Universal Design

PROG1004 - Group 25

Revision History

Date	Version	Description	Author
29.04.2021	1.0	First version.	Julie Merie Landgraff

Universal Design is term widely used in IT, design, architecture, society planning, and development of products and services. It is used regarding whether a product, service, building, or institution is adaptable or designed so that any person, regardless of their functional ability, can participate in said activity or operate the product. Web Content Accessibility Guidelines (WCAG) provides the guidelines to make sure you meet their recommendations for usability. The structure offers four main principles:

- Possible to perceive
- Possible to operate
- Understandable
- Robust

As well as four main principles, WCAG offers guidelines and success criteria. The guidelines are based on the main principles but offers a more in-depth perspective. There are 12 guidelines which marks what any web content developers or producers should work to meet. Because the guidelines are not testable, WCAG offers success criteria that are. There are success criteria for each of the guidelines. Here, "testable" means you can test if your product complies with the set requirements, agreements, design specifications etc. Success criteria is again divided into three levels of compliance, Level A, Level AA, and Level AAA. What level you need to meet depends on the group or situations a user might find themselves in.

The Project Description specified as one of its basic project elements, that "*the application must be designed according to WCAG 2.1 principle 1 – Perceivable".* The Perceivable principle, according to w3.org covers

> "*Information and user interface components must be presentable to users in ways they can perceive."*

The principle has different subcategories, or sections, that covers the specifics. As well as the success criteria belonging to each guideline. All success criteria related to audio and video is not considered here as the assignment does not cover anything related to this. The application has no images, nor audio or video implemented.
In relation to the success criterion 1.3.3 Sensory Characteristics and the 1.4.1 Use of Color, the application has a fairly simple design with contrasts between letters and background. Black and white is the main color scheme used, with an inverted scheme where you are currently located as a user in the application. However, other colors are used in the output window for the Tasks, Priority and Completed tab. We considered the 1.4.1 criterion where it says:

> *"Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element"*

We decided to use a green color for the output window when what you have executed in the program is correct, as well as a red color when what you have executed is incorrect, but we also included the error message with clear instructions on what you either must change or can leave as it is. That way the message is conveyed regardless of the user's inability to see color. Both the 1.3.3 criterion and the 1.4.1 criterion fulfill a Level A standard.
Success criterions 1.4.4 Resize text says:

> *"Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality."*

In our application this is achievable through ‘Ctrl +’ or ‘Ctrl -’, or Ctrl + scrolling back and forth. Since our application meets this criterion as well, it fulfills a Level AA standard here.
In relation to success criteria like 1.4.8 Visual Presentation, 1.4.12 Text Spacing and 1.4.13 Content on Hover or Focus, we decided not to focus on them as they would require plenty more working hours and aimed towards a Level AA or Level AAA in most cases. In general, we decided to focus on the Level A goals as well as some of the Level AA ones.

The course content also mentions DOGA, Design and Architecture Norway, and CUD, Universal Design at North Carolina State University, which has seven main principles regarding UD. These are

1. Simple and intuitive to use
2. Understandable information
3. Tolerance of errors
4. Equal opportunities for everyone
5. Flexible to use
6. Make physical effort
7. Size and space for access and use

We feel like a team that we have fulfilled almost every one of these principles. Although you could argue to what degree. Every application can almost always be more user-friendly. Still, we feel like the application is both *Simple and intuitive to use*. This also goes for *Equal opportunities for everyone* since there are no technical requirements to understand a software of this type. The only requirement is basic keyboard skills. This is also the case when it comes to *Flexible to use* and *Make physical effort.*

Understandable information is also covered. Both error messages that appears and messages that confirm a successfully implemented change in one of the tasks, conveys the necessary information to the user in an effective manner. NTNDU is also *Tolerant of errors*, because it is very easy to fix anything you have accidentally missed or done incorrectly. The last principal *Size and space for access and use* is also met to some degree. As mentioned earlier we do have a zoom function that enables any user with impaired vision to use the application more effectively. Still, we do not have a lot of other features that allow the user to customize their experience.

As mentioned in the introduction to Universal Design further up in the report, the Project Description specifies that the application must be designed according to WCAG 2.1 principle 1 – Perceivable. All audio and video success criteria has to be overlooked, as the application does not offer either audio or video options. With regard to the other success criteria, we feel that as a team we meet to the best of our abilities. It is user-friendly, with contrasts and highlighting. offers zooming and does not require any skill other than basic keyboard skills, although a Level AAA standard has not been met on all accounts, we still feel it complies to the 2.1 Principle 1 – Perceivable.