

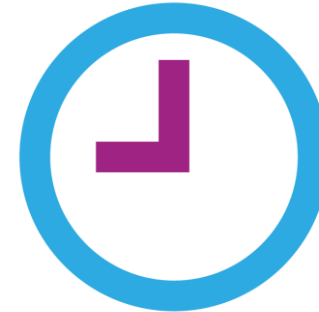
Provide Access to the Websites & Apps for People of Determination

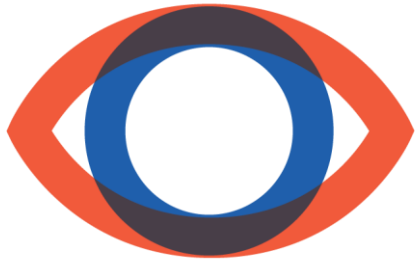
Accessibility Guidelines Workshop

18th Apr 2019

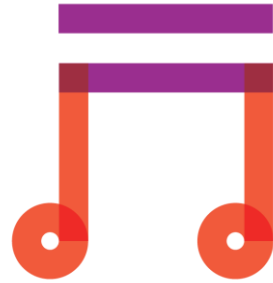
Agenda

- Introduction and Background
- Web Content Accessibility Guidelines (WCAG 2.0)
- Mobile Content Accessibility Guidelines
- Q & A
- Accessibility Evaluation





VISUAL DISABILITY
blindness, low vision or
loss of visual acuity



AUDITORY DISABILITY
complete deafness or
some levels of hearing
loss



COGNITIVE DISABILITY
speech dysfunction,
language or learning
impairments



PHYSICAL DISABILITY
impaired mobility or
loss of fine motor
control



BACKGROUND

The World Wide Web Consortium provides **12 guidelines** under **4 principles** (Web Content Accessibility Guidelines – WCAG 2.0):

- Principle 1: Perceivable
- Principle 2: Operable
- Principle 3: Understandable
- Principle 4: Robust

For each guideline, there are testable success criteria, which are at three levels: **A**, **AA**, and **AAA**.

Links:

- Web Content Accessibility Guidelines (WCAG 2.0):
https://www.w3.org/WAI/WCAG20/quickref/?currentsi debar=%23col_customize&levels=aaa
- Mobile Content Accessibility Guidelines:
<https://www.w3.org/TR/mobile-accessibility-mapping/>





WEBSITE ACCESSIBILITY GUIDELINES

PRINCIPLE 1: PERCEIVABLE



1.1.1 TEXT ALTERNATIVES

Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.

- **Input Controls:** If non-text content is a control or accepts user input, then it has a name that describes its purpose.
- **Time-Based Media:** If non-text content is time-based media, then text alternatives at least provide descriptive identification of the non-text content.
- **CAPTCHA:** alternative forms of CAPTCHA using output modes for different types of sensory perception are provided to accommodate different disabilities.
- **Decoration, Formatting, Invisible:** Alt Text is not required in this case.





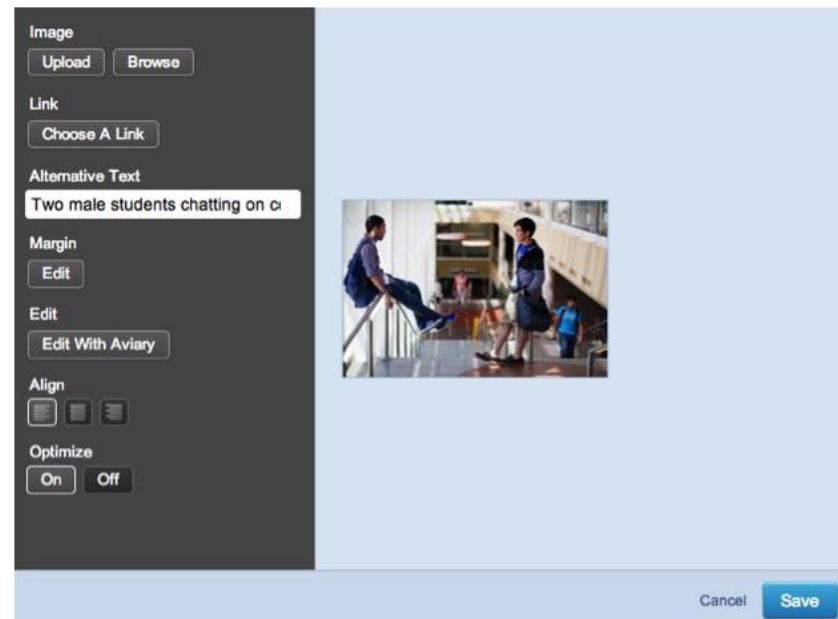
1.1.1 TEXT ALTERNATIVES

Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.

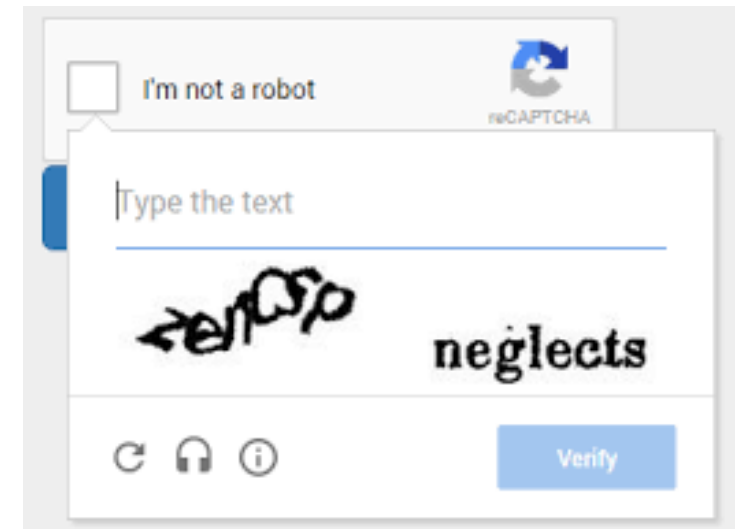
Input Controls

A form with three input fields. The first field is labeled 'Email Address' and has a person icon. The second field is labeled 'Password' and has a lock icon. The third field is labeled 'Confirm Password' and has a lock icon.

Time-Based Media



CAPTCHA





1.2 TIME-BASED MEDIA

Provide alternatives for time-based media

- **1.2.1 Audio-only and Video-only:**
 - Prerecorded Audio-only: equivalent information is available (e.g. text or infographic)
 - Prerecorded Video-only: equivalent information is available (e.g. an audio track)
- **1.2.2 Captions:** Captions are provided for all prerecorded audio/video content.
- **1.2.3 Audio Description or Media Alternative:** An alternative for time-based media or audio description provided for all prerecorded audio/video content.
- **1.2.5 Audio Description:** Audio description is provided for all prerecorded video content in synchronized media.





1.3 ADAPTABLE

Create content that can be presented in different ways (for example simpler layout) without losing information or structure

- **1.3.1 Info and Relationships:**
 - Break up content with subheadings for new sections
 - Mark those headings with HTML header tags
 - Use the correct HTML for all structural elements
 - Use valid HTML everywhere else
 - Use clear labels on forms
- **1.3.2 Meaningful Sequence:**
 - Present content in a meaningful order
 - Separate navigation menus from content
- **1.3.3 Sensory Characteristics:** Avoid instructions that rely solely on sensory characteristics of components such as shape, size, visual location, orientation, or sound.





1.4 DISTINGUISHABLE

Make it easier for users to see and hear content including separating foreground from background

- **1.4.1 Use of Color:** Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
- **1.4.2 Audio Control:** If any audio on a Web page plays automatically for more than 3 seconds, either a mechanism is available to pause or stop the audio, or a mechanism is available to control audio volume independently from the overall system volume level.
- **1.4.3 Contrast (Minimum):** The visual presentation of text and images of text has a contrast ratio of at least 4.5:1, (Large Text: 3:1). *Logotypes or decorative text have no minimum contrast requirement.*
- **1.4.4 Resize text:** Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality





1.4 DISTINGUISHABLE

Make it easier for users to see and hear content including separating foreground from background

- **1.4.5 Images of Text:** Text is used to convey information rather than images of text.





WEBSITE ACCESSIBILITY GUIDELINES

PRINCIPLE 2: OPERABLE



2.1 KEYBOARD ACCESSIBLE

Make all functionality available from a keyboard.

- **2.1.1 Keyboard:** All functionality of the content is operable through a keyboard interface.
- **2.1.2 No Keyboard Trap:** The user should be able to navigate away from, as well as to, all parts of your website by keyboard only. All navigation is controllable by either the 'Tab' or arrow keys.

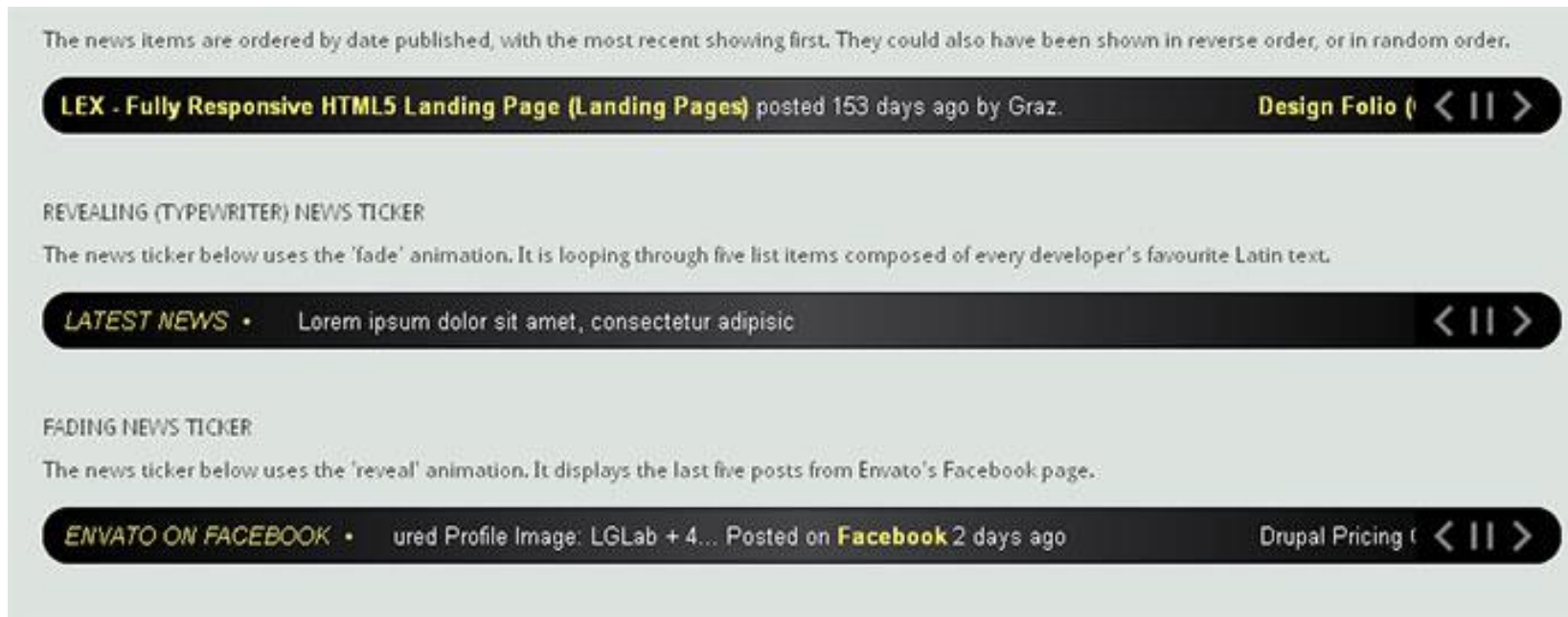




2.2 ENOUGH TIME

Provide users enough time to read and use content.

- **2.2.2 Pause, Stop, Hide:** A mechanism should be provided for moving, blinking, scrolling, or auto-updating information, to pause, stop, or hide it.





2.4 Navigable

Provide ways to help users navigate, find content, and determine where they are.

- **2.4.1 Bypass Blocks:** A mechanism is available to bypass blocks of content that are repeated on multiple Web pages.
- **2.4.2 Page Titled:** Web pages have titles that describe topic or purpose.
- **2.4.3 Focus Order:** The order in which components receive focus preserves meaning and operability.
- **2.4.4 Link Purpose (In Context):** The purpose of each link can be determined from the link text alone or from the link text together with its programmatically determined link context, except where the purpose of the link would be ambiguous to users in general.





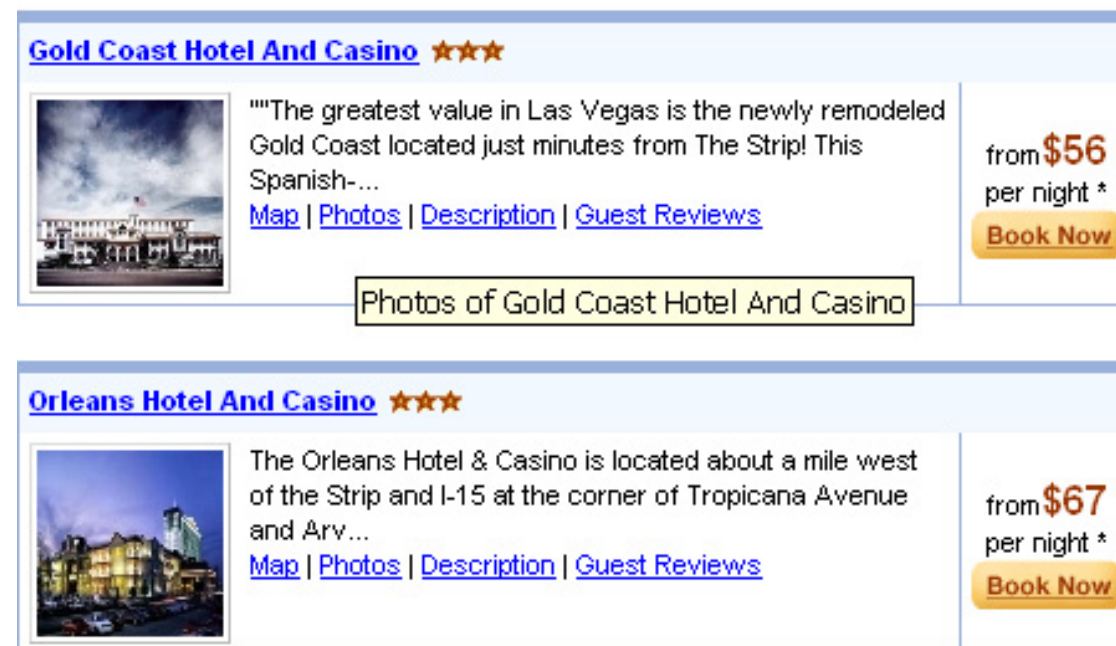
2.4 NAVIGABLE

Provide ways to help users navigate, find content, and determine where they are.

Bypass Blocks



Link Purpose





WEBSITE ACCESSIBILITY GUIDELINES

PRINCIPLE 3: UNDERSTANDABLE



3.1 READABLE

Make text content readable and understandable.

- **3.1.1 Language of Page:** The language of the page is defined using a 'lang' attribute.

```
1
2
3 <!DOCTYPE HTML>
4 <html dir="ltr" class="" lang="en-GB">
5 <head><meta http-equiv="X-UA-Compatible" content="IE
  name="GENERATOR" content="Smart Dubai initiative is
  content="text/html; charset=utf-8" /><meta http-equiv
  name="msapplication-TileImage" content="/PublishingI
6
7   About Smart Dubai | Smart Dubai
8
```



3.2 PREDICTABLE

Make Web pages appear and operate in predictable ways.

- **3.2.1 On Focus:** When any component receives focus, ensure it does not change purely by receiving focus.
- **3.2.2 On Input:**
 - Forms must not auto-submit when all fields are filled – this prevents your users from checking and editing what they have written.
 - Focus (the field where the user will input next) must not automatically jump to the next field in a form once a field is complete.
 - Using a control (like selecting yes or no) must not automatically perform the action





3.2 PREDICTABLE

Make Web pages appear and operate in predictable ways.

- **3.2.3 Consistent Navigation:**
 - Keep navigation menus in the same location on all pages; and
 - Present the options in navigation menus in the same order on all pages; and
 - Keep all other standard elements (for example, your search box) in the same location on all pages
- **3.2.4 Consistent Identification:**
 - Any icons used are consistent (for example, 'Print page' or Twitter link); and
 - Elements with the same function are labelled and named consistently; or
 - Elements with the same function have a consistent text alternative.





3.3 INPUT ASSISTANCE

Help users avoid and correct mistakes.

- **3.3.1 Error Identification:** If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text.
- **3.3.2 Labels or Instructions:** Labels or instructions are provided when content requires user input.

An error has occurred! Please address the following errors and re-submit the form.

- First name field may not be blank
- Email address field may not contain spaces

*First Name:

*Last Name:

*E-mail:

`<label for="first" >` First name: `<input id="first" >`

`<label for="last" >` Last name: `<input id="last" >`

`<label for="date" >` Date: (dd/mm/yyyy) `<input id="date" >`

`<fieldset >`

`<legend >` Telephone

`<label for="phone" >` Phone number: `<input id="phone" >`

`<input id="mobile" >` ☐ `<label for="mobile" >` Mobile

`<input id="home" >` ☐ `<label for="home" >` Home

`<input id="work" >` ☐ `<label for="work" >` Work



3.3 INPUT ASSISTANCE

Help users avoid and correct mistakes.

- **3.3.3 Error Suggestion:**
 - Your forms identify input errors.
 - When the error is missing a required field, communicate this to the user with a text suggestion.
 - If the error is in the format of the input, the suggestion shows the correct format (for example, 'The date must be in the form DD/MM/YYYY').
 - If the error is because the input needed to be from a limited list of values, provide these values and explain them.

The image shows five input fields stacked vertically, each with a different type of error and a corresponding suggestion:

- Field 1: Contains the number '1'. Below it is a red error message: "Please enter a valid email address. For example john@example.com."
- Field 2: Contains the number '1'. Below it is a red error message: "Please use letters only (a-z) in this field."
- Field 3: Contains a single dot '.'.
- Field 4: Contains the number '1'.
- Field 5: Contains the date '0111/11/11'. The last '11' is highlighted in blue. To the right of the text are three icons: a blue 'x' for clearing, a double-headed vertical arrow for increment/decrement, and a downward arrow for a dropdown menu.



WEBSITE ACCESSIBILITY GUIDELINES

PRINCIPLE 4: ROBUST



4.1 COMPATIBLE

Maximize compatibility with current and future user agents, including assistive technologies.

- **4.1.1 Parsing:**
 - No major code errors;
 - Ensure HTML elements have complete start (`< >`) and end (`</ >`) tags where needed.
 - Nest all HTML elements correctly (for example, list objects within an ordered or unordered list).
 - Use unique Ids.
 - Check that HTML elements don't contain duplicate attributes.
- **4.1.2 Name, Role, Value: Build all elements for accessibility:**
 - Use HTML specifications for any script you author for your website.
 - If you use a plugin or other element authored by a third party, make sure it uses valid HTML markup.





MOBILE ACCESSIBILITY GUIDELINES

PRINCIPLE 1: PERCEIVABLE

PRINCIPLE 2: OPERABLE

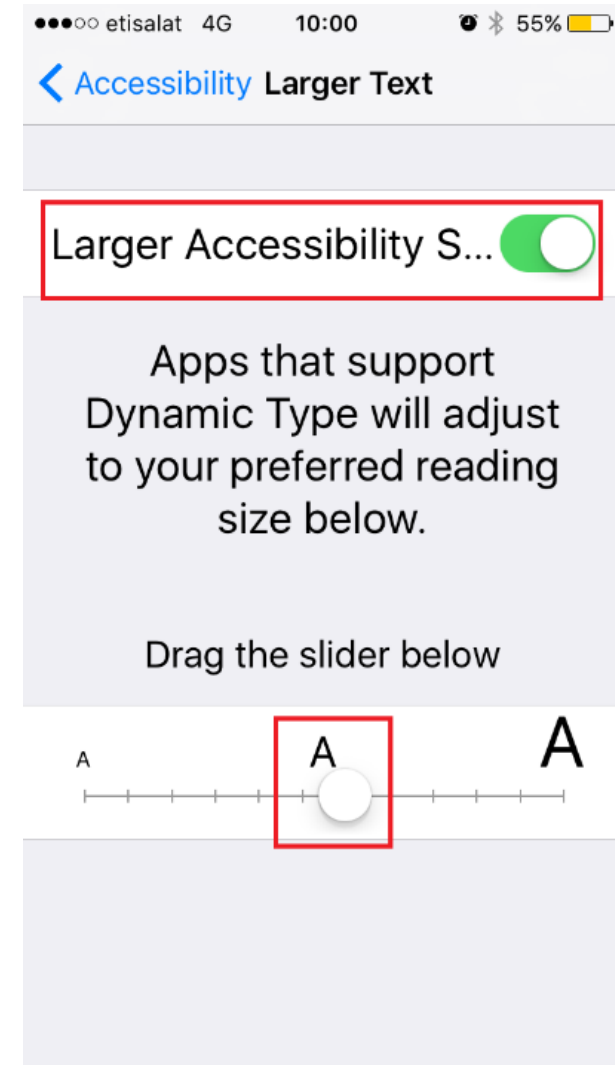
PRINCIPLE 3: UNDERSTANDABLE

PRINCIPLE 4: ROBUST



2.2 ZOOM/MAGNIFICATION

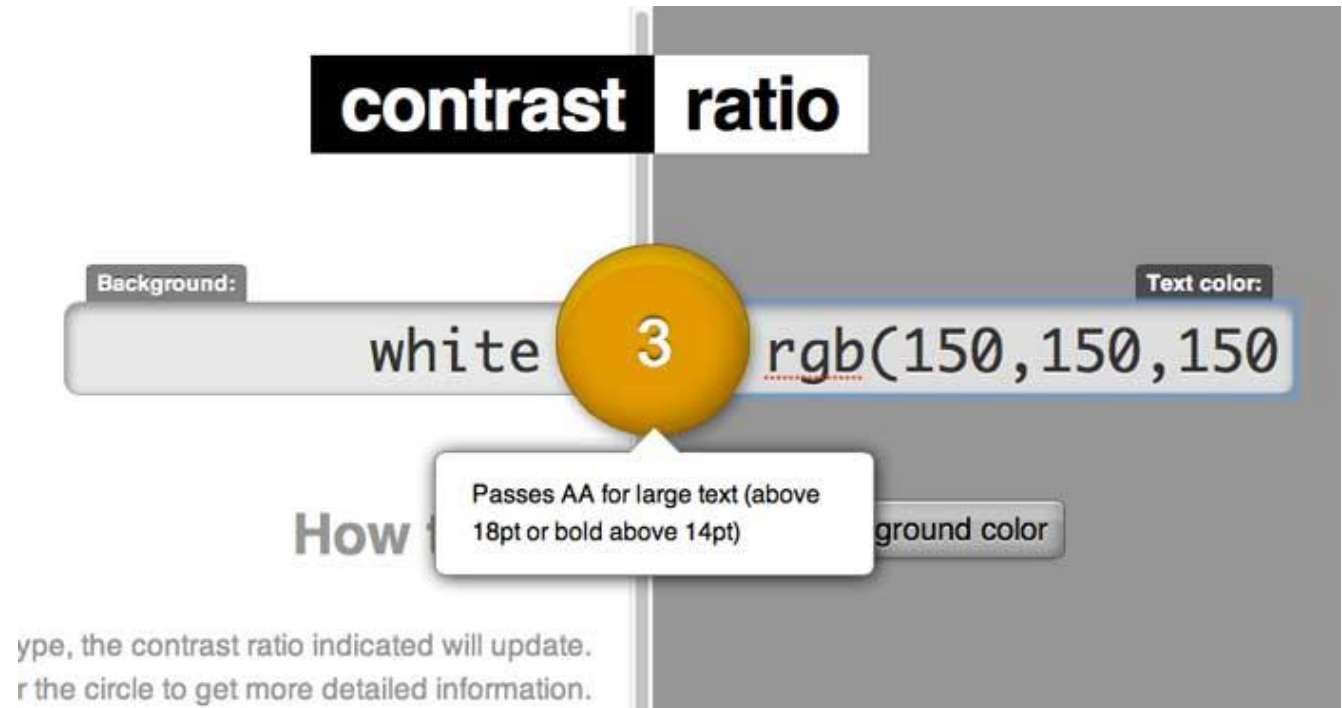
Utilizing OS and browser level methods to allow users to control content size – *mapped to WCAG 2.0 Level AA success criterion “1.4.4 Resize Text”*.





2.3 CONTRAST

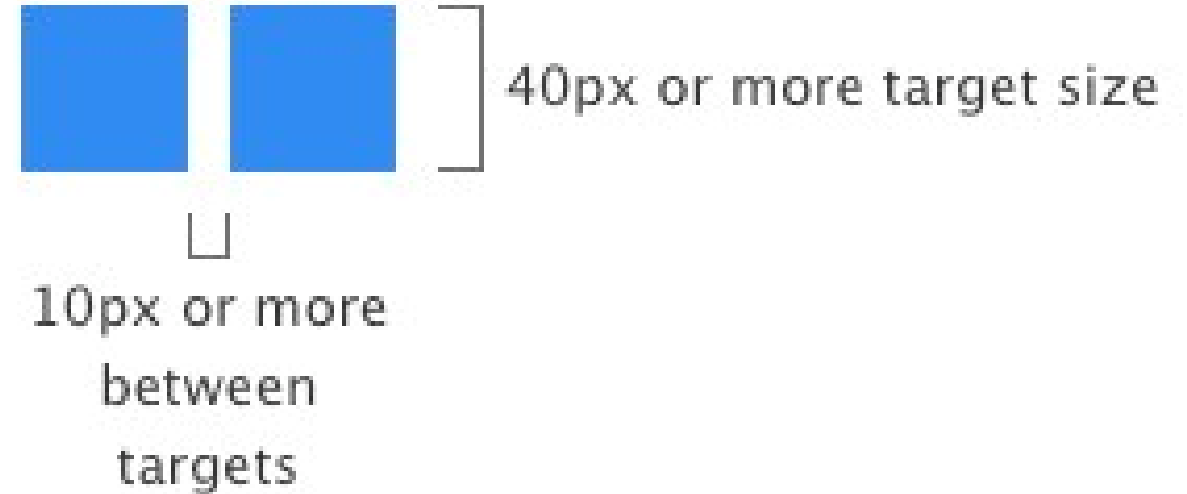
Utilizing greater contrast ratio to account for diversity of environments in which mobile devices may be used – *mapped to WCAG 2.0 Level AA success criterion “1.4.3 Contrast (Minimum)”*.





3.2 TOUCH TARGET SIZE AND SPACING

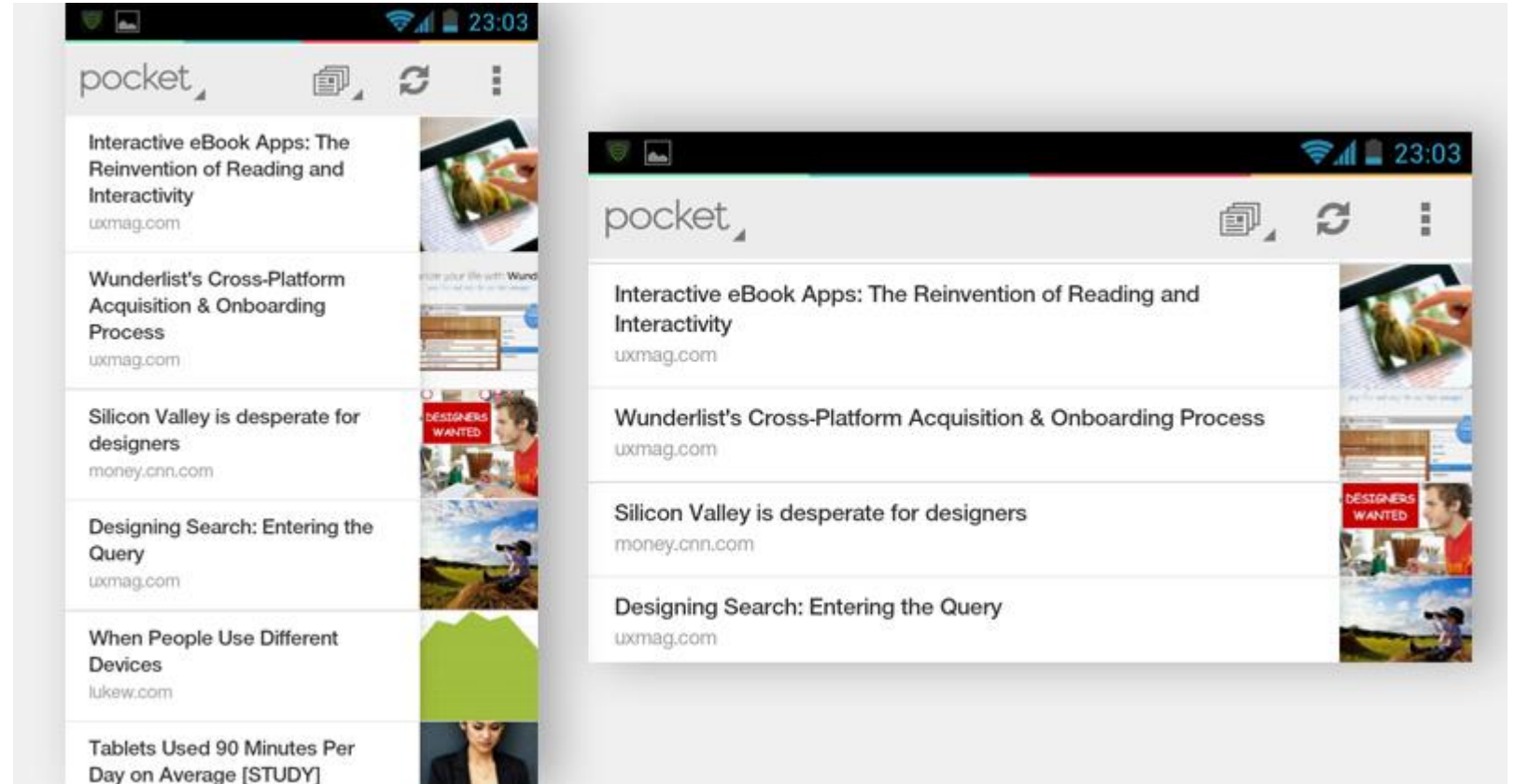
Ensuring that touch targets are large enough and adequately spaced for small, high-resolution mobile devices





4.1 CHANGING SCREEN ORIENTATION

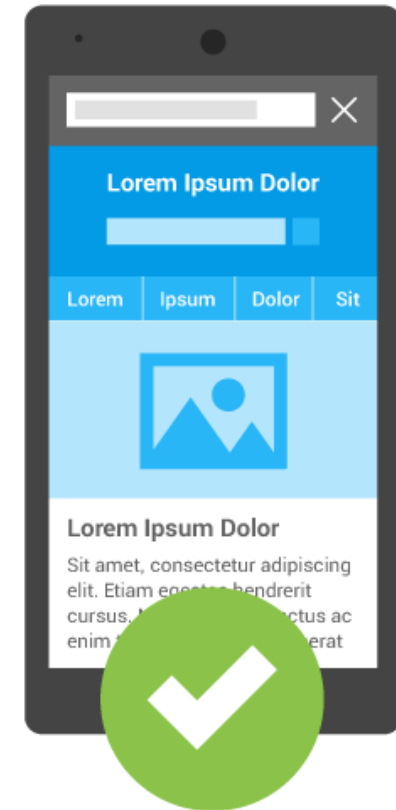
Supporting both landscape and portrait orientation





4.2 CONSISTENT LAYOUT

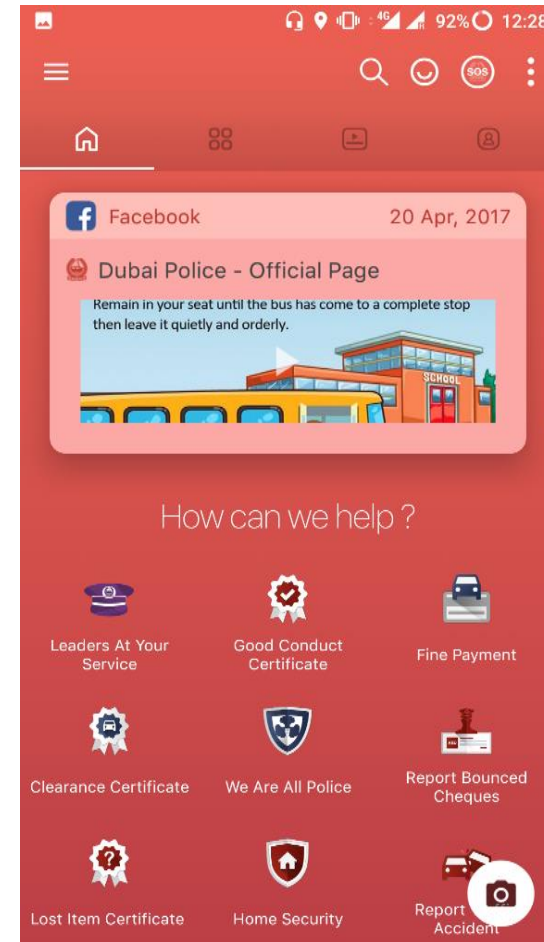
Providing a consistent layout for web and mobile content – mapped to WCAG 2.0 Level AA success criteria “3.2.3 Consistent Navigation” and “3.2.4 Consistent Identification”.





4.3 POSITIONING IMPORTANT PAGE ELEMENTS BEFORE SCROLL

Positioning important information such that it is visible without scrolling, assisting users with visual and cognitive impairments.

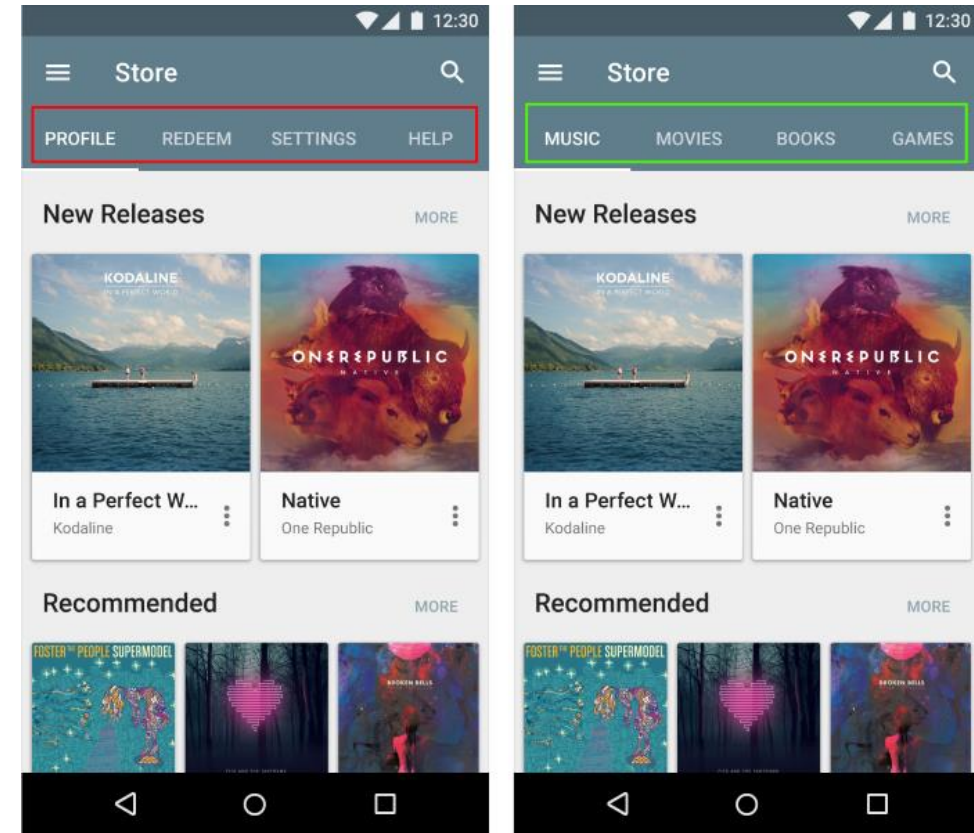


Important Information is visible without scrolling



4.4 GROUPING OPERABLE ELEMENTS THAT PERFORM THE SAME ACTION

Grouping multiple elements perform the same action or go to the same destination - *mapped to WCAG 2.0 Level AA success criterion “2.4.9 Link Purpose”*





4.5 PROVIDE CLEAR INDICATION THAT ELEMENTS ARE ACTIONABLE

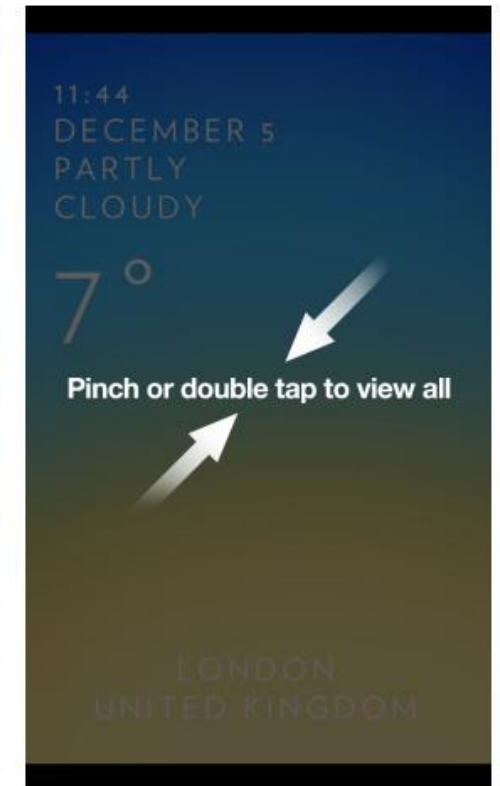
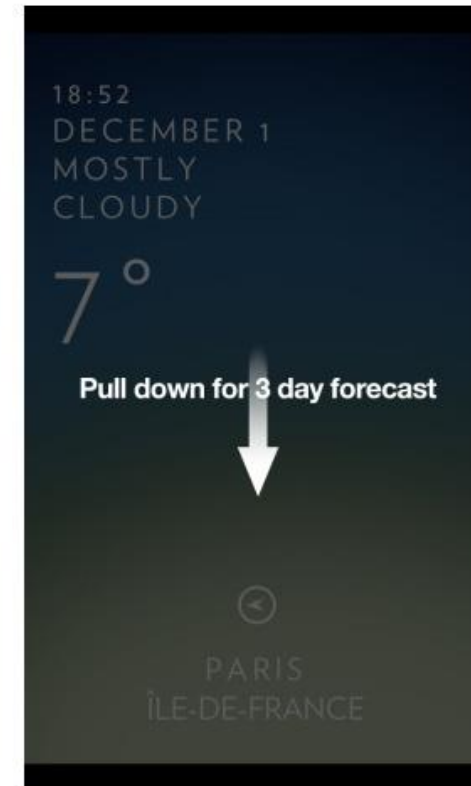
Indicating, with clarity, actionable items such as buttons, icons, etc. – *mapped to WCAG 2.0 Level AA success criteria “3.2.3 Consistent Navigation” and “3.2.4 Consistent Identification”*





4.6 PROVIDE INSTRUCTIONS FOR CUSTOM MANIPULATION GESTURES

Providing instructions (e.g. overlays, tooltips, tutorials, etc.) to explain any custom gestures – *mapped to WCAG 2.0 Level AA success criterion “3.3.2 Labels or Instructions”*





5.1 SET THE VIRTUAL KEYBOARD TO TYPE OF DATA ENTRY REQUIRED

Providing context specific keyboards (numeric, alphanumeric, email, etc.)

US Dollar:

9,817.00

Amount Entered: 9,817.00

< > Done

1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
+ * #	0	< X



5.2 PROVIDE EASY METHODS FOR DATA ENTRY

Providing select menus, radio buttons, check boxes or by automatically entering known information (e.g. date, time, location) instead of text entry

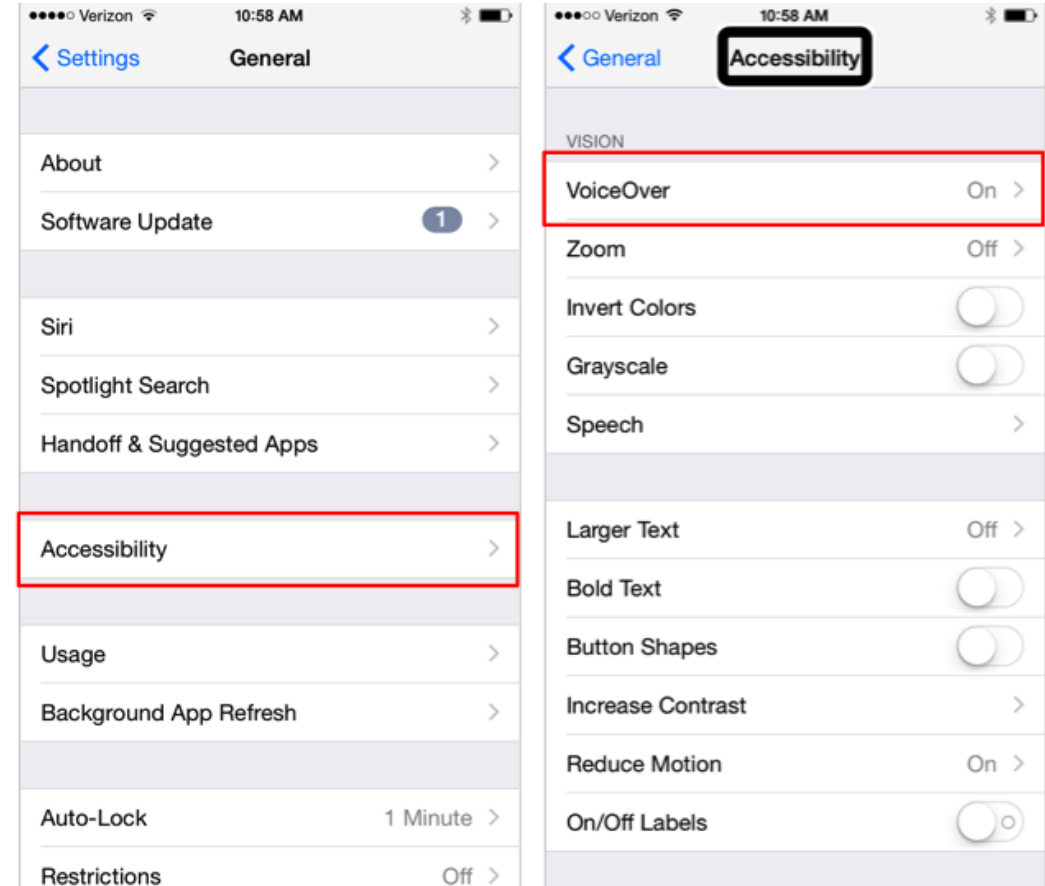
The screenshot shows the 'New Event' form in a mobile application. At the top, there are three buttons: 'Cancel' (red), 'New Event' (black), and 'Add' (grey). Below these are two text input fields for 'Title' and 'Location'. A horizontal separator line follows. Below the separator is a toggle switch for 'All-day'. Underneath is the 'Starts' section, which displays '18 Feb 2015' and '23:00' in red. Below this is a date and time picker table. The table has three columns: the day of the week, the date, and the time. The 'Today' row is highlighted. At the bottom of the table, there is a 'Time Zone' section showing 'Mumbai' with a chevron to the right. Finally, the 'Ends' section displays '19 Feb 2015' and '00:00'.

Day	Date	Time
Sun	15 Feb	20 45
Mon	16 Feb	21 50
Tue	17 Feb	22 55
Today	23	00
Thu	19 Feb	00 05
Fri	20 Feb	01 10
Sat	21 Feb	02 15



5.3 SUPPORT THE CHARACTERISTIC PROPERTIES OF THE PLATFORM

Supporting platform characteristics such as “VoiceOver” and “TalkBack”, zoom, larger/bold fonts, and captions.





ACCESSIBILITY EVALUATION



TOOLS USED FOR ACCESSIBILITY EVALUATIONS:

- SortSite: for automated assessment of the entire website (Tool)
- WAVE: for manual assessment of key/most visited pages (<http://wave.webaim.org>)
- Validator: to validate the webpage's outline/heading structure (<https://validator.w3.org/>)
- Contrast analyzer: Chrome Extension







THANK YOU

SMARTDUBAI.AE

@SMARTDUBAI