Web Accessibility

**Digital Inclusion Division
Office of the
Government Chief Information Officer**

6 March 2013

(Adapted for COMP 4021 by Dik Lee)

What is Web Accessibility?

- Making website **Content** available for **ALL**
  - Including persons with disabilities (361,000 about 5.2% of total population)

Four Major categories of disabilities

- Physical Impairment
- Hearing Impairment
- Visual Impairment
- Cognitive Impairment

Common Pitfalls in Web Accessibility

1. Use ALT with meaningful description for non-text content
2. OCR scanned documents so text-to-speech software works
3. You want text message to look nice, use CSS, do not use graphical images
4. Provide text resizing function
5. Maintain sufficient color contrast
6. Use simple page layout (structured by row or column)
7. Provide skip button to skip video and animation, etc.
8. Avoid background audio/music
9. Provide caption and description for video and audio

Legislation / Guideline

Country	Legislation / Guideline
Australia	• Disability Discrimination Act (DDA) of 1992 • WWW Access: DDA Advisory Notes • The Guide to Minimum Website Standards
Canada	• Canadian Human Rights Act of 1977 • The Government of Canada Internet Guide
China	• 國務院令第622號 -《無障礙環境建設條例》
United Kingdom	• The Equality Act 2010 • Formal investigation report on Web Accessibility
United States	• American with Disability Act (ADA) • Section 508 of the Rehabilitation Act • Assistive Technology Act of 1998 • Section 255 of the Telecommunications Act of 1996
European Union	• Accessibility of Public Websites – Accessibility for PWDs: Council Resolutions, 2002

Lawsuits and Complaints

- Complaint against Sydney Organising Committee for the Olympic Games 2000
  - No alternative text for image and contained inaccessible image map
  - Compensation sum of AU$20K paid by respondent
- National Federation of the Blind filed a class-action suit with 50,000 names against Target.com in 2006
  - No alternative text for image and inaccessible image maps, etc
  - Target settled the class suitcase by set up a fund US$6M for claims
- A NGO complained about inaccessible PDFs on Hong Kong Government website in June 2012

選舉處涉歧視殘障

【本報訊】選舉事務處在核實選民登記冊時涉觸犯《殘疾歧視條例》。香港失明人士協進會會長莊陳有昨去信平機會，指選舉事務處在本月15日公佈的臨時選民登記冊及抽樣調查信件，只提供一般文字版本，視障人士無法查閱，隨時在不知情的情況下喪失選民資格。

莊陳有指失明人士看不見選舉事務處發出的抽樣信件，可能連需要核實身份也不知道。「事務處嘅網頁都係只得文字，欠缺無障礙設施，香港話就話無障礙城市，事實仲好落後。」莊陳有已在本月15日去信選舉管理委員會主席馮驊，要求改善，至今仍未獲回覆。

International Standards

- **World Wide Web Consortium (W3C)**
  - **Web Content Accessibility Guidelines (WCAG)** have been developed over the years by W3C
- Version 1.0 in 1999; version 2.0 in 2008

  http://www.w3.org/WAI/

Principle 1 - Perceivable

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

1.2 **Time-based Audio and Video Media**: Provide alternatives for time-based media

1.3 **Adaptable**: Create content that can be presented in different ways without losing information or structure

1.4 **Distinguishable**: Make it easier for users to see and hear content including separating foreground from background

Principle 2 - Operable
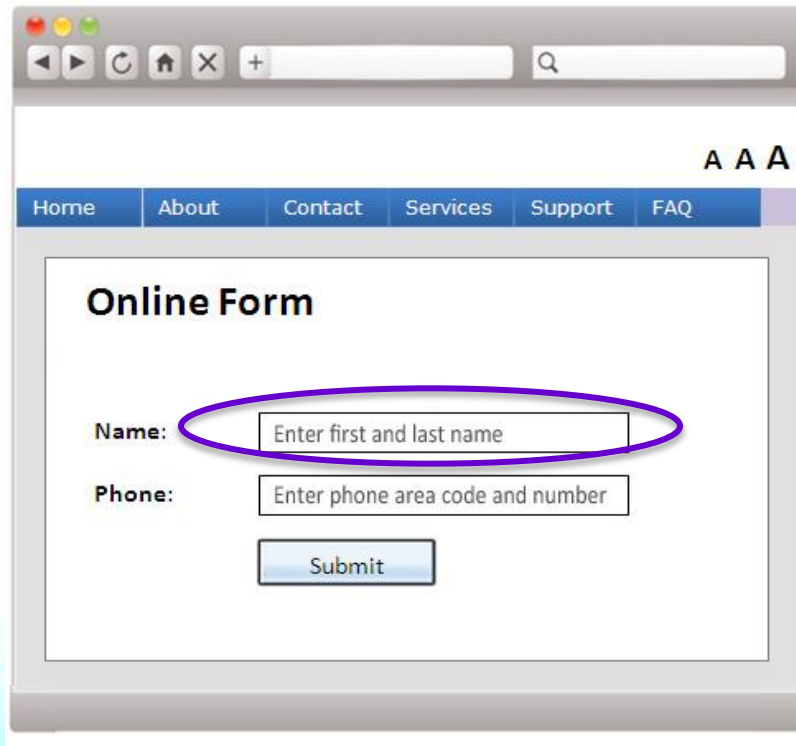
2.1 **Keyboard Accessible**: Make all functionality available from a keyboard

2.2 **Enough Time**: Provide users enough time to read and use content

2.3 **Seizures**: Do not design content in a way that is known to cause seizures

2.4 **Navigable**: Provide ways to help users navigate, find content, and determine where they are
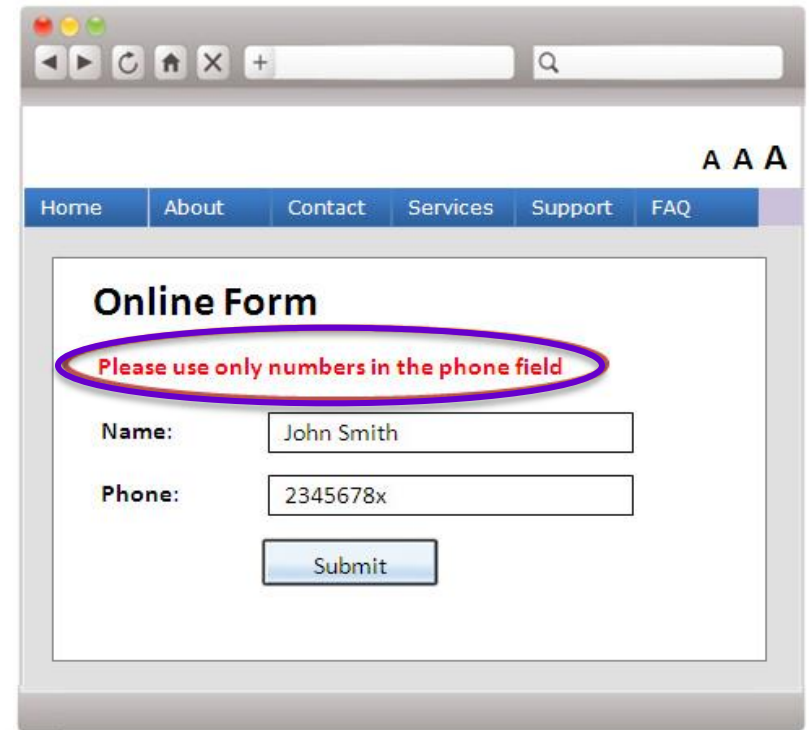
Principle 3 – Understandable

- Example - Clear label with cue and error identification

Input assistance

Error identification

Principle 4 – Robust

- Compatibility with browsers

Top 12 Browser Versions in Hong Kong on Jan 2013
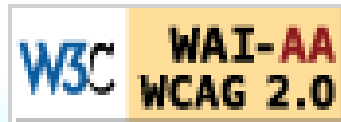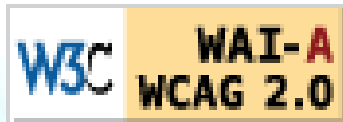
http://gs.statcounter.com/
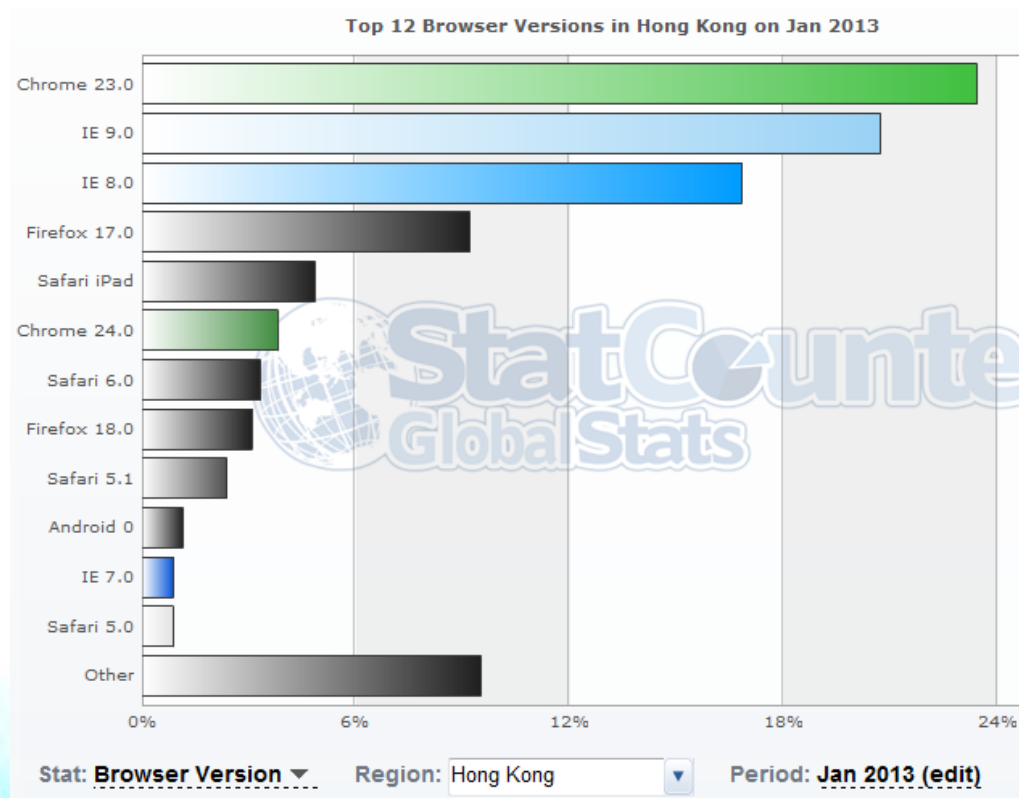
WCAG - Conformance

- Latest version of W3C WCAG 2.0 promulgated in end 2008

- There are three Levels of conformance –

Level A 25 success criteria	Level AA +13 success criteria	Level AAA +23 success criteria
Basic	Recommended	Ideal

Level AA Conformance

W3C WAI-A WCAG 2.0   W3C WAI-AA WCAG 2.0   W3C WAI-AAA WCAG 2.0

Governments Websites adopting WCAG

Country	Standard	Timeline to achieve standard
New Zealand	WCAG 2.0 Level AA	June 2010
United Kingdom	WCAG 1.0 Level AA	March 2011
Hong Kong	WCAG 2.0 Level AA	January 2013
Canada	WCAG 2.0 Level AA	July 2013
Singapore	WCAG 1.0 and key aspects of WCAG 2.0	December 2013
Australia	WCAG 2.0 Level A & AA	December 2014

12

Testing Techniques

1. **Code scanning**

    - Many accessibility issues can be detected automatically using specialist software and tools

    - Example tools –
        - AChecker
        - WAVE
        - PDF Accessibility Checker

Code Scanning

- http://achecker.ca/checker/index.php

Code Scanning

- Sample report - no known problem

Code Scanning

- Sample report – known web accessibility problem

Accessibility Review

Accessibility Review (Guidelines: WCAG 2.0 (Level AA))

Known Problems(9) | **Likely Problems (1)** | **Potential Problems (215)**

1.1 Text Alternatives: Provide text alternatives for any non-text content

Success Criteria 1.1.1 Non-text Content (A)

Check 1: img element missing alt attribute.

Repair: Add an alt attribute to your img element.

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

Success Criteria 2.4.4 Link Purpose (In Context) (A)

Check 174: Anchor contains no text.

Repair: Add text to the a element or the title attribute of the a element or,

❌ *Line 228, Column 39*:

Testing Techniques

2. **Visual review:** Tools include Vischeck and Colour Contrast Check

- http://www.vischeck.com/vischeck/ shows you what things look like to someone who is colour blind

www.ogcio.gov.hk

Looks to a person with a red/green color deficit (deuteranopia)

Colour Contrast Check

- http://snook.ca/technical/colour_contrast/colour.html
- Text has a contrast ratio of at least 4.5 : 1 between the background and the foreground

Foreground Colour:

#007897

Red:

Green:

Blue:

Hue (°)

Saturation (%):

Value (%):

Background Colour:

#F1F1F1

Red:

Green:

Blue:

Hue (°):

Saturation (%):

Value (%):

Results

This is example text. **Some of it bolded.** *Some of it italicized.*

Brightness Difference: (>= 125)	153.34(
Colour Difference: (>= 500)	452
Are colours compliant?	sort of..
Contrast Ratio	4.5
WCAG 2 AA Compliant	YES
WCAG 2 AA Compliant (18pt+)	YES
WCAG 2 AAA Compliant	NO
WCAG 2 AAA Compliant (18pt+)	YES

Testing Techniques

3. **Manual testing with screen readers**

- Navigate website and access the content through the screen readers

- Example tools – Jaws, NVDA and VoiceOver

4. **Manual testing with other assistive technologies**

- Screen magnification tools and voice control tools

- Example tools – ZoomText and Dragon Naturally Speaking

5. **Human testing**

Policy in Hong Kong

- Require all government websites, except archive materials, to achieve W3C WCAG 2.0 Level AA conformance by January 2013 within practicable means

- Ask quasi-government and public service organisations to take corresponding action

- Webforall Portal: www.webforall.gov.hk and Web Accessibility Handbook

- Web Accessibility Recognition Scheme (Gold and Silver Awards)

  - HKUST: Auditory and Speech Training App" for hearing-impaired children, Gold Award in Web Accessibility Recognition Scheme 2014 http://www.seng.ust.hk/web/eng/news_detail.php?id=823
  - HKUST: Android mobile application for hearing impaired children, Gold Award in Web Accessibility Recognition 2015 https://www.cse.ust.hk/News/WARS2015/

How you can help?

- Develop awareness, attitude and mindset on web accessibility in your organization
  - Observe latest guidelines and standards
  - Adopt web accessibility designs in institution
  - Help business partners or clients aware of the importance and relevant skills
  - Encourage and incorporate web accessibility elements in design stage in information and communication systems, products and services
  - Uphold the professional ethics
- "I had never thought about it ..." is not an excuse