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Introduction:

In today's digital era, the accessibility of the websites is crucial in making sure a proper access for users of all kind of abilities to access online resources. A web audit serves a special role in the evaluation of a website accessibility, it's usability, and the performance, also aiming for the identification of areas of improvement and making sure it's complying with established standards.

This report focuses on the web audit for **Tesco**, a leading UK-based retailer, who is well recognized for it's extensive platform. Compliance of Tesco's website to accessibility guidelines, especially **WCGA (Web Content Accessibility Guidelines)**, by manual testing, and automated testing. (Consortium, 2024)

The audit process includes an in depth examination of the Tesco's website design, it's content, and functionality, which also includes analysis of HTML, CSS code, utilization of the assistive technology tools, and user testing sessions with the individuals who have disabilities. By using these methodologies, we can identify the potential accessibility barriers, that might interfere with users ability to navigate through the Tesco's website effectively.

Description of System Audited: Tesco Website

What is Being Audited:

The audit process for the Tesco website involves an in depth examination of different elements to assess the websites accessibility, it's usability, and to check if it is complying with established standards (Tesco, 2024). The aspects of the website being audited includes:

- **Text and Images:**
    - The examination of the text content and the images to make sure the proper alternative texts are provided for the accessibility purposes, which in turn can enable conversion to other forms such as large text or speech.
- **Forms:**
    - Assessment of the sign up and login forms for clear and detailed labels, proper input fields and types, and proper error messages the aid in understanding errors and their solutions.
- **Navigation:**
    - Audit of the different navigation elements to assess the ease of usability, which will also include the verification of tab order, presence of clear focus indicators for navigation links, color contrast, and accessibility of sub-menus via keyboard navigation.
- **WCAG Standards:**

- Verification of if the website is complying with the Web Content Accessibility Guidelines (WCAG) standards for textual elements, which also includes font sizes, color contrast, and font resize for different display sizes.

Why it is Being Audited:

The Tesco website is being audited in order to make sure that it is complying with the accessibility standards, therefore making it compatible of all types of users, including the users with disabilities. Accessibility is crucial for promoting diversity and preventing obstacles that make it hard for a user to access content from the website and use it's services, but also it is a legal requirement in various countries. By performing this audit, I aim to identify and solve any of these obstacles, creating a more diverse and accessible web environment for all the users.

Who it is Being Audited For:

This audit aims to improve accessibility and usability for all the users and in particular the users with disabilities. Users with visual and motor impairments can be benefited by improving the website, by providing alternative detailed text for images and optimizing the navigation through keyboard. Tesco can remove the obstacles and promote full participation of all the users in the digital era by prioritizing accessibility.

Audit Process:

User Personas:

1. **Emma (35 years old, visual impairment):** Emma has been blind since her birth, and completely relies on the screen reader to access website. She uses keyboard shortcuts and listens to content that is read aloud by the screen reader in order to navigate through the website.
2. **Sophie (26 years old, dyslexia):** Sophie has difficulty reading and the written text due to her condition. She greatly relies on assistive technology which includes text to speech software, which help her understand the written content more effectively.
3. **James (41 years old, hearing impairment):** James has a moderate hearing loss and uses the hearing aids to communicate. He relies on visual cues and captions to understand the multimedia content on websites.
4. **Grace (54 years old, attention deficit disorder):** Grace has ADD because of which she has difficulties with keeping attention and focus.
5. **Oliver (22 years old, muscular dystrophy):** Because of Oliver's muscular dystrophy he has motor impairment issues, which makes it challenging for him to use a mouse and a keyboard. In order to navigate through the websites and complete the tasks he uses a switch device. ((WHO), 2021)

Description of Tools and Methods Used to Check Accessibility:

1. **Automated Accessibility Testing Tools:** I will be using **Google Lighthouse** to conduct the initial assessments of the Tesco's website accessibility. These tools are used to scan the code of the website and the content of the website to identify the common accessibility issues which can include missing alt text, improper heading structures, missing links, and color contrast violations. (Google, 2024)
2. **Manual Testing with Screen Readers:** I will conduct manual testing using the NVDA screen reader in order to simulate the experience of the users with visual impairments. These software allow auditors to experience to navigate through the website using the keyboard commands and listen to the synthesized speech output, which can help identify the obstacles that are causing trouble in accessing content and it's functionality. (NVDA, 2024)
3. **Keyboard Navigation Testing:** I will test the website keyboard accessibility by navigating through various pages and the interactive elements by only using keyboard and not relying on the mouse. By using this method I will be able to identify the issues that are related to focus management, tab order, and the keyboard traps. Which will ensure that all the users, including those with the motor impairments, can easily and effectively navigate through the website.
4. **Color Contrast Checkers:** By using color contrast checker tools we can evaluate the contrast ratio between the text and the background colors, in order to make sure the readability for the users who are visually impaired, have color vision differences, or they are color blind. These tools are made to highlight any elements with the insufficient color contrast, which will allow for adjustments to be made to improve accessibility.
5. **Manual Inspection of Forms and Interactive Elements:** Elements like sign up and login forms, buttons, links, and the other interactive elements manually to make sure that they have clear and descriptive labels, proper focus states, and accessible error messages. This method will help identify the issues that the automated tools may have missed, such as ambiguous and non descriptive labels.
6. **Cognitive Walkthroughs:** These walkthroughs will be conducted in order to access the usability and the accessibility of the website from the perspective of the user that are facing cognitive disabilities. This involves analyzing the clarity of the language, consistency of the layout, and the intuitivity of navigation which is aim towards identifying any cognitive obstacles that can interfere with the user understanding and the completion of the task.

By using the combination of these automated tools, manual testing methods, and the cognitive walkthroughs, I will be able to comprehensively evaluate the accessibility of the

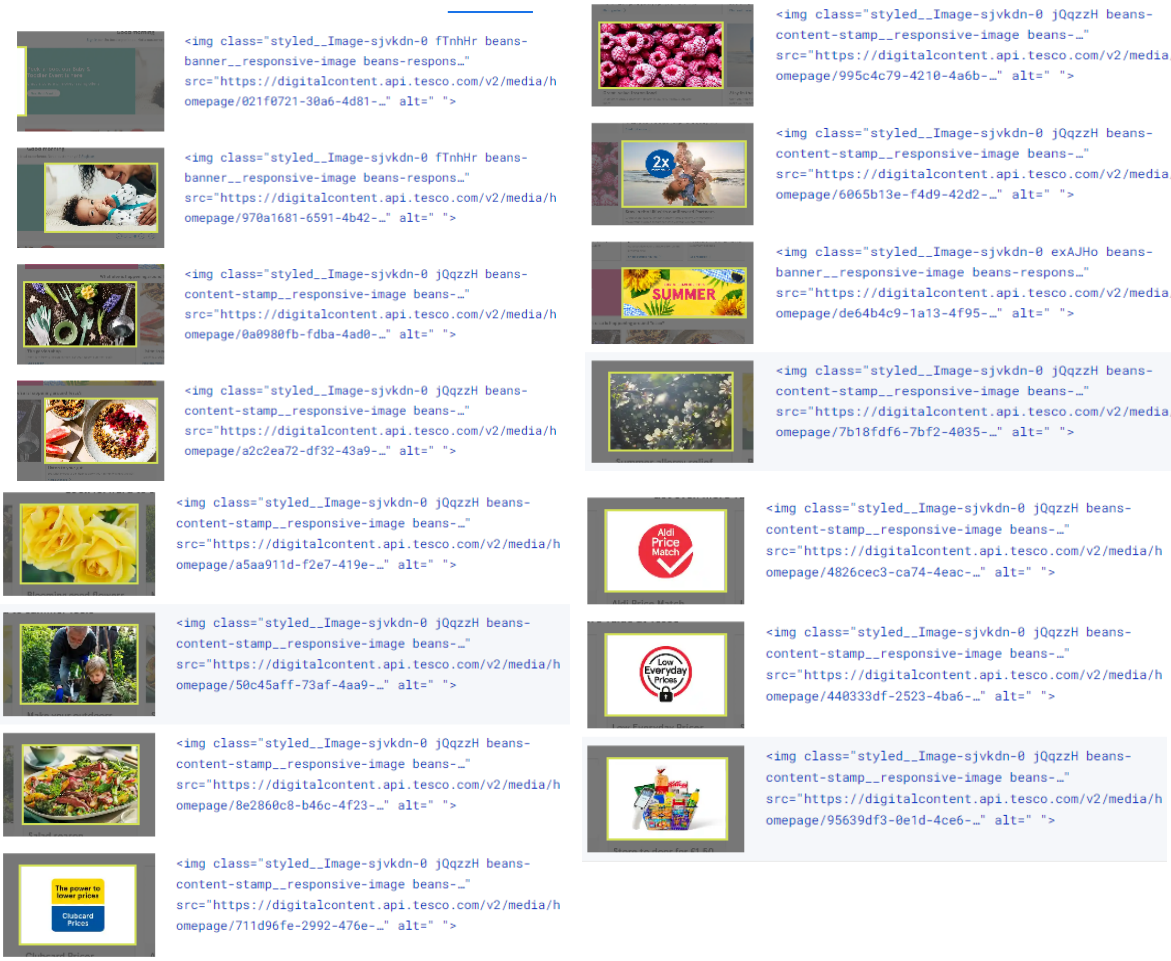
Tesco website, and will identify potential barriers and the different areas of improvements to ensure easy and efficient online shopping experience for all the users.

Audit Findings:

Description of Problems/Challenges (Identified During the Audit):

1. **Missing alt text on Images:**
   - This is a significant accessibility issue that is identified, as there is no alt text on numerous images throughout the website. Alt text is crucial for the users who rely on screen readers to understand the content and the function of the images.
   - Just on the homepage alone I found about 13 images that violated **WCAG 2.1 Success Criterion 1.1.1 – Non-text Content:** This criterion requires that all non-text content that is presented to user has a text alternative that serves the equivalent purpose, ensuring that it can be accessed by the users who cannot perceive the non-text content. (WCAG, Non Text Content, 2024)

Following images are in violation:


<img class="styled__Image-sjvkdn-0 fTnhHr beans-banner__responsive-image beans-respons…" src="https://digitalcontent.api.tesco.com/v2/media/homepage/021f0721-30a6-4d81-…" alt=" ">
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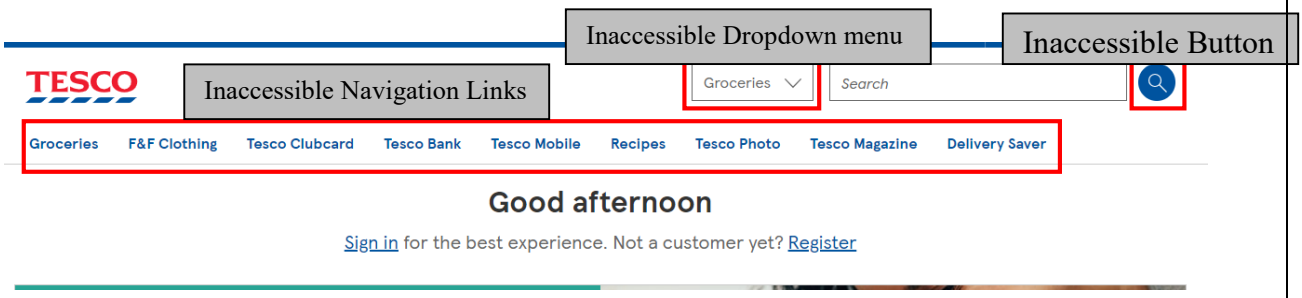
<img class="styled__Image-sjvkdn-0 jQqzzH beans-content-stamp__responsive-image beans-…" src="https://digitalcontent.api.tesco.com/v2/media/homepage/0a0980fb-fdba-4ad0-…" alt=" ">
<img class="styled__Image-sjvkdn-0 jQqzzH beans-content-stamp__responsive-image beans-…" src="https://digitalcontent.api.tesco.com/v2/media/homepage/a2c2ea72-df32-43a9-…" alt=" ">
<img class="styled__Image-sjvkdn-0 jQqzzH beans-content-stamp__responsive-image beans-…" src="https://digitalcontent.api.tesco.com/v2/media/homepage/a5aa911d-f2e7-419e-…" alt=" ">
<img class="styled__Image-sjvkdn-0 jQqzzH beans-content-stamp__responsive-image beans-…" src="https://digitalcontent.api.tesco.com/v2/media/homepage/50c45aff-73af-4aa9-…" alt=" ">
<img class="styled__Image-sjvkdn-0 jQqzzH beans-content-stamp__responsive-image beans-…" src="https://digitalcontent.api.tesco.com/v2/media/homepage/8e2860c8-b46c-4f23-…" alt=" ">
<img class="styled__Image-sjvkdn-0 jQqzzH beans-content-stamp__responsive-image beans-…" src="https://digitalcontent.api.tesco.com/v2/media/homepage/711d96fe-2992-476e-…" alt=" ">

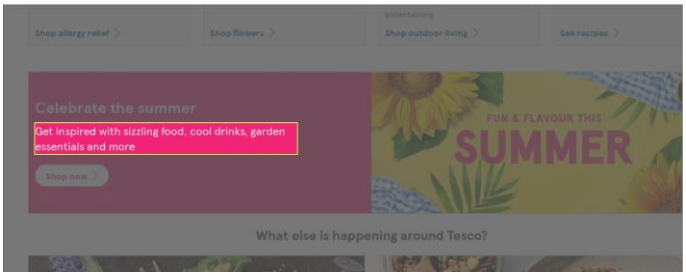
<img class="styled__Image-sjvkdn-0 jQqzzH beans-content-stamp__responsive-image beans-…" src="https://digitalcontent.api.tesco.com/v2/media/homepage/995c4c79-4210-4a6b-…" alt=" ">

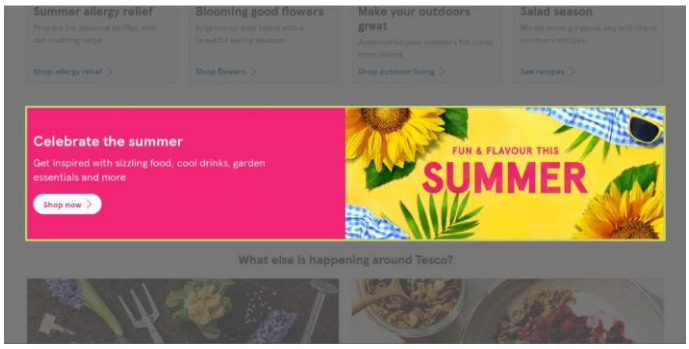
2. **Keyboard Navigation Limitations:**

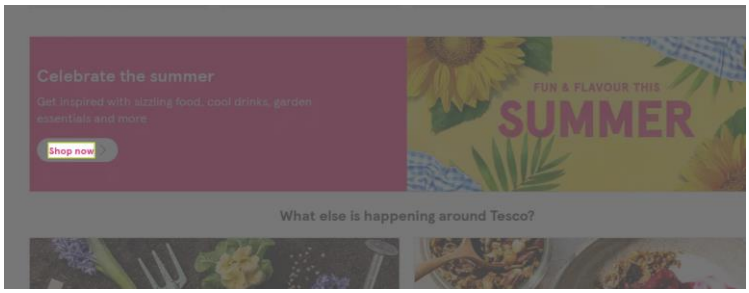
- Tesco website generally supports the keyboard navigation but some interactive elements, such as navigation links, dropdown menus and some buttons were not easily accessible by using keyboard, and this poses a major challenge for people who do not use mouse for navigation and rely solely on the keyboard to navigate and interact with websites.
- Violation of **WCAG 2.1 Success Criterion 2.1.1 – Keyboard Accessible:** This criterion states that all the functionality of the content must be operable through a keyboard interface without requiring specific timing for individual keystrokes, except where the underlying function requires input that depends on the path of the users movement and not just the endpoints. (WCAG, Keyboard, 2024)

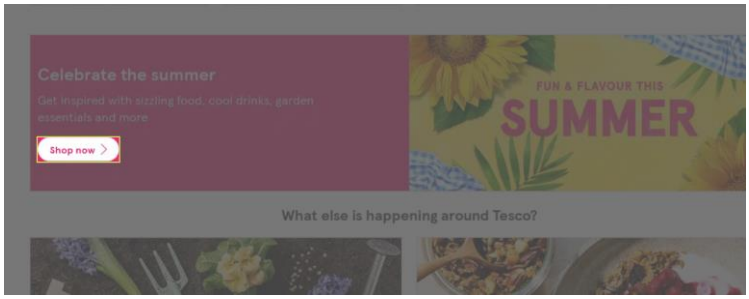


3. **Color Contrast Deficiencies:**
   - Users with visual impairments or color vision deficiencies can struggle to read the text against the background colors with insufficient contrast. This can result in reduced readability and the comprehension of the content, which will cause user to miss important information or instruction.
   - This is in the violation of **WCGA 2.1 Success Criterion 1.4.3 Contrast (Minimum):** This requires that the visual presentation of text and images of text has **contrast ratio** of at least **4.5:1**, except for large text (at least 18 point or 14 point bold) and images of text, which need **contrast ratio** of at least **3:1.** (WCAG, Contrast Minimum, 2024)

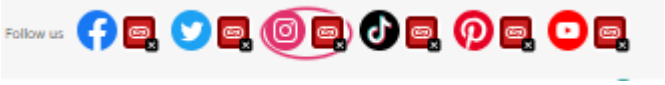






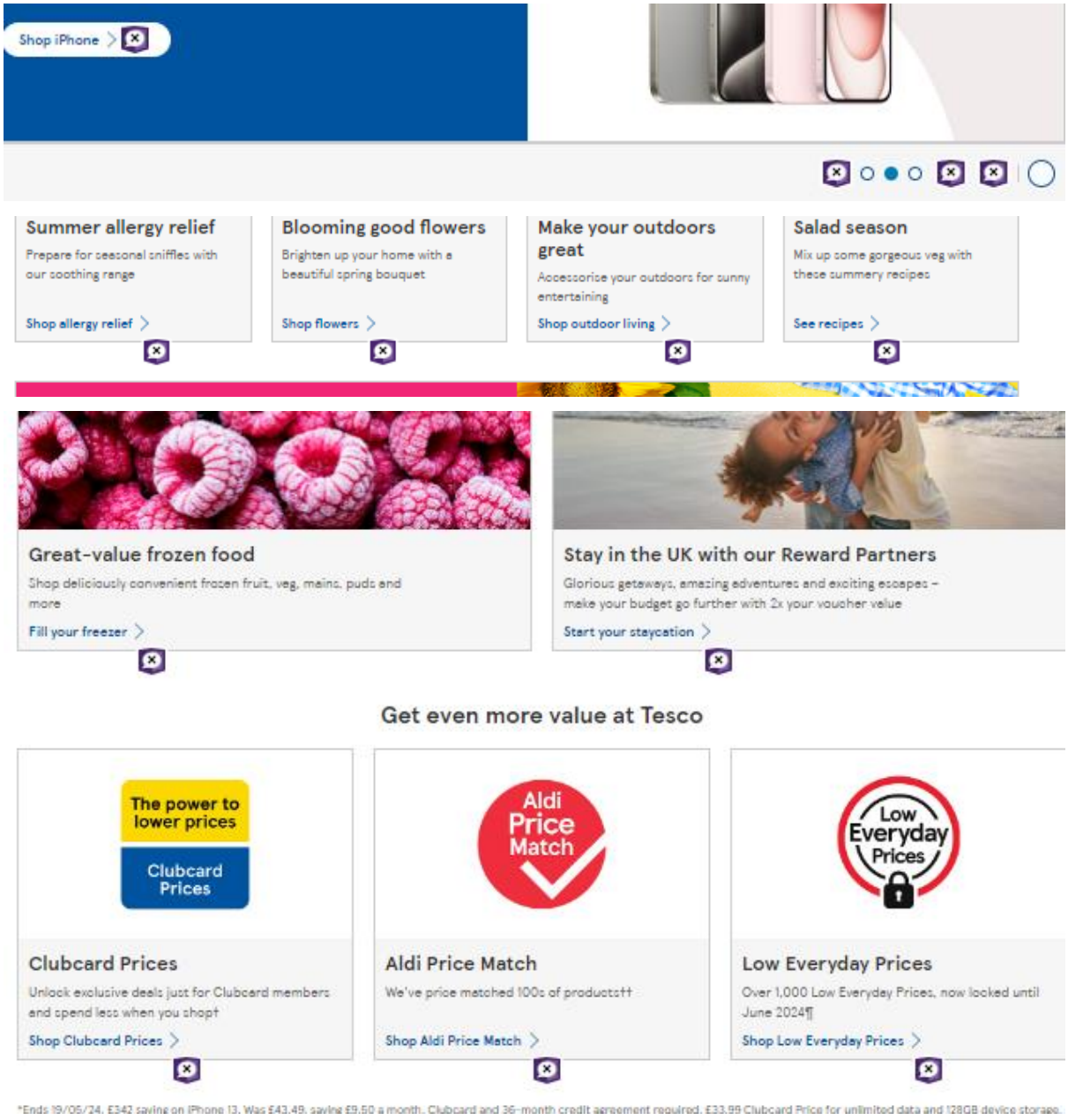


4. **Links with Discernible Names:**
    - Users with visual impairments that are relying on screen readers can encounter difficulties in understanding the purpose or the destination of the links without alt text.
    - This is in the violation of **WCAG 2.1 Success Criterion 2.4.4 – Link Purpose (In Context):** The requirement of this criterion is that the purpose of each link can be determined from the link text alone or from the link text together with it's programmatically determined link context. (WCAG, Link Purpose in Context, 2024)



5. **Lack of ARIA Roles and Attributes:**
    - People that are using assistive technologies encounter difficulties in understanding and interacting with the user interface such as the form controls and navigation menus.

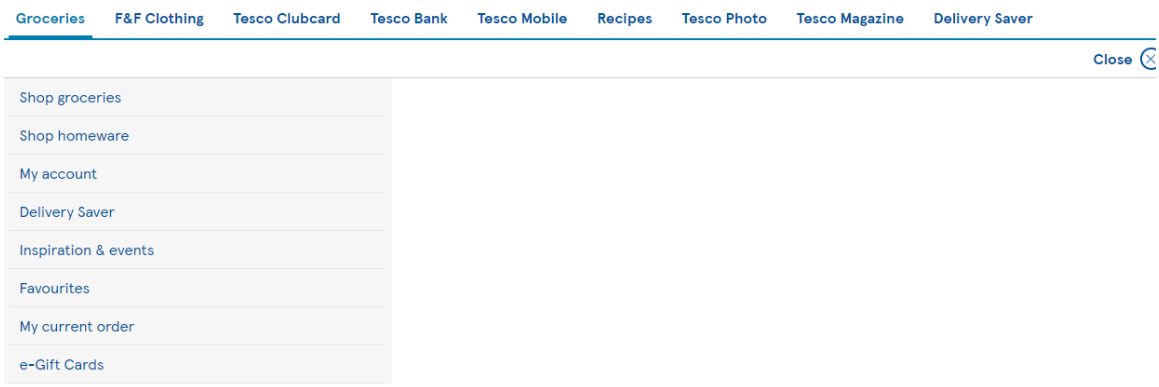
- This is in the violation of **WCAG 2.1 Success Criterion 4.1.2 – Name, Role, Value:** This requires that all the UI must have appropriate labels, roles and states programmatically determined and set so that they can be understood by assistive technologies. (WCAG, Name. Role, Value, 2024)



Approximately 60 elements have been found just on the homepage that have ARIA hidden, which means that this content is not visible to users with screen readers.

6. **Complex Navigation Menus:**
   - Users may struggle to effectively and efficiently navigate the website navigation menus, especially the users with cognitive disabilities or the users using screen readers, which in turn can lead to frustration and difficulty in finding and accessing desired content.

- This violates the **WCAG 2.1 Success Criterion 2.4.5 – Multiple Ways:** This criterion requires that there should be more than one way available to locate a webpage. (WCAG, Multiple Ways, 2024)



Solutions to the Problems Found During the Audit:

1. **Missing Alt Text on Images:**
   - Adding descriptive alt text to all the images throughout the website, which will provide meaning descriptions that can convey the content and the function of each image. (WebAim, 2024)
   - Reviewing every single image on the website and adding appropriate alt text using descriptive language. (WCAG, Non Text Content, 2024)
2. **Keyboard Navigation Limitations:**
   - By ensuring that all the elements, including the navigation links, dropdown menus, and buttons are fully accessible using keyboard. (WebAim, 2024)
   - Updating the code of the website to ensure proper management of keyboard focus, and tab order. (WCAG, Keyboard, 2024)

3. **Color Contrast Deficiencies:**
    - Adjusting the color of the text and the color of the background to ensure the sufficient color contrast ratios, which will enhance the readability of the users with visual impairments or color vision deficiencies. (WebAim, 2024)
    - Using accessible color palettes and tools to check and adjust the color combinations to meet the WCAG contrast ratio requirements for the text and the background elements. (WCAG, Contrast Minimum, 2024)
4. **Links with Discernible Names:**
    - Provide descriptive link text that conveys the purpose or destination of each link, which will ensure that it can be understood by users using assistive technologies. (WebAim, 2024)
    - Reviewing and updating the text of the links throughout the website to make the link text more descriptive and informative. (WCAG, Link Purpose in Context, 2024)
5. **Lack of ARIA Roles and Attributes:**
    - Implementing appropriate ARIA roles and attributes for the user interface components, which will include form controls and navigation menus. (WebAim, 2024)
    - Making sure that all the UI elements have programmatically determined labels, roles, and states that can be interpreted and understood by the assistive technologies. (WCAG, Name. Role, Value, 2024)
6. **Complex Navigation Menus:**
    - Simplifying the navigation menus and also providing multiple ways for all the users to locate and access the content easily and efficiently, which will enhance the usability for all users. (WebAim, 2024)
    - Streamline all the navigation menus by organizing the content hierarchical manner, which will provide clear labels and descriptions. (WCAG, Multiple Ways, 2024)

Plan of Additional Research:

In order to confirm the problems that are identified during the accessibility audit of the Tesco website and to collect more insights into the experiences of the users and their needs, a detailed research plan which involves the user testing and feedback collection is extremely crucial.

Description of Research Plan:

1. **User Testing Sessions:**
    - To observe the user and understand how it interacts with the website, specifically focusing on the users with disabilities or accessibility needs

- Conducting user testing session with the participants who are representing different disability groups, such as visually impaired users, users with motor impairments, and users with cognitive disabilities.
- User testing allows for the direct observation of the users navigating the website and encountering accessibility barriers. (Group, User Testing, 2024)

2. **Surveys and Feedback Collection:**
    - To gather the feedback from a broader audience which will include all the users with and without disabilities, regarding their perceptions and their experiences with the websites accessibility. (Sauro, 2011)
    - Distributing online surveys to the users of Tesco website, which will include the questions about their accessibility needs, experience and other difficulties users are facing while navigating through the website.
    - This provides an effective way to collect the feedback form a large number of users. By collecting input from a diverse range of users including those users who have disabilities. Tesco can gain better understanding of the overall user experience and then they can prioritize accessibility improvements. (Braun, 2011)
3. **Accessibility Focus Group:**
    - To engage the users with disabilities in a collaborative discussion about their accessibility requirements and preferences.
    - Organizing focus group sessions with the individuals representing different disability groups, facilitating the discussions related to specific accessibility features, challenges, and desired improvements. (Folse, 2004)
    - Focus groups offer an opportunity for in depth exploration of all the accessibility issues and the solutions from the perspective of the users with disabilities. They provide a forum for the participants to share their experiences, their preferences, and the suggestions for enhancing the accessibility of the website. (Krueger, 2009)
4. **Expert Review and Consultation:**
    - To seek insights and recommendations from accessibility experts and professionals in the field.
    - Engaging with the accessibility consultants or the organizations specializing in web accessibility to conduct a comprehensive review of the website and provide expert guidance on accessibility best practices and compliance with the WCAG standards. (Lazar, 2017)
    - Experts can offer valuable insights and recommendations based on their expertise in the field. Their expertise can help in identifying the additional accessibility barriers and

propose effective solutions for improving the accessibility of the website. (Nielsen, 1994)

Justification of Research Methods:

The user testing provides direct insights into the users interactions with the website and it helps validate the identified accessibility issues. It allows for the observation of the real world usage scenarios and provides qualitative data on the users experiences and the challenges faced by them.

While, surveys offer a scalable and efficient method for collecting the feedback from large number of users including those with the disabilities. By using this we can collect quantitative data on the perception of the user and their experiences which in turn compliment the qualitative that is collected from the user testing.

Along with this focus groups facilitate the collaborative discussions and the idea generation among the users with disabilities, which will foster a deeper understanding of their needs and their preferences, as it provides a forum for sharing the diverse perspectives and insights which will help prioritize the accessibility improvements.

Engaging with the accessibility experts makes sure of a thorough evaluation of the websites accessibility and the compliance with WCAG standards. Their expertise and the guidance can help identify all the accessibility issues and provide great actionable recommendations for the improvement.

By using all these research methods, Tesco can gain detailed insights into the accessibility challenges that are faced by the users and prioritize effective solutions in order to enhance the accessibility of it’s website. (Group, User Testing, 2024)

Conclusion:

In conclusion, the accessibility audit of the Tesco website has revealed multiple significant issues that are needed to be addressed to ensure an inclusive and a user friendly online shopping experience for all users, including the users with disabilities. Through the combination of the manual and the automated testing methods, we identified numerous accessibility barriers, which ranged from missing alt texts on images to keyboard navigation limitations and color contrast deficiencies.

To address all these issues effectively, a detailed research plan which involved, user testing, surveys, accessibility focus groups and the expert consultation is proposed. The user testing will provide direct insights into the users experiences and the challenges, while the surveys and the focus groups are used to collect feedback from larger number of users which include a wide range of users including the people with disabilities. Additionally engaging with the accessibility experts, this will ensure a thorough evaluation of the accessibility of the website and the compliance of the website with WCAG standards.

By implementing the solutions and fixes that are proposed to the problems that are identified during the audit of this website and validating them through the user research, Tesco can enhance the accessibility of its website and demonstrate its commitment to inclusivity and the accessibility for all of their customers. By improving accessibility does not only benefits the users with disabilities but it also contributes to a more positive user experience and this will in turn strengthens Tesco reputation as a socially responsible and a customer centric organization

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