

Inclusive Design Thinking: Principles and Persona Examples

1. Legible text and typography
2. Concise content, same reading order as visual order
3. Chunks of information to allow content skimming
4. Recognizable links, link focus indicators
5. Organized and intuitive site architecture

1. Complex

<p>Adam Project Manager</p> 	
<p>Personal Information</p> <p>Age: 31</p> <p>Location: Chicago, IL</p> <p>Education: MBA, Chicago Institute of Technology</p> <p>Profession: Project Manager</p> <p>Home Life: Married, no children</p> <p>Hobbies: Guitar, Reading, Cooking</p> <p>Special Tools: HumanWare Brailliant display and BrailleNote, JAWS</p> <p>Special Considerations</p> <p>Adam, blind since birth, uses a screen reader with a Braille reader when he works on the computer. He just started using JAWS as his screen reader since version 11 is compatible with his HumanWare tools. He's working hard to master the long list of key combinations in JAWS.</p> <p>User Goals</p> <p>Adam uses Fake Product Name to...</p> <ul style="list-style-type: none">• Manage monthly budget easily• Get reminders when bills are due/easily set up recurring payments• Set up a preferred payment method for every purchase at specific retailers, without having to authorize each time	

2. Simple

<p>Stephen Retired Professor</p> 	
<p>Personal Information</p> <p>Age: 67</p> <p>Location: Seattle, WA</p> <p>Education: MA, UCLA</p> <p>Profession: College Professor, retired</p> <p>Home Life: Married with grandchildren</p> <p>Hobbies: Writing, hiking, traveling</p> <p>Special Considerations</p> <p>Stephen doesn't like to use a mouse, wears bifocals, and doesn't spend much time on his computer. He's not up-to-date with technology trends since his retirement, and hates to keep learning new operating systems. Tends to use an iPad or iPhone.</p> <p>User Goals</p> <p>Stephen uses Fake Product Name to...</p> <ul style="list-style-type: none">• Set up budgets for traveling• Manage and organize trip details, trip deposits, and due dates.• Set payments up once• Have multiple users on 1 account• Access from any device	

Use of Color: Examples of color standards

1. Don't be color dependent

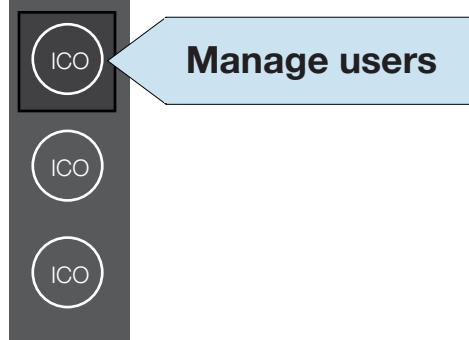
- Use a text alternative (context or markup)

 **PASS**  **FAIL**

- Underline your links or use an icon. If link is in body text, keep the underline.

Edit  Edit

- Placement of links in a button bar or navigational column



2. WCAG 2.0 – color contrast, Level AA (widely accepted for government compliance)

Contrast ratio of 4.5:1 for normal text

Contrast ratio of 3:1 for large text (at least: 18 pt. regular or light, **14 pt. bold**)

 PASS	0052b6	0052b6	0052b6	fff		
 PASS	0052b6	0052b6	0052b6	d2d2d2		
 FAIL	0052b6	c1c1c1	 PASS	0052b6	0052b6	c1c1c1

3. WCAG 2.0 – color contrast, Level AAA (passing this goes beyond compliancy)

Contrast ratio of 7:1 for normal text

Contrast ratio of 4:5:1 for large text (at least: 18 pt. regular or light, **14 pt. bold**)

 PASS	0052b6	0052b6	0052b6	fff		
 FAIL	0052b6	d2d2d2	 PASS	0052b6	0052b6	d2d2d2
 FAIL	0052b6	0052b6	0052b6	c1c1c1		

Fonts: Examples of best practices

1. Use Real or True Text, not images of text

University

University

2. Use % or em units (relative)

3. Traditional web-safe fonts

Serif Fonts

Georgia
Courier
Times New Roman

Sans Serif Fonts

Verdana
Arial
Helvetica
Tahoma
Trebuchet
Comic Sans

4. Beware: extreme thick and thin line weights, cursive or handwriting fonts

Thicks + thins

Baskerville
Optima

Cursive, Handwritten

Brush Script
Zapfino

5. Left-aligned text is easier to read

6. Full-Justification should be avoided

7. Keep line lengths shorter

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec quis ante eu felis accumsan tincidunt. Sed ut erat eget enim mollis cursus in quis magna. Cras pharetra quis neque non sollicitudin. Nam gravida viverra quam a lobortis. Vestibulum id ornare ligula, in pulvinar magna.

Lorem ipsum dolor sit amet, consectetur adipiscing elit.
Donec quis ante eu felis accumsan tincidunt. Sed ut erat
eget enim mollis cursus in quis magna. Cras pharetra
quis neque non sollicitudin. Nam gravida viverra quam a
lobortis. Vestibulum id ornare ligula, in pulvinar magna.

8. Respect the white space

Fonts: Examples of best practices, continued

9. Watch your line-height (leading)

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec quis ante eu felis accumsan tincidunt. Sed ut erat eget enim mollis cursus in quis magna. Cras pharetra quis neque non sollicitudin. Nam gravida viverra quam a lobortis. Vestibulum id ornare ligula, in pulvinar magna.

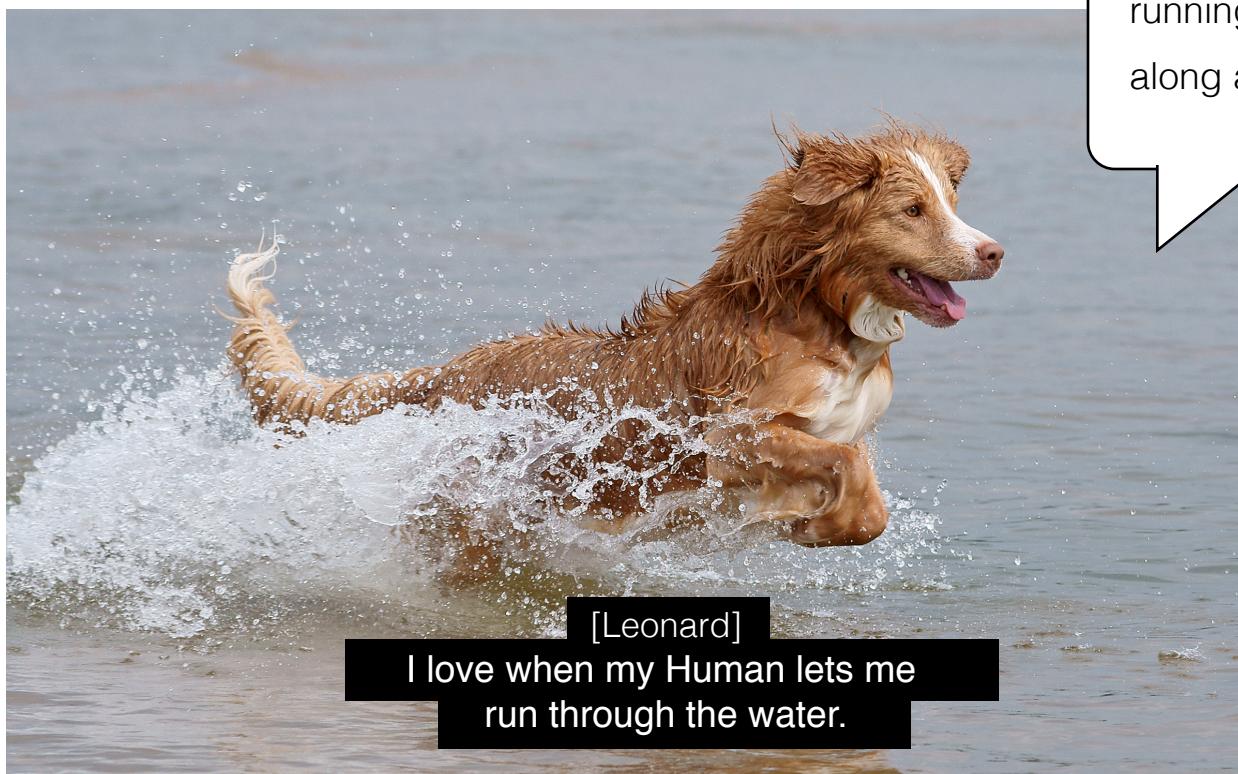
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec quis ante eu felis accumsan tincidunt. Sed ut erat eget enim mollis cursus in quis magna. Cras pharetra quis neque non sollicitudin. Nam gravida viverra quam a lobortis. Vestibulum id ornare ligula, in pulvinar magna.

10. No blinking or moving text

Images, animations, video: Equivalent and accessible options

1. Equivalent information for images, videos and animations

- Captioning (textual representation)
 - Open are burned into video
 - Closed can be turned off and on
- Subtitles (what is being said)
- Auditory description of visual information



You can see a dog
running through the waves
along a beach.

[Leonard]
I love when my Human lets me
run through the water.

2. Synchronized information for images, videos and animations.

- The equivalent information is provided at the same time
- Alternative text, which is a textual replacement of images that conveys the same thing.

3. User controlled animations

- Carousels or scrolling images/information
- Music, videos

Creating meaningful content

1. Errors and error messaging

x Not enough information provided.

! Please fill out required information.

Billing address

Jane	Doe	
1120 Anywhere St.		
San Francisco	CA ▾	ZIP
Mobile ▾	415-555-7903	

✓ Information of missing info in the message plus visual cues for the required field.

! Please provide your billing ZIP code.

Billing address

Jane	Doe	
1120 Anywhere St.		
San Francisco	CA ▾	ZIP !
Mobile ▾	415-555-7903	

2. Links

x Link is not clear

Click here for instructions.

✓ This option is more clear.

Red Sauce recipe
White Sauce recipe

Red Sauce recipe
White Sauce recipe

4px ←

8px ←

3. Alt text



Alt text: Cat with an Alaskan Malamute dog

Navigation and layout

1. Maintain consistency in your navigation and layout

The image shows two side-by-side user interface snippets. The left snippet shows a dropdown menu with 'John Doe' at the top, followed by a yellow-highlighted 'First name' field containing 'First name' with a cursor arrow pointing to it, and a 'Last name' field below. The right snippet shows a search bar with 'John Doe' and a magnifying glass icon, followed by a text input field labeled '(4) First name' and another labeled '(10) Last name'.

2. Consider a mobile-first strategy

- Similar barriers between mobile device users and people with disabilities using web
- Narrow your content / remove “Fluff”

3. Breadcrumb types

- Location

[Home > Shoe's Under \\$50 > Adidas](#)

- Path

[Home > Women's Shoes > Sneakers > Adidas](#)

- Attribute

[Under \\$50](#)

4. Breadcrumb tips

- Use keywords that the user is looking for
- Should be links
- Describe destination page
- No benefit to it? Don't use it
- Breadcrumbs are NOT primary navigation

5. Common visual symbols for separating hyperlinks

- >
- >>
- /

Adding accessibility notes in UI spec documentation

1. Annotate color

2. Structure

- Main heading
- Sub heading (etc)

3. Touch / Keyboard access

4. Behavior

5. When there's a visible focus state (include how it looks if no Visual designer)

6. When there's a selective state (include how it looks if no Visual designer)

Home > Filter option #1 > Filter Option #2



Home > Shoe's Under \$50 > Adidas



Home > Shoe's Under \$50 > Adidas



1 Interaction:

On Click, Tap, Enter key:
Take user to Home page

Tab order:

home --> filter option #1 --> filter option #2

Colors:

Previously visited: #1c75bc

2 Interaction:

On Click, Tap, Enter key:
Take user to Filter Option #1 results page

3 Active page example: #000

4 Visible focus state example.

Visual FPO only. Follow visual spec for focus state appearance.

5 Selective state changes color.

Color FPO. Refer to visual spec for selective state appearance.

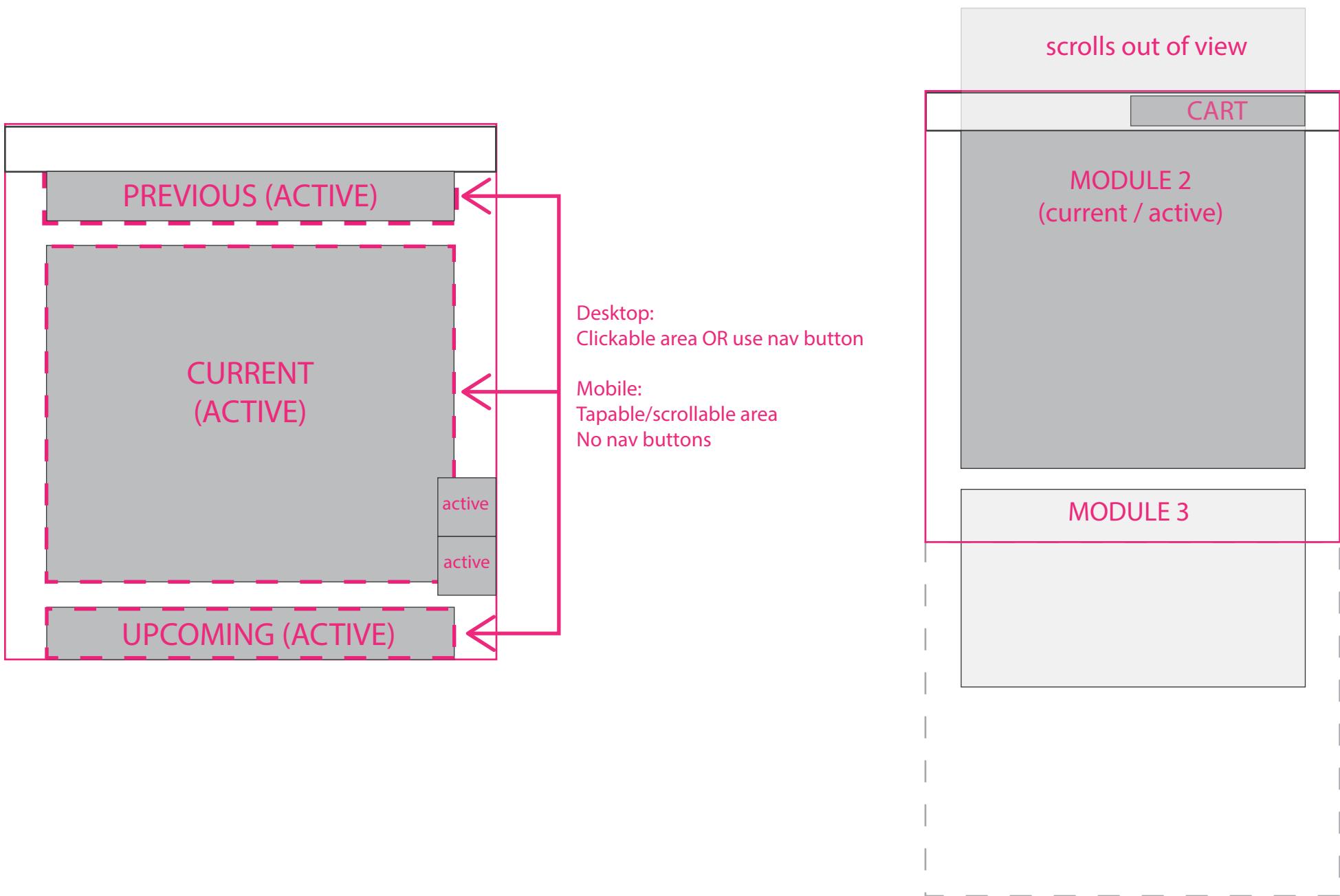
Adding accessibility notes continued

Container:

1st module has fixed starting point.

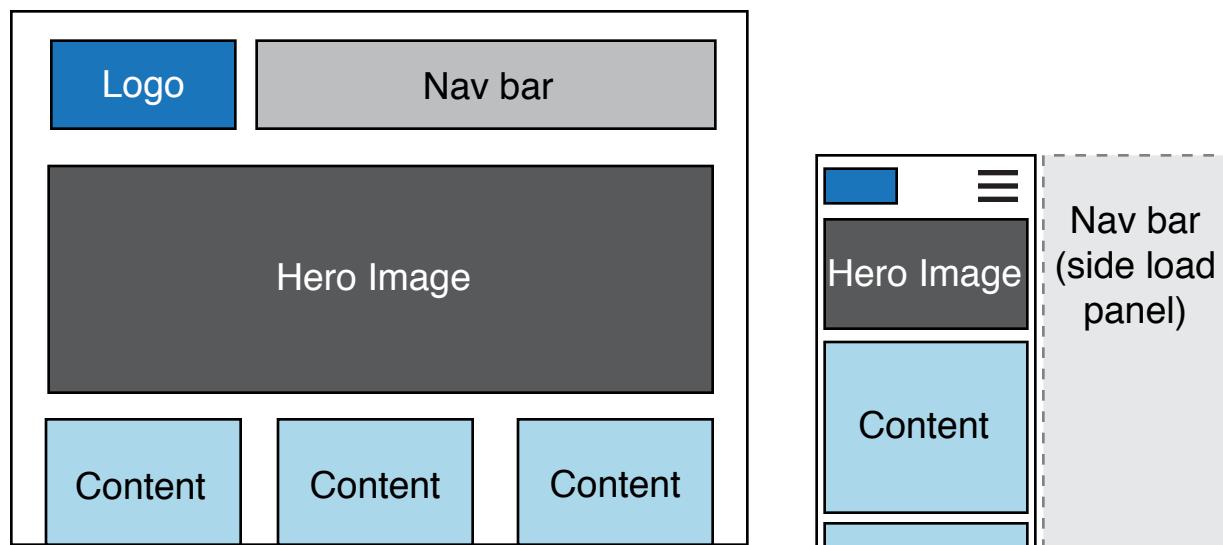
Subsequent modules centered in area.

- 1 H2 Page heading
- 2 Form field - Credit card number entry
CC validation if US flow:
1. If detect MasterCard via BIN, show MC logo
2. If detect Visa via BIN, show Visa logo
3. If detect Amex via BIN, show Amex logo
4. If detect Discover via BIN, show Discover logo
- 3 Form field - CSC entry
Content and image dynamic based on CC number entered in #2.
Interaction:
- On Key up of last digit (3rd digit if MC, Visa, Discover / 4th digit if Amex) move all modules forward (visually this scrolls up).
- Module #2 centered in area, follow Active Module Visual pattern.
- If Front-end validation of CC fails, show error pattern for fields affected + error message.
1. If MasterCard, show standard back of CC img
2. If Visa, show standard back of CC img
3. If Amex, show front of card Amex CC img, + content "4 digits"
4. If Discover, show standard back of CC img
- 4
- 5



Responsive Design and accessibility: What they have in common

1. Content trumps design regardless of screen size, as we update the design to highlight the content.

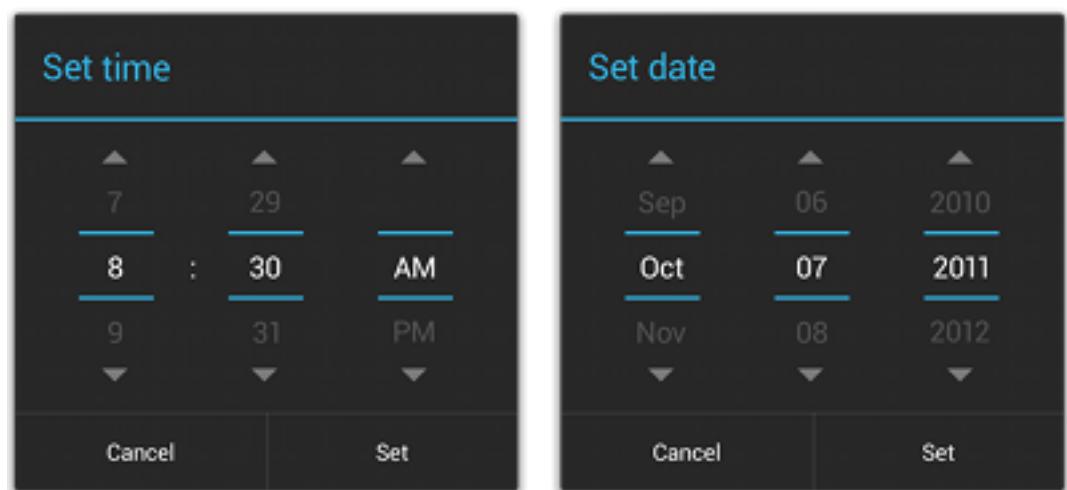


2. Use native controls when possible.

iOS7 Date Picker



Android Time / Date Picker



3. Design for the harshest (or edge) cases first.

4. Viewport must permit zooming.

5. Your design adapts to the size of the viewport.

6. Use a combination of responsive design and progressive enhancements (the separation of HTML, JavaScript, and CSS).

7. Use progressive disclosure when you can.

8. All standard controls need to be keyboard and touch accessible.

- 9 . A fluid/responsive grid system reflows content when it's reordered, and helps to ensure correct reading order.

Affordances and accessibility

1. Explicit affordance

Save address

Save address

2. Pattern affordance

A. Link

B. Navigation bar

Red Sauce recipe

Logo

Menu Reservations Contact About

3. Metaphorical affordance

A. Search vs. Zoom



B. Metaphor + explicit



Edit

Delete

4. Hidden affordance

A. Grayed out

Red Sauce recipe

B. Shows on hover

Red Sauce recipe A small black arrow pointing towards the text.

5. False affordance

A. Red for save, not delete

Save address

B. Grayed out for save, not disabled

Save address

6. Negative affordance

A. Negative affordance before password entered

Enter password

B. Explicit affordance after

.....

Login

Login

Tips and tricks

1. Current rapid prototyping tools can't be used for accessibility testing

2. Engage with accessibility team early in the process

3. Use color checker tools

4. Add 1-2 personas with disabilities

5. Include users with disabilities into field visits and lab studies

- Corrective lenses
- Alternatives to the mouse
- Arthritis

6. Be the user

- ChromeVox extension (Chrome only)
- Keyboard navigation
- VoiceOver, closed captioning, speak selections, etc (mobile device built-in accessibility)
- Explore by touch apps

7. Go to an accessibility conference