJAX	HTML5

HTML5 Game Example
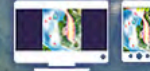
HTML

a collection of platform-independent markup tags that define the various components of a World Wide Web document

allows you to format text, add rules, graphics, sound, and video and save it all in a text only file that any computer can read and view this file in the Browser

Any HTML file is called document and it has an extension .html HTML documents can contain links to other HTML documents or to practically any information on the Internet

HTML

HTML uses tags are commands (keywords) enclosed in less than < and greater than > signs.

Example:

<table>

Many tags have special attributes hat offer a variety of options for the contained text.

Example:

<table border >

HTML

Attributes often have values:

    Example:

        `<table border =”1”>`

HTML browsers ignore any extra space that exist between the tags in your document.

Tags are usually come in pairs: opening and closing tag.

    Example:

        `<table >` opening tag

        `</table>` closing tag

Opening Tag

        `<a href="http://www.uic.edu/">UIC</a>`

Element

        `<a href="http://www.uic.edu/">UIC</a>`

Attribute

        `<a href="http://www.uic.edu/">UIC</a>`

Attribute Value

        `<a href="http://www.uic.edu/">UIC</a>`

Content

        `<a href="http://www.uic.edu/">UIC</a>`

Closing Tag

        `<a href="http://www.uic.edu/">UIC</a>`

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CORRECT

  UIC

INCORRECT

  UIC

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```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML+RDFa 1.0//EN"
    "http://www.w3.org/MarkUp/DTD/xhtml-rdfa-1.dtd">
 <html>
   <head>
     <title>School of Design | cada.uic.edu | </title>
   </head>
   <body>
            <!-- content goes here -->
   </body>
</html>
```

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HTML– Document Structure

```
<!DOCTYPE html >
<html>
  <head>
    <title> Document Title </title>
  </head>
  <body>
          <!-- content goes here -->
  </body>
</html>
```

<!DOCTYPE html >

XHTML5 DTD for the <!doctype> tag.

<?xml version="1.0" encoding="UTF-8" ?>

XML declaration

HTML5– Page Setup Requirements

The next line of code should be the opening <html> tag.
The <html> tag in every document should always be

<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">

- xmlns specifies the XML namespace for a document.
- xml:lang specifies the contents and attributes as English and is a required accessibility standard.
- lang specifies the content of a tag as English and is a required accessibility standard.

<meta charset="utf-8" />
between the <head> and </head> tags, placed <meta> tag

The encoding type (UTF-8) should match the encoding in the XML declaration above.

HTML5– Validators

Validation is a good way to make sure that u writing correct HTML5 code
Some portion of HTML5 have some new semantics available which require validation

The Total Validator tool is pretty handing for validating HTML5

http://www.totalvalidator.com/tools/index.html

W3C Markup validation service

http://validator.w3.org/

Validator.nu

http://html5.validator.nu/

HTML5– Validators

There are a few validator add-ons to the browsers, some do HTML5 well, others do not. Firefox install add-ons:

Firebug

https://getfirebug.com/

HTML Validator

https://addons.mozilla.org/en-US/firefox/addon/html-validator/

HTTPFox

JavaScript Debugger

Web Developer

```
    <!DOCTYPE html >
<html>
    <head>
            <title> Document Title </title>
    </head>
    <body>
            <!-- content goes here -->
    </body>
</html>
```

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HTML- Headings

<h1> This is a Main Heading </h1>

<h2> This is a Level 2 Heading </h2>

<h3> This is a Level 3 Heading </h3>

<h4> This is a Level 4 Heading </h4>

<h5> This is a Level 5 Heading </h5>

<h6> This is a Level 6 Heading </h6>

HTML- Paragraph and Line Break

<p> This is a paragraph </p>

 This is a new line of text

`<b> This is bold text</b>`

`<i> This is italic text </i>`

`<u> This is underlined text </u>`

HTML- Horizontal Rule

<hr />

_____

horizontal rule- can be used to separate text

HTML- Strong & Emphasis

\<p\> This is \<strong\> strong text \</strong\> inside a paragraph
\</p\>

\<em\> This is emphasized word \</em\>

HTML- Ordered List

```
<ol> Ordered List opening tag
    <li> List item </li>
    <li> List item </li>
    <li> List item </li
    <li> List item </li>
</ol> Ordered List closing tag
```

HTML- Unordered List

\ Ordered List opening tag

   \ List item \

   \ List item \

   \ List item \</li

   \ List item \

\ Ordered List closing tag

HTML- Definition List

<dl> Definition List opening tag

  <dt> Definition Term </dt>

    <dd> Definition </dd>

<dt> HTML</dt>

    <dd> Hyper Text Markup Language </dd>

</dl> Definition List closing tag

HTML

  Hyper Text Markup Language

HTML- Lists

Ordered - numbers

Unordered – bullets

Definition – used to define terminology

 UIC

opening tag   closing tag

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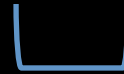# HTML- Links

 UIC

opening tag   closing tag

<a> - link tag

href – attribute = hyper text reference

"http://www.uic.edu" – value

UIC – content – user clicks on it

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 link to home page

Links to other webpages on the same website

Provide a shortcut for the browser to find your webpage

– No protocol specified

– No domain name specified

– No www specified

PARENT

The *examplearts* folder is a parent of the *music* folder.

GRANDPARENT

The *examplearts* folder is a grandparent of the *dvd* folder.

CHILD

The *music* folder is a child of the *examplearts* folder.

GRANDCHILD

The *dvd* folder is a grandchild of the *examplearts* folder.

```
examplearts
    index.html
    images
        logo.gif
    movies
        cinema
            index.html
            listings.html
            reviews.html
        dvd
            index.html
            reviews.html
            index.html
    music
        index.html
        listings.html
        reviews.html
    theater
        index.html
        listings.html
        reviews.html
```

HTML- Relative Links

Relative Link Type	Example
Same Folder	To link to music reviews from the music homepage:
To link to a file in the same folder, just use the file name. (Nothing else is needed.)	`<a href="reviews.html">Reviews</a>`
Child Folder	To link to music listings from the homepage:
For a child folder, use the name of the child folder, followed by a forward slash, then the file name.	`<a href="music/listings.html">Listings</a>`
Grandchild Folder	To link to DVD reviews from the homepage:
Use the name of the child folder, followed by a forward slash, then the name of the grandchild folder, followed by another forward slash, then the file name.	`<a href="movies/dvd/reviews.html">`

HTML- Relative Links

Relative Link Type

Example

Parent Folder

Use ../ to indicate the folder above the current one, then follow it with the file name.

To link to the homepage from the music reviews:

`<a href="../index.html">Home</a>`

Grandparent Folder

Repeat the ../ to indicate that you want to go up two folders (rather than one), then follow it with the file name.

To link to the homepage from the DVD reviews:

`<a href="../../index.html">Home</a>`

`<a href="mailto:tsoupi@uic.edu"> tsoupi@uic.edu email</a>`

mailto: - email link keyword

tsoupi@uic.edu - email address

 link to home page

Target - browser window

_blank

_new

_parent

_self

_top

```
<ol id="mylist"> Ordered List opening tag
    <li> List item </li>
    <li> List item </li>
    <li> List item </li
    <li> List item </li>
</ol> Ordered List closing tag
…
<a href="#list"> link to specific list on the same page </a>
```

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HTML- Anchors

Index.html

<ol id="mylist"> Ordered List opening tag

    List item

 Ordered List closing tag

references.html

 link to specific list on another page

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HTML- Links

- Links are created using the <a> element.

- The <a> element uses the href attribute to indicate the page you are linking to.

- If you are linking to a page within your own site, it is best to use relative links rather than qualified URLs.

- You can create links to open email programs with an email address in the "to" field.

- You can use the id attribute to target elements within a page that can be linked to.

<img src="photo.jpg">

Img –image tag

Src- source (file)

"photo.jpg" – Image file name

HTML- Images

<img src="photo.jpg" height="300" width="200" alt="alternative text">

Height - attribute

"300" - height value

alt –text description

HTML- Image alignment (not supported in HMTL5)

<img src="photo.jpg" height="300" width="200" align="right">

align - align horizontally

top   vertical alignment value
middle   vertical alignment value
bottom   vertical alignment value

HTML- Images

- Save images in the right format (.jpg .png .gif …)

- Save images in the right size

- Use the correct resolution (72 ppi)

```
<figure>

        <img src="photo.jpg" >

        <br />

    <figcaption>

        A caption of this image

    </figcaption>

</figure>
```

Information in a grid format

- Financial Reports

- Schedules

- Sport Results

```
<table border="1">
    <tr>
            <th>Heading</td>
            <td>row 1, cell 2</td>
    </tr>
    <tr>
            <td>row 2, cell 1</td>
            <td>row 2, cell 2</td>
    </tr>
</table>
```

How it looks in a browser:

Heading   row 1, cell 2
row 2, cell 1   row 2, cell 2

<table> - table tag
<tr> -   table row
<td> - table data
<th> - table heading

HTML- Tables

<table border="1" width="300 height="500" border="2" bgcolor="red">

width – old attribute replaces by CSS

height - old attribute replaces by CSS

border - old attribute replaces by CSS

bgcolor – background color old attribute

```html
<table>
  <tr>
    <th></th>
    <th>9am</th>
    <th>10am</th>
    <th>11am</th>
    <th>12am</th>
  </tr>
  <tr>
    <th>Monday</th>
    <td colspan="2">Geography</td>
    <td>Math</td>
    <td>Art</td>
  </tr>
  <tr>
    <th>Tuesday</th>
    <td colspan="3">Gym</td>
    <td>Home Ec</td>
  </tr>
</table>
```

```html
<table>
  <tr>
    <th></th>
    <th>ABC</th>
    <th>BBC</th>
    <th>CNN</th>
  </tr>
  <tr>
    <th>6pm - 7pm</th>
    <td rowspan="2">Movie</td>
    <td>Comedy</td>
    <td>News</td>
  </tr>
  <tr>
    <th>7pm - 8pm</th>
    <td>Sport</td>
    <td>Current Affairs</td>
  </tr>
</table>
```

RESULT

	9am	10am	11am	12am
Monday	Geography		Math	Art
Tuesday	Gym			Home Ec

RESULT

	ABC	BBC	CNN
6pm - 7pm	Movie	Comedy	News
7pm - 8pm		Sport	Current Affairs

HTML- Tables

- The <table> element is used to add tables to a web page.

- A table is drawn out row by row. Each row is created with the <tr> element.

- Inside each row there are a number of cells represented by the <td> element (or <th> if it is a header).

- You can make cells of a table span more than one row or column using the rowspan and colspan attributes.

```
<!-- This is a comment -->
```

```
<section>
```

is a set of content that you could store as an individual record in a database

```
<section>
        <h1>Any level of heading</h1> The rest of the content
</section>
        It is still advisable to use a <div> to perform styling
```

<header>
It is the head of a new section

Do not confuse with the <head> element

<header> is a group of introductory or navigational aids

Use the <header> at the start of your page or inside an <article>, as examples.

<footer>

represents the footer for the section it applies to

Where you have a header, you may often find a footer that goes with it, again for the main page, or in a section or article, etc.

<section>

       Section content appears here.

       <footer>

       Footer information for section.

       </footer>

</section>

```
<article>


Use <article> when you have a page that is laid out like
syndication. For example, course announcements, forum post,
magazine article, etc.


<article>
        <h1>Title</h1>
        <p>paragraph information about the topic</p>
</article>
```

```
<article>


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School of
Design