

## SWEN303 ASSIGNMENT 2

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Default - **Updating** - Design Coverage - Design Quality - Reflection

<https://github.com/Kayskip/Wireframing-and-User-Interface-Report>

# Part 1:

Introduction:

### Description

This report will be focusing on the Design Aspects and Interfaces of the Carbon Calculator system. We will establish abstract wireframes and ideas based of the Carbon Calculator system using the online Balsamiq tool. Here we will clearly show design ideas relating this to the users and their needs. This report has been updated to include these requirements and relate them to similar systems. We will use techniques to prototype and ideate sections of this report to improve it from the previous assignment.

In this report we will update the scenarios, personas and reflection. As well as including an important wireframed website re-creation in the Design section. This is important as we will be relating personas and their needs by creating a better user design for the system. This will in turn, better represent how a user accesses and navigates through the website.

In this report we will be analysing the usability of the Carbon Footprint Calculator website, (<https://www.carbonfootprint.com/calculator.aspx>) by conducting our own individual bias based on the system usage of the website. This is based on the overall functionality and usability as an average user. To do this we will be creating individual personas who are likely to be the key stakeholders using this website.

### Business Objectives:

The Carbon Calculator website is a global, multi-country targeted website that provides a carbon footprint calculator to its users worldwide. This means the system must have a good calculation function and be reliable with its output. The first objective should be to return an overall carbon emission result to the user. This must be accurate and should store this information on their database for later use. The second objective is to compare these results with other users worldwide for activity results to be displayed. This makes users compete with each other, resulting in higher system usage and more activity. The third objective is to have a statistical data section which represents harm of CO2e usage. This should increase user activity because of the factual data.

**For this website, I have derived 3 main objectives from the system:**

1. Show users their own overall carbon emission release in combination with plastic usage.
2. Show comparative data to their users worldwide.
3. Provide users with statistical information on the carbon emission and plastic usage subject.

### **The importance to stakeholders:**

The Carbon Footprint Calculator website is important to many groups and individuals worldwide because of the exceptionally high amounts of carbon emissions in the atmosphere. Users want to be able to calculate their impact on the environment and compare to others their savings on a daily basis. They expect accurate output from their emission input as well as fast working system operations to produce their result efficiently. Users want to have weekly updates on their usage and keep updated with how much CO<sub>2</sub>e emissions they are saving.

As a user of this website, you want to be able to share your carbon footprint to others. You should be able to convince other people that they should use this website. It is the systems job to co-operate with the user to produce the best outcome.

## **Part 2:**

### **Personas and Requirements**

#### **Overview**

In this report we will be updating the personas to have system requirements as well as adapting them to include goals relative to the carbon calculator website. We will also link the scenarios, tasks and use cases together to represent a better relationship between them. This section of the report has been fully re-done as we should be focusing more on the system requirements.

Here, we need to create a diagram to show the linking between the system, personas and scenarios: [Diagram](#)

#### **Creating the personas:**

This leads us on to persona creation to give a better, wider overall representation of the summarised user groups who will be accessing the Carbon Calculator Website. In creation of the personas, we will be using User Modelling techniques, including Abstract Representation and User Design techniques to help empathise with the personas. Firstly, we will hypothesise the user types who would access this website. We will then prioritise the most likely users to be accessing the Carbon Calculator. We will then take two abstract groups and their behavioural variables to create **Andrew** and **Margaret** as individuals.

The first persona **Awesome Andrew** has been created in the light of students and the younger demographic. Andrew follows the persona of a impatient user who is easily frustrated with complicated functions and system response. Because of his field of study, he expects high standards from global websites like the Carbon Calculator. Andrew is a good persona for representing students as well as young professionals.

The second persona **Modest Margaret** was created in the light of older, mature audiences who are interested in sustainability and a green future for their children. Unlike Andrew, she is patient and doesn't get as easily frustrated because of her maturity and patience as a mother. Although this is the case, she can find it hard to navigate through some websites and needs help from other family members. Margaret is a good persona for representing older users who have families and are more likely to be interested in saving the environment for the younger generation.

## **Persona 1: Awsome Andrew**

### **System Requirements for Awesome Andrew (Andrews Perspective):**

As a Computer Science Major my requirements of the calculator are very high and I expect the system to return accurate results when I use it. I am using this website to compare my weekly CO2e emissions, hoping to change how I transport myself to University each day. If the system cannot fill this efficiently, my main goal of changing to an eco-friendly car may not be satisfied. I am likely to change websites if the website does not support weekly updates and comparisons.

## **Persona 2: Modest Margaret**

### **System Requirements for Modest Margaret (Margarets Perspective):**

I require the website to include useful information to help me get started with understanding how the website works. Once I can understand this, I will be more confident with calculating my household usage. I also require the system present its information in a way I can understand, as I am not familiar with complicated units and statistics. I am mainly using this website to help the future generations, if I cannot see my progress over time there is no way I will continue using this website.

### **Creating the scenarios/tasks and use cases:**

From these individuals we have created [Essential Use Case Diagrams](#) to better represent the system usage on the website. For this report we will be using long style scenarios instead (Listed below). These will be prioritised with the Calculation of Carbon emissions being more important than the storage and loading of data sets, as calculation takes instant priority over the storage of your recent emissions. Finally, we will add logging into the website last as this is seen as less important due to the main functions of the website taking priority, restricting this to these three scenarios based on how important they are to the design process and system requirements.

### **Hierarchy**

- 1) Calculate CO2e Emissions for Public Transport**
- 2) Store and load data sets**
- 3) Log in to the website**

## **Scenarios (Long Style)**

### **Scenario 1: Calculating your public transport footprint:**

**Andrew** is trying to calculate his effect on the environment when using public transport. First, Andrew loads the website and navigates to the public transport calculator tab. Andrew enters his information into the systems input and calculates his usage. Andrew saves his results on his profile so he can compare his results for next week.

**For reference of the page:**

[Image of Public Transport tab](#)

### **Scenario 2: Store and Load Data Sets:**

**Margaret** is trying to store her weekly CO2e emission savings each week. First, she navigates to the household calculator and enters her information. After this the system prompts her to update her calculation to her savings, she selects a name for her savings and clicks update. The system stores her information on the database under her profile. She can come back to this stored data any time and update her entries.

**For reference of the page:**

[Image of Home page](#)

### Scenario 3: Log in to the website:

**Margaret** is trying to log into the Carbon Calculator website so she can record her CO<sub>2</sub>e emissions over a period of time. First Margaret loads the home page and locates the sign in button at the top left of the page. The system then redirects her to the login page. She then enters her information and the systems confirms her log in details. The system then redirects her to the home page, ready for calculations, displaying her current savings next to her profile.

### For a reference of the login page:

[Image of Login/Sign Up page](#)

## Part 3:

Prototypes of the home page before wireframing (Hand-drawn): [Phone](#) ---- [Website](#)

Link to the interactive Balsamiq wireframe: **SWEN303 A2**

Descriptions of the wireframes are added in the notes of the Balsamiq link.

Link to: **Storyboard**

### Design

When the user first loads the website, they are presented with the home screen, the main page for calculations. When users want to access a website for calculations, the sensible option would be to directly load the calculations page first. The activity on this page is centred around the middle where the options are located. With some partial activity around other tabs as users may want to login or read information.

Heatmap of the home screen: [Heatmap](#)

Check the **Storyboard** for a visual representation.

Navigation of this wireframed website is more efficient as users can understand and follow basic links. If we have a look at the wireframe, we can see that the user is shown their weekly saving on emissions via text output and graphs. Turning the original boring interface into a more interactive website for its users. This attracts new and old users to the website, regardless if they have already established their CO<sub>2</sub>e emission savings.

One of the main business objectives is to show comparative data from previous calculations to improve the users experience. Included in the design is the graphs of previous calculations and other users in their country. This is important to include in the design of websites such as the Carbon Calculator. The system relies on repetitive calculations as part of its main functionality. Without this the system would be rendered useless.

## Part 4:

### Reflection

#### Pros of the design I've proposed:

A pro of the design is the graph displays, which are shown when the website is first loaded. This saves time navigating the system and presents a nicer interface for the user. The user is able to see the graphs of both their own emissions and others instantly.

Another pro was the region lock that translates the user's current location to be suited to its region's units. This was first setup during creation of the profile, which is then saved later and displayed to the user on the main screens. This can be altered anytime and is great for user experience as the tedious work of the user is decreased. This was one of the main benefits to the new design, even though the change was slight it increased the functionality of the website significantly.

Another pro of the design was the decrease in complex user inputs which originally confused the user. Although there has only been a slight decrease, I have summarised the tabs to down from seven top tab sections to three and eight calculator tabs to three.

The last pro of the design is the consistent layers of the tabs and screens. This design maintains a constant page layer for the calculator screen.

#### Cons of the design I've proposed:

A con of the website is the overall basic system design, which unfortunately means I had to sacrifice an interactive experience for the user. I created my design this way to make sure basic functionality and options are clear and understood to the user. It was harder to summarise options and data to a cleaner and nicer interface for websites like the Carbon Calculator. Replacing buttons with images was an idea but the large amount of icons and options meant I only added few changes.

As previously stated in the pros section, I have summarised the main tabs of the system. Although this impacted my system positively, it also impacted it negatively. Summarising these tabs meant a loss of information for the user to navigate on. This was a sacrifice made for better user flow and experience but it also meant users in some cases users may not find the correct tab they are looking for straight away.

### **What have you learnt about the old website by proposing the new design?**

I have learnt basic user experience issues with flow and navigation as well as how this can influence a lot of the user's actions. I was able to empathise with my personas and understand how they navigate systems. In summary I used techniques we have learnt such as user testing and eye tracking. These techniques were vital to the new design as they were lacking in the Carbon Calculator website.

### **Reflect on any changes you made to the personas or tasks based on creating these initial design documents.**

During creation of these design documents, significant alterations were made in the scenario section. I have changed the use-case diagrams to long scenarios as it better described the system and its response. This is because previously the relationship between the Carbon Calculator and the personas was not met. I have taken the response of my previous report and incorporated system usage rather than basing it off user the user interface.