

IDG2012 – Exam Project

Candidate number: 10024

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1. About this website

This website is a fictive recipes site, where a user can view recipes and get inspiration to start cooking something for themselves. The website consists of eight total pages, four of which are the recipes themselves, and the other four are the homepage, about page, recipes page, and contact page. It is worth noting that none of the recipes are real, and will most likely not work if you were to try them yourself. The website is purely made for exploring the different ways in which we can design accessible websites.

1.1 User Personas

When designing accessible websites it is important to keep in mind who will use our website. Different types of disabilities need different types of facilitation, a person who is deaf would need captions for a video, while a person with vision impairments would prefer audio. This creates a situation where we need to facilitate several different user groups, who are going to use the same system and interactivity. I will go into more detail about how I made sure the site was accessible for different users later in the report.

2. Usability

Usability refers to how easily a user is able to interact with the website. Even though this website is mostly focused on being as accessible as possible, it is equally important that the site is firstly usable. If a site is not usable and user-friendly, there is a slim chance that anyone will continue to use it, unless they have to.

2.1 User testing

For testing the usability of this site, I managed to set up two small interviews with screen sharing, where the participants tested the site on their own computers. The testing mainly consisted of telling the participant to navigate to a part of the site, before they had gotten a chance to test the site beforehand. This gave me insight into how intuitive the site was to use and also gave me insight into which elements the participants noticed first.

2.1.2 Results

The result of the user testing did not give any mind-blowing insight, but this was expected. Structurally the site is very similar to most other websites — which benefits the user by making it familiar — which in turn increases the ease of learning. The main feedback I got on the site, that made me make changes was; the sentences were too long, and it was no clear indication of what was required in the form on the contact page. The sentences being too long is hard on the eyes and makes the text hard to follow, and the form having no indication of what is required or not makes the form less intuitive, which can be confusing for some users.

2.1.3 Changes Made

The changes made to the website were directly based on the feedback I got from the participants. The width of all paragraphs on the page was shortened from their default styles to having a max width of between 50 and 60 characters. This ensures readability for the users. To make it clearer for the user which forms inputs are required, I added extra text into the labels for the inputs, which reads “required”. This text is constantly visible, unlike the required attribute for HTML input elements, which only displays “required” if the input is not filled in.

2.2 Other measures to increase usability

On the site there there is secretly two different navigations, one for mobile and one for desktop. The mobile navigation is designed as a panel that opens from the right, hidden under a hamburger menu, while the desktop version has all the navigation items laid out side by side. By having two different navigation, it allows for users to have the same experience while using the website on both mobile and desktop.



3. Accessibility

Accessibility is the act of making sites available to as many people as possible. Often times we think of accessibility as something we do only for the disabled, but developing sites accessible, also ensures that we develop the sites correctly. Developing the sites accessible not only helps people with disabilities but also benefits users accessing from a mobile or with slow connection speeds.

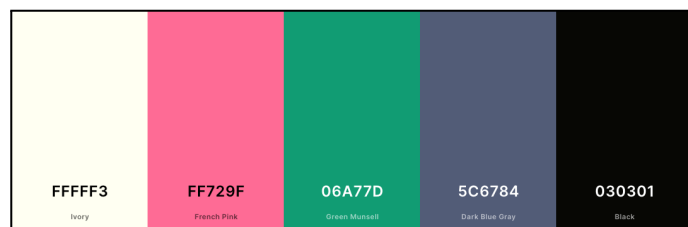
3.1 Measures taken to make the site accessible

Many measures were made to make the site accessible, I will start from the design and then work my way into the more technical parts of making the site accessible.

3.1.1 Color scheme and contrast

The first measure for making the site accessible starts already when picking a general color theme for the website. Picking a good color scheme not only ensures the sites look coherent, but it also ensures good enough contrast between different elements on the page. Having sufficient contrast ratios between elements, and specifically text and background color is mandatory in most cases. The

image to the right is the color scheme I landed on for designing the website. The offwhite is mainly used for the background, and then all text is in black. Green and pink



colors were mostly used for call to actions, and grey for the logo and the mobile navigation.

In the form I mentioned I added text to signify which fields was required, for this text I tried using the pink color from the color scheme, but the pink text did not contrast well with the off-white background. Here I had to adjust the color and make it darker, so that it fulfilled the contrast requirements.

3.1.2 Font choice

Typography for web is often overlooked, but it is an important tool for conveying information clearly. For this website I have chosen two fonts, a display font for larger text, and a general

font for paragraphs and blocks of text. For the display font I went with Righteous, which is a really bold font. With this font I sacrificed some readability for aesthetics, but since it is only going to be used for large text, this will not impact readability severely. The font I chose for the rest of the text is Atkinson Hyperlegible. This is a font that was designed specifically with accessibility in mind. It was designed at the Braille Institute as a font that will make typography more accessible for everyone, even those with reading difficulties, or vision impairments.

Righteous

Designed by Astigmatic

Whereas disregard and contempt for human rights have resulted

Atkinson Hyperlegible

Designed by Braille Institute, Applied Design Works, Elliott Scott, Megan Eiswerth, Linus Boman, Theodore Petrosky

Whereas disregard and contempt for human rights have resulted

3.1.3 HTML Semantic Elements

Getting more into the technical side, the HTML semantic elements is an important step for making any website accessible, and should always be first in line to be used when designing. For most of the site, proper use of the correct semantic elements goes a long way in making the site accessible for most users. I made sure to always use semantic elements when possible. There are only two things the site has used div elements for, and this is either for the media controls, and for strictly styling purposes inside a proper semantic element. The rest of the site is built up of semantic elements.

3.2 WAI-ARIA

Many times semantic elements are enough, but not all the time — when the semantic elements are not sufficient — we can supplement with ARIA labels and roles.

3.2.1 Mobile Navigation

There are several places I have used aria-labels, mainly in the context of navigation. For the mobile navigation — which slides in from the side of the screen — aria labels were necessary. The mobile header uses aria-controls, -label, and -expanded for the button which opens the menu. This tells a person with screen reader what element the button controls, what kind of element it is, and if it is open or closed. This ensures that even though the person might not be able to see that the menu slides in and out of the screen, that it still is represented with aria. The overlay has a display none value until the aria-expanded attribute has a value of true, this ensures that keyboard users do not select things that are not on screen.

code:

```
<header class="mobile__header">
  <button class="mobile__header__menu--button"
    aria-controls="mobile__overlay"
    aria-label="menu"
    aria-expanded="false">

    <span class="srOnly">Menu</span>
    
  </button>

  <nav class="mobile__overlay" data-state="closed">
    ...
  </nav>
</header>
```

3.2.2 Contact Page Form

It can be difficult for a person with visual impairments to see text on screen sometimes, and maybe they can not see the required text next to the inputs. Here the form uses the `aria-required` attribute to tell a person using a screen reader that the current input field is required, and cannot be left empty. There is also a span with the role of alert, which will alert the user when displayed. This is triggered by a focusout event in javascript.

example:

```
<label for="emailInput">Email
  <span class="info">(required)</span>
</label>

<span class="contact__form__error-message"
  role="alert"></span>

<input
  type="email"
  name="email"
  required
  aria-required="true"
  id="emailInput">
```

3.2.3 Non Descriptive Links

Each “recipe-card” also has `aria-labelledby`, since the only text in the button is “view recipe”. The button text is descriptive enough for a sighted user, since they can understand which recipe they are about to view from the visuals. A person using a screen reader will only hear “view recipe” but have not context of which recipe they are about to view. `Aria-labelledby` fixes this issue by connecting the button to the title of the recipe-card they are viewing.

```
<div class="recipe__card__info__container">
  <h2 id="lunch-bread" class="recipe__card__title">Lunch Bread</h2>
  <a
    href="/recipe_pages/lunch_recipe1.html"
    class="recipe__card__button button"
    aria-labelledby="lunch-bread">View Recipe</a>
</div>
```

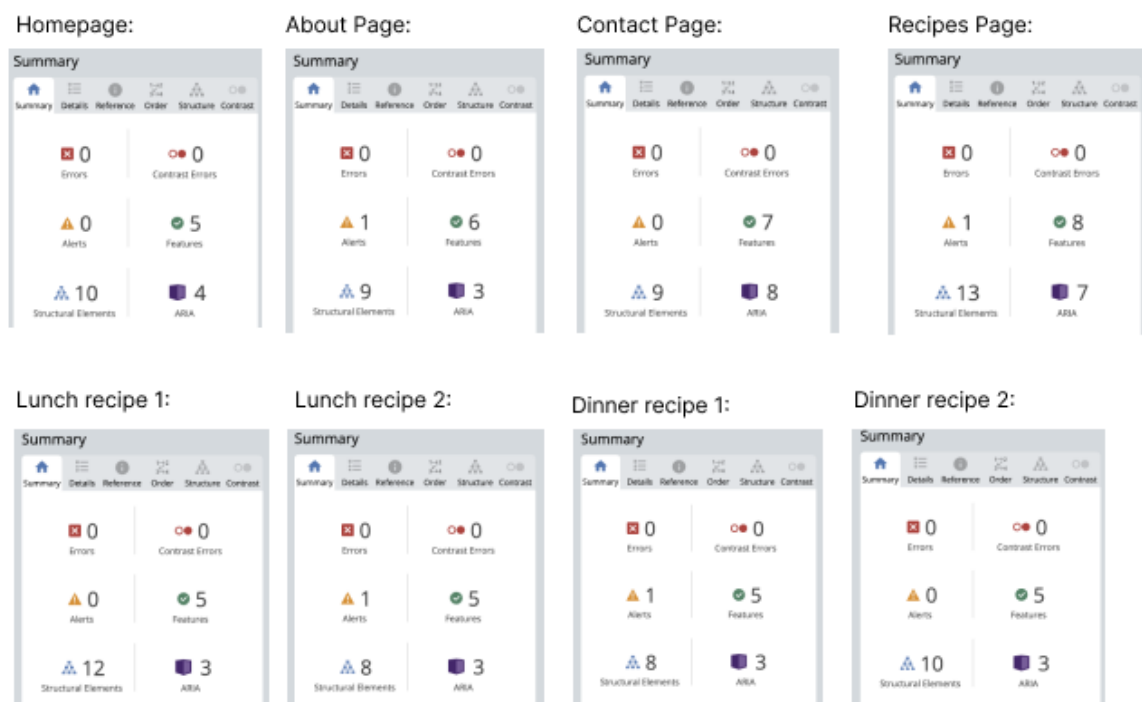

3.2.4 Dialog pop-up

Using the dialog element with the `showModal()` function, will implicitly have both the `aria-role="dialog"`, and the `aria-modal="true"` attribute, making it the ideal option for pop-ups. The dialog element also has a pseudo class of `::backdrop`, which can be styled to give sufficient contrast between what is interactive and what is not.

3.3 Accessibility Testing

Testing the accessibility of a site is important for confirming that everything is working properly, and to see if you have done any mistakes along the way. The way I tested my site was with the WAVE Evaluation Tool Extension for Chrome, and also Lighthouse report from within Chrome.

3.3.1 Wave Results



This is the full wave result for all the different pages on the website. There is a total of 0 errors, 0 contrast errors, 4 alerts, 42 Features, 79 structural elements, and 34 ARIA.

The 4 alerts on the page are from 4 separate things. The first two are from there being audio and video files present on two of the pages. These alerts say something along the lines of if

there is an audio/video, make sure there are captions/transcriptions available for users with certain disabilities. There are both captions and transcriptions available for each of these respectively, so this alert can be ignored.

One of the other alerts comes from there begin no level 1 heading on the recipes page, here there are two level 2 headings. Both these level 2 headings are of the same level of importance, and adding an h1 heading just to get rid of the wave alert would be arbitrary.

The last alert comes from the about us page, here the alert is that there is a link at the bottom of the page, prompting the user to “contact us”. This contact us button comes after reading about the fictive company. The alert is based on there being two links on the same page that lead to the same place, the contact in the navigation, and the contact CTA at the bottom. WCAG says — if possible, combine the two links into one — I cannot see a scenario where this would clear up the site, so I chose to ignore the alert. The fact that these two links are on two opposite sides of the page, should not cause confusion.

3.3.2 Lighthouse Report

The lighthouse report rates the site a perfect 100 on accessibility. There are 18 audits that the site passed. Most of these relating to aria, and semantic tags. But it also checks against contrasts, and tabindex values.



Accessibility

PASSED AUDITS (18)	Hide
● [aria-**] attributes match their roles	▼
● [aria-hidden="true"] is not present on the document <body>	▼
● [role]s have all required [aria-**] attributes	▼
● [role] values are valid	▼
● [aria-**] attributes have valid values	▼
● [aria-**] attributes are valid and not misspelled	▼
● Image elements have [alt] attributes	▼
● [user-scalable="no"] is not used in the <meta name="viewport"> element and the [maximum-scale] attribute is not less than 5.	▼
● The page contains a heading, skip link, or landmark region	▼
● Background and foreground colors have a sufficient contrast ratio	▼
● Document has a <title> element	▼
● <html> element has a [lang] attribute	▼
● <html> element has a valid value for its [lang] attribute	▼
● Links have a discernible name	▼
● Lists contain only elements and script supporting elements (<script> and <template>).	▼
● List items () are contained within or parent elements	▼
● No element has a [tabindex] value greater than 0	▼
● Heading elements appear in a sequentially-descending order	▼

4. WCAG Checkpoints

The WCAG Compliance requirements for public website is all A and AA checkpoints from WCAG 2.1. Here I will go through all points and give examples.

Checkpoint	Lvl	What I did
Checkpoint 1.1.1: Nontext Content Level	A	For this checkpoint I made sure all non text content had good and sufficient alternative text
Checkpoint 1.2.1: Prerecorded Audio only and Video-only Level	A	For both the video and audio file on the website I provide captions for the video, and transcriptions for the audio
WCAG 2.1 - SC 1.2.2 Captions (Prerecorded)	A	For both the video and audio file on the website I provide captions for the video, and transcriptions for the audio
WCAG 2.1 - SC 1.2.3 Audio Description or Media Alternative (Prerecorded)	A	For both the video and audio file on the website I provide captions for the video, and transcriptions for the audio
WCAG 2.1 - SC 1.2.4 Captions (Live)	AA	For both the video and audio file on the website I provide captions for the video, and transcriptions for the audio
WCAG 2.1 - SC 1.2.5 Audio Description (Prerecorded)	AA	For both the video and audio file on the website I provide captions for the video, and transcriptions for the audio
WCAG 2.1 - SC 1.3.1 Info and Relationships	A	I used semantic elements, proper heading hierarchy, label for form inputs, and red text for required fields, table is also semantically correct
WCAG 2.1 - SC 1.3.2 Meaningful Sequence	A	I used proper structural markup for the whole site. Also made sure the visual hierarchy from a design perspective was correct.
WCAG 2.1 - SC 1.3.3 Sensory Characteristics	A	All links have sufficient with text, and where the context can be confusing aria-labelledby has been used.
WCAG 2.1 - SC 1.3.4 Orientation	AA	I have made the site fully responsive with media queries, and relative units.
WCAG 2.1 - SC 1.3.5 Identify Input Purpose	AA	All input fields have label associated with them
WCAG 2.1 - SC 1.4.1 Use of Color	A	I have added text that says which fields are required, and all links have an underline on them.

WCAG 2.1 - SC 1.4.2 Audio Control	A	I do not have autoplay on audio or video.
WCAG 2.1 - SC 1.4.3 Contrast (Minimum)	AA	I have checked all pages with contrast checker, aswell as WAVE. I have had no issues her.
WCAG 2.1 - SC 1.4.4 Resize text	AA	The site is fully responsive from 320px wide screen to 4K monitor.
WCAG 2.1 - SC 1.4.5 Images of Text	AA	I have text in an image one place, here I have hidden plain text in html under, with a class of srOnly. So people with screen readers can read. this is also an svg so the text does not get blurry when zoomed into.
WCAG 2.1 - SC 1.4.10 Reflow	AA	Using flex makes this much easier than it was before. No horizontal scrolling on the site.
WCAG 2.1 - SC 1.4.11 Non-Text Contrast	AA	I changed the contrast on the background when the pop-up is visible.
WCAG 2.1 - SC 1.4.12 Text Spacing	AA	All sizes are set with relative sizes so I have not encountered any problems with this.
WCAG 2.1 - SC 1.4.13 Content on Hover or Focus	AA	I have set custom styles for focus and hover for most. I have one instance of content being added on an focusout event. But this is small and important enough to comply.
WCAG 2.1 - SC 2.1.1 Keyboard	A	I myself have user tested with keyboard, but also tested with participants. Best experience with voiceover for mac, and using arrow keys for it to read text content
WCAG 2.1 - SC 2.1.2 No Keyboard Trap	A	Thorough testing ensures no keyboard traps present.
WCAG 2.1 - SC 2.1.4 Character Key Shortcuts	A	No custom keyboard shortcuts that can override their existing workflow
WCAG 2.1 - SC 2.2.1 Timing Adjustable	A	No time limit set on content
WCAG 2.1 - SC 2.2.2 Pause, Stop, Hide	AA	No content that moves or animates for more than 0.5s, this does not require special care
WCAG 2.1 - SC 2.3.1 Three Flashes or Below Threshold	A	No flashing content on whole site
WCAG 2.1 - SC 2.4.1 Bypass Blocks	A	Skip to main content for skipping past main navigation
WCAG 2.1 - SC 2.4.2	A	All webpages have a unique title that identifies that page

Page Titled		
WCAG 2.1 - SC 2.4.3 Focus Order	A	The page is designed in a way that allows for natural flow of the focus order
WCAG 2.1 - SC 2.4.4 Link Purpose (In Context)	A	Some of the links were kinda vague in their context for non sighted users. Here I had to add aria-labelledby to make sure screen readers could udnerstand
WCAG 2.1 - SC 2.4.5 Multiple Ways	AA	This site is so small that the navigation would have unnecessary complexity by displaying all links on all pages. The link tree is just 1 layer deep.
WCAG 2.1 - SC 2.4.6 Headings and Labels	AA	Each heading describes its section
WCAG 2.1 - SC 2.4.7 Focus Visible	AA	Custom focus style to comply with contrast
WCAG 2.1 - SC 2.5.3 Label In Name	A	Label for all forms

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