

# Designing a Mobile Version of Your Website

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Guidelines for Interaction Design, Usability,  
Accessibility, Information Architecture,  
HTML and CSS Techniques

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December 16, 2009

- \* Should you build a mobile version of your site?
- \* Which device types should you support?
- \* How will users access your mobile site?
- \* What information should be included, and which tasks should be supported?
- \* Usability and basic interactions on mobile websites
- \* Accessibility best practices
- \* CSS and HTML techniques for page layout and proper display of various types of information

- \* There's a fundamental tension between:
  - \* Universal design and interoperability, striving for "one Web," and...
  - \* Optimizing the user experience on devices with very different interaction models due to widely varying sizes (e.g., mobile device screen vs. the desktop browser).
- \* This presentation emphasizes the latter.

# Should you build a mobile version of your site?

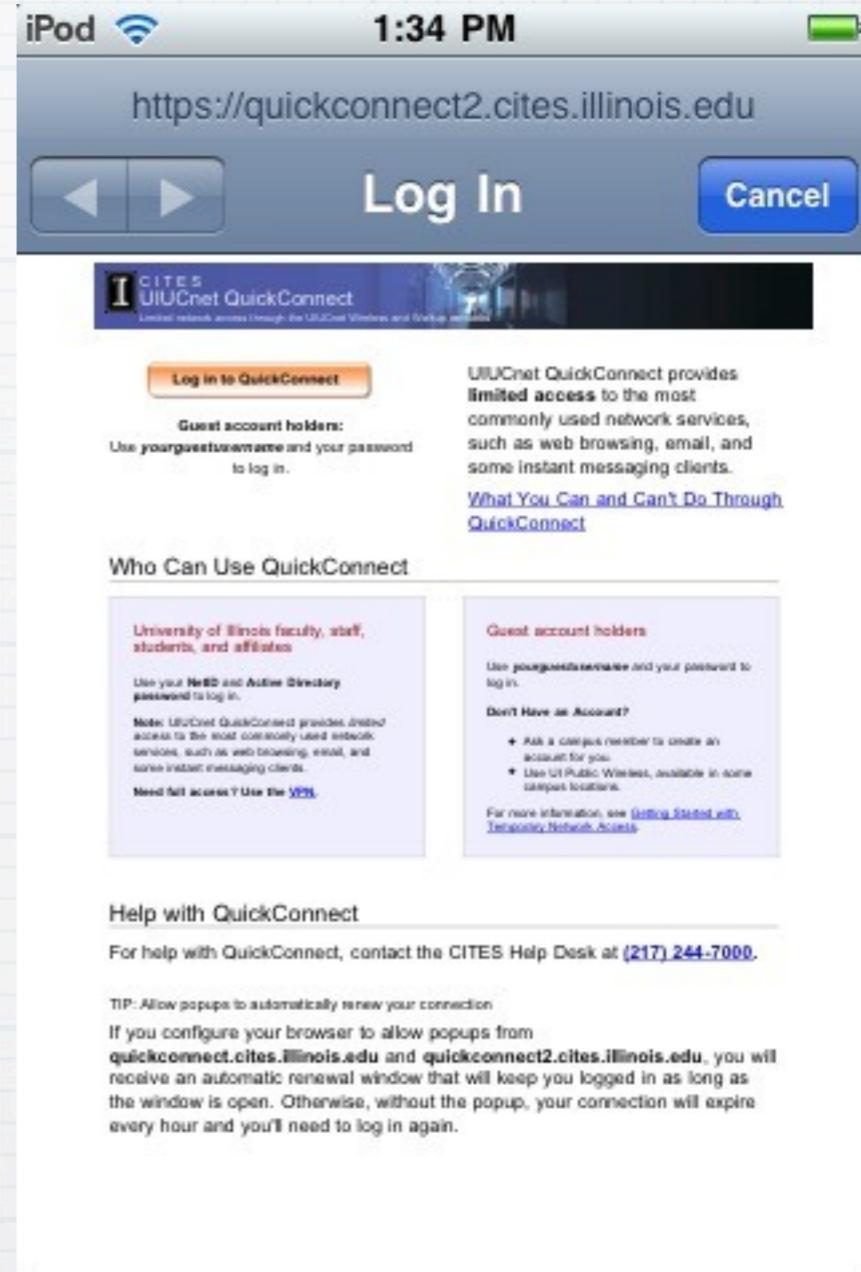
Guidelines from a Nielsen Norman Group (NNG) report: “Usability of Mobile Websites: 85 Design Guidelines for Improving Access to Web-Based Content and Services Through Mobile Devices” by Raluca Budiu and Jakob Nielsen

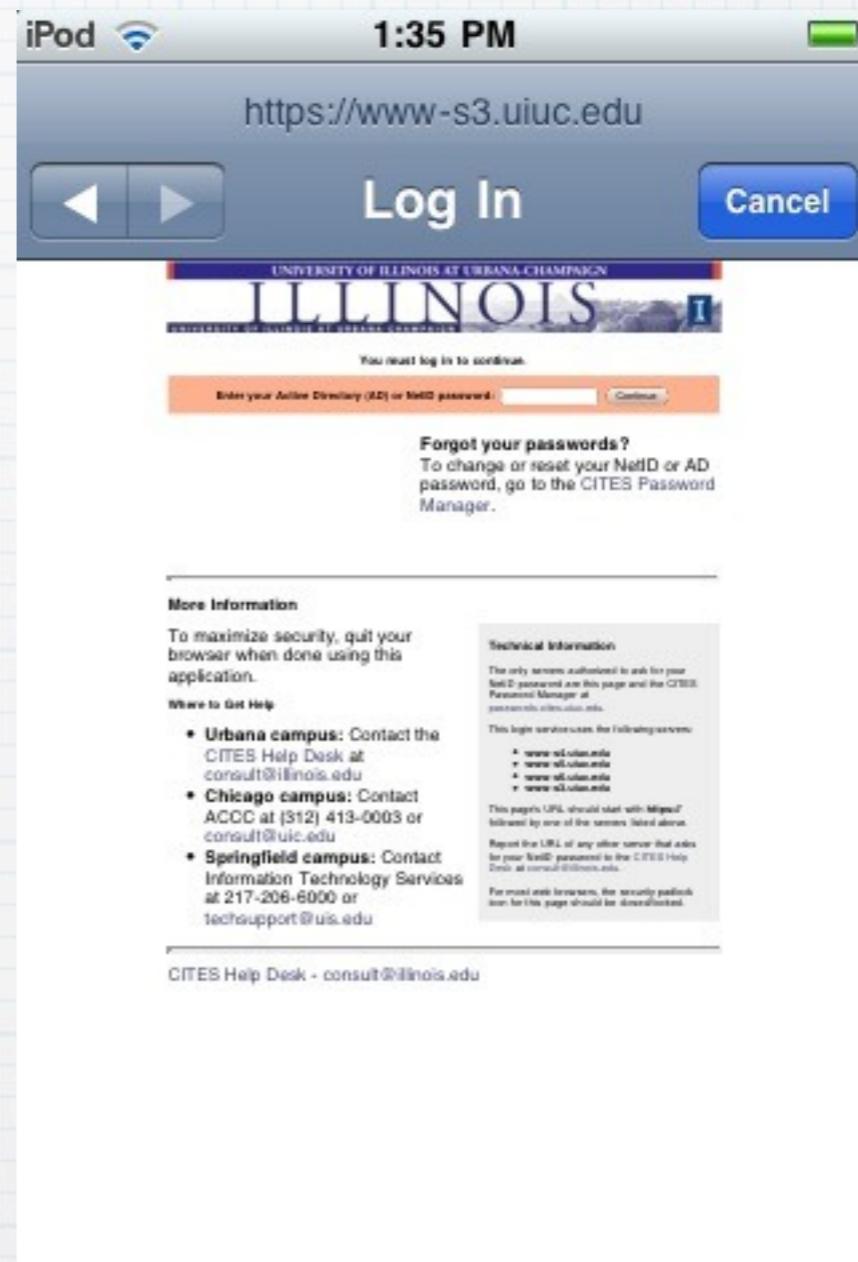
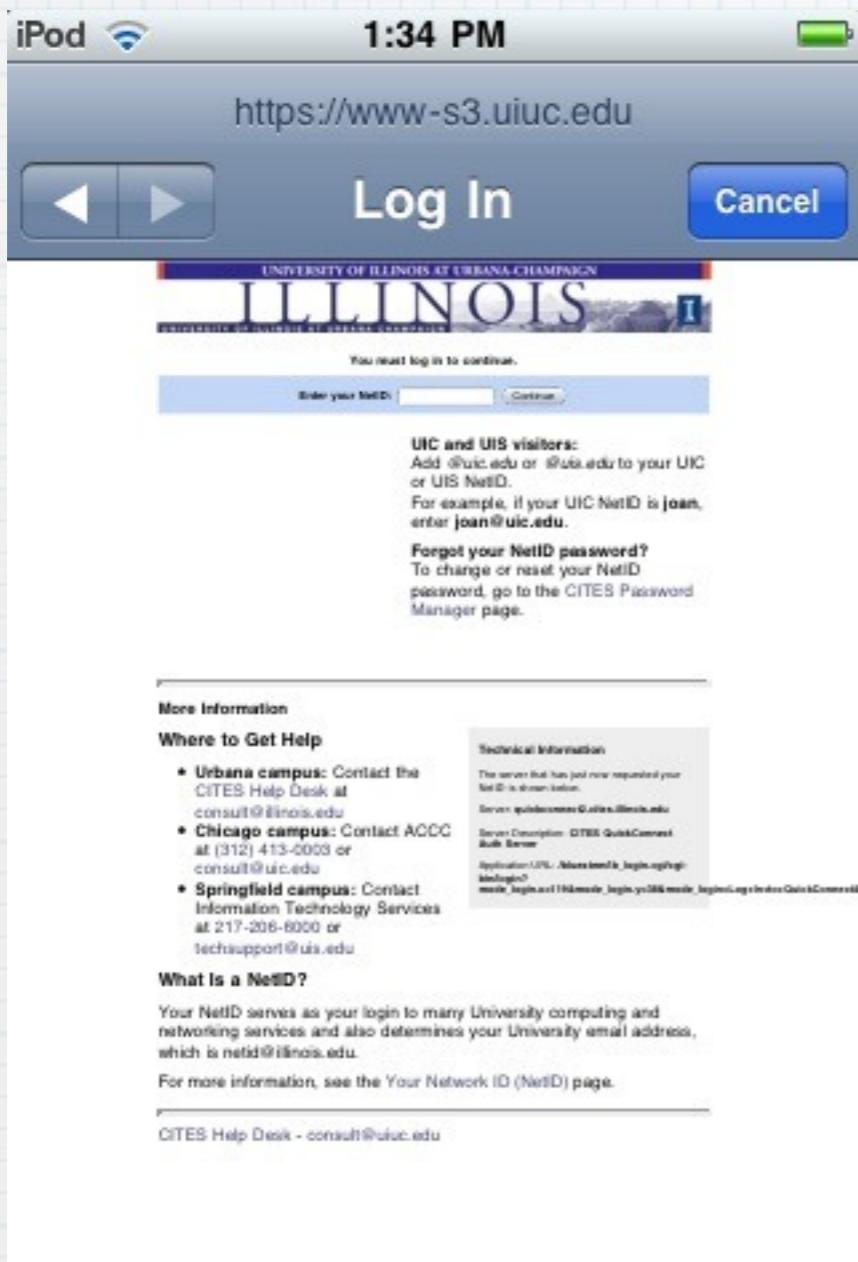
- \* Usability Research cited in NNG Report

- \* Diary study: 14 participants from 6 countries.
- \* User testing: 48 people participated in usability studies using their own phones.
- \* Cross-platform review: A design review of 20 sites, using 6 phones.

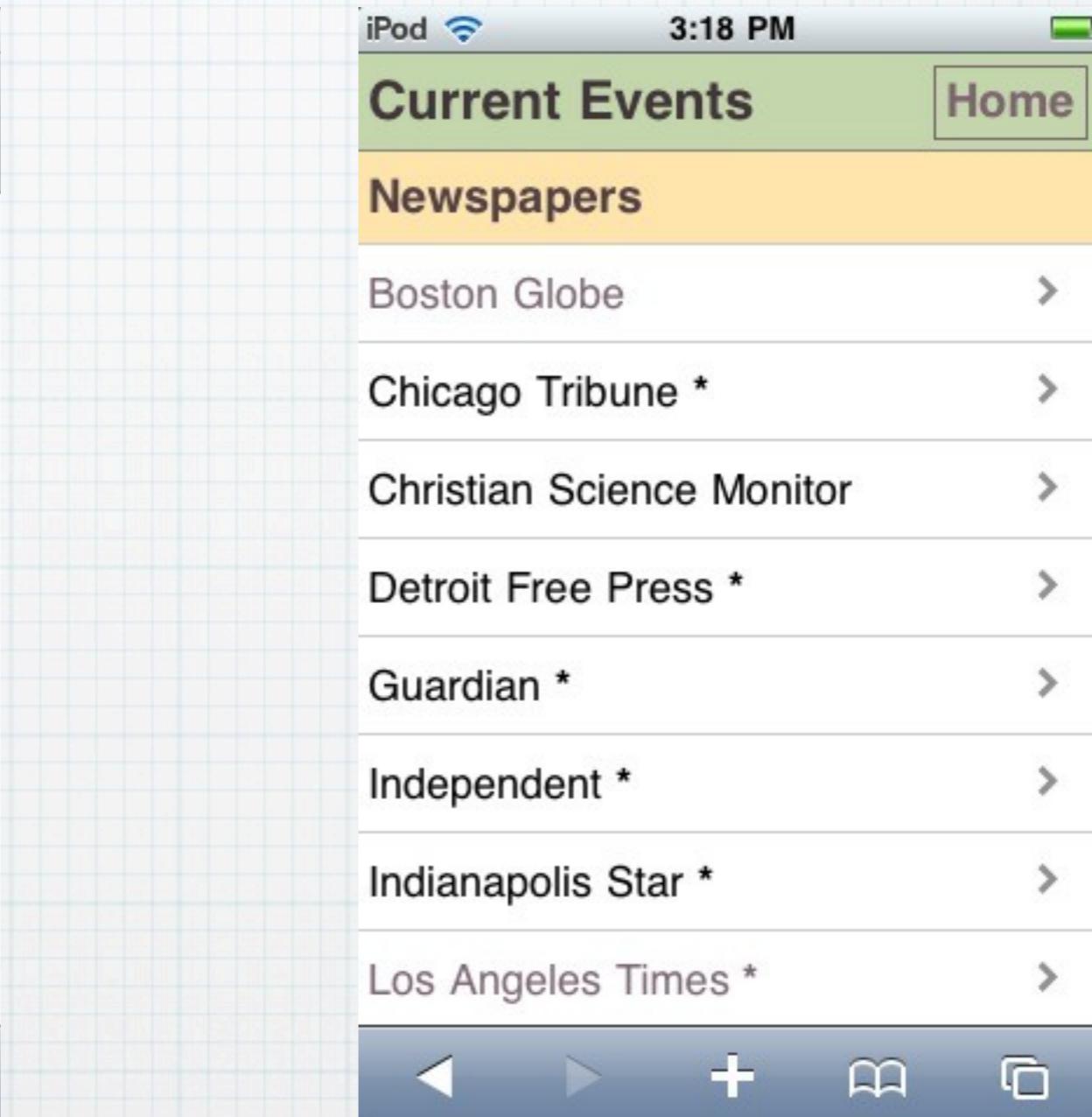
# Should you build...

Based upon NNG usability studies, “mobile sites beat full sites”  
(not too surprising when you consider...)





# The Relegant Index



# Considerations

- \* NNG report: Better phones perform better in terms of average success rates (task completion):
  - \* Feature phones: 38%
  - \* Smartphones: 55%
  - \* Touch phones: 75%

# Questions you need to ask:

- \* What do users typically do on your website? (Web analytics can help you answer this.)
- \* Of these typical actions or tasks, which do users need to do when they're mobile? (Again, web analytics can help...)
- \* Critical mass?

# Additional considerations

- \* NNG: “Mobile Usability is Hard”
- \* There is a tension between making content and navigation salient and designing for a small screen and potentially slow network.
- \* Nearly every design decision will be dependent upon the particular site (its content, structure and purpose).

# Additional considerations

- \* Think about disaggregation in comparison to the complex page layouts typically found on full sites.
- \* Unless you go to the extra trouble of designing for “the special circumstances of mobile use,” the user experience will likely be miserable.

# Which device types should you support?

- \* Feature phones (maybe not)
- \* Smartphones
- \* Touch phones

# Feature Phones

- \* Screens are tiny
- \* Web browsing: an afterthought?
- \* Need really compelling reasons to support these devices.

# Smartphones

- \* Term is sometime used to differentiate between feature phones and more sophisticated devices such as iPhone.
- \* Here it means a phone with a dedicated keyboard.
- \* Thus the screen is not device-sized, but considerably larger than feature phone.

# Touch phones

- \* Screen is approximately device-sized.  
For example, iPhone is 320 x 480 pixels.
- \* Supports various gestures for scrolling,  
zooming and navigating.
- \* User satisfaction ratings are highest  
for these devices (as are success rates).

# Recommendations

- \* Support smartphones and touch phones (unless you have really good reasons for supporting all three).
- \* Lazaridis, CEO of RIM: "... There will be no feature phones in the future. It will all be smart phones."

# How will users access your mobile site?

- \* Best to redirect based on device detection (more on this later).
- \* Use URL and domain naming conventions:
  - \* m.mydomain.org (best, due to brevity)
  - \* mobile.mydomain.org (also okay)
  - \* www.mydomain.org/mobile (acceptable)
  - \* www.mydomain.mobi (trend is moving away from using this TLD)

# How will users access your mobile site?

- \* Provide a salient link to your mobile site from your main site (e.g., top-level navigation)
- \* Device detection algorithms and code for automatic redirection can be fairly complex and will need to be frequently updated as new devices become available.
- \* NNG recommendation: Use the term “Mobile” in the navigation label.

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Breaking news: Snow due as UK braced for cold snap - PA



## Key Afghanistan project stalled by Taliban

Turbine convoy diverted troops from front but generator may never be used

- Gordon Brown in surprise Afghanistan trip
- MoD cuts spending in favour of frontline

## Silvio Berlusconi hit in the face

Italian prime minister taken to hospital where an x-ray showed he has suffered damage to two teeth

- Italian prime minister hurt in assault

## Copenhagen deal under threat

Poorer countries indicate leaders may refuse to take part in the final climate summit if progress stalls

- 32 comments

- Tony Blair urges leaders to secure deal
- Full text of Tony Blair's speech in Copenhagen
- Danish police release protesters
- Copenhagen in pictures, day seven

## N Korean plane carrying arms seized

Five held in Bangkok over 35-tonne cargo which included rocket launchers, grenades and missiles

The X Factor  
Joe triumphs in final showdown



## Cameron tells Tories to be ready

Ed Balls denies Labour talking about early general election as poll shows Tory lead narrowing

- Boris Johnson fuels talk over leadership ambitions
- Cameron bids to end Ashcroft tax rumpus

## Key sponsor drops Tiger Woods

Accounting firm Accenture says golfer is 'no longer the

BBC sport award  
Ryan Giggs wins



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Snow predicted



Liverpool 1  
Arsenal 2

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# What information should be included?

- \* Difficult question to answer — it depends upon the characteristics of your site.
- \* Generally speaking, you need to think about scaling back, i.e., excluding some types of content.
- \* May involve disaggregation, with respect to page layouts on your full site.

# What information ...?

- \* Involves understanding your users.
- \* Use site analytics and surveys to determine (a) what mobile users are already doing on your site, and (b) what is done most frequently on your site by all users.
- \* Pick a relatively small subset of these that are most likely to be done on a mobile device.

# Which tasks should be supported?

- \* Avoid complexity on mobile device. Task workflow should ideally require just 1-2 clicks.
- \* NNG guidelines for deciding which tasks you should support:
  - \* Tasks that have a deadline;
  - \* Tasks that involve rapidly changing information;
  - \* Tasks that require privacy.

# Which tasks ...?

- \* NNG guidelines, continued:
  - \* Tasks that involve finding information about hours of service, location, phone numbers or other contact info.
  - \* Tasks that involve finding directions or information needed in an emergency.
  - \* Tasks that involve some type of communication with others (social network sites, forums).

# What information ...?

- \* NNG guidelines: The Homepage
  - \* Include the logo and/or name of the organization at the top of the page.
  - \* Include a link to your full site.
  - \* Include the logo/name on every page (to help users maintain context) and make it link to the home page.
  - \* Search box and navigation if designed for smartphones and touch phones.

# Detroit Free Press homepage

iPod WiFi 4:24 PM

 [Menu](#)

December 13, 2009 4:24 PM



**Top stories** >

-  [Pulled back from disaster, a determined Mich. auto industry enters new age](#) >
-  [Ravens do whatever they want, dominate Lions](#) >
-  [Reading Corps wants YOU](#) >

**Local Weather** >

-  [Cloudy 38°F](#)  
Forecast ...

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 [Smooth romance from Alicia Keys Playlist](#) >

 [High price, high hopes](#) >

**Life** >

-  [The D-Day that never came](#) >
-  [Dijon's good for a bite](#) >
-  [Love is in the air at Christmas](#) >

**News from USA TODAY** >

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# The Guardian homepage

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**the guardian** 13 Dec 2009

Sections

**News**

Cameron tells Tories to be ready for March election

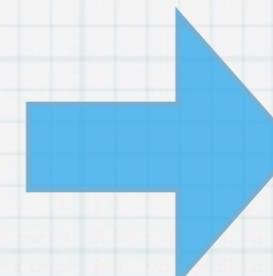
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Copenhagen deal under threat

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**Sport**

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# Usability and Basic Interactions

- \* Typing (e.g., in text boxes)
- \* Use auto-complete and suggestions.
- \* Save and utilize history and personalization.
- \* Allow users to easily delete default field values (e.g., with clear button 'x')

# Links, Buttons, Dropdown boxes

- \* For touch phones, maintain a target area of 1 cm. x 1 cm.
- \* For touch phones, leave enough space around links and widgets to avoid clicking an adjacent widget.

# Lists and Scrolling

- \* All items on a list should go on the same page...
  - \* if the items are text only, and
  - \* if they are sorted in an order relevant to the task.
- \* Rationale: Text-based lists are easy to scroll through.

# Lists and Scrolling

- \* Provide options to sort a list according to various criteria when appropriate.
- \* Provide options for filtering when a list contains items that belong to different categories.
- \* If the list contains only one item, take the user directly to that item.

# Forms

- \* Make textboxes long enough to accommodate typical user input, while still short enough to fit on the screen: NNG recommends 30 characters on smartphones and touch phones.
- \* Use web analytics to determine the average length of strings typed into a particular field.

# Forms

- \* Place the field description (label) above the textbox.
- \* Use the colon ":" to indicate that the description refers to the textbox below.
- \* Minimize the number of submissions required to input information.
- \* To indicate an error in a form submission, mark the field that contains the error.

# Navigation

- \* Incorporate some type of navigation scheme on the homepage of your mobile site.
- \* Include a link to the site navigation on every page of your mobile site.

# The Relegant Index



# Accessibility Best Practices

- \* Use heading elements to denote the structure of documents.
- \* Label form controls properly.
- \* Use text equivalents with images
- \* Use CSS in place of images when possible.

# Accessibility B. P.

- \* In general, follow the HTML Best Practices as defined by IITAA and CITA and evaluated by the Functional Accessibility Evaluator (FAE).
- \* <http://fae.cita.illinois.edu>

# HTML & CSS Techniques

- \* Current recommendation: use XHTML Basic 1.1 DOCTYPE:  
<http://www.w3.org/TR/xhtml-basic/>
- \* Keep HTML markup relatively simple. If you're already using XHTML, there's not much of a learning curve involved.
- \* Avoid the use of images whenever possible (to keep page sizes small).

# HTML & CSS Techniques

- \* `<meta name="viewport" content="width=device-width" />`
- \* Supported by browsers (Mobile Safari, Opera Mobile/Mini) on smartphones and touch phones (e.g., iPhone, BlackBerry).
- \* Use `<a href="abc.html" style="display:block">ABC</a>` when appropriate.

# HTML & CSS Techniques

- \* Testing tools

- \* <http://iphonetester.com/>

- \* <http://www.opera.com/mini/demo/>

- \* [http://waxler.w3.org/mobileok/  
index.html](http://waxler.w3.org/mobileok/index.html)

# HTML & CSS Techniques

## Example Code

- \* Django settings file for mobile site
- \* Django middleware for redirection
- \* Django template with DOCTYPE, meta tag, etc.
- \* CSS file with “zeroed-out” padding and margin; anchor tag properties, etc.

```
from settings import *

DEBUG = False
TEMPLATE_DEBUG = DEBUG

IS_MOBILE = True

MIDDLEWARE_CLASSES = (
    'django.middleware.common.CommonMiddleware',
    'django.contrib.sessions.middleware.SessionMiddleware',
    'django.contrib.auth.middleware.AuthenticationMiddleware',
    'django.middleware.doc.XViewMiddleware',
)

TEMPLATE_DIRS = (
    os.path.join(PROJECT_DIR, 'templates/mobile'),
)
```

```
import re
from django.http import HttpResponseRedirect

mobile_url = 'http://m.relegant.com/'

RE_MOBILE = re.compile(r"(iphone|ipod|blackberry|android|palm|windows\s+ce)", re.I)

def get_user_agent(request):
    ua = request.META.get('HTTP_USER_AGENT', '')
    if not ua:
        ua = request.META.get('HTTP_X_OPERAMINI_PHONE_UA', '')
    if not ua:
        ua = request.META.get('HTTP_X_SKYFIRE_PHONE_UA', '')
    return ua

def is_mobile(user_agent):
    return bool(RE_MOBILE.search(user_agent))

class MobileRedirect(object):
    def process_request(self, request):
        if not request.session.get('checked_ua', False):
            request.session['checked_ua'] = True
            if is_mobile(get_user_agent(request)):
                return HttpResponseRedirect(mobile_url)
        return None
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML Basic 1.1//EN" "http://www.w3.org/TR/xhtml-basic/xhtml-basic11.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en">
<head>
<meta http-equiv="content-type" content="text/html; charset=UTF-8" />
<meta name="viewport" content="width=device-width; initial-scale=1.0; maximum-scale=1.0; user-scalable=0;" />
<title>{% block title %}{{ doc_title }} | {{ site_name }}{% endblock %}</title>
<link type="text/css" rel="stylesheet" href="/media/style/mobile.css" />
</head>
<body onload="setTimeout(function() { window.scrollTo(0, 1) }, 100);">
<div id="header">
  {% block header %}<h1>{{ doc_title }}</h1><a class="button" href="/{% if local %}local/{% endif %}">Home</a>{% endblock %}
</div>
<div id="content">
  {% block content %}{{ content|safe }}{% endblock %}
</div>
<div id="footer">
  {% if copyright %}&copy; 1996–{% now "Y" %} N. Hoyt{% else %}Updated {{ date_last_modified }}; {{ num_links }} links{% endif %} | <a href="http://www.relegant.com/{% ifnotequal id 'index' %}{{ id }}/{% endifnotequal %}">Full Site</a>
</div>
</body>
</html>
```

```
body, div, p, h1, h2, h3, h4, h5, h6, ul {  
    margin: 0;  
    padding: 0;  
}  
  
body {  
    font-family: Helvetica;  
    font-size: large;  
    background: #fff;  
    color: #000;  
}  
  
a {  
    text-decoration: none;  
}  
  
h1, h2, h3, h4, h5, h6 {  
    padding: 4px;  
}  
  
h1 {  
    font-size: 130%;  
    padding-top: 8px;  
    padding-bottom: 8px;  
}
```

```
h2.menu, h2.category {  
    font-size: 112%;  
    padding-top: 8px;  
    padding-bottom: 8px;  
}  
  
ul {  
    list-style: none;  
}  
  
li {  
    background-image: url('/media/images/arrow_right.png');  
    background-repeat: no-repeat;  
    background-position: right center;  
    border-bottom: 1px solid #ccc;  
}  
  
li:first-child {  
    border-top: 1px solid #ccc;  
}  
  
ul.menu li a, ul.category li a {  
    display: block;  
    padding: 10px 32px 10px 4px;  
}
```

# Additional Resources

- \* <http://www.relegant.com/mobile-web/>
- \* <http://m.relegant.com/mobile-web/>