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Web and Database Computing •

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UX: Semantic Elements & UI Frameworks

Semantic HTML

What is Semantic HTML

We know that different elements/tags serve different purposes, but up until now we've mostly used them for style or functionality. Tags and attributes can also convey **meaning**.

Useful for:

- Screen reader and other accessibility software.
- Search engines
- Browsers features (printing, reader mode etc)

Example; `` vs ``

- The `` tag makes text bold
- The `` tag makes text bold **because the text is important**

Accessibility software uses this information to better convey meaning.
Search engines use it to understand a page's content.

HTML5 Semantic Tags

Use these instead of generic elements like `<div>` and ``

```
<article>
<aside>
<details>
<figcaption>
<figure>
<footer>
<header>
<main>
<mark>
<nav>
<section>
<summary>
<time>
<label>
```

https://www.w3schools.com/html/html5_semantic_elements.asp

Example



HTML `<meta>` Tag

Used to convey additional information about the webpage that is not part of the page's content.

- Used for data like page description, keywords, author, last modified.
- This metadata can be used by browsers, search engines, accessibility software, or other web services.

```
<!-- Define keywords for search engines -->  
<meta name="keywords" content="Accesibility and Semantic Elements">  
  
<!-- Define a description of your web page -->  
<meta name="description" content="Your last WDC lecture before break">  
  
<!-- Define the author of a page -->  
<meta name="author" content="Ian Knight">
```

HTML5 Semantic Attributes

Certain HTML attributes provide semantic meaning to elements.

- The **alt** attribute on an image provides a text description of the image.
- The **for** attribute on labels.
- **title** & **name** attributes.
- Use **ARIA** attributes.

ARIA

Dynamically updated web content present challenges for accessibility.

- New controls and components don't necessarily have dedicated tags;
 - Widgets such as progress bars are built using generic elements.
- Screen reader and accessibility software may not be informed of content updates, or may not know which updates are relevant.

ARIA (Accessible Rich Internet Applications) is a standard that allows us to provide additional semantic data to our dynamic page elements for better accessibility.

- Accessibility software can better react to page changes.

<https://developer.mozilla.org/en-US/docs/Web/Accessibility/ARIA>

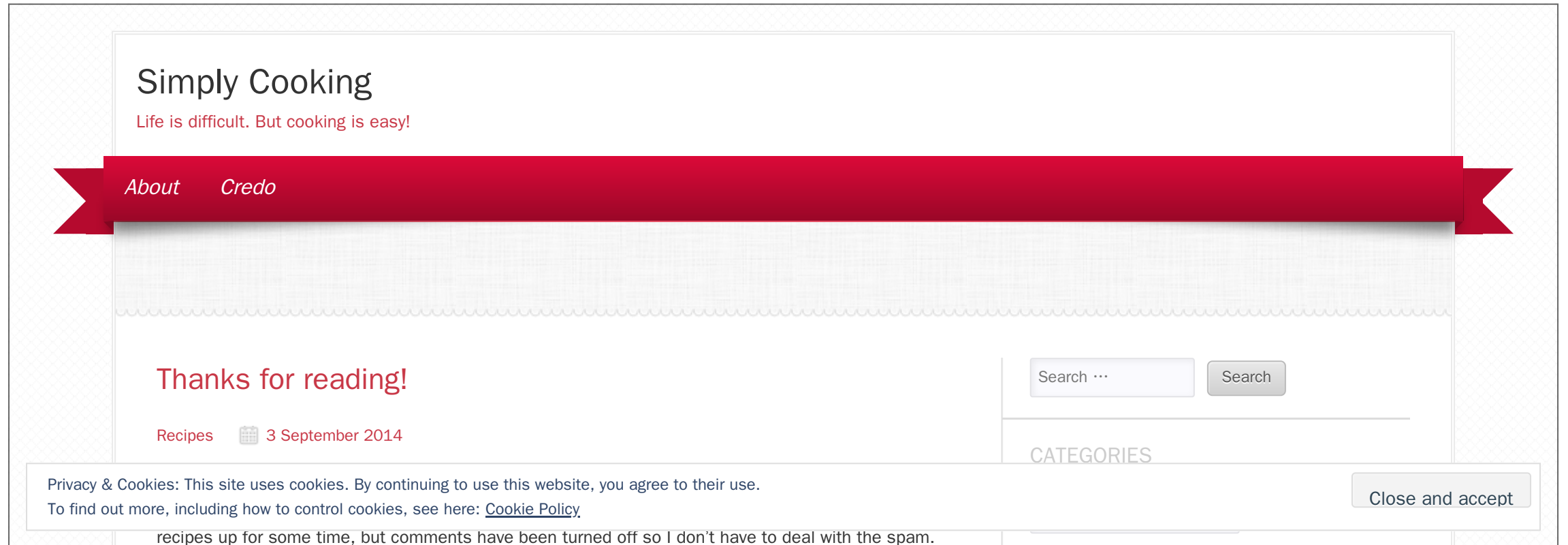
CSS Frameworks

For easy consistent design

What are CSS frameworks?

Building a website's style from the group-up is hard!

- We can use templates, but they don't often fit our website without looking like ... templates



What are CSS frameworks?

CSS frameworks provide a consistent style set that we can customise while still building our design from scratch.

- They can be added easily with a script or link tag:

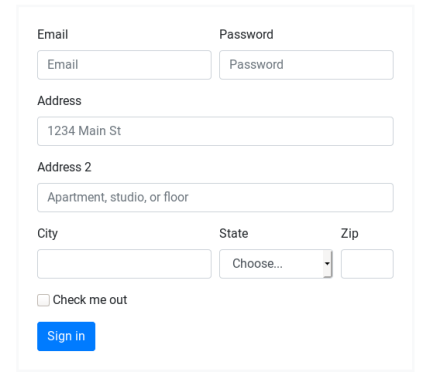
```
<link rel="stylesheet" href="stylesheets/bootstrap.min.css">
```

- They provide a solid base for building the rest of your site.
- They usually provide a grid mechanism for aligning elements on your page.

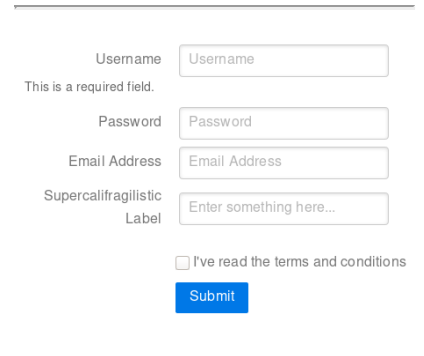
.col-12 .col-md-8		.col-6 .col-md-4	
.col-6 .col-md-4	.col-6 .col-md-4	.col-6 .col-md-4	
.col-6		.col-6	

Common Frameworks

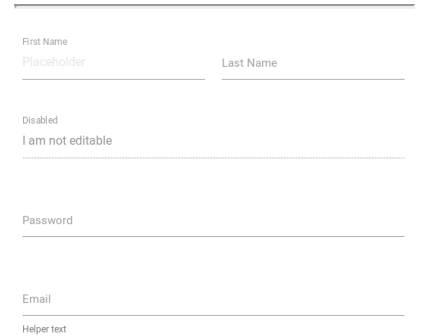
- Bootstrap
 - Developed by Twitter; very commonly used
 - Includes animations and some JavaScript components
 - <https://getbootstrap.com/>
- Pure
 - Yahoo's CSS library
 - Simple and lightweight
 - Ian's Current Favourite
 - <https://purecss.io/>
- Foundation
 - Gaining popularity
 - <https://foundation.zurb.com/sites/docs/index.html>
- Materialize
 - Based on Google's Material Design
 - <https://materializecss.com/>



A form example using the Bootstrap framework. It features a grid layout with labels above input fields. The fields include Email, Password, Address (with a value of '1234 Main St'), Address 2 (with a value of 'Apartment, studio, or floor'), City, State (a dropdown menu with 'Choose...' selected), and Zip. There is a checkbox labeled 'Check me out' and a blue 'Sign in' button.



A form example using the Pure CSS framework. It shows a simple, clean layout with labels and input fields. The fields include Username, Password, Email Address, and a label 'Supercalifragilistic Label' with a value 'Enter something here...'. There is a checkbox labeled 'I've read the terms and conditions' and a blue 'Submit' button.



A form example using the Foundation framework. It shows a layout with labels and input fields. The fields include First Name (with a placeholder 'Placeholder'), Last Name, a disabled field with the text 'Disabled I am not editable', Password, Email, and a helper text field.

Summary

- Webpage accessibility improved with semantic HTML elements & attributes.
- Semantic elements also make pages more accessible to search engines.
- ARIA attributes allow semantics for dynamic elements and page changes.
- Page style and consistency can be improved by using a CSS framework.



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