School of Computer Science

Web and Database Computing 2019

Lecture 2: Introduction to HTML

Course outline

Things I forgot to mention Monday:

1. What languages and technologies we'll be using in this course

We will be using:

- HTML
- CSS
- Javascript
- Vue.js
- NodeJS
- AJAX
- Different APIs
- OpenID
- MySQL

The language of the Web

You can follow along in the lecture slides,
but also following the guide at https://www.w3schools.com/html/

What is HTML

- First described in 1991 by Tim Berners-Lee
- Standard now maintained by the World Wide Web Consortium (W3C) & the Web Hypertext Application Technology Working Group (WHATWG)

What is HTML

Hyper**T**ext **M**arkup **L**anguage is used to describe the structure and content of web pages.

- Web pages contain **elements**
- Elements are defined using **tags**

Like this:

```
<tagname>Some content</tagname>
```

- Tags are written using the element name surrounded by angle brackets < and >
- `tagname` describes the type of content and how it should be handled by the browser
  - e.g. `<b>Text</b>` where the **b** tells the browser it should display Text in **bold**
  - Should be **lowercase**
- Tags usually come in pairs that mark the start and end of the content.
  - The end tag contains an extra **/** (forward slash) after the <

A simple webpage

HTML   Result   Edit in JSFiddle

```html
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>basic document</title>
  </head>
  <body>
    <p>This paragraph is visible.</p>
    <!-- This is a comment. Not visible. -->
  </body>
</html>
```

https://jsfiddle.net/ian_knight_uofa/7b9gnzec/

Save as plain text in a file with a .html extension.

In more detail

<!DOCTYPE html> DOCTYPE declaration
What type of document is this (html), what version?

<html> root element
Highest level element in the document

<head> Document head
Contains metadata and configuration information

<meta charset="UTF-8"> metadata to assist browser
Tells browser we are using UTF-8 encoding

<title> contains title of webpage
Tells browser we are using UTF-8 encoding

HTML   Result   Edit in JSFiddle

```html
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>basic document</title>
  </head>
  <body>
    <p>This paragraph is visible.</p>
    <!-- This is a comment. Not visible. -->
  </body>
</html>
```

In more detail

\<head> Document body

Contains content to be rendered by the browser

\<p> Paragraph

\<!-- comment --> Allows us to write comments

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>basic document</title>
  </head>
  <body>
    <p>This paragraph is visible.</p>
    <!-- This is a comment. Not visible. -->
  </body>
</html>
```
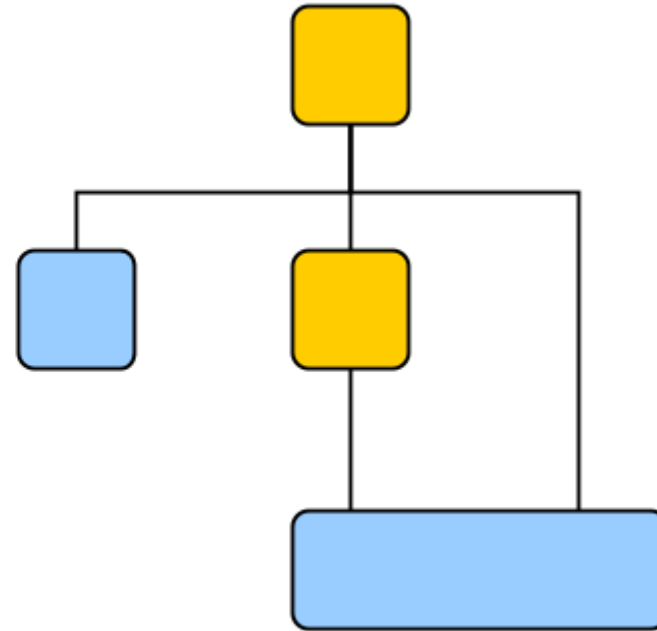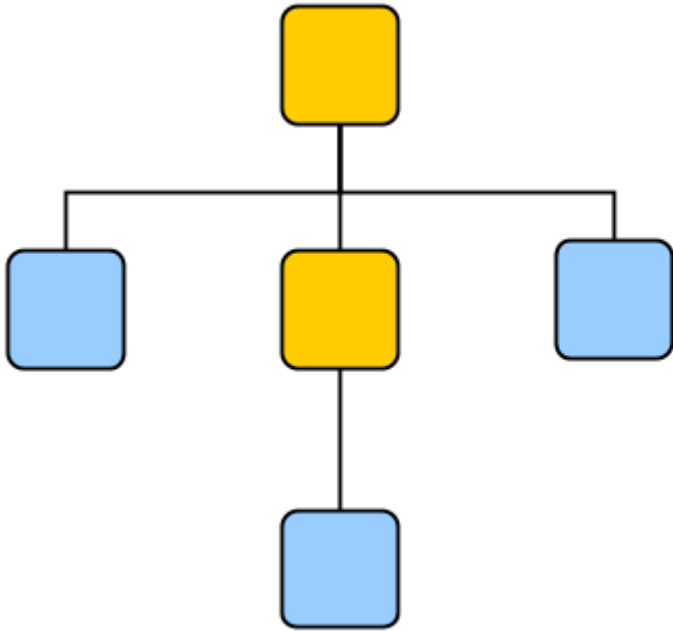
More on elements

Elements can be nested

Like this:

```
<b>Some <i>more</i> content</b>
```

*b tag is for **bold** text*

But not like this:

```
<b>Some <i>more</b> content</i>
```

*i tag is for **italic** text*

More on elements

- Your document is structured as a tree and this violates that structure

Closing tags

All opening/start tags must have a acomanying closing tag

Like this:

```
<p>Some <span>more</span> content</p>
```

But not like this:

```
<p>Some <span>more content</p>
```

Closing tags

but there are exceptions

Some elements do not contain content.
In these cases you can combine the start and end tags

Like this (preferred):

```
<br />
```
br tag is for line break (newline)

Also like this:

```
<hr>
```
hr tag is for horizonal rule (line across page)

Some common basic elements

Heading elements

The h1 - h6 elements are used to define different levels of heading used throughout a webpage.

- h1 is the largest (and most important) heading
- h6 is the smallest (and least important) heading

HTML   Result   Edit in JSFiddle

```html
<h1>A Level 1 Heading</h1>
<h2>A Level 2 Heading</h2>
<h3>A Level 3 Heading</h3>
<h4>A Level 4 Heading</h4>
<h5>A Level 5 Heading</h5>
<h6>A Level 6 Heading</h6>
```

https://jsfiddle.net/ian_knight_uofa/2taLbh9e/

Paragraph text

The p element is used to define a paragraph of text.

- Whitespace is **ignored**
- Paragraph text is grouped together

HTML   Result   Edit in JSFiddle

```
<p>
It
doesn't matter how      I
format this paragraph,

whitespace is ignored.
</p>
<p>
Another paragraph, separated from the first.
</p>
```

https://jsfiddle.net/ian_knight_uofa/tmckx0a4/

Preformatted text

The pre element is used to preserve whitespace.

```
<pre>
It
does matter how       I
format this paragraph,

whitespace is preserved.
</pre>
```

https://jsfiddle.net/ian_knight_uofa/Ljnwt0a1/1/

Lists

The ul ol and li elements are used to create lists.

- ul (unordered list) will create a dot-point list
- ol (ordered list) will create a numbered list
- li tags are the individual items in the list

HTML   Result   Edit in JSFiddle

```html
<ul>
<li>This list</li>
<li>is</li>
<li>unordered</li>
</ul>

<ol>
<li>This list</li>
<li>is</li>
<li>ordered</li>
</ol>
```

https://jsfiddle.net/ian_knight_uofa/jnacbhvr/

See https://www.w3schools.com/tags/ for a detailed list of all tags

Attributes

Elements can have attributes, properties that affect how they behave.

Like this:

```
<tagname attribute="value">Some content</tagname>
```

- Attributes belong in the starting tag.
- Usually have a value, but not always.
- Value must be in quotes if not a number.
- You can use single or double quotes.
- Some tags require certain attributes and some attributes are restricted to certain tags.

Some common elements that require attributes

Anchor elements

The a element is used to create hyperlinks.

- Takes a **href** attribute whose value is the link location
- Content is the text visible to the user
- Other attributes tell the browser how to behave when following the link e.g. **target**

HTML   Result   Edit in JSFiddle

```html
<a href="http://google.com">A link to Google</a>
<br />
<a href="anotherpage.html">A link to another page on my site</a>
```

https://jsfiddle.net/ian_knight_uofa/xeLzwd3p/1/

Image elements

The img element is used to display images.

- src is the location of the image, either on the local machine or somewhere else on the internet.
- alt is the text to display if the image cannot load.

HTML   Result   Edit in JSFiddle

```html
<img src="https://media.giphy.com/media/kFgzrTt798d2w/giphy.gif" alt="Never" />
<br />
<img src="local_image.jpg" alt="This text shows if the image can't load" />
```
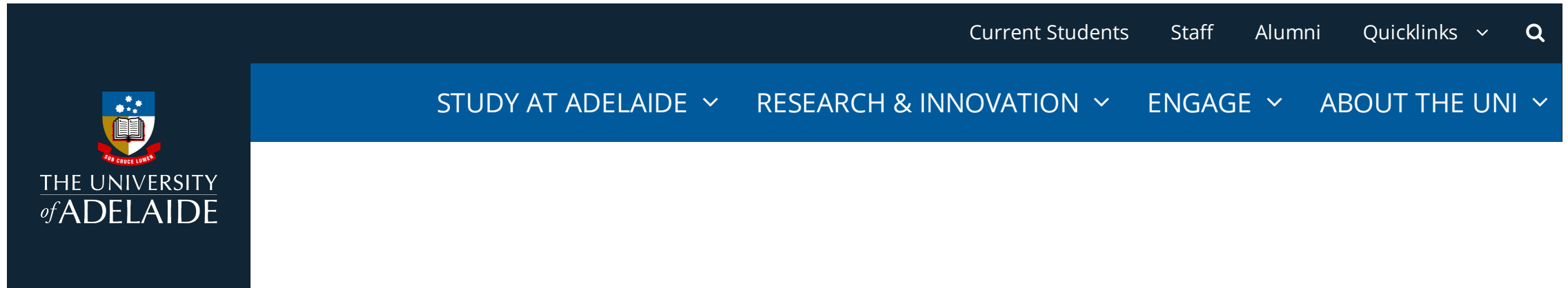
https://jsfiddle.net/ian_knight_uofa/qk85htw4/2/

See https://www.w3schools.com/tags/ for a detailed list of all tags

More complicated webpages

THE UNIVERSITY *of* ADELAIDE

STUDY AT ADELAIDE ⌄   RESEARCH & INNOVATION ⌄   ENGAGE ⌄   ABOUT THE UNI ⌄

This week

Due:

- Ensure you've completed the tasks in the `Course Outline` section of MyUni
- Prac Exercise 1 will be released Friday night.

Next lecture:

- We will continue to work with HTML, looking at layout & standards

Further learning:

- Begin to work through the HTML tutorial at https://www.w3schools.com/html/
- Try looking at the source for some of the webapges you use.
- If posting in the discussion forum, try posting in HTML.