

## **Comp 125 - Visual Information Processing**

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Spring Semester 2019 - Week 11 - Wednesday

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## HTML5 page structure - part 3

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- not included `<html>` and `<body>` tags in diagrams
  - *required for all HTML documents*
- divided the page into four logical, semantic divisions
  - *header*
  - *nav*
  - *main*
  - *footer*
- we could also add a sidebar etc for further division of content

# HTML5 - extra elements

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## intro

- many other interesting and useful new HTML5 elements
  - *in addition to semantic elements*
- some struggle for browser compatibility
- useful new elements such as
  - *graphics and media*
- HTML5 APIs introduced as well, including
  - *App Cache*
  - *Drag/Drop*
  - *Geolocation*
  - *Local Storage*
  - ...
- again, check browser support and compatibility

## Browser check

- Can I Use\_\_\_\_\_?
  - e.g. *Can I Use Drag and Drop?*

# HTML5 - Extra elements - media - part I

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## video

### <video> element

- until HTML5, video playback reliant on plugins
  - e.g. *Adobe Flash*
- embed video using element tag `<video>`
- add attributes for
  - *height, width, controls...*
- not all web browsers support all video codecs
- option to specify multiple video sources
- best supported codecs include
  - *MP4 (or H.264), WebM, OGG...*
- good general support for `<video>` element
- check browser support for `<video>` element
  - *Can I use\_\_\_\_\_video?*

## HTML5 - Extra elements - media - part 2

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### video example

<video> - a quick example might be as follows,

```
<video width="300" height="240" controls>  
  <source src="media/video/movie.mp4" type="video/mp4">  
  <source src="media/video/movie.webm" type="video/webm">  
  Your browser does not support the video tag.  
</video>
```

- Demo - HTML5 Video playback

## HTML5 - Extra elements - media - part 3

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### audio

#### <audio> element

- HTML5 also supports standardised element for embedded audio
- supported codecs for <audio> playback include
  - *MP3 and mp4*
  - *WAV*
  - *OGG Vorbis*
  - *3GP*
  - *m4a*
- again, check browser support and compatibility
  - *Can I use\_\_\_\_\_audio?*
- fun test of codecs
  - *HTML5 Audio*

## HTML5 - Extra elements - media - part 4

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### audio example

<audio> - a quick example might be as follows,

```
<audio controls>
  <source src="media/audio/audio.mp3" type="audio/mpeg">
  Your browser does not support the audio tag.
</audio>
```

- Demo - HTML5 Audio playback

# HTML5 - Extra elements - graphics - part I

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## canvas

- graphics elements are particularly fun to use
- use them to create interesting, useful graphics renderings
- in effect, we can draw on the page
- `<canvas>` element acts as a placeholder for graphics
  - *allows us to draw with JavaScript*
- draw lines, circles, text, add gradients...
  - *e.g. draw a rectangle on the canvas*



## HTML5 - Extra elements - graphics - part 2

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### canvas example

<canvas> will be created as follows,

```
<canvas id="canvas1" width="200" height="100">
  Your browser does not support the canvas element.
</canvas>
```

then use JavaScript to add a drawing to the canvas

```
<script type="text/javascript">
var can1 = document.getElementById("canvas1");
var context1 = can1.getContext("2d");
context1.fillStyle="#000000";
context1.fillRect(0,0,150,75);
</script>
```

Result is a rendered black rectangle on our web page.

- Demo - HTML5 Canvas - Rectangle

## HTML5 - Extra elements - graphics - part 3

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### canvas example

A square can be created as follows,

```
<script type="text/javascript">
function draw() {
  /*black square*/
  var can1 = document.getElementById("canvas1");
  var context1 = can1.getContext("2d");
  context1.fillStyle="#000000";
  context1.fillRect(0,0,50,50);
}
</script>
```

Again, we end up with the following rendered shape on our canvas.

- Demo - HTML5 Canvas - Square

# HTML5 - Extra elements - graphics - part 4

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## canvas examples

- modify drawing for many different shapes and patterns
  - *simple lines, circles, gradients, images...*
    1. shows different rendered shapes on a canvas.
- Demo - HTML5 Canvas - Assorted Shapes
  2. little retro games
- Demo - HTML5 Canvas - Retro Breakout Game