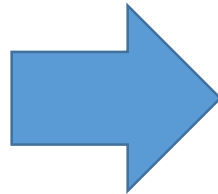


Mobile Design

Responsive & Adaptive Websites

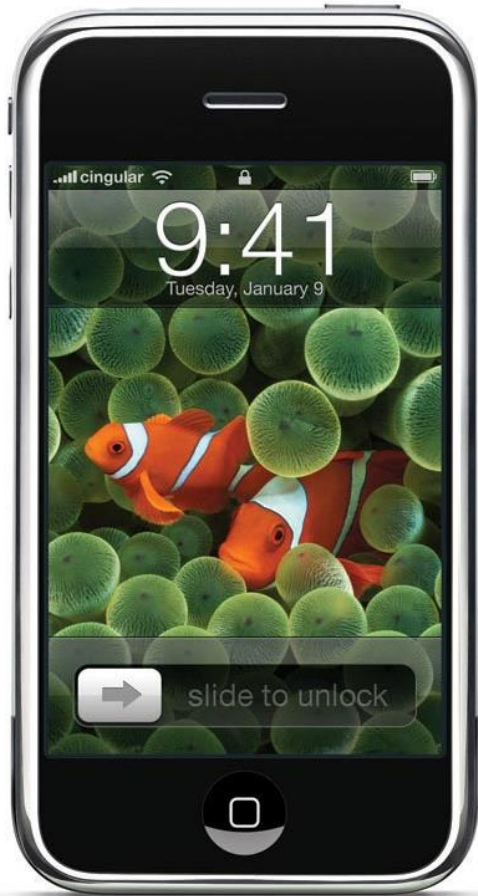
Brochure-ware

- Web mimicked hard copy design
- TBL tech, not designed for that
- Use set heights and widths to "nail" elements
- A desktop was a desktop was a desktop - the fact of life
 - 1024 x 768 display resolution



- Web evolution: users don't like to scroll
 - Horizontal and vertical
- "Above the fold"
 - page "chunking"
 - small fonts
 - boxes, densely packed

June 29, 2007



- No mobile-friendly websites
- Screen: 480 x 320px (portrait)
- New fact of life: pinch-and-zoom
 - Default: every website, zoomed out

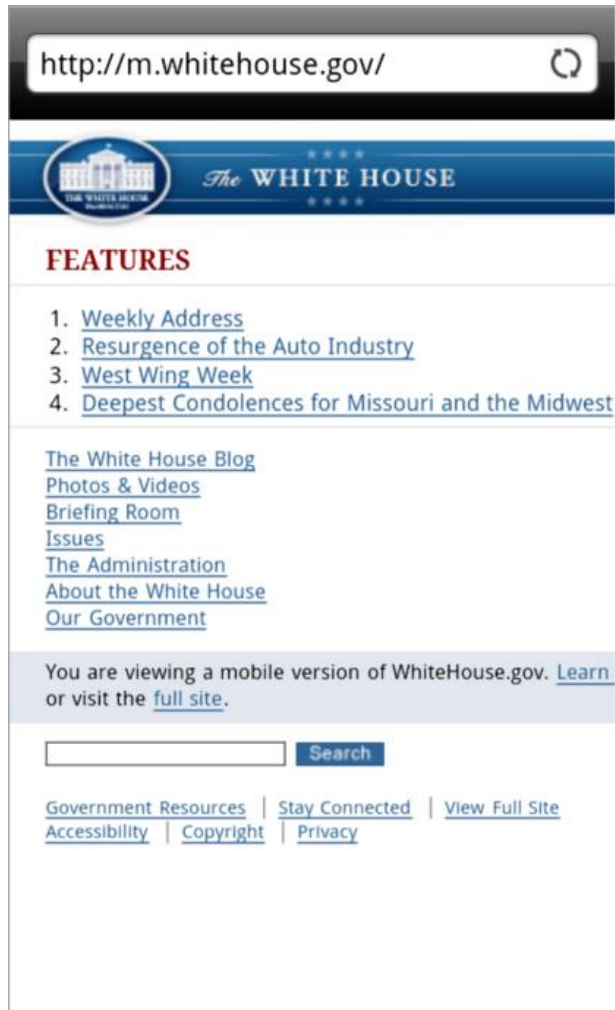


Mobile Web Limitations

- Small Screen Size
- Low bandwidth
- Awkward controls
- Limited processor and memory



Mobile Web Design Best Practices



- Assuming: the same website makes sense on a mobile device, then...
- Need to re-factor:
 1. Layout
 2. Navigation
 3. Graphics
 4. Text

Best Practices

Layout, Navigation, Graphics, Text

Dealing with Mobile Devices

Goals

- **No horizontal scroll bars**
- **All elements fit their containers**
- Text must not be too small to read comfortably; there must be a lot of contrast between text color and its background
- Images must still be recognizable for what they are, i.e. not too small
- The navigation elements look like buttons and they are finger-sized (easily tap-able)

Techniques:

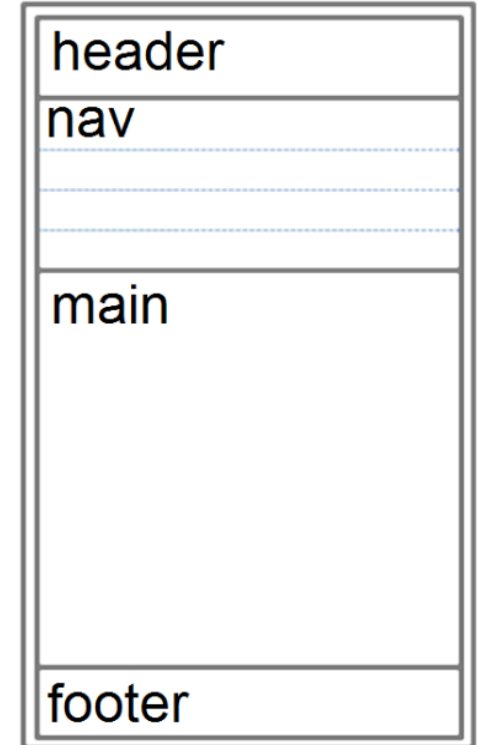
1. Add viewport meta tag
2. Scale images as necessary
3. Use media queries to UNDO desktop layouts
 - Return side-by-side content to the natural document flow
 - Remove floats
4. Reconfigure or move wide elements like HTML Tables

Layout

- Single column design
- Limit scrolling to one direction
- Use clear, short heading elements
- Use simple lists with short phrases instead of heavy textual content
- Avoid using HTML tables
- Avoid using pixel units in style sheets
- Avoid absolute positioning
- Hide content that is not essential for mobile use.



wrapper



Navigation

- Provide minimal navigation near the top or bottom of the page
- Toggle lesser navigation until needed
 - Use micro-interactions to show sub-menus as needed (sliding in and out when tapped)
 - hamburger menus?
- Avoid hyperlinks that open files in new windows or pop-up windows

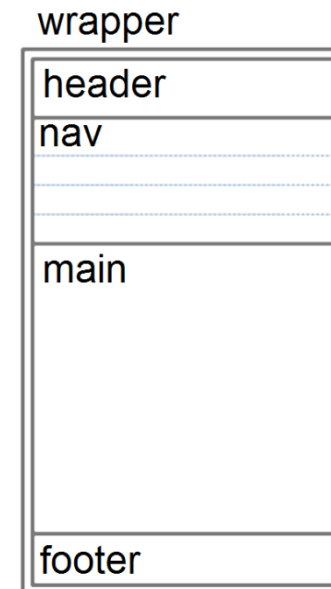
Images

- Avoid using floats
- Avoid displaying images that are wider than the screen width
- Configure alternate, small optimized background images or no background images at all
- Avoid using images that contain text
- Avoid the use of large graphic images (large file sizes)

Text

Remember: images can scale; text stays the same size

- Configure good contrast between text and background colors
- Use common font typefaces
- Increase text sizes (sometimes)
- Use a short, descriptive headings



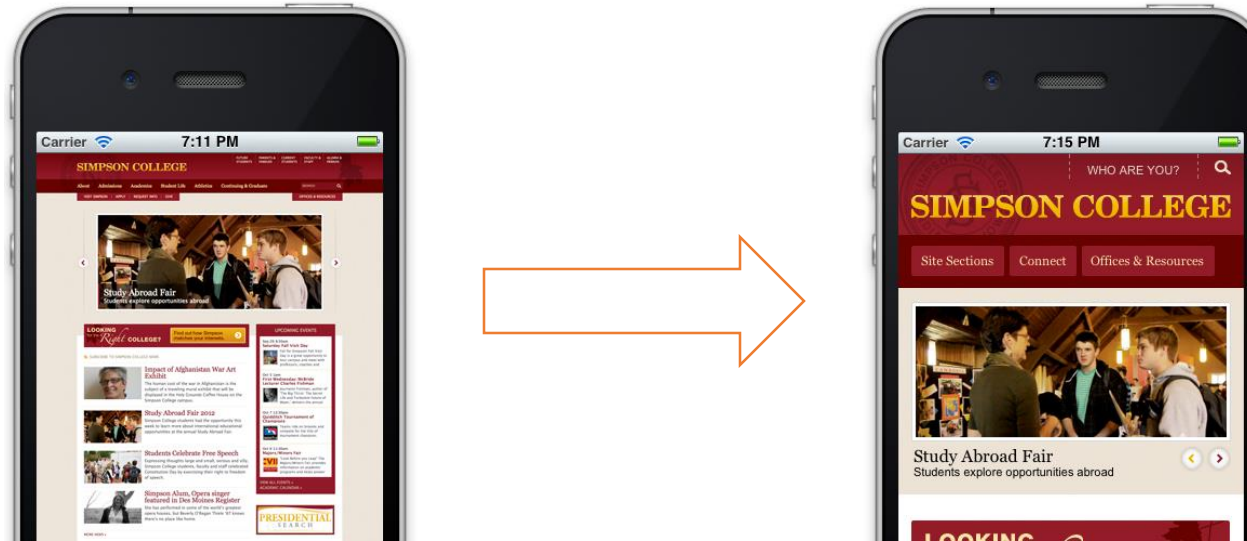
Viewport Meta Tag

The default action for most mobile devices is to zoom out and scale the web page

The fix...

- Viewport Meta Tag
- Created as an Apple extension to configure display on mobile devices
- Configures width and initial scale of browser viewport
- Insert, in the <head>...

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

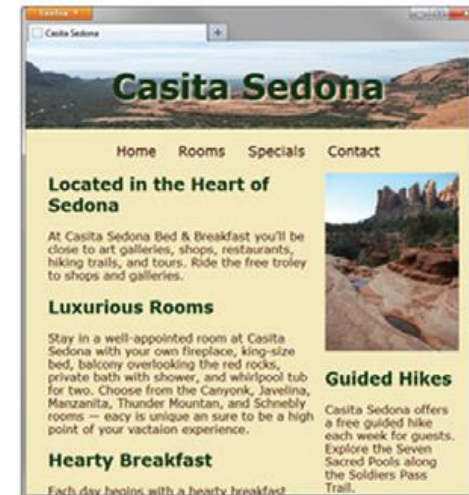


Flexible Images in HTML

Desktop Browser



Tablet
Display Width



Smartphone
Display Width



- In the HTML:
 - remove height and width attributes
 - wrap the image in a container that has a controlled width
- In the CSS:

example:

```
.scalable { width: 100%; }
```

Media Queries

- Media Query
 - Determines the capability of the mobile device, such as screen resolution
 - Directs the browser to styles configured specifically for those capabilities

- In CSS

```
@media (max-width: 768px) {  
    //CSS here  
}  
  
@media (max-width: 480px) {  
    //CSS here  
}
```

Reference:

https://developer.mozilla.org/en-US/docs/Web/Guide/CSS/Media_queries



Reconfigure HTML Tables, Floats ...anything that doesn't fit

- HTML Tables
 - Change the *font-size*
 - Move the table to a different area of the webpage
 - Use *overflow-x:auto* on a container element
 - Reconfigure the table into some other element (like an unordered list) using JavaScript
 - Google: **html tables mobile**
- Floats
 - Remove floats – use *text-align: center* instead