Carbon Tiptoe Design

Rationale behind visual design choices for CT's webpage

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1.   INTRODUCTION

Carbon Tiptoe required a landing page to be designed for a carbon-footprint calculator website. The website required a pop-up modal of a registration form, as well as having a central-coloured theme (light brown). This report aims to explain the rationale behind the visual design choices taken when designing this webpage.

2.   ACCESSIBILITY

2.1   Font size

Readability of font is extremely important for accessibility in terms of visual differences in devices [1]. The solution for this was to use a standard explicit font size setting of 16px for all paragraph text on the webpage (Fig. 1). This ensured that the font size met the accessibility criteria.
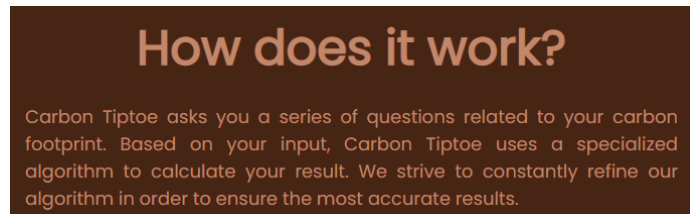

Fig. 1.   The paragraph font size is 16px throughout

2.2   Colour contrast

The custom colour required was a shade of light brown (#C1876B). Using the colours from the colour palette, one shade of dark brown (#472515) met the minimum pass for colour contrast. Using light brown as the foreground and dark brown as the background resulted in a colour contrast ratio of 4.5:1, which meets WCAG AA guidelines (Fig. 2). This was checked using WebAIM's colour contrast checker [2]. The rest of the background and foreground colours used (e.g., in the navigation bar) all satisfied the colour contrast requirement easily.
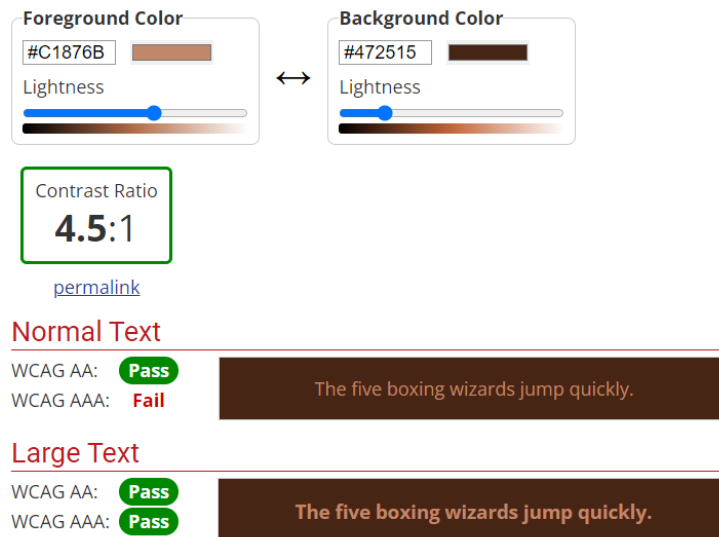
Fig. 2. The foreground and background colours satisfy contrast requirements

2.3 Functional colours

Functional traffic light colours (green for "do" and red for "avoid") have been used to transmit important information to users. (Fig. 3) The green background for the heading symbolises how users can reduce their carbon footprint, while red symbolises what users should avoid.

Fig. 3. Functional colours (green and red) used to transmit information

2.4 Keyboard accessibility

Users with mobility impairments who rely on the keyboard are able to use the website by using the 'tab' key. All buttons are usable with a keyboard, with a border appearing around them when selected using tab (Fig. 4).
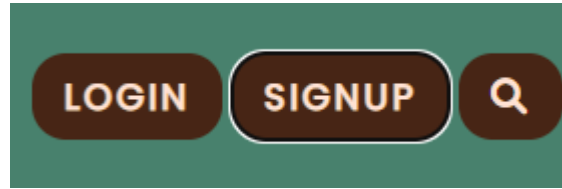
Fig. 4. Outline around button selected with tab

2.5 Form accessibility

All fields of the registration form are clearly labelled, and there are instructions on how to complete the form (Fig. 5). This is to make it easier for users to fill out the form. The user is able to fill out the form using only a keyboard.
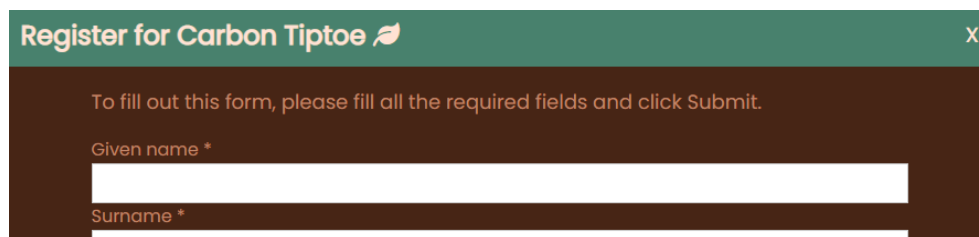
Fig. 5. Part of the registration form, with instructions and fields labelled

2.6 Alt text for images

All images include alternative text (Fig. 6). This is done so that users who are unable to view the image (e.g., visually impaired users using screen readers) are able to know what the image is about.
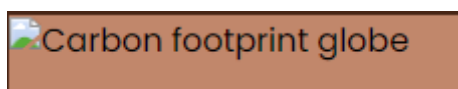
Fig. 6. Alternate image text

2.7 Page title

The page title (Fig. 7) adequately and briefly describes the content of the page (i.e., Carbon Tiptoe homepage), thus improving accessibility.
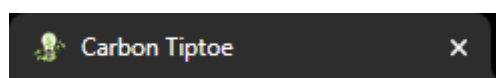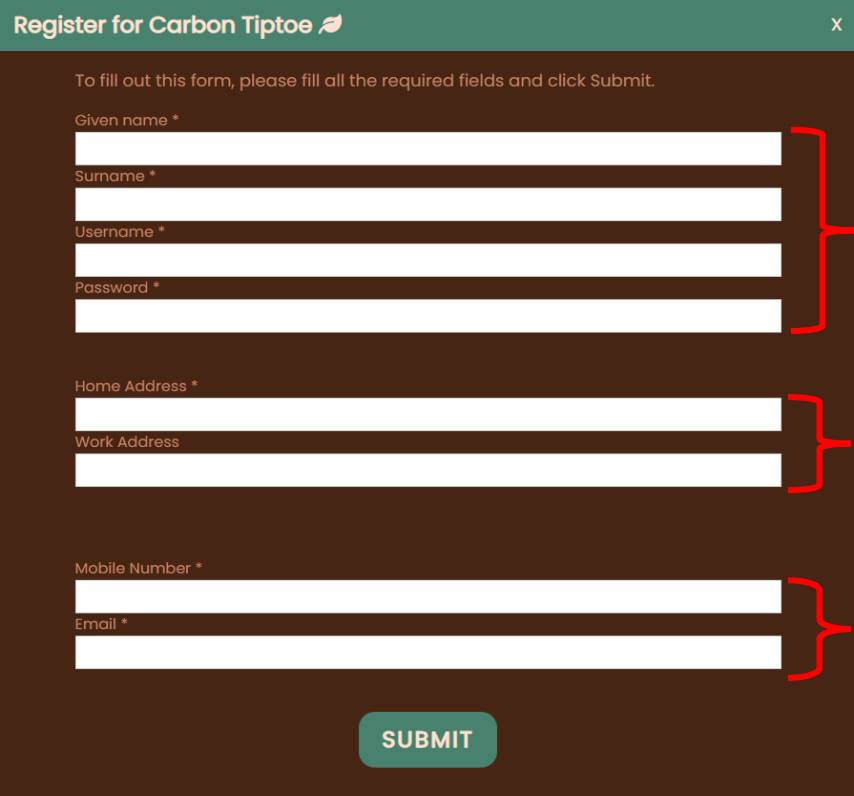
Fig. 7. Page title

3. DESIGN PRINCIPLES

3.1 Gestalt's proximity principle

The registration form utilises Gestalt's proximity principle to group sections together. Fields that are close to each other are seen as one section. Thus, the form is divided into three sections (i.e., user details, addresses and contacts) using proximity (Fig. 8).

Fig. 8.   Separation of fields into sections using Gestalt's proximity principle

Similarly, the different sections of the webpage also follow the proximity principle because they are separated by equal spacing (80 pixels) (Fig. 9). This suggests grouping of each section along with its contents (i.e., title, text, image).
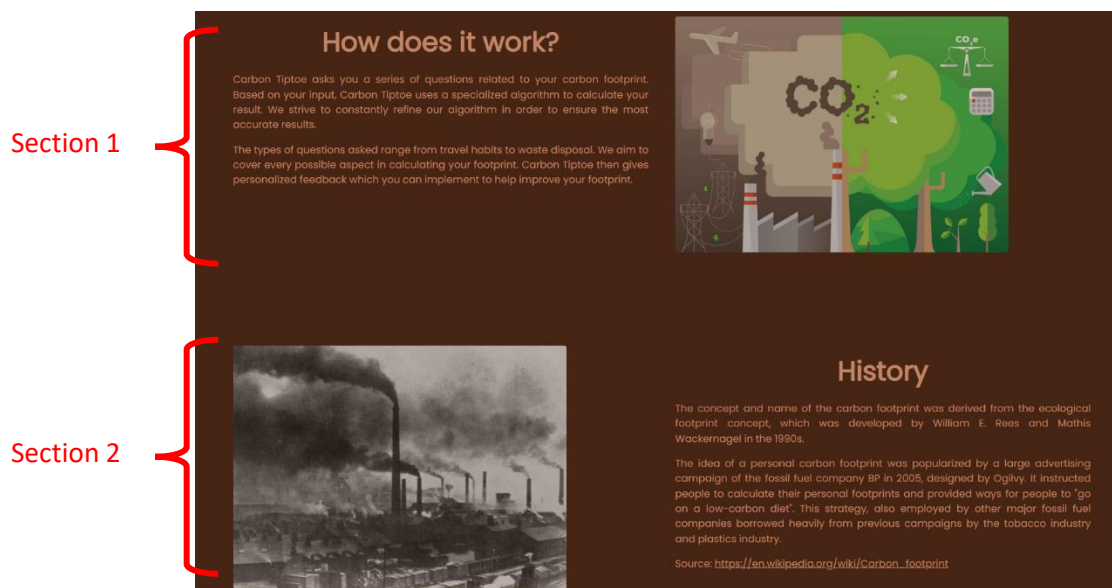

Fig. 9.   Separation of sections using spacing

3.2 Gestalt's similarity principle

In the navigation bar, the 'Login,' 'Signup' and search buttons are visually similar (have a dark brown background). This groups them together as a set of buttons. Beneath this are the navigation buttons, which do not have this background, this groups them together as they are visually similar (Fig. 10). This visual grouping using Gestalt's similarity principle helps the user acknowledge that these buttons are divided into these two sections.
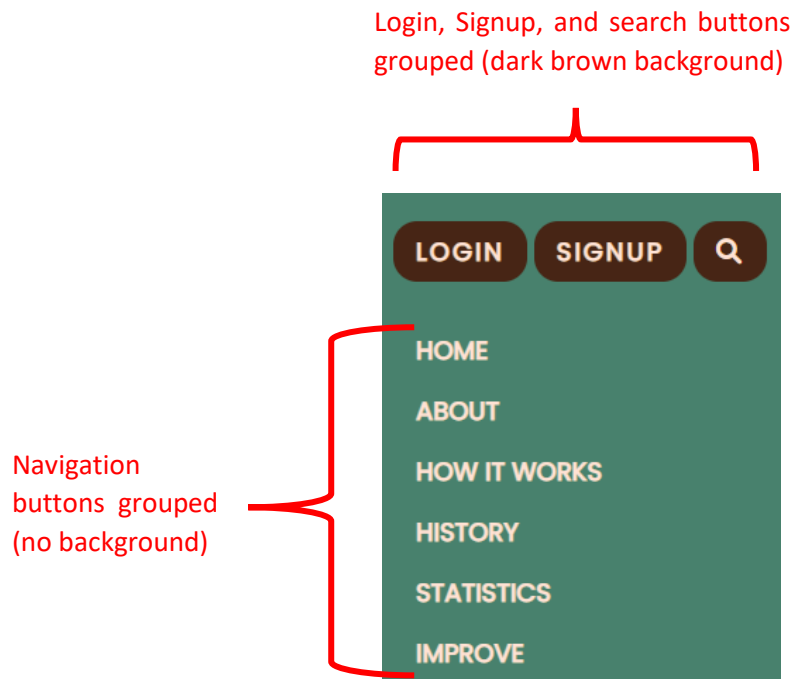

Fig. 10. Grouping buttons using similarity principle

3.3 Gestalt's common fate principle

In the registration form, all input boxes start and end at the same positions on the x-axis (Fig. 8). This is done so that they are perceived to be related as per Gestalt's common fate principle.

3.4 Gestalt's area principle

The main image at the top of the page has a large area so that it is perceived as the background (Fig. 11). In addition, the images throughout the homepage which are not supposed to be background have a small area so that they are perceived as the figure (Fig. 9)
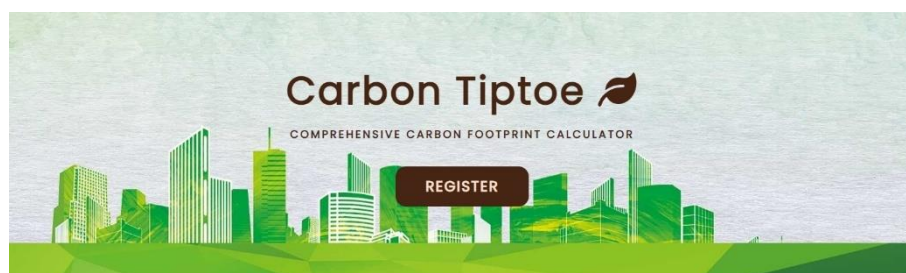

Fig. 11. The main image has a large area so that it is perceived as the background

3.5   Balance design principle

The webpage uses asymmetrical (informal) balance as the navigation bar is not symmetrical with the content of the website (Fig. 12). This is done as two fundamentally different parts (navigation bar and content) have to be balanced.
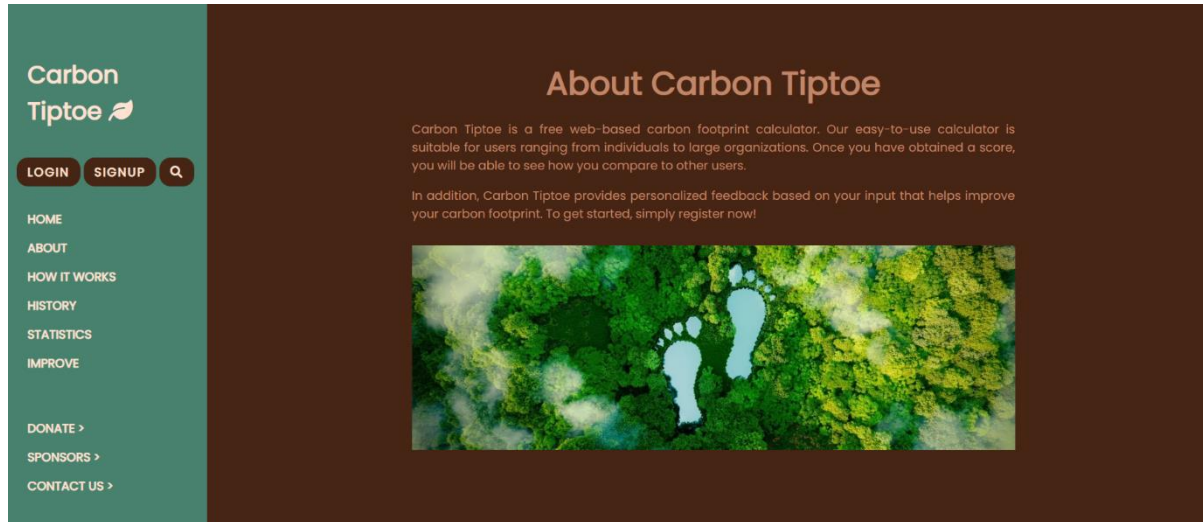

Fig. 12. Asymmetrical balance between navigation bar and content

3.6   Emphasis design principle

The emphasis design principle is applied to the register button, which is positioned centrally on top of the webpage (Fig. 11), making it an easily recognizable focus.

3.7   Unity design principle

Unity is achieved through using the same colour palette (discussed later) throughout the website, which is centred around the custom colour. This commonality allows the webpage to be perceived as a whole.

4.   COLOUR SCHEME

Carbon Tiptoe required the main colour theme of the website to be light brown (#C1876B). Using Paletton [3], a colour scheme was generated (Fig. 13) with light brown as the base colour. A few colours from this generated scheme were used to make the final colour scheme. To complete the colour palette, two shades of green were used as complementary colours (Fig. 14).
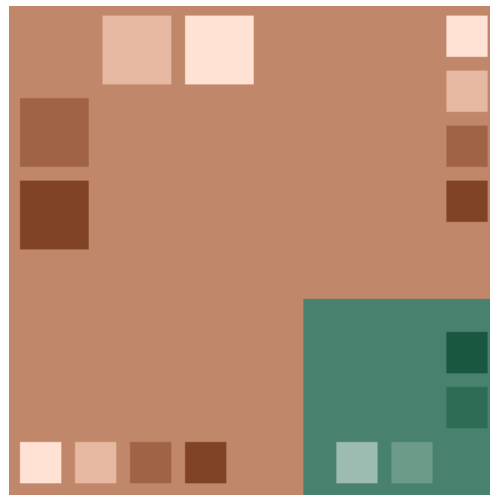
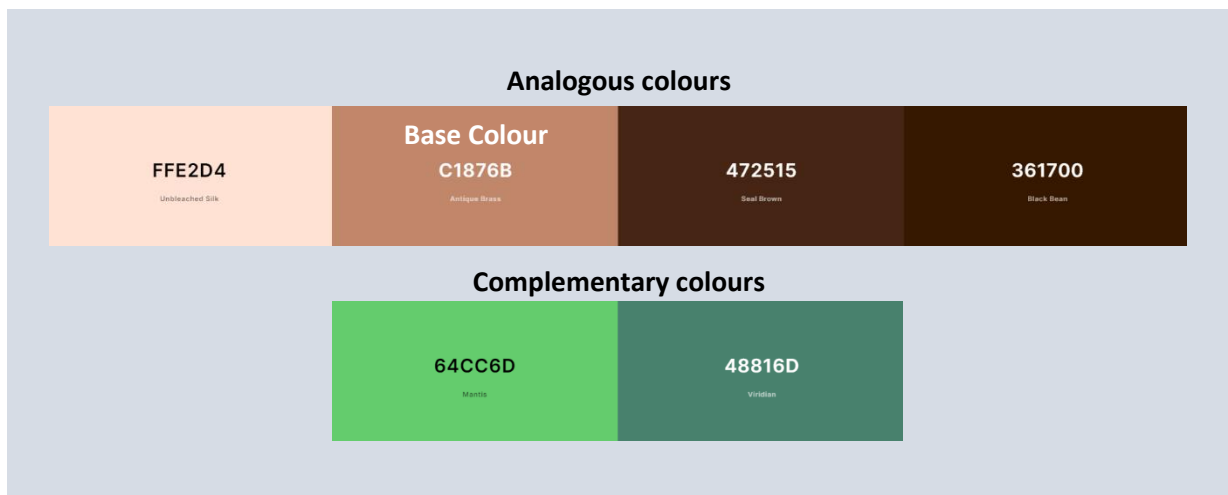**Fig. 13.** Colour scheme generated using Paletton

Fig. 14. Final colour scheme used

The analogous shades of brown provide unity and harmony to the webpage, while the complementary green colours used for button-hovers and the navigation bar produce an exciting, dynamic visual pattern.

5.   USER EXPERIENCE

5.1   *Usability and usefulness*

A high level of usability and usefulness was ensured through designing an easy-to-use navigation bar which is accessible from any part of the webpage. This was the rationale for making the navigation bar vertical (i.e., the user does not have to scroll all the way back up to access it). This also improves learnability as users quickly become accustomed to the site's navigation.

5.2   Emotional impact and meaningfulness

The images used in the statistics section (Fig. 15) aim to have an emotional impact on the user by helping the user visualise each statistic. The statistics also provide meaningfulness in the sense that users feel that they have the opportunity to be part of the statistic, thus encouraging users to form a long-term personal relationship with the product.

Fig. 15. Statistics section

6.   CONCLUSION

To conclude, Carbon Tiptoe's home webpage has been designed to provide a high-quality user experience. This has been achieved through Gestalt principles, design principles (balance, emphasis, unity), accessibility factors and a suitable colour scheme.

7.   REFERENCES

[1] M. Cronin. "10 Principles of Readability and Web Typography." Smashing Magazine. https://www.smashingmagazine.com/2009/03/10-principles-for-readable-web-typography/ (accessed Jun. 6, 2022).

[2] "Contrast Checker." Web Aim. https://webaim.org/resources/contrastchecker/ (accessed Jun. 8, 2022).

[3] "The Colour Scheme Designer." Paletton. https://paletton.com/#uid=20i0u0kegoe5sBx9IsZiikamSgd (accessed Jun. 8, 2022).