Portfolio Website Reflection

for

WSOA3028A

University of the Witwatersrand

Version 3.0 - Exam Submission

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Due: 4/07/2022

Table of Contents

Revision History

Name	Date	Submission	Version
D Naidoo	22/04/2022	Initial submission with basic website structure	1.0
D Naidoo	10/06/2022	Added JavaScript; Improved navigation; Augmented Portfolio section; Added experience information; Added blogs 4 to 6; Improved responsiveness	2.0
D Naidoo	04/07/2022	Augmented Portfolio section; Improved responsiveness; Completed Experience section; Completed Design section; Removed CV and added Resume; Completed About Me section; Added GitHub links for projects; Fixed navigation aesthetics; Added final reflection; Added JavaScript dependencies	3.0

1. Introduction

1.1 Purpose

WSOA3028A is a 3rd year course at WITS University that aims to give students insight into the fundamental skills needed for web development. The technical skills include integrating HTML, CSS, and JavaScript. Furthermore, students learn about the importance of Semantic Markup, Metatags and Microformats for Search Engine Optimization. The creative skills include learning about user-interface, user-experience, and portraying ideas through a digital platform. The last component is the theoretical knowledge gained. Students are given guidance to think critically about the history and impact of the world wide web. This is achieved through reading relevant articles that touch on these topics and reflecting on them by creating blog posts. The ultimate goal of this course is to learn about all these concepts and apply them to create a portfolio website which acts as digital extension of oneself for potential employers to view.

1.2 Intended Audience

Primary audience:

The main goal of this website is to display my relevant skills for potential employers to view. The website contains information about me, my work experience, my software experience, my coding experience as well as recent projects that I have completed. The idea is to create a digital avatar of myself in order to paint a picture that allows the user to understand my software development abilities.

Secondary audience:

The secondary audience includes people who are curious to get to know me better. This includes friends, family, colleagues, or any random person that I have made an impression upon.

1.3 Submission Overview:

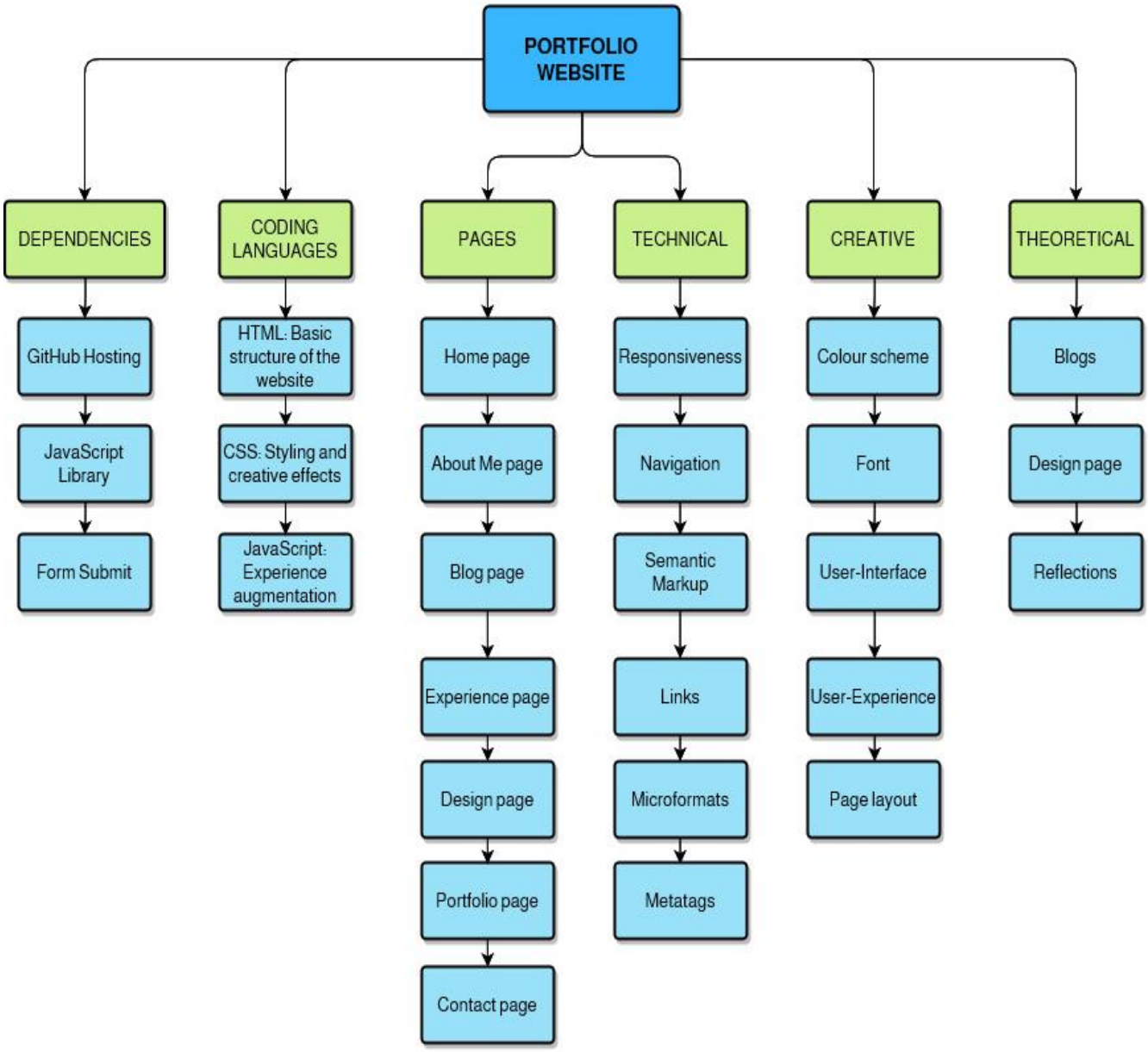
- Submission 1 – The initial submission requirements included the website layout and incorporating relevant pages. These include a home page, about me page, blog section, design page as well as a portfolio section. The theoretical requirements included blogs 1 to 3. The technical requirements included good use of semantic markup, metatags and microformats.

- Submission 2 – This submission required me to augment the pages mentioned in submission 1. Further theoretical requirements included adding blogs 4 to 6. Lastly, the technical requirement was to add JavaScript to improve the user-interface and user-experience.

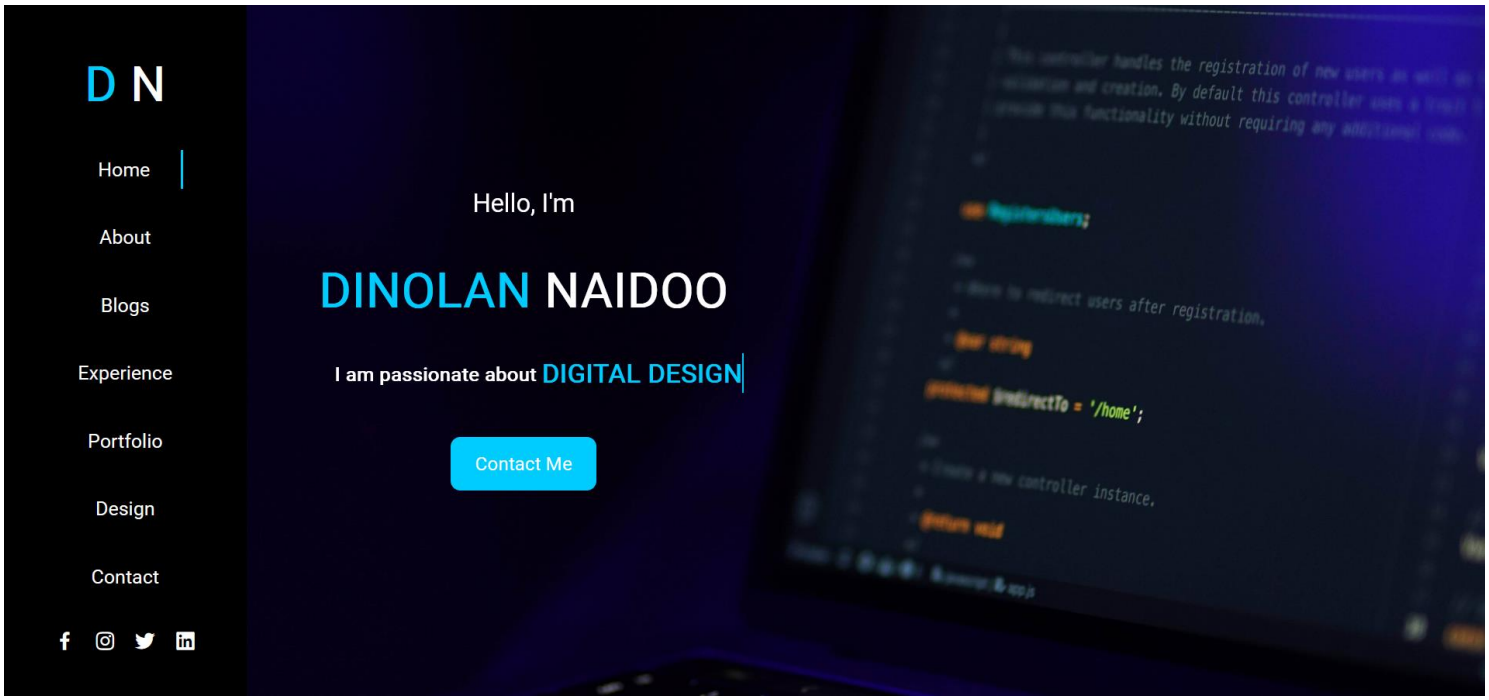
- Submission 3- The final submission ties together the entire website. This includes completing all the relevant requirements for both the theoretical and technical aspects. Furthermore, the final website is required to have a JavaScript dependency to improve the functionality and creativity.

2. Process and Design

2.1 Website overview:

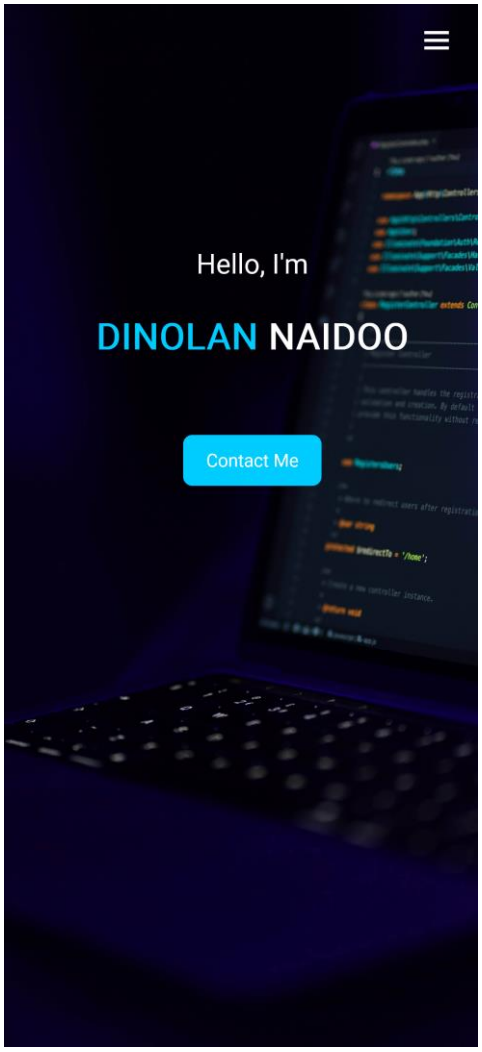


2.2 Home Page

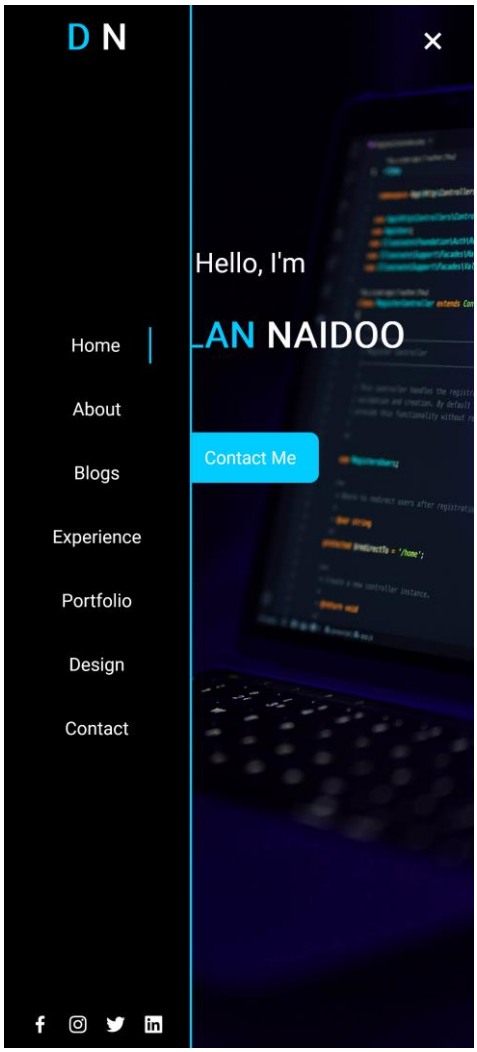


The image above shows the final home page design. The home page is the landing page for my website. As seen above, I greet the user and introduce myself. Furthermore, I also tell the user that I am passionate about digital design. I further augment this statement by having a sliding colour effect over the words “Digital Design”. The user is also given a button to contact me. If this button is clicked, then the page scrolls down to the contact section. Lastly, I have the background image of a laptop screen with code displayed on the screen. This image was selected to further unify my passion for digital design. The user is also given a navigation bar on the left. This navigation bar remains static throughout the entire website. This allows the user to navigate to any desired section. I also have social media links at the bottom of the navigation bar. These links are purely aesthetic for the current version. The screenshots below illustrate how the website responds to different screen sizes. The viewport being tested is a Samsung Galaxy S20. This is a common phone size. As seen in the screenshot, the navigation bar disappears, and the user is given an option to open the navigation bar on the top right corner. The first screenshot shows the viewport when the navigation bar is closed. The second screenshot shows when the user clicks the option to open the navigation bar.

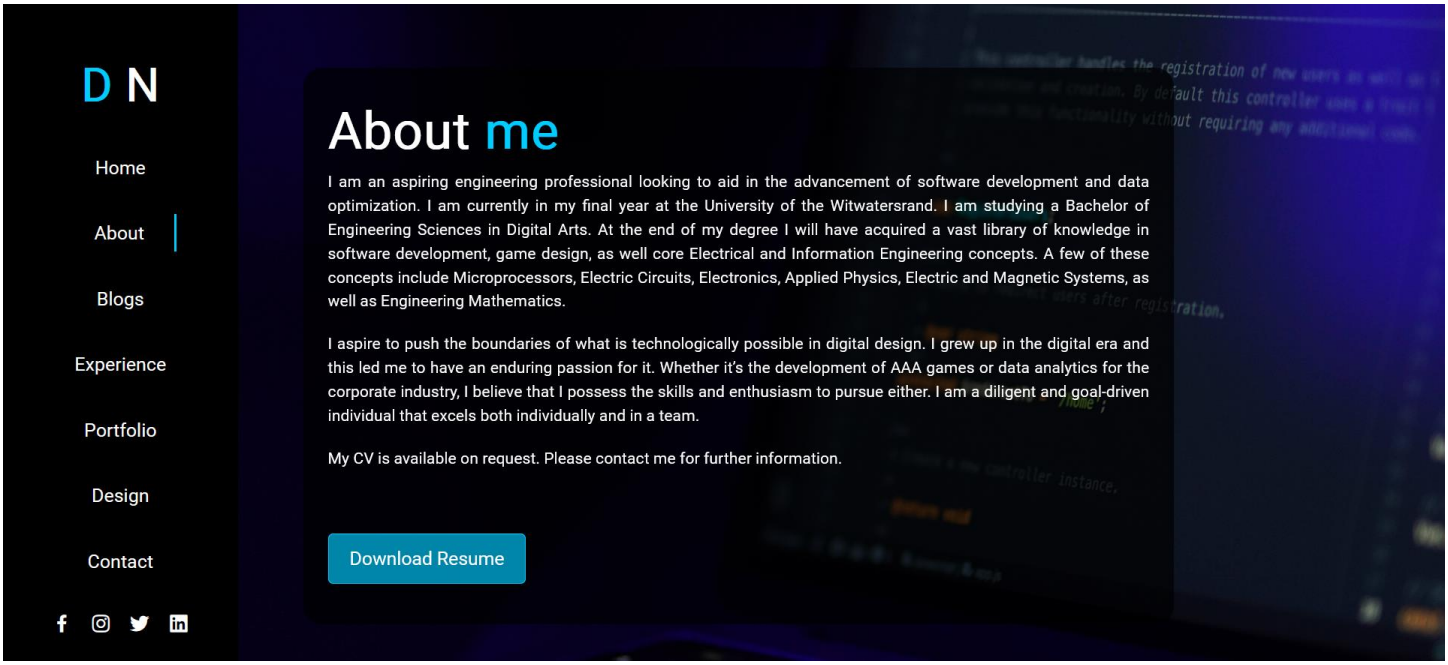
Navigation bar closed



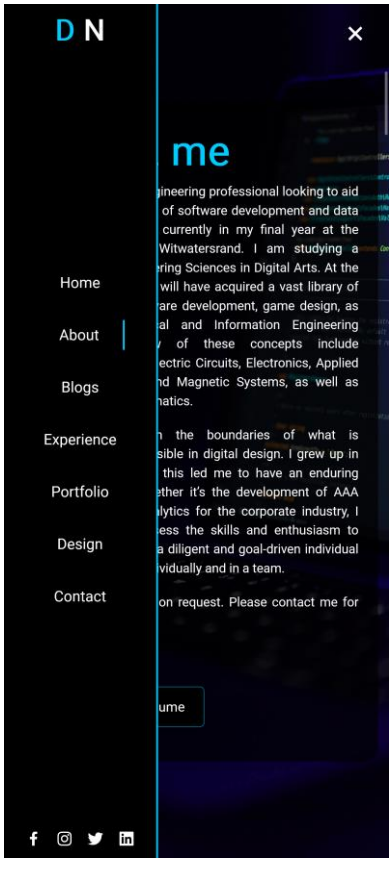
Navigation bar open



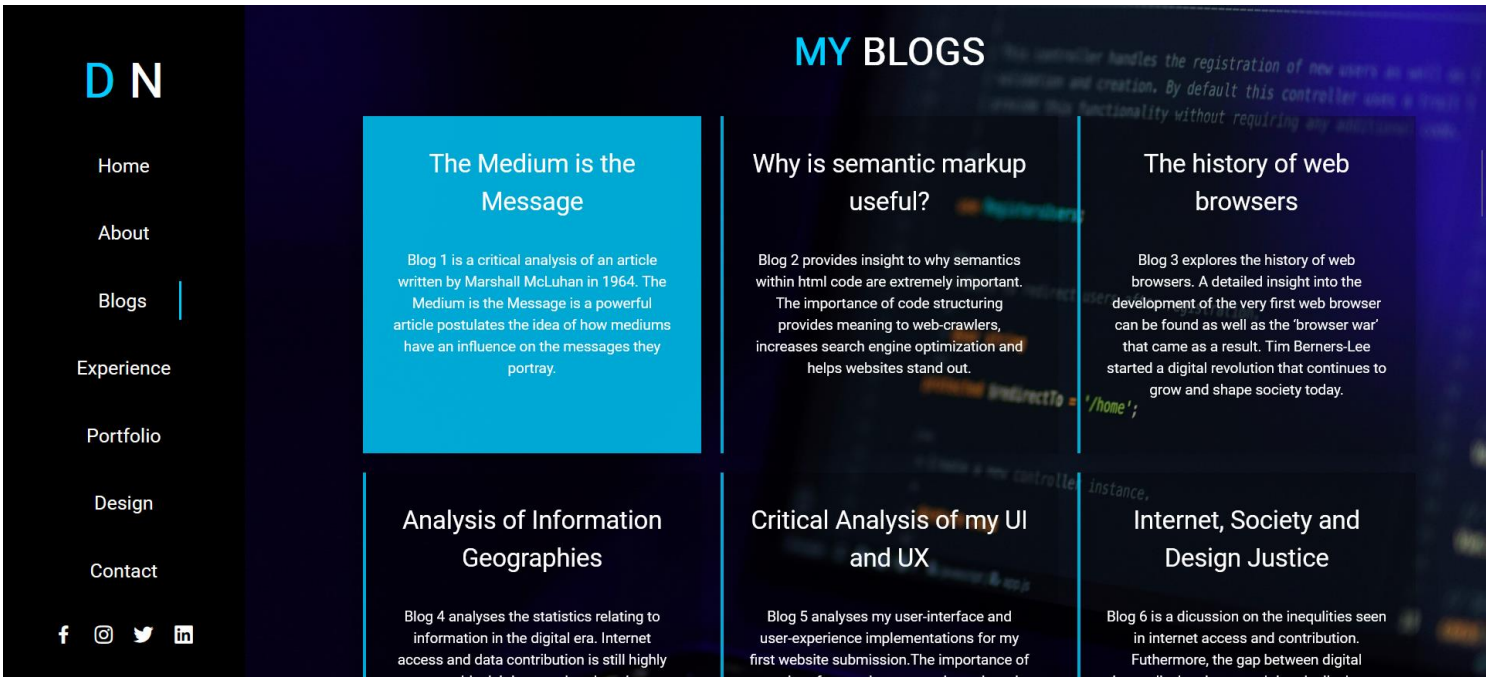
2.3 About Page



The image above illustrates the final design for the 'About me' section. I give the user information about my education as well as a brief description about what I am passionate about. The user is also given an option to download my Resume. This Resume was created on BeamJobs.com [13]. The screenshots below illustrate the responsiveness for this section.

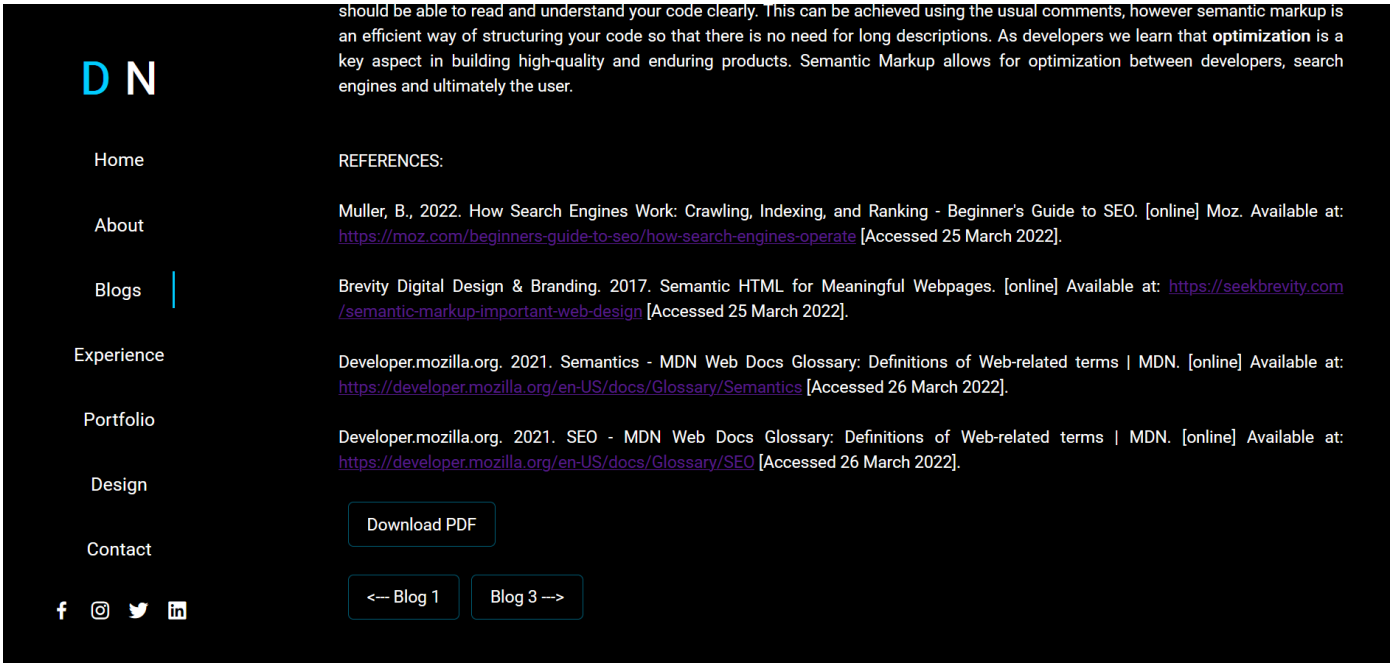


2.4 Blog Pages



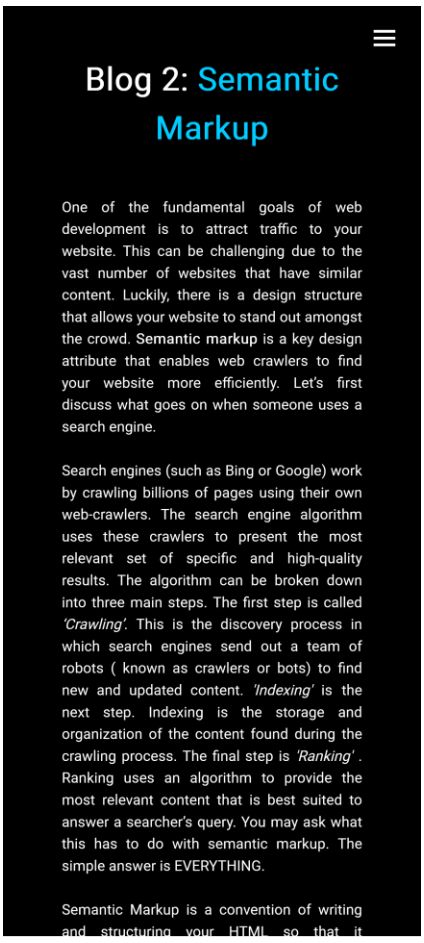
The screenshot above illustrates the final blog section design. This section includes all the blogs done for this semester. The section consists of the blog abstracts which gives users a brief description of the blog content. The user can then choose to select a blog to read. Once the user clicks on the desired blog abstract the full blog is displayed. The screenshot below shows the full blog page.

The user is also given an option to navigate between blogs within the blog page. Furthermore, the user has an option to download a PDF version of the blogs. This can be seen in the screenshot below. Lastly, the responsiveness of the blog abstracts and blog page can also be seen below.

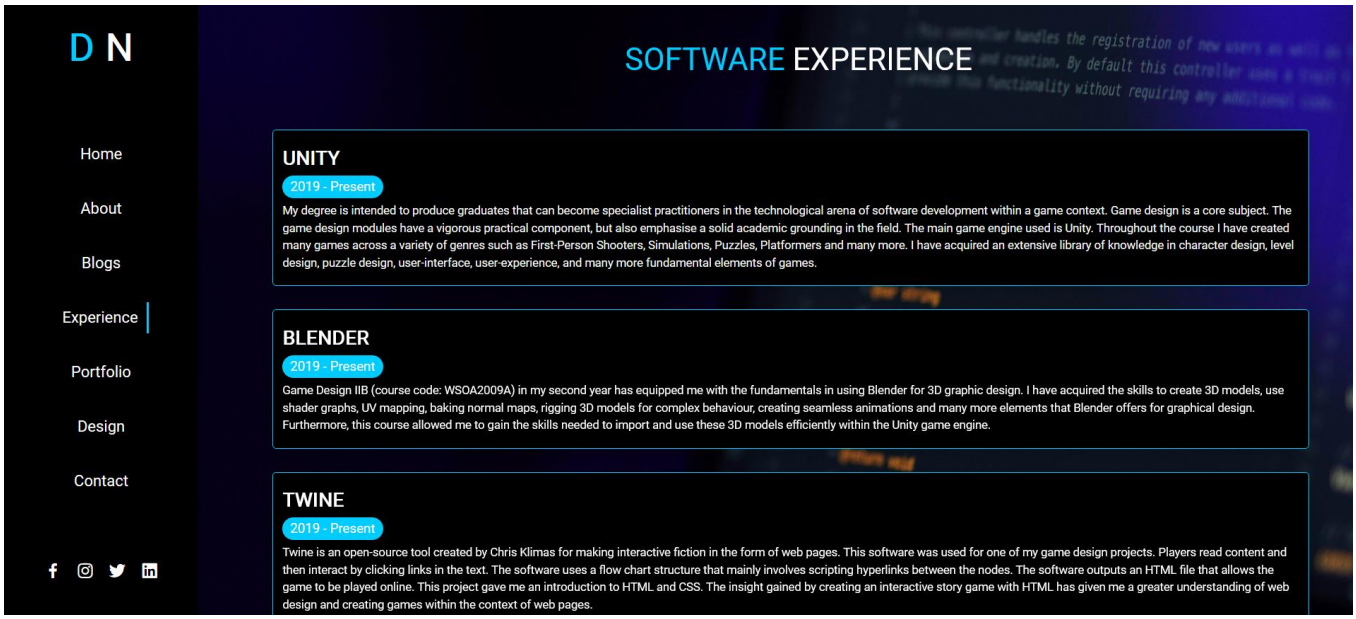


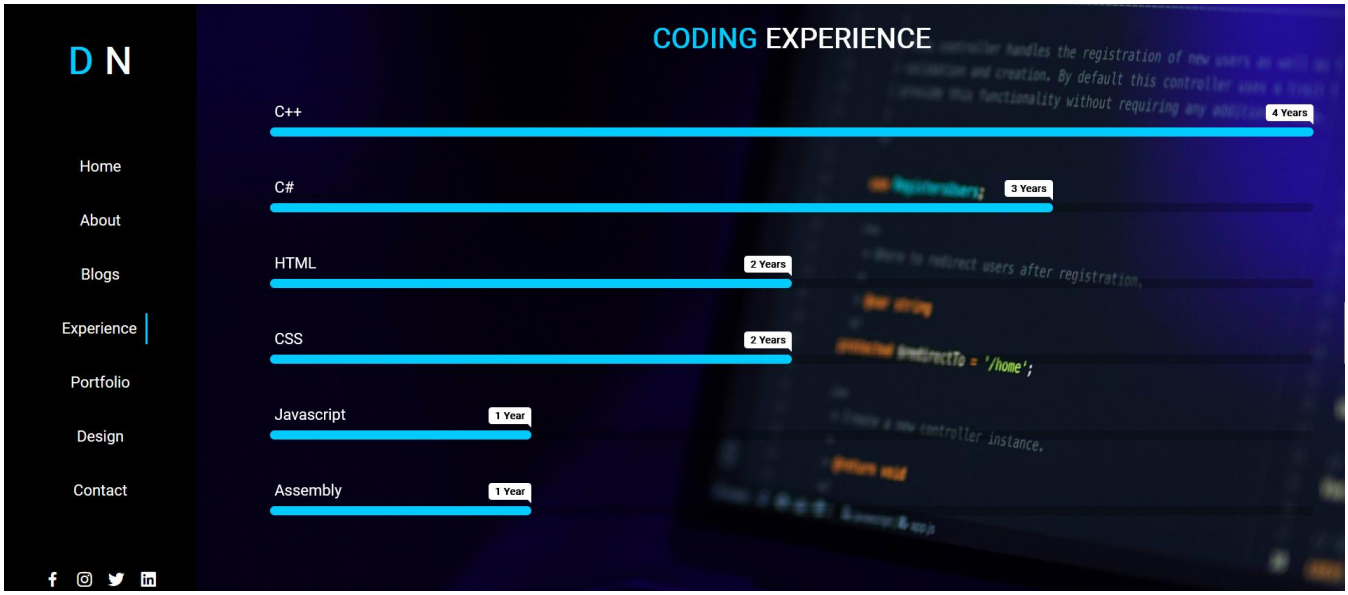
Blog abstract responsiveness

Blog page responsiveness



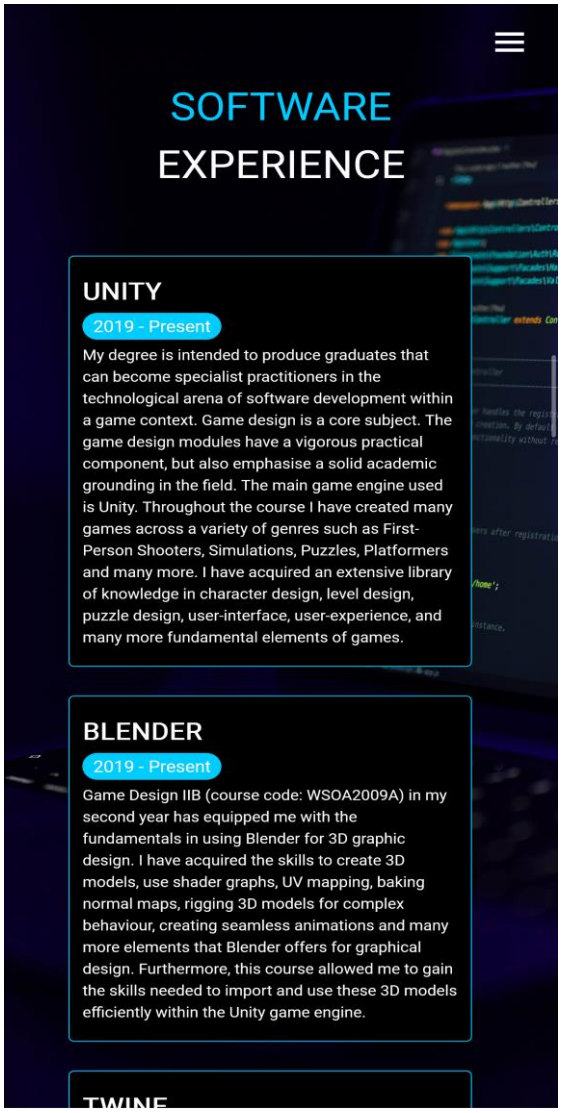
2.5 Experience Page



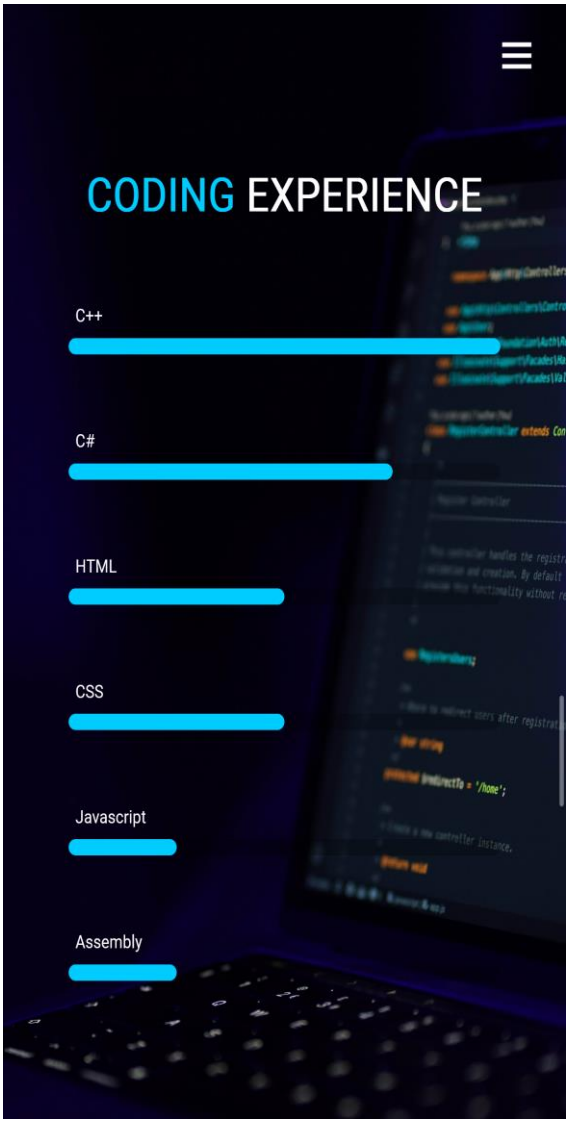


The screenshots above illustrate the final design for my experience section. This section consists of my software experience as well as my coding experience. This was done to give users insight into my programming abilities. Furthermore, the coding experience is measured in years to give users an indication of how experienced I am with the particular languages displayed. The responsiveness for this section can be seen in the images below.

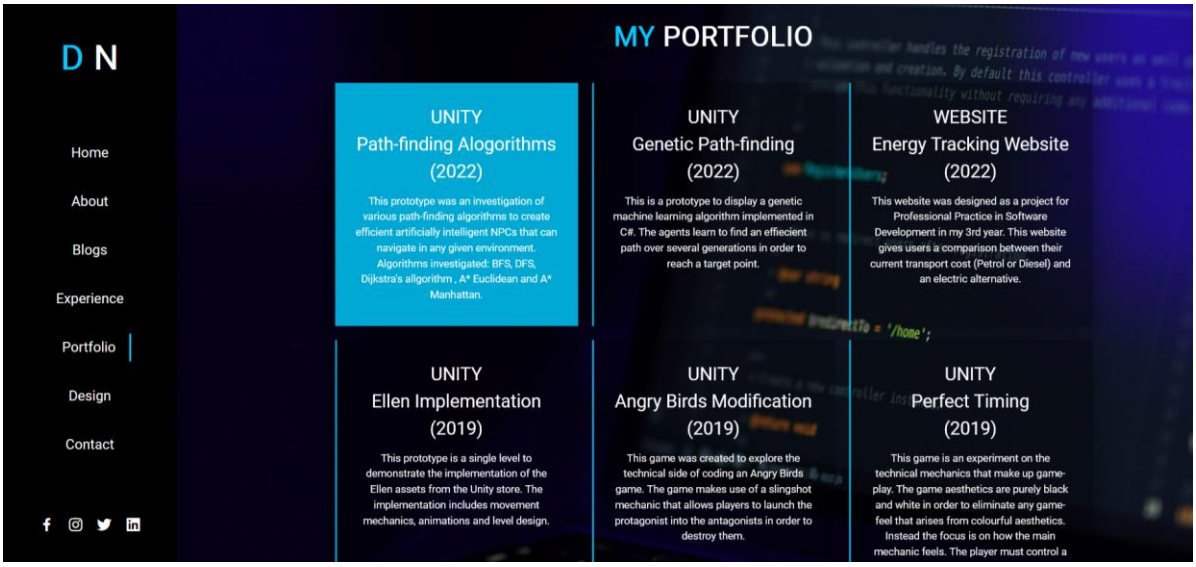
Experience text box responsiveness



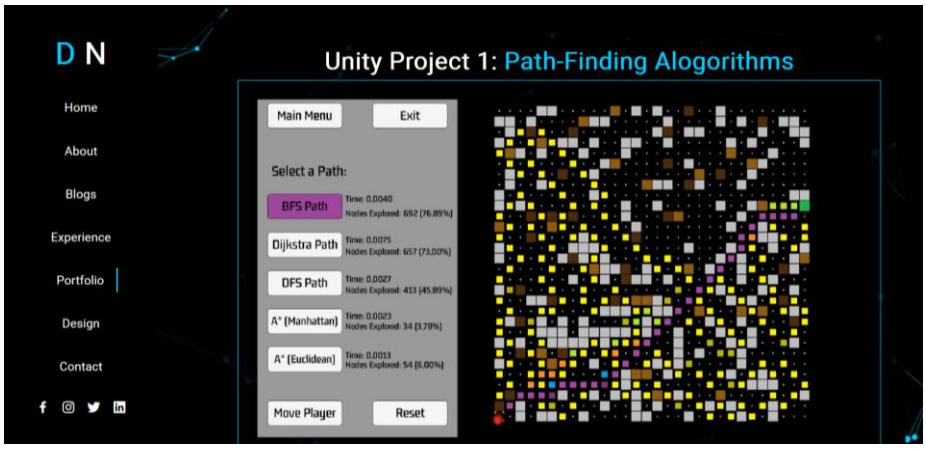
Coding bars responsiveness



2.6 Portfolio Pages



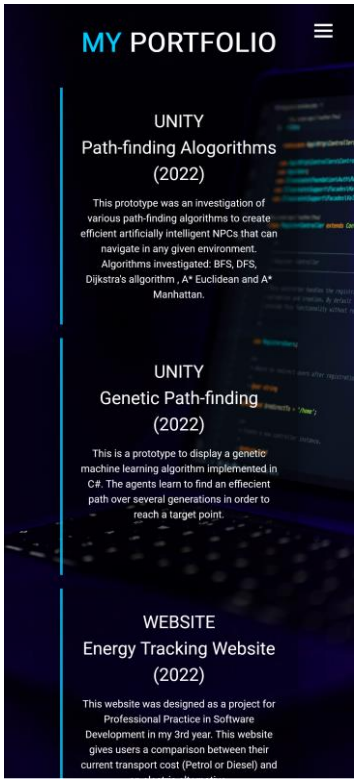
The image above illustrates the final design of the portfolio section. The portfolio abstracts have the same styling as the blog abstracts. This unifies the user-experience. I also added the software used for each project and the date of the project. This gives the user clarity on when each project was completed. The screenshots below show the project page once the user clicks on a project abstract.

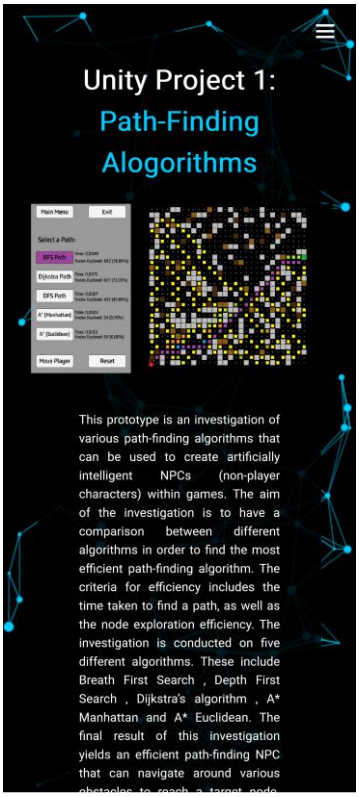


The user is given a brief description of the project. The user is also given an image from the project. Lastly, for the Unity projects, the user has the option to play the game. The user is also given a link to the GitHub Repositories for each project. The user can also navigate to the next project without having to traverse back to the project abstracts. For the Blender projects, the models are displayed for the user. The model rotates to give the user a better view. This was done using Three.js which is an external JavaScript library. An example of this is shown in the screenshot below.

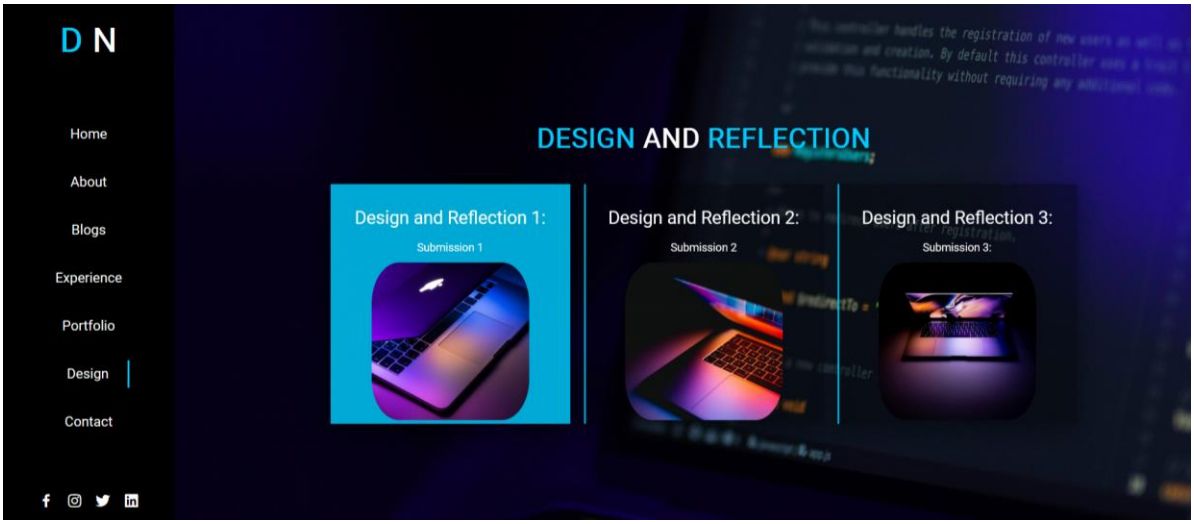
The responsiveness for the project pages can be seen below.

Abstract section responsiveness	Blender project responsiveness	Unity project responsiveness

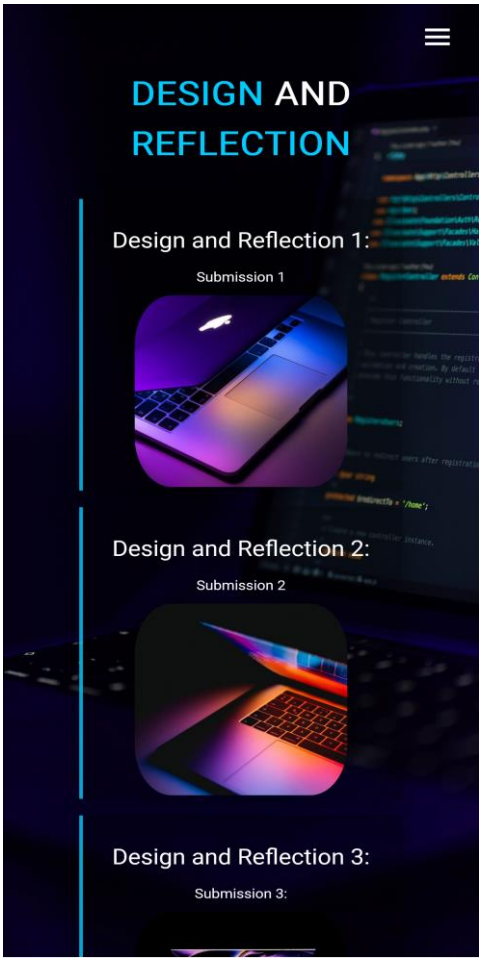




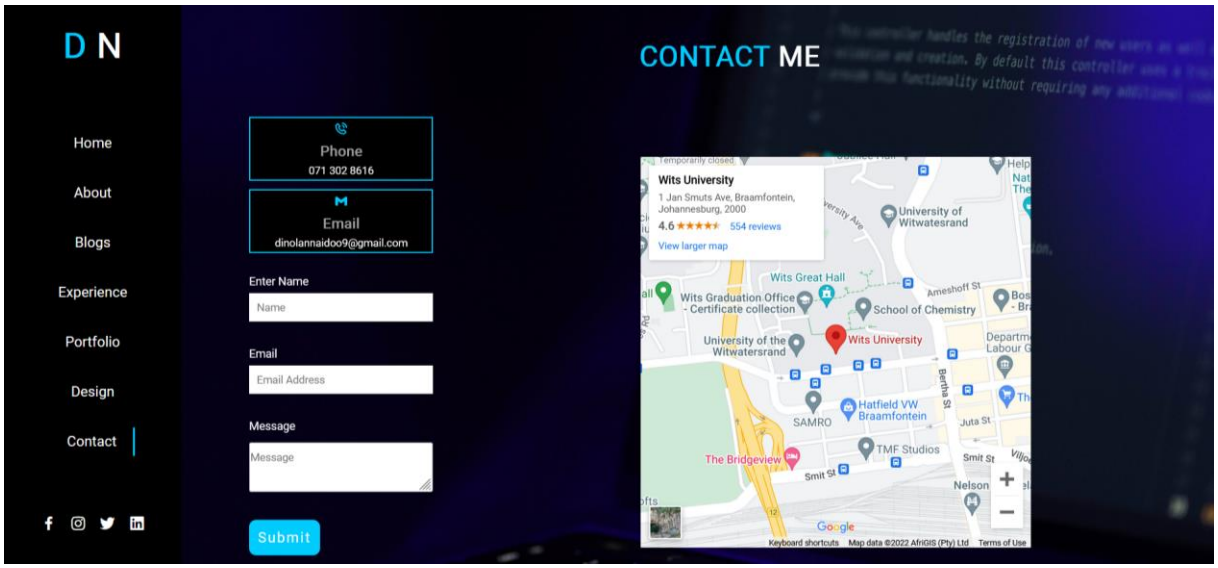
2.7 Design Pages



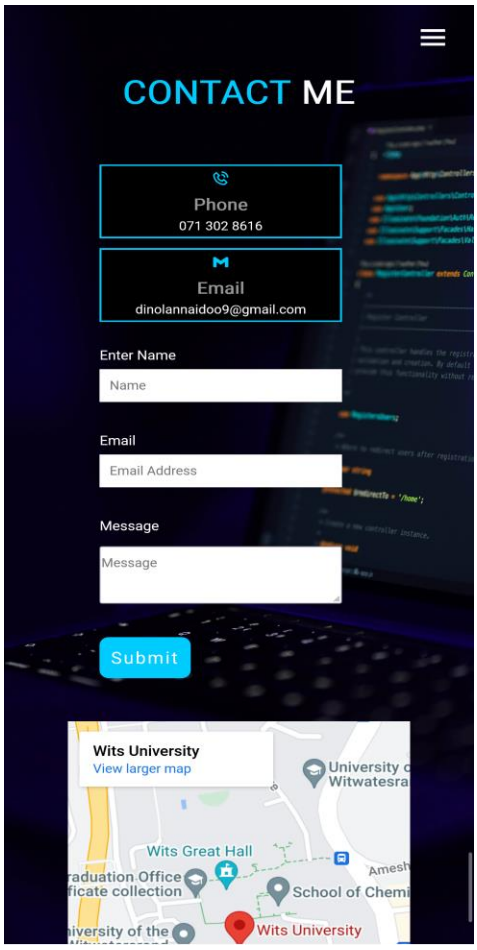
The image above is the final design for the design and reflections section. The design links are styled the same as the blog and project abstracts. This was done to further unify the user-experience. When the user clicks on a link, a design page is opened. These design pages are styled exactly like the blog pages. This was done to have a consistent user-experience. The images on the links were chosen to further augment the idea of digital design. The images also match the colour scheme. The responsiveness for this section is shown below.



2.8 Contact Page



The image above illustrates the final design for the contact section. The user is given an option to message me. This text box works using an external backend library called “Form Submit”. Once the user enters in data and clicks ‘Submit’, I receive an email with the entered data. The responsiveness for the contact section can be seen in the screenshot below:



3. Reflection

3.1 Creative Reflection:

Overall, I believe that my website creates a unified experience for the user. The subtle additions of blue in the headings, the navigation bar, and the abstracts make the website feel complete. The styling of the blog abstracts, project abstracts and reflection links are all the same. This consistent styling creates a unified experience. The navigation has been tested thoroughly and works appropriately in all pages. This is an important aspect of good web design as discussed by D Blanco [1]. My about section gives the user background information about me. This is an important section since my website is a portfolio website that potential employers will view [2]. I have added a short Resume to provide insight into my working experience as well as my recent projects. I have deleted my entire CV due to the fact that I had sensitive information on it (Thank you Hanli 😊. I will be more careful from now on). My user-interface consists of many buttons and links. All of these buttons have been styled to blend together with the background and the colour scheme. This was done considering the discussion by P Wong on the basics of UI and UX [3]. Furthermore, the buttons have been thoroughly tested. The form in my contact section is now functional. This was done to give the user an efficient way to contact me without having to leave my website. The technical side will be discussed in my technical reflection. My projects section is where most of the work was done for my exam submission. I have augmented my Unity projects and I also added my recent Software project (another website for Energy Tracking). I have also added a few of my Blender models. This was done using an external JavaScript library which I will discuss in section 4. Overall, I think that my website creates a unified user experience that blends together with my passion for digital design.

3.2 Technical Reflection:

The exam submission includes more improvements for semantic markup (although not perfect). I tried to make the website more accessible by annotating my images with the 'Alt' tag. I unfortunately did not edit any of my blogs. This was due to the fact that implementing the external JavaScript library (Three.JS) took longer than expected. Load shedding was also a factor in this case. As mentioned, I added the Three.js JavaScript library. This library was chosen to augment my portfolio section. The user is now provided with a few of my Blender 3D models. These models are displayed on their relevant pages. The models rotate to allow the user to view them better. I also added functionality to my form submission in my contact section. After hours of research, I found a free backend decency called 'Form Submit'. This library allows me to link my website form to my Gmail account. The user can now enter their name, email address and a message. Once the user clicks 'Submit', they are navigated to a thank you page. The user can then choose to continue to view my website. I then receive an email with the user's name, email address and the message that they have entered. Please test this out. Feel free to send me a message via my website and I will send proof that it indeed works. Further optimization was done on my images. This was done using the Tiny. JPEG website [4]. I have implemented more Microformats (there could be more I admit), some metatags and more semantics. However, I still believe that more of these can be implemented in the future for further Search Engine Optimization.

4. JavaScript Dependencies

4.1 Three.js

The Three.Js library allows people to display 3D models on their web page. The library integrates WebGL with JavaScript so that people can also display animated 3D models. The source code is hosted on GitHub [5]. The library can be integrated by using a variety of 3D graphics software. A few of these include:

- Blender by the Blender Foundation
- Houdini by SideFX
- Toolbag by Marmoset
- Cinema 4D by MAXON
- Substance Painter by Allegorithmic
- Modo by Foundry

The integration is dependent on the exporting abilities of any 3D graphics software. The preferred exporting format is called ‘glTF’. This stands for *Graphics Language Transmission Format*. The library also supports other formats such as FBX, OBJ, and COLLADA. For my website I used Blender [6] as my integrating software. I have completed a few Blender models as assignments in my second year of Game Design. In order to display these models on my website I downloaded the Three.Js library. My models were exported as ‘glTF’ files and integrated into my website. These models further augment the user experience of my portfolio section. Three.Js provides users with a variety of settings to adjust. These include scene settings such as the environment size, lighting, camera perspective, camera position and many more. This allows users to tailor their models with great precision. I really enjoyed playing around with the settings to get the desired result for each of my Blender models. The final result can be viewed in my portfolio section. As mentioned, Three.JS supports 3D animations as well. There are many functions that allow users to implement an animated 3D model into their website [7]. Examples include ‘Animation Mixer’, ‘Animation Clip’ and ‘THREE. Loop’. There are many others that allow users to augment their website’s user-experience.

I found that the Three.js library was best suited for my portfolio section. I also researched other 3D graphics software. A few of these include Babylon.Js [8], Pixi.Js [9], Crafty.Js [10], D3.Js [11], and many others. These libraries have similar functionality to the Three.Js library. However, after attempting to integrate Babylon.Js and Crafty.Js, I found that the result was not as expected. My Blender models would not render properly, and I even had an issue with importing the proper functions for the libraries. I then tried Three.Js and found that it integrated seamlessly. I personally think that Three.Js is the easiest and most efficient library to use if one wants to display Blender models on a website. The library was imported without any issues and worked straight away. All the relevant functions were easy to use. This allowed me to adjust the lighting, camera perspective and other settings efficiently. Furthermore, Three.Js recognizes the Blender exports without any issues. The result was exactly as I desired. I was able to implement the rotating models efficiently and I would recommend Three.Js to any developer looking to display their 3D models on their website.

4.2 Form Submit

The second dependency used is Form Submit [12]. This is a backend library that allows for seamless integration between a website text box and my Gmail account. The software is free to use. All I had to do was import the relevant software via a URL in JavaScript. There are options provided that allows people to personalize their text boxes. I wanted the user to be able to enter their name, email address and a message. This was easily done using Form Submit. After implementing this backend software, users can now contact me via the text boxes in my contact section. All the data entered is sent directly to my Gmail account. This was a desired result. There are many other ways to implement this concept. After many failed attempts to create backend servers and linking between my website and my Gmail, I found Form Submit. I think it is absolutely amazing that it is free to use, and the developers deserve more recognition.

4.3 References

[1] Balanco, D., n.d. Importance Of Website Navigation. [online] Optimus01. Available at: https://www.optimus01.co.za/importance-of-website-navigation

[2] Dholakiya, P., 2019. The Importance of Your Website's 'About' Page - business.com. [online] business.com. Available at: https://www.business.com/articles/importance-of-about-page-on-website.Software Quality Attributes

[3] Wong, P., 2019. Buttons & Links: The Basics - UX Office. [online] Ux.iu.edu. Available at: https://ux.iu.edu/writings/buttons-vs-links-basic

[4] Tinyjpg.com. n.d. TinyJPG – Compress WebP, PNG and JPEG images intelligently. [online] Available at: https://tinyjpg.com/

[5] https://github.com/mrdoob/three.js.git

[6] https://www.blender.org/

[7] https://threejs.org/docs/index.html#api/en/animation/AnimationAction

[8] https://www.babylonjs.com/

[9] https://pixijs.com/

[10] https://craftyjs.com/

[11] https://d3js.org/

[12] https://formsubmit.co/

[13] https://www.beamjobs.com/