#### CS1115/CS5002

### Web Development 1

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#### Design-for-all

Can **eVeryone** access your web content?

## Web sites should work...

- ...no matter who is visiting them
- o people with visual, auditory, physical, speech, cognitive, and neurological disabilities
- o people whose capabilities are modified by a medical condition
- o people of different ages
- o people with different first languages
- o things other than people (e.g. search engine crawlers)
- ...no matter when and where they are visiting them
- o whether stationary or on the move
- o no matter the environmental conditions (bright/dark, quiet/noisy)
- o no matter where in the world (developed/developing, rural/urban, ...)
- ...no matter what network connection, device or client software they are using
  connections of different bandwidths and speeds (cable, wireless, mobile, ...)
- o different screens (resolution, dimensions, colour)
- o different I/O modalities (keyboard/ mouse/ stylus/ touchpad/ touchscreen/ speech for input; screen/ print/ speech/ etc. for output)
  - o different Web browsers, different versions of browsers, different OS
- ...now and in the future

#### Simple advice

Don't assume anything!

### Assistive technologies

**Assistive technologies**: any piece of equipment or software that increases or maintains the capabilities of people with disabilities, e.g.

- screen readers, e.g. Apple VoiceOver, JAWS, NVDA
  - braille displays, e.g. Orbit Reader 20

    - screen magnifiers
- user stylesheets
- head and mouth wands
- eye tracking devices
- voice recognition
- literacy support software such as read&write

# Web accessibility: reasons to care

- The legal argument
- o There is national and international law
- 508 compliance —a reference to the relevant US law Sometimes this whole area is referred to as Section
- The business argument
- o Directly and indirectly, it may bring more customers
- The moral argument
- Simply, it's the right thing to do

# The Web Accessibility Initiative

- The Web Accessibility Initiative (WAI) publishes the Web Content Accessibility Guidelines (WCAG)
- o Recommendations for making content accessible to a wider range of people with disabilities o Three levels of compliance: A, AA, AAA
  - You can even automatically validate for WAI compliance, e.g.: http://www.cynthiasays.com/
    —but this is no substitute for testing with real users

# The most important things you can do are also the easiest

- Spell-check
- Check grammar
- Check punctuation
- Give the content a logical order
- Use the right HTML markup
- Validate

Question: Who or what benefits?

## Use the right kind of markup

- щ ю
- o good: use <h1> for headings
- o bad: use for headings and make them big and bold in CSS
- io
- o good: using tables for tables of data
- o bad: using tables for layout

Question: Who or what benefits?

### Include ARIA roles

- WAI-ARIA (Accessible Rich Internet Applications) defines ways of making web content more accessible
- ARIA roles (a list)
- o ARIA roles are similar to HTML attributes
- They suggest the purpose of an element in a web page, for use by assistive technologies such as screen readers
- You may have only one role per element
- E B
- role="presentation": for an element whose content is completely presentational
- role="complementary": for an element that is complementary to the main content
- HTML5 has made many ARAI roles redundant, e.g. role="complementary", role="navigation"

# Use more explanatory table markup

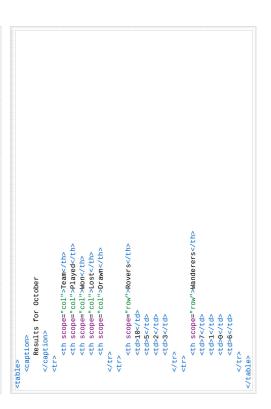
- Tables are for tabular data
- Give your tables a <caption>
- The th tag has one more attribute to improve accessibility: the scope attribute (with values co1 and row)
- If your table is large, consider using CSS for a hover effect on rows or zebra striping

Question: Who or what benefits?

Question: Why are hover effects to be used with care?

# Example of good table markup

	Results for October	roctober		
Team	Played	Won	Lost	Drawn
Rovers	10	5	2	3
Wanderers	7	_	0	9



### Check the reading level

- Readability check, e.g. the Gunning Fog Index for which there is a calculator
- If understanding your text requires more than a lower secondary level education, either rewrite it or provide a simpler alternative

Question: Who or what benefits?

#### Be consistent

- Use external stylesheets
- Use a consistent navigation scheme
- o permanent navigation on each page
- o same way of presenting local navigation on each page

Question: Who or what benefits?

## Use descriptive link text

- Good link text should indicate the nature of the target,
- o good: More information about wombats
- o bad: Click here!
- Good link text should be consistent if repeated on the same page
- Avoid pop-ups and links that open in new windows

Question: Who or what benefits?

### Use colour intelligently

- Ensure proper contrast between foreground and background colours
- Avoid certain combinations
- Ensure information is not conveyed through colour alone

Question: Who or what benefits?

# Give text alternatives for all visual content

- Use the alt attribute for img elements, and make sure the alt-text is descriptive ("fulfills the same function as the image"), not just a title
- For video and audio, HTML5 allows you to provide one or more <track>
- o kind="subtitles": e.g. translation of the dialogue

o kind="captions": e.g. transcription of the soundtrack

- o kind="descriptions": e.g. textual description of what's on screen

(But this is not well supported by browsers yet)

Question: Who or what benefits?