Responsive Web Design

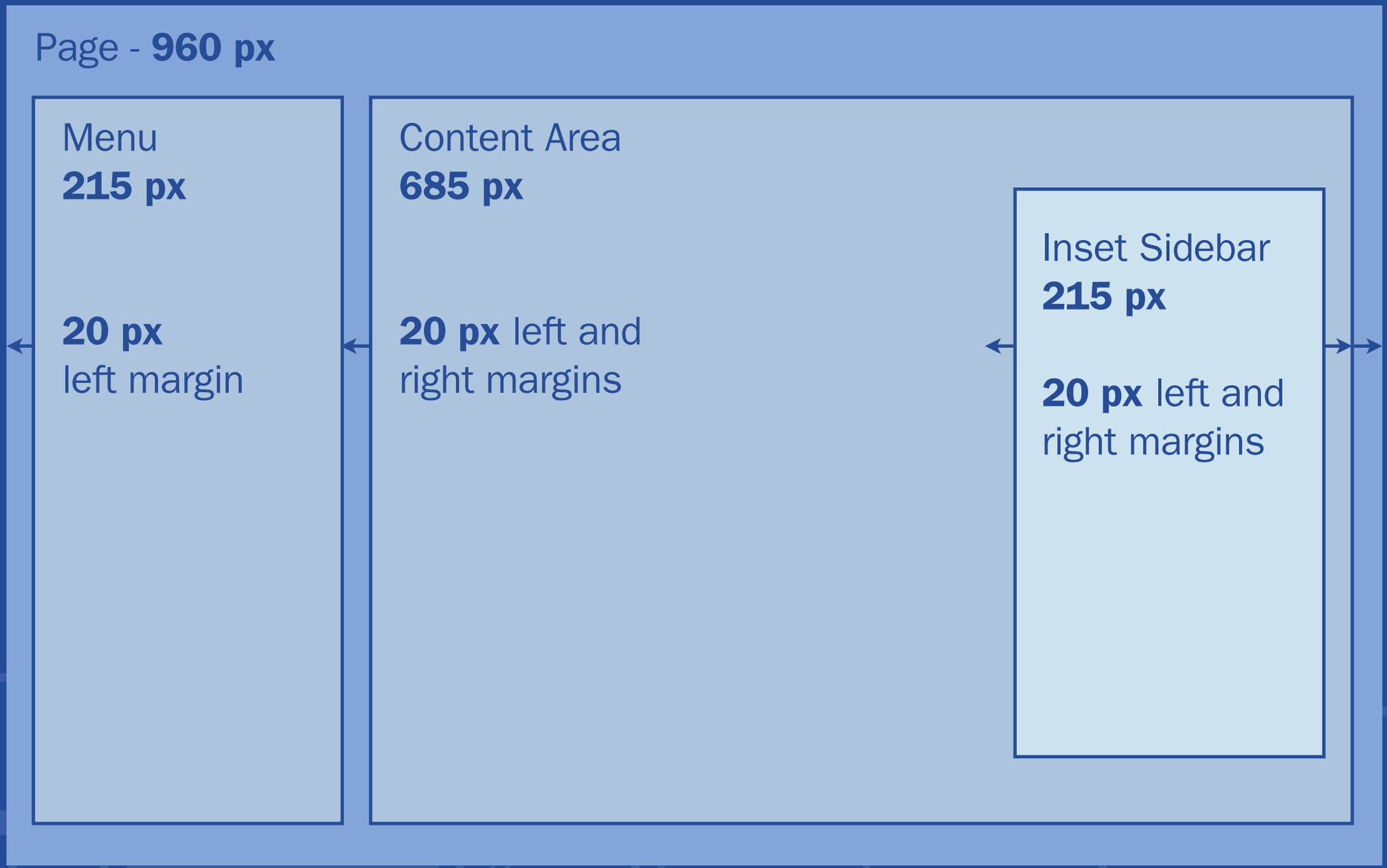
Josh Hughes
hughesjd@missouri.edu

What is Responsive Design?

A quick overview

Fluid Grid

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 ÷ context × 100 = percentage

Fluid Grid

Menu:
215/960 × 100 = 22.3958333333%

Content Area:
685/960 × 100 = 71.3541666667%

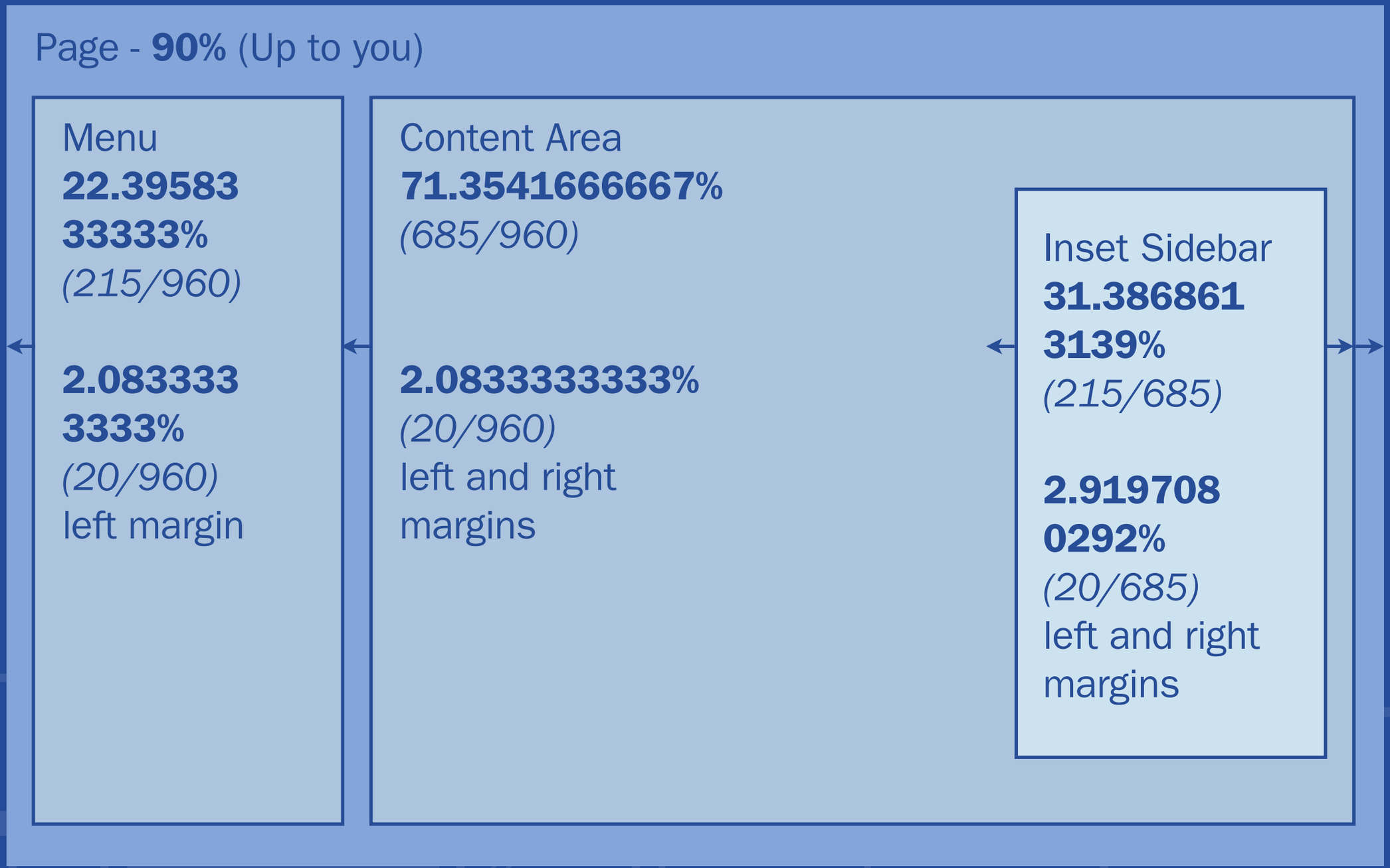
Inset Sidebar:
215/685 × 100 = 31.3868613139%

Fluid Grid

20px margin for the Menu and Content Area:
20/960 × 100 = 2.0833333333%

20px margin for the Inset Sidebar:
20/685 × 100 = 2.9197080292%

Fluid Grid


Page - **90%** (Up to you)
Menu
22.39583 33333%
(215/960)
2.083333 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

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

Flexible Video

Similar situation as images, but maintaining proper proportions is a problem.

Easiest solution is to use Fitvids.

Media Queries

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

Example Sites

Browser Support

Short version:
Pretty much everything except Internet Explorer 8 and below

Browser Support

Long version:

Internet Explorer: 9.0+
Firefox: 3.5+
Chrome: 4.0+
Safari: 3.1+ (a bit buggy until 4.0, however)
Opera: 9.5+
iOS: 3.2+
Android: 2.1+
Windows Phone: 7.5+ (Mango)
Blackberry: 4.7.1+

“Fixing” Internet Explorer

There are Javascript options for filling the hole.

respond.js is the one I would recommend.

Responsive Web Design versus Other Options

Native Apps

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

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

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)

Things to Keep in Mind as You Get Started

Set breakpoints wherever you need them

Make your choices based on
the **design** rather than the **device**

Don’t assume that “mobile” users want less content

Mobile First

Mobile First

- Start your design process with mobile

Mobile First

- Start your design process with mobile
- Make the mobile view the default

Dealing with Images

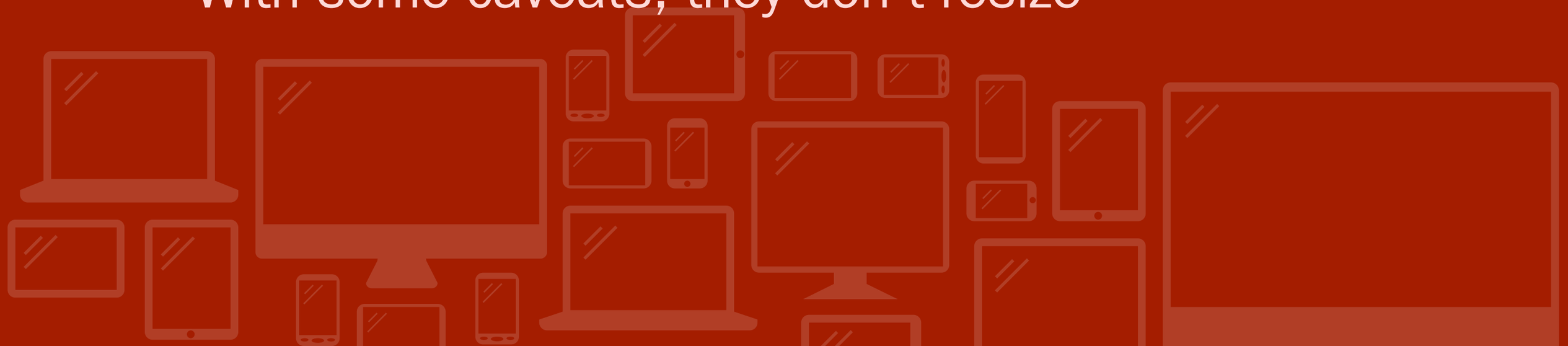
CSS Background Images

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



CSS Background Images

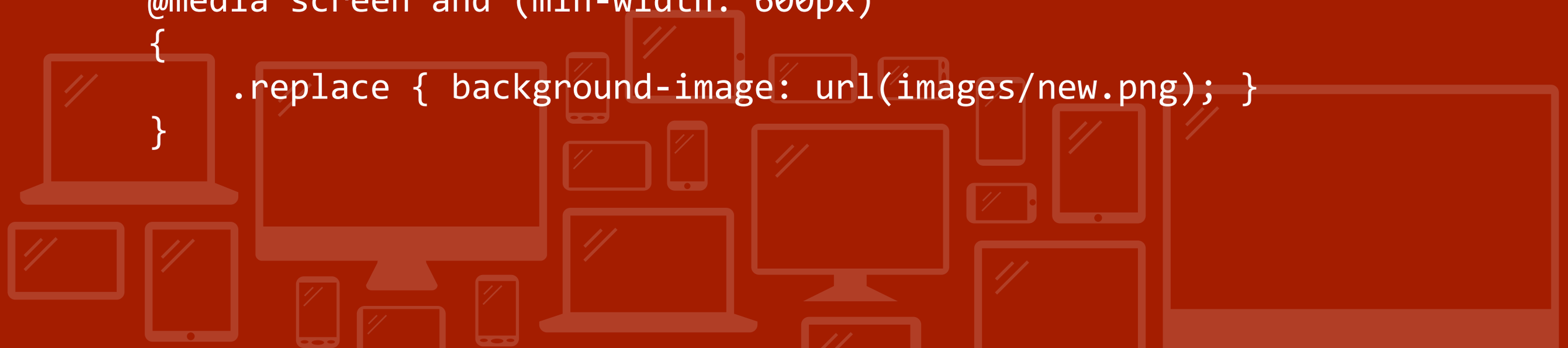
Example:

```
<div class="replace">Alternate Text</div>

.replace
{
    text-indent: 100%;
    white-space: nowrap;
    overflow: hidden;
    background: url(images/replace.png) no-repeat;
    width: 600px;
    height: 200px;
}
```

CSS Background Images

Example:

```
.replace
{
    text-indent: 100%;
    white-space: nowrap;
    overflow: hidden;
    background: url(images/replace.png) no-repeat;
    width: 600px;
    height: 200px;
}

@media screen and (min-width: 600px)
{
    .replace { background-image: url(images/new.png); }
}
```



Inline Images

Pros

- Easy for content editors to add
- Scaling is easy

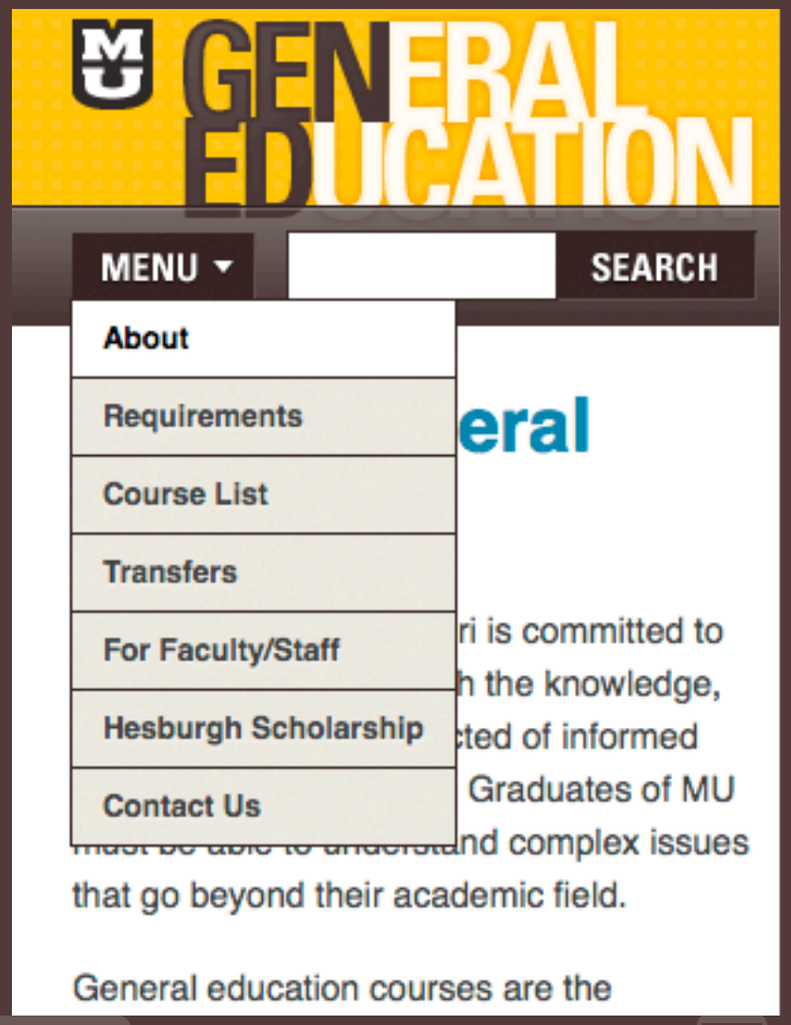
Cons

- Difficult to do any kind of swapping
- Very likely that the user will end up downloading both images

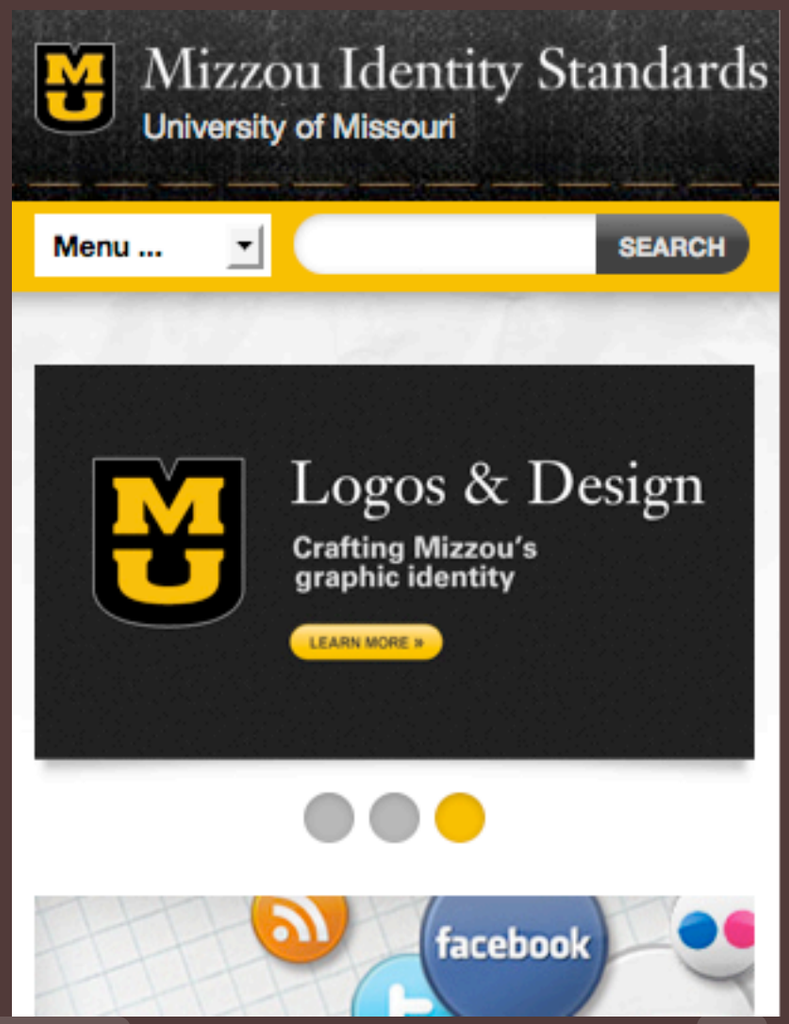
The Double-Download Problem

Navigation Design Patterns

Dropdown Menu

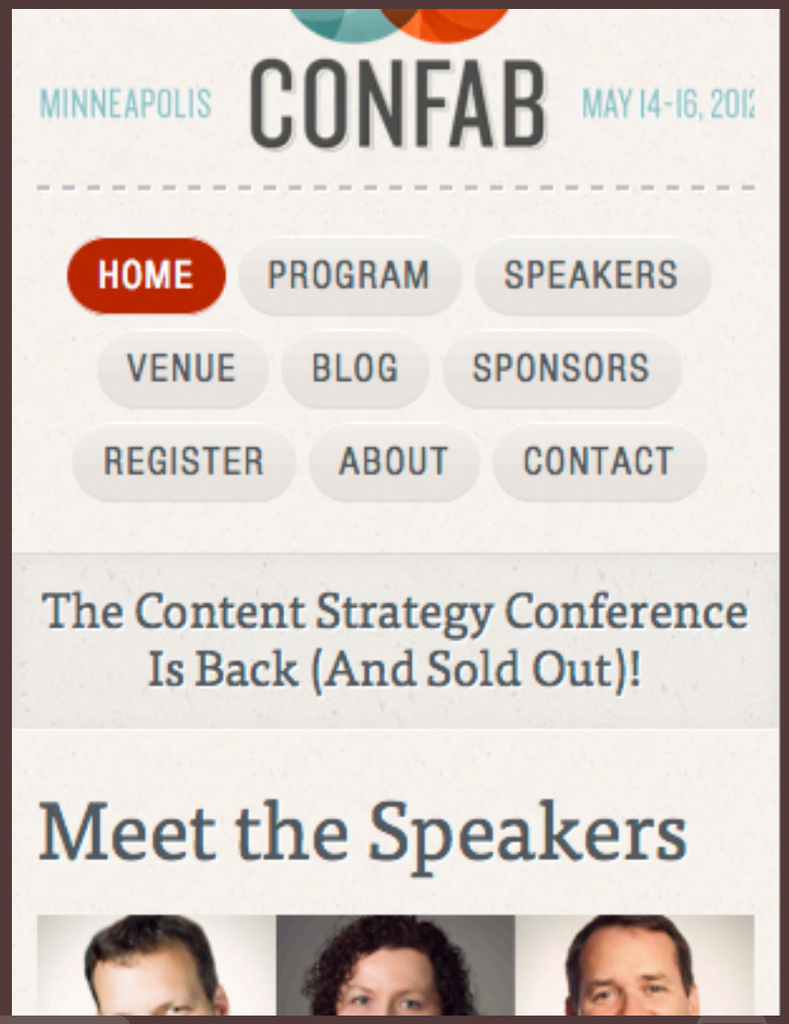


Select Menu

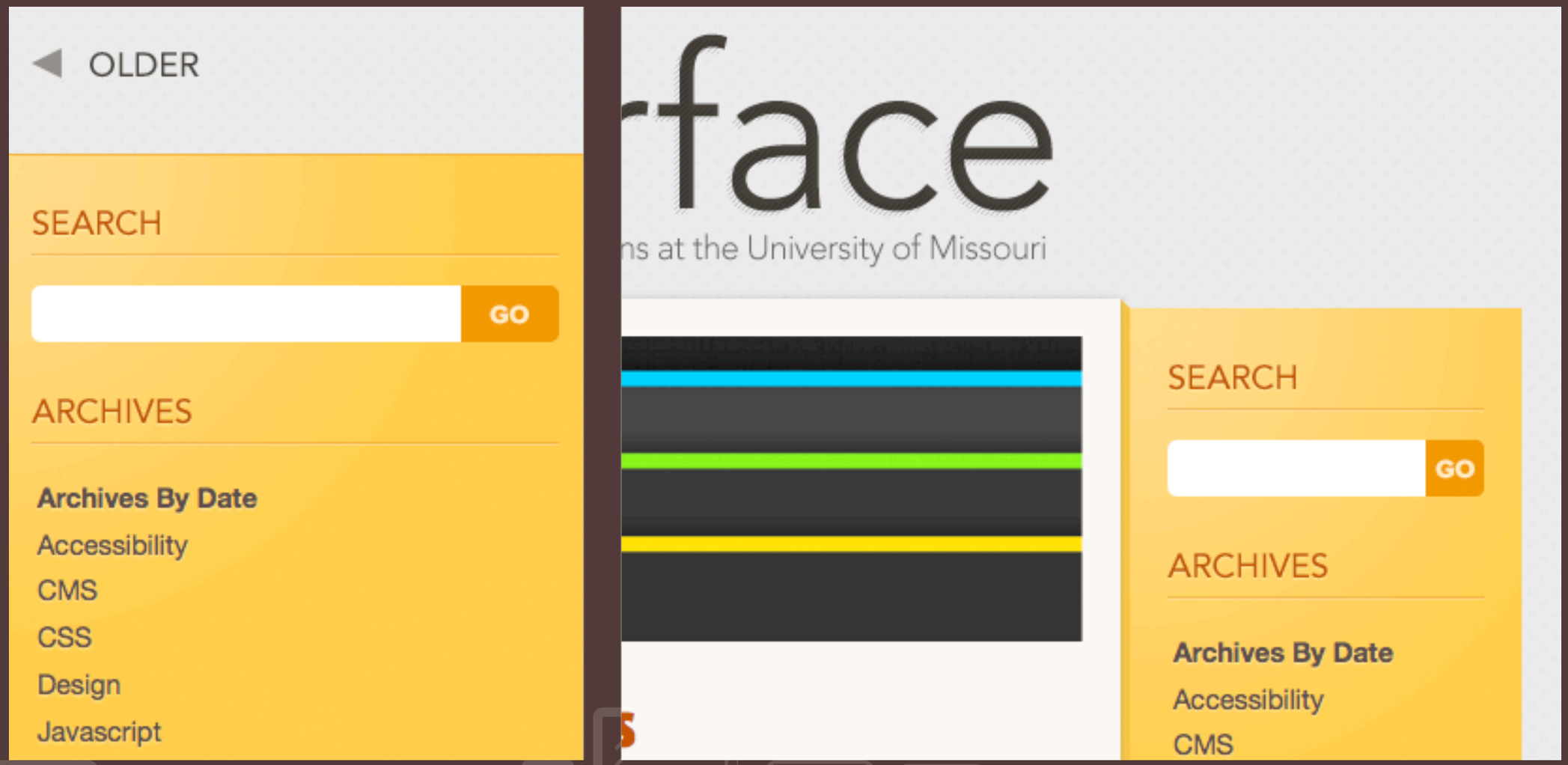

Mizzou Identity Standards
University of Missouri
Menu ...
SEARCH
Logos & Design
Crafting Mizzou's graphic identity
LEARN MORE »
facebook


Mizzou Identity Standards
University of Missouri
About Mizzou Identity
Pride Points
Logos & Design
Photos
Editorial
Websites
LEARN

Just Stack ‘em



Footer Menu


OLDER
SEARCH
GO
ARCHIVES
Archives By Date
Accessibility
CMS
CSS
Design
Javascript
rface
ns at the University of Missouri
SEARCH
GO
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.

Thanks!

Questions? Comments?

Josh Hughes
hughesjd@missouri.edu