

Enterprise Computing: Responsive Design

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1 Introduction

2 Responsive Web Design

- Content: Josh Hughes, University of Missouri

3 Non-functional requirements

4 Closing

Non-functional requirement (#5 of 10)



This image represents non-functional requirement #5. If you were at the lecture then you heard me explain in words what it means.

Enterprise systems are data-sharing systems

- Enterprise computing systems exist to maintain and share data, making the information which is important to the enterprise available to as many people as possible.
- The people who consume the enterprise data are distributed in different geographical locations, and/or different time zones, software and hardware updates are completely uncoordinated.
- The challenge is to make the enterprise data available to as many users as possible, across as wide a range of devices as possible.
- The most practical delivery mechanism for data would seem to be the browser.

Not all browsers are the same

What are we?



Browsers!



...



Browsers!



Browsers!



What do we want?



Faster!



...



Faster!



Faster!



When do we want it?



Now!



...



Now!



Now!



Browsers!



Standards

Standards

The nice thing about standards is that you have so many to choose from. — *Andrew S. Tanenbaum*

Standards

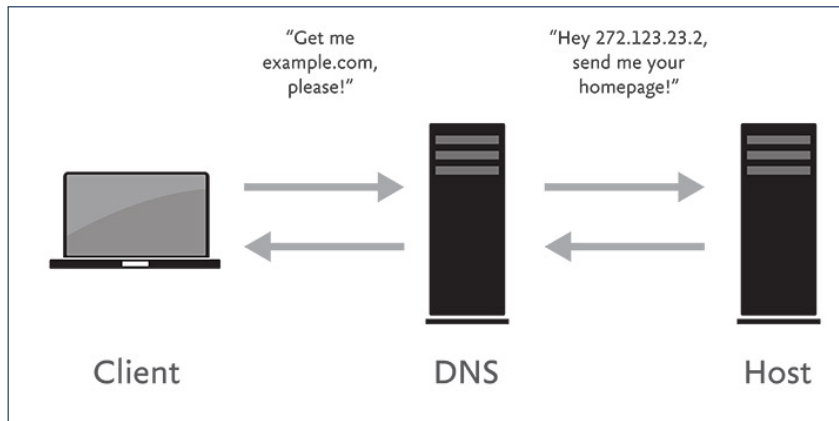
The awful thing about standards is how much people overuse that Andrew S. Tanenbaum quote. — *Stephen Gilmore*

- The HTML5 language, standardised in October 2014, is the leading choice for cross-platform mobile applications.
- Many language features are designed with low-powered devices such as tablets or smartphones in mind.
- In theory, standards should fix everything, making any cross-platform testing unnecessary. In practice, they don't.

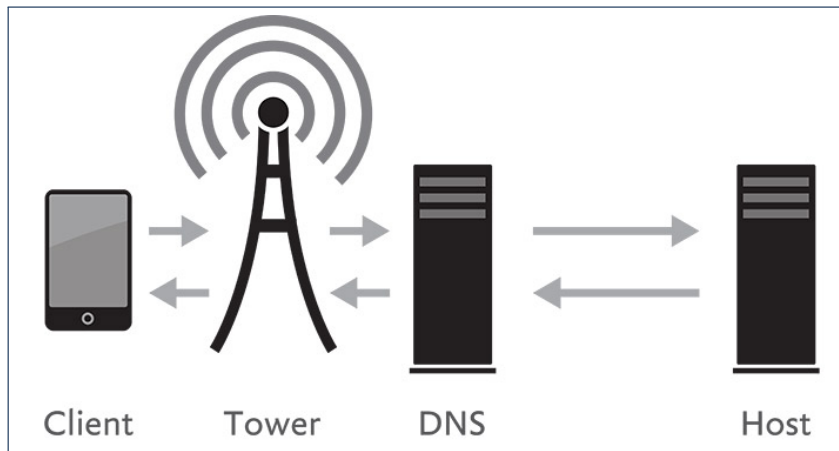
One of the advantages of being in a team

- One of the advantages of being in a team is that you have access to more resources: talent, knowledge, skill sets, ideas, and also different devices.
- It should be the case that you have access to more than one OS (Linux, OS X, Windows etc) with more than one browser (Chrome, Firefox, Safari, Explorer, etc).
- It is likely to be the case that you have access to devices with different screen sizes (PC, laptop, tablet, phone, etc). (Or you know someone who has such a device, even if they are not in your team, or even on the course.)
- You may also have access to a range of different mobile devices (iPhone, Android, etc).
- This is the basis of **cross-platform testing**.

A web connection



A web connection from a mobile



Responsive Web Design

- Content: Josh Hughes, University of Missouri
- `http://uablogs.missouri.edu/wp-content/presentations/responsive-web-design/presentation.pdf`



Responsive Web Design

Josh Hughes

hughesjd@missouri.edu

Fluid Grid

Page - **960 px**

Menu

215 px

20 px

left margin

Content Area

685 px

20 px left and
right margins

Inset Sidebar

215 px

20 px left and
right margins



Fluid Grid

target \div context \times 100 = percentage



Fluid Grid

Menu:

$$215/960 \times 100 = 22.3958333333\%$$

Content Area:

$$685/960 \times 100 = 71.3541666667\%$$

Inset Sidebar:

$$215/685 \times 100 = 31.3868613139\%$$



Fluid Grid

20px margin for the Menu and Content Area:

$$20/960 \times 100 = 2.08333333333\%$$

20px margin for the Inset Sidebar:

$$20/685 \times 100 = 2.9197080292\%$$



Fluid Grid

Page - **90%** (Up to you)

Menu

22.39583

33333%

(215/960)

2.0833333

3333%

(20/960)

left margin

Content Area

71.3541666667%

(685/960)

2.0833333333%

(20/960)

left and right
margins

Inset Sidebar

31.386861

3139%

(215/685)

2.919708

0292%

(20/685)

left and right
margins

Viewport Fix

```
<meta  
  name="viewport"  
  content="width=device-width,  
    initial-scale=1.0"  
>
```



Viewport Fix

Without Meta Tag



With Meta Tag



Flexible Images

1. Set `max-width: 100%` on the `img`
2. Do not set `width` or `height` on the `img` in the HTML
or
Set `width: auto` and `height: auto` in the CSS



Media Queries

```
body
{
  background: red;
}
```

```
@media screen and (min-width: 600px)
{
  body { background: green; }
}
```



Common Media Query Conditions

min-width or **min-height**

Applied if the window is equal to or **greater** than this value

max-width or **max-height**

Applied if the window is equal to or **less** than this value



Common Media Query Conditions

min-device-width or **min-device-height**

Applied if the **device screen** is equal to or **greater** than this value

max-device-width or **max-device-height**

Applied if the **device screen** is equal to or **less** than this value



Responsive Web Design versus Other Options



Native Apps

Pros

- Can provide a slick user experience
- Can more easily access device features (camera, GPS, etc.)
- Available for offline use



Native Apps

Cons

- Very expensive
- Hard to do well
- Which platforms do you support?
- Your users (probably) don't want a native app
- You still need a website



Mobile-Specific Websites

Pros

- Easier to optimize for speed
- More freedom to create a unique mobile experience
- Can more easily target less advanced devices, like feature phones



Mobile-Specific Websites

Cons

- Have to deal intelligently with redirects
- Ignores tablets for the most part
- Tends to offer an incomplete experience



Responsive Web Design

Pros

- Only have to maintain a single website
- Don't need to deal with mobile-specific URLs
- Addresses a wide multitude of devices: phones, tablets, desktops, etc.



Responsive Web Design

Cons

- More difficult to optimize properly for specific devices (for example, phones might get desktop-sized images)



Dealing with Images



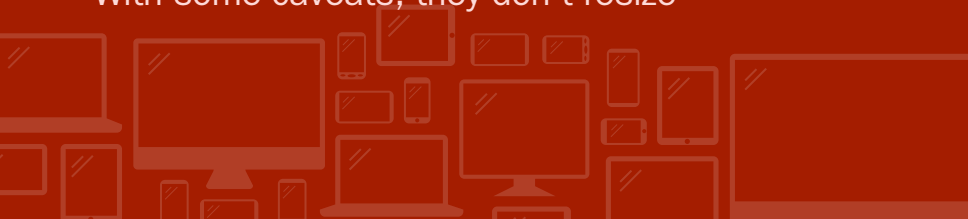
CSS Background Images

Pros

- Easy to setup
- Least likely option to result in both images getting downloaded

Cons

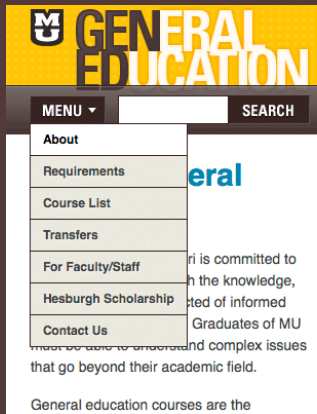
- Content editors probably aren't going to be able to use this method
- With some caveats, they don't resize



Navigation Design Patterns



Dropdown Menu



MU GENERAL EDUCATION

MENU ▾ SEARCH

- About
- Requirements
- Course List
- Transfers
- For Faculty/Staff
- Hesburgh Scholarship
- Contact Us

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h the knowledge,
ted of informed
Graduates of MU
must be able to understand complex issues
that go beyond their academic field.

General education courses are the



MU GENERAL EDUCATION Providing at the U

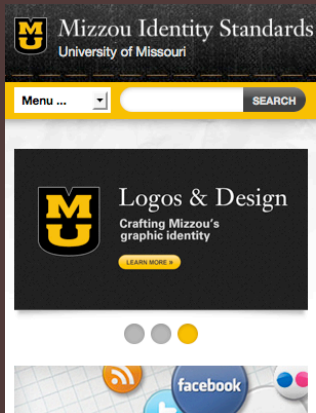
About Requirements Course List Transfers Faculty



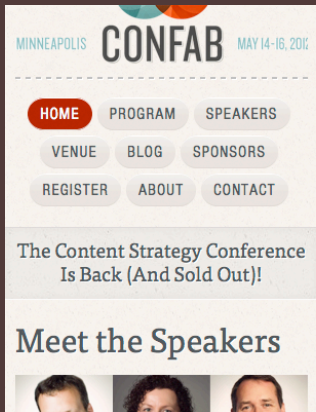
About General

The University of Missouri is com
knowledge, skills and attitudes ex
citizens. Graduates of MU must b
that go beyond their academic fie

Select Menu



Just Stack 'em



Footer Menu

◀ OLDER


SEARCH

ARCHIVES

Archives By Date

- Accessibility
- CMS
- CSS
- Design
- Javascript

urface
ns at the University of Missouri



SEARCH

ARCHIVES

Archives By Date

- Accessibility
- CMS



Off-Canvas Flyout



Responsive Design

Most things come down to the following options:

- Drop the content down
- Make the content viewable via a toggle
- Hide the content altogether (use sparingly)

You can also use Javascript if you need to rearrange the HTML to fit a design.



Not all websites are responsive

●●●● vodafone UK 17:15 Personal Hotspot: 1 Connection

inf.ed.ac.uk

The University of Edinburgh informatics

Informatics Student Services

You are here: Home → Teaching Organisation → Taught Course Information → Teaching Timetables → Lecture Timetable for 2014/15

Lecture Timetable for 2014/15

Activities for students in all years begin in Induction Week, which starts on 8 September 2014. This includes introductory lectures for each year and Personal Tutor meetings for course choice and registration. Individual taught courses (lectures, labs and tutorials) then begin on Week 1 from 15 September 2014. This timetable is published annually by the School of Informatics after close consultation with academic colleagues and partner Schools. Informatics delivers around 100 taught courses per session, meaning that scheduling clashes are inevitable. Careful planning ensures that, where possible, all courses belonging to the same year of study occupy different slots, and separate courses from the same subject area are kept apart.

Venue Codes - Course Codes

Semester 1

Term	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800
MON								
TUE								
WED								
THUR								
FRI								
SAT								

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Day	Course	Course	Course	Course
MON	NIP [5] G.05, 50 GSQ	ABS [3] LT1 AT	EC [3] SR4 CMB	CA [4] 02M.24 MST
				CNV [4] 1.4 22BP
				ES [4] 3.10 PLR DSB
				ITCS [3] LT4 7BSQ
TUE	PPLS [4] G.06 50 GSQ	PMR [5] Teviot LT MST	DIE [4] G200 SR3 MST	CA [4] 4.12 AT
				SW [4] G.8, 1 GSQ
				ST [3] 2.13 GOI
				ALE [4] 110 24BP
WED	SDP [3] [wk 1 only] LT4, AT			DMR [5] G.02, 16-20 GSQ
				RL [5] LT2 AT
				INF-1-DA [1] LHA DHT LTS
				DMR [5] 110 24BP
	NIP [5] G.05, 50 GSQ	ABS [3] Teviot LT MST	IVR [3] LT1 AT	CNV [4] 1.4 22BP
				ES [4]
				CA [4] 4.12 AT
				ES [4]

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				ES [4]
				CA [4] 4.12 AT
				ES [4]

Non-functional requirement (#6 of 10)

`https://www.youtube.com/watch?v=Sqz5dbs5zmo`

This video clip represents non-functional requirement #6. If you were at the lecture then you heard me explain in words what it means.

Three terms you should know

When discussing web content and responsive design, there are three terms which you should know.

Three terms you should know

- Page bloat.
- FOUC.
- Polyfill, or polyfiller.

Things to do now

Some things to do now

- Visit “A List Apart”, the website about websites.
 - <http://alistapart.com>
- Find out about **responsive images**.
 - <http://alistapart.com/article/responsive-images-in-practice>
- Learn about polyfills such as **Picturefill**.
 - <http://scottjehl.github.io/picturefill/>
- Learn about **sustainable Web design**.
 - <http://alistapart.com/article/sustainable-web-design>

Live long and prosper

