Elderly-friendly Website / Mobile Application Design Guide

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

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1. Introduction

With the rapid development of the Internet and mobile applications, as well as the growing proportion of the elderly population, we hope that everyone, including the elderly, can access online information and services easily through websites and mobile applications. It not only beneficial to promote digital inclusion, but also help improve people's quality of life.

1.1   Promoting Digital Inclusion, Supporting the Elderly and Persons with Disabilities

Digital Policy Office has been actively promoting digital inclusion, encouraging the use of digital technology to help those in need (especially the old and the disabled), including encouraging ICT adoption among the elderly and promoting all sectors of society to adopt digital accessibility design for websites and mobile applications.

1.2   Promoting Digital Accessibility

On promoting digital accessibility design, Digital Policy Office, after taking reference from the World Wide Web Consortium (W3C)'s "Web Content Accessibility Guidelines" and opinions of some local groups for person with disability, has released an array of practical information and resources, including "Guide to Baseline Web Accessibility Design", "Web Accessibility Handbook" and "Mobile Application Accessibility Handbook".   Related resources are available for download via the following link:

https://webforall.gov.hk/promulgating_resources

1.3   Elderly-friendly Website/Mobile Application Design Guide

"Elderly-friendly Website/Mobile Application Design Guide" (the Guide) provides website and mobile application developers with suggestions and examples on the content, functions and layout of website/mobile application to demonstrate the requirements of Elderly-friendly design for their reference.

2. What is Elderly-friendly Design?

Elderly-friendly design aims at optimising the content, functions and layout when constructing websites and mobile applications to facilitate easy use by the elderly and enhance their user experience. Developers can use different approaches, such as making the content simple, providing larger font size, and giving clear step-by step instructions, etc., for the elderly to familiarise themselves with the operation.

The elderly-friendly design of websites and mobile applications makes it easier for the elderly to operate and understand the content, reducing the difficulties they encounter during use, as well as to experience the various advantages and convenience brought by digital services.

To enable website/mobile application developers to better understand and adopt elderly-friendly design, we have prepared the "Elderly-friendly Website/Mobile Application Design Guide", providing suggestions on the content, functions and layout design, etc. of websites/mobile applications, as well as examples to demonstrate the requirements of elderly-friendly design for reference.

3. Why Need to Adopt Elderly-friendly Design?

There are many reasons for adopting elderly-friendly design, including:

3.1   Digitalisation of Society and Aging Population

With the rapid development of the Internet and mobile applications, more and more daily services have been digitalised. At the same time, as people age, they may experience physical impairment, such as visual and hearing impairments, decreased mobility, and changes in cognitive abilities, etc. To enable elderly people to continue using digital services, the adoption of elderly-friendly design therefore becomes more important.

3.2   Enhancing Independence of the Elderly

Leveraging on elderly-friendly design website and mobile applications, elderly people can handle various tasks in daily life in a more independent manner, such as online shopping, searching the information required, arranging travel arrangements, maintaining social contacts, etc. It enhances elderly people's independence, enabling them to make use of technology their own for a richer and more convenient life.

3.3   Access to Potential Market

Adopting elderly-friendly design can provides a better user experience, enabling a more smooth use of services provided by the enterprises. Enterprises can explore the potential market opportunities within the elderly demographic by enhancing elderly's satisfaction with their services,.

3.4   Promoting Digital Inclusion

Websites and mobile applications that adopt elderly-friendly designs benefit not only bring convienience to the elderly, but also make it more user friendly to those with visual impairments, physical disabilities, and limited cognitive abilities to use, further promoting digital inclusion.

4. Elderly-friendly Baseline Design Criteria

The design criteria set out in this Guide are formulated with reference to some success criteria applicable to the elderly in the Web Content Accessibility Guidelines (WCAG) promulgated by the World Wide Web Consortium (W3C),《互聯網網站適老化通用設計規範》and《移動互聯網應用(APP)適老化通用設計規範》promulgated by the National Ministry of Industry and Information Technology, the information related to elderly-friendly design in different countries and the feedbacks collected from local elderly services organisations.

We have selected 18 baseline design criteria based on the importance to the elderly, the incidence of related issues and the technical requirements, and organisations are encouraged to adopt the design as soon as possible to provide better user experience for the elderly. Organisations are recommended to arrange the participation of senior elderly persons for collecting their opinions when developing or modifying interface designs with reference to the design criteria, with a view to making the design more responsive to their needs.

An overview of the elderly-friendly baseline design criteria and classification is given in the table below.

Elderly-friendly Baseline Design Criteria	Applicable To	
	Website	Mobile App
1. Clear and Easy-to-understand Content		
1.1. Enhance the readability of paragraph text	✓	✓
1.2. Link descriptions should be concise and the purpose should be clearly stated	✓	✓
2. Layout is Easy to Read and Operate		
2.1. Use larger font size or provide font size adjustable function	✓	✓
2.2. Provide sufficient colour contrast	✓	✓
2.3. Provide consistent navigation mechanism	✓	✓
2.4. Simplify layout and use flat design	✓	✓
2.5. Use colour for differentiation on the basis of clear structure	✓	✓
2.6. Provide means to close popovers	✓	✓
2.7. Enlarge all clickable objects	✓	✓
2.8. Provide appropriate line spacing	✓	✓
2.9. Provide focus status	✓	

Elderly-friendly Baseline Design Criteria	Applicable To	
	Website	Mobile App
2.10. Provide quick link to Elderly-friendly version	✓	✓
2.11. Avoid using complex control method	✓	✓
3. Provide Clear Steps and Instructions		
3.1. Make instructions easy to understand and consistent	✓	✓
3.2. Provide error identification and suggestion function	✓	✓
3.3. Provide functionality for modifications or cancellations on pages involving financial transactions or leading to legal responsibilities	✓	✓
3.4. Avoid setting usage time limits, or provide functionality to extend or cancel time limits	✓	✓
4. Compatible with Third-party Tools		
4.1. Support voice input method	✓	✓

5. Principle 1: Clear and Easy-to-understand Content

Design criteria 1.1 — Enhance the readability of paragraph text

Website **Mobile App**

Make text simple and easy to understand. For example, replace paragraphs of text with bullet points, provide a summary of content, or use pictures/images to express information.

Example 1:

Before Rectification

Steps on Handwashing

Wet your hands with water, then apply soap. Scrub your hands and fingers. Finally, rinse your hands with water and dry your hands with disposable towel.

After Rectification

Steps on Handwashing

1. Wet your hands
2. Apply soap
3. Scrub your hands and fingers
4. Rinse with water
5. Dry with disposable towel

Listing the steps for cleaning hands in bullet points will make it easier to understand.

Example 2:

Before Rectification

Steps on Handwashing

Wet your hands with water, then apply soap. Scrub your hands and fingers. Finally, rinse your hands with water and dry your hands with disposable towel.

After Rectification

When the content describes a process involving multiple steps (such as the steps on handwashing), illustrations should be provided for each step to enhance the attractiveness and impress the users.

W3C WCAG Reference: 3.1.5 Reading Level

Design criteria 1.1 — Enhance the readability of paragraph text

Example 3:

Before Rectification

Number of persons with disabilities in Hong Kong

According to the figures from Census and Statistics Department, as of December 2021, there are some 534 200 persons with disabilities (about 7.1% of total population) in Hong Kong. Digital Accessibility features also facilitate the elderly and people beset with minor physical limitation (e.g. colour blindness) to browse the web.

After Rectification

Number of persons with disabilities in Hong Kong

According to the figures from Census and Statistics Department, as of December 2021, there are some 534 200 persons with disabilities (about 7.1% of total population) in Hong Kong. Digital Accessibility features also facilitate the elderly and people beset with minor physical limitation (e.g. colour blindness) to browse the web.

Number of Persons with Disabilities

7.1%

- Disable - Able-bodied
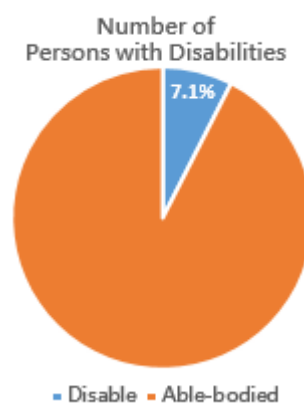
Provide statistical charts to help users to understand the statistics expressed in the text more concretely.

W3C WCAG Reference: 3.1.5 Reading Level

Design criteria 1.2 — Link descriptions should be concise and the purpose should be clearly stated

Website **Mobile App**

Provide clear descriptive link text to ensure the purpose of each link can be understood with the text and content, which help users to better understand the content or page that will come out after clicking the link.

Before Rectification

My Account

Users cannot understand the link function from its description.

After Rectification

Login to My Account

Users will know that they can login their account by clicking this link with the addition of a verb in the text

W3C WCAG Reference: 2.4.4 Link Purpose (In Context)

6. Principle 2: Layout is Easy to Read and Operate

Design criteria 2.1 — Use larger font size or provide font size adjustable function

Website **Mobile App**

Larger fonts should be used or provide text resize function to facilitate the elderly to read the content. For example, suggest to provide at least one large font of 18 dp/pt or above or ensure that all text can be adjusted up to 200% without losing any content or functionality.

Before Rectification

Page with small font size and no functions to adjust the text, making it difficult to read by person with visual impairment.

After Rectification
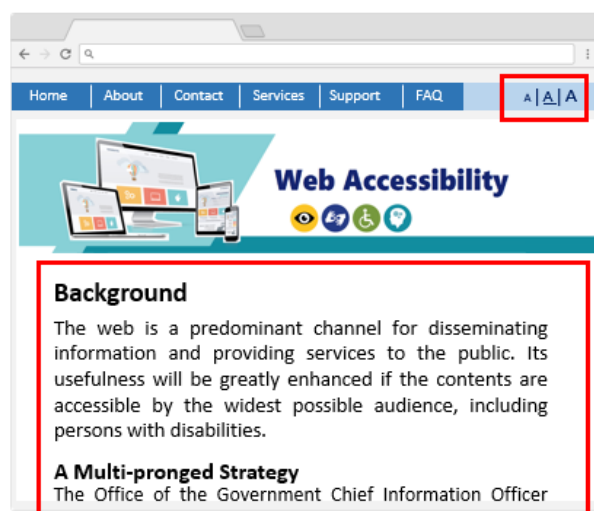
Use larger font size, or provide a function to adjust the text size so that text size can be easily enlarge for easy reading.

W3C WCAG Reference: 1.4.4 Resize Text

Design criteria 2.2 ─ Provide sufficient colour contrast

Website   **Mobile App**

When designing the text and images, the colour contrast ratio for the foreground against the background should be at least 4.5:1 for the elderly to read.

Before Rectification

Steps on Handwashing

Wet your hands with water, then apply soap. Scrub your hands and fingers. Finally, rinse your hands with water and dry your hands with disposable towel.

Steps on Handwashing

Wet your hands with water, then apply soap. Scrub your hands and fingers. Finally, rinse your hands with water and dry your hands with disposable towel.

Poor color contrast between the text and its backgroundmake it hard to read.

After Rectification

Steps on Handwashing

Wet your hands with water, then apply soap. Scrub your hands and fingers. Finally, rinse your hands with water and dry your hands with disposable towel.

Higher colour contrast will make it easier for users to read the text.

W3C WCAG Reference: 1.4.3 Contrast (Minimum)

Design criteria 2.3 — Provide consistent navigation mechanism

Website **Mobile App**

Where navigation bars or titles are displayed on multiple pages, ensure they are presented in the same location and manner on all pages.

Before Rectification
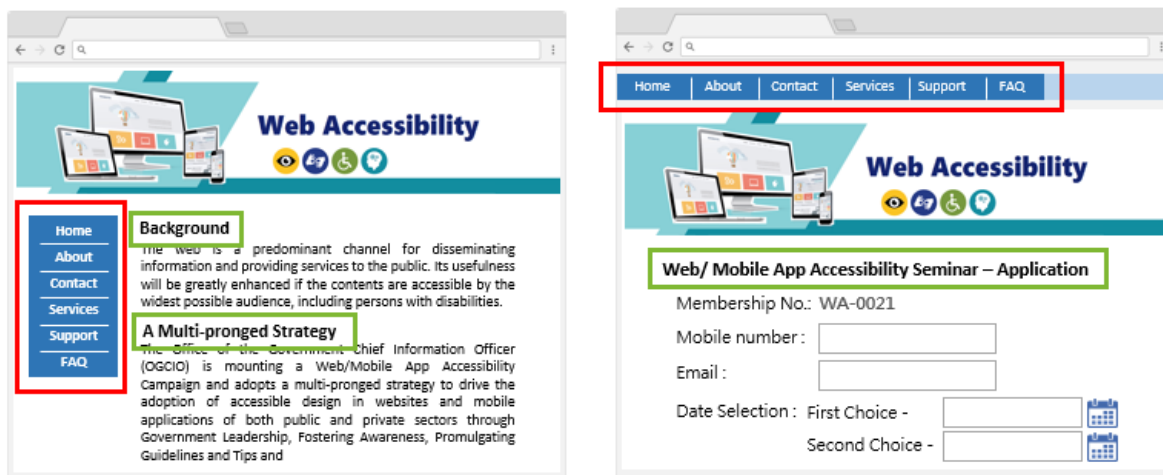
Inconsistent presentation and layout design of the navigation bar and title on different pages make it difficult for users to cope with.

After Rectification
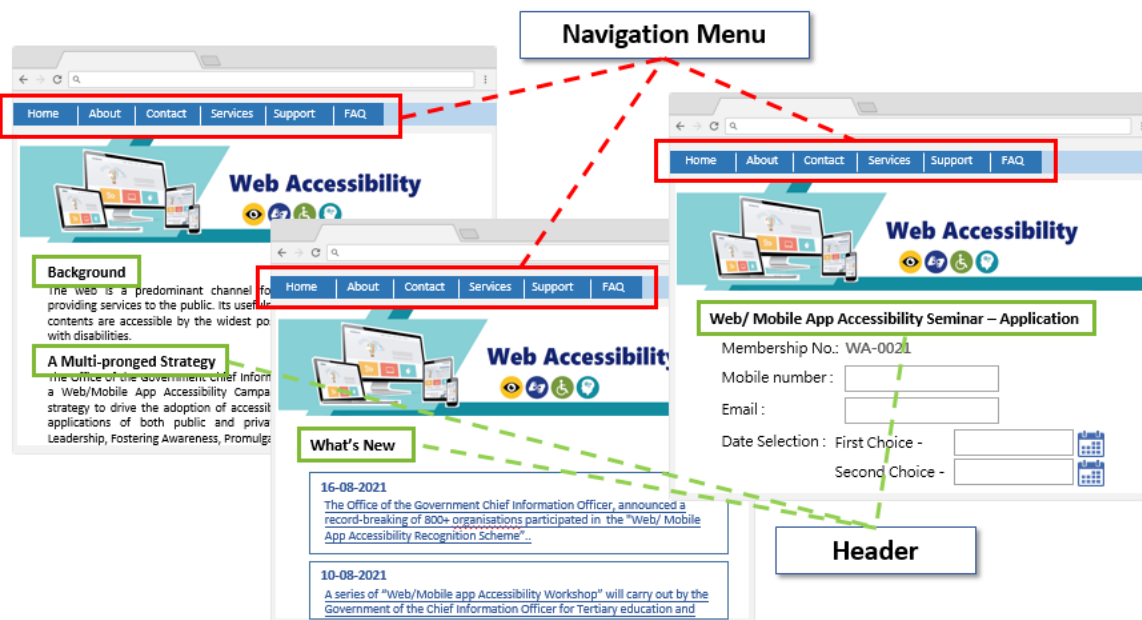
Consistent presentation and layout of the navigation bar and title on multiple pages make it convenient for users to browse the pages.

W3C WCAG Reference: 3.2.3 Consistent Navigation

Design criteria 2.4 — Simplify layout and use flat design

Website | **Mobile App**

Should use simple layout and design to facilitate ease of use by the elderly.

Example 1:

Simplify the layout of the main page and display the main functions frequently used by the elderly. Consider providing an elderly-friendly layout, or allow the elderly to personalise and place frequently used functions at prominent place so that they can familiar with the operation quickly. A page reading function can also be provided to facilitate users to read the content in different ways.

Before Rectification

Layout laden with the less frequently used options will makes it difficult for users to find the functions they need.

After Rectification

Only the frequently used functions listed on the Main page and users may personalise the page by placing the frequently used functions at prominent place so as to familiarise themselves with the operation quickly.

Elderly-friendly Standard Reference： 1.2.1 Page Layout (Website)

Design criteria 2.4 — Simplify layout and use flat design

Example 2:

Use "flat layout design" principle and avoid using complex decorative designs, such as shadows, perspectives, and textures.

Before Rectification
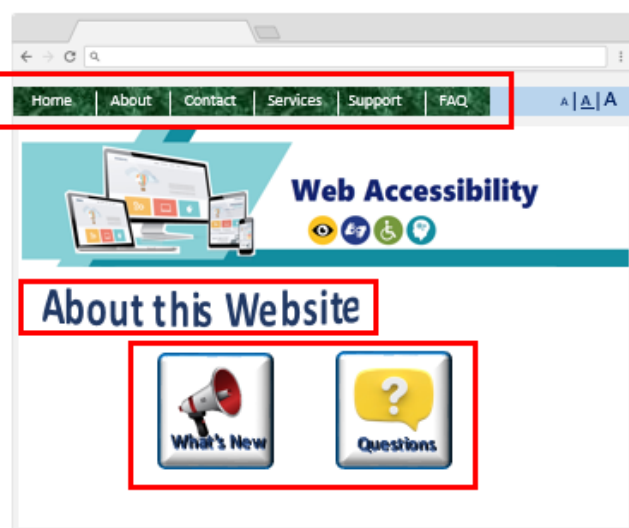
The page uses too many shadows, perspectives, textures and other complex decorative designs, making it difficult for users to find the control options, such as buttons or links.

After Rectification
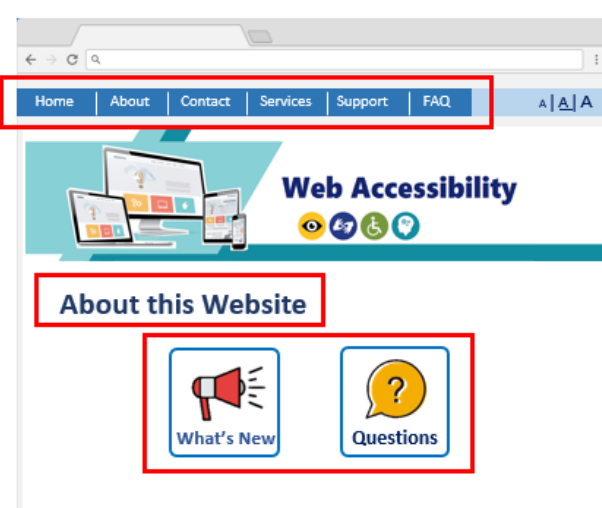
The "flat layout design" is adopted to make the layout simpler, so that users are easier to use the control options and read the required information.

Elderly-friendly Standard Reference：1.2.1 Page Layout (Website)

Design criteria 2.5 — Use colour for differentiation on the basis of clear structure

Website   Mobile App

Based on the existing clear structure, use different colours to differentiate the service areas for easy identification by users.

Before Rectification
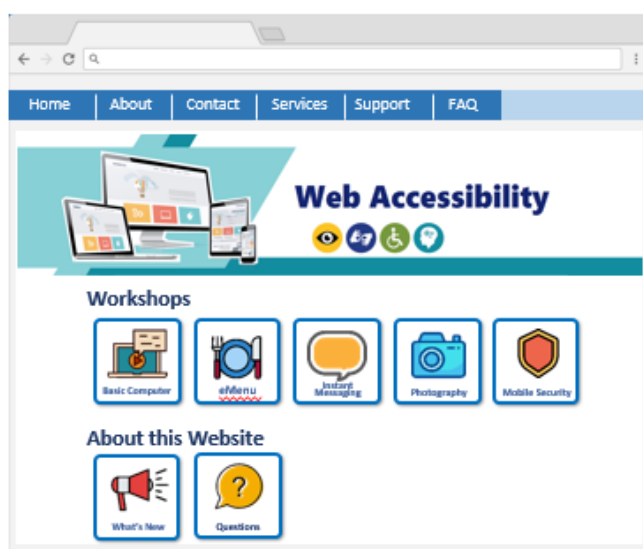
The categories of control options are not distinguished by colour.

After Rectification

Based on the exisitng clear structure, control options are classified by functional categories with colours differentiation, facilitating users to quickly find the required function options.

Elderly-friendly Standard Reference： **1.2.2 Region Recognition (Website)**

Design criteria 2.6 — Provide means to close popovers

Website **Mobile App**

Dialogue boxes and pop-up or normal windows can be controlled or closed through different methods, such as using a keyboard.

Before Rectification
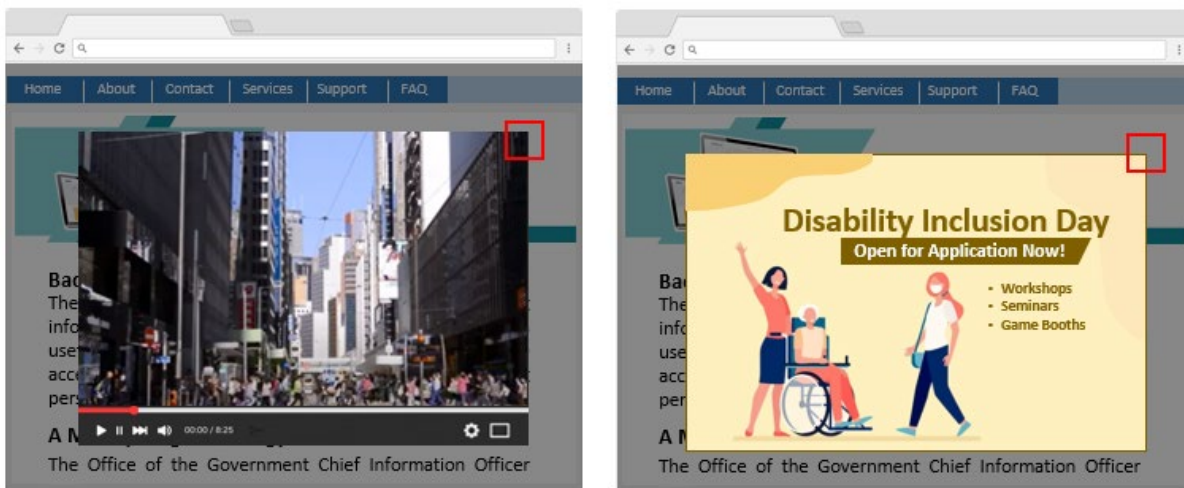
There is no way to close the pop-up window.

After Rectification
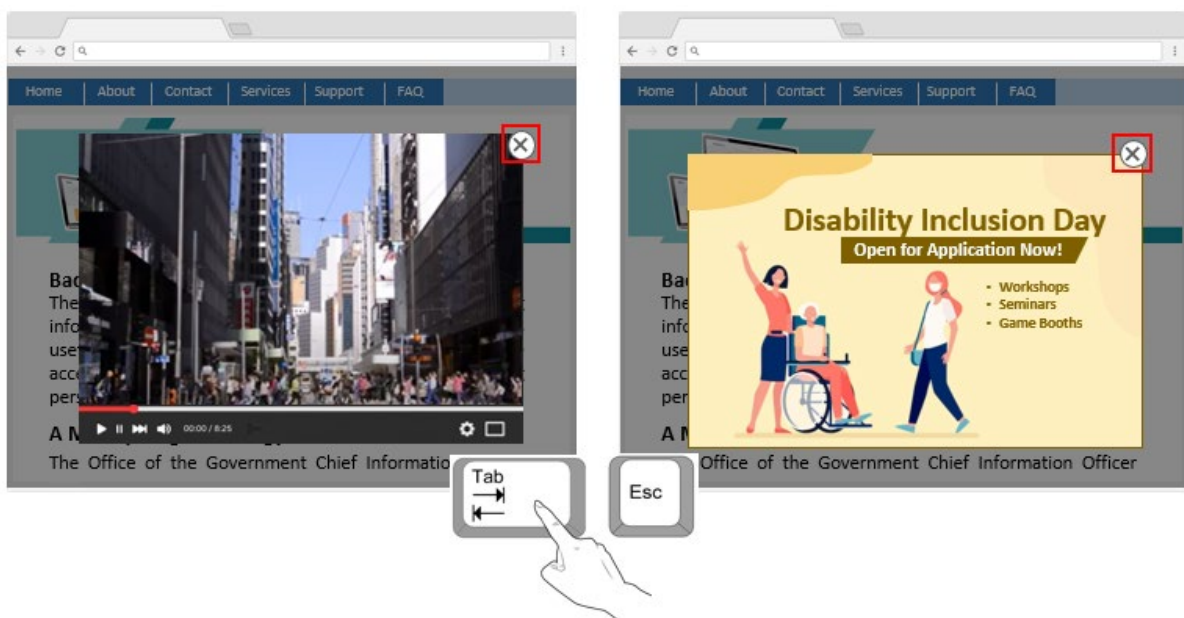
A function button is provided to close the pop-up window and can be controlled with a keyboard.

W3C WCAG Reference: 2.1.2 No Keyboard Trap

Design criteria 2.7 — Enlarge all clickable objects

| Website | Mobile App |

The size of the clickable focus area of the main component should not be too small to make it easier for users to tap. For example, suggest the clickable focus area size should not be smaller than 44 ×44 dp/pt.

Before Rectification
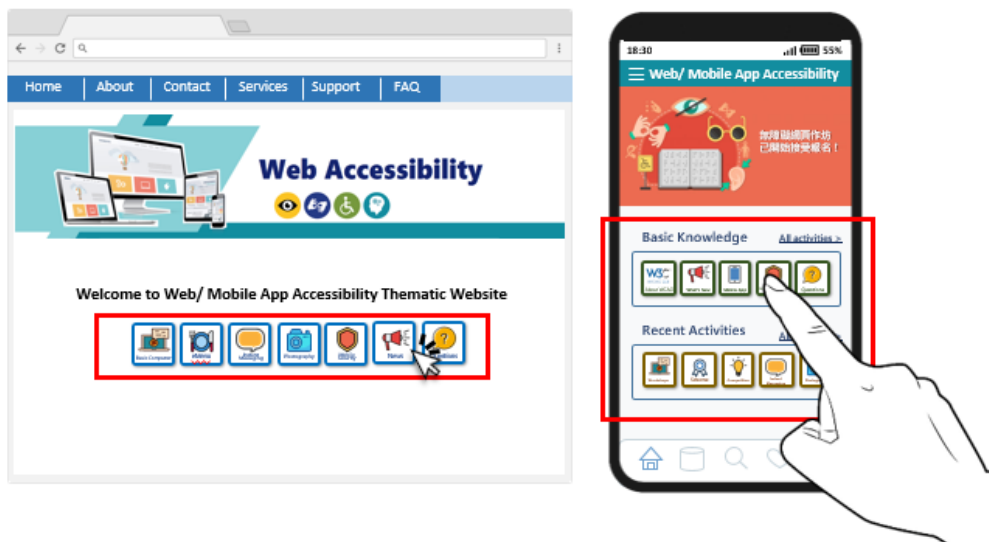
The size of the clickable focus area of the main component is too small for users to tap.

After Rectification
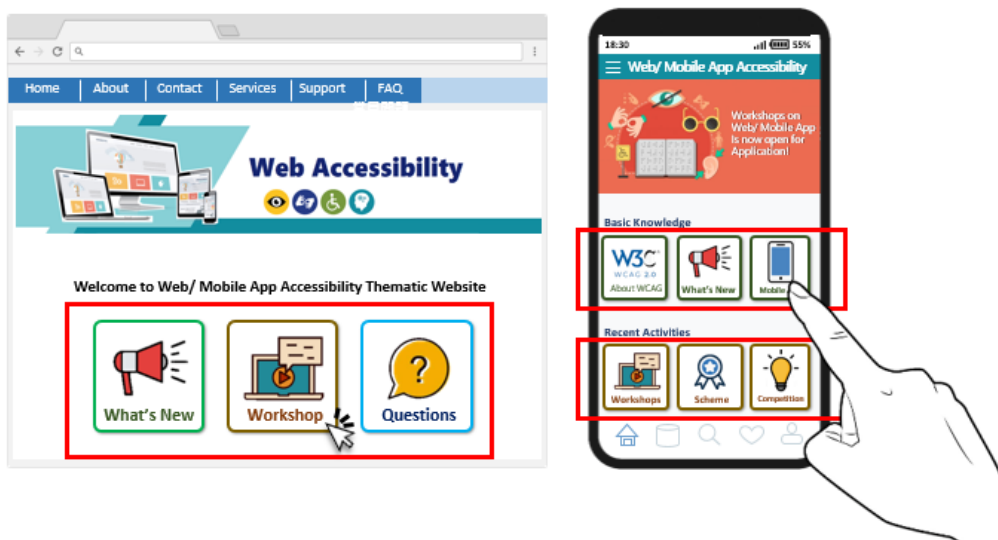
Enlarge the size of the clickable focus area of the main component to make it easier for users to tap.

W3C WCAG Reference: 2.5.5 Target Size

Design criteria 2.8 — Provide appropriate line spacing

Website	Mobile App

Set the line spacing for text paragraph to at least 1.3 times, and the paragraph spacing to at least 1.3 times larger than the line spacing. In addition, consider the applicable scenarios and display effects of websites and mobile applications to help the elderly to read more easily.

Before Rectification

> **Steps on Handwashing**
> Wet your hands with water, then apply soap. Scrub your hands and fingers. Finally, rinse your hands with water and dry your hands with disposable towel.

The line spacing of the text paragraph is too small for users to read.

After Rectification

> **Steps on Handwashing**
> Wet your hands with water, then apply soap. Scrub your hands and fingers. Finally, rinse your hands with water and dry your hands with disposable towel.

Provide appropriate line spacing of the text paragraph will make it easier for users to read.

W3C WCAG Reference: 1.4.12 Text Spacing

Design criteria 2.9 − Provide focus status

When a component of a page is focused by mouse pointer, click, keyboard operation or any other methods, its focus status should be clearly indicated.

Before Rectification
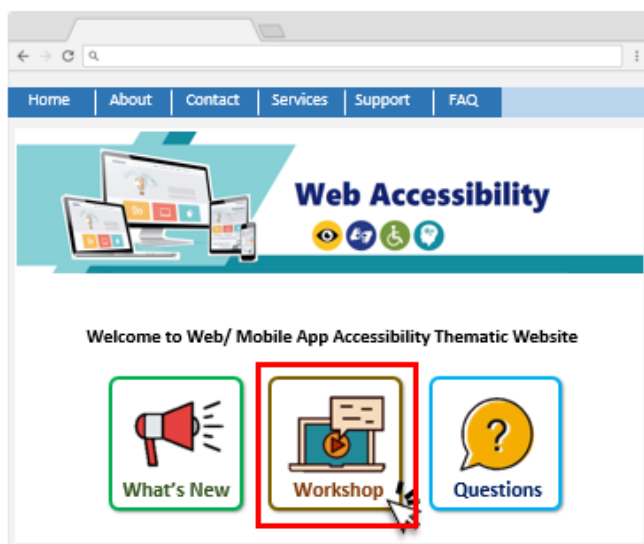
There is no way for the user to determine which component is pointed by the mouse pointer.

After Rectification
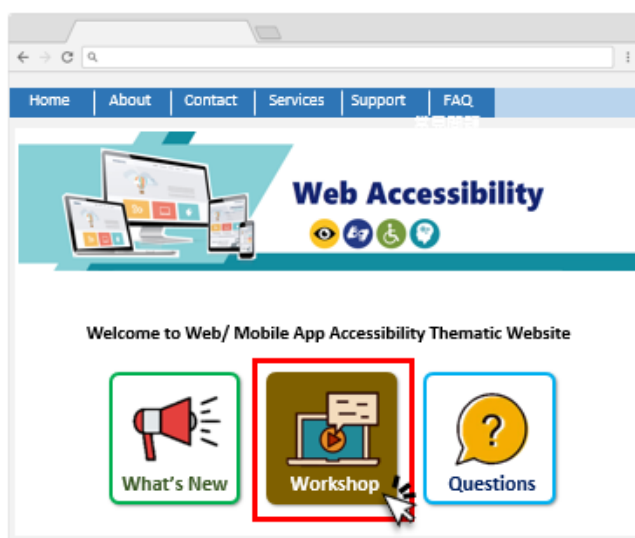
There is colour change to show focus status when the user moves the mouse pointer to the component.

W3C WCAG Reference: 2.4.7 Focus Visible

Design criteria 2.10 — Provide quick link to Elderly-friendly version

| Website | Mobile App |

Provide a quick link on the main page for easy access if there is an elderly-friendly version of the website or mobile application. Mobile applications may also provide a prominent switching prompt upon first entry, or offer an option for the elderly-friendly version within the settings page.

Before Rectification
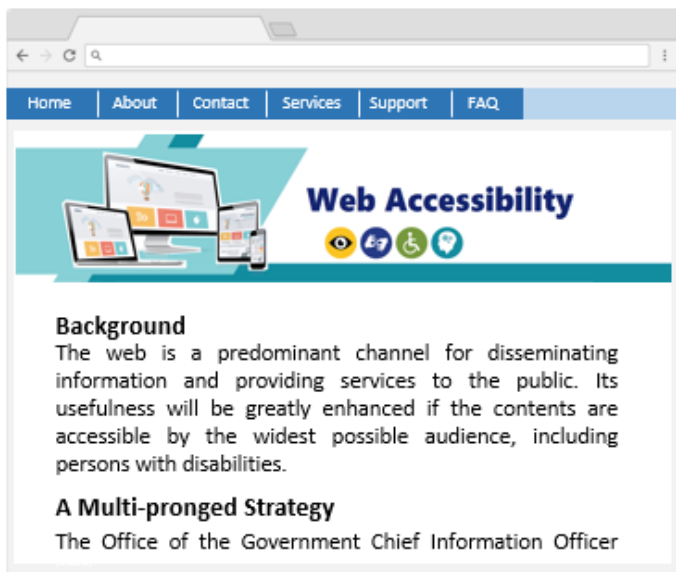
There is no quick link to the elderly-friendly version on the website.

After Rectification
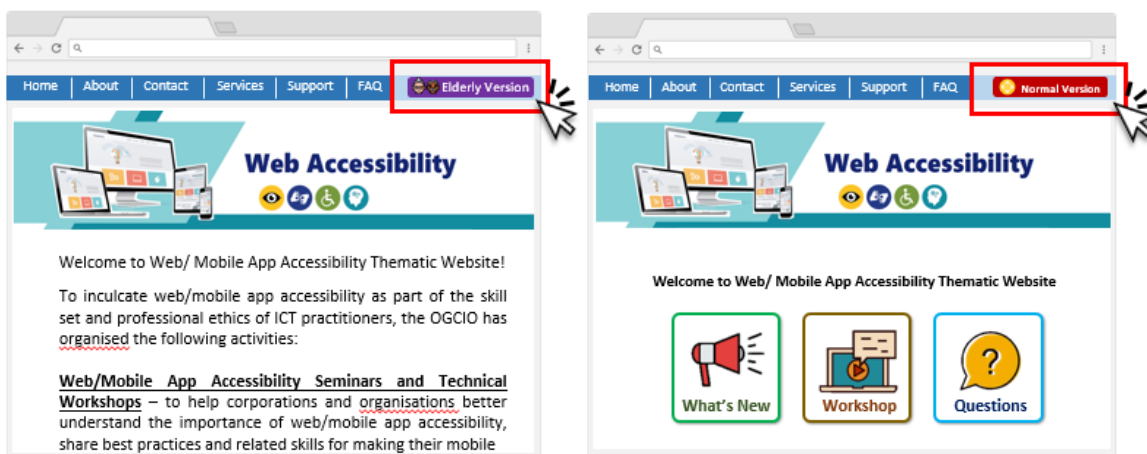
A quick link to the elderly-friendly version is provided in an eye-catching place on the website. In addition, a quick link back to the full version may also be provided on the elderly-friendly layout to facilitate different users.

Elderly-friendly Standard Reference：**5.3 Complete Service (Website) and 3.1 Prompt Mechanism (Mobile Application)**

Design criteria 2.11 — Avoid using complex control methods
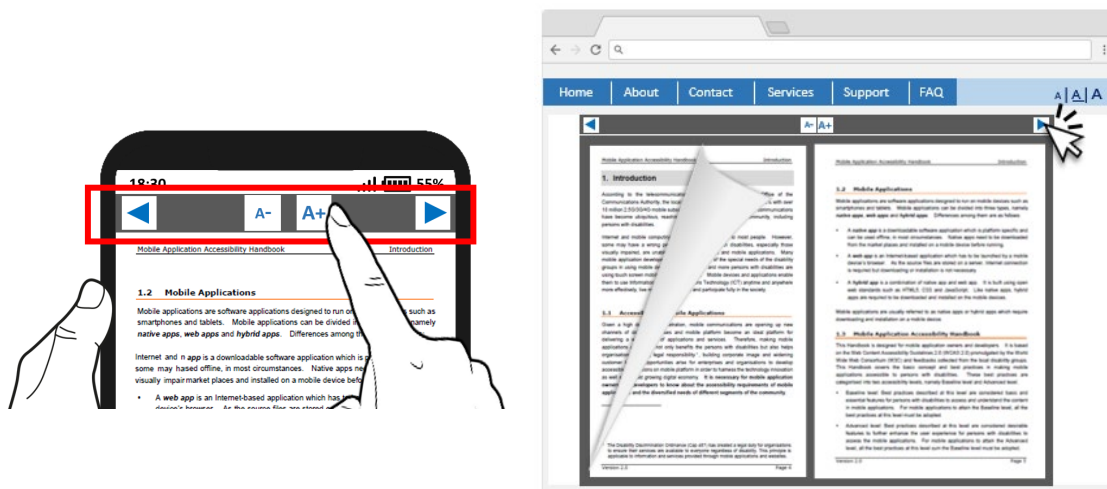
| Website | Mobile App |

Avoid offer only complex control method, unless they are essential. Can provide alternative method concurrently.

Before Rectification
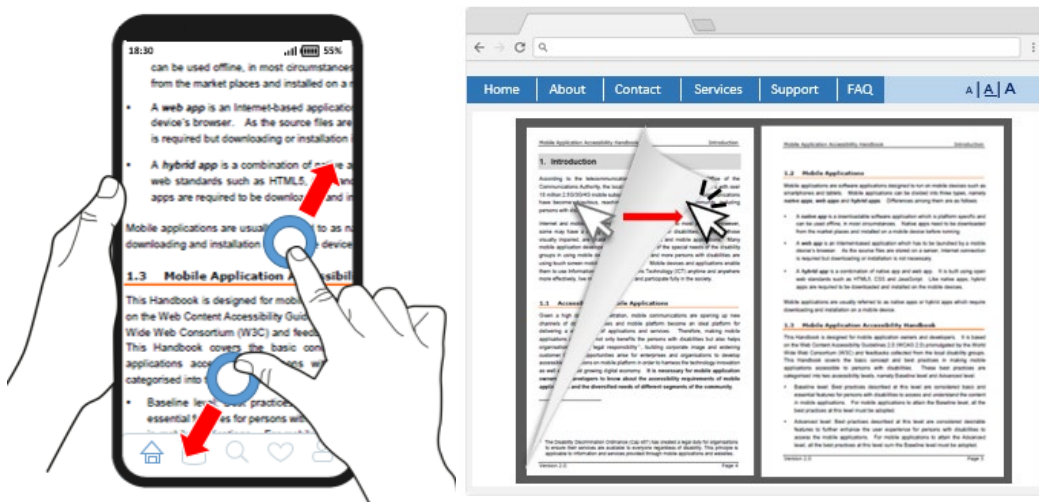
Users need to use two fingers pinching for zooming or dragging mouse cursor for turning page.

After Rectification

Users can operate by simply click on the relevant button of the page.

W3C WCAG Reference: 2.5.1 Pointer Gestures

7. Principle 3: Provide Clear Steps and Instructions

Design criteria 3.1 — Make instructions easy to understand and consistent

Website   Mobile App

Headings, labels and instructions must be an accurate descriptions of the accompanying content. For all items that have the same functionality, ensure they use the same label.

Example 1:

Before Rectification

The heading is not an accurate description of the accompanying content.

After Rectification

A detailed heading facilitates users to understand the accompanying content.

W3C WCAG Reference: 2.4.6 Headings and Labels and 3.2.4 Consistent Identifciation

Design criteria 3.1 — Make instructions easy to understand and consistent

Website Mobile App
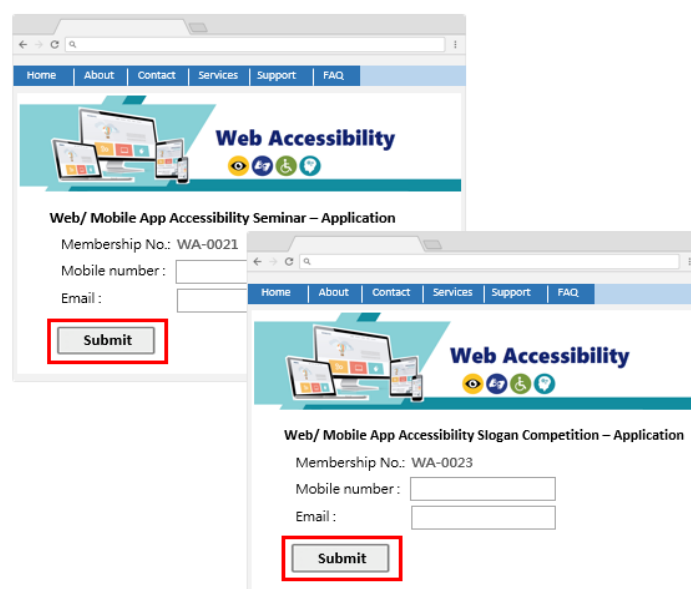
Example 2:

Before Rectification
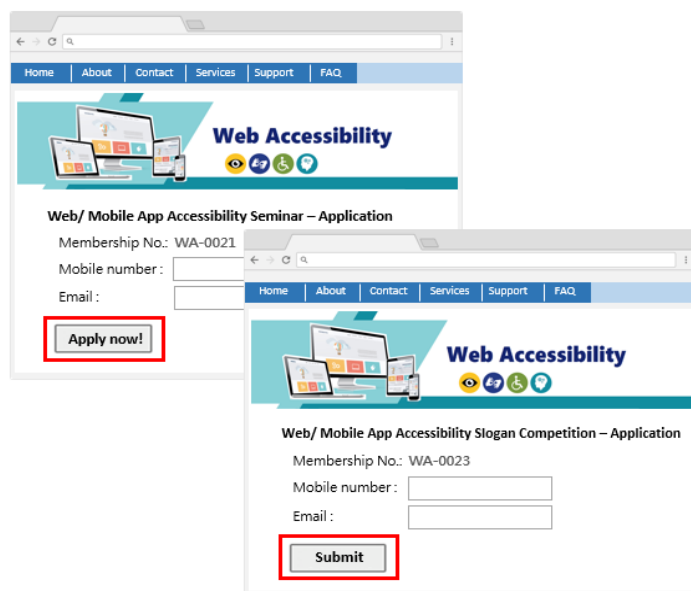
There are two buttons with two different labels, which may cause confusion for users as they may not be able to take note that these two buttons have the same functions.

After Rectification

Buttons for the same function use consistent labels.

W3C WCAG Reference: 2.4.6 Headings and Labels and 3.2.4 Consistent Identifciation
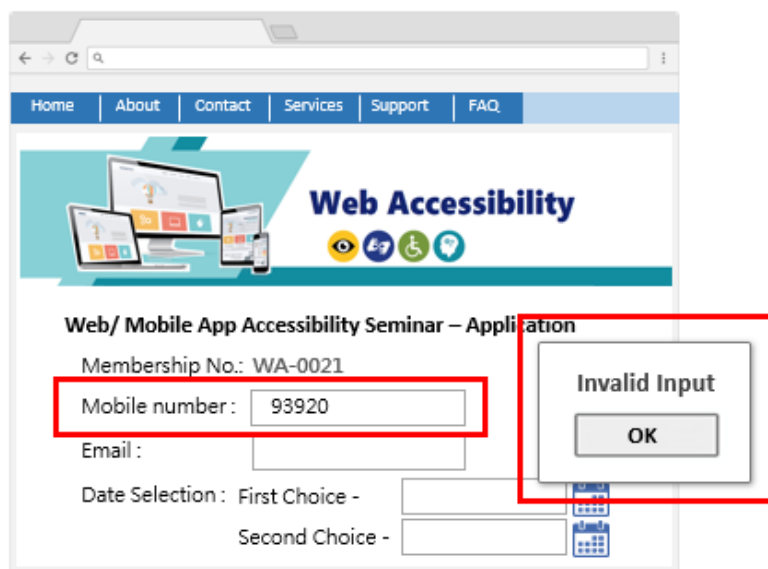
Design criteria 3.2 — Provide error identification and suggestion function

Website **Mobile App**

If a user fills in incorrect information in a form, there should be a text alerting errors made, and clear instructions for making corrections should be given.

Before Rectification
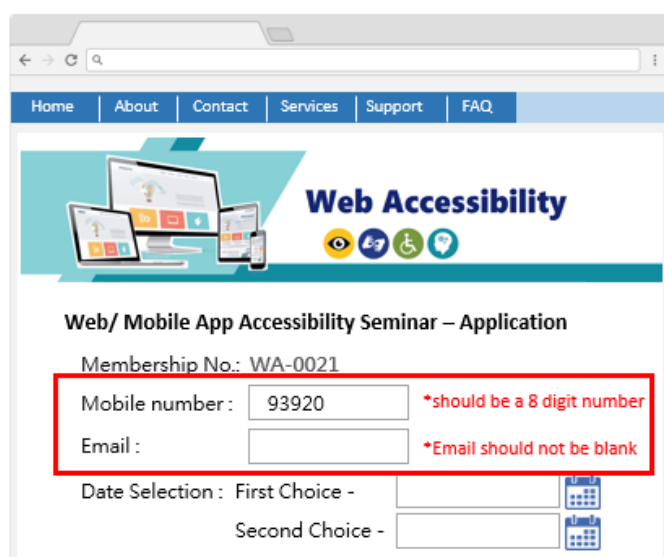
The error alert does not provide an adequate description of what needs to be corrected.

After Rectification

The error alert provides a good explanation of what needs to be corrected.

**W3C WCAG Reference: 3.3.1 Error Identification** and
3.3.3 Error Suggestion

Design criteria 3.3 — Provide functionality for modifications or cancellations on pages involving financial transactions or leading to legal responsibilities

Website **Mobile App**

If a user has to submit data that lead to legal or financial consequences, make sure the system allows the user to check and confirm the information before submission, or reverse the transaction after submission.

Before Rectification
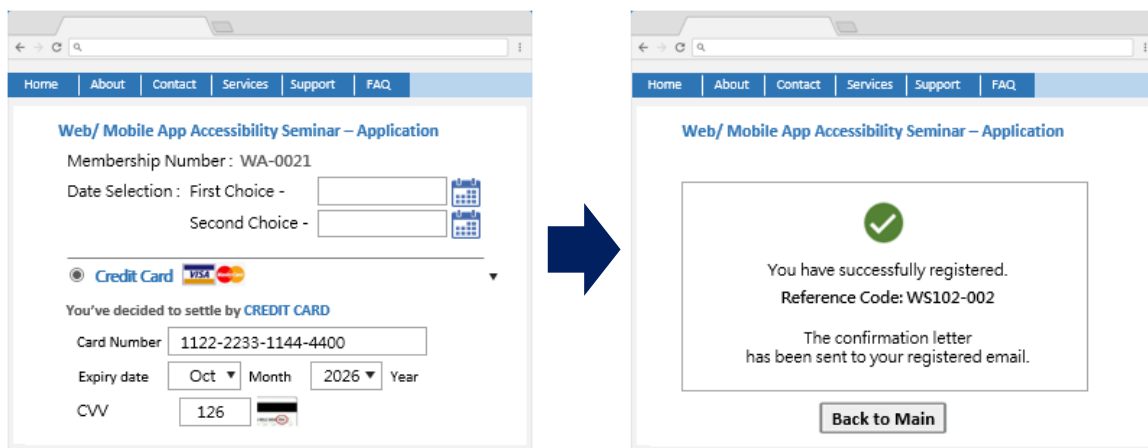
This screen shows the final step of making a transaction, where the user is left with no choice but to skip the confirmation step and submit the registration and pay.

After Rectification
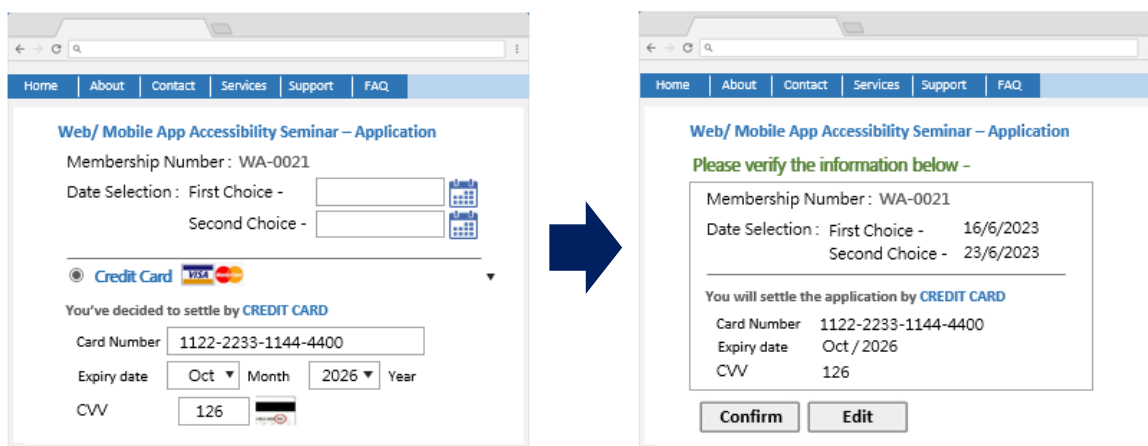
Allow the user to first check the input details and have the option to change them before making payment.

W3C WCAG Reference: 3.3.4 Error Prevention (Legal, Financial, Data)

Design criteria 3.4 — Avoid setting usage time limits, or provide functionality to extend | Website | Mobile App |
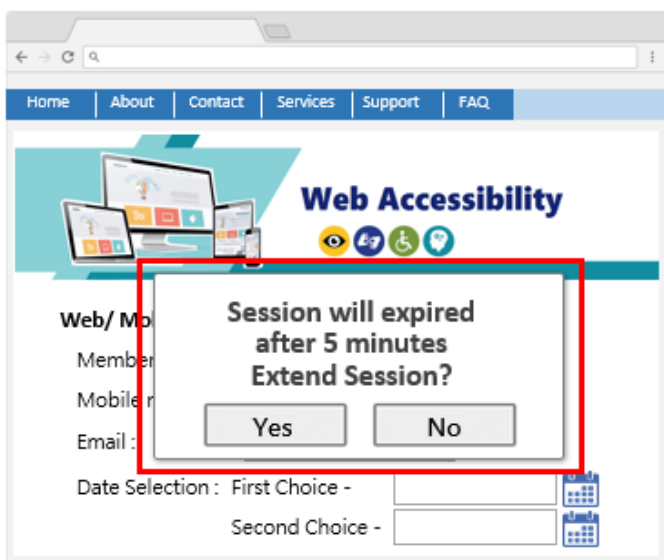
Ensure processes on a website are not time-dependent. If they are, ensure the time limit can either be adjusted or cancelled.

Before Rectification
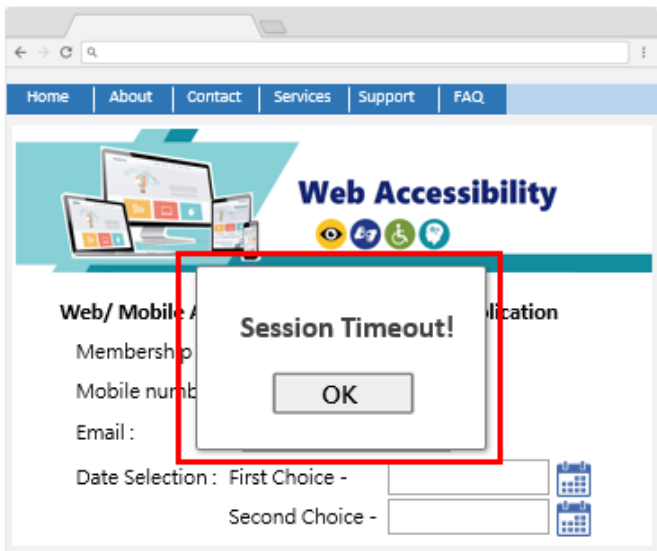
The page only notifies users that time is about to expire and does not provide a function to adjust the time limit.

After Rectification

The page not only alerts users that time is about to expire, but also allows users to extend the time limit.

W3C WCAG Reference: 2.2.1 Timing Adjustable

8. Principle 4: Compatible with Third-party Tools

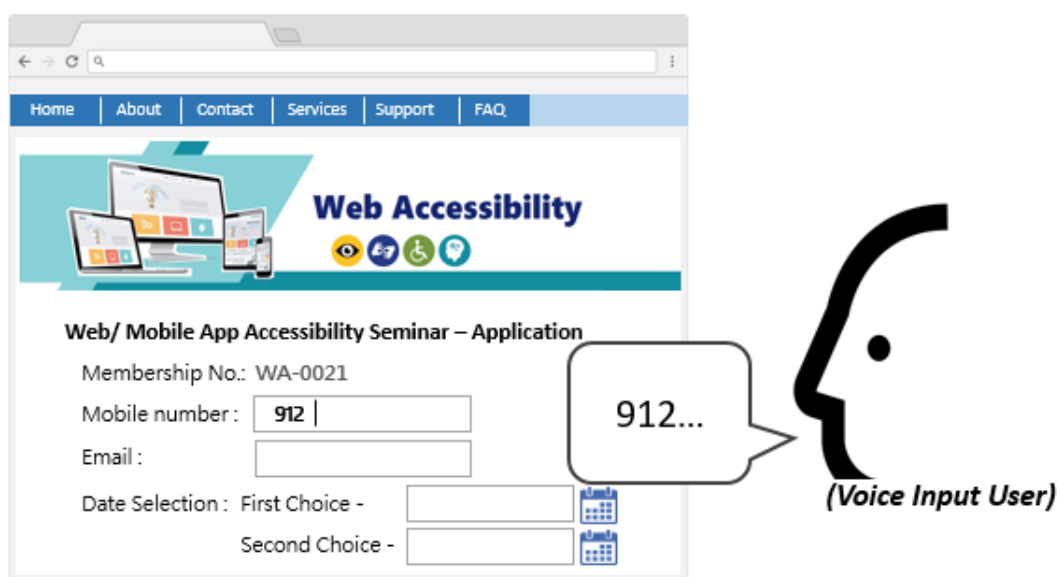**Design criteria 4.1 − Support voice input method** `Website` `Mobile App`

Ensure the operation supports voice input. For example, users can use voice control software to help filling in forms or set up voice search.

Before Rectification

The page only supports entering information into forms by keyboard.

After Rectification

The page supports voice input to help users who are not good at using keyboard to input information faster.

Reference: NA

9.   Related Resources

Web Content Accessibility Guidelines, WCAG 2.1
https://www.w3.org/TR/WCAG21/

《工業和資訊化部辦公廳關於進一步抓好互聯網應用適老化及無障礙改造專項行動實施工作的通知》、《互聯網網站適老化通用設計規範》，以及《移動互聯網應用（APP）適老化通用設計規範》(Chinese only)
https://www.gov.cn/zhengce/zhengceku/2021-04/13/content_5599225.htm