

## CS1115/CS5002

### Web Development 1

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## Workflow for RWD

- The traditional workflow is less helpful for RWD
- Instead move to the browser ASAP and *decide-in-the-browser*, e.g.:
  1. Use sketches and comps to explore components of the design — but not for sign-off
  2. Then iteratively,
    - a. Write some HTML & CSS
    - b. Show to your customer, resizing the viewport

## Traditional workflow for fixed-width sites

1. Wireframe the content
2. Produce 'comps' in Photoshop (or Illustrator, Sketch, ...)
3. Obtain customer sign-off
4. Convert to HTML, CSS and JavaScript

## Authoring HTML

- All you need is a good editor and a browser
  - You can use a general-purpose text editor but preferably one that offers...
    - choice of character encoding
    - syntax-directed highlighting
    - auto-completion
    - code folding
- E.g. kate, notepad++, sublime
- Or you can use something designed for web page authoring, offering...
    - toolbars for HTML and CSS
    - a preview pane or WYSIWYG
    - ...

E.g. Aptana Studio, BlueGriffon, Dreamweaver, Maqetta

## Possible problems with WYSIWYG editors

- They incorrectly make you focus on what the page looks like, rather than its structure
- They may lag behind the HTML standard
- They often produce bloated HTML

## CSS frameworks

- Prewritten CSS for multi-column sites, often fluid, sometimes even RWD
- E.g. Bootstrap
  - Mobile-first and RWD, written in SASS (previously Less)
  - Up to 12 equal-sized columns, but you can combine them
  - You may need to put some extra `<div>s` into your HTML
  - You style your web page by putting classes onto the elements
  - You can customize the colours and so on
- Advantages of these frameworks:
  - + can make you more productive
  - + they often follow good practice
- Question: What are the disadvantages?

## CSS preprocessor languages

- Less and SASS extend CSS with, e.g., variables, mixins, operations and functions
- E.g. variables in Less

```
@main-colour: rgb(204, 239, 219);

html {
  background-image: url('mint_stripes.jpg');
  background-color: @main-colour;
}

nav, main, aside {
  background-color: white;
  color: black;
  padding: 1em;
  border: 0.0625em solid @main-colour;
  border-radius: 1em;
}
```

Question: What's the advantage of this?

- A preprocessor converts the Less or SASS stylesheet into a regular CSS stylesheet

## Workflow automation

- Web development involves a lot of repetitive tasks involving many different tools, e.g.
  - minifying and concatenating files
  - preparing images
  - compiling Less or SASS into CSS
  - uploading files to the web server
- Why not automate these tasks?
- E.g. [Grunt](#) is a tool that allows you to write and execute repetitive workflows

## Content Management Systems (CMS)

- Problem:
  - It takes a lot of work and expertise to develop a web site from scratch
  - You need access to the same expertise every time you want to modify the content, e.g. add a news story
- Solution: CMS
  - allows a web developer to quickly develop a web site, writing little or no HTML or CSS
  - allows users with limited expertise to modify parts of the site without help from a web developer

## Advantages of a CMS

- Fast development of the web site
- Management of content is done by the content contributors themselves
  - can be done promptly
  - probably cheaper
- May include some workflow automation features, e.g. automatic image compression


## Examples of CMS

- [A list of CMS](#)
- E.g. open source
  - Wordpress, Drupal, Joomla! (written in PHP)
  - Django (written in Python)
- But also proprietary software
- Many web companies will even create their own simple CMS

## Disadvantages of CMS

- Using non-technical staff to update content:
  - they require training
  - but they will get many things 'wrong' (out-of-proportion photos, inconsistent styling, no image compression, poor use of tags, adding pages in the wrong place, ...)
- Often, the same problems as WYSIWYG editors
- Often the site is slower: pages are built from content in a database
- Doing anything unusual may still require knowledge of HTML, CSS, etc., e.g.:
  - modifying an existing theme
  - writing a new theme
  - writing a new plugin

## A/B testing

- Companies with a scientific approach to doing business will test everything about their web site
- A/B testing
  - E.g. should we use a 'hamburger' icon or the word **MENU**?
  - Assign visitors to your site into group A or group B at random
  - Show the 'hamburger' to group A and **MENU** to group B
  - Measure clicks or sales or ...