Web
Accessibility
Handbook

Version 1.9

中華人民共和國香港特別行政區政府
數字政策辦公室
Digital Policy Office
The Government of the Hong Kong Special Administrative Region
of the People's Republic of China

Amendment History				
Change Number	**Revision Description**	**Pages Affected**	**Revision Number**	**Date**
1	Explanation with illustrations of WCAG 2.2 success criteria added (9 rules) 2.4.11 − Focus Not Obscured (Minimum) 2.4.12 − Focus Not Obscured (Enhanced) 2.4.13 − Focus Appearance 2.5.7 − Dragging Movements 2.5.8 − Target Size (Minimum) 3.2.6 − Consistent Help 3.3.7 − Redundant Entry 3.3.8 − Accessible Authentication (Minimum) 3.3.9 − Accessible Authentication (Enhanced)	-	1.9	21 Oct 2024

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1.   Introduction

To enable all people, including persons with disabilities, to live independently and participate in all aspects of life, we should take every opportunity to make information accessible to all.

1.1   Equal Opportunities for Persons with Disabilities

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.

This is also in line with the spirit of the United Nations' Convention on the Rights of Persons with Disabilities, which came into force for the People's Republic of China, including the Hong Kong Special Administrative Region (HKSAR), on 31 August 2008.

1.2   Promoting Web Accessibility for Persons with Disabilities

Over the years, the HKSAR Government has been actively promoting web accessibility to help persons with disabilities access online information and services and enhance their user experience.

Since 1999, the Government has promulgated accessibility guidelines and best practices for the design of government websites. The guidelines are also available to the public as a reference for making their websites accessible. The latest version of the guidelines is available at: https://www.webforall.gov.hk/en

1.3   Web Accessibility Handbook

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.

2.   What is Web Accessibility

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 designing sites for everyone, no matter who they are or how they access the Internet. It specifically addresses the needs of persons with disabilities, and ensures acceptable ease of use for all levels of ability.

The question you need to ask is:

"Can ALL people, including persons with disabilities, access the information that your website provides?"

By adopting relevant guidelines when designing websites to cater for the needs of persons with disabilities, you are making your website more user-friendly, maximising your customer base and showing that your organisation cares for people.

3. Why Websites Need to be Accessible

There are many reasons why websites need to be accessible.

3.1 Social Responsibility

Everyone has a responsibility to treat persons with disabilities the same as we treat persons without disabilities. This is especially important for websites, as they often enable these people to live a more independent life and maximise their potentials in a knowledge society. In some cases a website is the only way for persons with disabilities to access up-to-date information.

3.2 Legal Responsibility

The Disability Discrimination Ordinance (Cap 487) has created a legal duty for organisations to ensure their services are available to everyone regardless of disability. This principle is applicable to information and services provided through websites.

3.3 Access to Hidden Markets

Effective web accessibility allows:

- Government websites to reach more citizens.
- Corporate websites to reach and retain more online customers.

3.4 Rank More Prominently in Search Result

Adopting web accessibility design is in effect making websites more accessible not only to persons with disabilities but also the search engines. Many of the features making a website accessible, such as enforcing proper coding of the webpages and presenting the contents in a clear and structured manner, are inherent characteristics of a search engine friendly website. Therefore, the more accessible your website is, the more effective your search performance is, and the more potential customers you can reach.

3.5 Lower Costs

Attention to web accessibility guidelines on all website projects saves time and money in the long term, especially when new releases of systems are rolled out.

Building accessible websites requires good coding techniques that in turn lead to websites that are easier to maintain and are compatible with different web browsers and devices such as smart phones and tablets.

4.   Myths About Web Accessibility

There are many myths with regards to web accessibility. Some of these are outlined below and a good understanding of them will help you drive web accessibility in your organisation.

Myth 1:   Persons with Disabilities Do Not Use Websites

Many people assume that persons with disabilities do not use websites.

In fact the complete opposite is the case.

Persons with disabilities often use websites more than persons without disabilities. Websites have been a great enabler for these people to live a more independent life by shopping and socialising online.

Myth 2:   Accessible Websites Are Boring

Designers are fearful that building an accessible website will lead to a website that is boring. This is not necessarily the case.

Web accessibility relies upon good coding techniques as well as simple design.

Simple design does not necessarily mean boring design.

Myth 3:   Web Accessibility Is Expensive

Many people think building an accessible website is expensive and resist this process.

In fact building an accessible website in general can save you money in the long term through better programming discipline and good coding techniques.

These techniques lead to websites that are simpler to maintain and use with a range of browsers and devices.

5.   How Persons with Disabilities Use Websites

Most people think about visually impaired persons when it comes to accessibility, however there are many different types of disabilities and hence many different techniques that persons with disabilities can use to access websites.

Disabilities fall into four major categories:

Visual Impairment
- This covers persons who are completely or partially blind, have poor eye-sight, or suffer from colour blindness.

Physical Impairment
- This covers persons who are missing limbs, have reduced control of their limbs, or suffer from dexterity problems or epilepsy.

Hearing Impairment
- This covers persons who are completely or partially deaf.

Cognitive Impairment
- This covers persons who have difficulties in learning.

In addition, there are many others who have temporary disabilities, for example, a wounded arm. Such injuries can make accessing websites just as difficult as it is for persons with permanent disabilities.

Examples of disabilities and the ways to overcome the constraints are outlined below.

5.1   Visual Impairment

In this case people either cannot see at all or have difficulty in seeing a computer screen.

It is critical that websites are designed to work with screen readers and screen magnifiers. It is also important that colours are visible to persons with colour blindness.

5.2 Physical Impairment

In this case the person generally does not have the ability to access a website with a keyboard or a mouse in a normal way. This kind of impairment varies from someone who has dexterity problems and finds a mouse difficult to use, to someone who is not able to use a mouse or keyboard at all because of missing limbs. People with epilepsy may react to flashing images.

It is important to make buttons large enough for easy clicking, and not to place important items too close together, otherwise wrong item might be clicked by mistake.

Additionally, it is important to ensure the website works with assistive technologies such as voice control software, which allow a person to access a website using voice commands.

5.3 Hearing Impairment

With the increase in the usage of videos and audios on the web, it is important to consider how this impacts people who cannot hear. If information is conveyed in audio format, it is necessary to ensure there is an alternative way to access this information.

This can be as simple as providing a text transcript of the audio content or subtitles on the video. A text transcript has an added advantage for persons with visual impairment as well.

5.4 Cognitive and Learning Impairment

Although it is difficult to define cognitive impairment, it generally refers to persons with specific learning difficulties or mental illness. These people have greater difficulty in performing mental tasks than average persons.

Although they do not require any special tools when browsing websites, they may find it more difficult than average persons to interpret the content. This should be kept in mind when developing contents for websites.

6.   Top 10 Concerns of Persons with Disabilities

6.1   No Alternatives for Non-text Information

Affected Group: Persons with poor vision

Alternatives should always be provided for non-text information.

Images should contain descriptive text alternatives that effectively describe the images.

Consider the example below. If you have this image on your website, how would a visually impaired person understand the content of the image?

Visually impaired users will use screen readers to read the text alternative of the image. If no text alternative is provided, or improper text alternative is assigned, visually impaired users are unable to understand the meaning of the image.

If improper text alternative assigned
screen reader user is unable to understand the meaning of the image.

6.2   Small Font Sizes or Insufficient Colour Contrast

Affected Group: All Persons with Disabilities

Design websites with larger font sizes and use high contrast colour schemes.

Visually impaired users require sufficient colour contrast between the text and its background. It is also important to allow user to enlarge the font size. Those setup can make it easier to read, especially for elderly and users with poor vision.

In addition, please ensure that the website is compatible with built-in browser zoom in/out functions, so that there is no missing information, or overlapping content after font enlarged that affect the readability of the content.
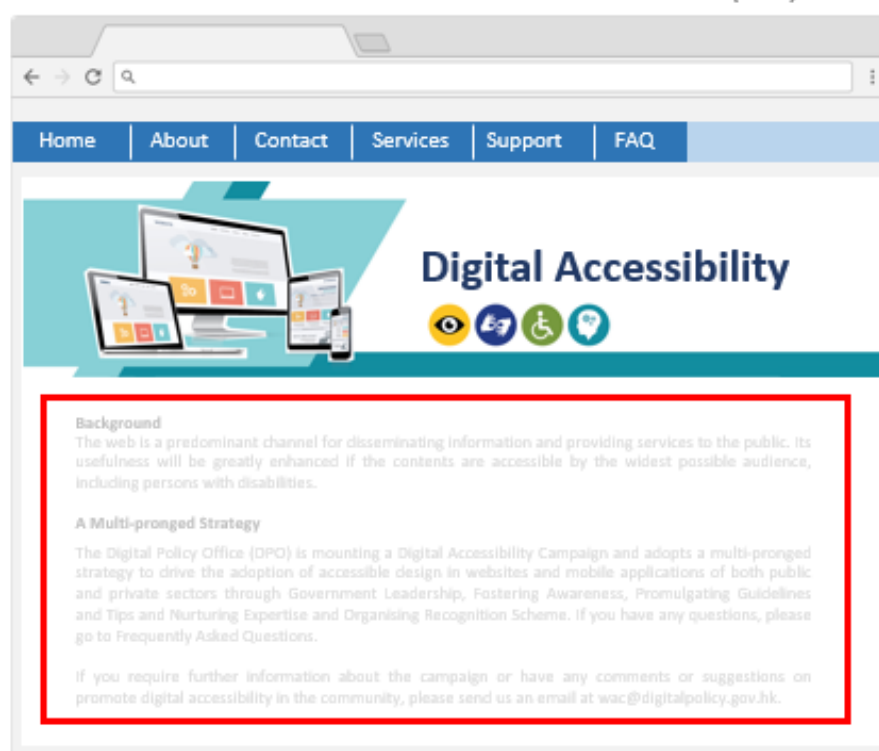
Text with low colour contrast with its background -
make it difficult to distinguish between different elements.
The absence of font enlarge feature may also reduce the readability of the page.

6.3 Hidden interactive elements are read by screen reader

Affected Group: Persons with poor vision or mobility problems

Every visible elements on the website should be accessible and navigable by screen readers. However, hidden elements like collapsible sections or content located behind the visible layers (e.g., information concealed under a hamburger menu), should not be readable by screen readers.
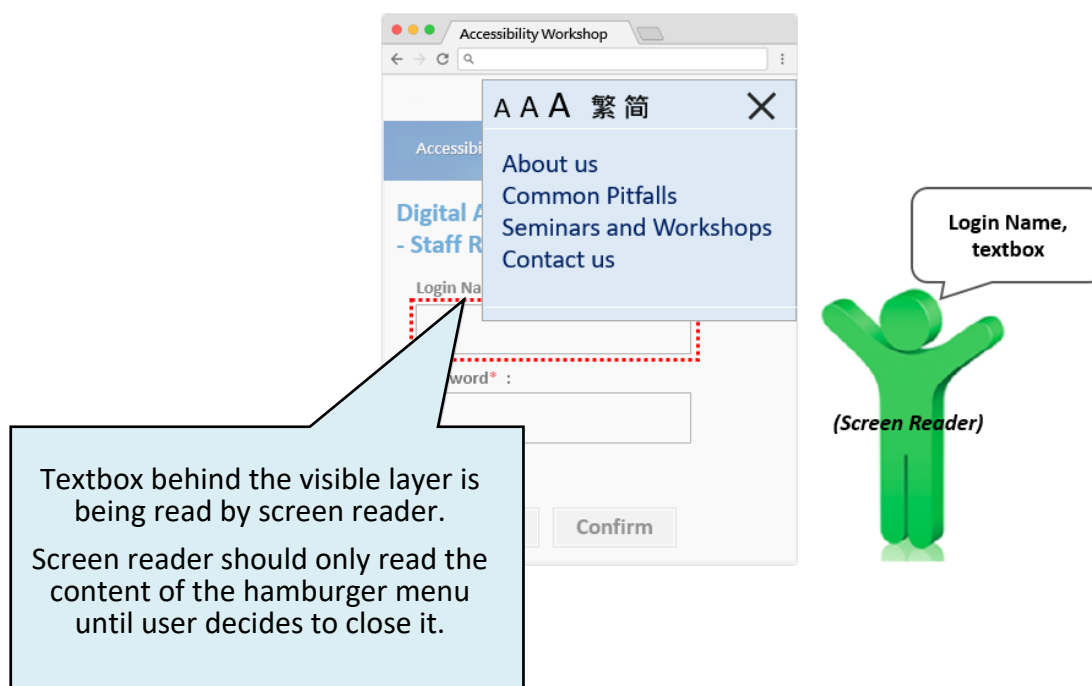
If the hidden elements are still readable by screen reader,
visually impaired users may become disoriented and struggle
to comprehend the logical layout structure of the website.

6.4   Website Structure is Too Complicated to Understand and/or Navigate Using Assistive Tools

Affected Group: Persons with poor vision or Learning Difficulties

Complex website structures make a website difficult to use for persons with and without disabilities. Try to adopt the simplest structure as far as possible to convey your content.

Compare the two examples of webpage layout below.

The one on the left has five content areas in a less ordered structure and has 4 additional links. The one on the right has four content areas in an orderly structure.

While it is sometimes difficult to reduce the number of items on your webpages, you can make your webpages simpler, for example, with fewer links, so that it will be easier for persons with disabilities to access your content.
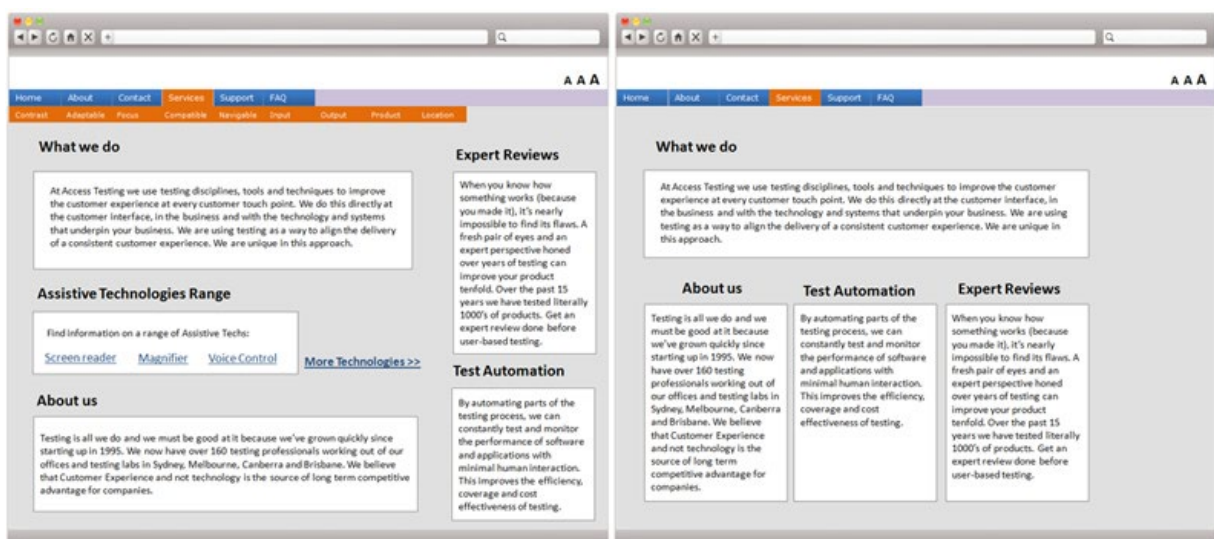
Complex website structure makes users difficult to understand the content and perform navigation.

6.5 Inaccessible Elements
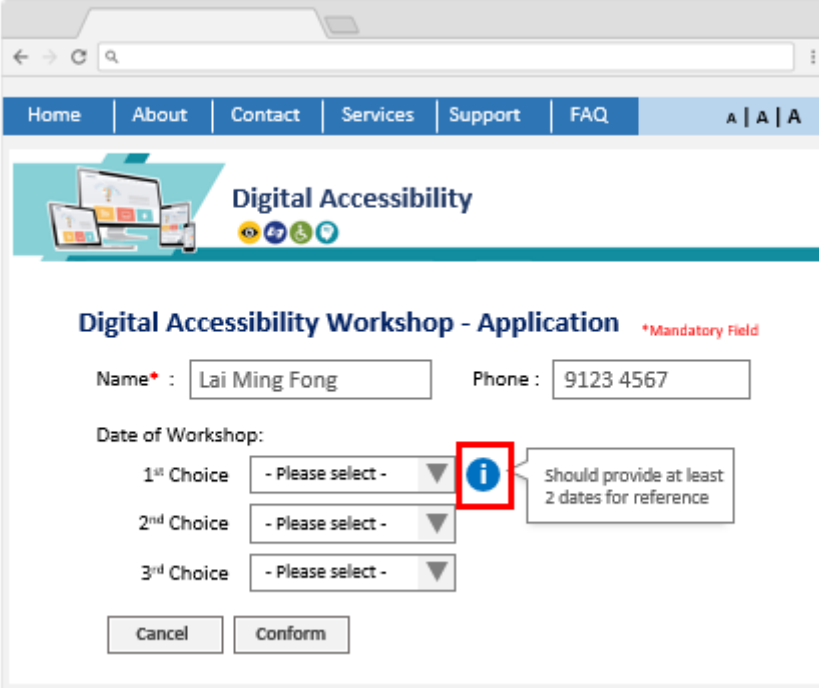
Affected Group: Persons with poor vision or mobility problems

Instead of using a mouse, visually impaired users rely on screen readers and keyboard commands to navigate the websites.

For a fully accessible website, there should be a visible keyboard focus indicator that clearly indicates the user's current location on the webpage.

In addition, all the contents that are operable with a mouse should also be accessible with a keyboard. This ensures that screen reader users can seamlessly browse the website and execute functions using only the keyboard.

The example below shows that the information icon highlighted is typically inaccessible via keyboard navigation. As a result, screen reader users are unable to retrieve hints from form inputs.

*User may miss important information from the website
if those elements are inaccessible.*

6.6   Missing Label for the Interactive Elements

Affected Group: Persons with poor vision

Descriptive labels help users understand what information is contained in webpages and the connections between different parts of content more easily.

Visually impaired users rely on screen reader to navigate websites. Proper coding of interactive elements enables screen readers to articulate the content, aiding users in grasping the information's organisation. It should clearly define the role of an interactive element (e.g. a button), its name, and its function (e.g. "Confirm") as well as its status (e.g. "disabled", "enabled"). This allows users who rely on screen reader to interact with digital content and operate effectively.

The example below only defines the name of the interactive element as "Confirm". The screen reader only reads "Confirm" but does cannot indicate whether it is a button for further operation.
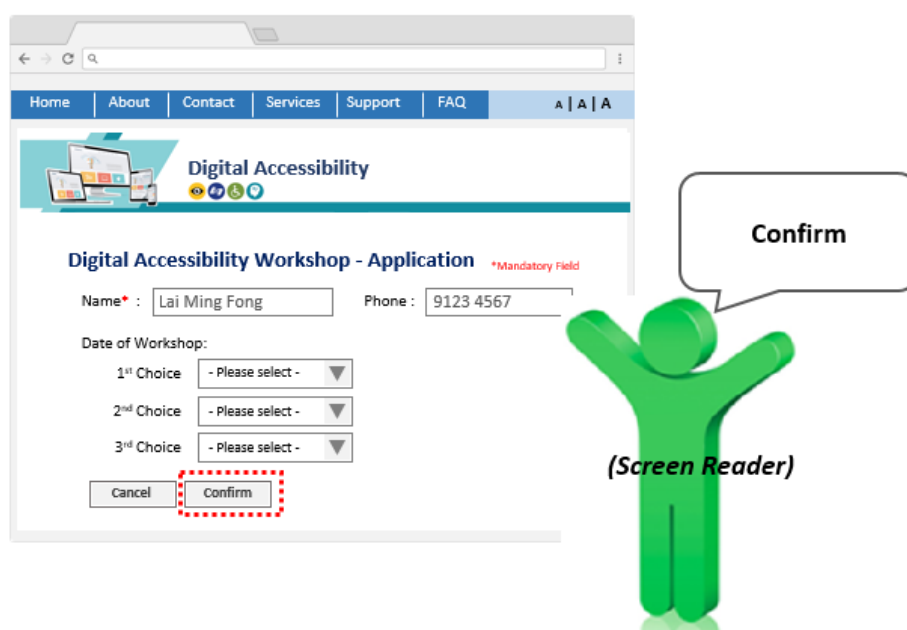
User may not know the "Confirm" is a clickable button
if its role is not assigned/ incorrectly assigned.

6.7 For Time-limited Functions, the Time Allowed is Too Short

Affected Group: Persons with poor vision or mobility problems

Ideally extend the time limits on websites to ensure users have adequate time to interact with the web content.

If this cannot be achieved, provide a simple mechanism that allows users to extend the time limit in the middle of a process.
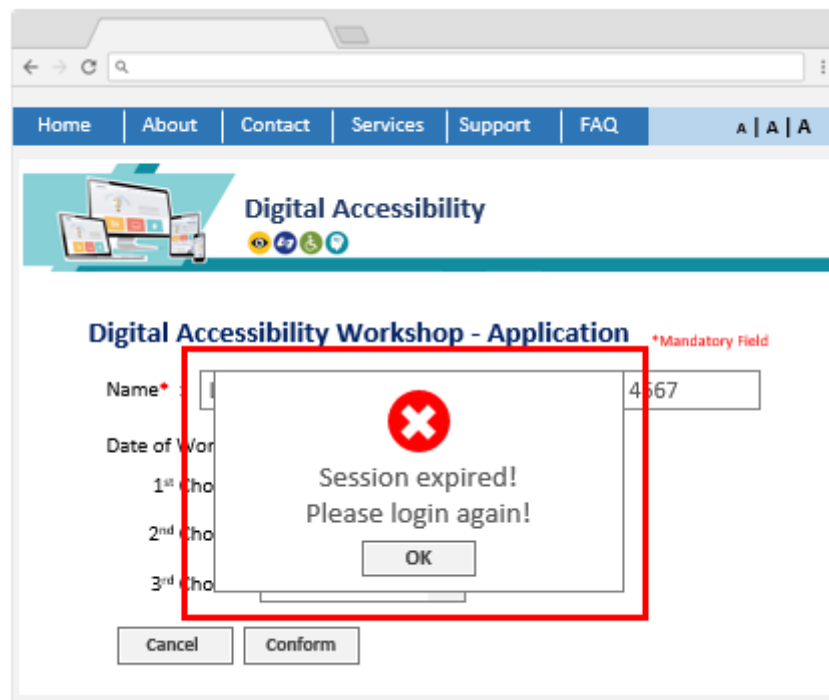
Without the mechanism that allow users to extend the session,
visually impaired users or users with mobility problems
may be unable to complete the form within the session.

6.8   Volume Bars are Difficult to Control

Affected Group: Persons with mobility problems

Design larger volume bars so that interactions with these items using a mouse are easier.

In addition, keyboard shortcuts should be provided for adjusting volume.

Typical volume sliders, as illustrated below, are difficult to use because the portion that needs to be clicked is small and must be moved in subtle increments in order to adjust volume.
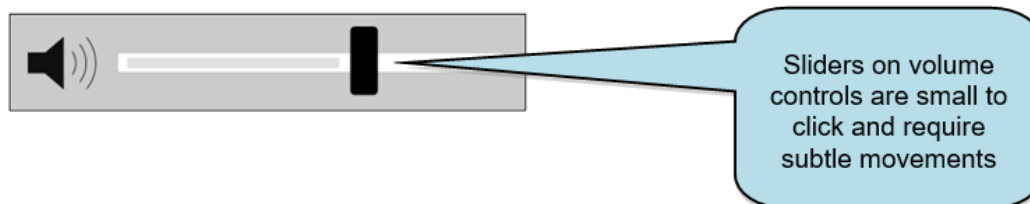
A better approach is to use individual buttons for increasing and decreasing volume as these can be clicked rather than slid to change volume.

This also makes control easier to assign keyboard shortcuts to each button.
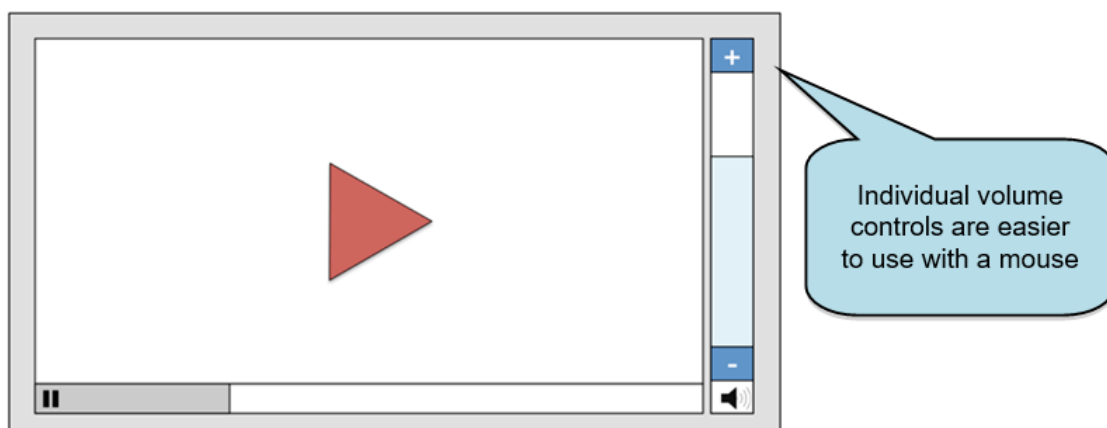
6.9 Ambiguous Links for Screen Readers

Affected Group: Persons with poor vision

Many websites use links such as "More" and have these links for various pieces of content. Although this works for sighted users, people using screen readers will be confused about which link is which. They may discover there are several "More" links but not know what the links point to.

Websites should use description links in this case. Instead of just stating "More", a link is recommended to be "More information about service XYZ" so that the user knows where the link will go to just by reading the text.
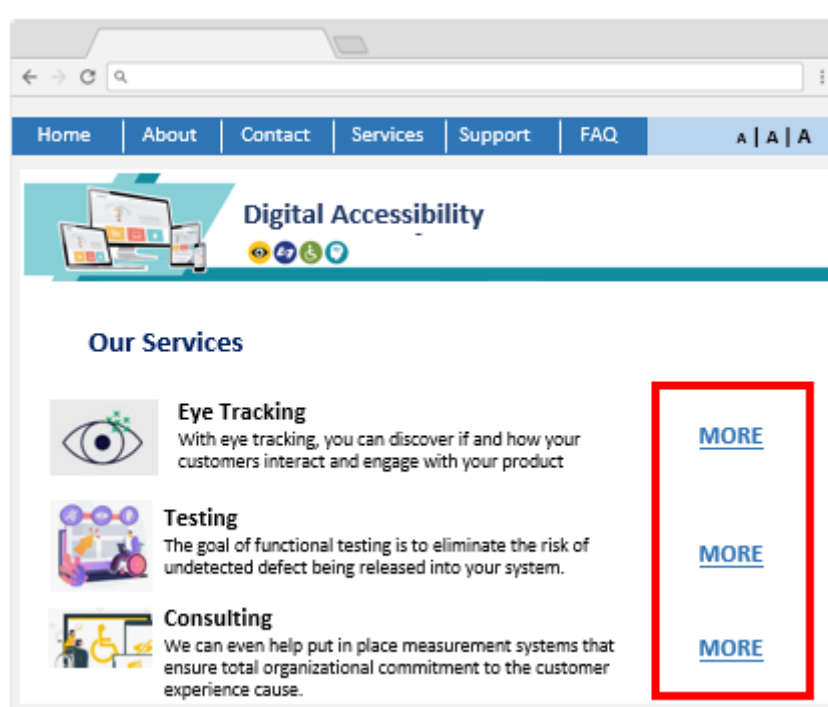
Ambiguous link text may confuse user and they may not understand the purpose of each link.

6.10 Difficulties in Accessing Portable Document Format (PDF)

Affected Group: All Persons with Disabilities

PDF documents should only be used for certain situations, in particular when there is a piece of content that suggest user to download and read offline. In this way, PDF documents can be helpful for persons with disabilities because they can download and read them with the assistive functions built into PDF reading software.

It is essential to ensure that PDF documents are accessible to assistive technologies, such as screen readers in a correct reading order. We should produce a PDF document from a text-based source document and alternative text should be provided for images (except for decorative images), so that it is readable by Braille devices used by persons with visual impairments. Image-based documents, such as TIF files produced by scanning, should be converted into text-based documents with Optical Character Recognition (OCR) software before producing the PDF document.

PDF documents also need to be correctly structured and tagged to be accessible. Software such as Adobe Acrobat has many features that allow checking and adjustment of structure and tagging within a PDF document. The techniques of making accessible PDF document is available at www.w3.org/WAI/WCAG22/Techniques/#pdf.

Any content that you would like people to read online should be delivered as standard HTML webpages rather than PDF documents.
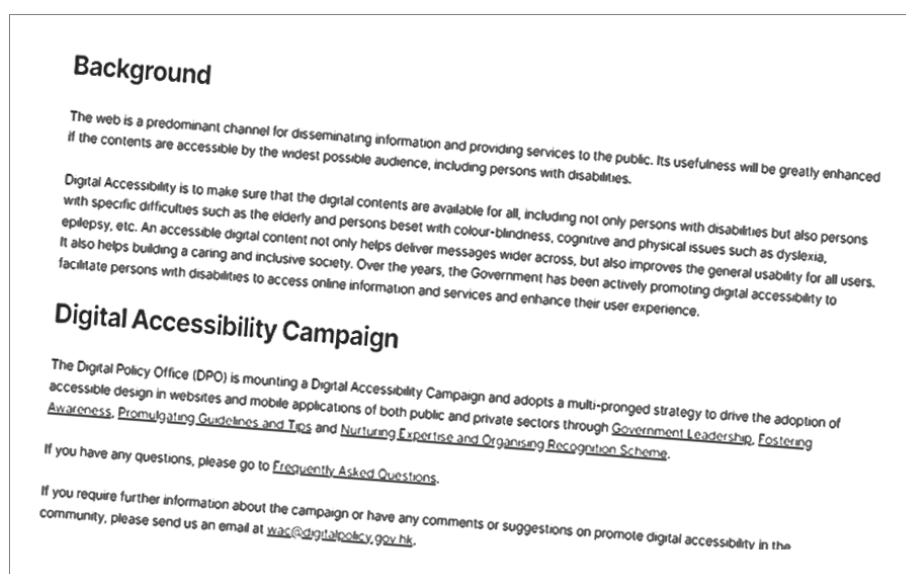
The scanned PDF document is not readable by screen reader.

7.   Accessibility Guidelines

7.1 World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG)

Out of the need to support the creation of websites that work for persons with disabilities, the World Wide Web Consortium (W3C) put together the W3C Web Accessibility Initiative (WAI). This brings together people from industries, disability organisations, governments, and research labs from around the world to develop guidelines and resources to help make the web accessible to persons with disabilities. The Web Content Accessibility Guidelines (WCAG) is developed with a goal of providing a single shared standard for web content accessibility. (www.w3.org/WAI/standards-guidelines/wcag/)

The WCAG documents explain how to make web content more accessible to persons with disabilities. WCAG 2.0 (published on 11 December 2008), WCAG 2.1 (published on 5 June 2018) and WCAG 2.2 (published on 5 October 2023) are all existing standards. WCAG 2.2 extends WCAG 2.1 by adding 9 new success criteria. WCAG 2.2 does not deprecate or supersede WCAG 2.1, and WCAG 2.1 does not deprecate or supersede WCAG 2.0. W3C encourages to use the most updated version of WCAG.

At first glance the guidelines can appear quite complex. However, the guidelines are logical and with some effort, any website developer can understand how to use and comply with these guidelines. The most important thing to understand is that the guidelines consist of four parts as follows:

Structure of WCAG 2.2

4 Principles
• The guidelines are based upon 4 key principles with regards to using websites

13 Guidelines
• Within each of these principles are a range of guidelines focusing on different types of content

86 Success Criteria
• Within the guidelines there are detailed success criteria

Many Techniques
• Lastly there are techniques that can be used to meet the success criteria.

The 86 success criteria vary in importance as follows:
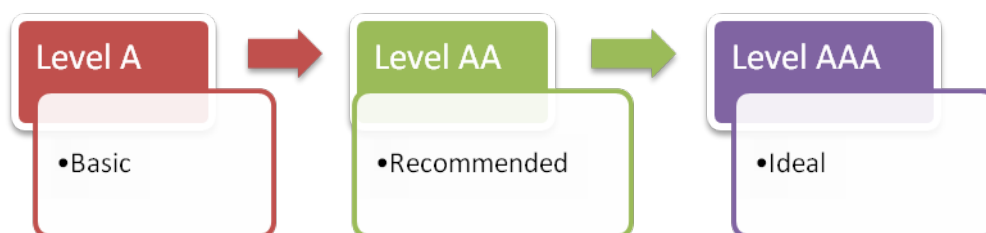
Notes:

- For Level A conformance (i.e. the minimum level of conformance), the webpage must satisfy all Level A Success Criteria.

- For Level AA conformance, the webpage must satisfy all Level A and Level AA Success Criteria.

- For Level AAA conformance, the webpage must satisfy all Level A, Level AA and Level AAA Success Criteria.

7.2 The Guidelines on Dissemination of Information through Government Websites

The HKSAR Government has, since 1999, incorporated web accessibility requirements in the Guidelines on Dissemination of Information through Government Websites. From 2013 onwards, government websites except archive materials are required to validate to W3C WCAG 2.0 Level AA conformance. Besides, government bureaux/departments are advised to adopt WCAG 2.2 Level AA standard, where appropriate, when carrying out major revamp of websites or establishing new websites. We consider that level A achieves a minimum level of accessibility only. On the other hand, while level AAA provides the highest standard of accessibility, conformance to Level AAA may require substantial resources from the organisations under certain circumstances. To achieve the right balance, Level AA conformance would generally enable persons with disabilities to use a website. We also encourage websites to incorporate Level AAA features to further enhance accessibility.

8.   WCAG 2.2 Success Criteria – Level A

8.1 WCAG 2.2 Success Criterion 1.1.1 – Non-text Content

All content on a website must be able to be represented in text so that it can be read by screen readers. For example, images must have a text description.

This does not need to be done for Captcha or for images that are for decoration only and do not convey meaning.

Before Rectification

Screen readers are unable to read images without meaningful text descriptions.

After Rectification
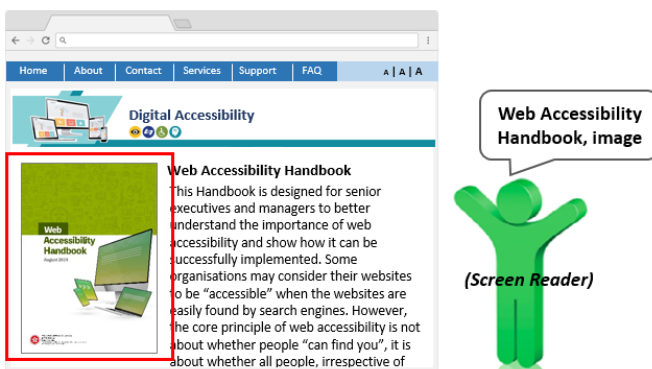
For all images, a text description that can be read by the screen reader should be included. The text description should enable the person reading the webpage to know what the image is about and what it is supposed to illustrate.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/non-text-content

8.2 WCAG 2.2 Success Criterion 1.2.1 – Audio-only and Video-only (Prerecorded)

Make prerecorded audio or video accessible by providing alternatives that present essentially the same information to people who cannot access the original piece. For example, visually impaired persons cannot access video and need a way to get this information.

Before Rectification

The example above shows a video on its own. This will not be accessible for visually impaired persons.

After Rectification

The video has included an option to download a transcript of the video that visually impaired persons will be able to listen to using screen readers.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/audio-only-and-video-only-prerecorded

8.3 WCAG 2.2 Success Criterion 1.2.2 – Captions (Prerecorded)

Provide captions for audio tracks so that they are accessible by persons with hearing impairments. Captions not only present the content of a conversation but also important cues and the ambient sound.

Before Rectification
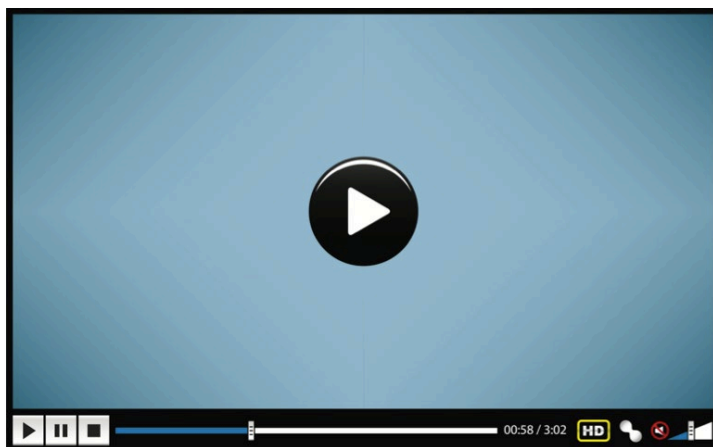
When an audio is embedded in a webpage, the audio is only usable by people who can hear.

After Rectification
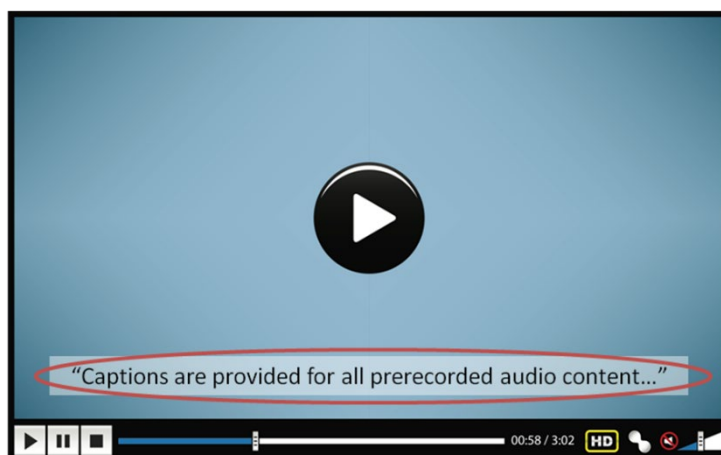
Text captions as shown in the example above should be provided so that a person with poor hearing can still access the content of the audio.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/captions-prerecorded

8.4 WCAG 2.2 Success Criterion 1.2.3 – Audio Description or Media Alternative (Prerecorded)

When a video with audio is uploaded onto a website, a visually impaired person will be able to hear the audio but unable to see the picture. As a result he/she will only have access to part of the information. Websites should either provide additional audio that explains what is happening in the picture or provide a text transcript that explains both the audio and what is taking place in the picture.

Before Rectification

With video as shown in the example above, a visually impaired person will be able to hear the audio but unable to see the picture. He/She needs some other ways to know that there is a picture of a person on this screen.

After Rectification

A simple solution to this is to provide a text version that includes dialogue and also explains what is appearing on the screen.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/audio-description-or-media-alternative-prerecorded

8.5 WCAG 2.2 Success Criterion 1.3.1 – Info and Relationships

Users with no disabilities can view the layout of a webpage and quickly determine its structure and hierarchy. However, persons with visual impairments cannot see this layout. The website needs to provide appropriate markup to illustrate this structure to screen readers so that it is accessible to persons with visual impairments. The links should be categorised into different groups so that screen readers are able to determine their relationship.

Before Rectification
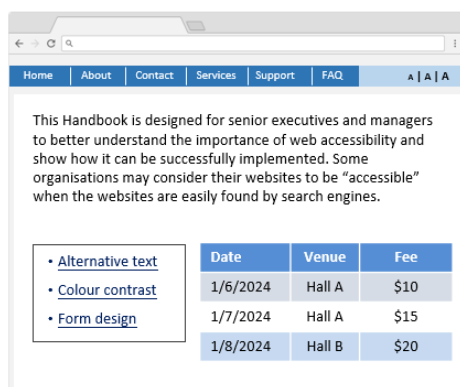
There are no headings for the content, links and table columns. The example above shows a poor structure and relationships as someone using screen readers will not be able to get a good overview of the content.

After Rectification
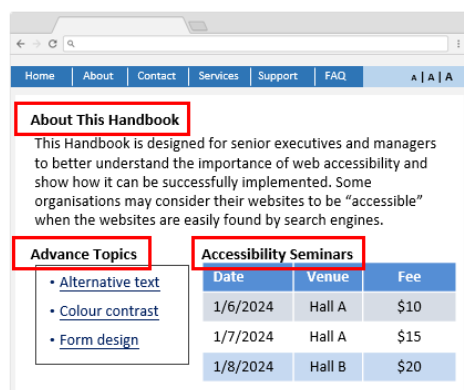
By adding headings and structure to the webpage, persons with visual impairments will be able to get a good overview of the content through the headings for each of the sections and be able to understand the relationships between the content.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/info-and-relationships

8.6 WCAG 2.2 Success Criterion 1.3.2 − Meaningful Sequence

If the content needs to be read in a certain order to make sense, ensure the webpage is written/coded in a way which indicates this order.

Before Rectification
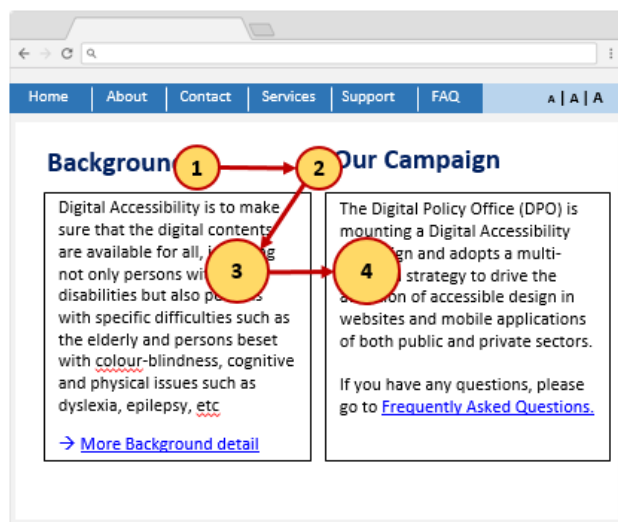
The webpage has been built in such a way that the screen readers will read the two headings first and then the content.

After Rectification
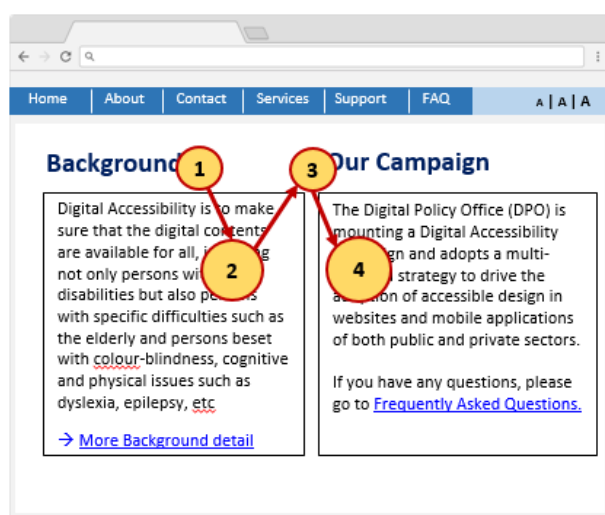
If the webpage is correctly coded, the reading order will be more logical. The example above, each piece of content follows its respective heading.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/meaningful-sequence

8.7 WCAG 2.2 Success Criterion 1.3.3 – Sensory Characteristics

Do not rely solely on sound, shape, size or visual location to provide instructions for understanding content. For example, if instructions say "to submit, click the button to the right", a visually impaired person will not know where that button is.

Before Rectification
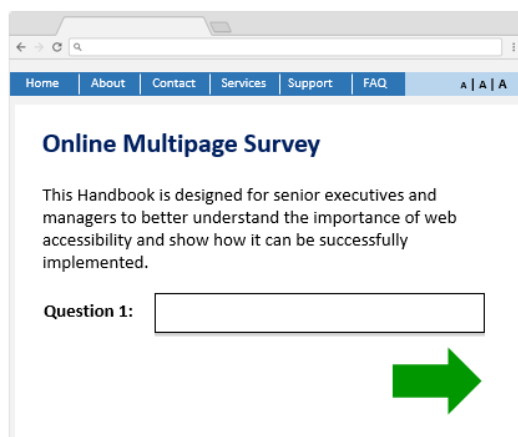
It is only clear to a person who can see the webpage that he/she needs to click the green arrow. This will not be clear to a visually impaired person.

After Rectification
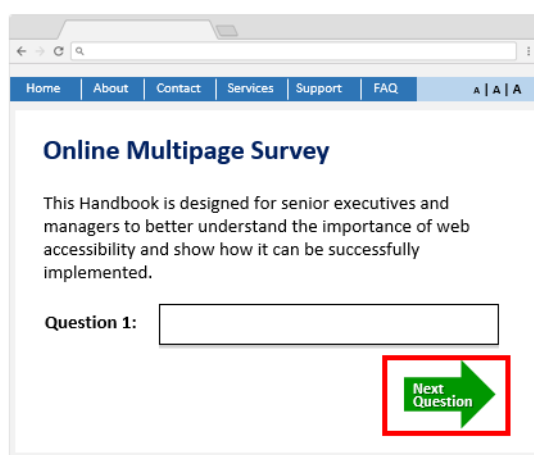
The correct way to do this is to label the button and ensure clear instructions are in place to tell people which button to use and how to use it.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/sensory-characteristics

8.8 WCAG 2.2 Success Criterion 1.4.1 – Use of Colour

Do not rely solely on colours to convey information. It is impossible to be sure that everybody perceives colours in the same way (for example the visually impaired or those who are colour blind), and what may seem obvious to one person may be missed by another.

Before Rectification

The three lines are of different colours, however, a colour blind or visually impaired person may not be able to detect this colour difference.

After Rectification

By making the items have different shapes, someone who cannot perceive colours can differentiate between these items through the different shapes in the graph.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/use-of-color

8.9 WCAG 2.2 Success Criterion 1.4.2 – Audio Control

Audio that plays automatically on a webpage is very distracting to persons with disabilities using screen readers. If any audio on a webpage plays automatically for more than 3 seconds, either ensure user is allowed to turn off the audio easily or to adjust audio volume independently.

Before Rectification
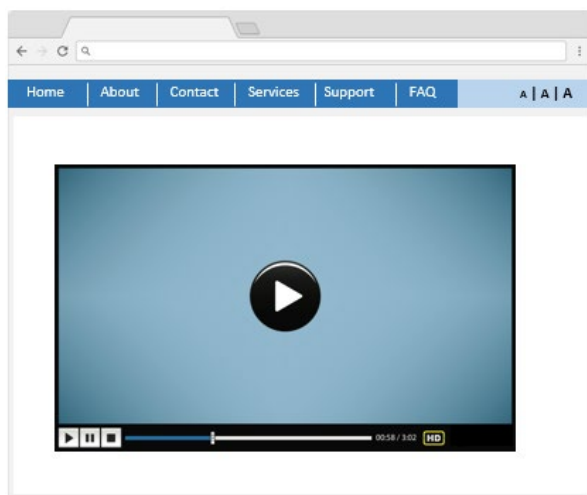
The video only provide play, pause and stop features and there is no way to turn off the audio or adjust the volume.

After Rectification
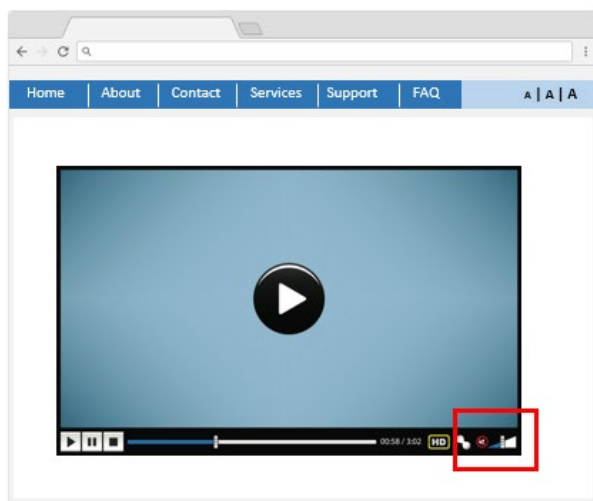
The volume control feature is provided so that user is able to turn off the audio or adjust the volume if they choose.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/audio-control

8.10 WCAG 2.2 Success Criterion 2.1.1 – Keyboard

Ensure all content and functions can be accessed via a keyboard. For example, ensure content and functionalities are accessible through the Tab key or the Enter key.

Before Rectification
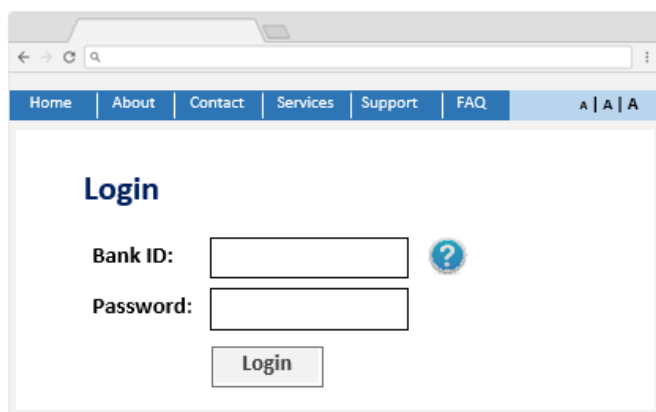
People using a keyboard may not be able to navigate to the help function provided.


```
<img src="question.gif" alt="Question" onclick="openPop();" />
```

This extract from the HTML code shows that it can only be accessed with a mouse.

After Rectification


```
<img src="question.gif" alt="Question" onclick="openPop();"
onkeypress="openPop();"role="button"/>
```

The code needs to be changed to allow users to access all content and functions with a keyboard.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/keyboard

8.11 WCAG 2.2 Success Criterion 2.1.2 − No Keyboard Trap

Very often, people with disabilities can only use a keyboard to control a webpage. Ensure the keyboard can be used to control or move the focus away from the dialogue boxes, popups or other windows.

Before Rectification
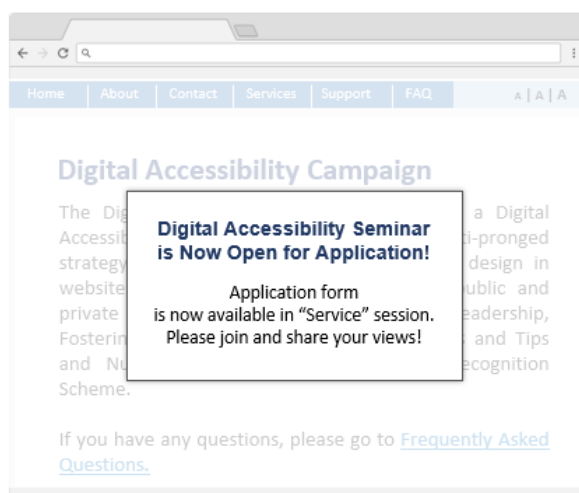
Websites often have popup windows, such as for help content as shown in the example above. A keyboard user may find himself being trapped in the popup without an easy way to return to the main content.

After Rectification
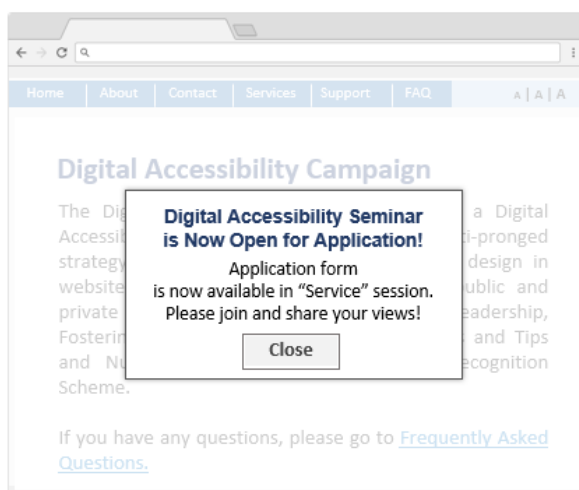
By incorporating a Close button in the popup window, users can escape the trap of that window by using the Tab key to move to the Close button and press Enter.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/no-keyboard-trap

8.12 WCAG 2.2 Success Criterion 2.1.4 – Character Key Shortcuts

For keyboard shortcuts using letter, punctuation, number or symbol character, at least one of the following is true:

- **Turn off**: User can turn off the shortcut;

- **Remap**: User can remap the shortcut to include one or more non-printable keyboard characters (e.g. Ctrl, Alt); or

- **Active only on focus**: The shortcut is active only on focus.

Before Rectification
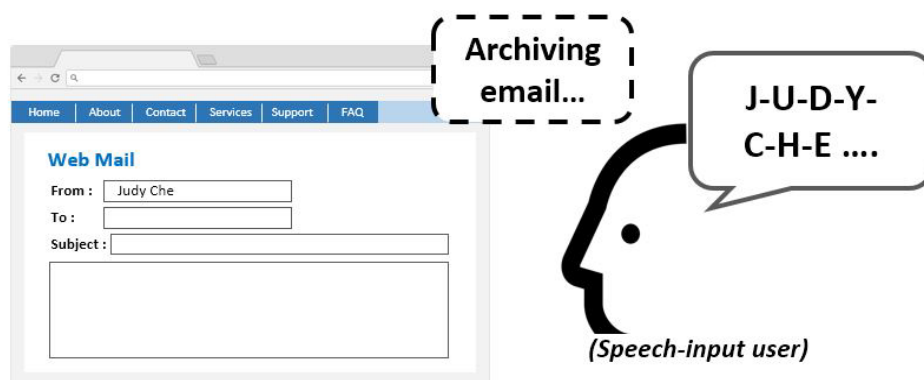
The character "e" is used as a shortcut key for archiving the email. When a speech input user reads "e" as one of the input texts, the archive function is automatically initiated.

After Rectification
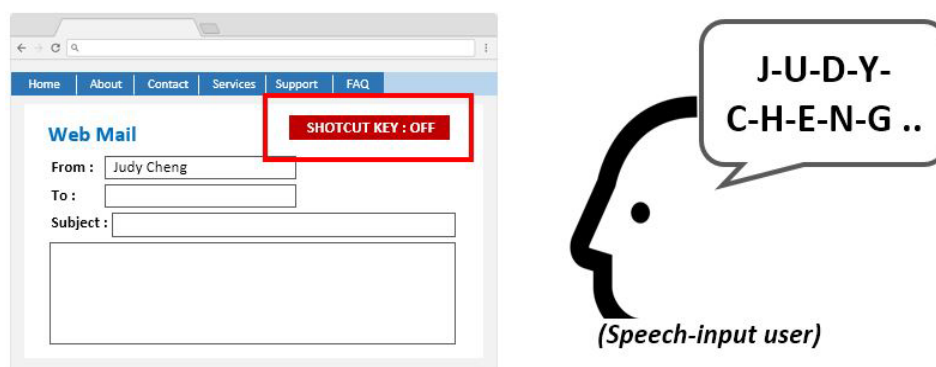
A function is added for users to turn off the shortcut key feature. The speech-input user is now able to input the text without invoking the shortcut key function.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/character-key-shortcuts

8.13 WCAG 2.2 Success Criterion 2.2.1 – Timing Adjustable

It is ideally to ensure that processes on a website are not time dependent. If they are, ensure persons with disabilities can either extend, adjust or stop the time limit so they can have enough time to complete their task.

Before Rectification
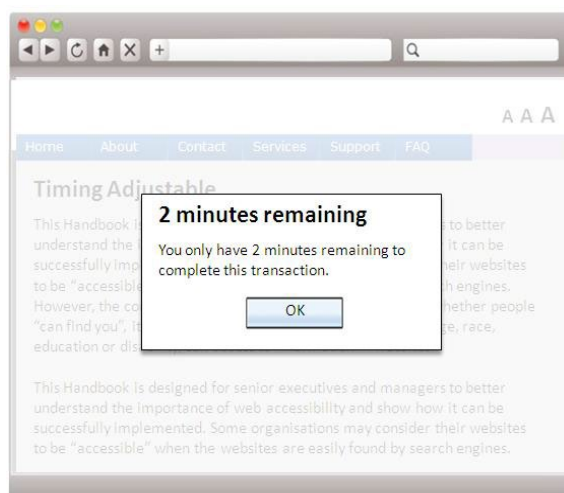
The example above warns a person that time is about to expire.

After Rectification
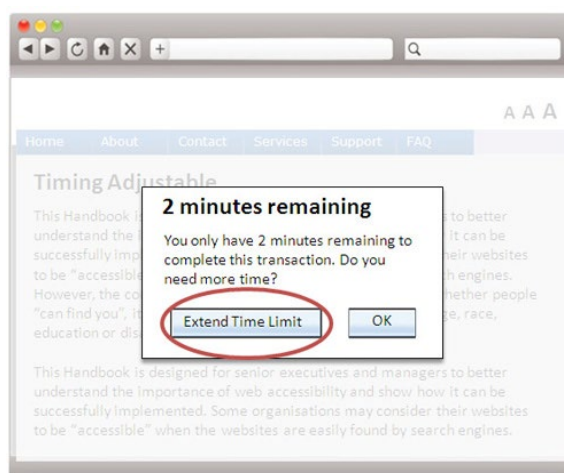
A better approach is to allow the person to extend the time.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/timing-adjustable

8.14 WCAG 2.2 Success Criterion 2.2.2 – Pause, Stop, Hide

For content that moves automatically for more than five seconds or is updated automatically, there needs to be a way to stop this movement and stop the webpage from updating, blinking or scrolling.

Before Rectification
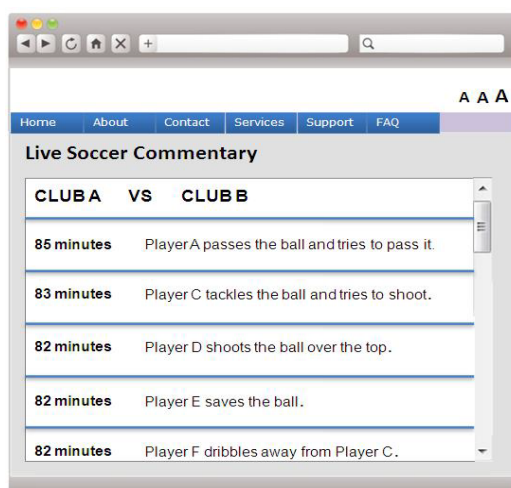
The webpage is designed to update automatically as content changes, which can be very frustrating for people using screen readers.

After Rectification
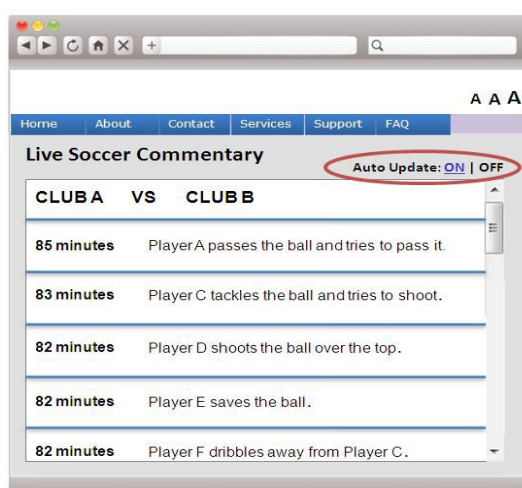
By providing a function to turn off the auto updating, the webpage will be much easier for persons with disabilities to use.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/pause-stop-hide

8.15 WCAG 2.2 Success Criterion 2.3.1 – Three Flashes or Below Threshold

Ensure all flashing items are dimmed, and cover only a small area of the screen or the flash rate is three times per second or less. Otherwise, this may cause problems for people who suffer from epilepsy.

Before Rectification

The traffic light image is flashing too fast, and is too bright that covers a large part of the screen. This content can cause seizures in people prone to this problem.

After Rectification
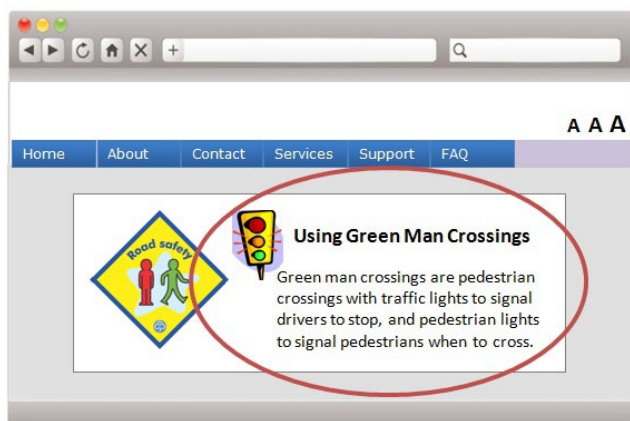
It is better to replace flashing content with static content, or ensure the object flashes in only a small portion of the screen or the flash rate is less than three times a second.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/three-flashes-or-below-threshold

8.16 WCAG 2.2 Success Criterion 2.4.1 – Bypass Blocks

Ensure users have the ability to skip past repetitive blocks of content (e.g. the navigation at the top of the webpage). Add a link that goes directly to the main content at the top of each webpage.

Before Rectification
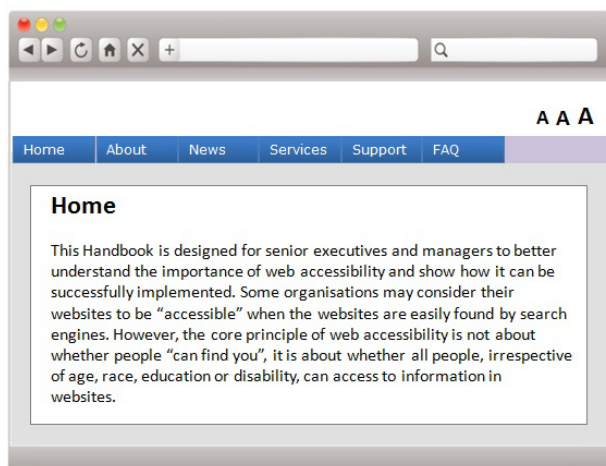
With such a webpage, people using screen readers will need to read all the navigation information before getting to the target content. People who navigate using only a keyboard will require many keystrokes before getting to the target content.

After Rectification
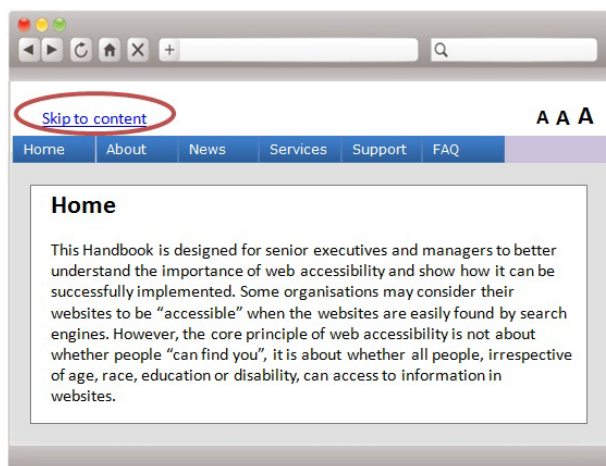
By adding a "Skip to content" link at the top of each webpage, persons with disabilities will be able to click that link and bypass the navigation information to get to the main content.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/bypass-blocks

8.17 WCAG 2.2 Success Criterion 2.4.2 – Page Titled

Give webpages a title that accurately describes what the content is about. This will help persons with disabilities differentiate the webpages in their browser history.

Before Rectification
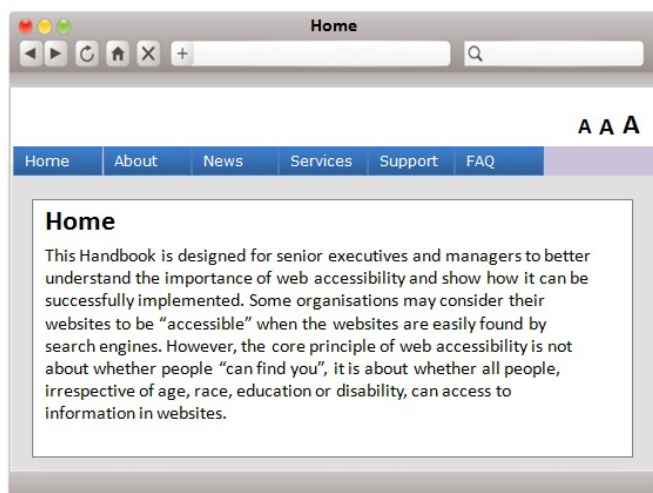
It is quite common to see webpages with inaccurate titles such as this one where the webpage is simply named "Home". This can easily be confused with other Home page.

After Rectification
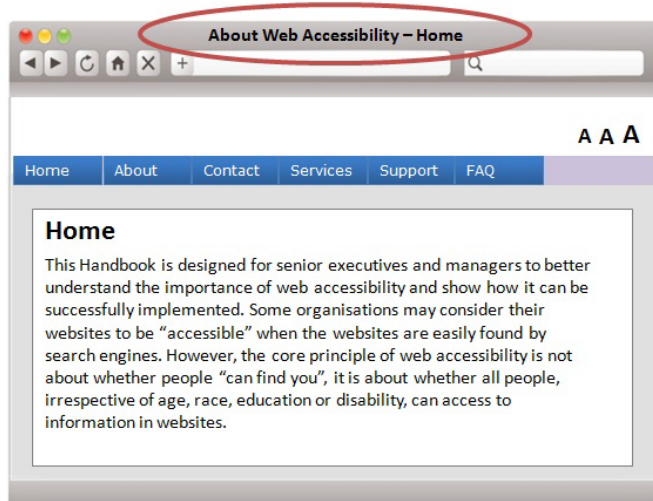
A proper title such as this one will accurately describe what this webpage is about.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/page-titled

8.18 WCAG 2.2 Success Criterion 2.4.3 – Focus Order

When writing the HTML code for a webpage, make sure the content is coded in a logical order. It will then be communicated in a logical manner when read by screen readers. This is particularly important for web forms.

Before Rectification

The form has been coded so that the focus order goes from First Name, to Address, to Phone, then to the Submit button. This is not intuitive to a user.

After Rectification

With proper coding, the focus order of the form can move in a much more logical manner.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/focus-order

8.19 WCAG 2.2 Success Criterion 2.4.4 – Link Purpose (In Context)

Write descriptive link text to ensure the purpose of each link can be understood by the text alone, or by the link text and the context.

Before Rectification
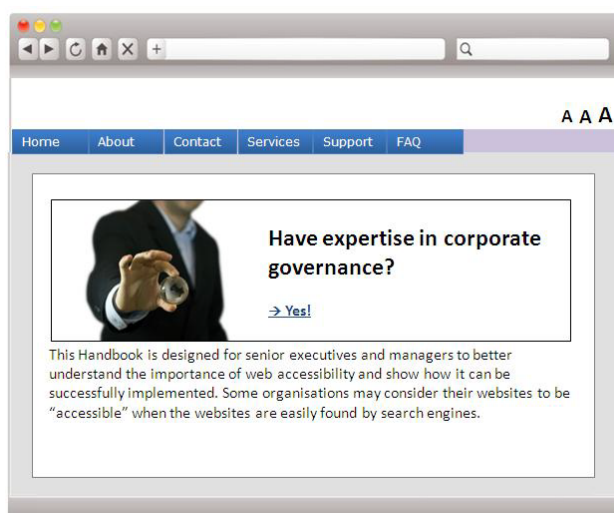
The link "Yes" is ambiguous and does not really convey much meaning.

After Rectification
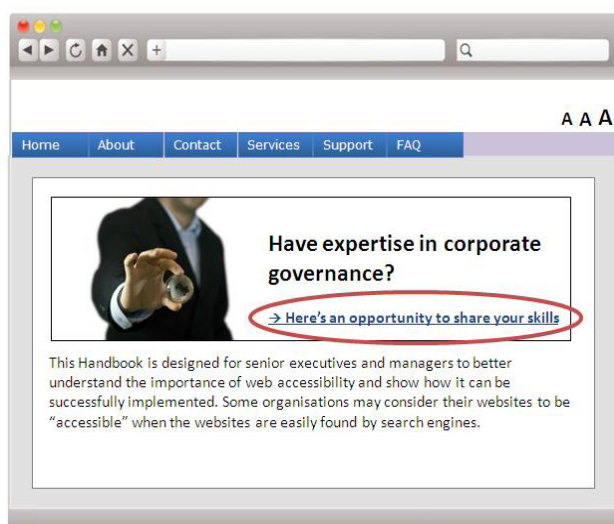
Link labels should be more descriptive and self-explanatory as shown in the rectified version above.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/link-purpose-in-context

8.20 WCAG 2.2 Success Criterion 2.5.1 – Pointer Gestures

Complex gestures, such as swiping, dragging a slider or two-finger pinching for zooming, can be performed through simpler actions like taps or long presses.

Before Rectification
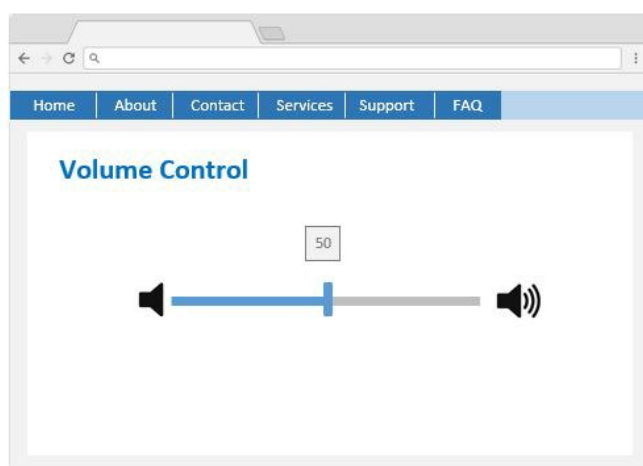
Adjust the volume by dragging a slider necessitates a precise path of the user's pointer movement. Persons with disabilities, who may type with a finger or use specialised input devices such as eye gaze devices, might find it difficult or unable to perform these actions effectively.

After Rectification
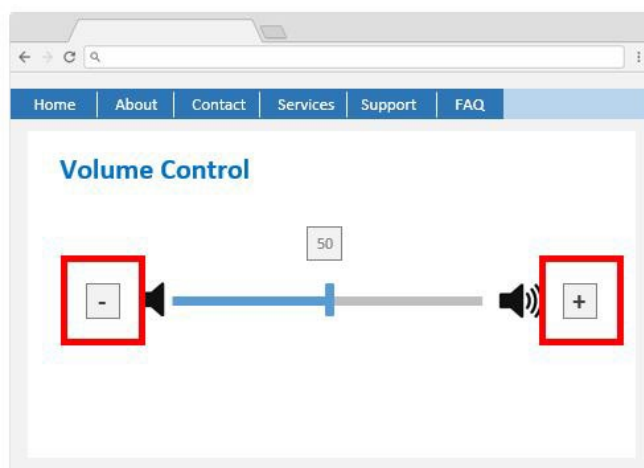
Buttons are added as an alternative way for users to adjust the volume with simple clicks.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/pointer-gestures.html

8.21 WCAG 2.2 Success Criterion 2.5.2 – Pointer Cancellation

Functions are completed by the up-event (e.g. release the mouse button or the finger from the screen) and either one of the following mechanisms is available:

- To abort the function before completion; or
- To undo the function after completion.

There is exemption when the down-event is essential such as in the piano keyboard emulation program.

Before Rectification
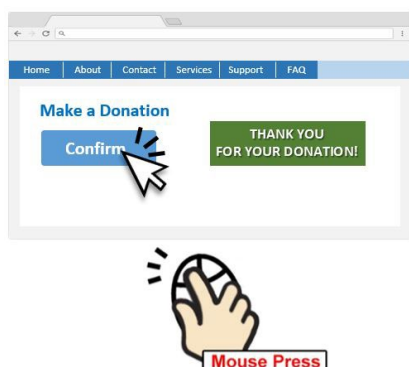
When the user makes a donation by clicking the confirm button, the donation is confirmed before the user releases the mouse button. There is no way for the user to abort the function after he/she has pressed the mouse button.

After Rectification
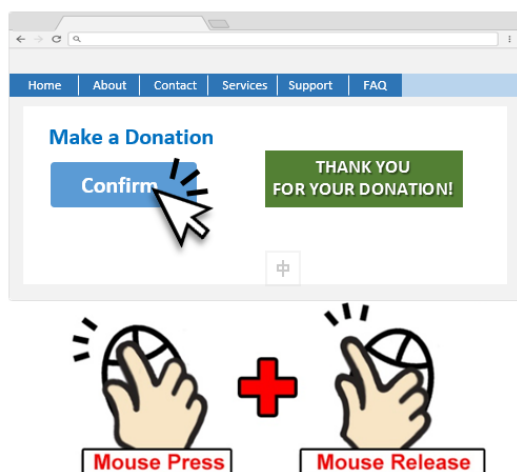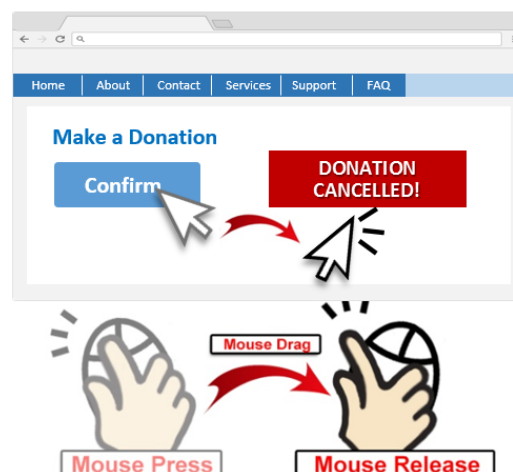
The donation will be confirmed only when the user presses and releases the mouse button at the clickable area. If the user wants to abort the function after pressing the mouse button, he/she can drag the mouse pointer out of the clickable area, then release the mouse button.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/pointer-cancellation.html

8.22 WCAG 2.2 Success Criterion 2.5.3 – Label in Name

All visible text labels should be associated with the component programmatically. This can ensure that the speech-input user can reply on visible labels as a means to interact with the components.

Before Rectification
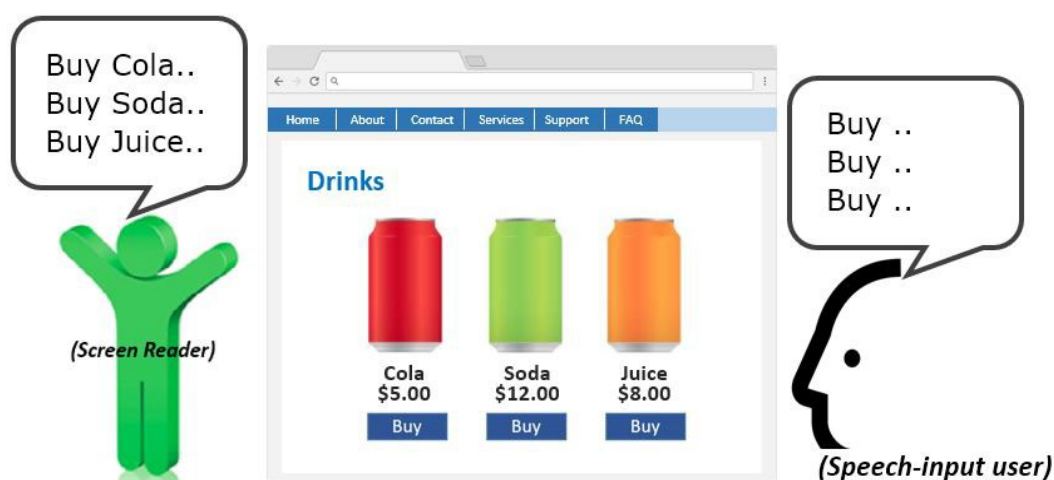
When a speech-input user speaks a command "Click Buy", the speech input does not activate the button control because the programmatic name that is enabled as a speech-input command does not match with the visible text label.

After Rectification
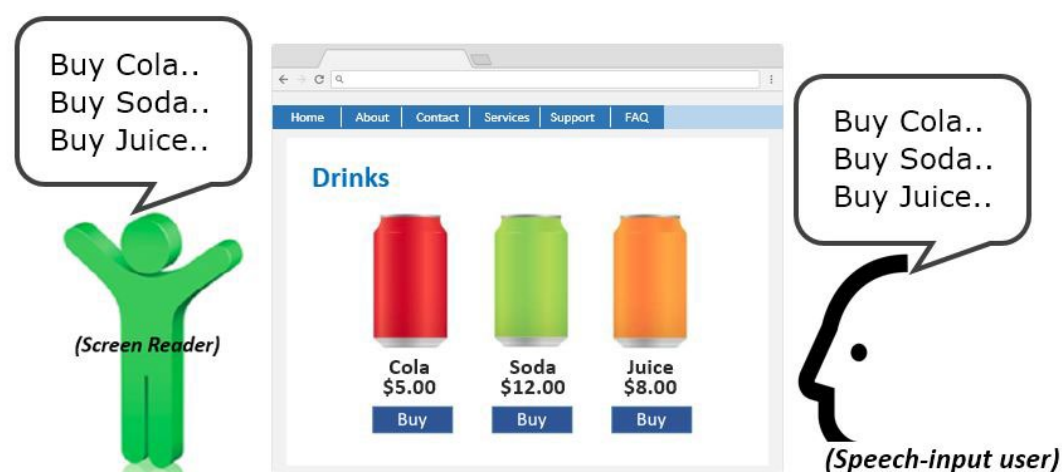
The programmatic names are exactly the same as the visual text labels of the buttons, so that the speech-input user can activate the control by speaking the visual text label.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/label-in-name.html

8.23 WCAG 2.2 Success Criterion 2.5.4 – Motion Actuation

Functions triggered by moving a device (e.g. shaking or tilting) or by gesturing towards the device (e.g. a camera can interpret the gesture and activate a function) should be able to be operated by more conventional user interface components.

Before Rectification
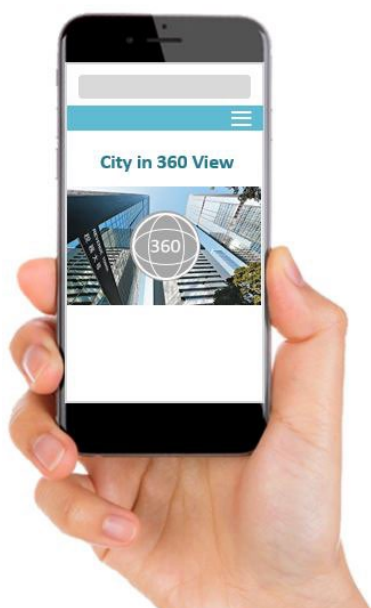
To view a 360-degree photo, users are required to either move the device around to change the view or tap and drag on the photo. Users with mobility problems will find it difficult to perform these actions.

After Rectification

Navigation buttons are added as an alternative for navigation. Users can either move the device around to change the view or click the navigation buttons to perform the same function.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/motion-actuation

8.24 WCAG 2.2 Success Criterion 3.1.1 – Language of Page

Ensure the primary language of a webpage is defined within the HTML code. The correct speaking language will be loaded by screen readers to read the words in the webpage.

The example above is written in Traditional Chinese. When using screen readers, it is important for the tool to know the language of the webpage.

Before Rectification

```
<html>
      <head>...</head>
      <body>...</body>
<html>
```

After Rectification

```
<html lang="zh-hk">
      <head>...</head>
      <body>...</body>
<html>
```

In order for the screen reader to work correctly, the above language specification must be included in the HTML code.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/language-of-page

8.25 WCAG 2.2 Success Criterion 3.2.1 – On Focus

When an item on a webpage receives focus, such as by using the Tab key in the keyboard, ensure it does not initiate a change the context. For example, by displaying a dialogue box when a person tabs to a field.

Before Rectification
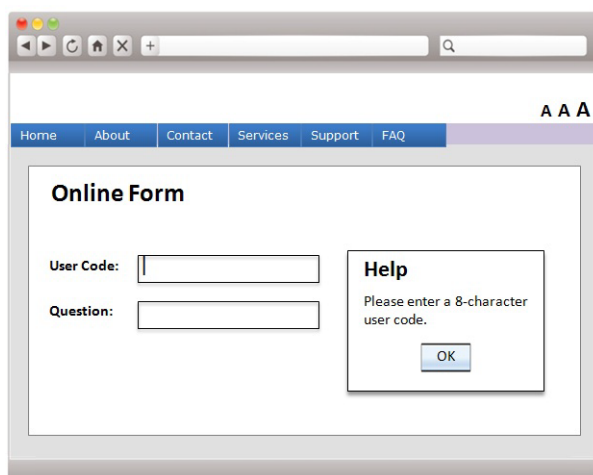
The example above, a field receives focus, and a help dialogue box describing the field and providing options opens. As a keyboard user tabs through the webpage, the dialogue opens, moving the keyboard focus away from the control every time the user attempts to tab past the field.

After Rectification
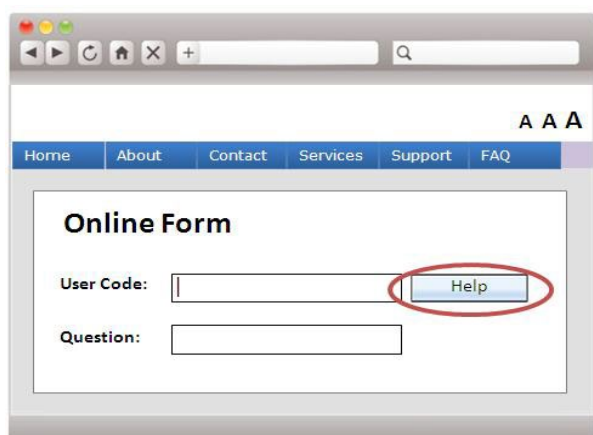
Instead, the webpage should allow the user to activate "Help" only at their choice rather than forcing them to read "Help" with each tabbed field.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/on-focus

8.26 WCAG 2.2 Success Criterion 3.2.2 – On Input

Changing a setting on a webpage should not automatically cause a change of context such as opening a popup window or refreshing content. In addition, users should not be taken away from a webpage when changing something without warning.

Before Rectification
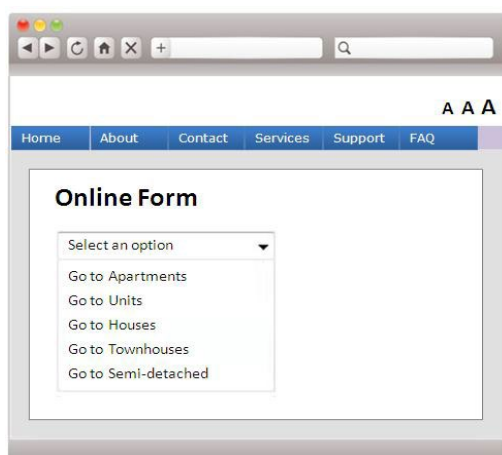
It is common to see drop down menus on webpages that, when changed, cause the form to be automatically submitted. This can make the website very difficult to use for persons with disabilities.

After Rectification
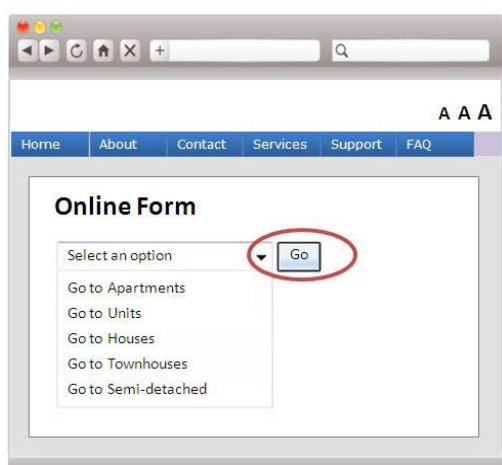
This option is much better as it gives the user control over when to submit the form.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/on-input

8.27 WCAG 2.2 Success Criterion 3.2.6 – Consistent Help

Where help mechanisms are in place on multiple webpages, ensure that they are presented at a consistent location across all pages.

Before Rectification
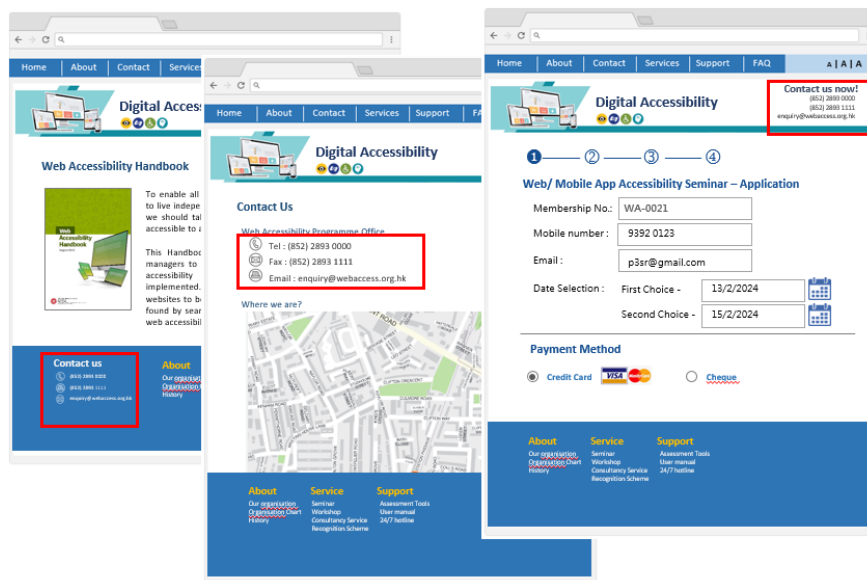
Contact point shown in a different location across multiple webpages. This could be confusing for visually impaired persons.

After Rectification
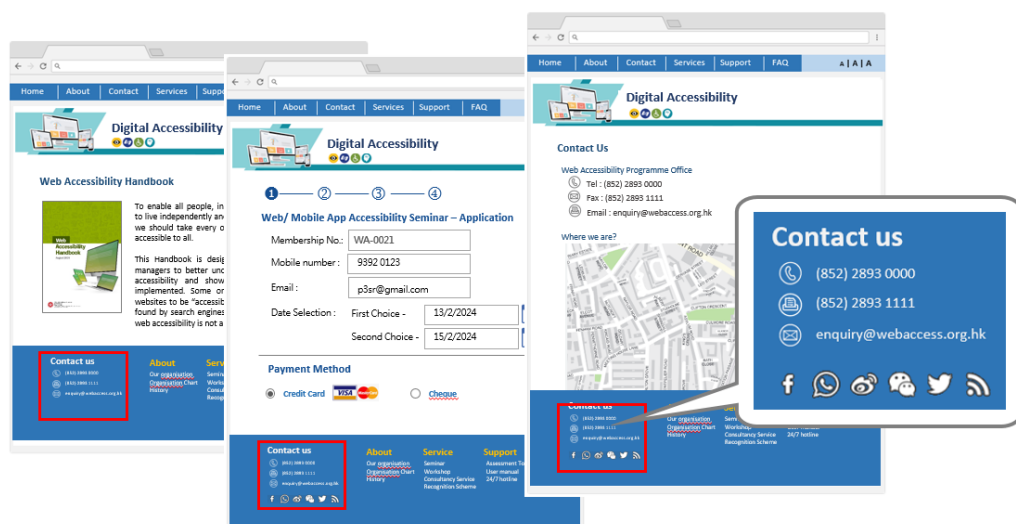
Keeping the contact point at a consistent location across multiple webpages makes it easier for user to find help and support.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/consistent-help.html
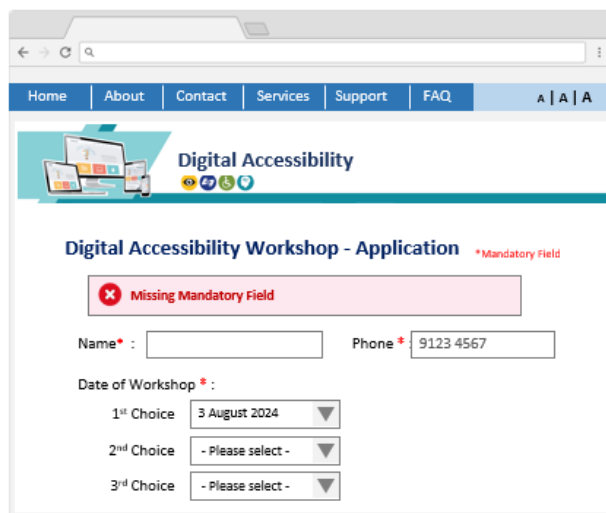
8.28 WCAG 2.2 Success Criterion 3.3.1 – Error Identification

If a user makes a mistake, use text to show user where and what user has done wrong, and how user can fix it.

Before Rectification

The example above shows an error has been identified without any information on where the error is and what needs to be fixed.

After Rectification

This is made accessible by telling the user where the error has occurred and what user needs to do to fix the error.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/error-identification
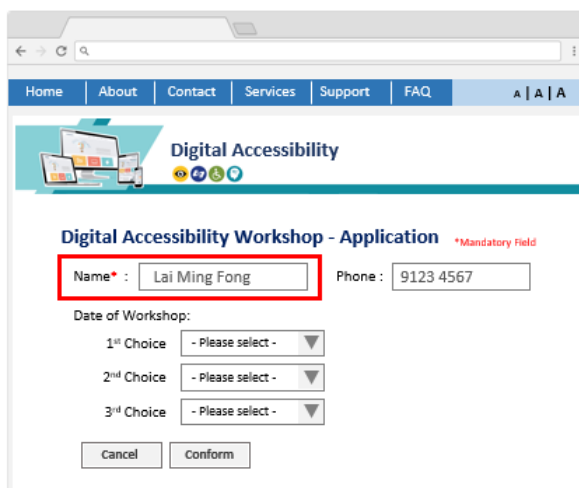
8.29 WCAG 2.2 Success Criterion 3.3.2 – Labels or Instructions
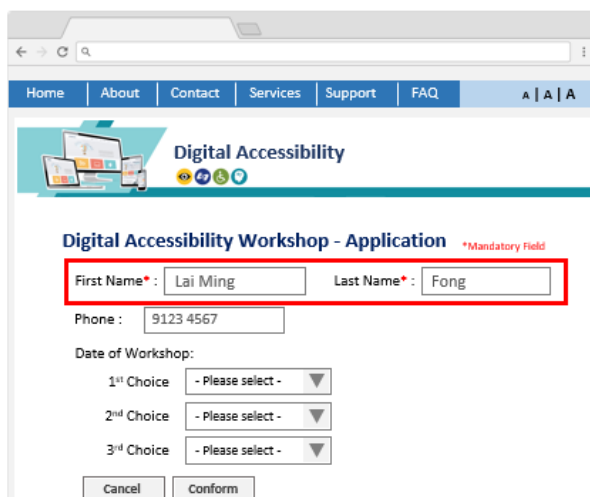
To help persons with disabilities avoid making mistakes, it is good to provide simple instructions and cues for entering information into forms. For example, use accurate labels, instructions and examples.

Before Rectification

The example above is a typical workshop application form. Applicants required to provide their name in "Name" field. However, there is no information on what format to use to enter the applicant's name.

After Rectification

By separating the name field to "Last Name" and "First Name" with clear visual label, user can fill in the information accurately.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/labels-or-instructions

8.30 WCAG 2.2 Success Criterion 3.3.7 – Redundant Entry

To help users to complete multi-step processes more easily, do not ask for the same information twice in the same process.

Before Rectification

The example above, applicant required to provide membership no. more than once during application process.

After Rectification

Membership no. input in the first step of the above application process is pre-filled in the 4th step of the same process. Make it easier for users to complete multi-step processes.

Same information only asked once during multi-step processes.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/redundant-entry.html

8.31 WCAG 2.2 Success Criterion 4.1.1 – Parsing

IMPORTANT NOTE

This criterion has been removed from WCAG 2.2. In WCAG 2.1 and 2.0, this Success Criterion should be considered as always satisfied for any content using HTML or XML.

Ensure the webpage is written/coded correctly. For example, implement complete start and end tags for all elements. This ensures that the screen reader accurately reads the webpage.

Before Rectification
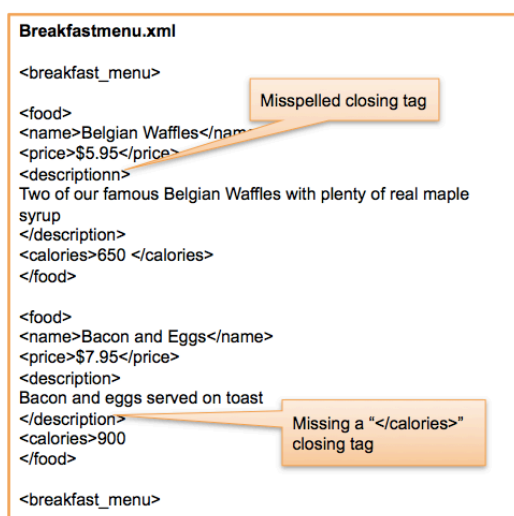
After Rectification

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/parsing
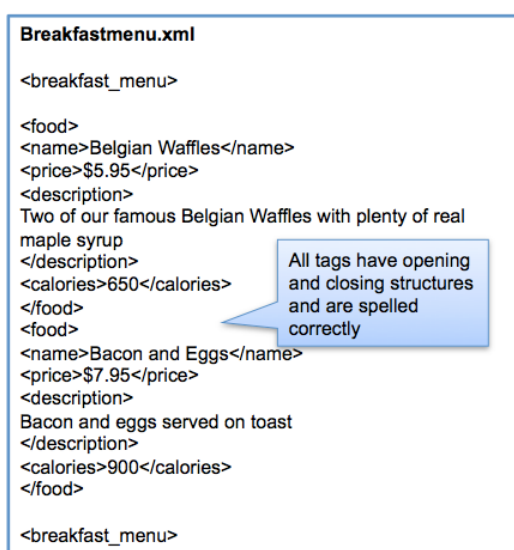
8.32 WCAG 2.2 Success Criterion 4.1.2 – Name, Role, Value

Ensure all elements on a webpage have a "Name", "Value" and "Role" assigned to them. This can generally be achieved by writing correct HTML coding according to relevant standards. If this is not done correctly, screen readers will read the wrong role for an element. The example below shows the screen readers will consider the button as an image. This makes the website confusing for visually impaired persons.

Before Rectification
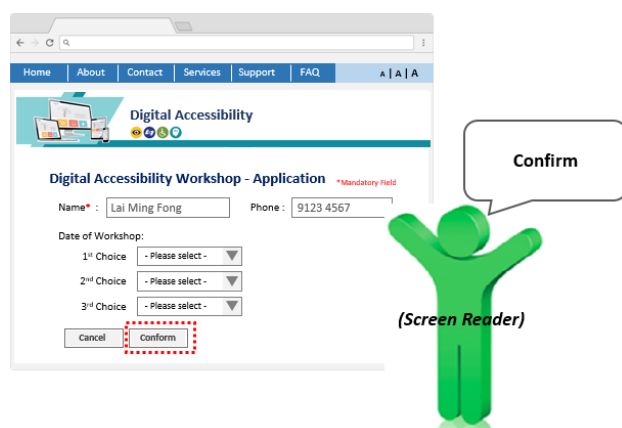
The example above, the "Confirm" button is not coded properly. Screen reader just read out the button label "Confirm" and screen reader user do not know the "Confirm" is an active button.

After Rectification
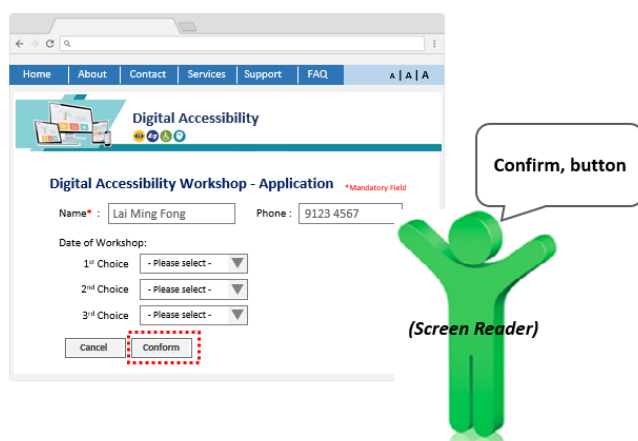
With proper HTML coding, the role is used, and the input element is of the button type. In this way, the screen readers will communicate to the user that the element is in fact a button and this in turn makes it easier for the user to know he/she may need to click that button.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/name-role-value

9.   WCAG 2.2 Success Criteria – Level AA

9.1   WCAG 2.2 Success Criterion 1.2.4 – Captions (Live)

Ensure all audios and videos that are presented "live" have captions.

Before Rectification
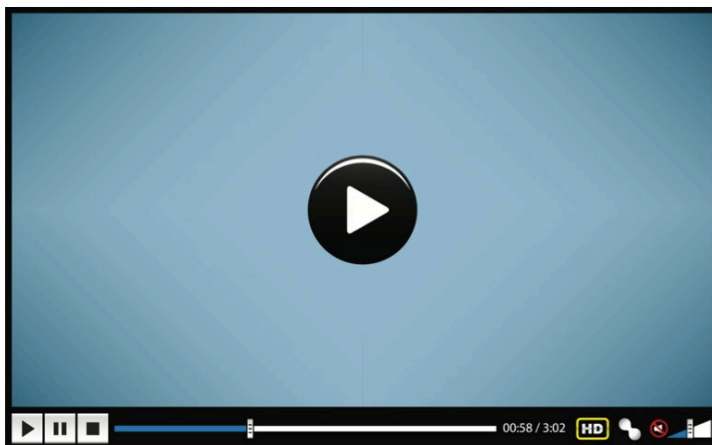
When an audio is embedded in a webpage as shown above, the audio is only usable by people who can hear.

After Rectification
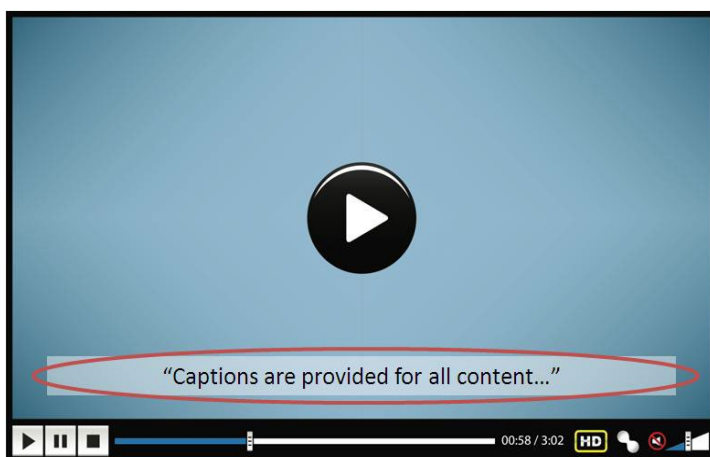
Text captions should be provided so that persons with hearing impairments can still have access to content from the audio as shown in the example above.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/captions-live

9.2 WCAG 2.2 Success Criterion 1.2.5 – Audio Description (Prerecorded)

Provide a descriptive audio track in addition to the prerecorded video so that visually impaired persons can still use the webpage without the video.

Before Rectification
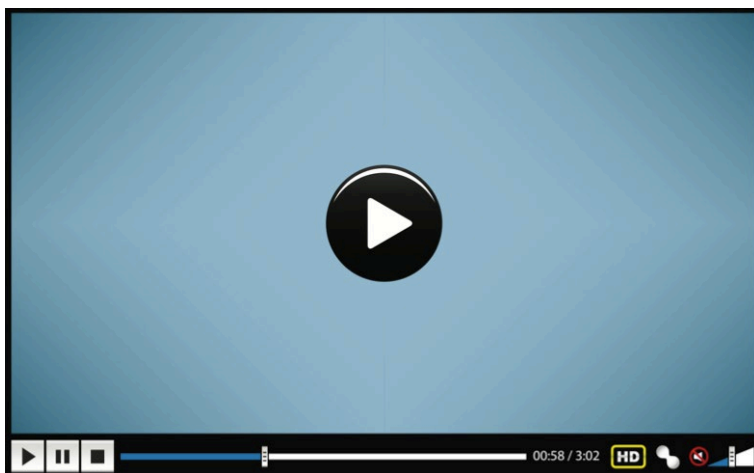
When providing a video for users on a webpage, it is important to make sure that an audio description of this video is also present so people who cannot view the video can still understand the content.

After Rectification

An audio description of the video should be provided so visually impaired persons may listen to the description and understand what the video is about.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/audio-description-prerecorded

9.3 WCAG 2.2 Success Criterion 1.3.4 – Orientation

Unless a specific display orientation is essential, the content should be able to be viewed or operated in either portrait or landscape orientations.

Before Rectification

Users are unable to change the orientation of the video clip as the video player restricts its display orientation to landscape.

After Rectification

Persons with physical disabilities may mount the device on a wheelchair in a fixed orientation. By not restricting the display orientation, users can view the content in the orientation that suits them best.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/orientation.html
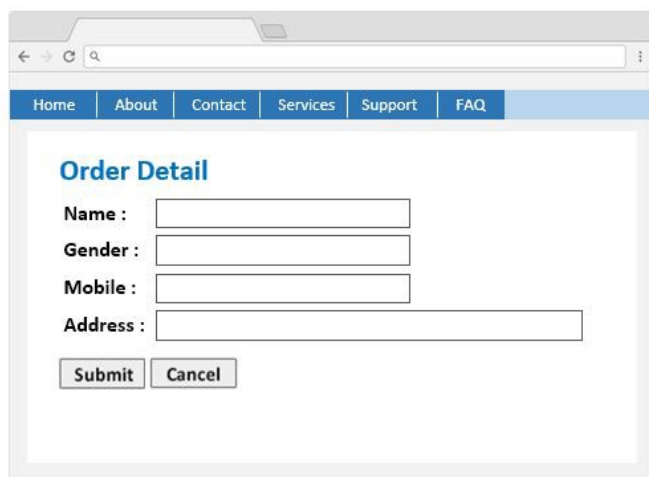
9.4 WCAG 2.2 Success Criterion 1.3.5 – Identify Input Purpose

Autocomplete attribute techniques should be used for each input field to make form filling easier, especially for people with cognitive disabilities.

Before Rectification
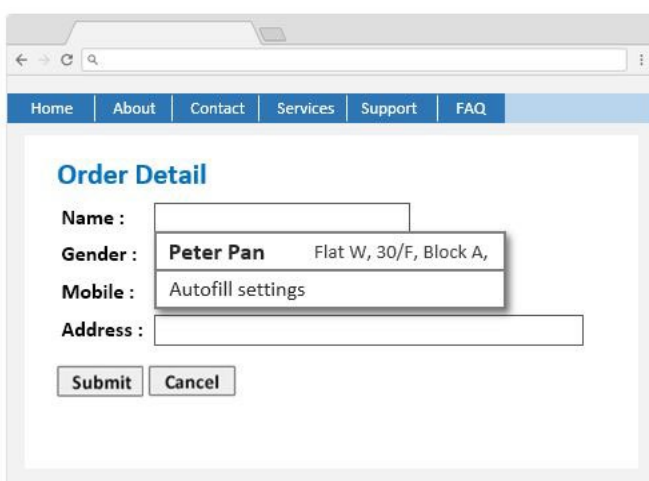
The user is required to input personal information from scratch.

After Rectification

Enabling the autocomplete attribute improves the browser's ability to pre-populate form fields with user-preferred values. It allows the user to complete the form easily.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/identify-input-purpose.html

9.5   WCAG 2.2 Success Criterion 1.4.3 – Contrast (Minimum)

Design text and images so that they have a contrast ratio of at least 4.5:1 between the background and the foreground to make it easy to read. Logotypes are excluded in this case.

Before Rectification
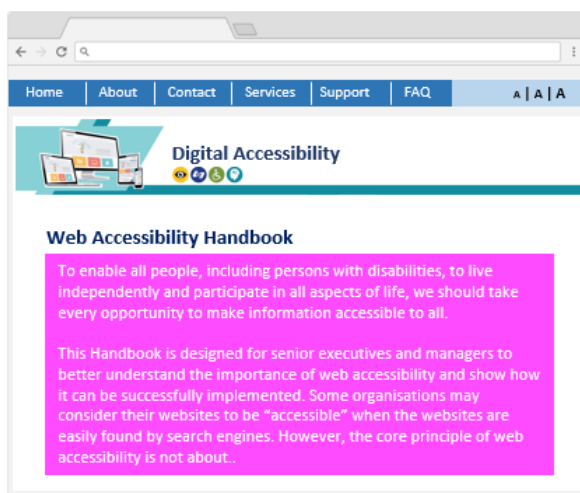
The white text on the pink background has poor colour contrast (2.7:1), making it hard to read.

After Rectification
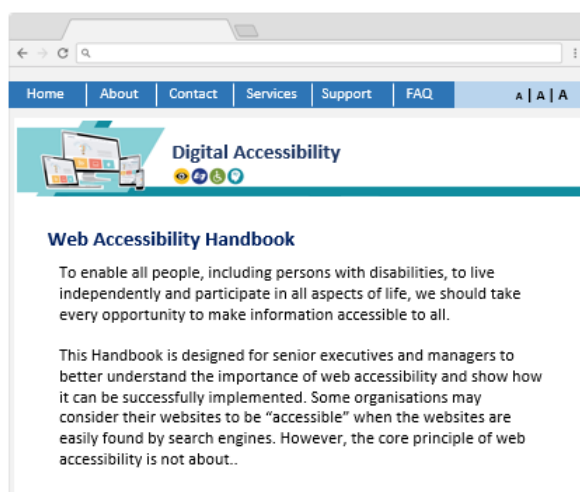
When greater colour contrast text (12.6:1) is used, the text is much easier to read. There are colour contrast checkers available online that can assist web developers to check the contrast of their webpages.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/contrast-minimum

9.6 WCAG 2.2 Success Criterion 1.4.4 – Resize text

Ensure that all text can be resized up to 200% without the loss of content or functionality. In this way, persons with mild visual impairments can read the content without using assistive technologies such as a screen magnifier.

Before Rectification
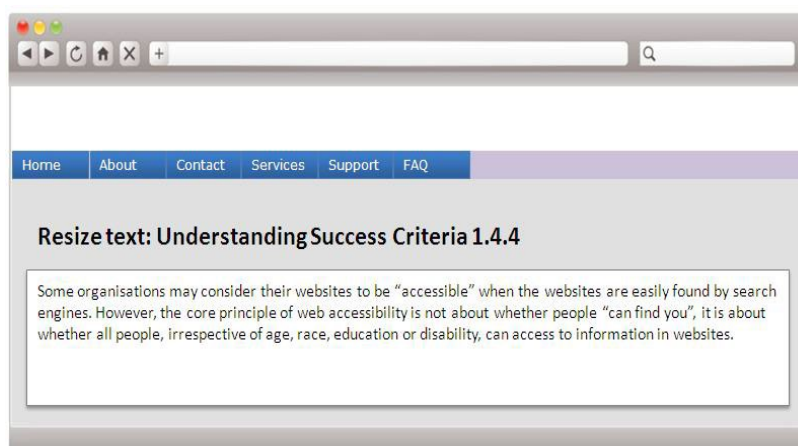
In the example above, there are no functions to resize the text.

After Rectification
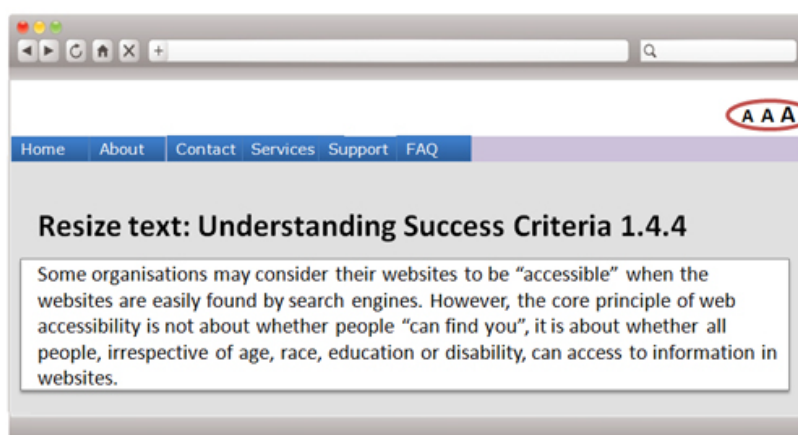
By adding a function to change the text size in the masthead, text size can be easily resized. Alternately, ensure websites are built so that built in browser text size tools work as they should. Developers should also be mindful of using proper cascading style sheet (CSS) techniques to ensure the CSS works with the built in browser resize functions.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/resize-text

9.7 WCAG 2.2 Success Criterion 1.4.5 – Images of Text

Where possible, do not use images to display text. Accessibility tools like screen readers cannot read text inside an image and will have to rely on the image alt tag. In addition, text in images cannot be resized by browsers when a user chooses to use larger fonts.

Before Rectification
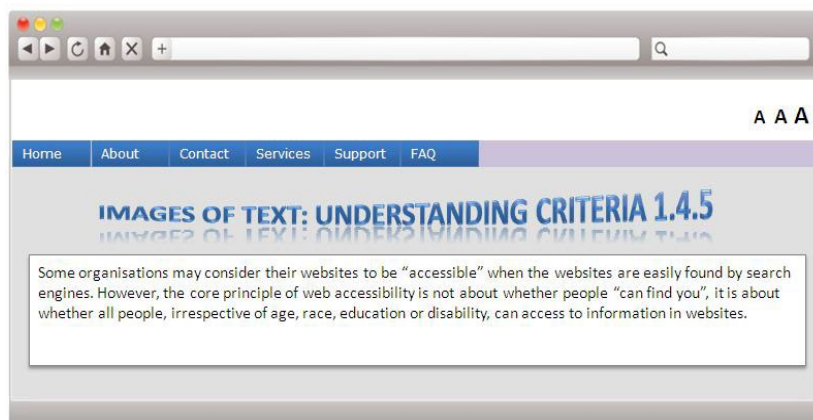
The heading on the webpage above has the risk of being read incorrectly by some screen readers or other assistive tools.

After Rectification
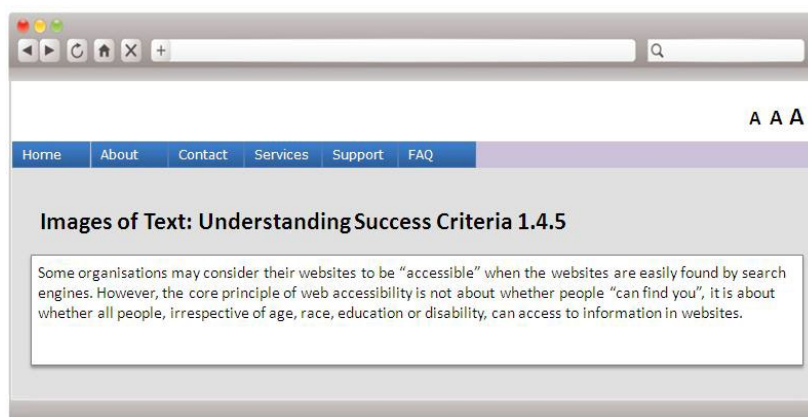
The text heading above does not use an image, thus increasing the chance of it being read correctly by screen readers or other assistive tools. Any visual design applied to this text is achieved through cascading style sheets (CSS).

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/images-of-text

9.8   WCAG 2.2 Success Criterion 1.4.10 – Reflow

When a webpage is zoomed, the content is presented without loss of information and functionality, and without requiring horizontal scrolling.

Before Rectification
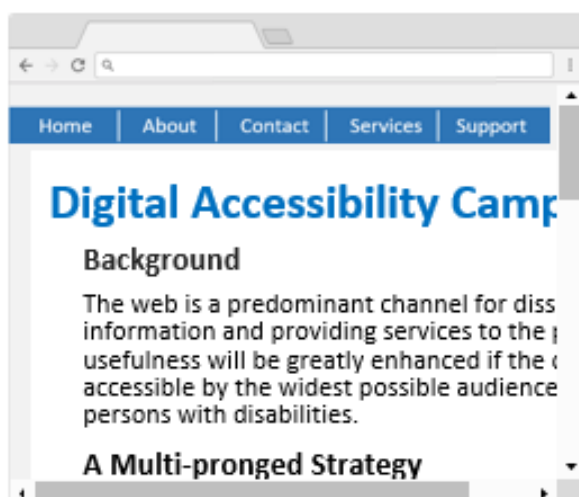
When users zoom in to enlarge the size of the content, they have to scroll both horizontally and vertically to view the content.

After Rectification
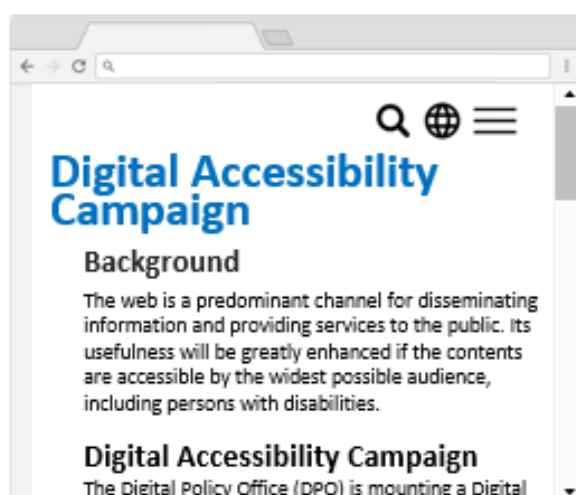
By using responsive web design, the page layout is changed automatically when it is zoomed, so that horizontal scrolling is not required.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/reflow.html
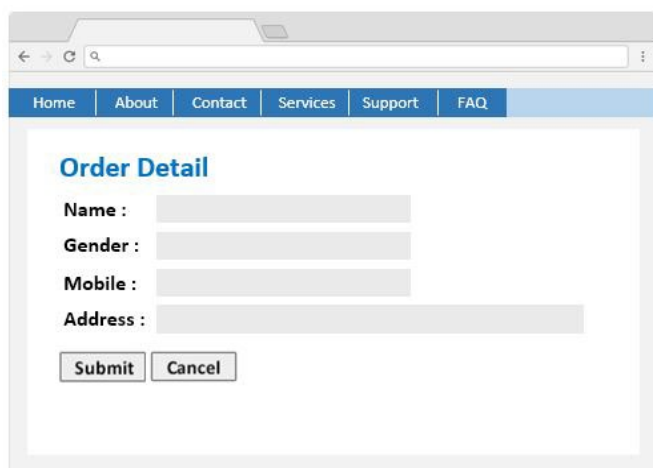
9.9 WCAG 2.2 Success Criterion 1.4.11 – Non-Text Contrast
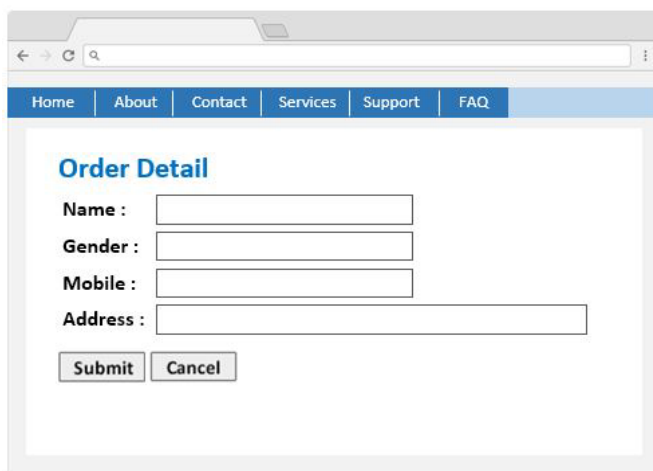
All non-text content (e.g. graphics, diagrams, buttons, checkboxes, radio buttons or input fields), which deliver important information, should have a minimum 3:1 colour contrast ratio against adjacent colour.

Before Rectification

The grey textboxes on the white background have poor colour contrast, making it harder for persons with low vision to identify.

After Rectification

Dark border is applied to the textboxes so that they can be identified easily.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/non-text-contrast.html

9.10 WCAG 2.2 Success Criterion 1.4.12 – Text Spacing

Ensure the content or functionality will not be lost if user overrides the setting for spacing between paragraphs, lines, words or characters.

Before Rectification

h1 {line-height:150px}

h2 {line-height:100px}
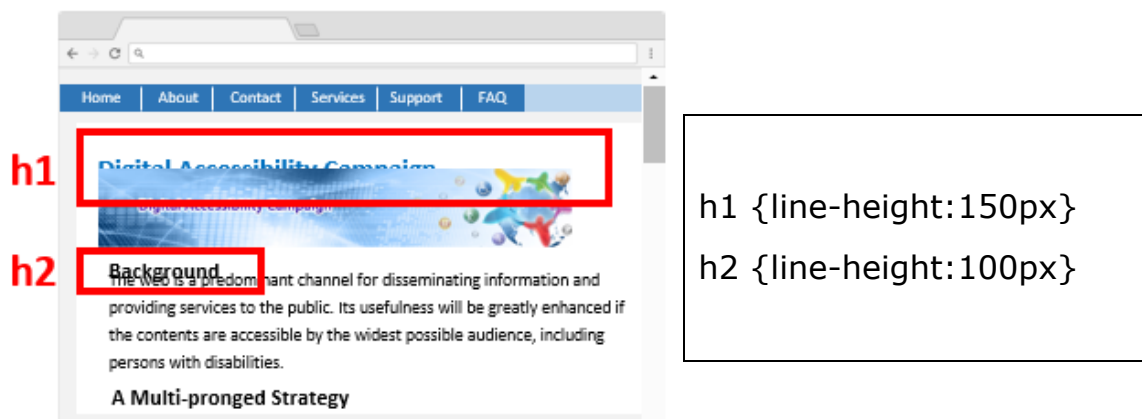
The line height of header (h1) and sub-header (h2) texts is defined using absolute values (i.e. number of pixels). When the user zooms in to enlarge the content of the webpage, the header and sub-header texts are cut off and become unreadable.

After Rectification

h1 {line-height:100%}

h2 {line-height:100%}
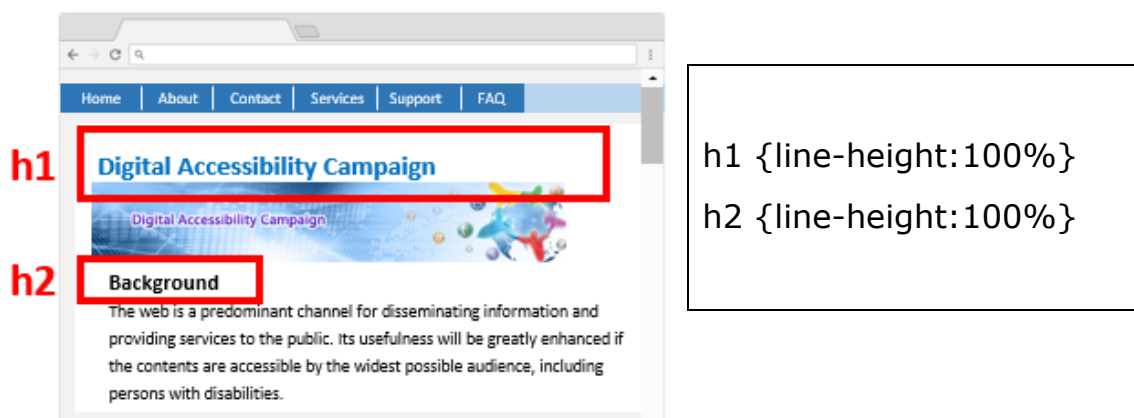
The line height of h1 and h2 is defined using relative values (i.e. percentage). When the page is zoomed by the user, the line height of h1 and h2 is changed accordingly such that the content can be displayed clearly.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/text-spacing.html

9.11 WCAG 2.2 Success Criterion 1.4.13 – Content on Hover or Focus

If additional content appears on focus/hover, you should ensure all of the following:

- **Dismissible**: User can dismiss the additional content with the keyboard without moving focus/hover, e.g. via the escape key;

- **Hoverable**: User can move the pointer over the additional content without making the additional content disappear; and

- **Persistent**: The additional content remains visible until the hover or focus trigger is removed, or the user dismisses it, or its information is no longer valid.

Before Rectification
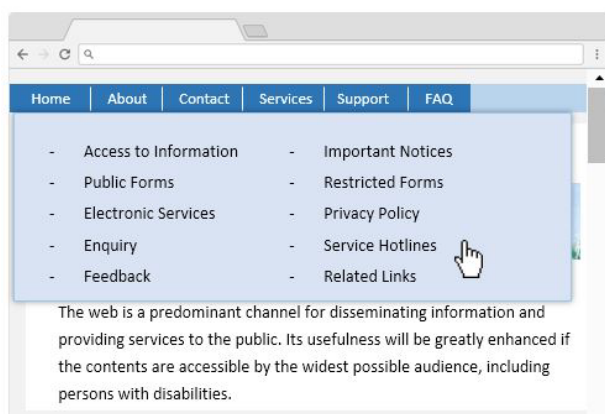
When user activates the "Support" menu via keyboard, a mega menu is displayed, which covered part of the main content. User is unable to view the content unless he/she moves the mouse pointer away from the mega menu.

After Rectification
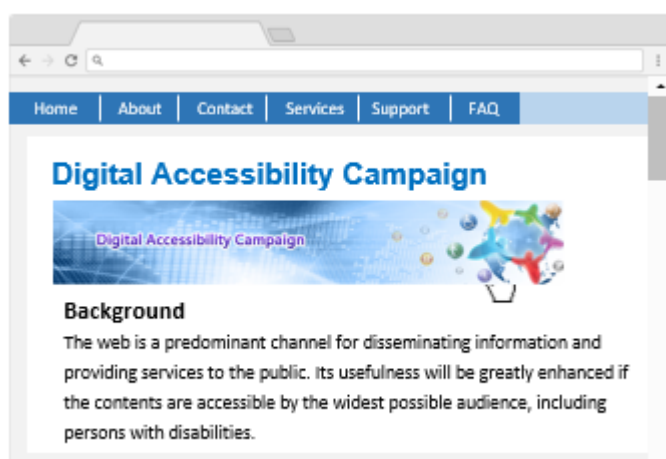
Function is added for user to close the mega menu by pressing Escape key without moving the mouse pointer.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/content-on-hover-or-focus.html

9.12 WCAG 2.2 Success Criterion 2.4.5 – Multiple Ways

Ensure there is more than one way to access a webpage, for example, by using a search function, site map, standard navigation, etc.

Before Rectification
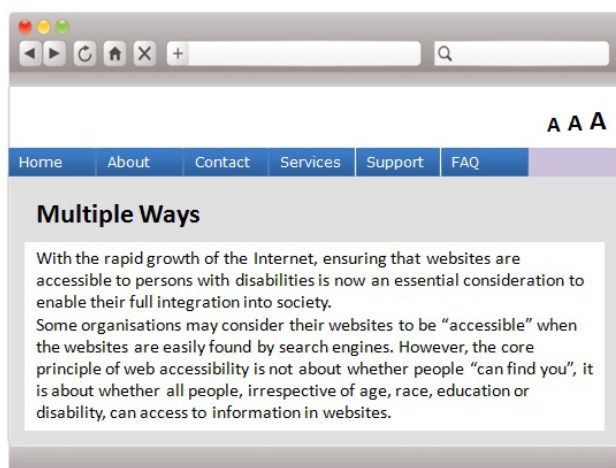
The only way to navigate around this website is through the main navigation.

After Rectification
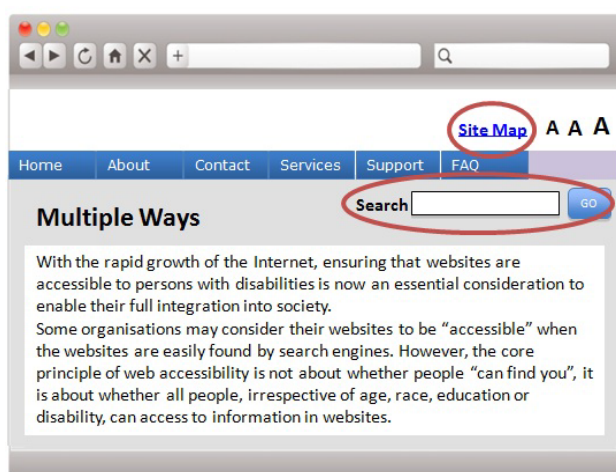
A search function and a site map have been included for users to have multiple methods available to locate the required information. Something like a site map would also be helpful to users who have learning disabilities or have difficulties in concentrating for a long period of time.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/multiple-ways

9.13 WCAG 2.2 Success Criterion 2.4.6 – Headings and Labels

Headings and labels must be accurate descriptions of the accompanying content.

Before Rectification
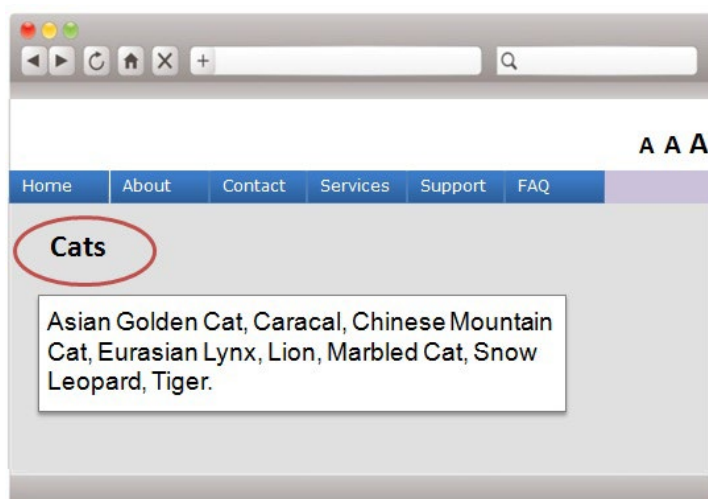
The heading "Cats" shown above does not accurately describe the purpose of the content beneath it.

After Rectification
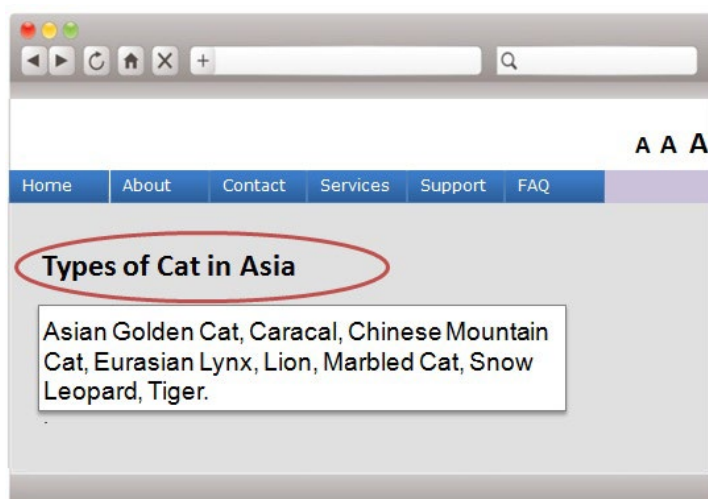
The example above however shows a more detailed heading that accurately describes the content. This would assist users using a screen reader.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/headings-and-labels

9.14 WCAG 2.2 Success Criterion 2.4.7 – Focus Visible

When an interactive element (e.g. link, button, form field, etc.) receives focus, ensure that it is clear and a visual indicator should appear. For example, ensure that the cursor is easily visible within the text field so that users know where to begin typing.

Before Rectification
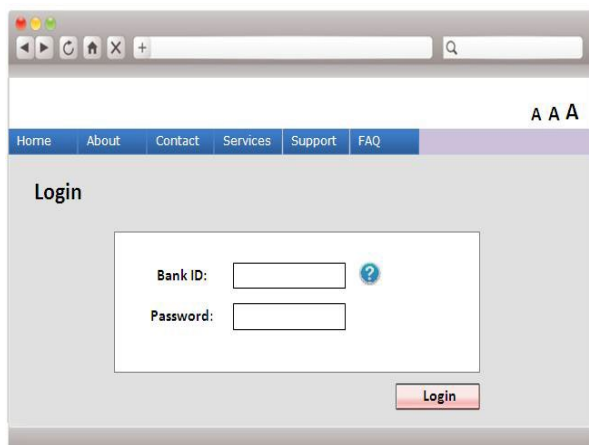
There is no way to determine which field has the focus.

After Rectification
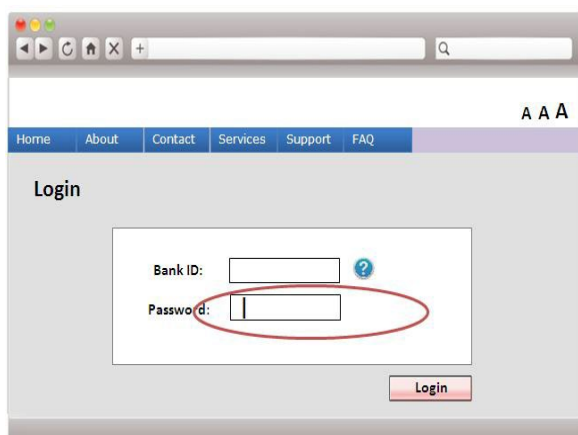
The example above ensures that the vertical bar is visible. This shows that the focus is currently on the second field, and this helps those users with low vision or visual impairments determine where they are on a webpage.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/focus-visible

9.15 WCAG 2.2 Success Criterion 2.4.11 – Focus Not Obscured (Minimum)

When an item receives focus, ensure that it is always partially visible.　Users who rely on a keyboard interface to operate the page will be able to locate where they are on the webpage.

Before Rectification
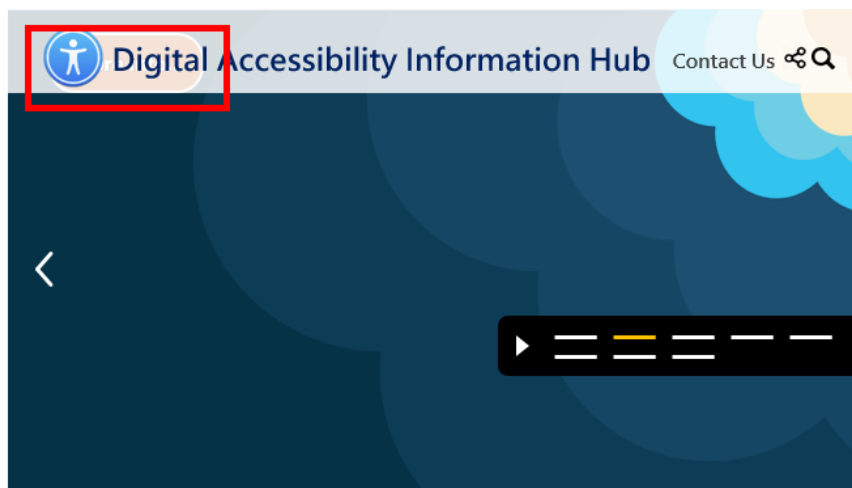
The sticky header overlaps the whole focused item at the top left-hand corner.

After Rectification
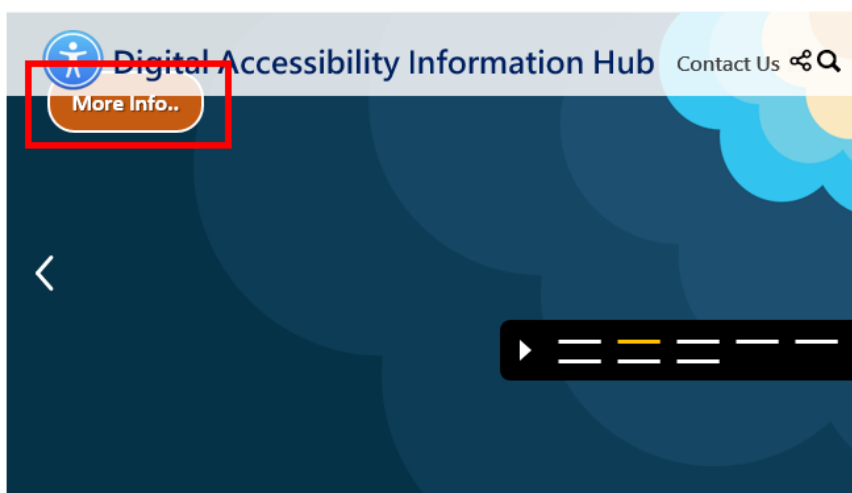
　The sticky header partially overlaps the focused item at the top left-hand corner, so that user can locate the focused item.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/focus-not-obscured-minimum.html

9.16 WCAG 2.2 Success Criterion 2.5.7 – Dragging Movements

For any dragging action, a simple pointer alternative should be provided.

Example 1

Before Rectification

The example above, users required to drag the view of the map around.

After Rectification

Up/down/left/right buttons are added as an alternative to move around the city map.

Example 2

Before Rectification
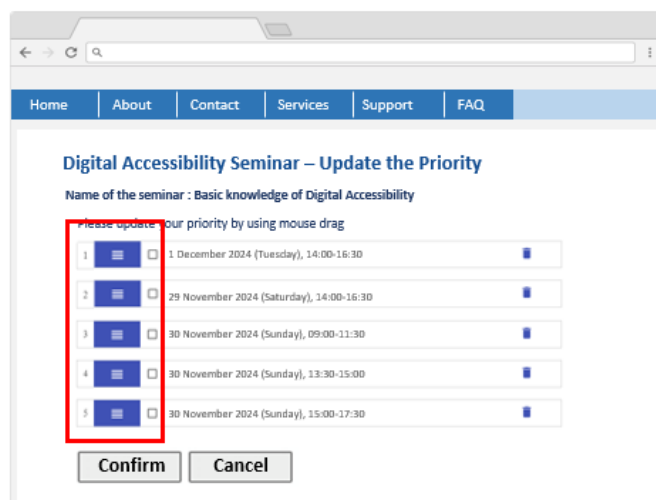
To update the priority for above seminar session, users are required to drag to change the option.

After Rectification
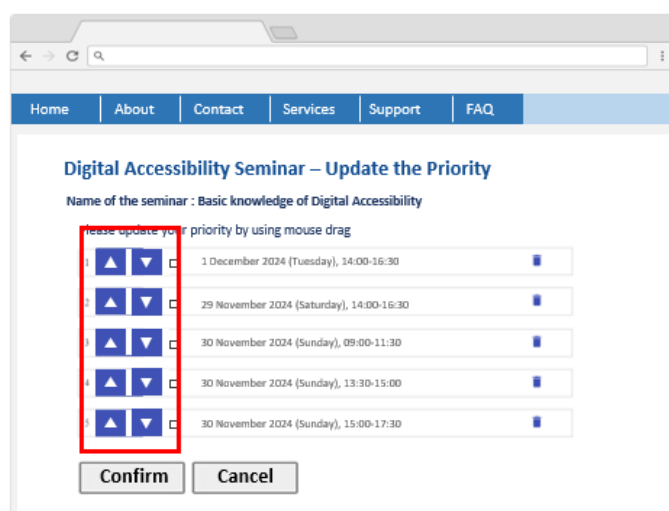
Up and down arrows are added as an alternative for user to change the priority of seminar session.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/dragging-movements.html

9.17 WCAG 2.2 Success Criterion 2.5.8 – Target Size (Minimum)

Ensure that all targets meet a minimum size of at least 24 by 24 CSS pixels or have sufficient spacing around them. Make controls easier to activate.

Before Rectification

The example above having undersize targets with insufficient space (24 by 24 CSS pixels), user find it difficult to accurately activate the button that are too close.

After Rectification

Sufficient space (24 by 24 CSS pixels) provided between undersize targets, reduce the likelihood of accidentally clicking the wrong button.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/target-size-minimum.html

9.18 WCAG 2.2 Success Criterion 3.1.2 – Language of Parts

Write content so that the language of all passages and phrases can be clearly understood. This will enable screen readers to pronounce each item in the correct language.

Before Rectification
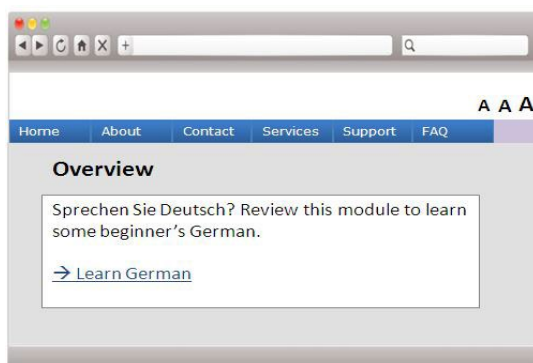

```
Example Code:
<p>
Sprechen Sie Deutsch?
Review this module to learn some beginner's German.
</p>
```

The majority of the website is in English. However, a small section is in German. In this case, it is essential to define this change in language, so that screen readers can detect the change and pronounce correctly.

After Rectification
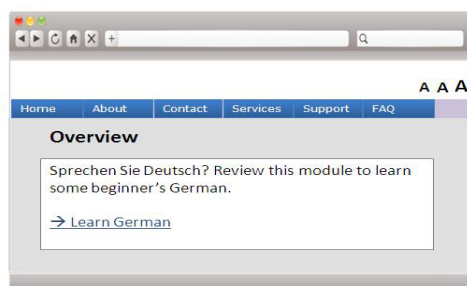

```
Example Code:
<blockquote xml:lang="de">
Sprechen Sie Deutsch?
</blockquote>
<blockquote xml:lang="en-GB">
Review this module to learn some beginner's German.
</blockquote>
```

The example above shows how this code should look like so that the screen readers can detect and pronounce the words using the proper languages.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/language-of-parts

9.19 WCAG 2.2 Success Criterion 3.2.3 – Consistent Navigation

Where navigations or links are on multiple webpages, ensure they are presented consistently across all pages.

Before Rectification
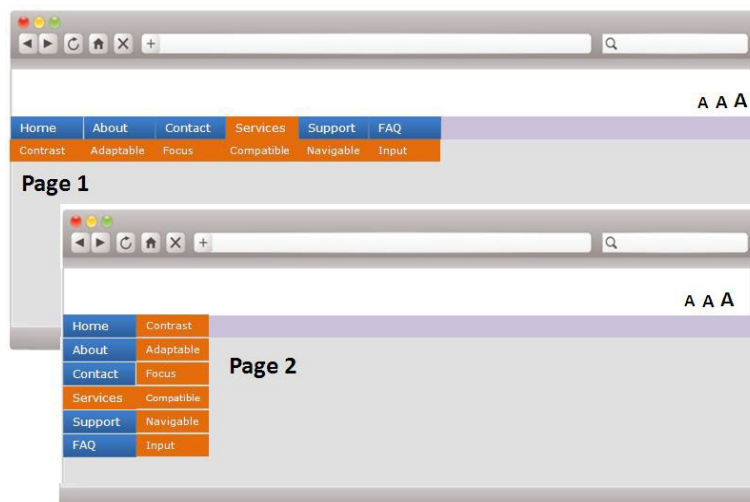
The style is not consistent across multiple webpages. This could be confusing for visually impaired persons.

After Rectification
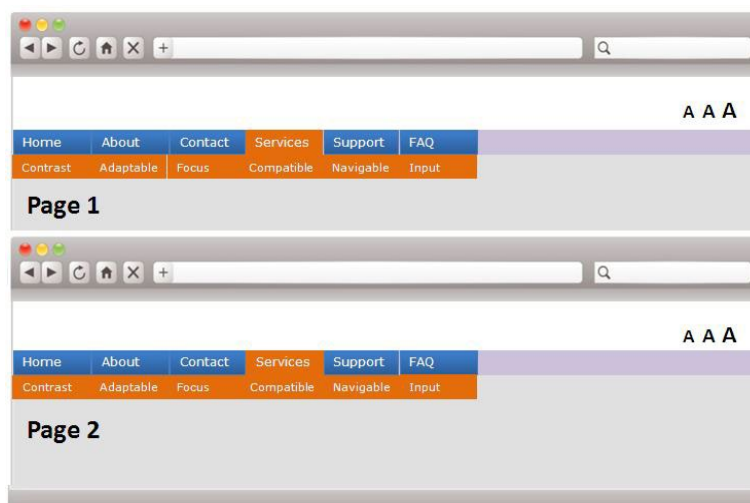
The correct method to ensure the navigation is consistent across multiple webpages.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/consistent-navigation

9.20 WCAG 2.2 Success Criterion 3.2.4 – Consistent Identification

For all items that have the same functionality, ensure they use the same label. For example, a "Buy Now" button on one webpage should be identically labelled as a "Buy Now" button on another webpage so that the user knows these buttons would perform the same function.

Before Rectification
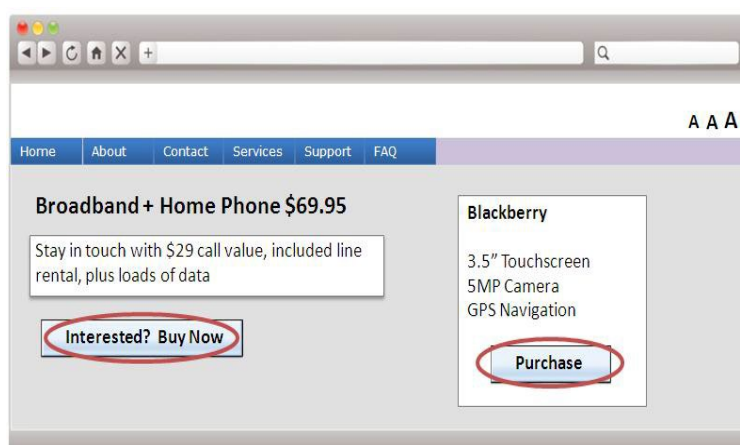
There are two buttons each having a different label. This could cause confusion for some users, especially for those using screen readers, who may not be able to take note of the similarities between these two buttons.

After Rectification
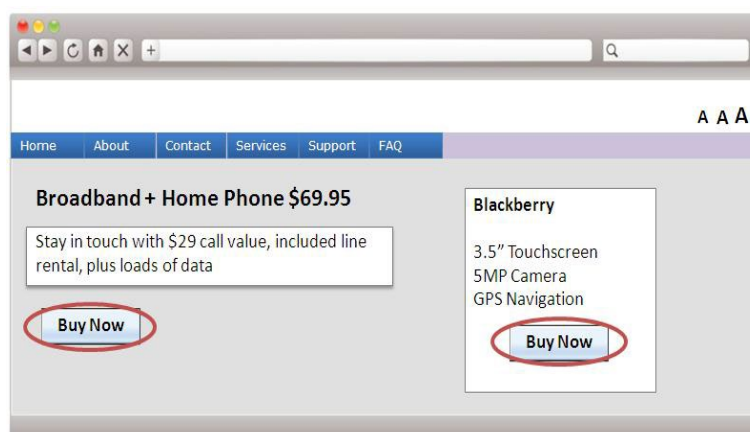
The two "Buy Now" buttons are consistent above and it is clear that both would perform the same function.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/consistent-identification
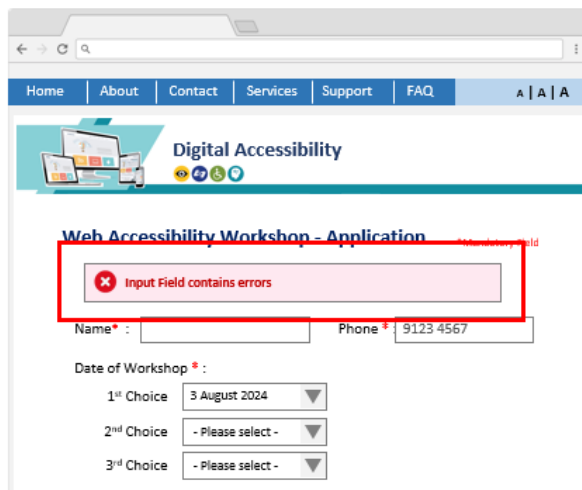
9.21 WCAG 2.2 Success Criterion 3.3.3 – Error Suggestion

When a user makes an error and the solution can be identified automatically, always provide the user with a suggestion to fix the error.

Before Rectification

An error message that is not helpful enough because it does not provide an adequate description of what needs to be corrected.

After Rectification

In contrast, the example above shows a message that provides a good explanation of what needs to be corrected.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/error-suggestion

## 9.22 WCAG 2.2 Success Criterion 3.3.4 – Error Prevention (Legal, Financial, Data)

If a user has to submit data that have legal or financial consequences, make sure the system allows the user to check and confirm his/her information before submitting, or reverse the transaction after submitting.

Before Rectification
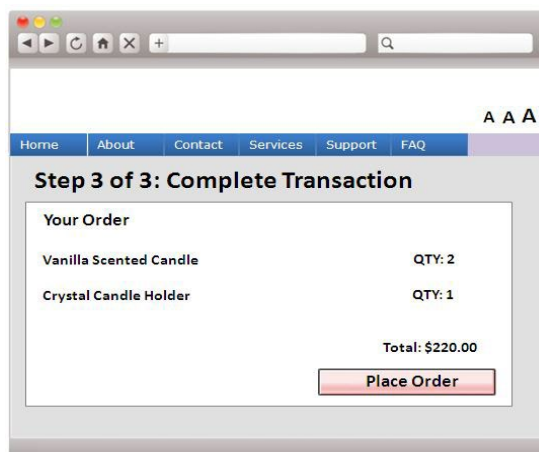
This screen indicates the last step of a transaction, in which the user is forced to place the order without a confirmation process.

After Rectification
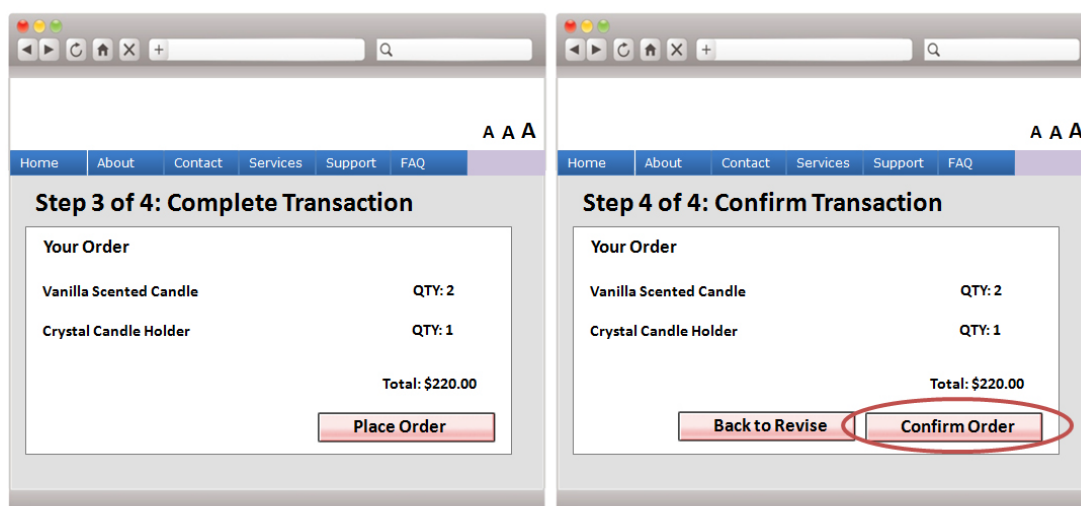
It is better to allow the user to first confirm and give him/her the option to change any of the details before the final submission.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/error-prevention-legal-financial-data

9.23   WCAG 2.2 Success Criterion 3.3.8 – Accessible Authentication (Minimum)

Ensure that there is an accessible, easy-to-use, and secure method for users to authenticate when logging into an account, provide at least one of the followings:

- Offer a way to use the features that does not require a cognitive assessment.

- Assistance is provided for users to pass the cognitive test.

- The cognitive test involves object recognition.

- The cognitive test checks the user's ability to identify non-text content on the mobile app.

Example 1
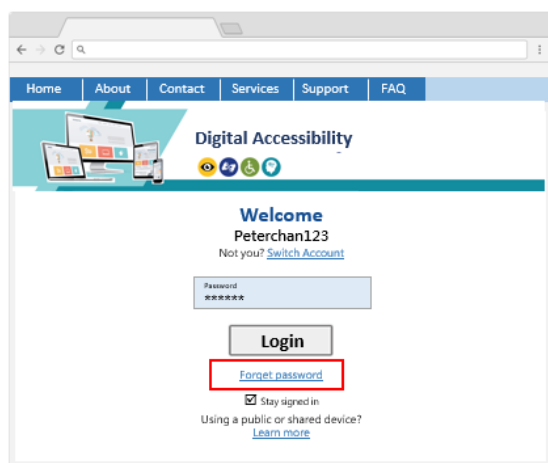
Example 2

Provide an alternative authentication method that does not rely on a cognitive function test, e.g. recall password.
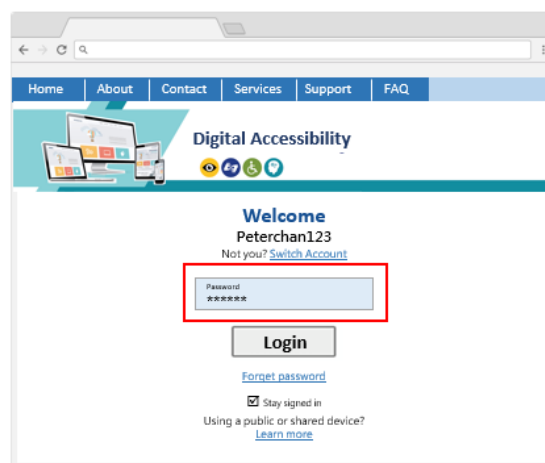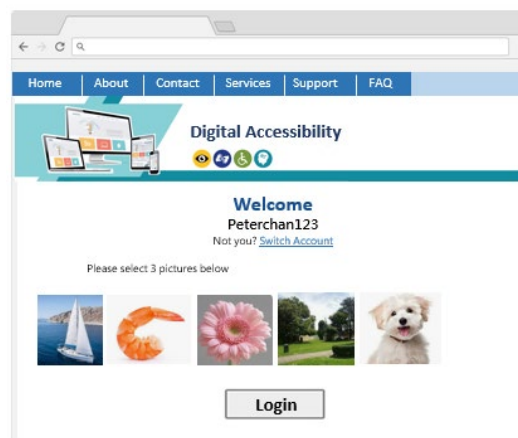
Provide a mechanism to assist user to complete cognitive function test, e.g. password save.

Example 3
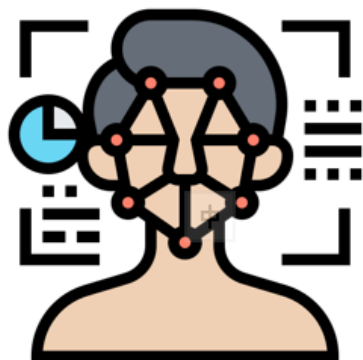
Example 4

Provide object recognition, e.g. facial recognition.

Provide personal content authentication, e.g. users are asked to select the picture during login, which is uploaded as part of account creation.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/accessible-authentication-minimum

9.24 WCAG 2.2 Success Criterion 4.1.3 – Status Messages

For any visible status message (e.g. error or success message subtly added to a page), users should be informed by means of assistive technology tools even though the status message is not in focus. One possible way to implement this criterion is to define the Accessible Rich Internet Application (ARIA) role (status, alert) or Live Regions.

Before Rectification
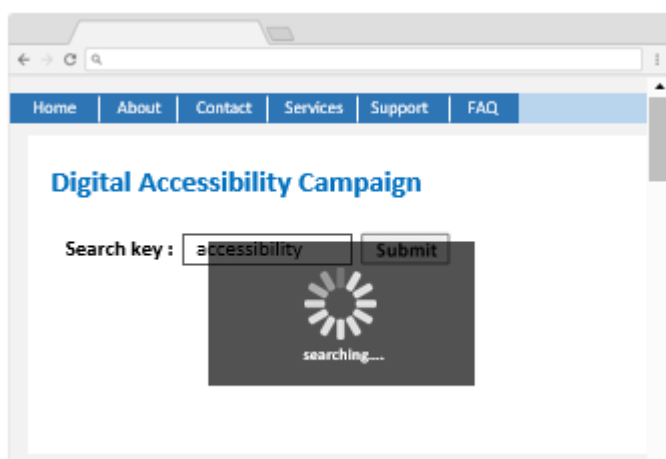
A spinning logo with "searching" status message appears after user initiates the search function. However, screen reader cannot read out the status message because it is not in focus.

After Rectification
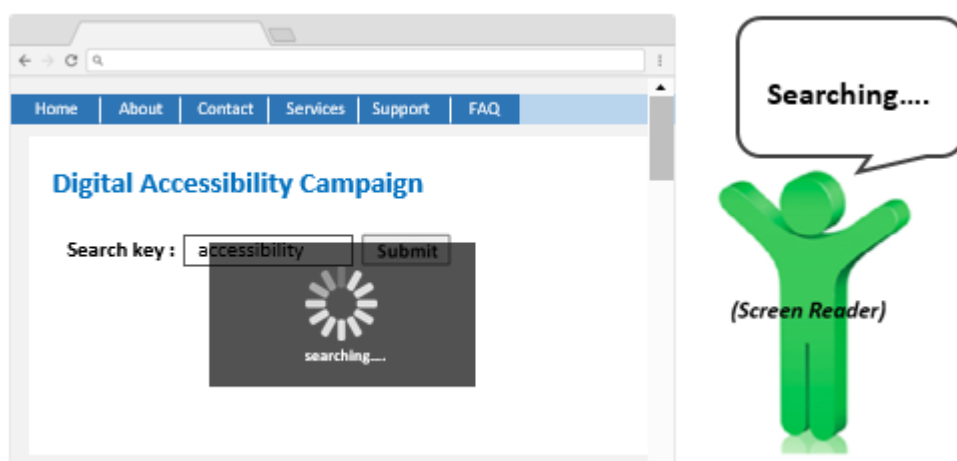
By assigning appropriate ARIA role to the status message, the screen reader is able to read out the message to inform users about the content change even though the status message is not in focus.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/status-messages.html

10. Five Testing Techniques for Web Accessibility

To ascertain web accessibility, testing is the key to finding and understanding issues to be rectified along the way. Five techniques for web accessibility testing are outlined below.

10.1 Code Scanning

Many accessibility issues can be detected automatically using software tools. These tools should be used to test the webpage coding during the development stages and when performing a web accessibility audit of a website.

After completing code scanning and when all identified issues are rectified, carry out other forms of testing as mentioned below to check for items that cannot be tested automatically.

Example Tools:

- AChecker
- Axe DevTools
- Total Validator
- WAVE

10.2 Visual Review

A great deal can be learnt about the accessibility of a website just by visual browsing while having in mind the following questions:

- Can the content be easily read?
- Can the forms for collecting input be used effectively?

We suggest paying particular attention to anything visual that might not work well for persons with visual impairments, for example:

- Is the text too small?
- Does it use pale coloured text on a pale background, making the text hard to read?

A simple look at a website can reveal many potential web accessibility issues for persons with disabilities.

Some recommended approaches that should be included in a visual review are:

- Turn off cascading style sheets (CSS). This is how your website will often be interpreted by screen readers. Does the content have a logical flow and structure?
- Try using the built in browser text enlargement functions. Do they work?

- Try moving around the webpages using just a keyboard. Can we access all the links and functions?

Example Tools:

- Colour Contrast Analyser
- WCAG Contrast Checker
- Web Developer (Firefox plugin)

10.3 Manual Testing with Screen Readers

An easy way to experience how persons with visual impairments use a website is to simply turn off the monitor and attempt to use the website with screen readers.

- Navigate the website and determine just how much information we can access through the screen readers.
- Try reading the headings, navigations, images, and also test more complex features such as input forms and tables.

Example Tools:

- JAWS
- NVDA
- VoiceOver
- Windows Light

10.4 Testing with Other Tools

Other than screen readers, persons with disabilities may use a variety of other tools to interact with a website. Two particular types of widely used tools are:

Screen Magnification Tools – these commonly used tools allow people to zoom into sections of a screen and change the contrast levels.

- Test a website with these tools and rectify issues found.

Voice Control Tools – some severe motor disabilities leave using voice commands as the only means to interact with a website. People speak into a microphone with commands such as "next link", "go", etc.

- Testing using these tools reveals issues which are difficult to identify through the other methods.

Example Tools:

- ZoomText Magnifier
- Dragon NaturallySpeaking

10.5 Human Testing

The most thorough approach to ensure web accessibility is to test a website with persons with various disabilities to learn what areas are difficult for them to access. As this testing method requires more time and resources, it is best to first undertake the above four types of testing methods to rectify as many web accessibility issues as possible, and then use human testing at later stages of a project to uncover more subtle issues.

Some organisations supporting persons with disabilities can help by providing free or affordable human testing services. These organisations include Direction Association for the Handicapped, Hong Kong Blind Union, Hong Kong Sign Language Association, the Hong Kong Society for the Blind and Retina Hong Kong. Website owners may contact these organisations for assistance.

11. Web Accessibility Related Resources

Web Content Accessibility Guidelines version 2.0 (WCAG 2.0)
https://www.w3.org/TR/WCAG20/

Web Content Accessibility Guidelines version 2.1 (WCAG 2.1)
https://www.w3.org/TR/WCAG21/

Web Content Accessibility Guidelines version 2.2 (WCAG 2.2)
https://www.w3.org/TR/WCAG22/

How to Meet WCAG (Quick Reference)
https://www.w3.org/WAI/WCAG22/quickref/

Understanding WCAG 2.1
https://www.w3.org/WAI/WCAG21/Understanding/

Understanding WCAG 2.2
https://www.w3.org/WAI/WCAG22/Understanding/

Techniques and Failures for WCAG 2.1
https://www.w3.org/WAI/WCAG21/Techniques/

Techniques and Failures for WCAG 2.2
https://www.w3.org/WAI/WCAG22/Techniques/

PDF Techniques for WCAG 2.1
https://www.w3.org/WAI/WCAG21/Techniques/#pdf

PDF Techniques for WCAG 2.2
https://www.w3.org/WAI/WCAG22/Techniques/#pdf

Web Accessibility Evaluation Tools List
https://www.w3.org/WAI/ER/tools/

Web Accessibility Initiative (WAI)
https://www.w3.org/WAI/

The Hong Kong Disability Discrimination Ordinance
https://www.elegislation.gov.hk/hk/cap487

The Hong Kong Equal Opportunities Commission
https://www.eoc.org.hk

12. Glossary

Term	Description
Abbreviation	Shortened form of a word, phrase or name.
Acronym	An abbreviation made from the initial letters of a name or phrase that contains several words. Many acronyms can be pronounced as words. Defined differently in different languages.
"alt" tag	An attribute of an HTML tag that provides information about an element in text form
Assistive technology	A range of hardware devices such as modified keyboards and software such as screen readers that assist and enable persons with disabilities to use devices such as computers more effectively.
Audio description	Audio narration that is added to the soundtrack to explain important details that cannot be understood from the main soundtrack alone. During pauses in the track, audio descriptions of video provide information about actions, characters, scene changes and on-screen text for people who are visually impaired.
Breadcrumb	A trail of links most often found at the top of a piece of content within a webpage. The trail of links shows the location of the page within the website and gives a means for the user to link to pages above it.
Browser	Any software that retrieves and renders Web content for users.
Captcha	A type of technology aimed at checking whether the submission of a form is being done by a person or a computer. These usually involve entering some sort of distorted but still legible text or number displayed on the screen.
Captions	Synchronised transcripts of dialogue and important sound effects. Captions provide access for persons with hearing impairments.
Cascading style sheet - CSS	A way to define the style of a webpage, separate to the content through an external file.
Changes of context	A change in the browser window, or focus off a particular item; or even a change of content that changes the meaning of what was previously being viewed. It should be noted that a change in content is not always a change of context. Small changes in content, such as an expanding outline do not change the context.

Term	Description
Code	The language used to instruct computer software and hardware to perform certain functions
Extended audio descriptions	Audio descriptions that are added to an audio/visual presentation by pausing the video so that there is time to add an additional description of what is going on, or what just took place. This technique is only used when the message in the video would be lost without the additional audio description.
Flash	A proprietary multimedia platform owned by Adobe Systems, used to add animation, video and interactivity to webpages.
Function / Functionality	Perform or is able to perform one or more actions in response to user input.
HTML	Hypertext Mark-up Language (HTML) is the "language" used to produce websites.
Live audio-only	A live presentation that contains only audio (no video and no interaction)
Masthead	The portion at the top of most webpages. The term comes from the masthead of a newspaper which refers to the brand and name of a newspaper displayed at the top of the front page. On a webpage the masthead generally includes the logo and main navigation of the website.
Parsing	Parsing is the process a web browser goes through to display a webpage. The browser analyses the code and then displays the webpage accordingly. If the code is not correct, the browser may not display the webpage correctly. Screen readers also have to parse code and may not read a webpage correctly if the code is not correct.
Session	When a person visits a website, the server acknowledges that someone is using the website and assigns the persona period of time or session. In this way a website can keep track of stored items such as shopping carts. If a person stays idle on a website for too long – generally 30 minutes – the session will expire and the website will consider the person as a new visitor.

Appendix A: WCAG 2.2 Success Criteria – Level AAA

A.1 WCAG 2.2 Success Criterion 1.2.6 – Sign Language (Prerecorded)

Sign language is a method universally used by people beset with hearing impairment to access audio content. This provides the ability to reflect emotion, intonation and other audio information that may be limited when using captions.

Before Rectification
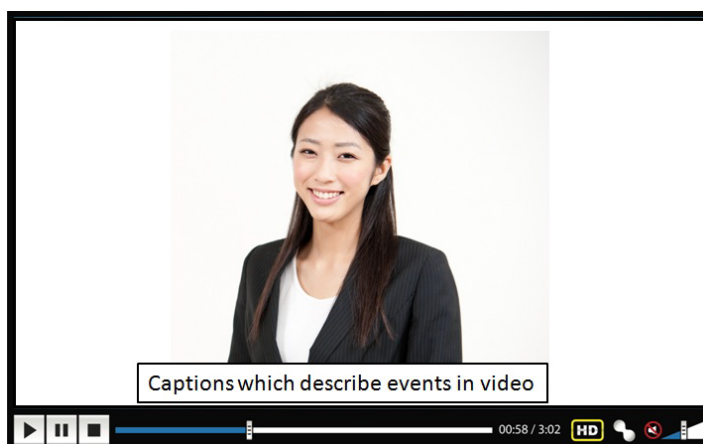
Simply having the video with a transcript or captions may not be enough for all users.

After Rectification

A more reliable method is to translate this information through sign language as is seen in the example above.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/sign-language-prerecorded

A.2 WCAG 2.2 Success Criterion 1.2.7 – Extended Audio Description (Prerecorded)

If the content of a video is complex, the audio within the video may not effectively explain what is taking place in the visual. Some visually impaired persons listening to the audio will miss out on important content. To rectify this, provide an extended audio description which describes in detail what is taking place in the visual. Often in these cases the visual may need to pause while the audio description plays.

An extended audio description may state things like "The person is now doing X in the video. Now the person is doing Y."

Before Rectification
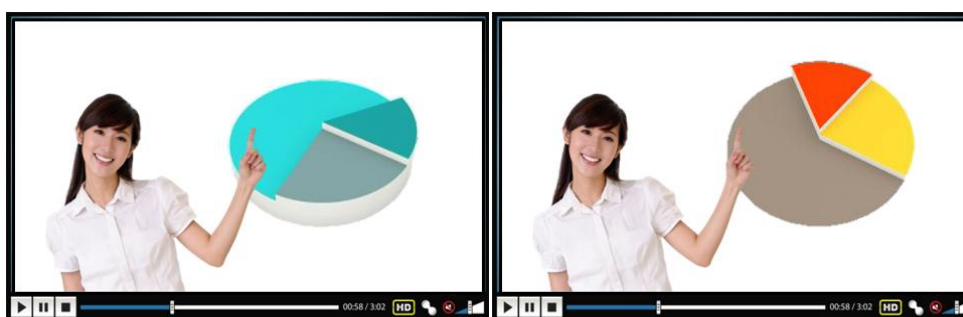
There is a risk that a user has not enough time to understand all the information before the video moves onto the next point because they cannot see the visual.

After Rectification
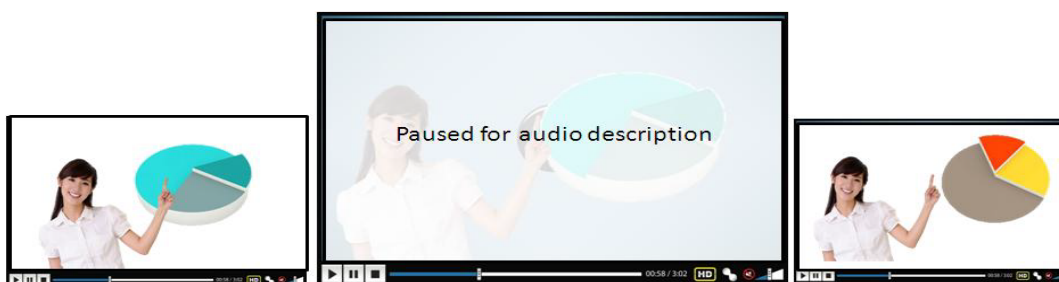
The example above shows how the system can handle this by temporarily pausing the video and providing audio to explain the situation.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/extended-audio-description-prerecorded

A.3 WCAG 2.2 Success Criterion 1.2.8 – Media Alternative (Prerecorded)

This success criterion is meant to target at users with impaired hearing and vision. This "alternative" is not like a caption or a subtitle. Instead, full descriptions are provided for all visual information, including visual context, actions and expressions of actors, and any other visual materials. In addition, non-speech sounds (laughter, off-screen voices, etc.) are described, and transcripts of all dialogues are included. The media alternative is generally provided in text so it can be read using assistive technologies.

Before Rectification
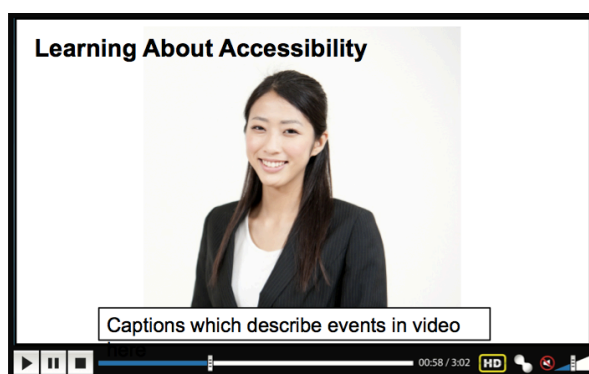
When video content is displayed as above, a visually impaired person will only hear the audio and a hearing impaired person will only see the pictures.

After Rectification
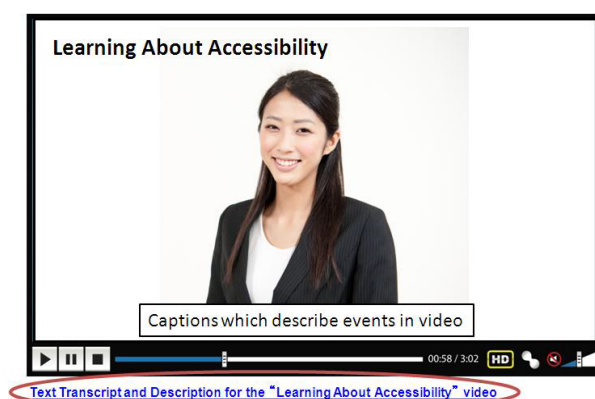
To improve accessibility, a text version is added. However, this text version is more than a transcript of the audio. It also describes what is taking place within the video.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/media-alternative-prerecorded

A.4 WCAG 2.2 Success Criterion 1.2.9 – Audio-only (Live)

For live audio, offer an alternative that contains equivalent information. For example, make speech notes available if a speech is being delivered.

Before Rectification

This live presentation is not accessible to people beset with hearing impairment.

After Rectification

The example above shows that a simple link directing users to the speech notes means that all users can access this content.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/audio-only-live

A.5 WCAG 2.2 Success Criterion 1.3.6 – Identify Purpose

The purpose of user interface components, icons and certain sections can be identified by user agents. For example, Accessible Rich Internet Application (ARIA) landmarks should be used to identify regions of a page, so that assistive technologies can be used to make the content more understandable.

Before Rectification
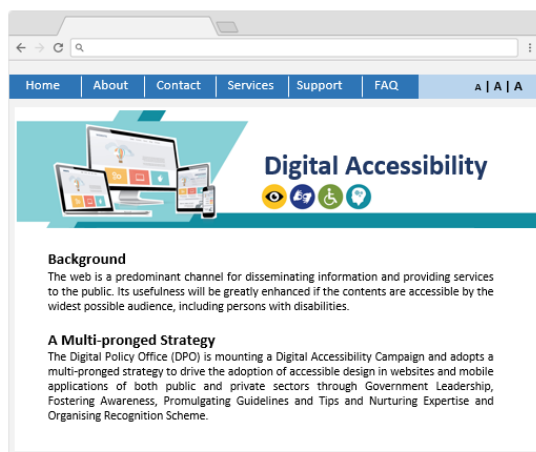
Without setting the ARIA landmark roles, assistive technologies cannot easily recognise different regions of the webpage to provide customisation for the user.

After Rectification
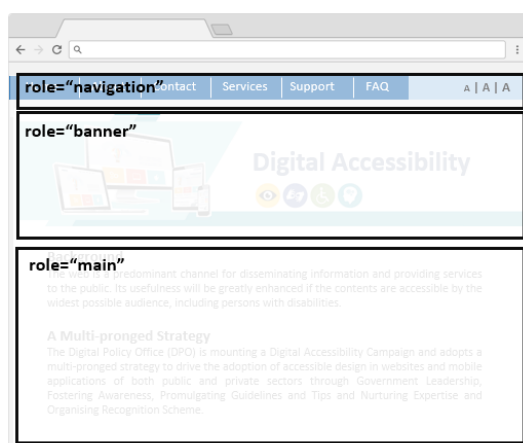
The ARIA landmark roles are assigned to identify different regions of the page. Assistive technologies can help the user by adding icons or changing the styles of individual webpage components.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/identify-purpose.html
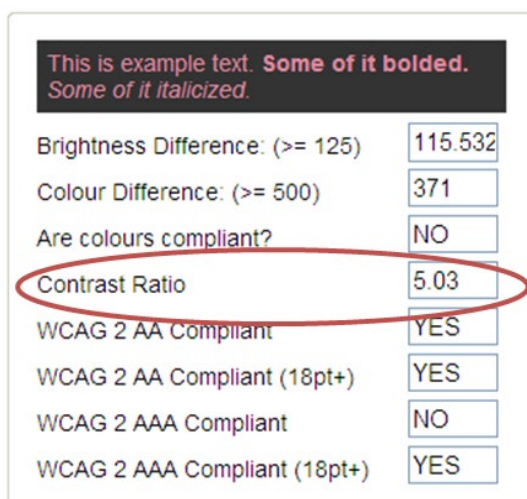
A.6 WCAG 2.2 Success Criterion 1.4.6 – Contrast (Enhanced)

Previously it was mentioned that having a contrast ratio of 4.5:1 is sufficient. This is the case for Level AA. Level AAA increases this ratio to 7.1:1 by using darker text on a lighter background or vice versa.

Before Rectification
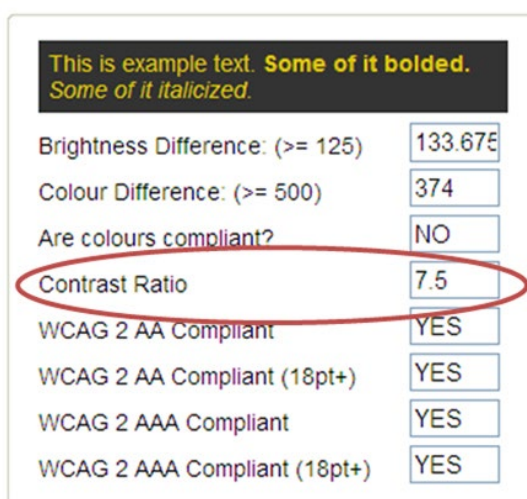
The text colour and background indicated in the contrast checker above do not comply with Level AAA.

After Rectification

This text and background colour combination complies with Level AAA with the use of the contrast ratio above.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/contrast-enhanced

A.7 WCAG 2.2 Success Criterion 1.4.7 – Low or No Background Audio

Ideally, do not place background sound in audio clips. If this cannot be avoided, provide a clearly labelled function to enable the user to turn the audio off and ensure the foreground sound is approximately four times as loud as the background sound.

Before Rectification

The background audio has a high chance of overpowering the actual dialogue. This becomes an issue for persons with hearing impairments.

After Rectification

An effort should be made to reduce the background sound as much as possible. At the bare minimum, make sure that if a background sound does exist, it is four times as quiet as the foreground sound/dialogue.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/low-or-no-background-audio

A.8 WCAG 2.2 Success Criterion 1.4.8 – Visual Presentation

When there is a block of text, ensure that the user can select the foreground and background colours. Besides, ensure the text is not "fully justified" and is less than 80 characters long. In addition, ensure there is at least a space and a half between each line and that the space between each paragraph is 1.5 times larger than the space between each line.

Before Rectification

This paragraph of text is justified. The width is longer than 80 characters and, the line spacing is **not** space-and-a-half (it is single spacing)....This paragraph of text is justified. The width is longer than 80 characters and, the line spacing is **not** space-and-a-half (it is single spacing).

The paragraph in the example above is not easily accessible as it does not meet the criteria mentioned.

After Rectification

This paragraph of text is aligned to the left. The width is less than 80 characters and, the line spacing is space-and-a-half .... This paragraph of text is aligned to the left. The width is less than 80 characters and, the line spacing is space-and-a-half.

The example above shows how to make a paragraph accessible. This helps many users who have learning difficulties as there is enough space between each line and also the space is even.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/visual-presentation

A.9 WCAG 2.2 Success Criterion 1.4.9 – Images of Text (No Exception)

To achieve the highest accessibility rating, do not use text in images unless it is purely decorative, or the text as an image is central to the idea being communicated.

Before Rectification
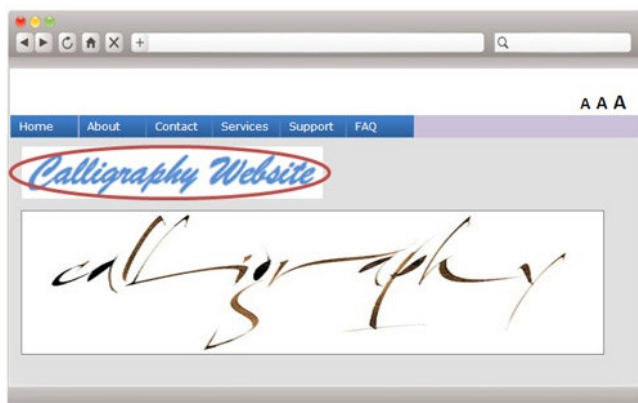
The heading of the webpage above is an image and would not comply with Level AAA.

After Rectification
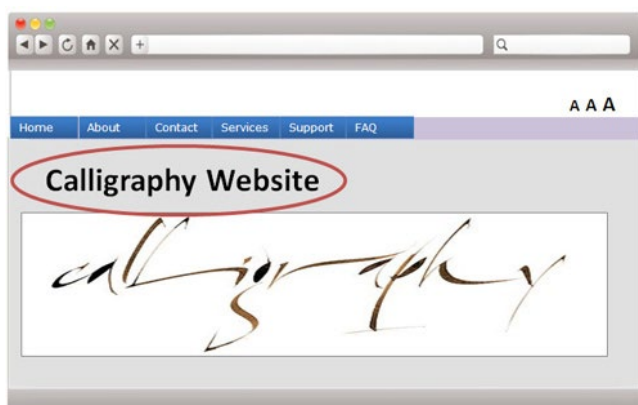
The image has been replaced with text and now complies with Level AAA.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/images-of-text-no-exception

A.10 WCAG 2.2 Success Criterion 2.1.3 – Keyboard (No Exception)

With no exception, all content must be operable from a keyboard.

Before Rectification
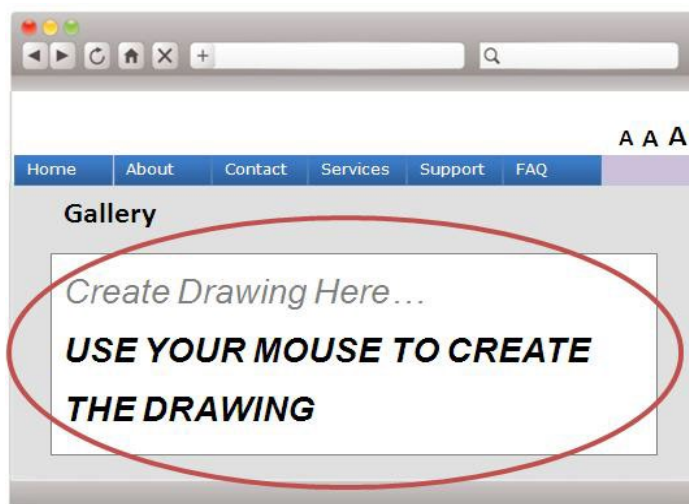
In this situation the system only allows a user to use his/her "mouse" to create the drawing. This is not accessible to persons with restriction in body movement who cannot use a mouse.

After Rectification
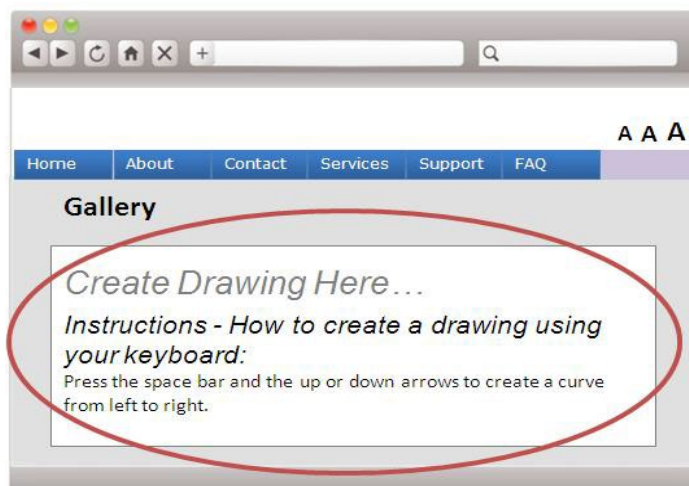
In this situation the system allows the user to create a picture using the keyboard and also provides instructions on how to achieve this. This is helpful for persons with restriction in body movement.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/keyboard-no-exception

A.11 WCAG 2.2 Success Criterion 2.2.3 – No Timing

Design content such that timing is not an essential part of the event or activity.

Before Rectification
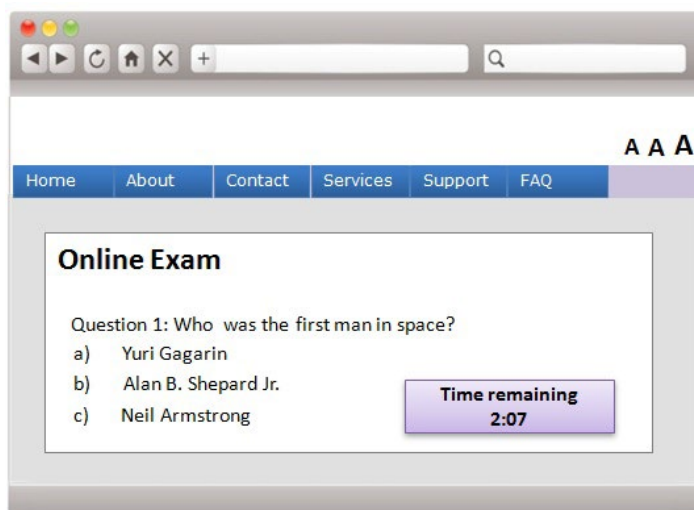
After Rectification
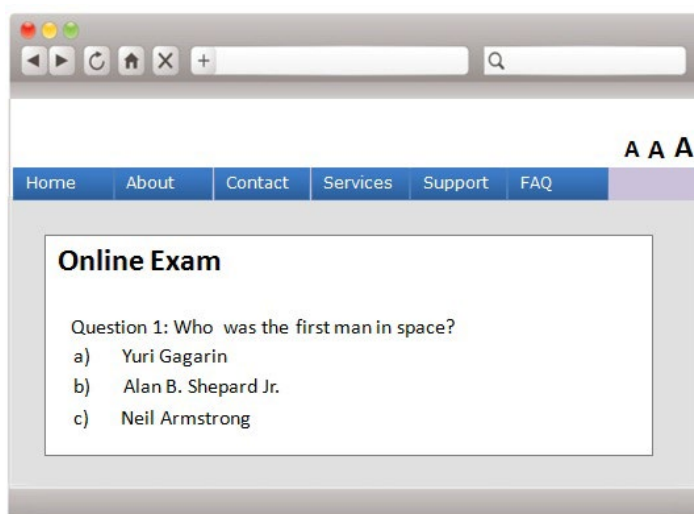
It is always advisable that no "time limit" is placed on a webpage.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/no-timing

A.12 WCAG 2.2 Success Criterion 2.2.4 – Interruptions

Users must be provided with a function to turn off updates except in emergencies.

In this way, persons with attention deficit disorders can focus on the content without distraction. In addition, people using screen readers will not have content updated while they are listening, thereby preventing confusion.

Before Rectification
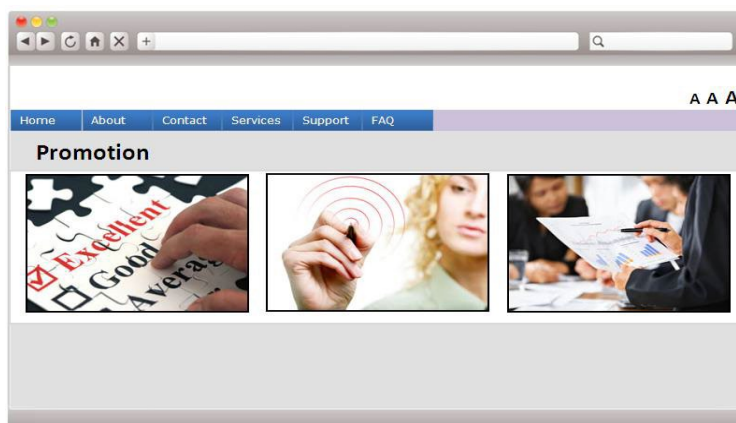
If this promotion is an auto-rotating element, a user who has learning disabilities or low vision may not be able to read all the content before it automatically rotates.

After Rectification
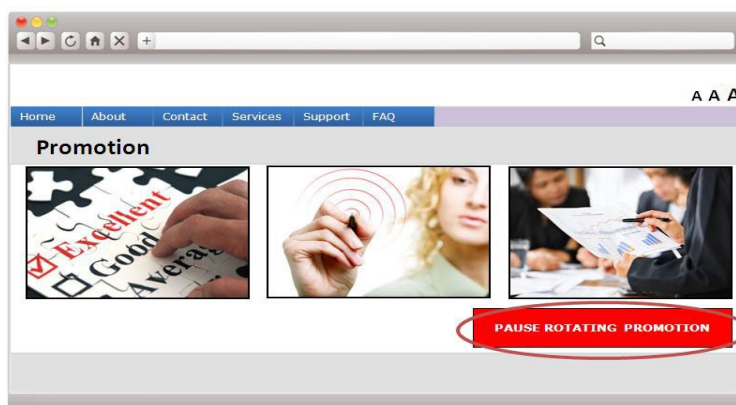
The button allows a user to pause the rotation if required.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/interruptions

A.13 WCAG 2.2 Success Criterion 2.2.5 – Re-authenticating

If a user is logged into a system, and his/her "session expires", he/she must be able to log in again without losing any of his/her previously entered data.

Before Rectification
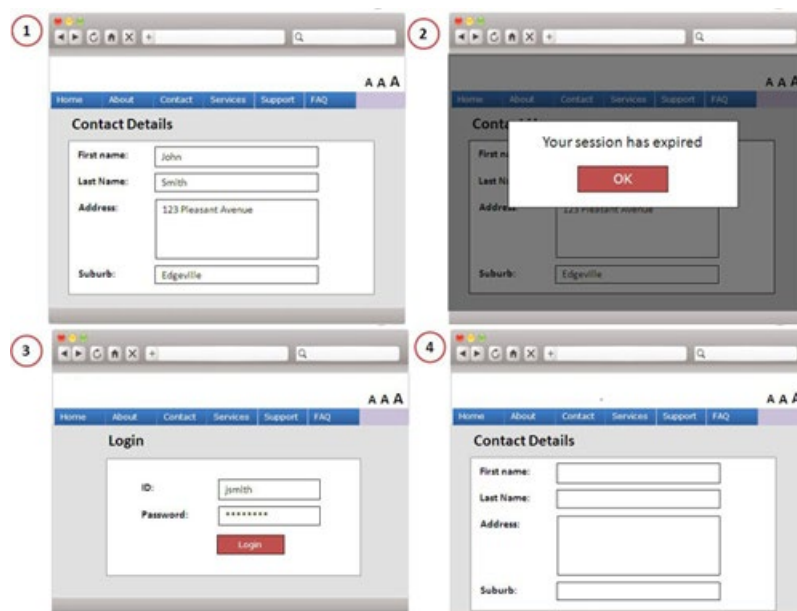
The example above shows a scenario where a user will lose his/her data, as the system has not remembered the user's details at step 4.

After Rectification
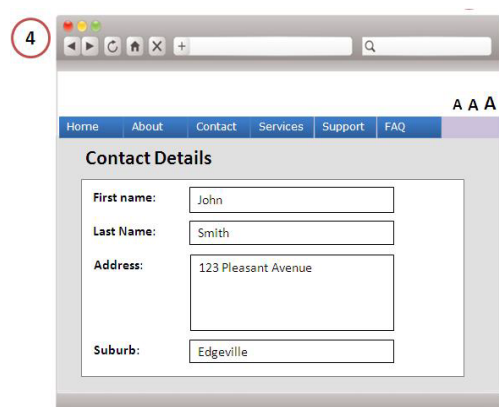
The correct technique is to ensure after the user logs in again, the data entered is not lost.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/re-authenticating

A.14 WCAG 2.2 Success Criterion 2.2.6 – Timeouts

Users should be informed about the duration of inactivity which will cause the page to time out and result in data loss, unless the data is preserved for more than 20 hours when the user does not take any actions.

Note: If the transaction involves collection of personal data, please ensure the handling and protection of personal data complies with the Personal Data (Privacy) Ordinance. For more information about the Personal Data (Privacy) Ordinance, please refer to the following link:

https://www.pcpd.org.hk/english/data_privacy_law/ordinance_at_a_Glance /ordinance.html

Before Rectification
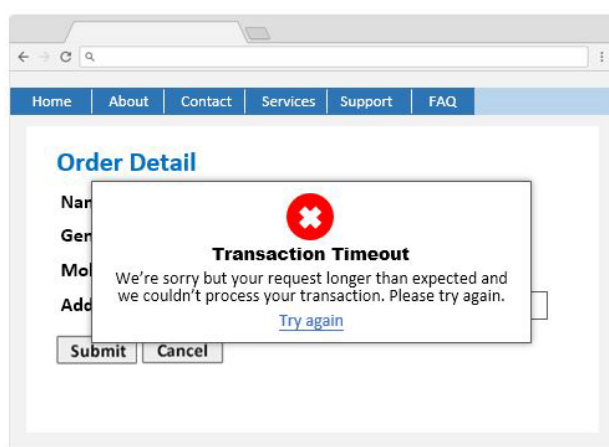
Users are not warned of the duration of inactivity that could cause a timeout and data loss. After the page is idled for a certain period of time, the application prompts timeout and all the input data are lost.

After Rectification
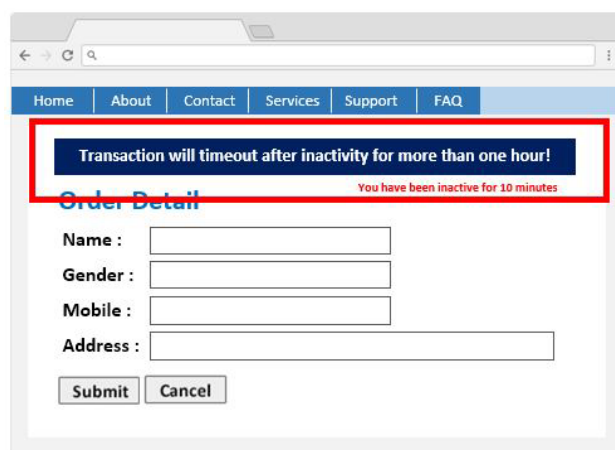
A message is clearly shown at the top of the page indicating that inactivity for more than an hour will trigger the timeout process.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/timeouts

A.15 WCAG 2.2 Success Criterion 2.3.2 − Three Flashes

Ensure there is nothing on a website that "flashes" for more than three times per second irrespective of its size. Otherwise, this may cause problems for people who suffer from epilepsy.

Before Rectification

The traffic light image is flashing too fast and is large in size. This can cause seizures.

After Rectification
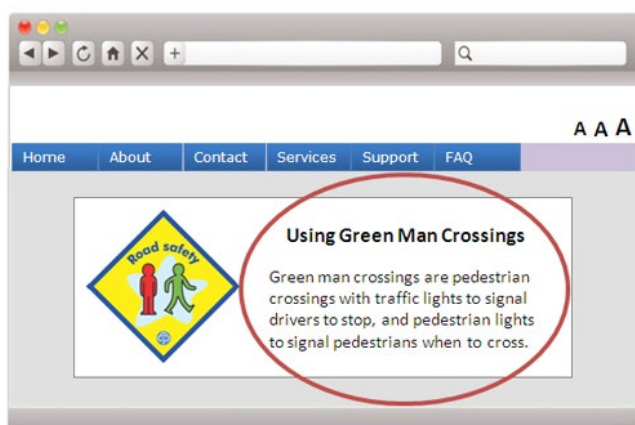
It is better to replace flashing content with static content that does not change.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/three-flashes

A.16 WCAG 2.2 Success Criterion 2.3.3 – Animation from Interactions

Users should be allowed to disable the motion animation triggered by interaction, unless the animation is essential to the functionality or the information being conveyed.

Before Rectification

Animation on the top banner is triggered when users scroll down the webpage. However, the website does not allow users to disable the non-essential animation in the banner. Users with vestibular disorders (motion sickness) may feel sick when reading the web content.

After Rectification
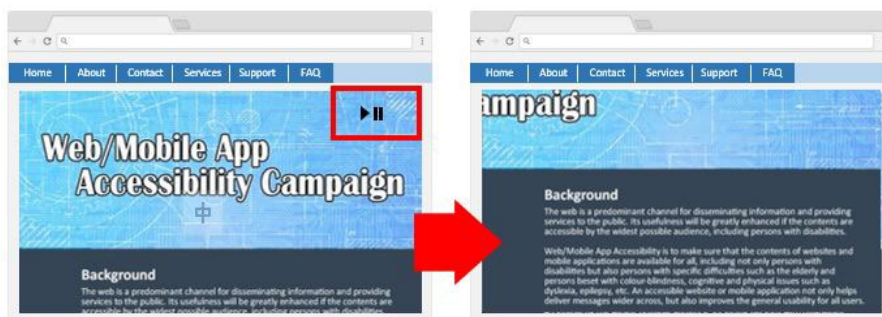
A function is provided for users to disable all non-essential animations.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/animation-from-interactions.html

A.17 WCAG 2.2 Success Criterion 2.4.8 – Location

Provide a way for the users to determine their location within a website at all times. For example, use "breadcrumbs" so that users will be able to quickly determine where they are within a website.

Before Rectification
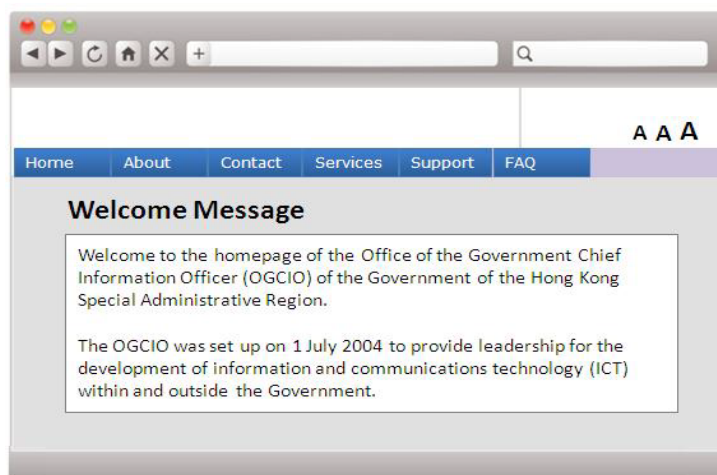
There is no way of knowing where you are within the website. For a user who is visually impaired, it is very easy to get disorientated whilst navigating a website.

After Rectification
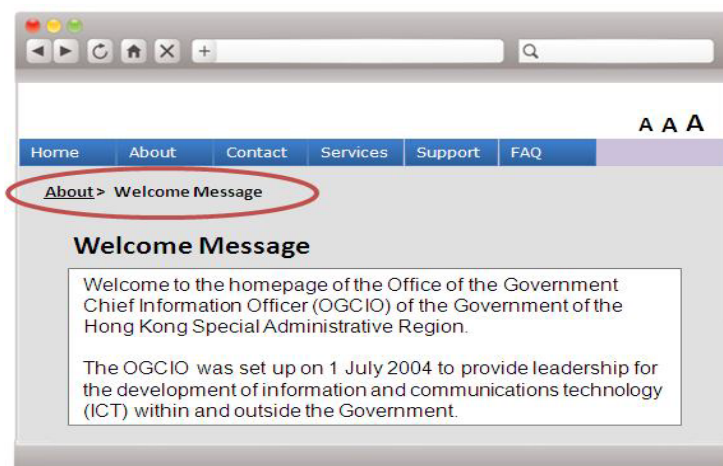
The example above, notice how a "breadcrumb" trail is included. This allows users to always know where they are within the website.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/location

A.18 WCAG 2.2 Success Criterion 2.4.9 – Link Purpose (Link Only)

Make sure that the purpose of each link can be recognised from the link text alone.

Before Rectification
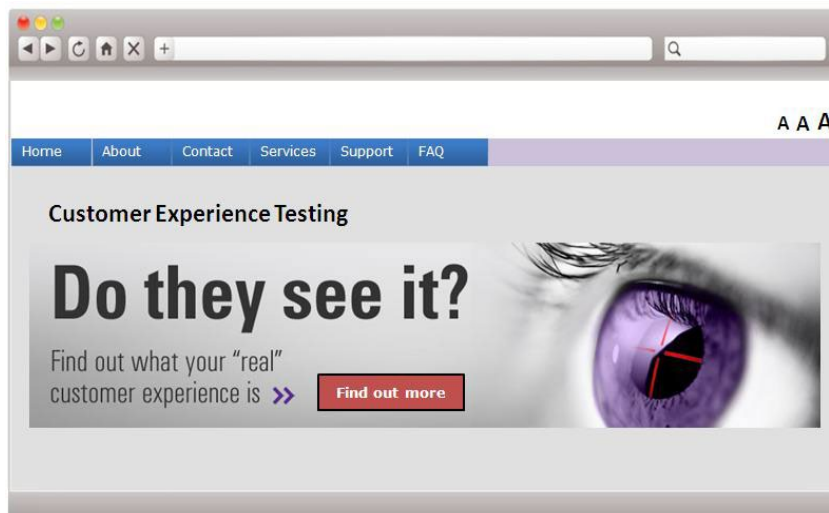
The button "Find out more" only briefly describes the purpose of this link.

After Rectification
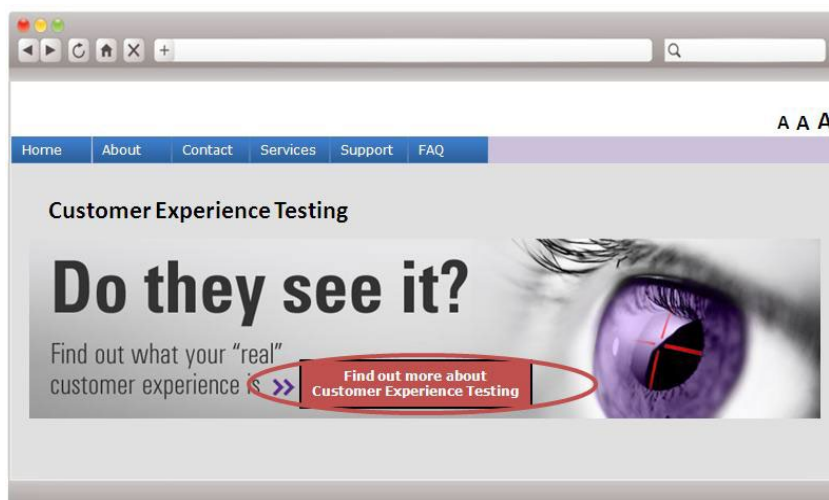
This image shows a link button which clearly describes its purpose, i.e. "Find out more about Customer Experience Testing", instead of just "Find out more" as shown in the "Before Rectification" image above.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/link-purpose-link-only

A.19 WCAG 2.2 Success Criterion 2.4.10 – Section Headings

Use section headings such as titles, headings and subheadings, to break up content into smaller chunks. This helps users digest the content more easily, and makes it easier for all users to navigate quickly through the information.

Before Rectification
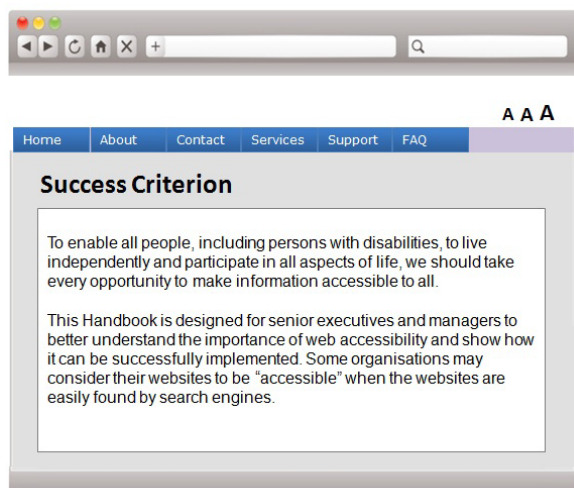
The example above has a large piece of text. This could be difficult to read by some users who may have learning disabilities. Besides, for people using screen readers, this is a long piece of text to read.

After Rectification
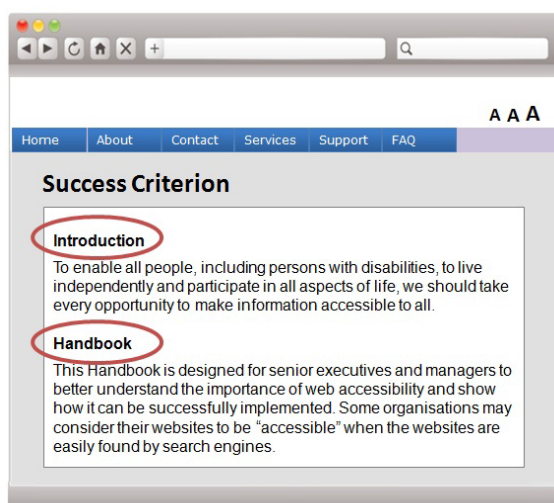
By breaking the information into sections, it would be easier to understand.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/section-headings

A.20 WCAG 2.2 Success Criterion 2.4.12 – Focus Not Obscured (Enhanced)

When an item receives focus, ensure that it is fully visible.   Users who rely on a keyboard interface to operate the page will be able to locate where they are on the webpage.

Before Rectification
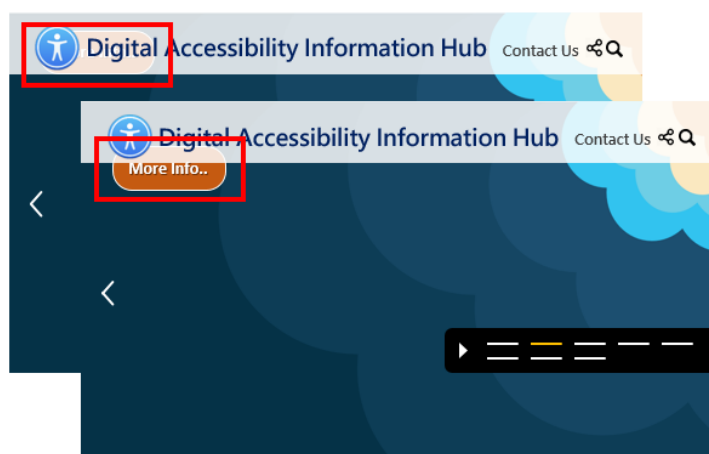
The sticky header fully/partially overlaps focused item at the top left-hand corner.

After Rectification
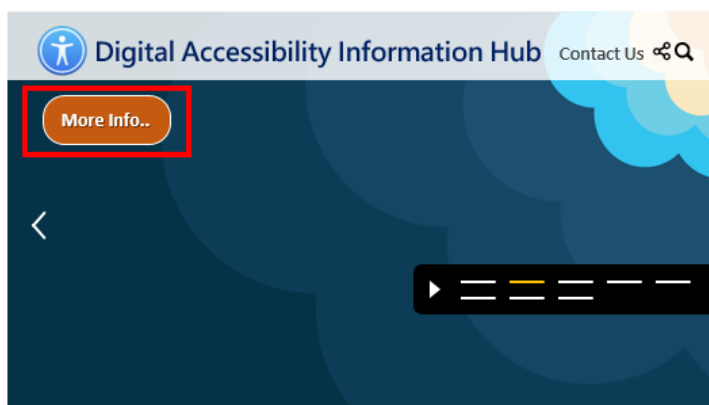
The example above ensures that the focused item at the top left-hand corner is completely visible.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/focus-not-obscured-enhanced.html

A.21 WCAG 2.2 Success Criterion 2.4.13 – Focus Appearance

When a focus indicator is shown, ensure that it is sufficient in size and colour contrast, and it should have the area of a 2 CSS pixel thick outline with minimum 3:1 colour contrast ratio against unfocused states.

Before Rectification
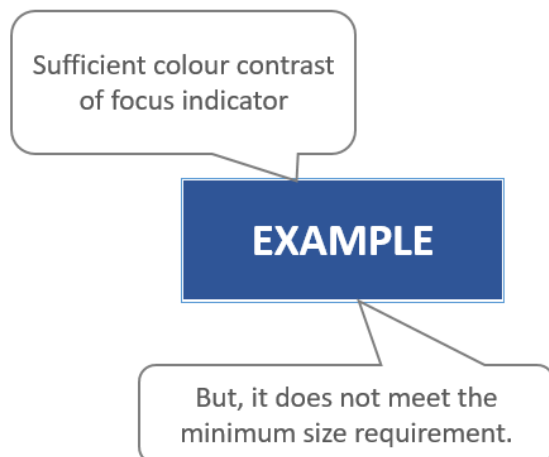
Focus area do not have sufficient size.

After Rectification
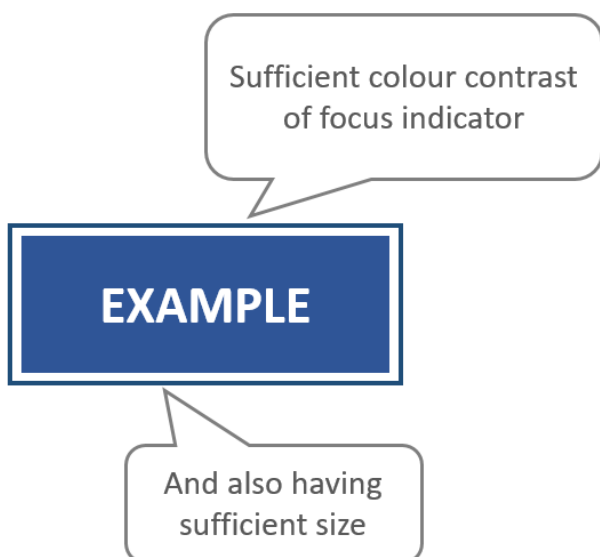
Focus indicator provided sufficient colour contrast and size, make it easier to spot.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/focus-appearance.html

A.22 WCAG 2.2 Success Criterion 2.5.5 – Target Size (Enhanced)

The sizes of target (e.g. button) are at least 44 by 44 Cascading Style Sheets (CSS) pixels, except when:

- **Equivalent**: The target is available through an equivalent link or control on the same page that is at least 44 by 44 CSS pixels;

- **Inline:** The target is in a sentence or block of text;

- **User Agent Control**: The size of the target is determined by the user agent and is not modified by the author;

- **Essential**: A particular presentation of the target is essential to the information being conveyed.

Before Rectification
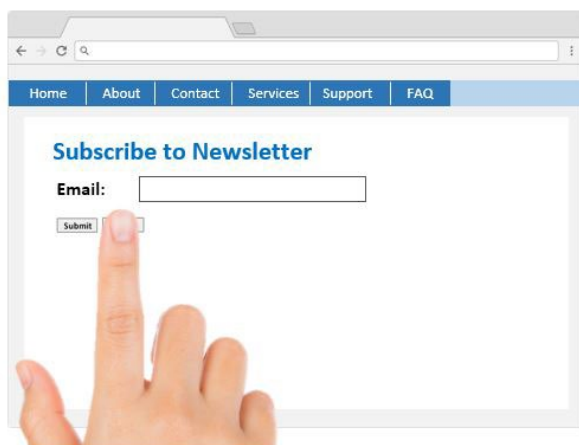
Buttons are too small and difficult to tap.

After Rectification
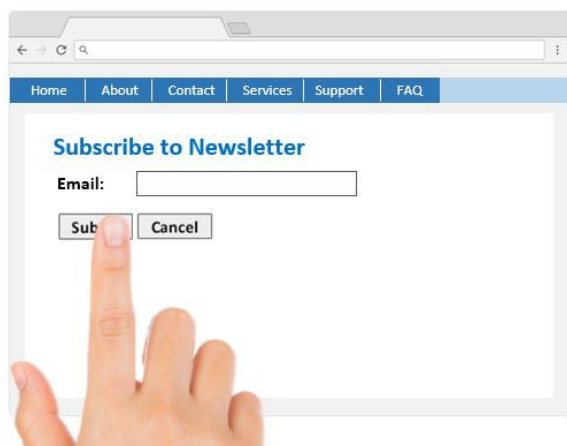
The size of buttons is larger than 44 by 44 CSS pixels, so that users can tap the buttons easily.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/target-size-enhanced.html

A.23 WCAG 2.2 Success Criterion 2.5.6 – Concurrent Input Mechanisms

Websites should not restrict the use of input modalities (e.g. keyboard, mouse, touchscreen, voice input) available on a platform, unless the restriction is essential, or is required to ensure the security of the content, or to respect user settings.

Before Rectification
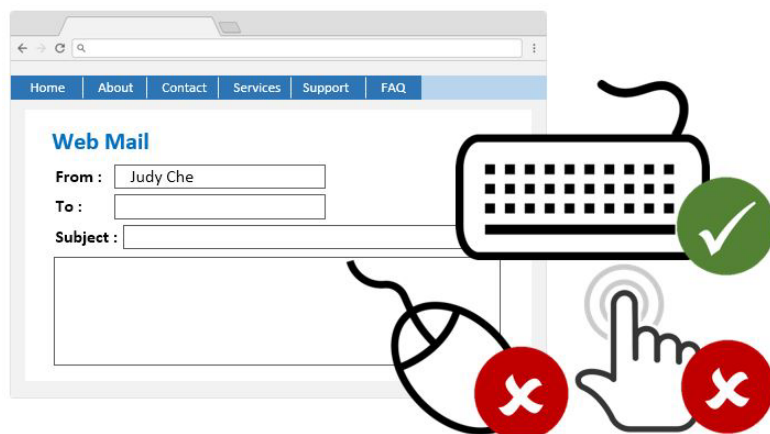
The webpage only accepts input by keyboard.

After Rectification
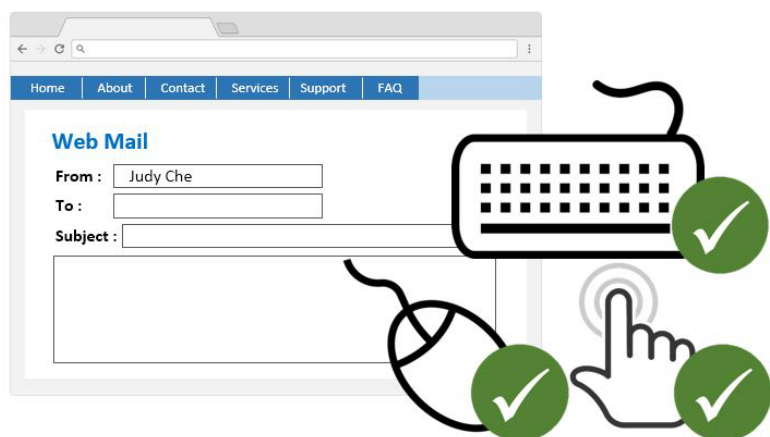
The webpage accepts more than one kind of input mechanism, including keyboard, mouse and touchscreen. Users are allowed to switch between input mechanisms when necessary.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/concurrent-input-mechanisms.html

A.24 WCAG 2.2 Success Criterion 3.1.3 – Unusual Words

If words or phrases are used in an unusual or restricted way, including unusual expressions or jargons, ensure there is a way for users to identify the corresponding definitions. One example of how this can be done is to make sure the expanded version of an acronym is explained for screen readers.

Before Rectification
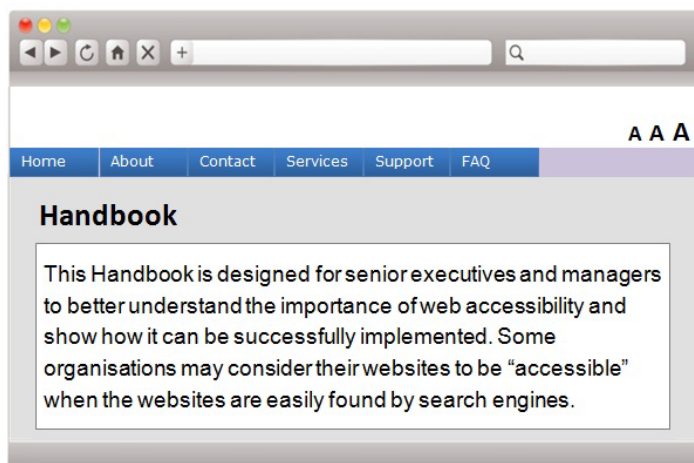
Users could not identify the definition of the term "web accessibility".

After Rectification
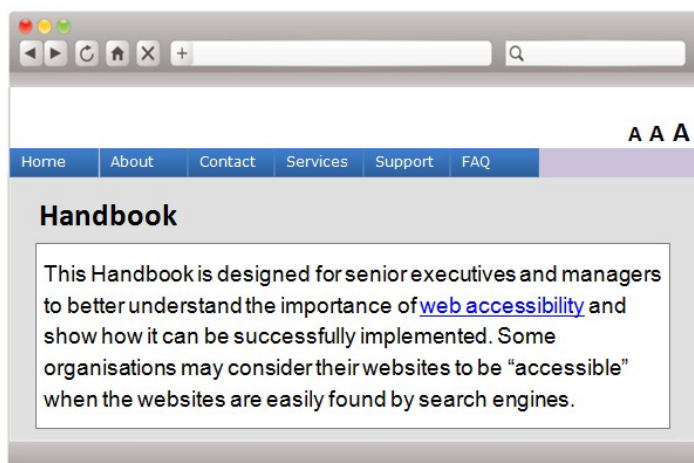
The example above, some words are linked to a glossary. This is a good method to ensure all users understand the unusual terms.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/unusual-words

A.25 WCAG 2.2 Success Criterion 3.1.4 − Abbreviations

Wherever abbreviations are used, provide a way for the user to understand what these abbreviations stand for and their meaning. What may seem obvious to one person may be meaningless to another.

Before Rectification

The acronym "UCC" should not be coded like the example above. A screen reader will try to read the letters U-C-C like a word which may be difficult to understand.

After Rectification
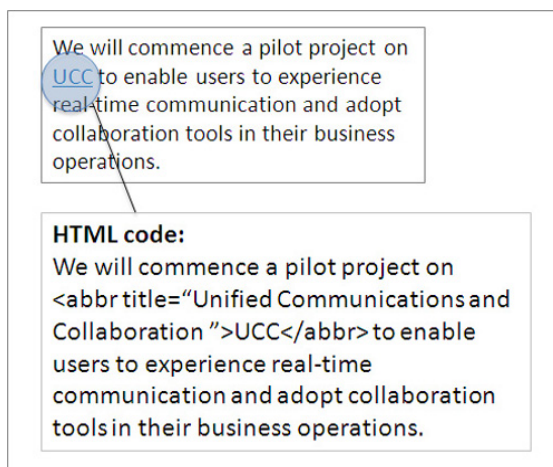
When an acronym is used, ensure the code is written as shown above. In this way, screen readers will not read the letters "UCC", it will read the full version of the abbreviation, that is "Unified Communications and Collaboration".

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/abbreviations

A.26 WCAG 2.2 Success Criterion 3.1.5 – Reading Level

Make text simple and easy to understand. For example, use short and common words in sentences. If possible, provide a summary for the content. This will help those users who may have learning difficulties such as dyslexia.

Before Rectification
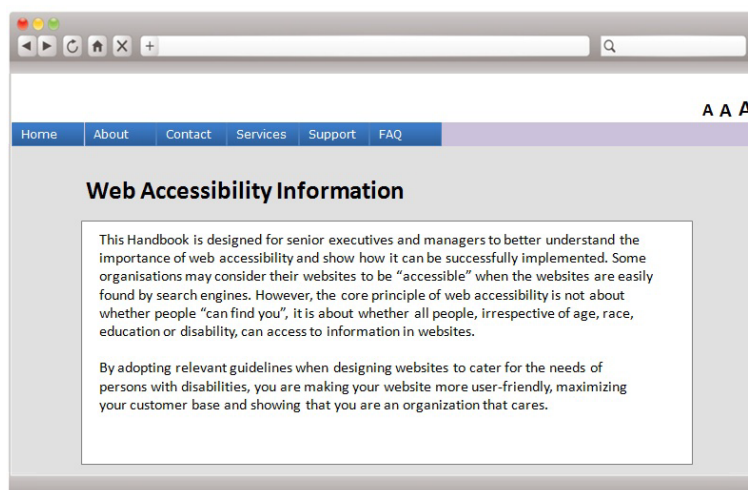
The example above shows some content with complexity.

After Rectification
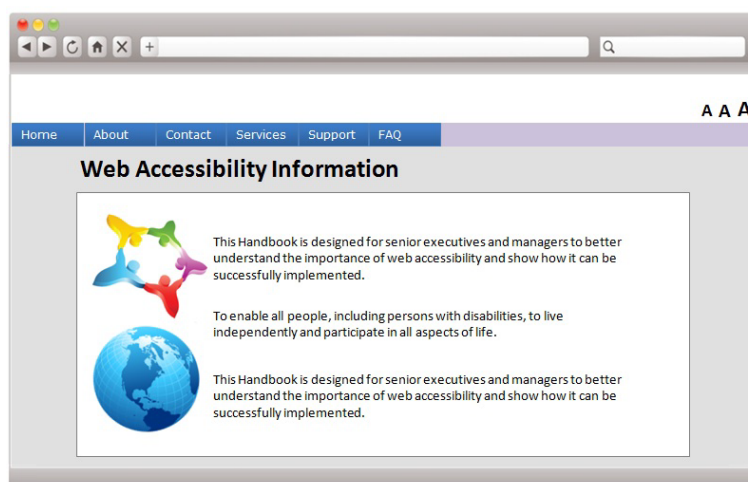
Wherever possible, try to make all content as simple as possible with minimal complexity. If possible, use less words and images to make reading easier, just like the example above.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/reading-level

A.27 WCAG 2.2 Success Criterion 3.1.6 – Pronunciation

If there are words having different meanings when using different pronunciation, provide a clear explanation of the pronunciation.

The example below, the word "minute" may mean either "The button was so minute I could not see it." (meaning "small") or "I need a minute to think about it." (meaning "60 seconds"). If such instances arise, ensure the meaning is clear from the context, or provide additional information that shows which pronunciation should be used so as to avoid ambiguity.

Before Rectification
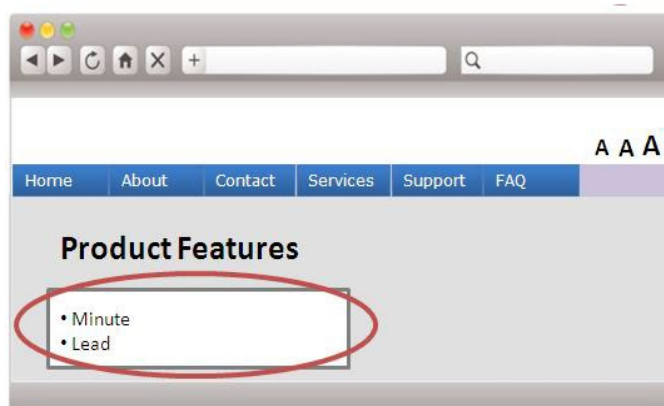
There could be some confusion over which meanings of the word "minute" is referred to, as there is no context provided.

After Rectification
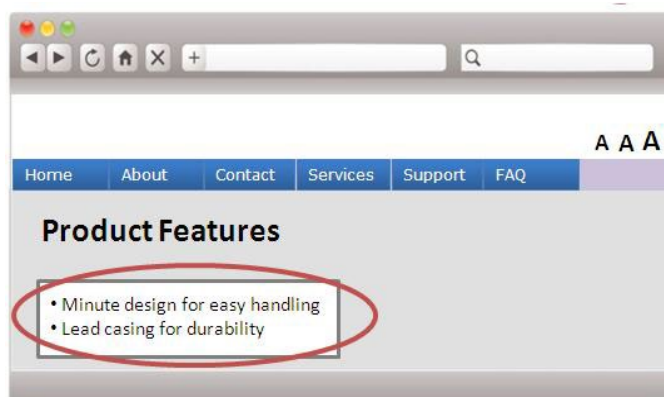
The example above shows how the content can be expanded to ensure there is no confusion.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/pronunciation

A.28 WCAG 2.2 Success Criterion 3.2.5 – Change on Request

Items such as slideshows may automatically change context. In this case, ensure functions are available for users to control this automated change.

Before Rectification
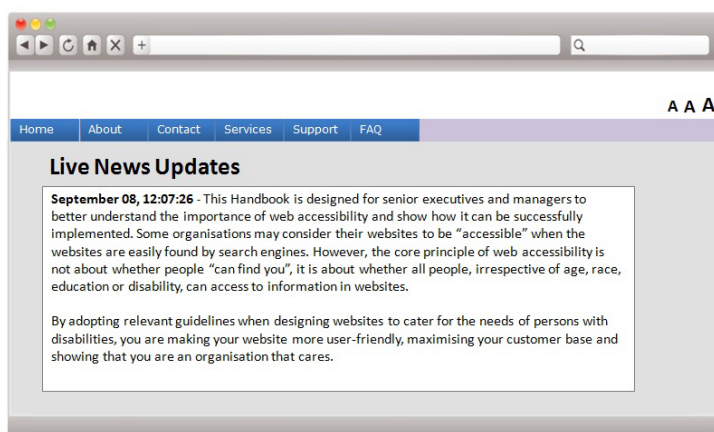
The example above shows a webpage having live updates of news items. Persons with vision impairments or specific learning difficulties may not have enough time to read all the news items before the automatic update with the latest news items.

After Rectification
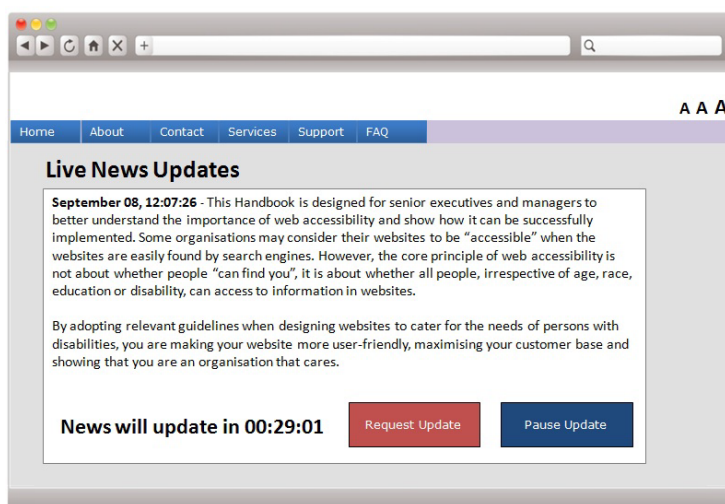
Users who have difficulties in reading the news items within the time limit are provided with the option to request an update or pause the update.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/change-on-request

A.29 WCAG 2.2 Success Criterion 3.3.5 – Help

Make sure users can always access the help functions which specifically address what they are trying to do. They should not be expected to have to wade through webpages of help text.

Before Rectification
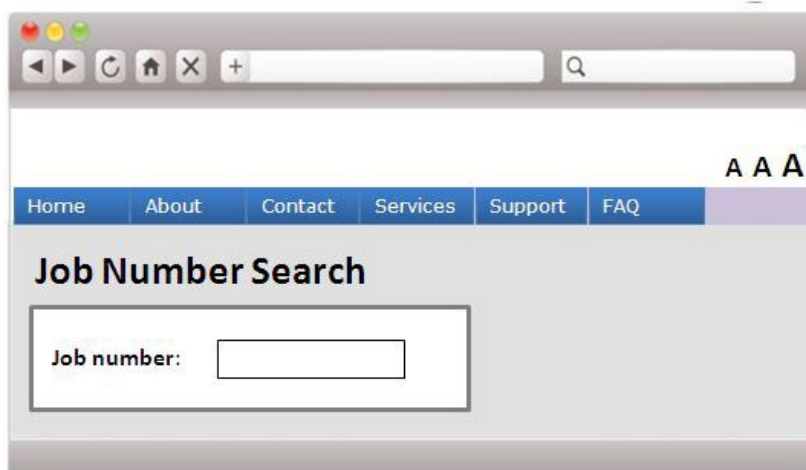
Users could have difficulties in looking for "Job Number" without a specific help function.

After Rectification
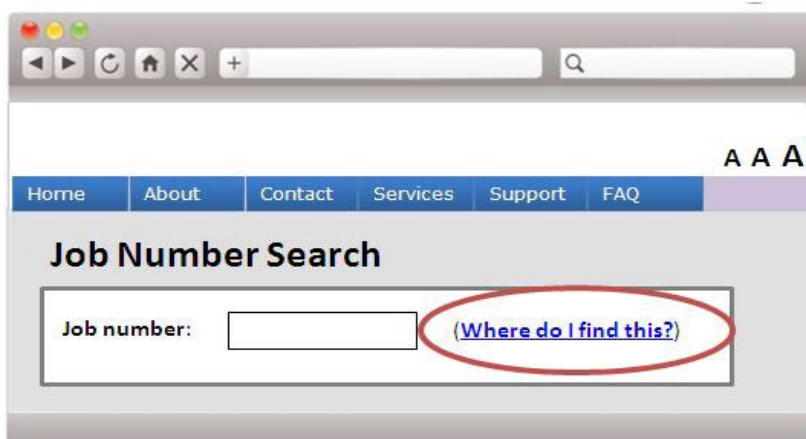
It is important to have help functions that specifically relate to the content the users are currently viewing. The example above shows how this can be achieved.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/help
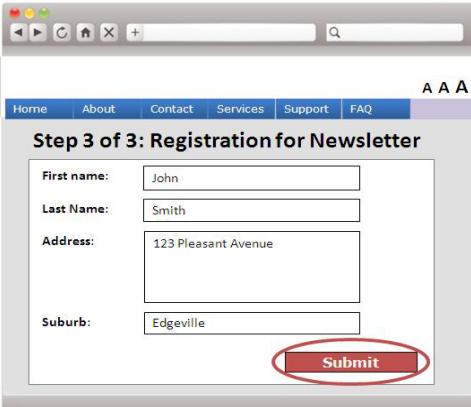
A.30 WCAG 2.2 Success Criterion 3.3.6 – Error Prevention (All)

Error prevention provides safeguards against errors that are made by users. Providing users with functions to review and correct information allow users to detect mistakes before making submissions.
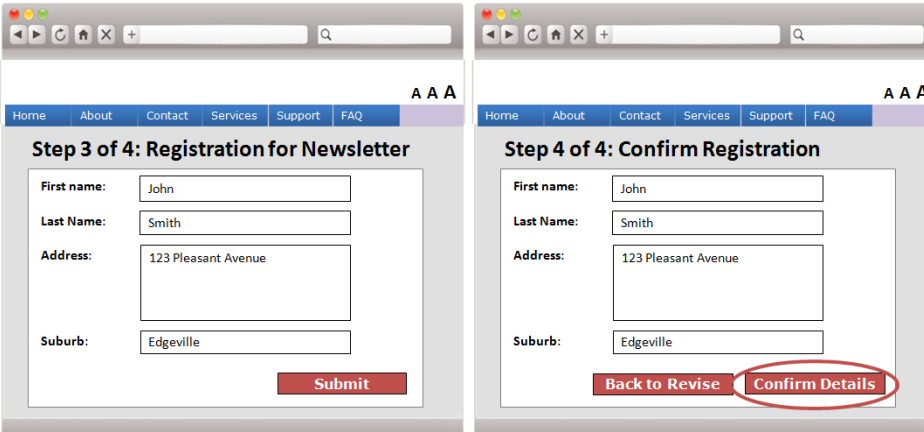
Before Rectification

The example above indicating the last step of a transaction, users are forced to submit their details without a "confirmation" step.

After Rectification

It is better to allow users to first confirm the detailed information, and provide them with an option to change any of the details before making the final submission.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/error-prevention-all

A.31 WCAG 2.2 Success Criterion 3.3.9 – Accessible Authentication (Enhanced)

Ensure that there is an accessible, easy-to-use, and secure method for users to authenticate when logging into an account, provide at least one of the followings:

1. Assistance is provided for users to pass the cognitive test.
2. The cognitive test involves object recognition.

Example 1
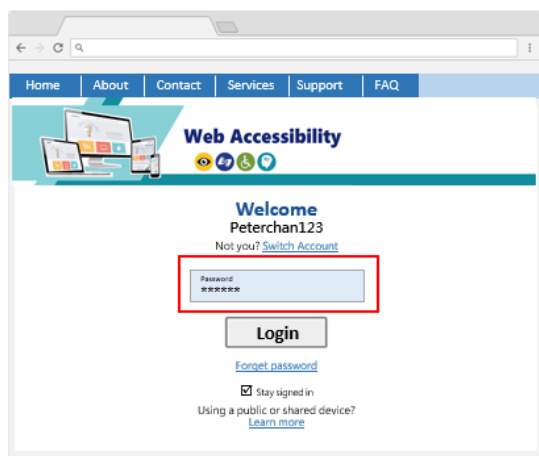
Provide a mechanism to assist user to complete cognitive function test, e.g. password save.

Example 2
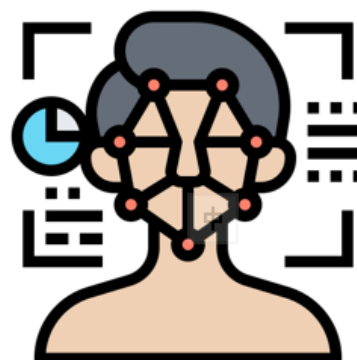
Provide object recognition, e.g. facial recognition.

WCAG 2.2 Reference:

https://www.w3.org/WAI/WCAG22/Understanding/accessible-authentication-enhanced.html
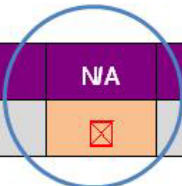
Appendix B: WCAG 2.2 Criteria Checklist for Developers

How to Use this Checklist
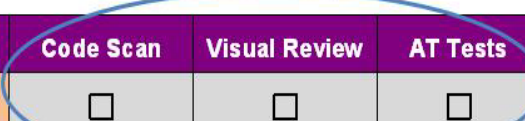
Begin by following the steps below for Level A compliance, then repeat the steps for Level AA – and if necessary repeat again for Level AAA. Following this checklist will enable websites to be tested in the most efficient way.

1. **Review** each of the criteria and "check off" all the success criteria that DO NOT APPLY to the website, using the N/A column.

    - For example, if a website does not have any audio or video content, then criterion 1.2.1 can be marked N/A and the Visual Review and Assistive Technology (AT) Test can be skipped.

    - Other items marked as skipped can be ignored for that test as it is not possible to determine compliance with that test.

Level A Success Criteria	N/A	Code Scan	Visual Review	AT Tests
1.2.1 Audio-only and Video-only	☒	Skip	☒	☒

2. **Scan** website with a code scanning tool focusing on each of the items in the Code Scan column.

    - Note that code scan tools often report items that may not require fixing. Web developers should investigate each item found to determine if it is in fact a real issue.

3. **Perform Visual Review** by checking all items listed in the visual review column.

4. Test using various **Assistive Technology (AT)** tools such as screen readers, screen magnifiers and voice controls.

Level A Success Criteria	N/A	Code Scan	Visual Review	AT Tests
1.1.1 Non-text Content	☐	☐	☐	☐

B.1   WCAG 2.2 Level A Checklist

Level A Success Criteria	N/A	Code Scan	Visual Review	AT Tests
1.1.1 Non-text Content	☐	☐	☐	☐
1.2.1 Audio-only and Video-only (Prerecorded)	☐	Skip	☐	☐
1.2.2 Captions (Prerecorded)	☐	Skip	☐	☐
1.2.3 Audio Description or Media Alternative (Prerecorded)	☐	Skip	☐	☐
1.3.1 Info and Relationships	☐	☐	☐	☐
1.3.2 Meaningful Sequence	☐	Skip	☐	☐
1.3.3 Sensory Characteristics	☐	Skip	☐	☐
1.4.1 Use of Colour	☐	Skip	☐	Skip
1.4.2 Audio Control	☐	Skip	☐	☐
2.1.1 Keyboard	☐	☐	☐	☐
2.1.2 No Keyboard Trap	☐	Skip	☐	☐
2.1.4 Character Key Shortcuts*	☐	Skip	☐	☐
2.2.1 Timing Adjustable	☐	Skip	☐	☐
2.2.2 Pause, Stop, Hide	☐	Skip	☐	☐
2.3.1 Three Flashes or Below Threshold	☐	Skip	☐	Skip
2.4.1 Bypass Blocks	☐	Skip	☐	☐
2.4.2 Page Titled	☐	☐	☐	☐
2.4.3 Focus Order	☐	Skip	☐	☐
2.4.4 Link Purpose (In Context)	☐	Skip	☐	☐
2.5.1 Pointer Gestures*	☐	Skip	☐	Skip
2.5.2 Pointer Cancellation*	☐	Skip	☐	Skip
2.5.3 Label in Name*	☐	☐	☐	☐
2.5.4 Motion Actuation*	☐	Skip	☐	Skip
3.1.1 Language of Page	☐	☐	Skip	Skip
3.2.1 On Focus	☐	Skip	☐	☐
3.2.2 On Input	☐	Skip	☐	☐
3.2.6 Consistent Help#	☐	Skip	☐	Skip
3.3.1 Error Identification	☐	Skip	☐	☐
3.3.2 Labels or Instructions	☐	Skip	☐	☐
3.3.7 Redundant Entry#	☐	Skip	☐	Skip
4.1.1 Parsing^	☐	☐	Skip	Skip
4.1.2 Name, Role, Value	☐	☐	Skip	Skip

Note: * New success criteria in WCAG 2.1
        # New success criteria in WCAG 2.2
        ^ Removed from WCAG 2.2

B.2   WCAG 2.2 Level AA Checklist

Level AA Success Criteria	N/A	Code Scan	Visual Review	AT Tests
1.2.4 Captions (Live)	☐	Skip	☐	☐
1.2.5 Audio Description (Prerecorded)	☐	Skip	☐	☐
1.3.4 Orientation*	☐	☐	☐	Skip
1.3.5 Identify Input Purpose*	☐	☐	☐	Skip
1.4.3 Contrast (Minimum)	☐	Skip	☐	Skip
1.4.4 Resize text	☐	Skip	☐	Skip
1.4.5 Images of Text	☐	Skip	☐	Skip
1.4.10 Reflow*	☐	Skip	☐	Skip
1.4.11 Non-Text Contrast*	☐	Skip	☐	Skip
1.4.12 Text Spacing*	☐	Skip	☐	Skip
1.4.13 Content on Hover or Focus*	☐	Skip	☐	Skip
2.4.5 Multiple Ways	☐	Skip	☐	Skip
2.4.6 Headings and Labels	☐	Skip	☐	Skip
2.4.7 Focus Visible	☐	Skip	☐	Skip
2.4.11 Focus Not Obscured (Minimum)[#]	☐	Skip	☐	Skip
2.5.7 Dragging Movements[#]	☐	Skip	☐	Skip
2.5.8 Target Size (Minimum)[#]	☐	Skip	☐	Skip
3.1.2 Language of Parts	☐	Skip	Skip	☐
3.2.3 Consistent Navigation	☐	Skip	☐	☐
3.2.4 Consistent Identification	☐	Skip	☐	☐
3.3.3 Error Suggestion	☐	Skip	☐	☐
3.3.4 Error Prevention	☐	Skip	☐	☐
3.3.8 Accessible Authentication (Minimum) [#]	☐	Skip	☐	Skip
4.1.3 Status Messages*	☐	Skip	☐	☐

Note: * New success criteria in WCAG 2.1
          # New success criteria in WCAG 2.2

B.3 WCAG 2.2 Level AAA Checklist

Level AAA Success Criteria	N/A	Code Scan	Visual Review	AT Tests
1.2.6 Sign Language (Prerecorded)	☐	Skip	☐	Skip
1.2.7 Extended Audio Description (Prerecorded)	☐	Skip	☐	☐
1.2.8 Media Alternative (Prerecorded)	☐	Skip	☐	☐
1.2.9 Audio-only (Live)	☐	Skip	☐	☐
1.3.6 Identify Purpose*	☐	Skip	☐	☐
1.4.6 Contrast (Enhanced)	☐	Skip	☐	Skip
1.4.7 Low or No Background Audio	☐	Skip	☐	☐
1.4.8 Visual Presentation	☐	Skip	☐	Skip
1.4.9 Images of Text (No Exception)	☐	Skip	☐	Skip
2.1.3 Keyboard (No Exception)	☐	Skip	☐	Skip
2.2.3 No Timing	☐	Skip	☐	Skip
2.2.4 Interruptions	☐	Skip	☐	Skip
2.2.5 Re-authenticating	☐	Skip	☐	Skip
2.2.6 Timeouts*	☐	Skip	☐	Skip
2.3.2 Three Flashes	☐	Skip	☐	Skip
2.3.3 Animation from Interactions*	☐	☐	☐	Skip
2.4.8 Location	☐	Skip	☐	☐
2.4.9 Link Purpose (Link Only)	☐	Skip	☐	☐
2.4.10 Section Headings	☐	☐	☐	☐
2.4.12 Focus Not Obscured (Enhanced) [#]	☐	Skip	☐	Skip
2.4.13 Focus Appearance[#]	☐	Skip	☐	Skip
2.5.5 Target Size (Enhanced)*	☐	Skip	☐	Skip
2.5.6 Concurrent Input Mechanisms*	☐	Skip	☐	Skip
3.1.3 Unusual Words	☐	Skip	☐	☐
3.1.4 Abbreviations	☐	Skip	Skip	☐
3.1.5 Reading Level	☐	☐	☐	Skip
3.1.6 Pronunciation	☐	Skip	☐	☐
3.2.5 Change on Request	☐	Skip	☐	☐
3.3.5 Help	☐	Skip	☐	☐
3.3.6 Error Prevention (All)	☐	Skip	☐	☐
3.3.9 Accessible Authentication (Enhanced)[#]	☐	Skip	☐	Skip

Note: * New success criteria in WCAG 2.1
       [#] New success criteria in WCAG 2.2