Computer Science Principles

Web Programming

Web-Content Programming with HTML

CHAPTER 10: WHAT'S UP, HTML5?

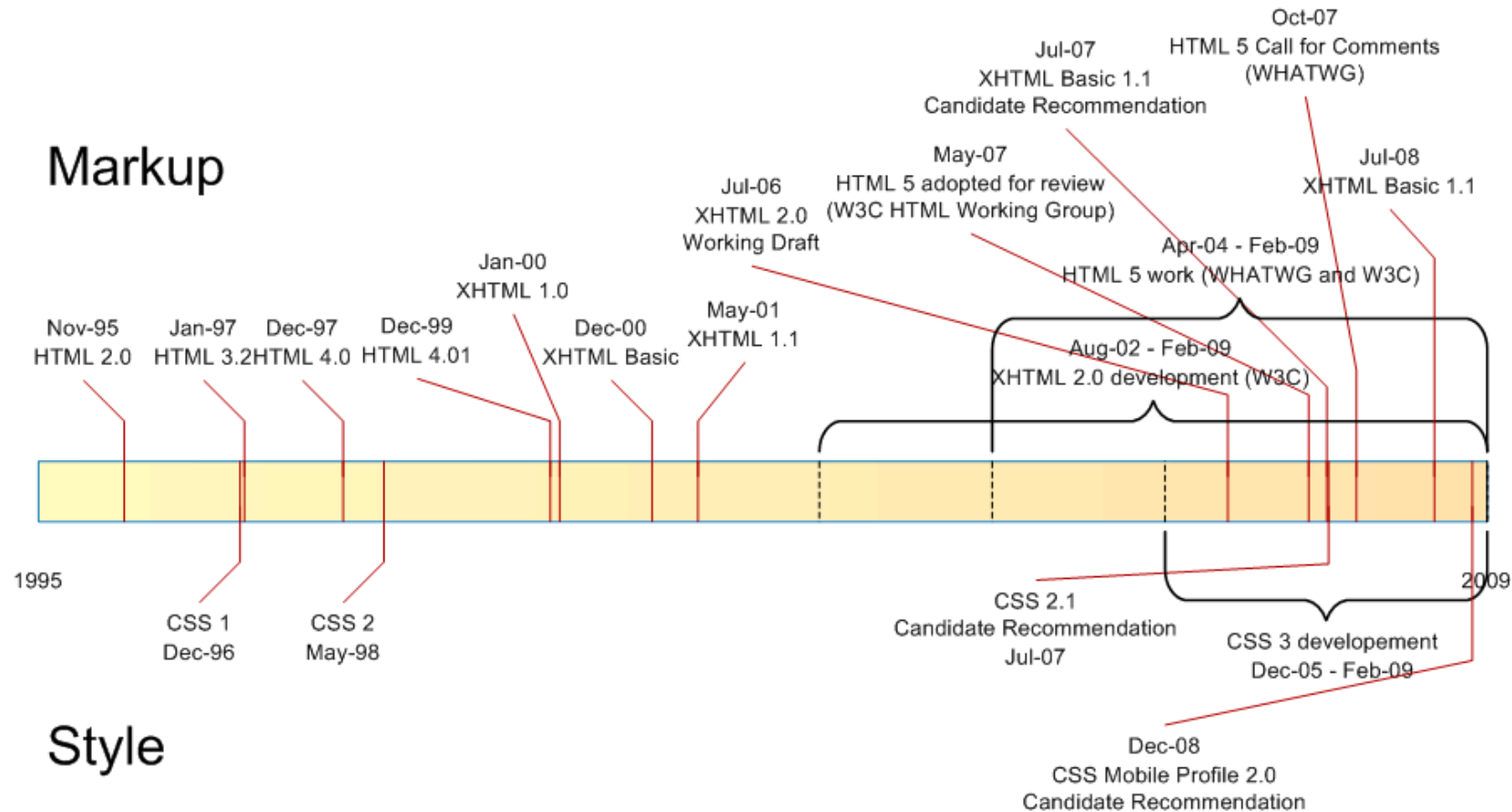DR. ERIC CHOU

IEEE SENIOR MEMBER

New Frontiers for HTML

- XHTML and HTML5
- id, class, name, value
- API and Web Design Framework
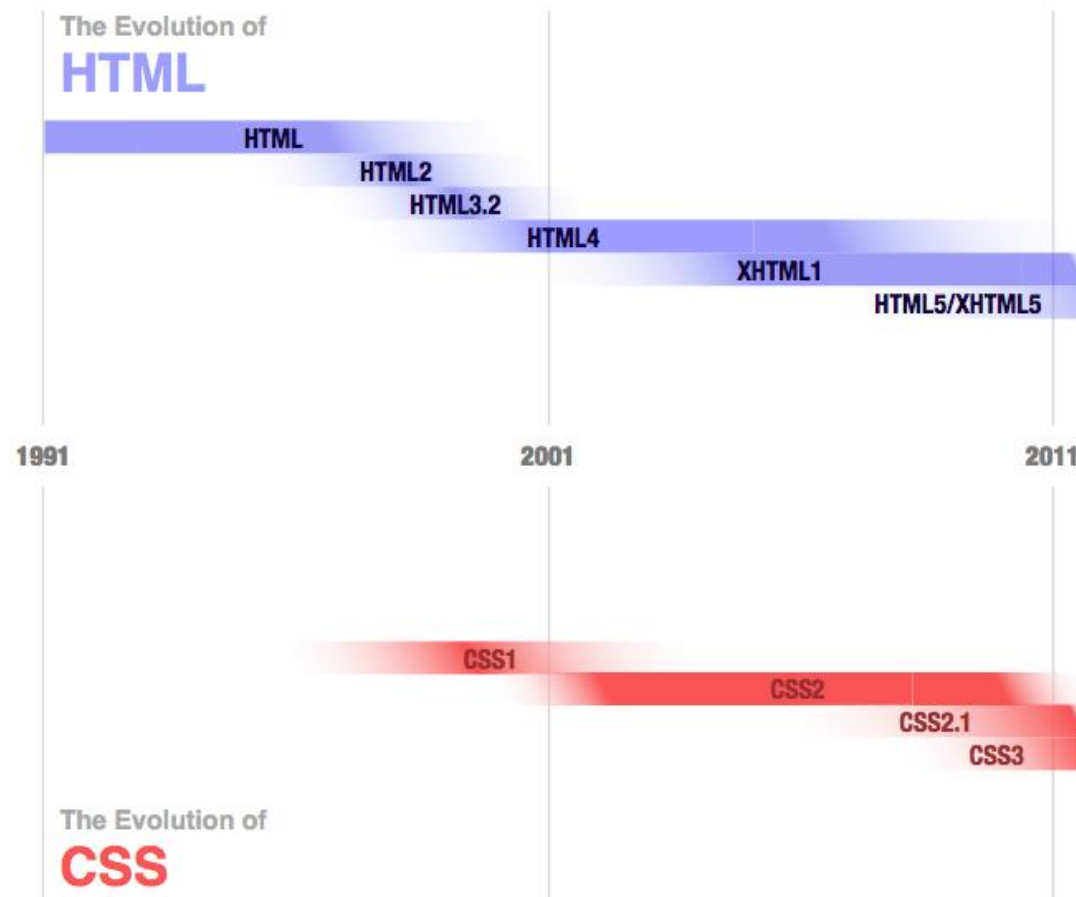- Video and Audio
- Javascript Drawing

Web Standard Timeline

Markup

Oct-07
HTML 5 Call for Comments
(WHATWG)

Jul-07
XHTML Basic 1.1
Candidate Recommendation

May-07
HTML 5 adopted for review
(W3C HTML Working Group)

Jul-08
XHTML Basic 1.1

Jul-06
XHTML 2.0
Working Draft

Jan-00
XHTML 1.0

Apr-04 - Feb-09
HTML 5 work (WHATWG and W3C)

May-01
XHTML 1.1

Dec-00
XHTML Basic

Aug-02 - Feb-09
XHTML 2.0 development (W3C)

Nov-95
HTML 2.0

Jan-97
HTML 3.2

Dec-97
HTML 4.0

Dec-99
HTML 4.01

1995

2009

CSS 1
Dec-96

CSS 2
May-98

CSS 2.1
Candidate Recommendation
Jul-07

CSS 3 developement
Dec-05 - Feb-09

Dec-08
CSS Mobile Profile 2.0
Candidate Recommendation

Style

HTML and CSS Milestones

<!DOCTYPE html>: Documentation Type Declaration
Just use <!DOCTYPE html>, if you are not sure

HTML5:

<!DOCTYPE html>

HTML 4.01 Strict:

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"

"http://www.w3.org/TR/html4/strict.dtd">

HTML 4.01 Transitional:

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"

"http://www.w3.org/TR/html4/loose.dtd">

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">

HTML 4.01 Frameset:

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Frameset//EN"

"http://www.w3.org/TR/html4/frameset.dtd">

XHTML 1.0 Strict:

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

XHTML 1.0 Transitional:

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

XHTML 1.0 Frameset:

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Frameset//EN"

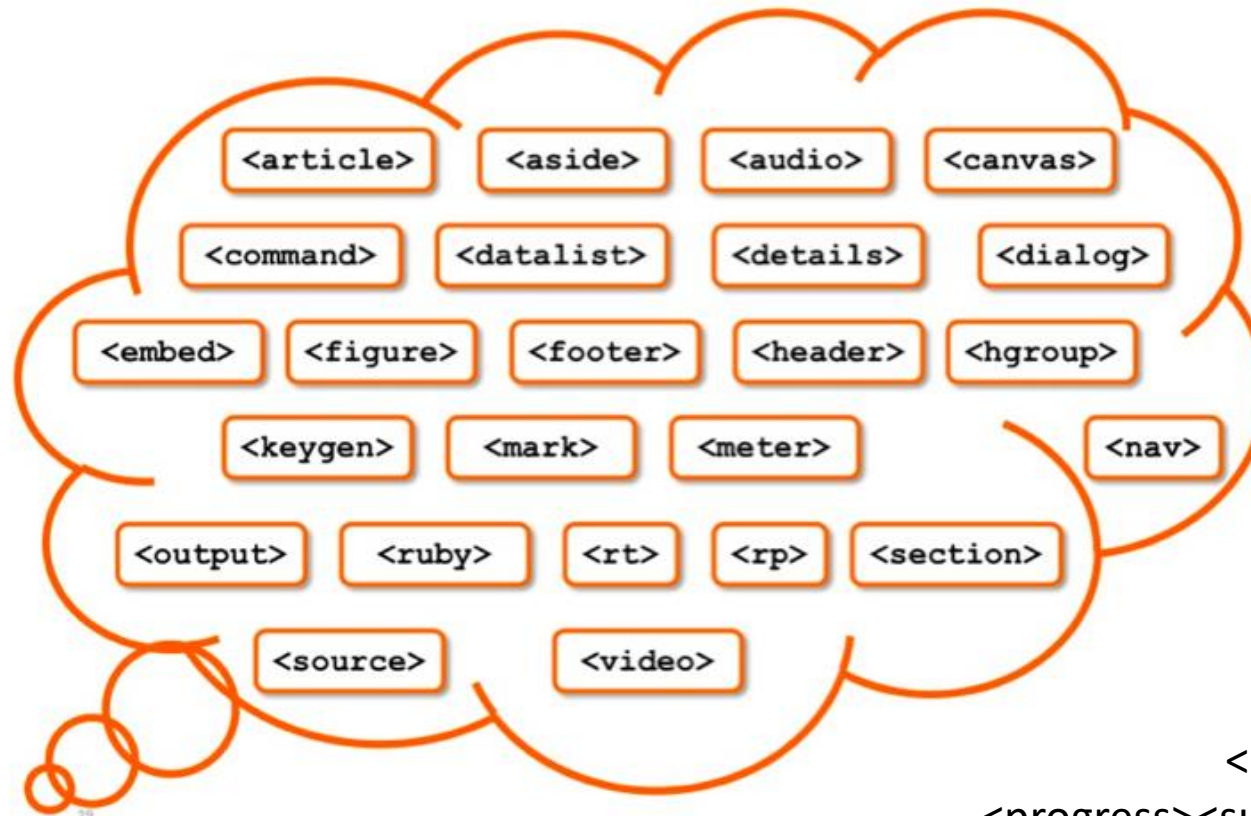"http://www.w3.org/TR/xhtml1/DTD/xhtml1-frameset.dtd">

HTML 3.2:

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2 Final//EN">

HTML 2.0:

<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML//EN">

New Elements in HTML5

<bdi> <figcaption>
<progress><summary><time><track><wbr>

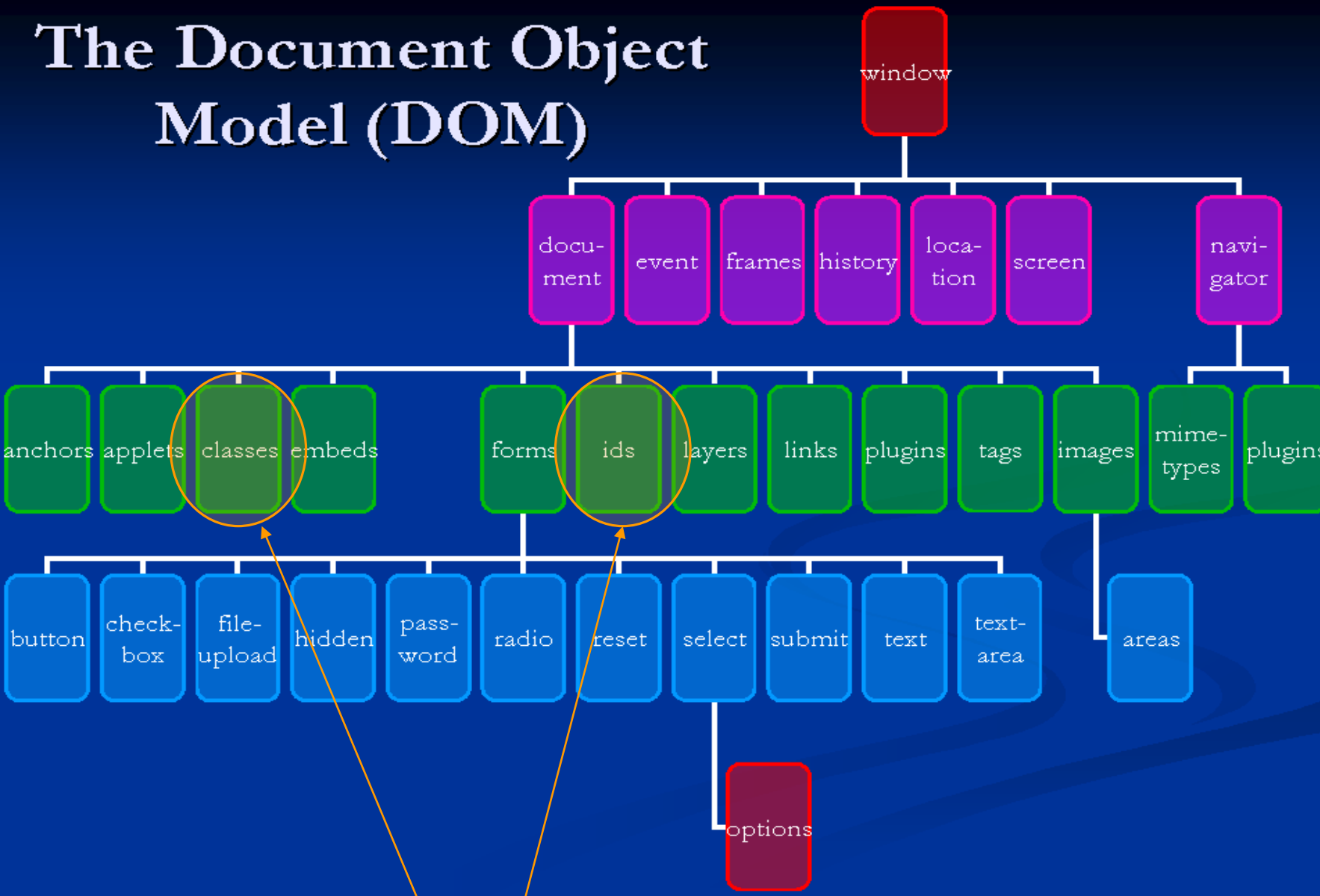# New Input Types and New Global Attributes
good for every elements

- New Input Types: color, date, datetime, datetime-local, email, month, number, range, search, tel, time, url, week

- New attributes: accesskey, aria-*, class contenteditable, contextmenu, data-*, dir, draggable, dropzone, hidden, id, lang, role, spellcheck, style, tabindex, title

- Notable attributes: id (assign each element an id, good for Javascipt, and CSS style sheet programming), dir (speicify the direction of an element), class (assign a class name (or classes) to an element to help programming.)

Obsolete HTML 4.01

- acronym applet basefont big center dir font frame frameset isindex no frames strike tt

The Document Object Model (DOM)

Name is used as the variable name for a form.

window	

document / event / frames / history / location / screen / navigator

anchors / applets / classes / embeds / forms / ids / layers / links / plugins / tags / images / mime-types / plugins

button / check-box / file-upload / hidden / pass-word / radio / reset / select / submit / text / text-area / areas

options

id is used to identify a specific element, while class is used to identify a group of elements

Sample Javascript code for DOM object accessing

function go() { /* document is html file, body is the body section, while childNodes are all of the first level childs in body section. Such as <p> <input> */

```
var childNodes = document.body.childNodes

for(var i=0; i<childNodes.length; i++) {

    alert(childNodes[i])

}

}
```

API (Application Programming Interface)

A set of documented set of commands, data names, and so on, that let one software application communicate with another.

- Media Player API
- Session History API
- Offline Web Application API
- Editing API
- Drag and Drop API
- Canvas API
- Web Storage API
- Geolocation API
- Web Workers API
- Web Sockets API: sockets (connection between client and server)

API in HTML5 Supported by Browsers

HTML 5 Feature	Chrome	Firefox	IE	Opera	Safari
Web Forms	✗	✗	✗	✓	✗
Canvas	✓	✓	✗	✓	✓
Drag & Drop	✓	✓	✗	✗	✗
History	~✓	~✓	~✓	~✓	~✓
Inline Editing	✓	✓	✓	✓	✓
Messaging	✓	✗	✗	✓	✓
Caching	✗	✓	✗	✗	✗
Web Database	~✓	~✓	~✓	✓	✓
Video	✓	✗	✗	✓	✗
Audio	✓	~✓	✗	~✓	✗
GeoLocation	✗	✓	✗	✗	✗
Web Storage	~✓	✓	✗	✗	✓
Server Sent Events	✗	✗	✗	✓	✗
Workers	✓	✓	✗	✗	✓
Web Sockets	✓	✗	✗	✗	✗

Legend: ✓ - feature works; ~✓ - feature partially works; ✗ - feature does not work

Video and Audio

Browser and Device support

	IE9+	IE6-8	Firefox	Opera	Safari	Chrome	iOS	Android	WP7
h.264 only	HTML5	Flash	Flash	Flash	HTML5	Flash 3	HTML5	HTML5	Native
WebM only	HTML5 1	Flash11[2]	HTML5	HTML5	Flash11[2]	HTML5	-	-	-
WebM + h.264	HTML5	Flash	HTML5	HTML5	HTML5	HTML5	HTML5	HTML5	Native
WMV	HTML5	✓	✓	✓	✓	✓	-	-	Native
FLV	Flash	Flash	Flash	Flash	Flash	Flash	-	Flash	-
MP3	HTML5	Flash	Flash	Flash	HTML5	HTML5	HTML5	Native	Native
YouTube	Flash	Flash	Flash	Flash	Flash	Flash	HTML5	HTML5	HTML5

Notes:
1. IE9 will play VP8/WebM natively, but only if the codec is installed. Otherwise, Flash (see note 2) will be necessary.
2. Adobe has pledged to support WebM in future versions of Flash (May 2010, again June 2011) which will enable playback in Safari (which may never support WebM) and older browsers. So far, it is only a promise :(
3. Google has pledged to remove h.264 support from Chrome so someday Chrome made need Flash to play h.264.

<video> Element

- <video src="highlight_reel.mp4" width="640" height="480" poster="highlight_still.jpg" controls autoplay></video>

- width="pixel measurement"

- height="pixel measurement"

- poster="url of demo image"

- controls (bring on browser movie control)

- autoplay (autoplay when loaded)

Video Format Conversion

Video Element that can fit all browsers

```
<video id="yourmovieid" width="640" height="360" poster="yourmovie_still.jpg" control preload="auto">
    <source src="yourmovie-baseline.mp4" type='video/mp4; codecs="avc1.42E01E, mp4a.40.2" '>
    <source src="yourmovie.webm" type='video/webm; codecs="VP8, vorbis" '>
    <source src="yourmovie.ogv" type='video/ogg; codecs="theora, vorbis" '>
    <!– flash fallback -->
    <object width="640" height="360" type="application/x-shockwave-flash" data="your_flash_player_swf">
        <param name="movie" value="your_flash_player.swf">
        <param name="flashvars" value="controlbar=over&amp; image=poster.jpg&amp;file=yourmovie-main.mp4">
        <img src="poster.jpg" width="640" height="360" alt=""
                title="No video playback capabilities, please download the video below">
    </object>
</video> <!– end of embedded video →
<!– no embedded solution -->
<p>Download the Highlights Reel:</p>
<ul>
  <li><a href="yourmovie.mp4">MPEG-4 formats</a></li>
   <li><a href="yourmovie.ogv">Ogg Theora format</a><li>
</ul>
```

Adding Audio to a page

```html
<audio>
     <source src="soundtrack.mp3" type="audio/mp3">
     <source src="soundtrack.ogg" type="audio/ogg">
     <source src="soundtrack.webm" type="audio/webm">
  </audio>
  <p>Download the Soundtack Song: </p> <!– No embedded solution -->
  <ul>
    <li><a href="soundtrack.mp3">MP3</a></li>
    <li><a href="soundtrack.ogg">Ogg</a></li>
  </ul>
```
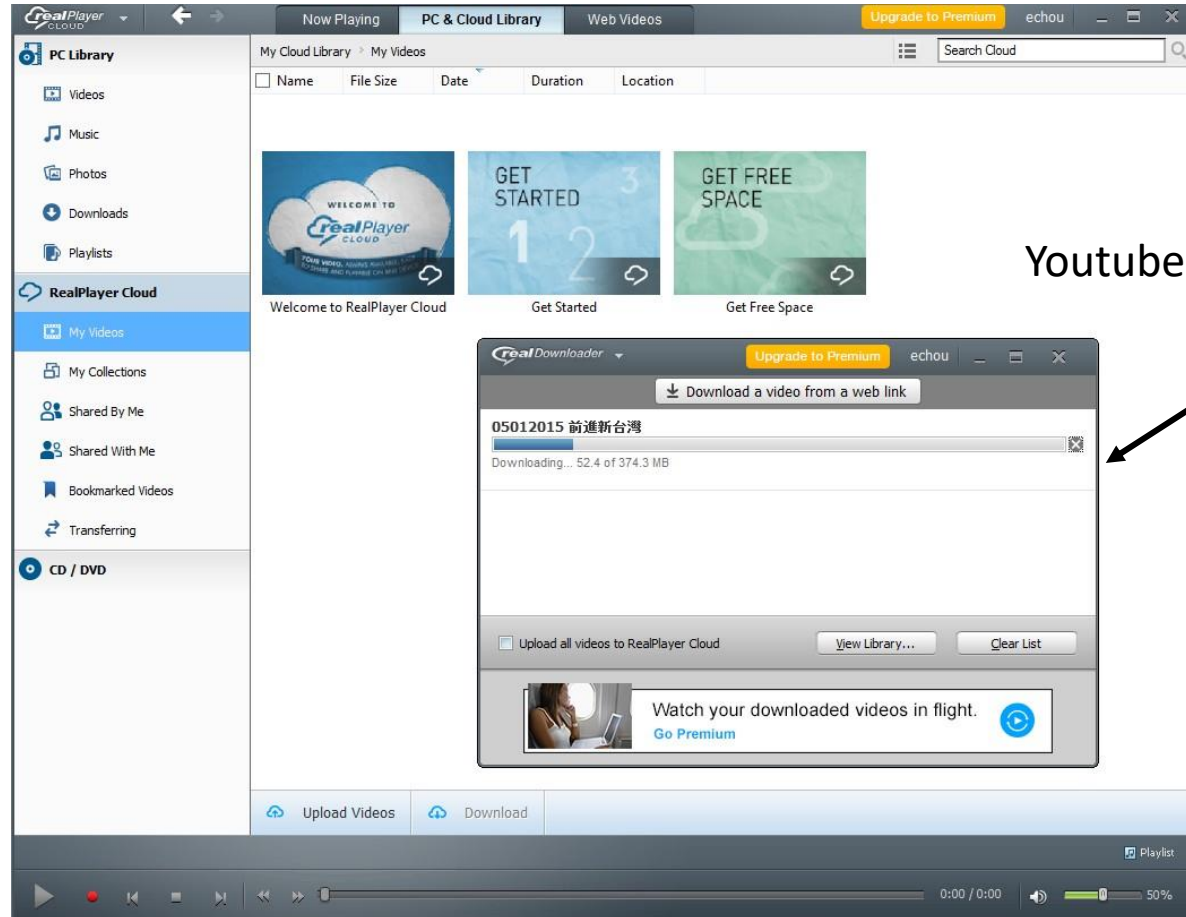
webm converter
both video and audio

Real Player can download video from youtube and then convert.

Youtube Video downloading

eC Learning Channel

Canvas API

- Allow you to draw on web page using a set of JavaScript functions for creating lines, shapes, files, text, animations, and so on.

<canvas width="640" height="400" id="my_first_canvas">

- If your browser does not support HTML5 canvas. Try using Chrome, Firefox, Safari, or Internet Explorer 9.

</canvas>

JavaScirpt Part:

Read on Your own!
Will be covered in JavaScript sessions!