

Introduction to Web App Development

Web Development

Building a Web Site

- Step 1: Determine Theme + Content
- Step 2: Devise Navigation Structure
- Step 3: Create Page Structure
- Step 4: Factor out Page Structure in (reusable) Templates
- Step 5: Apply a Style
- Step 6: Build, Test & Deploy

Web Site: Step 1: Determine Theme + Content

- Agree a 'theme' and 'look and feel' for site with customer
- Acquire or develop the core 'content' of the site
 - Text
 - Images
 - Media (video/audio)

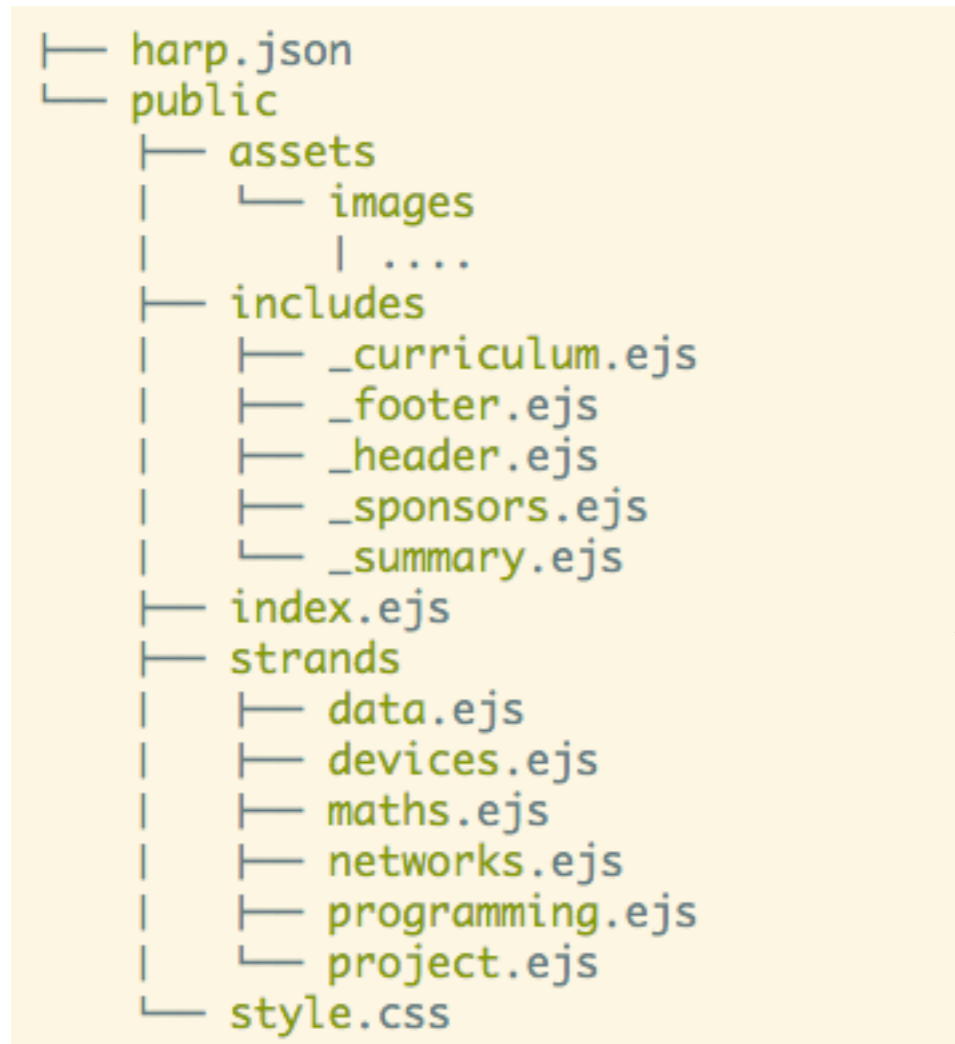
Web Site: Step 2: Determine Navigation Structure

- Determine number of pages in the site
- Decide on navigation ‘metaphor’
 - ‘Tabs’
 - Sidebar
 - Menubar

Web Site: Step 3: Create Page Structure

- Typical Sections:
 - Header
 - Footer
 - Navigation
 - Main Content
 - Primary
 - Secondary

Step 4: Factor out Page Structure in (reusable) Templates



```
<!DOCTYPE html>
<html lang="en">
<head...>
<body>
  <header id="header">
    <h2>
      
      Department of Computing & Mathematics
    </h2>
    <h3> BSc (Hons) the Internet of Things </h3>
    <hr>
  </header>
  <article class="banner">
    <div id="summary">
      <p>
        BACHELOR OF SCIENCE (HONOURS)
      </p>
      <h3>
        APPLIED COMPUTING IN THE INTERNET OF THINGS
      </h3>
      <h3>
        Program your World!
      </h3>
      <p>
        An exciting new level 8 Honours Degree for 2015. Combine Programming and Electronics and learn how to code cool devices, places and things. Be part of the next wave of innovation in Computing
      </p>
    </div>
  </article>
  <article id="curriculum"...>
    <section id="sponsors">
      <hr>
      <h4> Supported by leading edge research at... </h4>
      <p>
        
        
        
      </p>
    </section>
  </article>
  <footer id="footer">
    <hr>
    <p class="footer-social-links">
      <a href="http://www.facebook.com/witcomp"> facebook </a>
      <a href="http://twitter.com/ComputingAtWIT"> twitter </a>
      <a href="https://ie.linkedin.com/pub/computing-at-wit/a9/221/1b6"> linkedin </a>
    </p>
  </footer>
</body>
</html>
```

- ‘Factor out’ sections of the index.html pages into includes...

Web Site: Step 5: Apply a Style

- Compose CSS to capture
 - Navigation
 - Layout : structure, layout, number of columns, positioning
 - Look and Feel (theme)

Web Site: Step 6: Build, Test & Deploy

- Build the site itself
- Verify that all links work as expected
- “Push” the site to an external server.

What if...?

- A user is to “Log in” to a site?
- A user needs to supply information to the site?
- The content of some of the pages is not known until the site is ‘live’?
- The content of some pages is very specific to the identity of the current user?
- The site is to implement a ‘business process’ such as
 - shopping cart?
 - payment for a good or service?
 - communication with other users - such as messaging?
- Such features require a ***Dynamic Web Site*** or a ***Web Application***

Static vs Dynamic

- A knowledge of HTML, CSS + simple web deployment is necessary in order to build a *Static Web Site*
- However, these skills are ***not sufficient*** to build a ***Web Application***
- A Web Application is capable of:
 - Responding to user interaction
 - Generating new information based on context
 - Allowing a user to provide information
 - Implement core business processes
- A ***Static Web Site*** is not capable of any of these features.

Web App Development

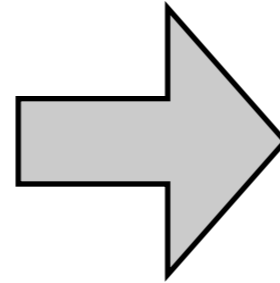
- Solid understanding of HTML & CSS, including page structure, layout, styling and approaches to navigation

+ *knowledge of:*

- Structure of the Internet, including role of HTTP, DNS & how URLs are structured
- Detailed understanding of the nature of the HTTP protocol
- Client / Server Architecture
- How pages can be composed of templates
- Databases
- ***How to Programme Application Features (in Java)***

!!!

- Structure of the Internet, including role of DNS & **URLs**
- Nature of the **HTTP protocol**
- **Client / Server** Architecture
- Pages decomposed using **templates**
- **Databases**
- How to **Programme Java** Application Features



- **Expanded understanding of the nature of the Internet**

However, modern tools & frameworks are starting to dramatically simplify the process.

Play Framework

- A toolkit to enable to construction of **Web Applications** in the Java Programming language
- Does not replace the use of HTML + CSS - the toolkit is for building Web Applications, which is built on these technologies
- However, HTML + CSS constructs are restructured to enable them to interoperate with **Programs** written in **Java**
- Play is a **Web Application Development Framework**

