Design and Implement accessible websites

- Will look at the following:-
  - Major Difference between WCAG 2.0 and previous government guidelines
  - How to design and implement accessible websites
    - HTML & CSS
    - PDF
    - Flash

Major Difference between WCAG 2.0 and previous government guidelines

- The guidelines provide practical and useful information for building government websites.
- The previous guidelines were published in July 2009.
- As in Section VII "Ensuring Content Accessibility", the Guidelines introduce some best practices in web accessibility, which can roughly be mapped to 34 of the 38 success criteria in WCAG 2.0 Conformance Level AA.

Major Difference between WCAG 2.0 and previous government guidelines

- About 4 success criteria are newly introduced in WCAG 2.0.

No.	Success Criteria of WCAG 2.0	Remarks
1	1.3.3 Sensory Characteristics (Level A)	New
2	1.2.5 Audio Description (Prerecorded) (Level AA)	New
3	3.3.3 Error Suggestion (Level AA)	New
4	3.3.4 Error Prevention (Legal, Financial, Data) (Level AA)	New

Major Difference between WCAG 2.0 and previous government guidelines

- More specific requirements are introduced for 8 success criteria .

No.	Success Criteria of WCAG 2.0	Remarks
1	1.2.2 Captions (Prerecorded) (Level A)	**Captions** for all prerecorded or live audio content;
2	1.4.1 Use of Colour (Level A)	**Colour** is not used as the only visual means and Contrast ratio of visual content to be at least 4.5 : 1;

Major Difference between WCAG 2.0 and previous government guidelines

No.	Success Criteria of WCAG 2.0	Remarks
3	2.4.1 Bypass Blocks (Level A)	**Bypass blocks of content** mechanism to skip repeated content on webpage;
4	2.4.3 Focus Order (Level A)	**Focus order** of webpage components in a meaning and operable sequence;
5	1.2.4 Captions (Live) (Level AA)	**Captions** for all prerecorded or live audio content;

Major Difference between WCAG 2.0 and previous government guidelines

No.	Success Criteria of WCAG 2.0	Remarks
6	1.4.3 Contrast (Minimum) (Level AA)	**Colour** is not used as the only visual means and **Contrast ratio** of visual content to be at least 4.5 : 1;
7	1.4.4 Resize text (Level AA)	**Resize text** up to 200% percent without loss of content;
8	2.4.5 Multiple Ways (Level AA)	**Multiple-way navigation** is provided for locating a web page.

How to make web content accessible

- Design Consideration
- Text-only version = Accessible?
- Techniques on implementing accessible websites

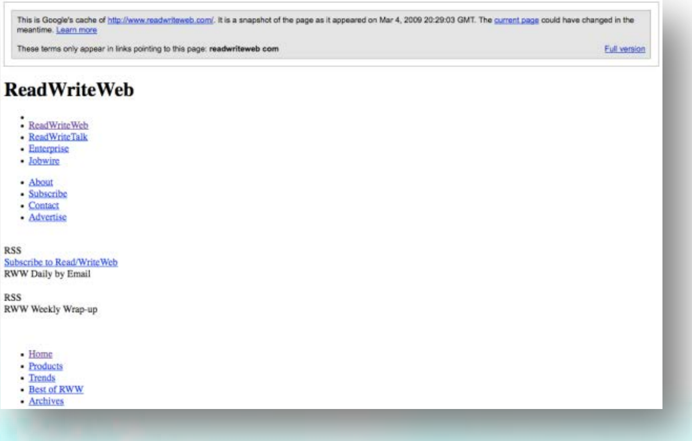
Design Consideration

- Content owner may wish to consider their website should follow Personalised Web Design or One Single.

- Benefits of Personalised Web Design:
  - ➢ account for the various needs and preferences of users
  - ➢ create web content that is truly accessible for everyone

Text-only version

- There are two approaches to facilitate accessibility of websites, viz. a text-only version in addition to the primary version (or graphical version), Or



This is Google's cache of http://www.readwriteweb.com/. It is a snapshot of the page as it appeared on Mar 4, 2009 20:29:03 GMT. The current page could have changed in the meantime. Learn more

These terms only appear in links pointing to this page: **readwriteweb com**

Full version

ReadWriteWeb

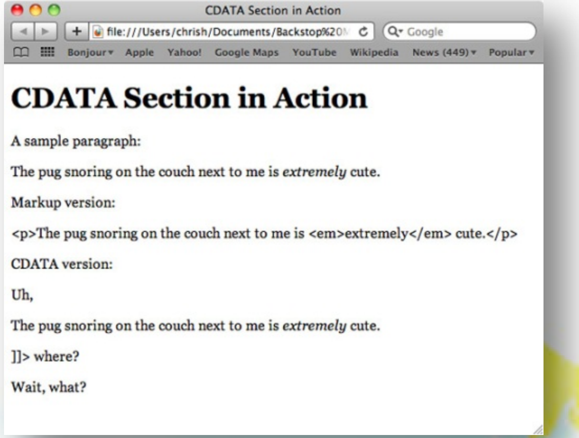
-
- ReadWriteWeb
- ReadWriteTalk
- Enterprise
- Jobwire

- About
- Subscribe
- Contact
- Advertise

RSS
Subscribe to Read/WriteWeb
RWW Daily by Email

RSS
RWW Weekly Wrap-up

- Home
- Products
- Trends
- Best of RWW
- Archives



CDATA Section in Action

A sample paragraph:

The pug snoring on the couch next to me is *extremely* cute.

Markup version:

<p>The pug snoring on the couch next to me is <em>extremely</em> cute.</p>

CDATA version:

Uh,

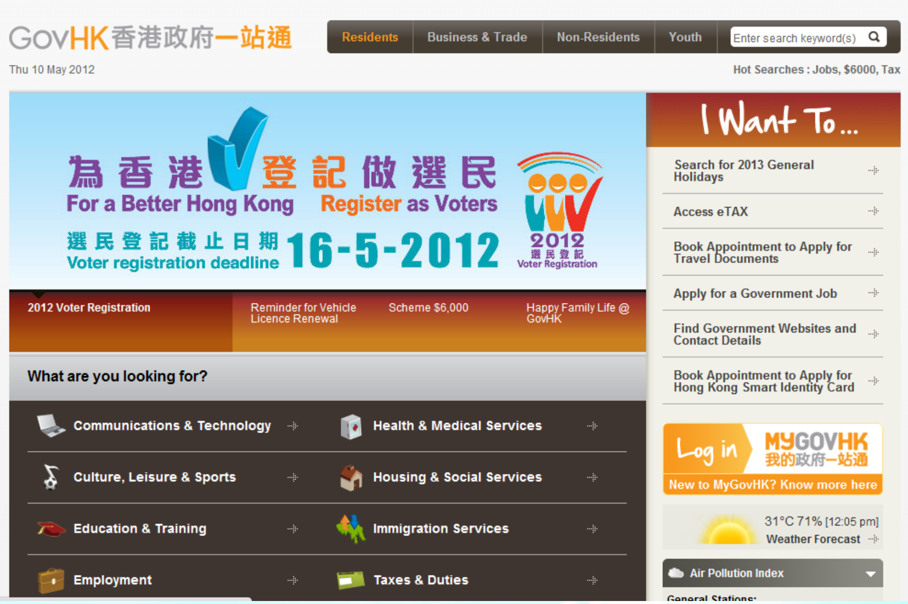
The pug snoring on the couch next to me is *extremely* cute.

]]> where?

Wait, what?

Text-only version

- Including features in existing websites to make them more accessible to the persons with disabilities.



GovHK香港政府一站通

Residents | Business & Trade | Non-Residents | Youth | Enter search keyword(s)

Thu 10 May 2012

Hot Searches : Jobs, $6000, Tax

為香港登記做選民
For a Better Hong Kong Register as Voters
選民登記截止日期
Voter registration deadline 16-5-2012
2012 選民登記 Voter Registration

2012 Voter Registration | Reminder for Vehicle Licence Renewal | Scheme $6,000 | Happy Family Life @ GovHK

What are you looking for?

- Communications & Technology
- Health & Medical Services
- Culture, Leisure & Sports
- Housing & Social Services
- Education & Training
- Immigration Services
- Employment
- Taxes & Duties

I Want To...

- Search for 2013 General Holidays
- Access eTAX
- Book Appointment to Apply for Travel Documents
- Apply for a Government Job
- Find Government Websites and Contact Details
- Book Appointment to Apply for Hong Kong Smart Identity Card

Log in MYGOVHK 我的政府一站通
New to MyGovHK? Know more here

31°C 71% [12:05 pm]
Weather Forecast

Air Pollution Index
General Stations:

Text-only version

- Keep the text-only versions updated and prevent asymmetrical contents in the two versions.
- Text-only version or mobile version automatically generated from graphical version using CMS.
- When graphical version is verified to be accessible, text-only version may be considered to remove.
- Survey by persons with disabilities indicated that they prefer accessible version instead of linear text version.

How to Implement accessible websites?

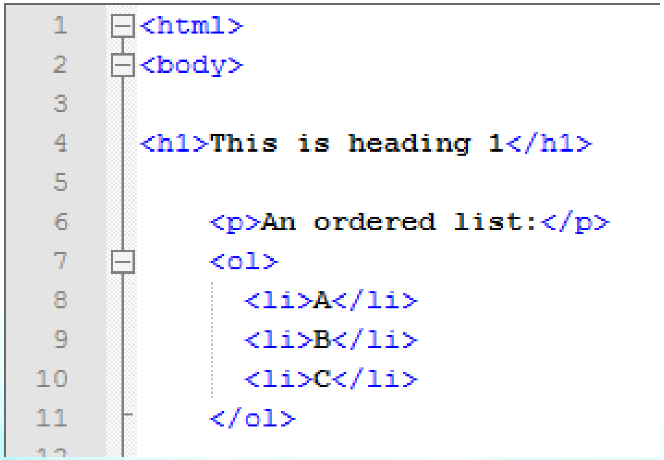
- Content and Structure
  - Creating Semantic Structure
  - Designing for Screen Reader Compatibility
  - Links & Hypertext
  - Indexed Navigation
  - "Skip Navigation" Links
  - Templates
  - Writing Clearly and Simply

How to Implement accessible websites?

- Forms
  - ➢ Usable and Accessible Form Validation and Error Recovery
- Frames
  - ➢ Implement Frame Accessibility
- Images
  - ➢ Appropriate Alternative Text

Implement accessible websites – Content and Structure

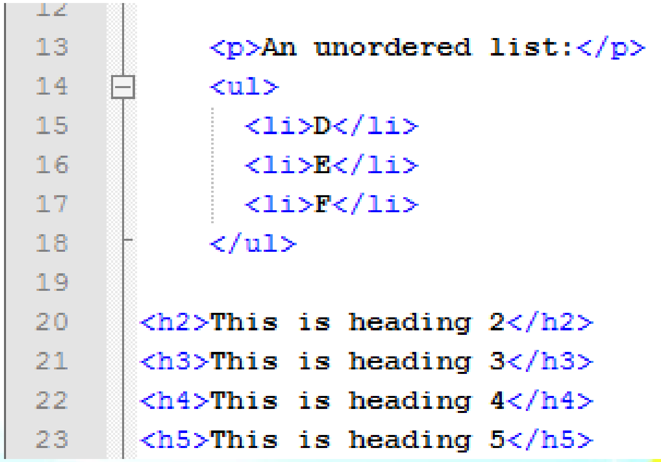
- Using Headings for Content Structure
  - This structure should be in a logical hierarchy
  - The reason for this is because screen readers often view a website through headings



```
<html>
<body>

<h1>This is heading 1</h1>

    <p>An ordered list:</p>
    <ol>
      <li>A</li>
      <li>B</li>
      <li>C</li>
    </ol>
```

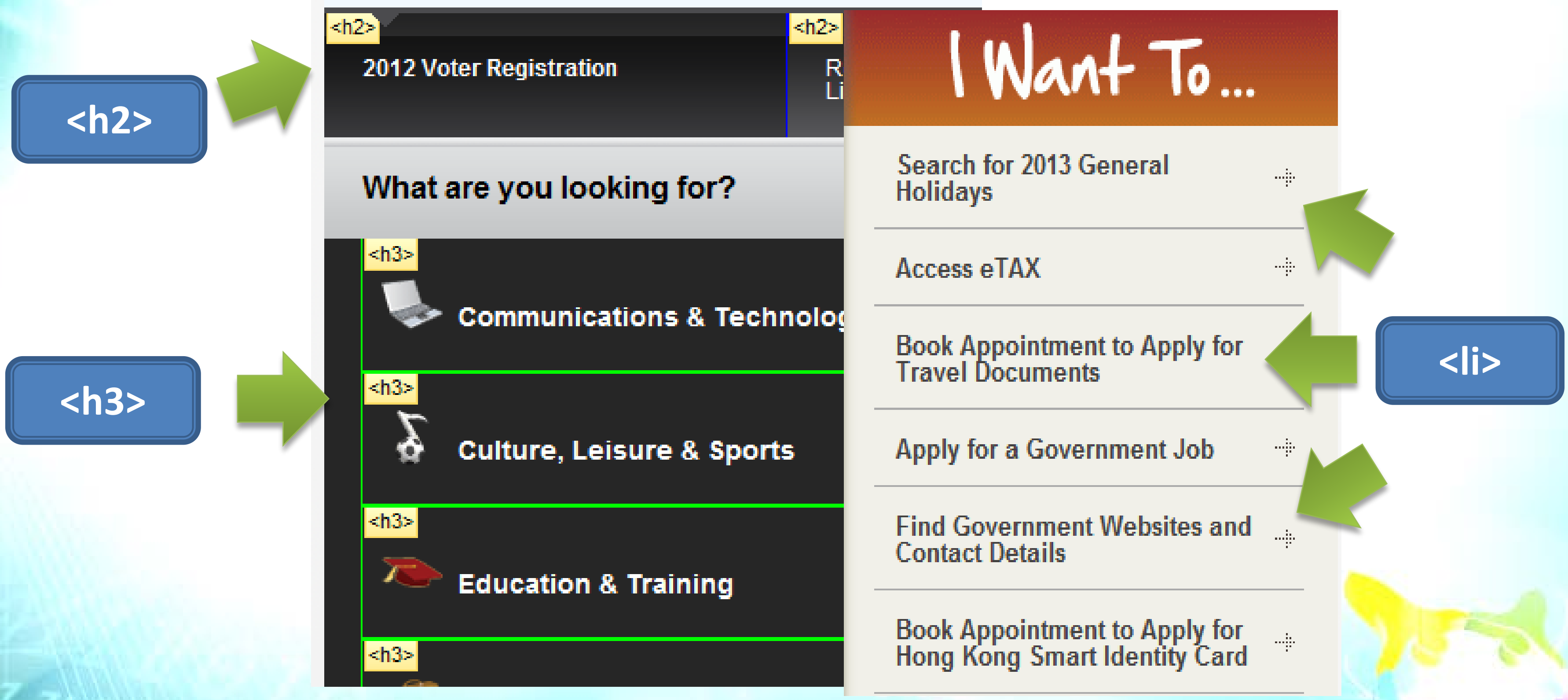


```
    <p>An unordered list:</p>
    <ul>
      <li>D</li>
      <li>E</li>
      <li>F</li>
    </ul>

<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
<h4>This is heading 4</h4>
<h5>This is heading 5</h5>
```

Implement accessible websites – Content and Structure

- Using Headings for Content Structure



2012 Voter Registration

R
Li

What are you looking for?

Communications & Technolog

Culture, Leisure & Sports

Education & Training

I Want To...

Search for 2013 General Holidays

Access eTAX

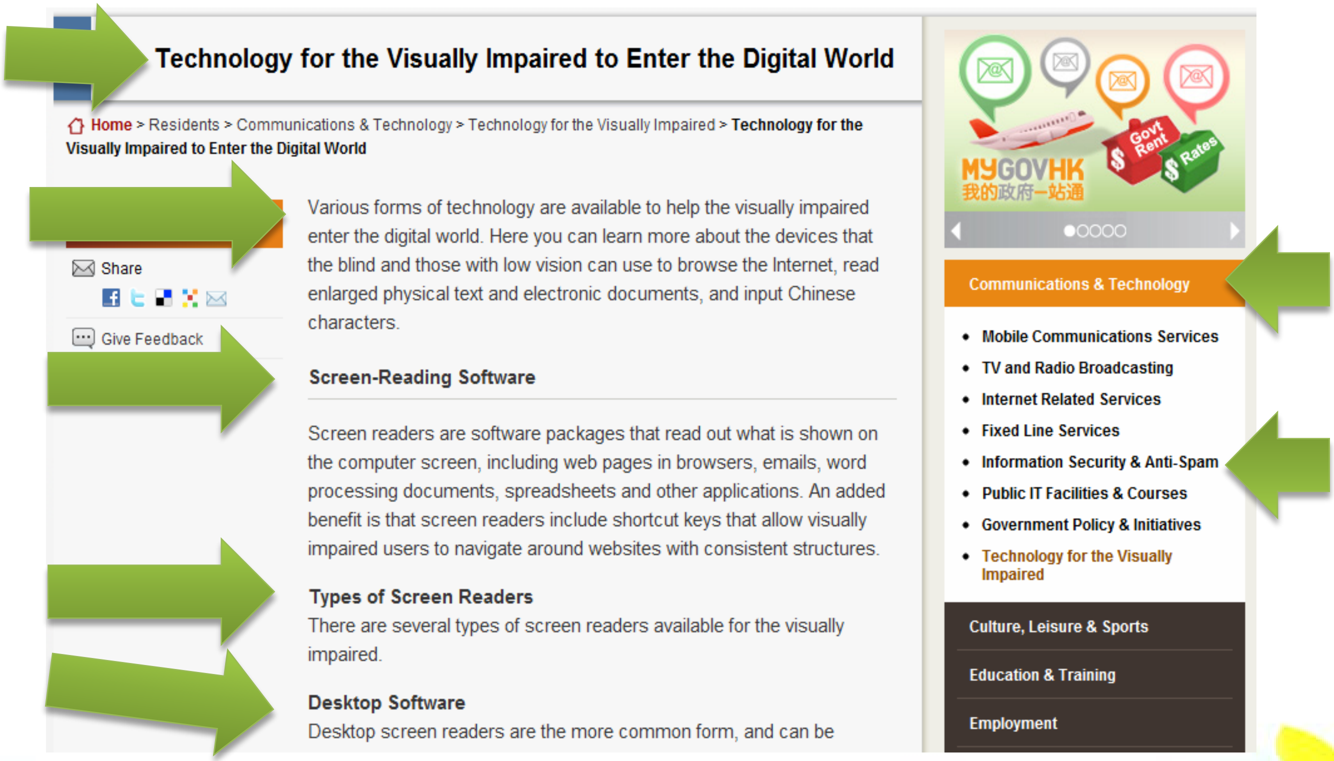
Book Appointment to Apply for Travel Documents

Apply for a Government Job

Find Government Websites and Contact Details

Book Appointment to Apply for Hong Kong Smart Identity Card

Implement accessible websites – Content and Structure



<h1>

<h2>

<h3>

<h4>

<li>

Nested <li>

Technology for the Visually Impaired to Enter the Digital World

Home > Residents > Communications & Technology > Technology for the Visually Impaired > **Technology for the Visually Impaired to Enter the Digital World**

Share

Give Feedback

Various forms of technology are available to help the visually impaired enter the digital world. Here you can learn more about the devices that the blind and those with low vision can use to browse the Internet, read enlarged physical text and electronic documents, and input Chinese characters.

Screen-Reading Software

Screen readers are software packages that read out what is shown on the computer screen, including web pages in browsers, emails, word processing documents, spreadsheets and other applications. An added benefit is that screen readers include shortcut keys that allow visually impaired users to navigate around websites with consistent structures.

Types of Screen Readers

There are several types of screen readers available for the visually impaired.

Desktop Software

Desktop screen readers are the more common form, and can be

Communications & Technology

- Mobile Communications Services
- TV and Radio Broadcasting
- Internet Related Services
- Fixed Line Services
- Information Security & Anti-Spam
- Public IT Facilities & Courses
- Government Policy & Initiatives
- Technology for the Visually Impaired

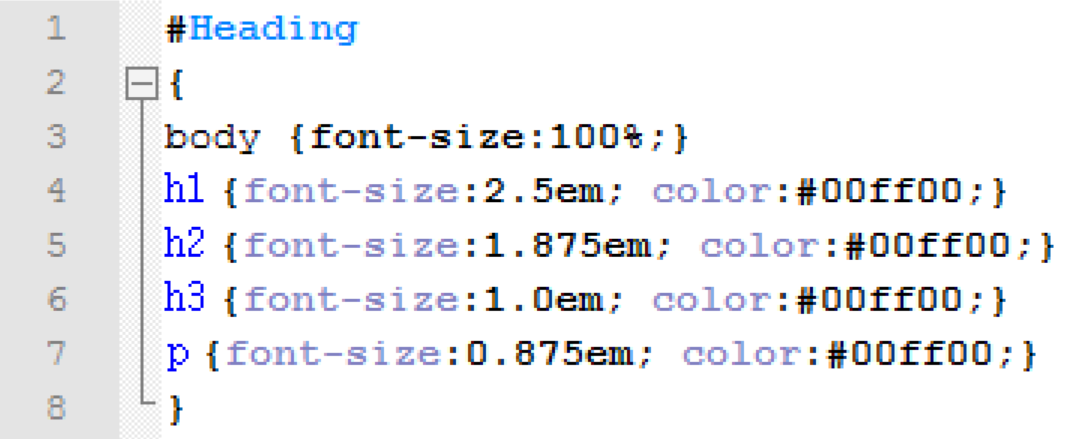
Culture, Leisure & Sports

Education & Training

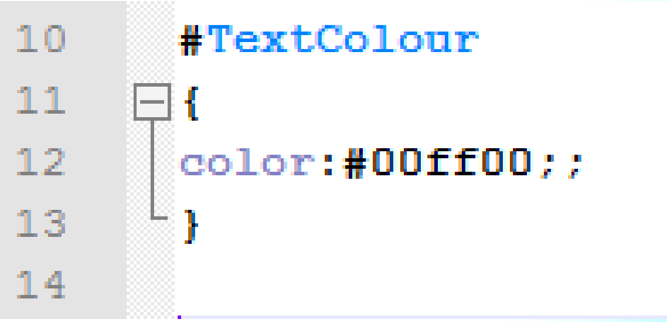
Employment

Implement accessible websites – Content and Structure

- Using Headings & Formatting Correctly
  - ➢ Do not use formatting to render headings, for example **bold,** underline, or increased text size. Use CSS



```
#Heading
{
body {font-size:100%;}
h1 {font-size:2.5em; color:#00ff00;}
h2 {font-size:1.875em; color:#00ff00;}
h3 {font-size:1.0em; color:#00ff00;}
p {font-size:0.875em; color:#00ff00;}
}
```



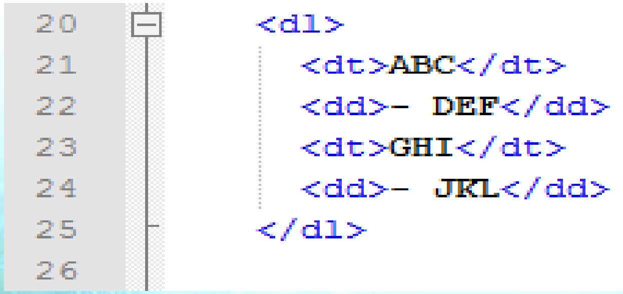
```
#TextColour
{
color:#00ff00;;
}
```

Implement accessible websites – Content and Structure

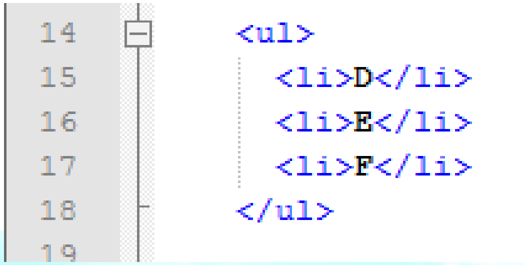
- Using Headings & Formatting Correctly
  - At the same time do not use “heading” tags to render plain content. Ideally use HTML formatting instead of traditional text formatting or heading tags

Implement accessible websites – Content and Structure

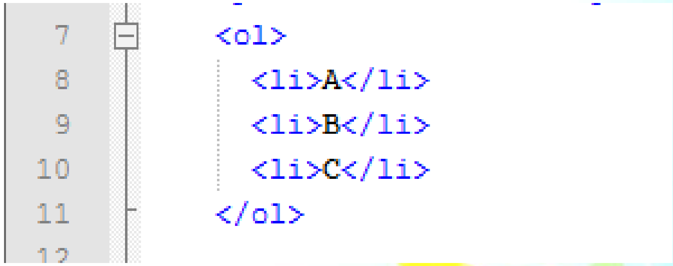
- Using Lists Correctly
  - HTML lists - <ul>, <ol>, and <dl> - also convey a hierarchical content structure.
  - Use the correct list for the type of structure that is trying to be conveyed
  - Lists should never be used for merely indenting or other layout purposes.



```
<dl>
  <dt>ABC</dt>
  <dd>- DEF</dd>
  <dt>GHI</dt>
  <dd>- JKL</dd>
</dl>
```



```
<ul>
  <li>D</li>
  <li>E</li>
  <li>F</li>
</ul>
```



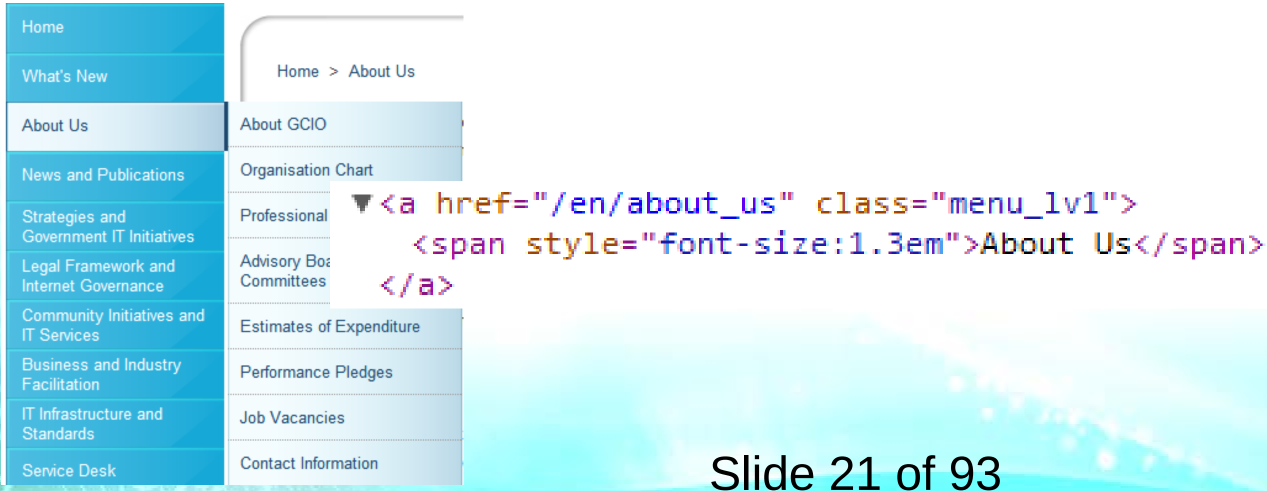
```
<ol>
  <li>A</li>
  <li>B</li>
  <li>C</li>
</ol>
```

Implement accessible websites – Content and Structure

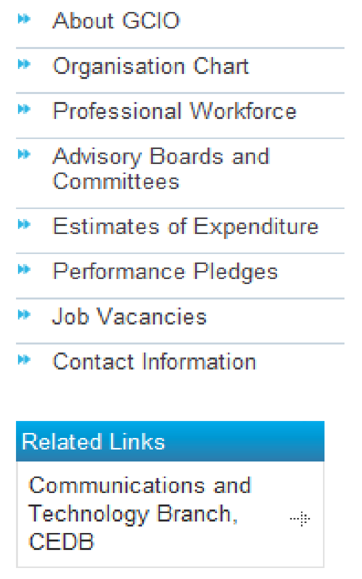
- Designing for Screen Reader Compatibility
  - ➢ Links should make sense when read out of context.
  - ➢ Web developers should organise content with headings and give each webpage a unique title.
  - ➢ Where appropriate, allow users to skip over repetitive navigation links (e.g. "Skip navigation" links)

Implement accessible websites – Content and Structure

- Links and Hypertext
  - ➢ Users must be able to navigate through and select each link using a keyboard alone.
  - ➢ It is advised to create links using standard HTML
  - ➢ Techniques such as JavaScript or Flash make also render text links unusable via keyboard

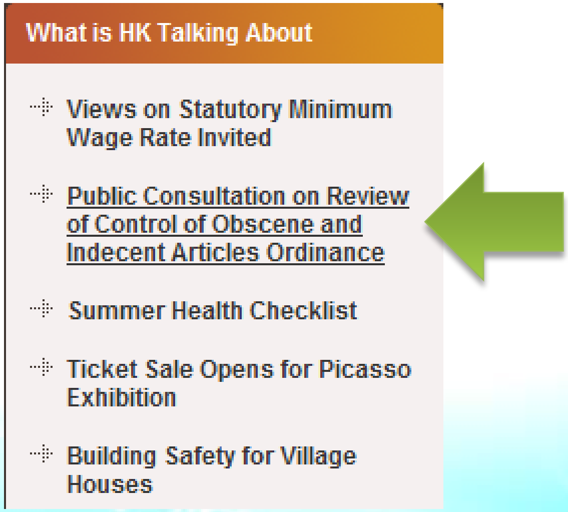


```
▼<a href="/en/about_us" class="menu_lvl">
   <span style="font-size:1.3em">About Us</span>
 </a>
```



Implement accessible websites – Content and Structure

- Links and Hypertext
  - When images are used as links, the alt text performs the function of link text. It is important to define a meaningful alt text description.
  - Links should look like links, and nothing else should.



What is HK Talking About

- Views on Statutory Minimum Wage Rate Invited
- Public Consultation on Review of Control of Obscene and Indecent Articles Ordinance
- Summer Health Checklist
- Ticket Sale Opens for Picasso Exhibition
- Building Safety for Village Houses

Implement accessible websites – Content and Structure

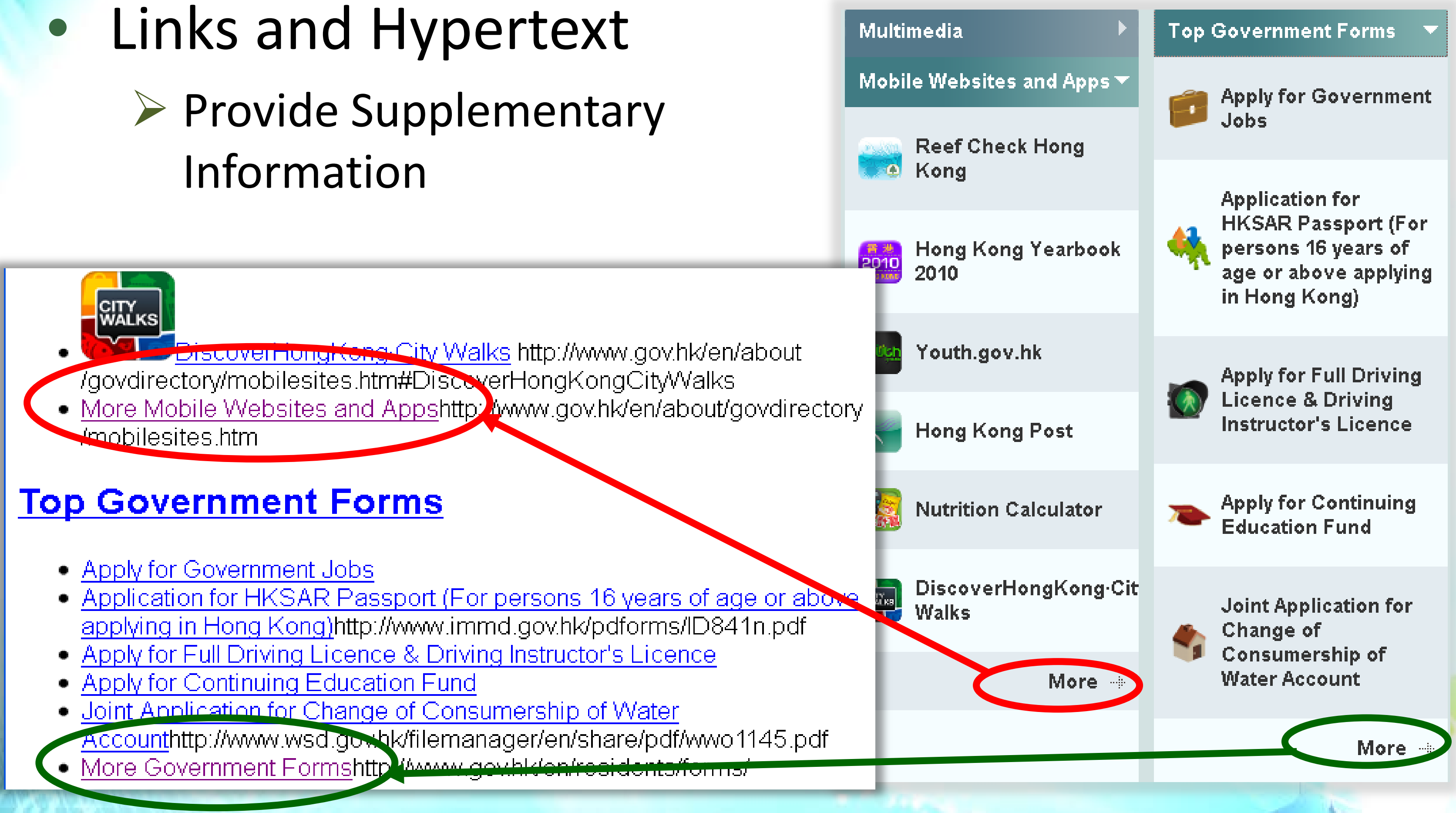
- Links and Hypertext
  - Provide alert when linking to New Windows, Pop-ups, Other Frames, or External Web Sites.

HONG KONG
Hong Kong ICT Awards 2009 香港資訊及通訊科技獎
Best Public Service Application (Website) Silver Award
最佳公共服務應用（網站）銀獎
WebCare Award
Ruby Award
2010-2011
webaward 2011
OUTSTANDING WEBSITE
IMA
WINNER
2011
BEST IN CLASS

  - Avoid adjacent links. It can sometimes be a little difficult to tell when link text ends and when another begins when using a screen reader.

Implement accessible websites – Content and Structure

- Links and Hypertext
  - ➢ Provide Supplementary Information



- DiscoverHongKong.City Walks http://www.gov.hk/en/about/govdirectory/mobilesites.htm#DiscoverHongKongCityWalks
- More Mobile Websites and Appshttp://www.gov.hk/en/about/govdirectory/mobilesites.htm

Top Government Forms

- Apply for Government Jobs
- Application for HKSAR Passport (For persons 16 years of age or above applying in Hong Kong)http://www.immd.gov.hk/pdforms/ID841n.pdf
- Apply for Full Driving Licence & Driving Instructor's Licence
- Apply for Continuing Education Fund
- Joint Application for Change of Consumership of Water Accounthttp://www.wsd.gov.hk/filemanager/en/share/pdf/wwo1145.pdf
- More Government Formshttp://www.gov.hk/en/residents/forms/

Multimedia

Mobile Websites and Apps

- Reef Check Hong Kong
- Hong Kong Yearbook 2010
- Youth.gov.hk
- Hong Kong Post
- Nutrition Calculator
- DiscoverHongKong·City Walks

More

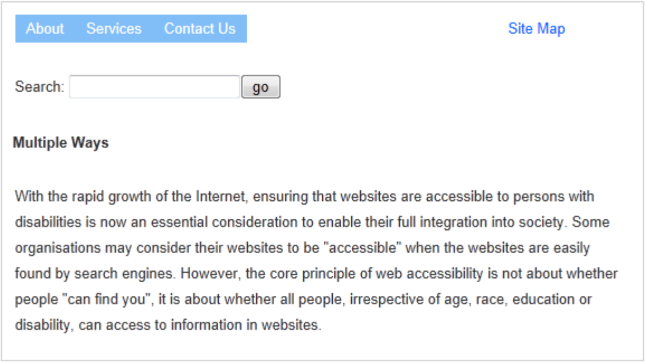
Top Government Forms

- Apply for Government Jobs
- Application for HKSAR Passport (For persons 16 years of age or above applying in Hong Kong)
- Apply for Full Driving Licence & Driving Instructor's Licence
- Apply for Continuing Education Fund
- Joint Application for Change of Consumership of Water Account

More

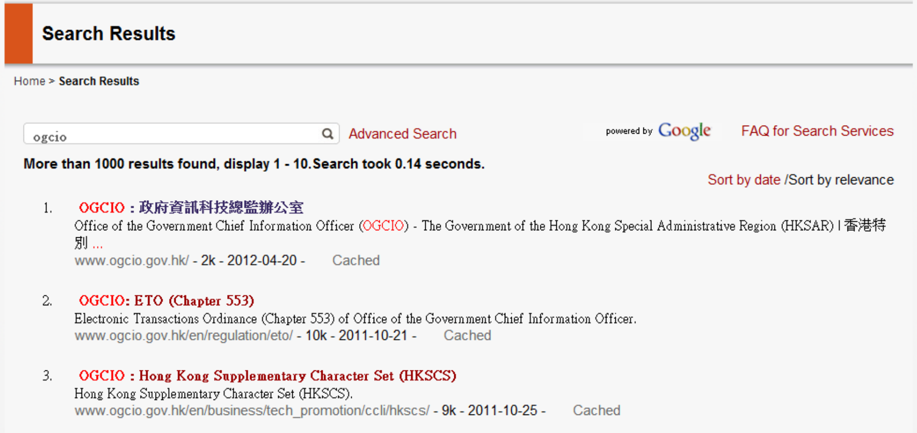
Implement accessible websites – Content and Structure

- Site Searches, Indexes, and Site Maps
  - ➢ Users to be automatically directed to the search results without having to read all other content
  - ➢ The site search feature does not necessarily have to appear on every page, but at the very least it should appear on the home page.



Multiple Ways

With the rapid growth of the Internet, ensuring that websites are accessible to persons with disabilities is now an essential consideration to enable their full integration into society. Some organisations may consider their websites to be "accessible" when the websites are easily found by search engines. However, the core principle of web accessibility is not about whether people "can find you", it is about whether all people, irrespective of age, race, education or disability, can access to information in websites.



Search Results

Home > **Search Results**

More than 1000 results found, display 1 - 10.Search took 0.14 seconds.

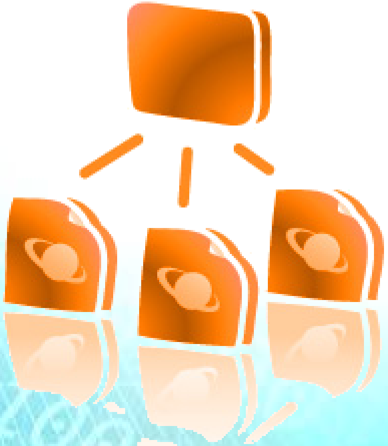
1. OGCIO : 政府資訊科技總監辦公室
   Office of the Government Chief Information Officer (OGCIO) - The Government of the Hong Kong Special Administrative Region (HKSAR) | 香港特別 ...
   www.ogcio.gov.hk/ - 2k - 2012-04-20 - Cached

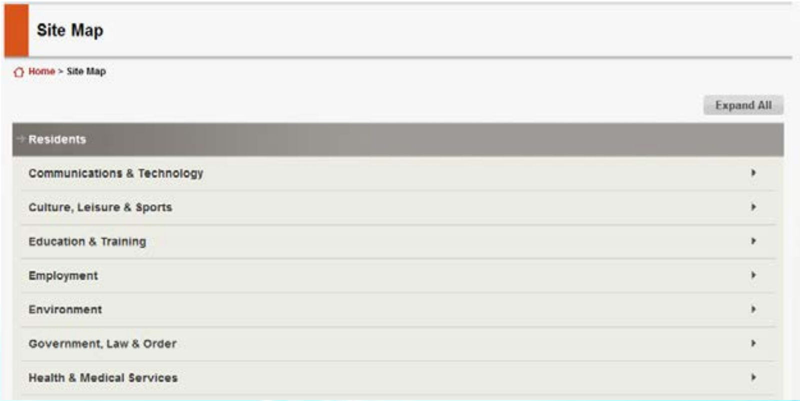
2. OGCIO: ETO (Chapter 553)
   Electronic Transactions Ordinance (Chapter 553) of Office of the Government Chief Information Officer.
   www.ogcio.gov.hk/en/regulation/eto/ - 10k - 2011-10-21 - Cached

3. OGCIO : Hong Kong Supplementary Character Set (HKSCS)
   Hong Kong Supplementary Character Set (HKSCS).
   www.ogcio.gov.hk/en/business/tech_promotion/ccli/hkscs/ - 9k - 2011-10-25 - Cached

Implement accessible websites – Content and Structure

- Site Searches, Indexes, and Site Maps
  - There are three main types of site maps or indexes:
    - Alphabetical – A-Z index
    - Structural – Mimics the structure of a website through links
    - Graphical – Think of an organisational hierarchy chart.





Site Map

Home > Site Map

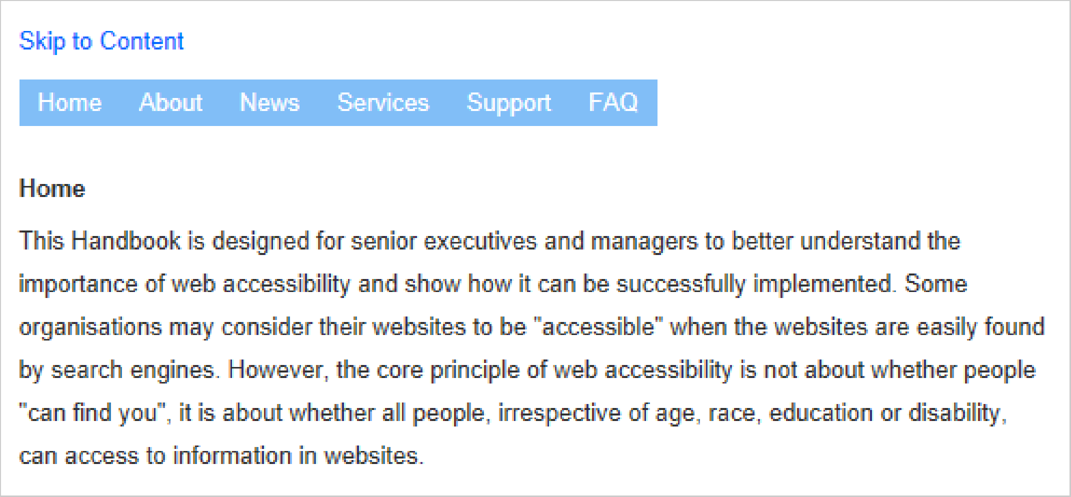
Residents

- Communications & Technology
- Culture, Leisure & Sports
- Education & Training
- Employment
- Environment
- Government, Law & Order
- Health & Medical Services

Implement accessible websites – Content and Structure

- "Skip Navigation" Links

When you view numerous pages on a website do you always read the main navigation, company logo, sub navigation and header links every time a new page loads?



Skip to Content

Home

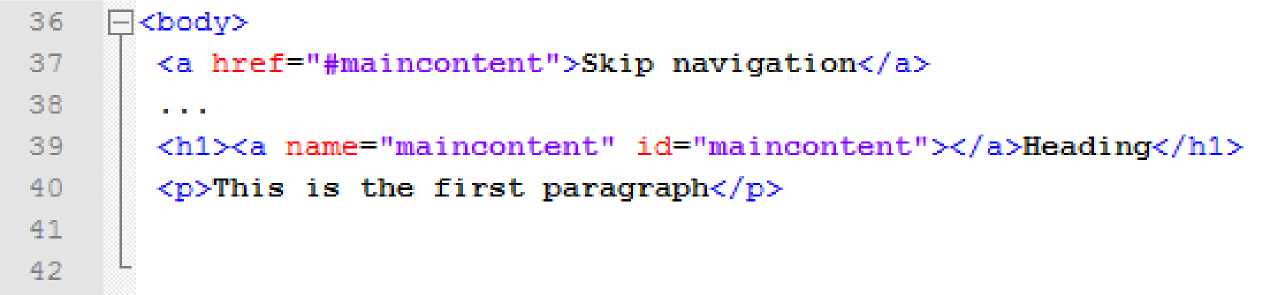
This Handbook is designed for senior executives and managers to better understand the importance of web accessibility and show how it can be successfully implemented. Some organisations may consider their websites to be "accessible" when the websites are easily found by search engines. However, the core principle of web accessibility is not about whether people "can find you", it is about whether all people, irrespective of age, race, education or disability, can access to information in websites.

Implement accessible websites – Content and Structure

- Creating "Skip Navigation" Links
  - When implementing a link of this nature consider these techniques:
    - Providing visible links at the top of the page
    - Making the link invisible
    - Making the link invisible until it receives keyboard focus

Implement accessible websites – Content and Structure

- Creating "Skip Navigation" Links
  - Providing visible links at the top of the page
    - The easiest method of creating a "skip navigation" or a “Skip to content” link is to put it at the top of the page in plain HTML text – ensure it is one of the first items to be read and this is a highly accessible method.
    - Put the corresponding anchor (link destination) at the beginning of the main content.

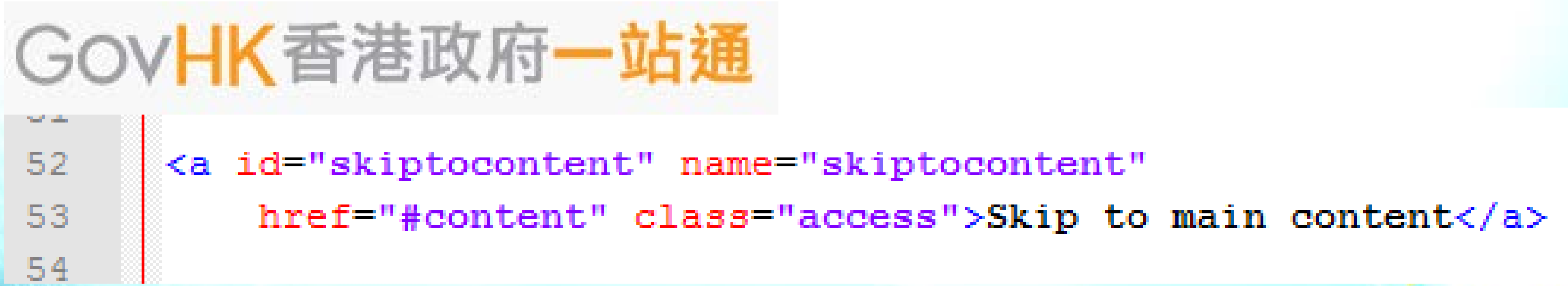


```
<body>
  <a href="#maincontent">Skip navigation</a>
  ...
  <h1><a name="maincontent" id="maincontent"></a>Heading</h1>
  <p>This is the first paragraph</p>


```

Implement accessible websites – Content and Structure

- Creating "Skip Navigation" Links
  - Making the link invisible
    - The most common method is to place a small invisible .gif image at the top of the page with alt="Skip navigation" as the alternative text.
    - Another similar method is to use Cascading Style Sheets (CSS) to hide the link.

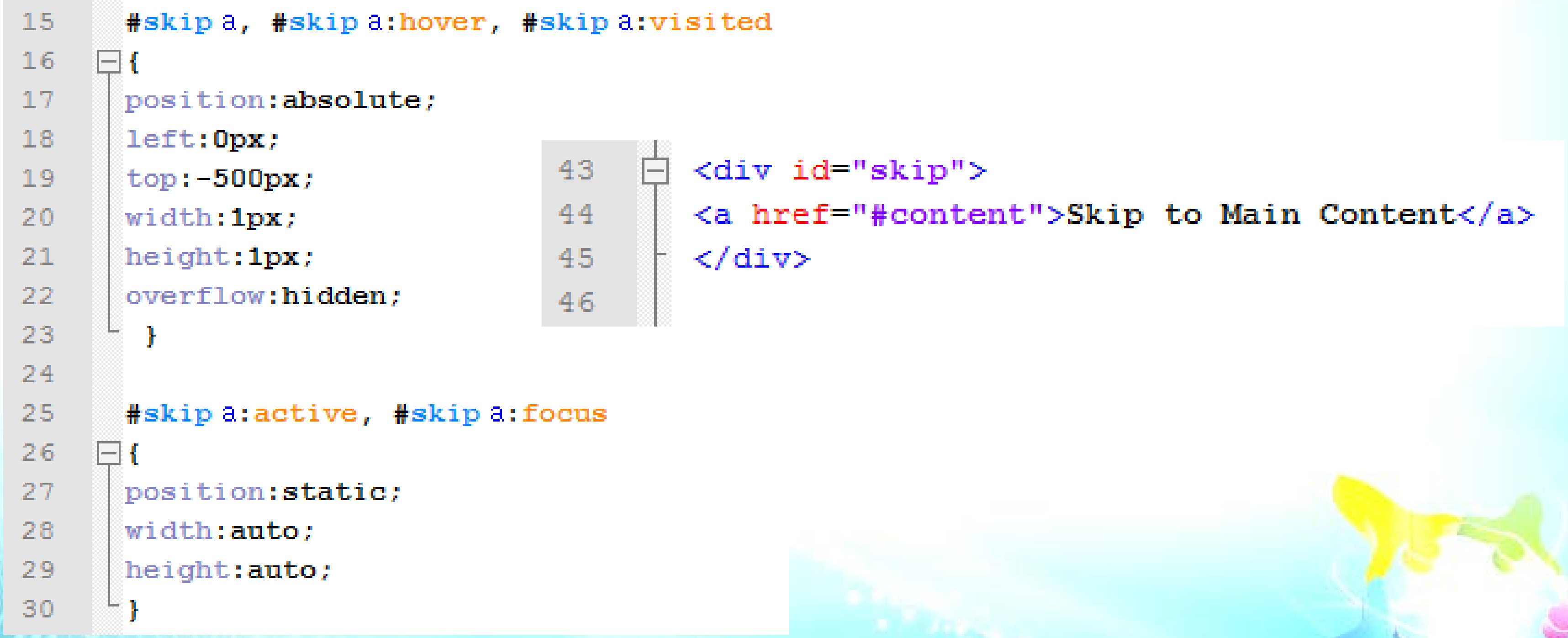


```
<a id="skiptocontent" name="skiptocontent"
    href="#content" class="access">Skip to main content</a>

```

Implement accessible websites – Content and Structure

- Creating "Skip Navigation" Links
  - Making the link invisible until it receives keyboard focus



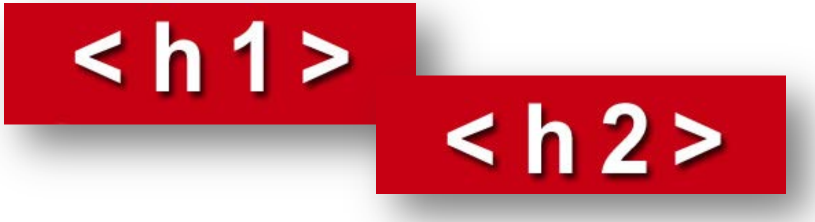
```css
#skip a, #skip a:hover, #skip a:visited
{
position:absolute;
left:0px;
top:-500px;
width:1px;
height:1px;
overflow:hidden;
 }

#skip a:active, #skip a:focus
{
position:static;
width:auto;
height:auto;
}
```

```html
<div id="skip">
<a href="#content">Skip to Main Content</a>
</div>
```

Implement accessible websites – Content and Structure

- Alternatives to "Skip Navigation" Links
  - ➢ There is more than one way to achieve the "skip navigation" effect.
    - **Navigating by headings**
    - **Alternate reading orders**

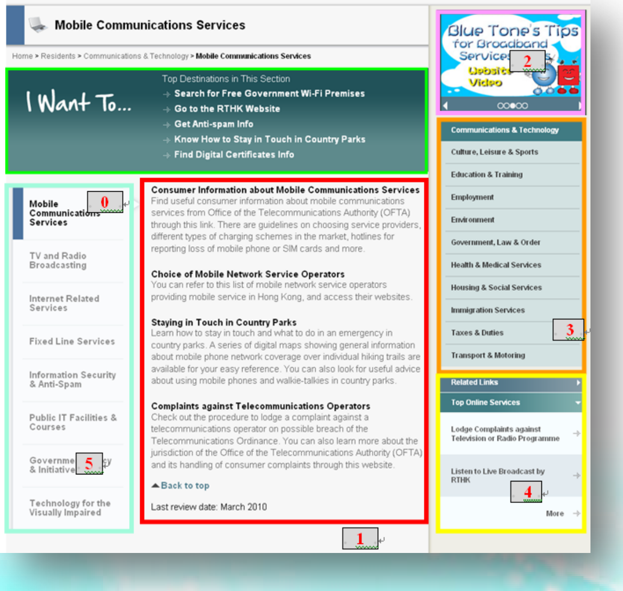


Implement accessible websites – Content and Structure

- Alternatives to "Skip Navigation" Links
  - ➢ Navigating by headings
    - Create documents with proper headings so that users can skip from heading to heading.
    - This method is very effective for screen reader users.
  - ➢ Alternate reading orders
    - This method requires placing the main content first in the reading order and the navigation last.

Implement accessible websites – Content and Structure

- Templates
  - ➢ Creating and Using Document Templates
    - A recommended approach to document templates can be achieved by server side processing of content.



Mobile Communications Services

Home > Residents > Communications & Technology > **Mobile Communications Services**

I Want To...

Top Destinations in This Section

- Search for Free Government Wi-Fi Premises
- Go to the RTHK Website
- Get Anti-spam Info
- Know How to Stay in Touch in Country Parks
- Find Digital Certificates Info

Mobile Communications Services

TV and Radio Broadcasting

Internet Related Services

Fixed Line Services

Information Security & Anti-Spam

Public IT Facilities & Courses

Governme cy & Initiative

Technology for the Visually Impaired

Consumer Information about Mobile Communications Services
Find useful consumer information about mobile communications services from Office of the Telecommunications Authority (OFTA) through this link. There are guidelines on choosing service providers, different types of charging schemes in the market, hotlines for reporting loss of mobile phone or SIM cards and more.

Choice of Mobile Network Service Operators
You can refer to this list of mobile network service operators providing mobile service in Hong Kong, and access their websites.

Staying in Touch in Country Parks
Learn how to stay in touch and what to do in an emergency in country parks. A series of digital maps showing general information about mobile phone network coverage over individual hiking trails are available for your easy reference. You can also look for useful advice about using mobile phones and walkie-talkies in country parks.

Complaints against Telecommunications Operators
Check out the procedure to lodge a complaint against a telecommunications operator on possible breach of the Telecommunications Ordinance. You can also learn more about the jurisdiction of the Office of the Telecommunications Authority (OFTA) and its handling of consumer complaints through this website.

▲Back to top

Last review date: March 2010

Communications & Technology

Culture, Leisure & Sports

Education & Training

Employment

Environment

Government, Law & Order

Health & Medical Services

Housing & Social Services

Immigration Services

Taxes & Duties

Transport & Motoring

Related Links

Top Online Services

Lodge Complaints against Television or Radio Programme

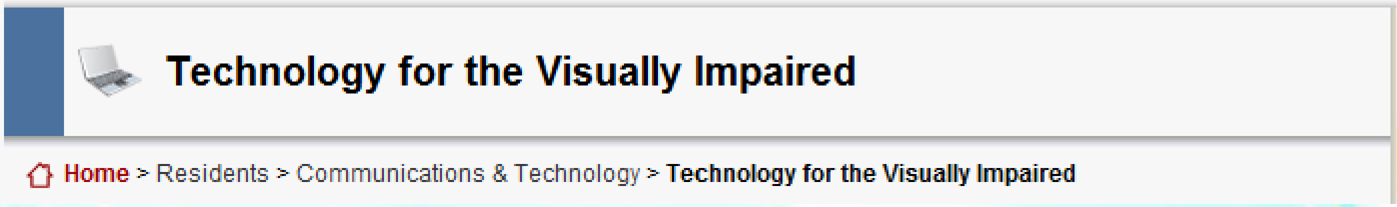
Listen to Live Broadcast by RTHK

More

Implement accessible websites – Content and Structure

- Templates
  - ➢ Maximsing the Accessibility of Templates
    - Provide an option to skip that navigation and jump directly to the main content.
    - Implement ***Breadcrumbs*** for users to identify the hierarchy of the web site and how the content they are currently accessing fits into that hierarchy.

Skip To Content



Technology for the Visually Impaired

Home > Residents > Communications & Technology > Technology for the Visually Impaired

Implement accessible websites – Content and Structure

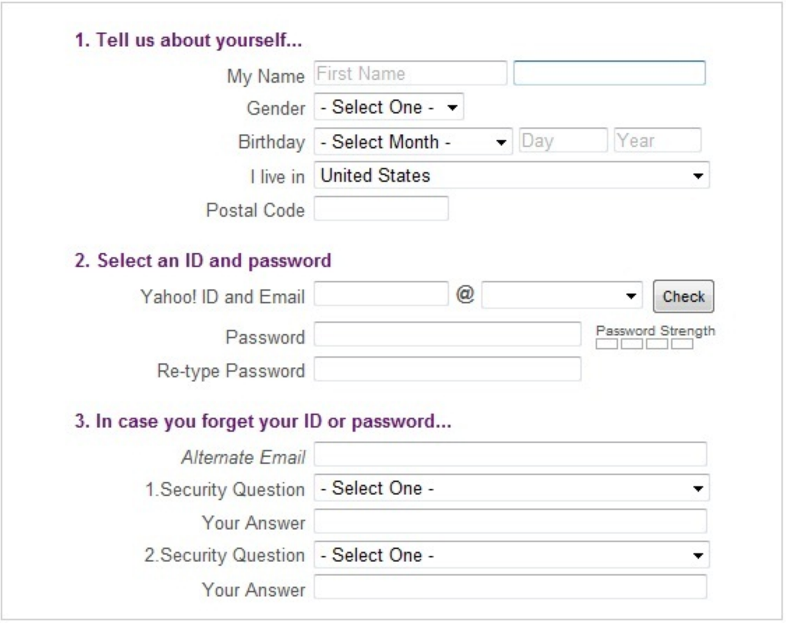
- Writing Clearly and Simply
  - ➢ Not everyone reads at the same level or has the ability to understand text content, even when presented clearly and simply.
  - ➢ Reading disorders, memory disorders, attention deficit disorders, and other conditions which affect the brain's cognitive processes can compromise a person's ability to benefit from text.

Implement accessible websites – Content and Structure

- Writing Clearly and Simply
  - General Guidelines
    - Organise your ideas into a logical outline.
    - Avoid slang and jargon
    - Avoid acronyms and abbreviations if possible; explain all acronyms and abbreviations.
    - Break up long paragraphs into smaller portions.

Implement accessible websites – Forms

- A well-organised, highly accessible form will benefit everyone, not just to people who use screen readers.



1. Tell us about yourself...

My Name First Name
Gender - Select One -
Birthday - Select Month - Day Year
I live in United States
Postal Code

2. Select an ID and password

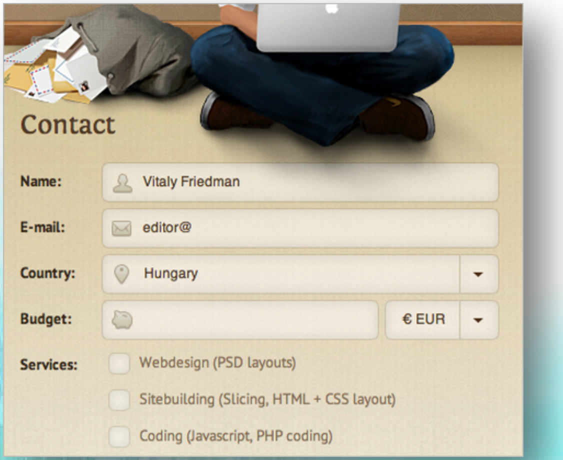
Yahoo! ID and Email @ Check
Password Password Strength
Re-type Password

3. In case you forget your ID or password...

Alternate Email
1.Security Question - Select One -
Your Answer
2.Security Question - Select One -
Your Answer

Implement accessible websites – Forms

- Creating Accessible Forms
  - ➢ Ensure forms are keyboard accessible
  - ➢ Provide a Logical Form Layout
  - ➢ Using Form Labels Appropriately
  - ➢ Implement Accessible Form Controls (i.e. text inputs, select menus etc.)



Contact

Name: Vitaly Friedman

E-mail: editor@

Country: Hungary

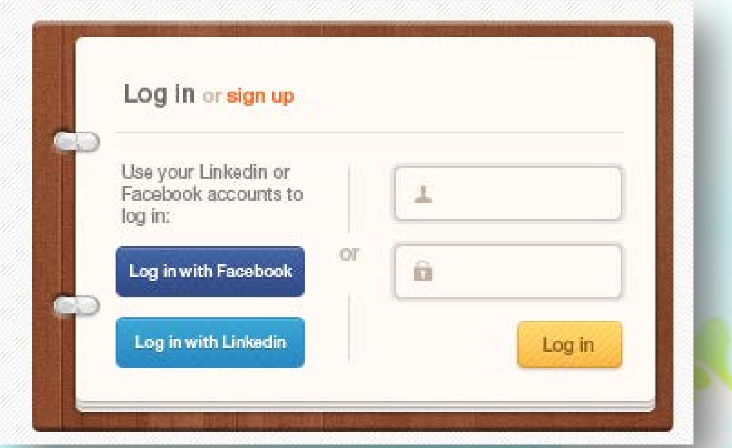
Budget: € EUR

Services:

□ Webdesign (PSD layouts)

□ Sitebuilding (Slicing, HTML + CSS layout)

□ Coding (Javascript, PHP coding)



Log in or sign up

Use your Linkedin or Facebook accounts to log in:

Log in with Facebook

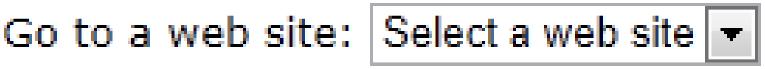
Log in with Linkedin

or

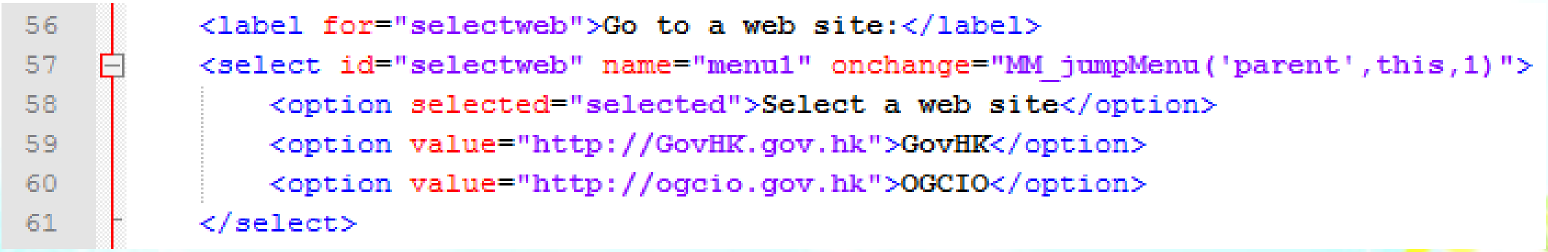
Log in

Implement accessible websites – Forms

- Ensure forms are keyboard accessible
  - There are a few things that can make forms totally unusable with the keyboard, the most common of which is JavaScript.



Go to a web site: Select a web site



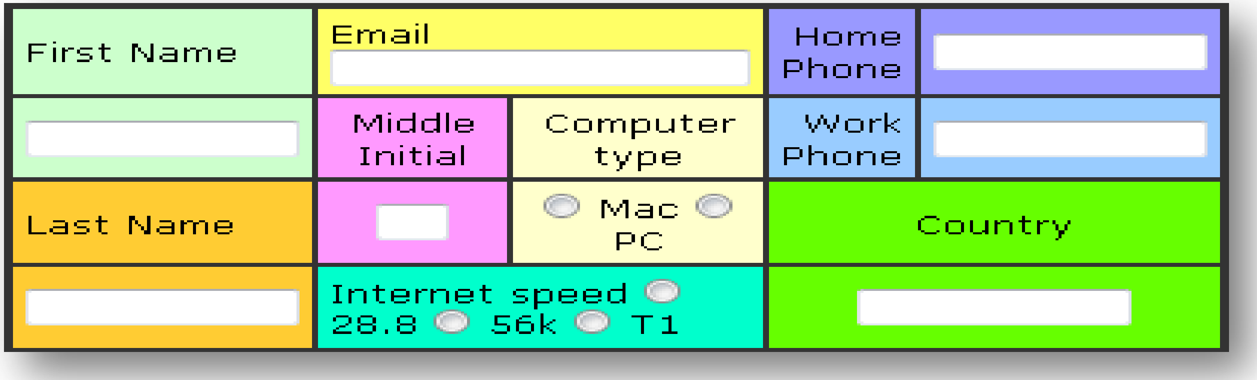
```
<label for="selectweb">Go to a web site:</label>
<select id="selectweb" name="menu1" onchange="MM_jumpMenu('parent',this,1)">
    <option selected="selected">Select a web site</option>
    <option value="http://GovHK.gov.hk">GovHK</option>
    <option value="http://ogcio.gov.hk">OGCIO</option>
</select>
```

Implement accessible websites – Forms

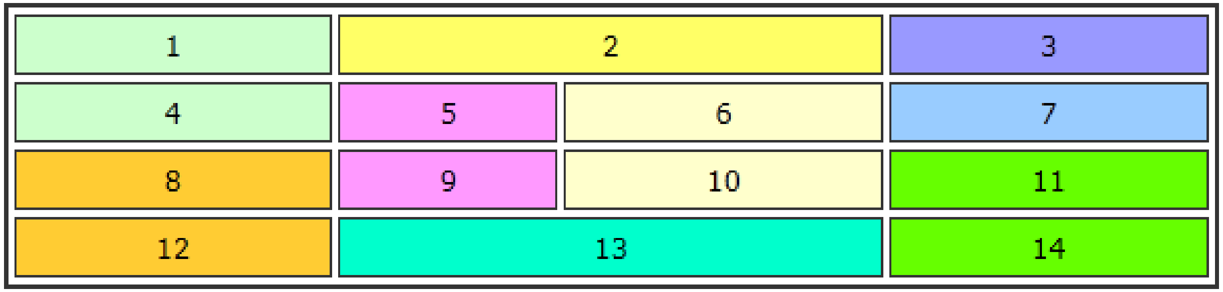
- Provide a Logical Form Layout
  - Forms should also be organised in a logical manner.
  - Make sure that the order in which form elements are accessed is logical and easy.
  - The next slide will show an example to demonstrate the possible confusion that can occur with a form that is poorly marked-up and poorly organised.

Implement accessible websites – Forms

- Bad Example:



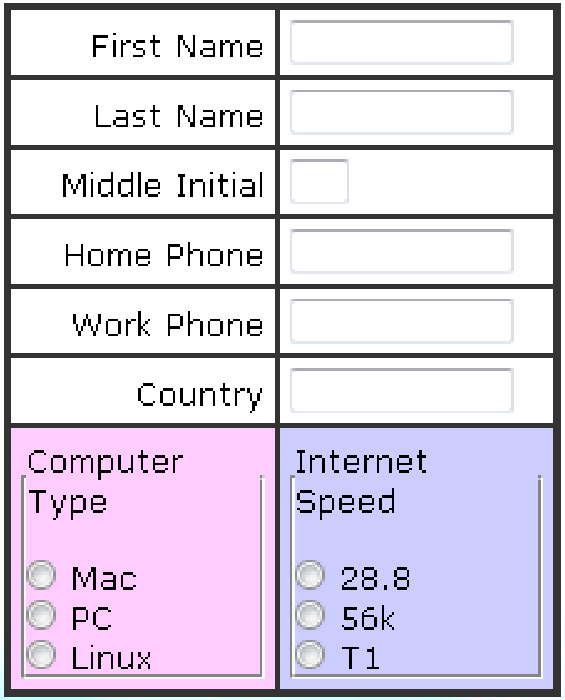
First Name	Email		Home Phone	
	Middle Initial	Computer type	Work Phone	
Last Name		○ Mac ○ PC	Country	
	Internet speed ○ 28.8 ○ 56k ○ T1			



1	2		3
4	5	6	7
8	9	10	11
12	13		14

Implement accessible websites – Forms

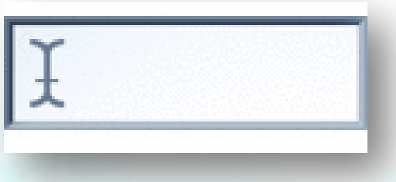
- Using Form Labels Appropriately
  - Put the labels adjacent to their controls. For example:

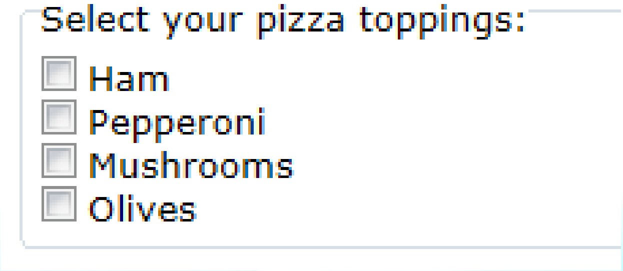


First Name	
Last Name	
Middle Initial	
Home Phone	
Work Phone	
Country	
Computer Type ○ Mac ○ PC ○ Linux	Internet Speed ○ 28.8 ○ 56k ○ T1

Implement accessible websites – Forms

- Using Form Labels Appropriately
  - ➢ Use HTML markup to associate the controls explicitly with their labels.
    - Create labels for form elements using the <label> element
    - Group related form elements using the <fieldset> element



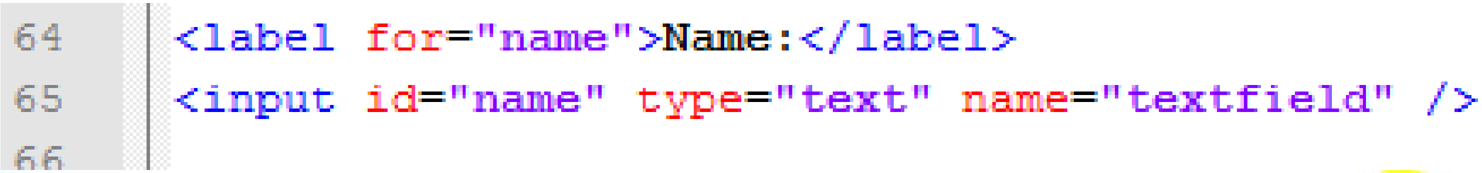


Select your pizza toppings:

□ Ham
□ Pepperoni
□ Mushrooms
□ Olives

Implement accessible websites – Forms

- Create labels for form elements using the <label> element
  - By associating form labels to form items on the page, the screen reader will read the text within the <label> element and indicate the type of form item it is (e.g., "Name. Text box")



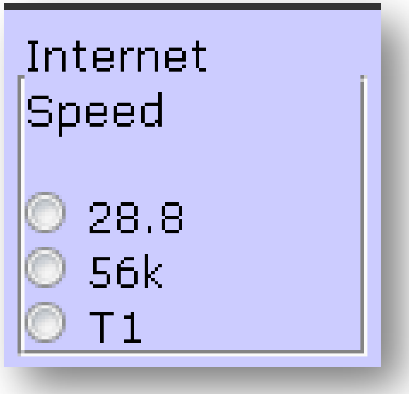
```
<label for="name">Name:</label>
<input id="name" type="text" name="textfield" />
```

Implement accessible websites – Forms

- Group related form elements using the <fieldset> element
  - When you have several associated form elements, they can be grouped together by something called a fieldset.
  - Each fieldset should have a legend. The legend is the text that describes the associated group of form items.
  - Fieldsets should be used when there are groups of check boxes or radio buttons.

Implement accessible websites – Forms

- An example with fieldset element:



Internet Speed

○ 28.8
○ 56k
○ T1

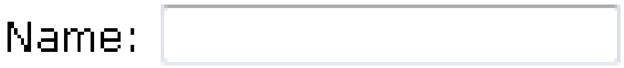
- In this example, the legends of the fieldset is ‘Internet Speed’

Implement accessible websites – Forms

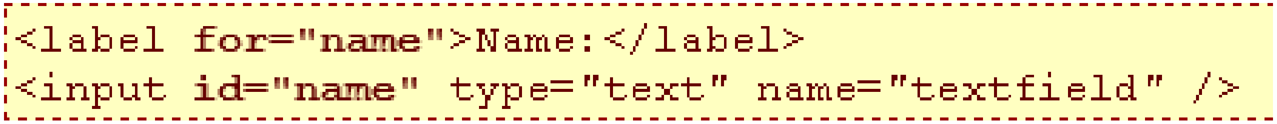
- Implement Accessible Form Controls
  - Text inputs
  - Checkboxes
  - Radio buttons
  - Select menus
  - Buttons
  - Image buttons

Implement accessible websites – Forms

- Text inputs



- Here's the HTML markup:

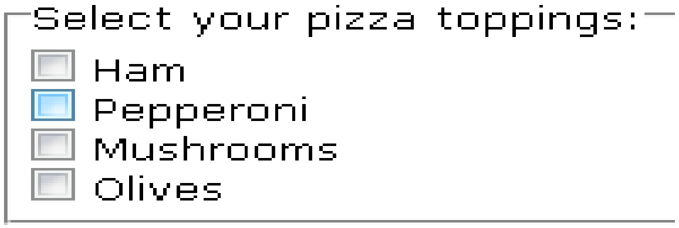


```
<label for="name">Name:</label>
<input id="name" type="text" name="textfield" />
```

- Notice the ‘for’ and ‘id’ values are the same, thus associating the label with the appropriate form element

Implement accessible websites – Forms

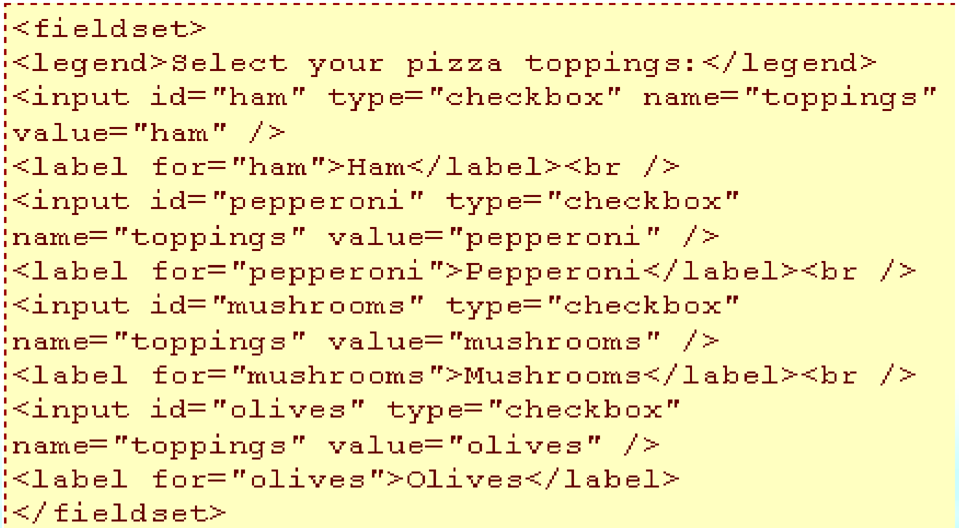
- Checkboxes



Select your pizza toppings:

□ Ham
□ Pepperoni
□ Mushrooms
□ Olives

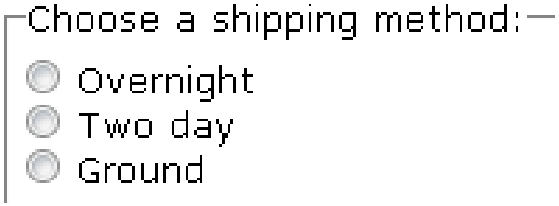
- Here's the HTML markup:



```
<fieldset>
<legend>Select your pizza toppings:</legend>
<input id="ham" type="checkbox" name="toppings"
value="ham" />
<label for="ham">Ham</label><br />
<input id="pepperoni" type="checkbox"
name="toppings" value="pepperoni" />
<label for="pepperoni">Pepperoni</label><br />
<input id="mushrooms" type="checkbox"
name="toppings" value="mushrooms" />
<label for="mushrooms">Mushrooms</label><br />
<input id="olives" type="checkbox"
name="toppings" value="olives" />
<label for="olives">Olives</label>
</fieldset>
```

Implement accessible websites – Forms

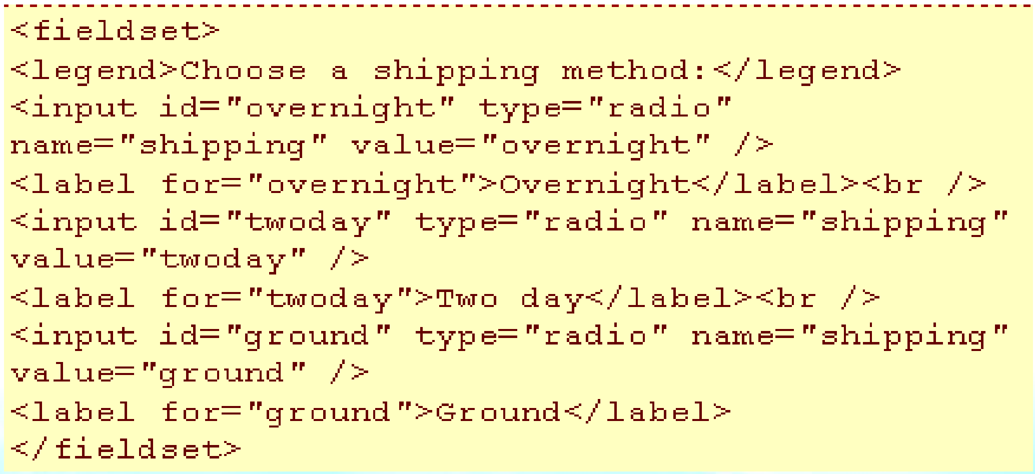
- Radio buttons



Choose a shipping method:

○ Overnight
○ Two day
○ Ground

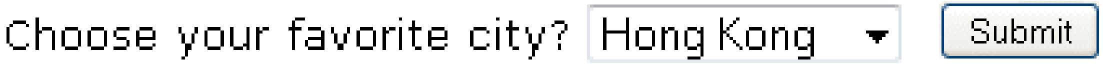
- Here's the HTML markup:



```
<fieldset>
<legend>Choose a shipping method:</legend>
<input id="overnight" type="radio"
name="shipping" value="overnight" />
<label for="overnight">Overnight</label><br />
<input id="twoday" type="radio" name="shipping"
value="twoday" />
<label for="twoday">Two day</label><br />
<input id="ground" type="radio" name="shipping"
value="ground" />
<label for="ground">Ground</label>
</fieldset>
```

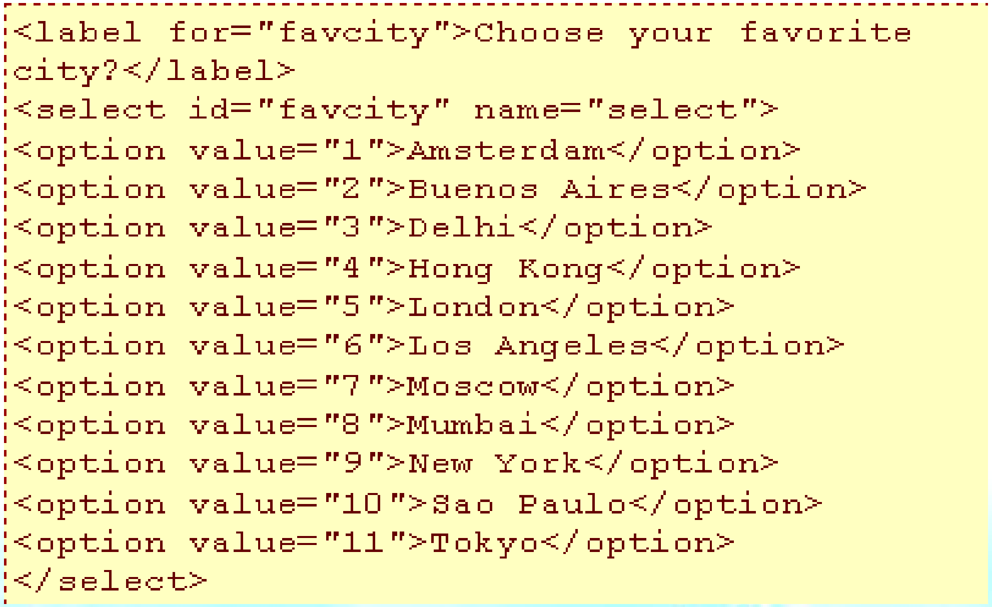
Implement accessible websites – Forms

- Select menus



Choose your favorite city? Hong Kong

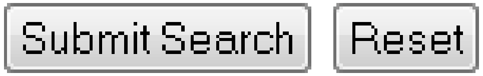
- Here's the HTML markup:



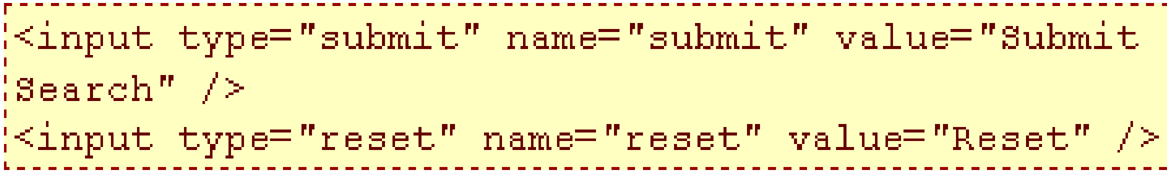
```
<label for="favcity">Choose your favorite
city?</label>
<select id="favcity" name="select">
<option value="1">Amsterdam</option>
<option value="2">Buenos Aires</option>
<option value="3">Delhi</option>
<option value="4">Hong Kong</option>
<option value="5">London</option>
<option value="6">Los Angeles</option>
<option value="7">Moscow</option>
<option value="8">Mumbai</option>
<option value="9">New York</option>
<option value="10">Sao Paulo</option>
<option value="11">Tokyo</option>
</select>
```

Implement accessible websites – Forms

- Buttons



- Here's the HTML markup:



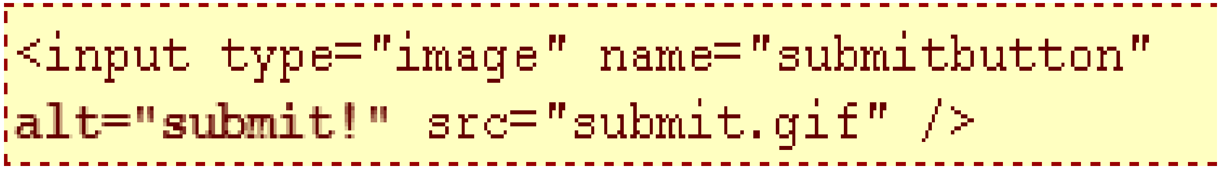
```
<input type="submit" name="submit" value="Submit
Search" />
<input type="reset" name="reset" value="Reset" />
```

- For form buttons, no additional accessibility information is required. This is because The value attribute will be read by screen readers when the button is accessed

Implement accessible websites – Forms

- Image buttons

- Here's the HTML markup:

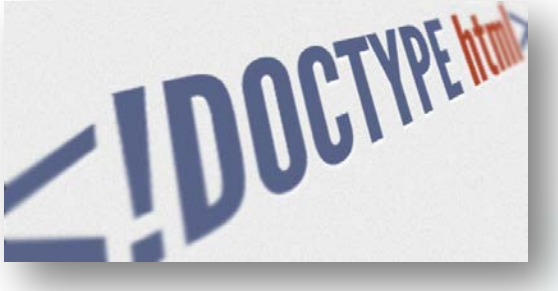


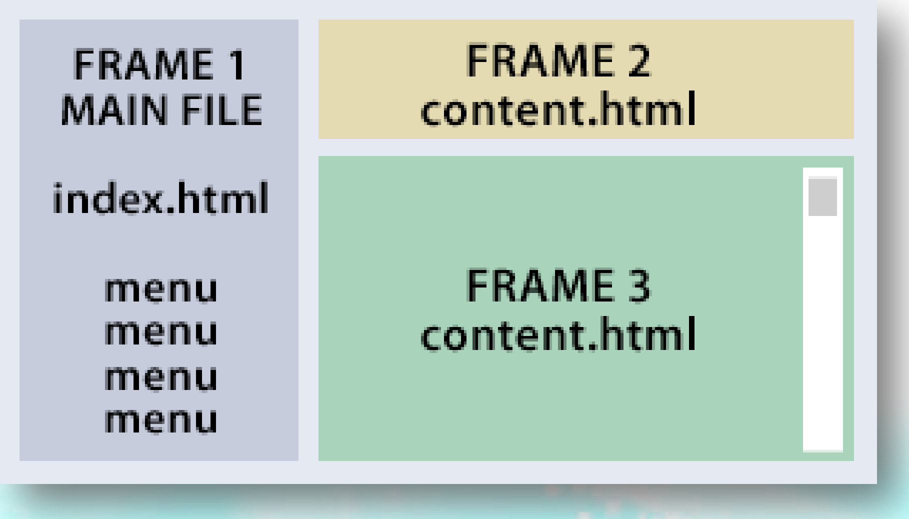
```
<input type="image" name="submitbutton"
alt="submit!" src="submit.gif" />
```

- If you use an image button, it must have an appropriate alt text.

Implement accessible websites – Frames

- Frame Accessibility
  - Provide frame titles
  - Use correct document type
  - Provide ***noframes*** content




FRAME 1
MAIN FILE

index.html

menu
menu
menu
menu

FRAME 2
content.html

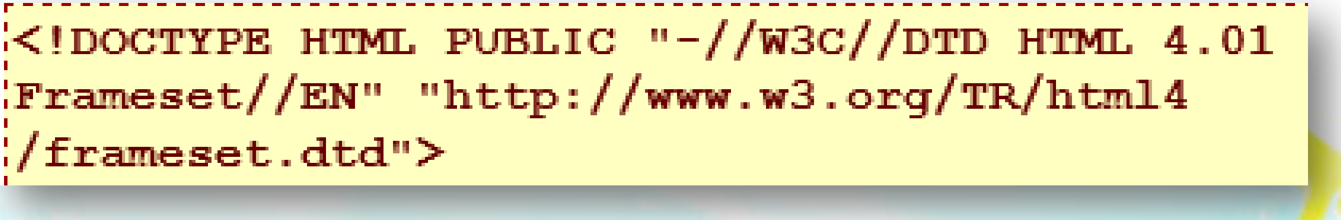
FRAME 3
content.html

Implement accessible websites – Frames

- Frame Accessibility
- Inline Frame (iframe) Accessibility
- Alternatives to Frames

Implement accessible websites – Frames

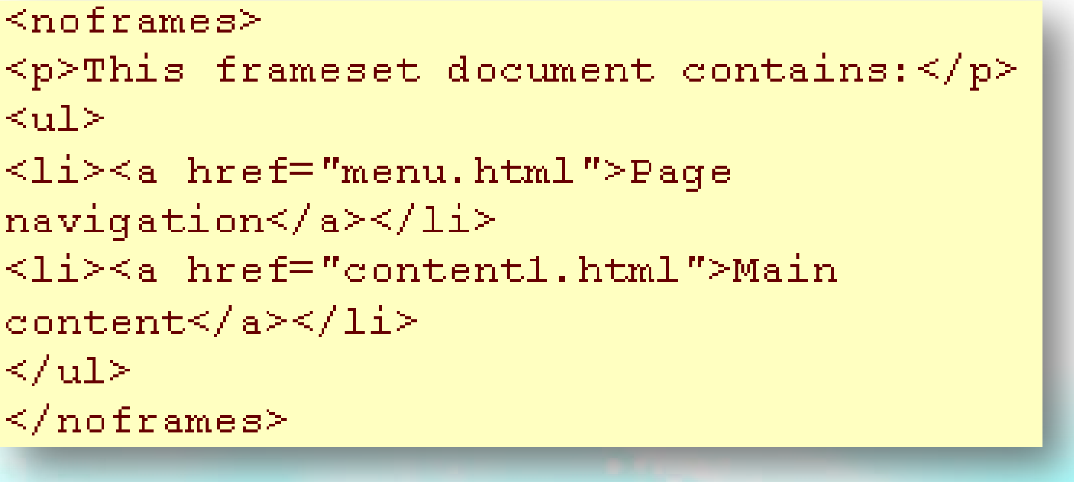
- Frame Accessibility
  - Use correct document type
    - A page that uses frames should have the correct document type.
    - The proper frameset doctype lets screen readers and other browsers know that the document consists of multiple frames.



```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01
Frameset//EN" "http://www.w3.org/TR/html4
/frameset.dtd">
```

Implement accessible websites – Frames

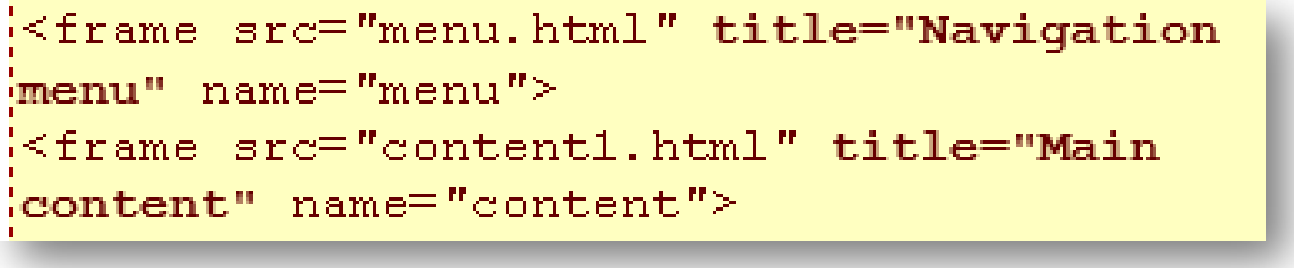
- Frame Accessibility
    - Provide noframes content
        - Content in the noframes tag should always be available if the user cannot or chooses not to view frame content.



```
<noframes>
<p>This frameset document contains:</p>
<ul>
<li><a href="menu.html">Page
navigation</a></li>
<li><a href="content1.html">Main
content</a></li>
</ul>
</noframes>
```

Implement accessible websites – Frames

- An example code for accessible frame:



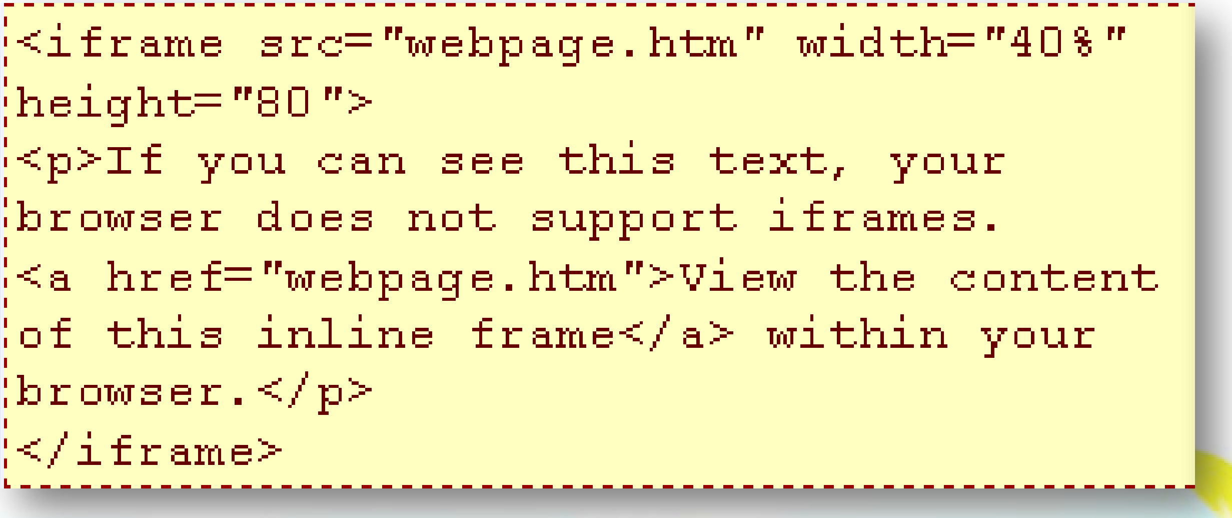
```
<frame src="menu.html" title="Navigation
menu" name="menu">
<frame src="content1.html" title="Main
content" name="content">
```

Implement accessible websites – Frames

- Inline Frame (iframe) Accessibility
  - When using iframes, you should ensure that the alternative content (the content between the iframe tags) is useful.
  - In most cases, you should provide a link to the content that is presented within the iframe so that the user can access it directly.

Implement accessible websites – Frames

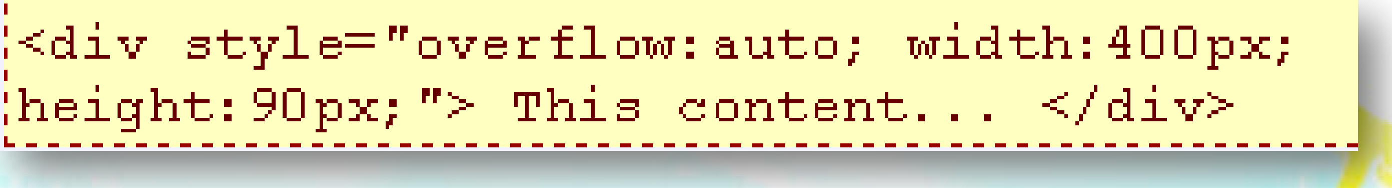
- Inline Frame (iframe) Accessibility
    - ➢ A sample code below that shows how to place alternative content between the iframe tags:



```
<iframe src="webpage.htm" width="40%"
height="80">
<p>If you can see this text, your
browser does not support iframes.
<a href="webpage.htm">View the content
of this inline frame</a> within your
browser.</p>
</iframe>
```

Implement accessible websites – Frames

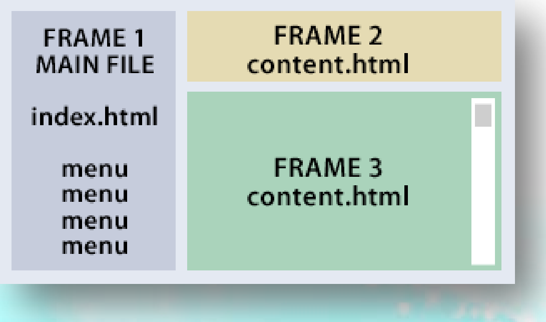
- Alternatives to Frames
  - ➢ If web developers want a single Web presentation to display similarly to frames, this can usually be accomplished with Cascading Style Sheets (CSS) and one web page, rather than dealing with the complexities and inaccessibility of frames.
  - ➢ This can be done with the ‘overflow’ CSS attribute.



```
<div style="overflow:auto; width:400px;
height:90px;"> This content... </div>
```

Implement accessible websites – Frames

- Alternatives to Frames
  - There are many advantages of using CSS instead of frames to control the display of content.
    - All of the content is on the same page giving the developer fewer files to keep track of.
    - Instead of forcing a screen reader user to navigate between frames, the page is read normally.



FRAME 1
MAIN FILE

index.html

menu
menu
menu
menu

FRAME 2
content.html

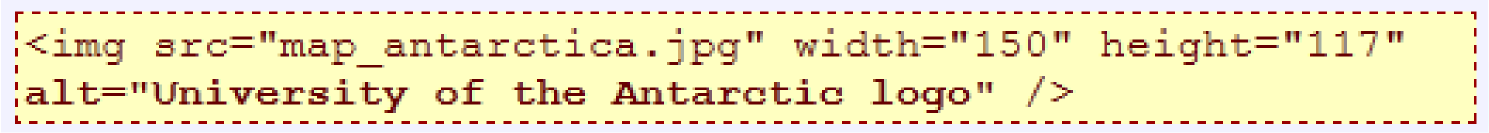
FRAME 3
content.html

Implement accessible websites – Images

- The Importance of Alternative Text:
  - When these assistive technologies come across images without alt text, they are unable to communicate their meaning.
  - Individuals who are blind often use screen readers or refreshable Braille devices that read the text on the page to them.

Implement accessible websites – Images

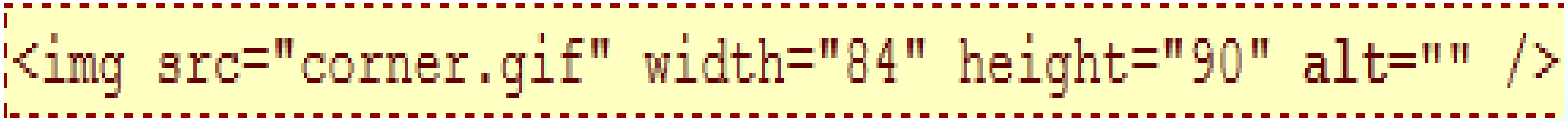
- Creating Effective Alternative (alt)Text
  - Alternative text for images should be as accurate as possible.
  - Make sure that the alt text conveys all of the important information relevant to its purpose, but don't burden users with excessively long alt text.



```
<img src="map_antarctica.jpg" width="150" height="117"
alt="University of the Antarctic logo" />
```

Implement accessible websites – Images

- Null alt text should apply on:
  - Decorative images
  - Transparent and spacer images
  - Redundant images



```
<img src="corner.gif" width="84" height="90" alt="" />
```

Implement accessible websites – Images

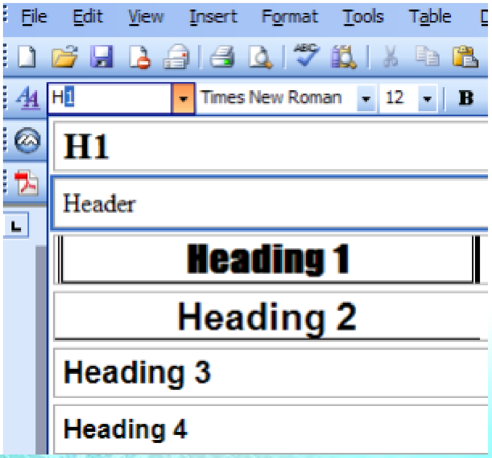
- Guidelines for alt text:
  - Ensure that the text alternatives communicate the purpose of the graphic accurately.
  - Provide empty alt text for graphics which do not convey content.
  - Provide alt text for both the main image and the hot spots of image maps.
  - Do not repeat the alt text of an image in the adjacent text.

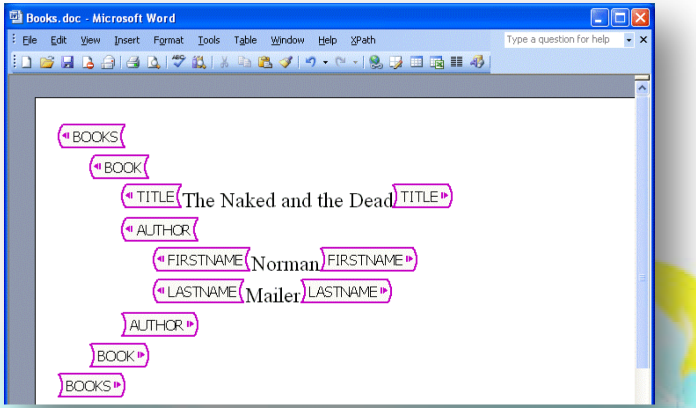
How to make an accessible PDF

- The accessibility of the PDF depends on the accessibility of the original document (text-based vs image-based).

How to make an accessible PDF

- Text based PDF
  - ➢ Use structural formatting
    - Use the structural formatting already available in Word, for example headings, bullets and numbered lists.
    - Make sure all text is formatted as Heading 1, Heading 2, Heading 3 and Body Text.

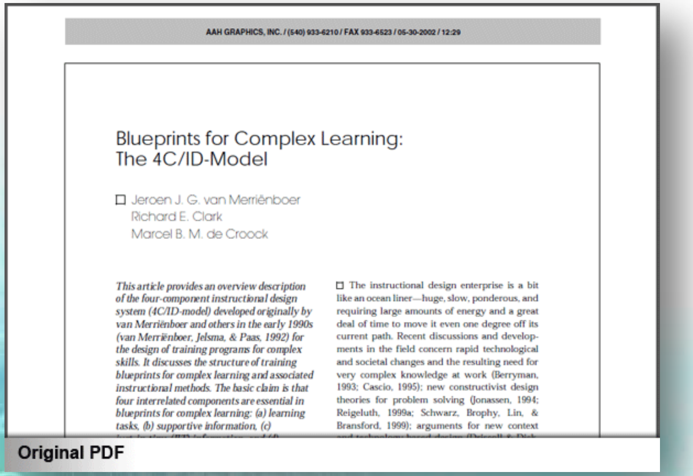




```
BOOKS
  BOOK
    TITLE The Naked and the Dead TITLE
    AUTHOR
      FIRSTNAME Norman FIRSTNAME
      LASTNAME Mailer LASTNAME
    AUTHOR
  BOOK
BOOKS
```

How to make an accessible PDF

- Text based PDF
  - ➢ Use structural formatting
    - Make sure a multi-column layout is achieved via column formatting and not through tabs or tables.
    - Make sure all paragraphs end in a Paragraph Return instead of a Soft Return (an Enter versus a Shift+Enter)



AAH GRAPHICS, INC. / (540) 933-6210 / FAX 933-6523 / 05-30-2002 / 12:29

Blueprints for Complex Learning:
The 4C/ID-Model

□ Jeroen J. G. van Merriënboer
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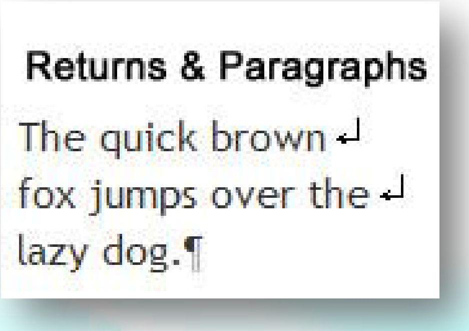
This article provides an overview description of the four-component instructional design system (4C/ID-model) developed originally by van Merriënboer and others in the early 1990s (van Merriënboer, Jelsma, & Paas, 1992) for the design of training programs for complex skills. It discusses the structure of training blueprints for complex learning and associated instructional methods. The basic claim is that four interrelated components are essential in blueprints for complex learning: (a) learning tasks, (b) supportive information, (c)

□ The instructional design enterprise is a bit like an ocean liner—huge, slow, ponderous, and requiring large amounts of energy and a great deal of time to move it even one degree off its current path. Recent discussions and developments in the field concern rapid technological and societal changes and the resulting need for very complex knowledge at work (Berryman, 1993; Cascio, 1995); new constructivist design theories for problem solving (Jonassen, 1994; Reigeluth, 1999a; Schwarz, Brophy, Lin, & Bransford, 1999); arguments for new context

Original PDF

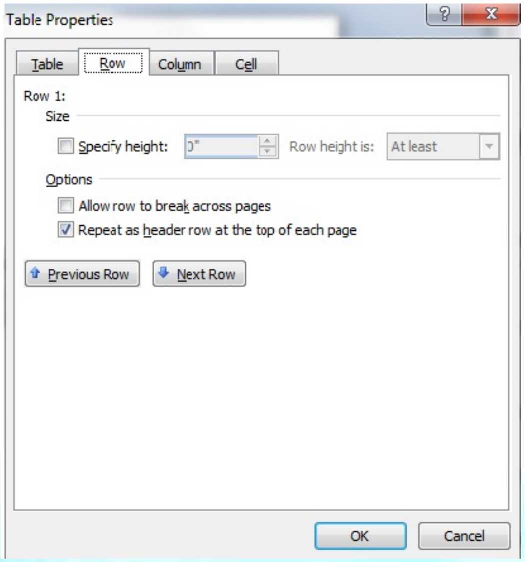


Returns & Paragraphs

The quick brown ↵
fox jumps over the ↵
lazy dog.¶

How to make an accessible PDF

- Text based PDF
  - ➢ Data Table
    - Ensure columns and rows must be recognizable in order for the logical relationships to be perceived.



Row 1:

Size

☐ Specify height: 0" Row height is: At least

Options

☐ Allow row to break across pages

☑ Repeat as header row at the top of each page

Repeat the first row as header at the top of each page

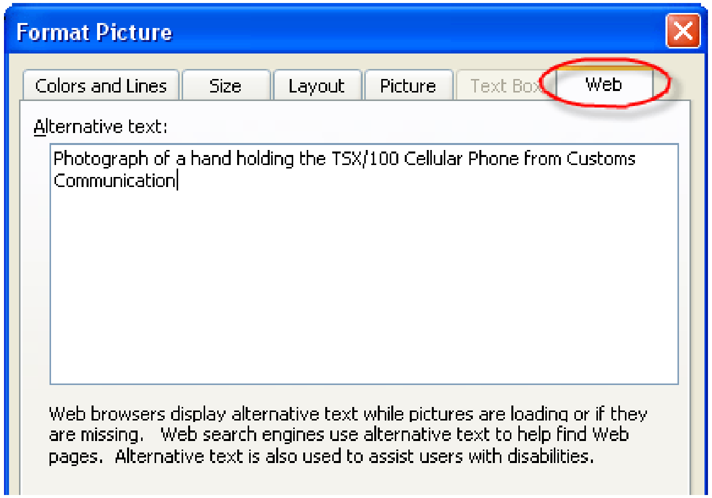
How to make an accessible PDF

- Text based PDF
  - ➢ Create links
    - Ensure all links in the Word document are live links.

  - ➢ Group artwork
    - If the document contains artwork comprised of several elements, group the entire artwork into one picture.

How to make an accessible PDF

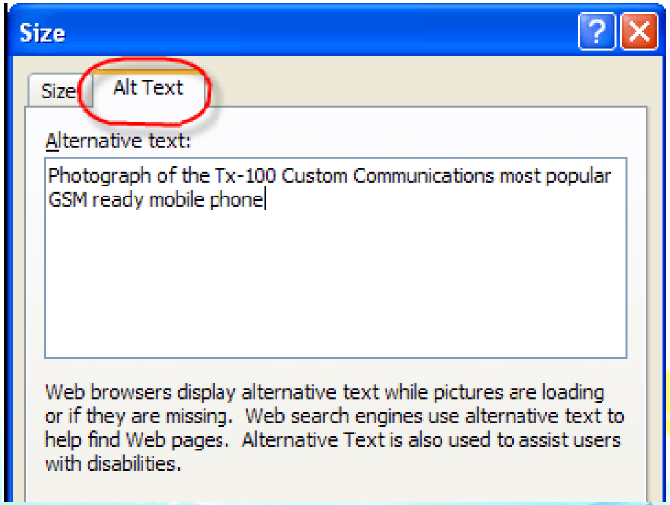
- Text based PDF
  - Add alternative text to images
    - Add alternative text to all images via the "Format picture" dialog box. Under the "Web" tab, there is a section available for alternative text.



Alternative text:

Photograph of a hand holding the TSX/100 Cellular Phone from Customs Communication

Web browsers display alternative text while pictures are loading or if they are missing. Web search engines use alternative text to help find Web pages. Alternative text is also used to assist users with disabilities.



Alternative text:

Photograph of the Tx-100 Custom Communications most popular GSM ready mobile phone

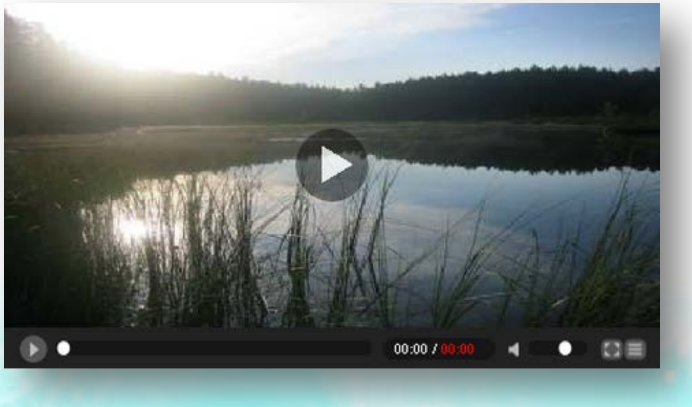
Web browsers display alternative text while pictures are loading or if they are missing. Web search engines use alternative text to help find Web pages. Alternative Text is also used to assist users with disabilities.

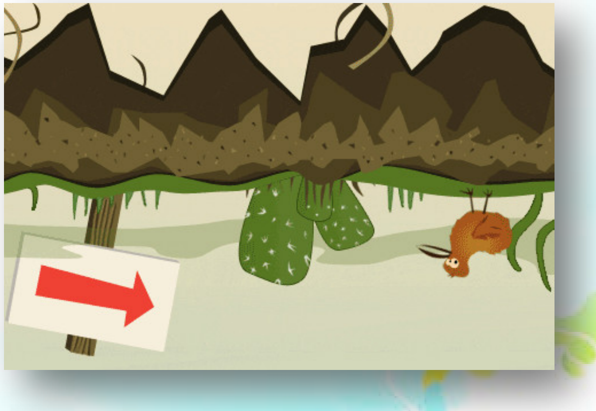
How to make an accessible PDF

- One way to test if a PDF document is accessible is to try and select a portion of the text with the “text select” function in the PDF reading software, Adobe Reader. If the text can be selected, then the PDF document is produced with proper text rather than images.

How to make an accessible Flash

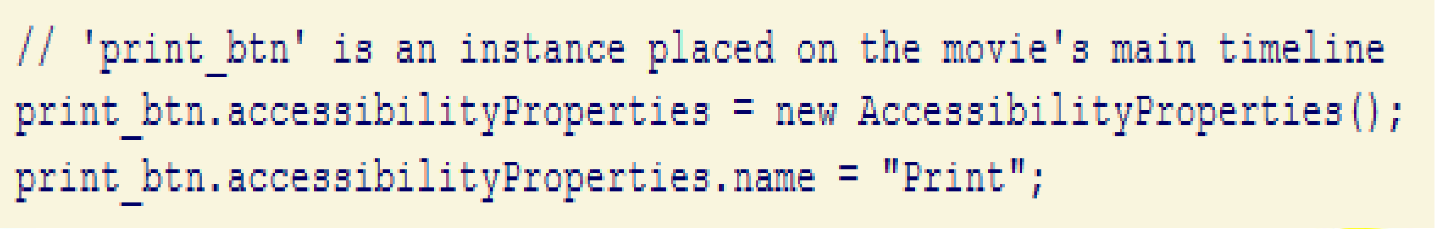
- Adobe Flash Player is a cross-platform browser plug-in and usually used for multimedia presentation that can be viewed on nearly all computers. However, for individuals with disabilities, Flash can introduce unique accessibility problems.





How to make an accessible Flash

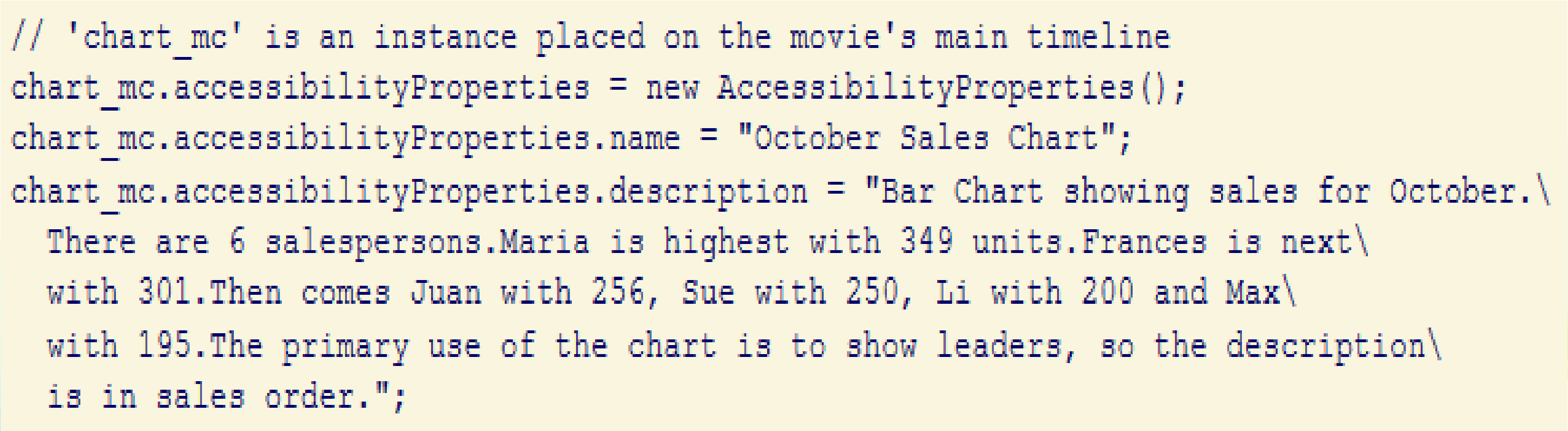
- Non-text object
  - Name
    - To manage an object's text equivalents programmatically using ActionScript 3, the AccessibilityProperties object and name property must be used.



```
// 'print_btn' is an instance placed on the movie's main timeline
print_btn.accessibilityProperties = new AccessibilityProperties();
print_btn.accessibilityProperties.name = "Print";
```

How to make an accessible Flash

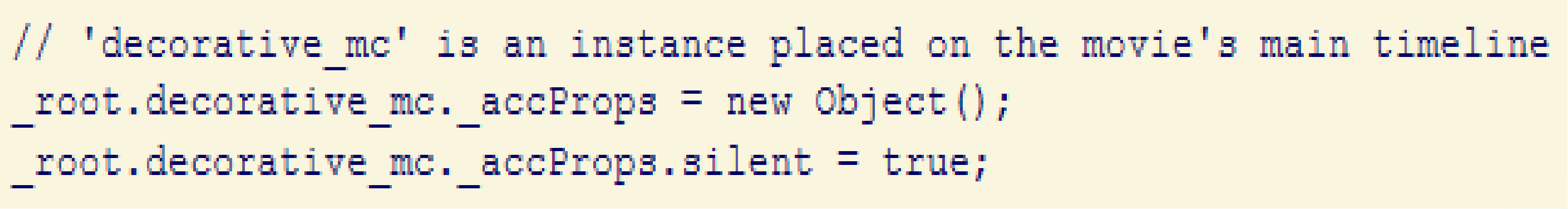
- Non-text object
  - ➢ Description
    - To manage an object's text equivalents programmatically using ActionScript, the AccessibilityProperties object must be used.



```
// 'chart_mc' is an instance placed on the movie's main timeline
chart_mc.accessibilityProperties = new AccessibilityProperties();
chart_mc.accessibilityProperties.name = "October Sales Chart";
chart_mc.accessibilityProperties.description = "Bar Chart showing sales for October.\
  There are 6 salespersons.Maria is highest with 349 units.Frances is next\
  with 301.Then comes Juan with 256, Sue with 250, Li with 200 and Max\
  with 195.The primary use of the chart is to show leaders, so the description\
  is in sales order.";
```

How to make an accessible Flash

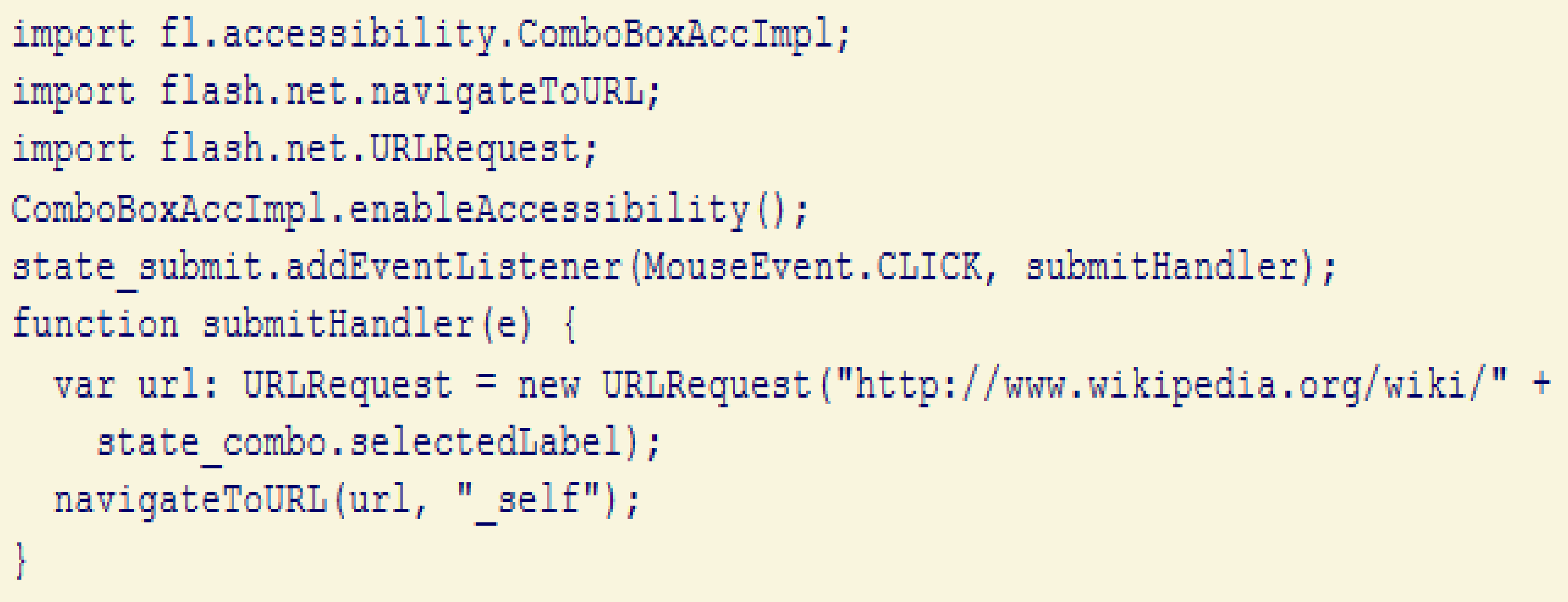
- Non-text object
  - ➢ Marking objects in Flash so that they can be ignored by Assistive Technology



```
// 'decorative_mc' is an instance placed on the movie's main timeline
_root.decorative_mc._accProps = new Object();
_root.decorative_mc._accProps.silent = true;
```

How to make an accessible Flash

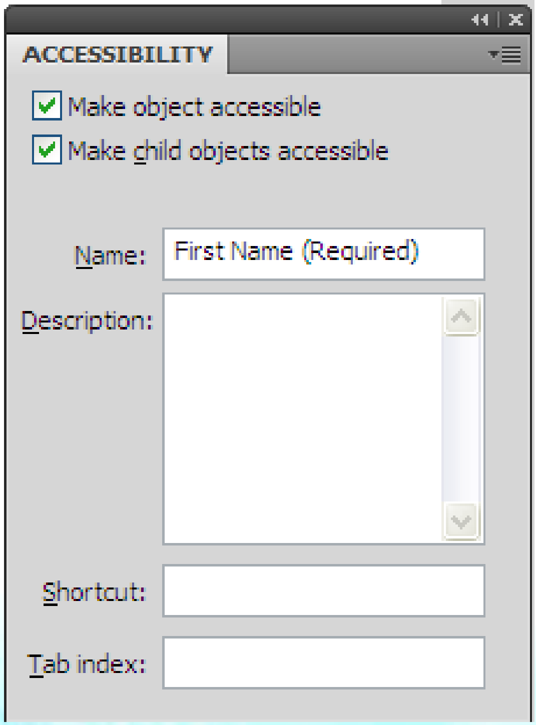
- Forms & Control
  - Combobox with submit button



```
import fl.accessibility.ComboBoxAccImpl;
import flash.net.navigateToURL;
import flash.net.URLRequest;
ComboBoxAccImpl.enableAccessibility();
state_submit.addEventListener(MouseEvent.CLICK, submitHandler);
function submitHandler(e) {
  var url: URLRequest = new URLRequest("http://www.wikipedia.org/wiki/" +
    state_combo.selectedLabel);
  navigateToURL(url, "_self");
}
```

How to make an accessible Flash

- Forms & Control
  - Indicating required form controls



ACCESSIBILITY

☑ Make object accessible

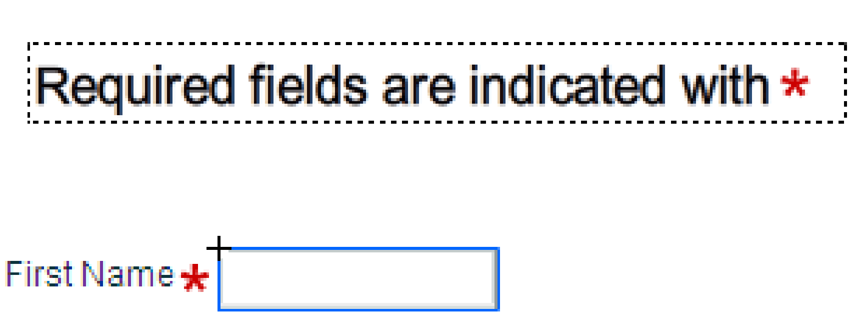
☑ Make child objects accessible

Name: First Name (Required)

Description:

Shortcut:

Tab index:



Required fields are indicated with *

First Name *

How to make an accessible Flash

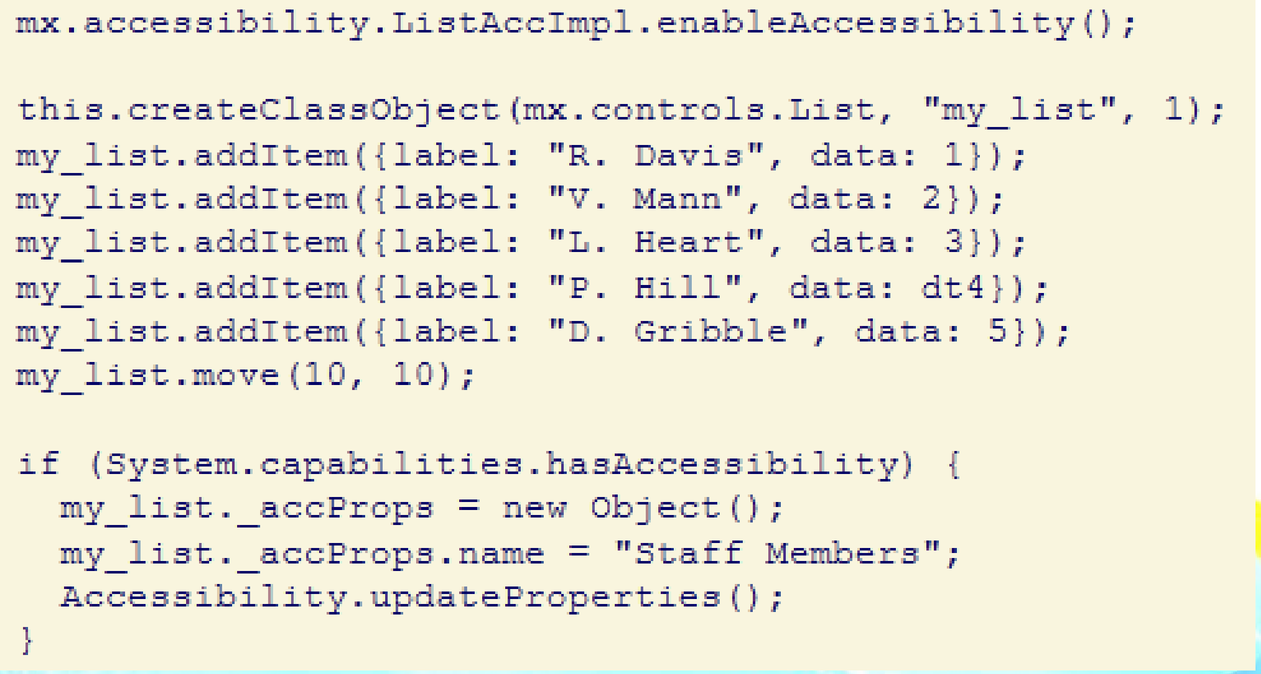
- Forms & Control
  - Labelling a form control by setting its accessible name
    - ActionScript 2 provides the following accessible components:

- SimpleButton
- CheckBox
- RadioButton
- Label
- TextInput
- TextArea

- ComboBox
- ListBox
- Window
- Alert
- DataGrid

How to make an accessible Flash

- Forms & Control
  - ➢ Labelling a form control by setting its accessible name
    - ActionScript 2 example:



```
mx.accessibility.ListAccImpl.enableAccessibility();

this.createClassObject(mx.controls.List, "my_list", 1);
my_list.addItem({label: "R. Davis", data: 1});
my_list.addItem({label: "V. Mann", data: 2});
my_list.addItem({label: "L. Heart", data: 3});
my_list.addItem({label: "P. Hill", data: dt4});
my_list.addItem({label: "D. Gribble", data: 5});
my_list.move(10, 10);

if (System.capabilities.hasAccessibility) {
  my_list._accProps = new Object();
  my_list._accProps.name = "Staff Members";
  Accessibility.updateProperties();
}
```

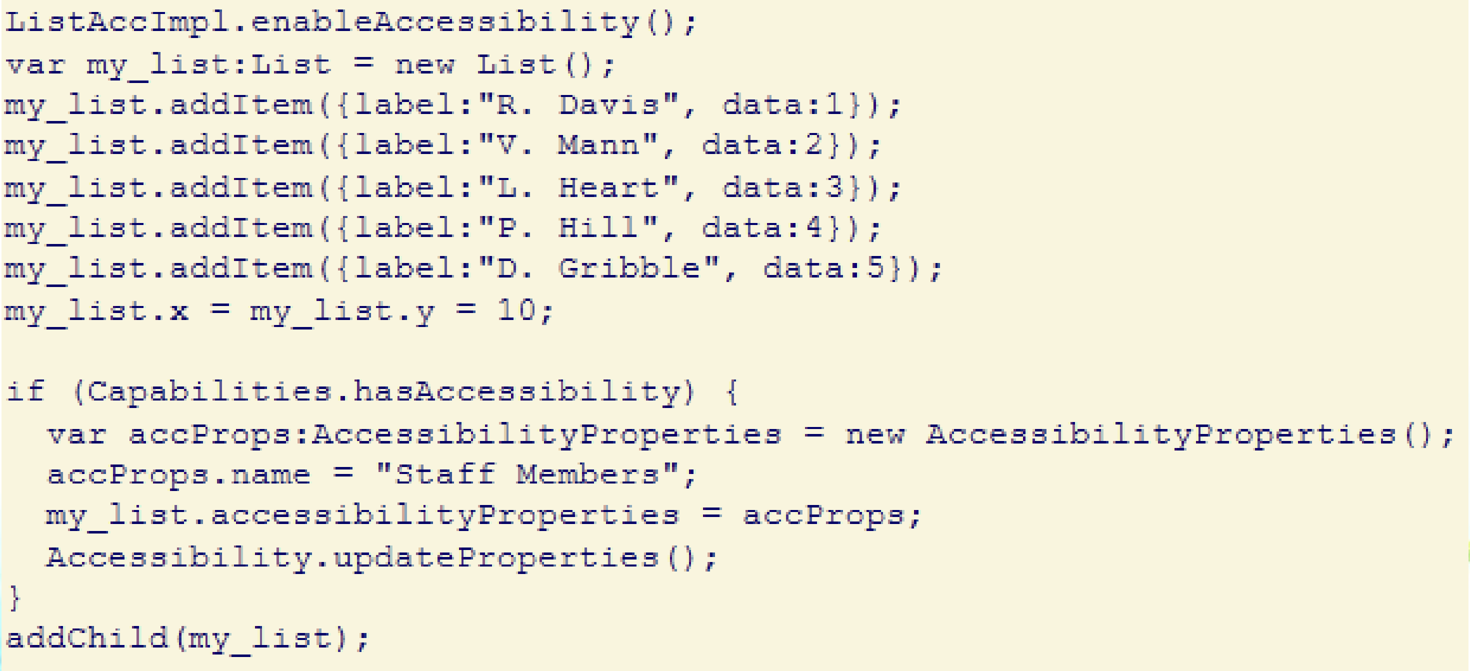
How to make an accessible Flash

- Forms & Control
  - Labelling a form control by setting its accessible name
    - ActionScript 3 provides the following accessible components:

- Button
- CheckBox
- ComboBox
- List
- RadioButton
- TileList

How to make an accessible Flash

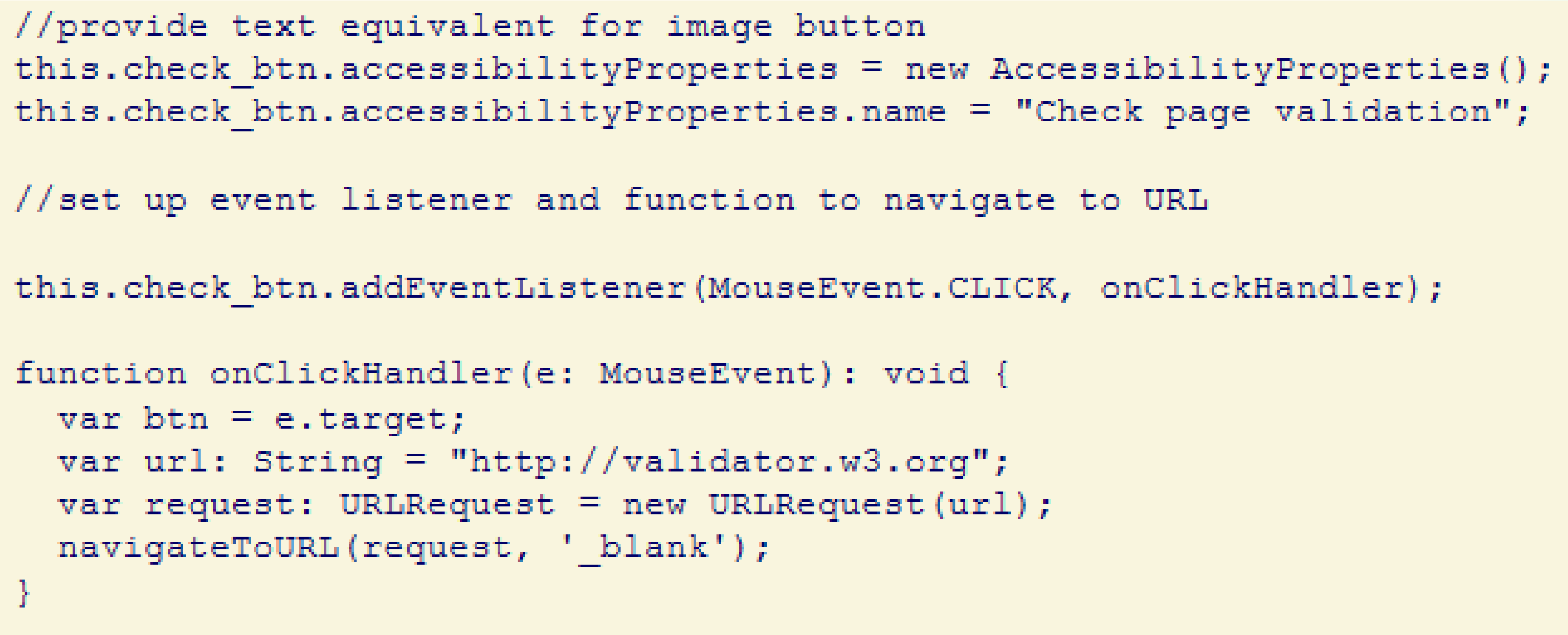
- Forms & Control
  - ➢ Labelling a form control by setting its accessible name
    - ActionScript 3 example:



```
ListAccImpl.enableAccessibility();
var my_list:List = new List();
my_list.addItem({label:"R. Davis", data:1});
my_list.addItem({label:"V. Mann", data:2});
my_list.addItem({label:"L. Heart", data:3});
my_list.addItem({label:"P. Hill", data:4});
my_list.addItem({label:"D. Gribble", data:5});
my_list.x = my_list.y = 10;

if (Capabilities.hasAccessibility) {
  var accProps:AccessibilityProperties = new AccessibilityProperties();
  accProps.name = "Staff Members";
  my_list.accessibilityProperties = accProps;
  Accessibility.updateProperties();
}
addChild(my_list);
```

How to make an accessible Flash

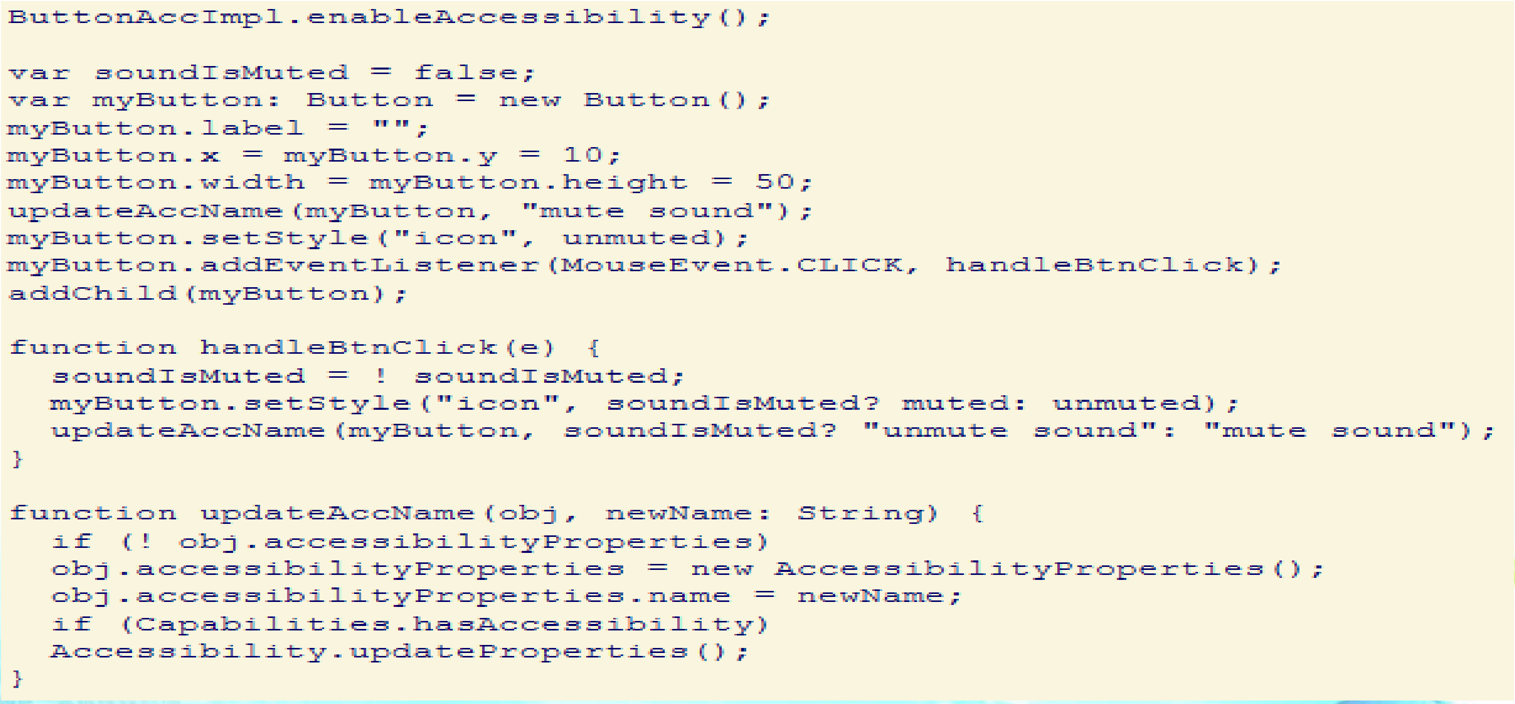
- Forms & Control
  - Specifying accessible names for image buttons
    - Accessible name for a simple image button:



```
//provide text equivalent for image button
this.check_btn.accessibilityProperties = new AccessibilityProperties();
this.check_btn.accessibilityProperties.name = "Check page validation";

//set up event listener and function to navigate to URL

this.check_btn.addEventListener(MouseEvent.CLICK, onClickHandler);

function onClickHandler(e: MouseEvent): void {
  var btn = e.target;
  var url: String = "http://validator.w3.org";
  var request: URLRequest = new URLRequest(url);
  navigateToURL(request, '_blank');
}
```

How to make an accessible Flash

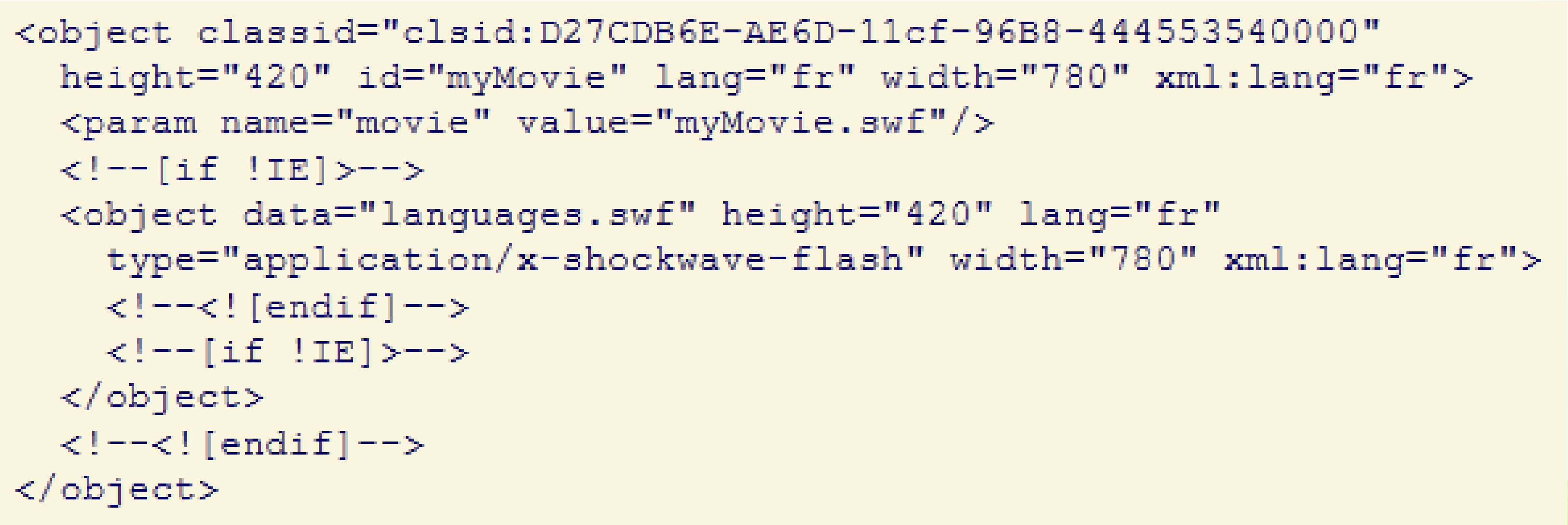
- Forms & Control
  - ➢ Specifying accessible names for image buttons
    - Accessible name for a dynamic image button:



```
ButtonAccImpl.enableAccessibility();

var soundIsMuted = false;
var myButton: Button = new Button();
myButton.label = "";
myButton.x = myButton.y = 10;
myButton.width = myButton.height = 50;
updateAccName(myButton, "mute sound");
myButton.setStyle("icon", unmuted);
myButton.addEventListener(MouseEvent.CLICK, handleBtnClick);
addChild(myButton);

function handleBtnClick(e) {
  soundIsMuted = ! soundIsMuted;
  myButton.setStyle("icon", soundIsMuted? muted: unmuted);
  updateAccName(myButton, soundIsMuted? "unmute sound": "mute sound");
}

function updateAccName(obj, newName: String) {
  if (! obj.accessibilityProperties)
  obj.accessibilityProperties = new AccessibilityProperties();
  obj.accessibilityProperties.name = newName;
  if (Capabilities.hasAccessibility)
  Accessibility.updateProperties();
}
```

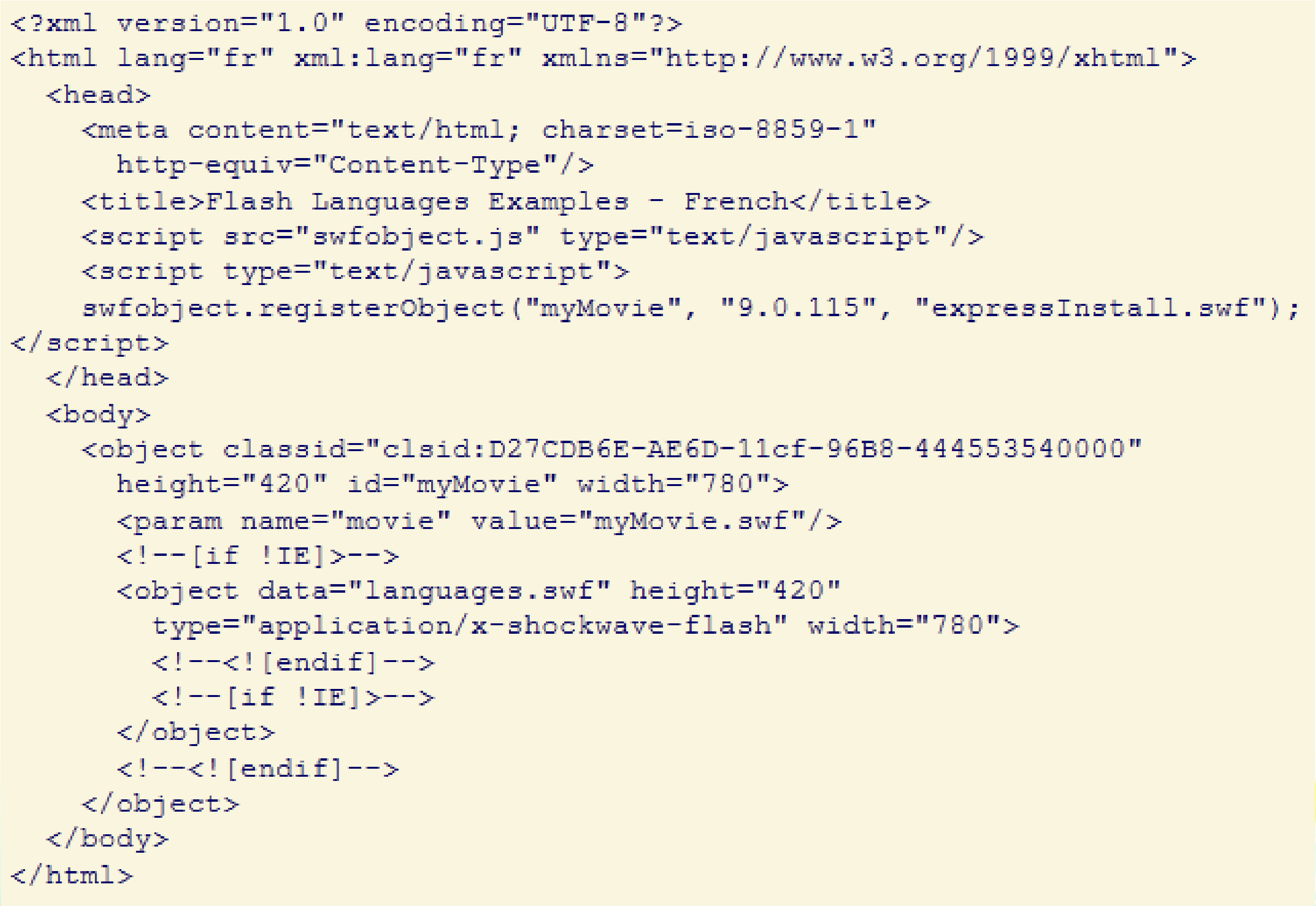
How to make an accessible Flash

- Language
  - ➢ Using HTML language attributes to specify language in Flash content



```
<object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
  height="420" id="myMovie" lang="fr" width="780" xml:lang="fr">
  <param name="movie" value="myMovie.swf"/>
  <!--[if !IE]>-->
  <object data="languages.swf" height="420" lang="fr"
    type="application/x-shockwave-flash" width="780" xml:lang="fr">
    <!--<![endif]-->
    <!--[if !IE]>-->
  </object>
  <!--<![endif]-->
</object>
```

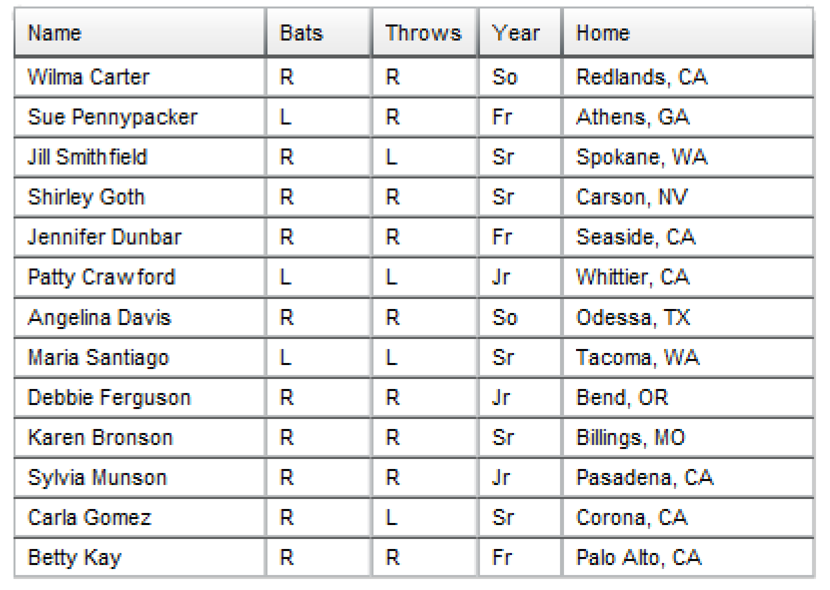
How to make an accessible Flash



```
<?xml version="1.0" encoding="UTF-8"?>
<html lang="fr" xml:lang="fr" xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <meta content="text/html; charset=iso-8859-1"
      http-equiv="Content-Type"/>
    <title>Flash Languages Examples - French</title>
    <script src="swfobject.js" type="text/javascript"/>
    <script type="text/javascript">
    swfobject.registerObject("myMovie", "9.0.115", "expressInstall.swf");
</script>
  </head>
  <body>
    <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
      height="420" id="myMovie" width="780">
      <param name="movie" value="myMovie.swf"/>
      <!--[if !IE]>-->
      <object data="languages.swf" height="420"
        type="application/x-shockwave-flash" width="780">
        <!--<![endif]-->
        <!--[if !IE]>-->
      </object>
      <!--<![endif]-->
    </object>
  </body>
</html>
```

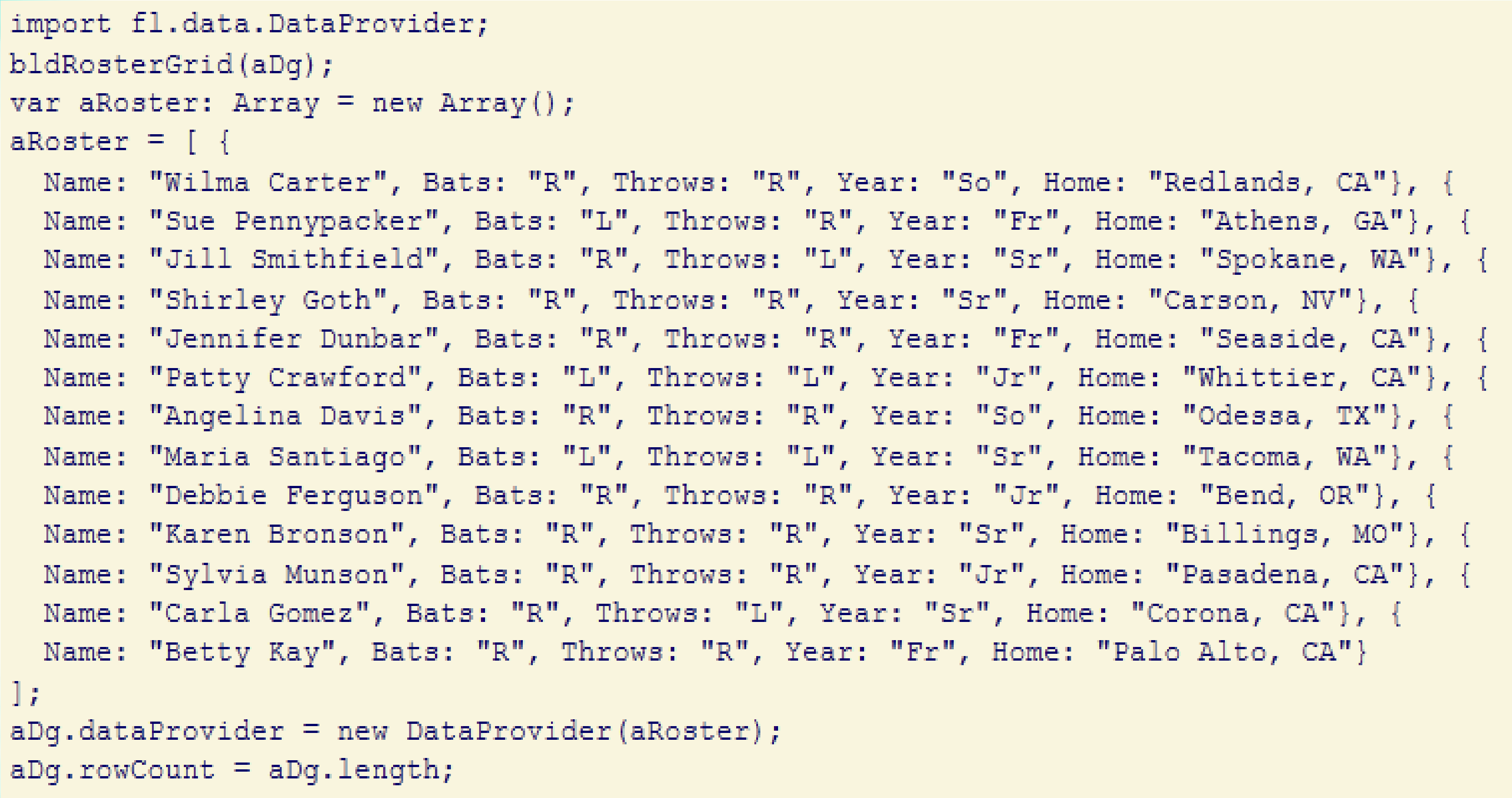
How to make an accessible Flash

- Data Table
  - ➢ Ensure that information and relationships that are implied visually by data tables are also made available programmatically.



Name	Bats	Throws	Year	Home
Wilma Carter	R	R	So	Redlands, CA
Sue Pennypacker	L	R	Fr	Athens, GA
Jill Smithfield	R	L	Sr	Spokane, WA
Shirley Goth	R	R	Sr	Carson, NV
Jennifer Dunbar	R	R	Fr	Seaside, CA
Patty Crawford	L	L	Jr	Whittier, CA
Angelina Davis	R	R	So	Odessa, TX
Maria Santiago	L	L	Sr	Tacoma, WA
Debbie Ferguson	R	R	Jr	Bend, OR
Karen Bronson	R	R	Sr	Billings, MO
Sylvia Munson	R	R	Jr	Pasadena, CA
Carla Gomez	R	L	Sr	Corona, CA
Betty Kay	R	R	Fr	Palo Alto, CA

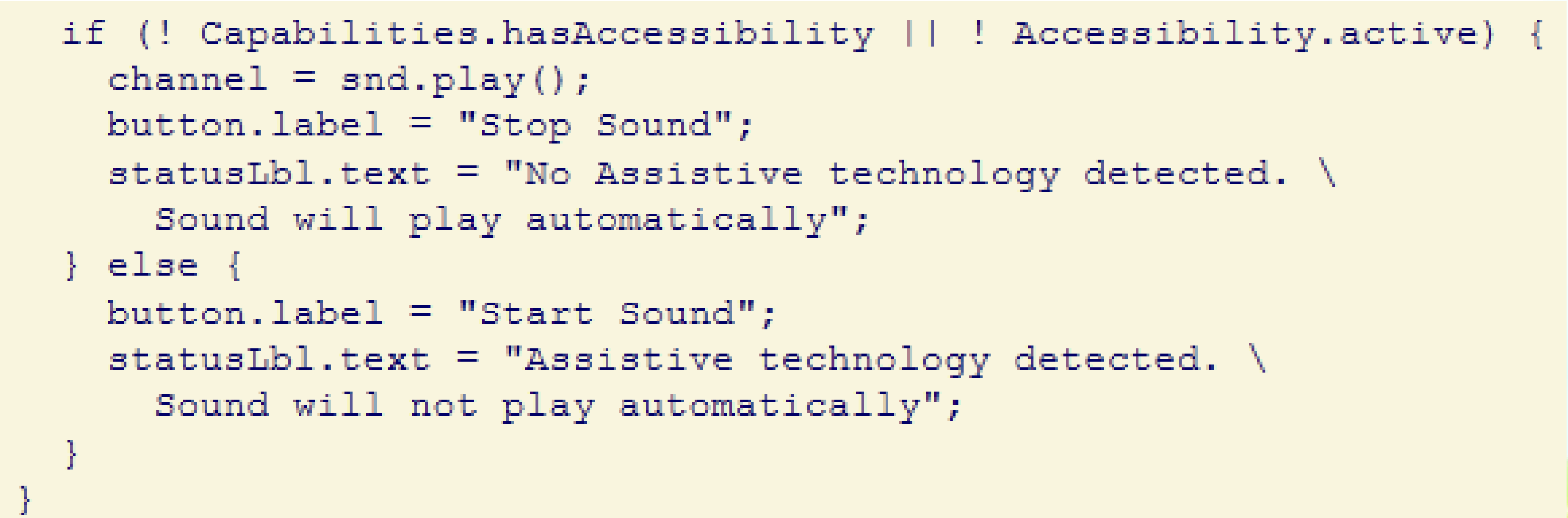
How to make an accessible Flash



```
import fl.data.DataProvider;
bldRosterGrid(aDg);
var aRoster: Array = new Array();
aRoster = [ {
  Name: "Wilma Carter", Bats: "R", Throws: "R", Year: "So", Home: "Redlands, CA"}, {
  Name: "Sue Pennypacker", Bats: "L", Throws: "R", Year: "Fr", Home: "Athens, GA"}, {
  Name: "Jill Smithfield", Bats: "R", Throws: "L", Year: "Sr", Home: "Spokane, WA"}, {
  Name: "Shirley Goth", Bats: "R", Throws: "R", Year: "Sr", Home: "Carson, NV"}, {
  Name: "Jennifer Dunbar", Bats: "R", Throws: "R", Year: "Fr", Home: "Seaside, CA"}, {
  Name: "Patty Crawford", Bats: "L", Throws: "L", Year: "Jr", Home: "Whittier, CA"}, {
  Name: "Angelina Davis", Bats: "R", Throws: "R", Year: "So", Home: "Odessa, TX"}, {
  Name: "Maria Santiago", Bats: "L", Throws: "L", Year: "Sr", Home: "Tacoma, WA"}, {
  Name: "Debbie Ferguson", Bats: "R", Throws: "R", Year: "Jr", Home: "Bend, OR"}, {
  Name: "Karen Bronson", Bats: "R", Throws: "R", Year: "Sr", Home: "Billings, MO"}, {
  Name: "Sylvia Munson", Bats: "R", Throws: "R", Year: "Jr", Home: "Pasadena, CA"}, {
  Name: "Carla Gomez", Bats: "R", Throws: "L", Year: "Sr", Home: "Corona, CA"}, {
  Name: "Betty Kay", Bats: "R", Throws: "R", Year: "Fr", Home: "Palo Alto, CA"}
];
aDg.dataProvider = new DataProvider(aRoster);
aDg.rowCount = aDg.length;
```

How to make an accessible Flash

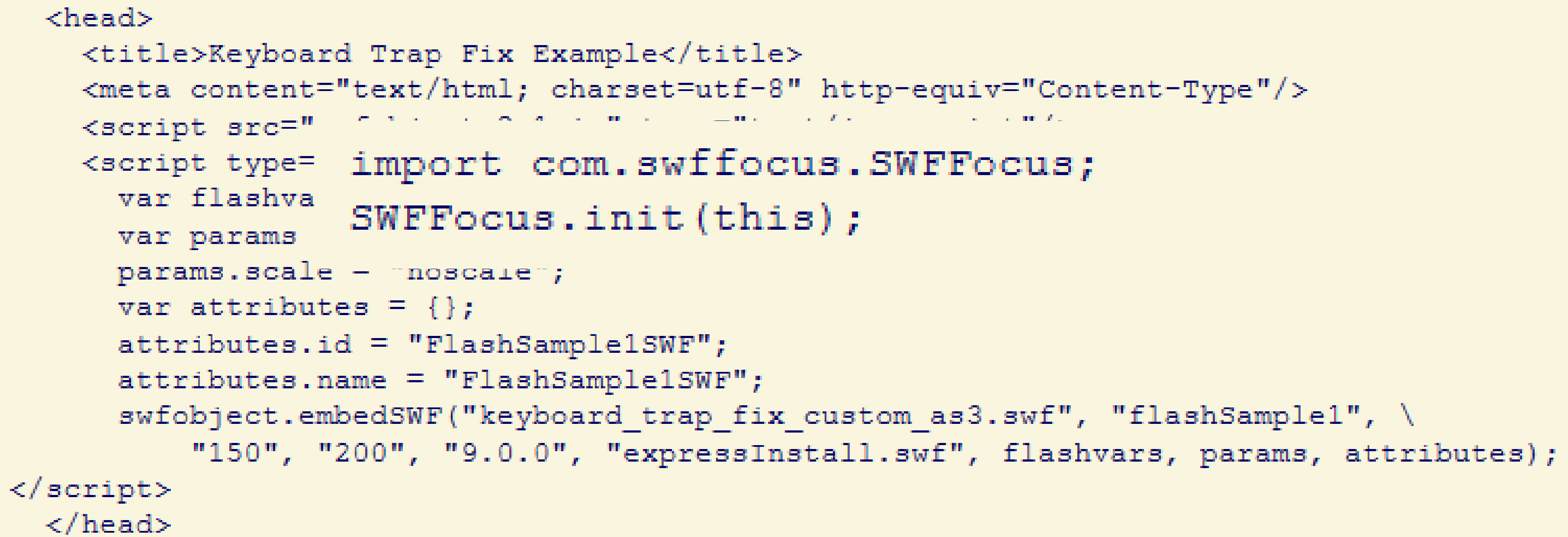
- Audio Control
  - Turning off sounds that play automatically when an assistive technology is detected.



```
  if (! Capabilities.hasAccessibility || ! Accessibility.active) {
    channel = snd.play();
    button.label = "Stop Sound";
    statusLbl.text = "No Assistive technology detected. \
      Sound will play automatically";
  } else {
    button.label = "Start Sound";
    statusLbl.text = "Assistive technology detected. \
      Sound will not play automatically";
  }
}
```

How to make an accessible Flash

- Keyboard Accessible
  - ➢ Providing keyboard access to a Flash object and avoiding a keyboard trap



```
  <head>
    <title>Keyboard Trap Fix Example</title>
    <meta content="text/html; charset=utf-8" http-equiv="Content-Type"/>
    <script src="
    <script type=
      var flashva
      var params
      params.scale = "noscale";
      var attributes = {};
      attributes.id = "FlashSample1SWF";
      attributes.name = "FlashSample1SWF";
      swfobject.embedSWF("keyboard_trap_fix_custom_as3.swf", "flashSample1", \
          "150", "200", "9.0.0", "expressInstall.swf", flashvars, params, attributes);
</script>
  </head>
```

```
import com.swffocus.SWFFocus;
SWFFocus.init(this);
```

Commonly violated success criteria

- Colour Contrast
- Keyboard accessibility
- Text size
- Navigation

Reference:

- Use live examples from OGCIO website
  - http://www.webforall.gov.hk/