Bejewel - Bead Jewellery Website
Project Report

TU856

Web Development 1 CMPU1031: 2022-23

Bachelor of Science (Hons) in Computer Science

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15.12.22

Declaration

I hereby declare that the work described in this dissertation is, except where otherwise stated, entirely my own work and has not been submitted as an exercise for a degree at this or any other university.

Signed:

Jenny Thao Huynh

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Jenny Thao Huynh

15.12.22

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1. Problem Description

Upon reading the project brief, I decided that my area of focus for my project would be my hobby, making handmade bead jewellery.

My website is responsive, the layout of the website will change and adjust to different screen sizes in a way that no matter what the screen size is, it'll be aesthetically pleasing and easy to read. It only includes front-end web development, It's also an ecommerce website for a fictitious jewellery store named "Bejewel". I considered adding all the functionality that's normally found on ecommerce sites such as a working "basket" page that displays all the items added to the basket and where users can submit orders. Upon evaluating my skills and time, I decided against it.

Currently, my website includes 5 pages, home, about, shop, size guide and contact. Each page will include a navigation bar that allows users to access different pages of the website, a footer that includes all the pages a business usually has, such as legal pages (These links won't work because I focused my energy on creating the other pages).

The "home page" will work as a landing page, it'll introduce users to "Bejewel" with a heading, slogan and brief description and bring them to the shop page.

The "about page" will is an informative page with information about the background of Bejewel, how our jewellery is made, and a fictitious article written about Bejewel.

The "shop page" will have product cards displaying the range of products "Bejewel" has to offer such as collections, rings and chokers. It'll also include functionality such as incrementing and decrementing the amount of products in the shopping basket, which has an icon in the top right of the navigation bar.

The "size guide page" will include information about the sizing of Bejewel's jewellery and expandable tables about standard sizing for normal rings, necklaces and bracelets.

The "contact page" will be where users can complete a form to contact Bejewel, they can fill in information such as their name, email, telephone number, how they heard about Bejewel, what type of message they want to leave, their message and whether they want to subscribe to the newsletter or not.

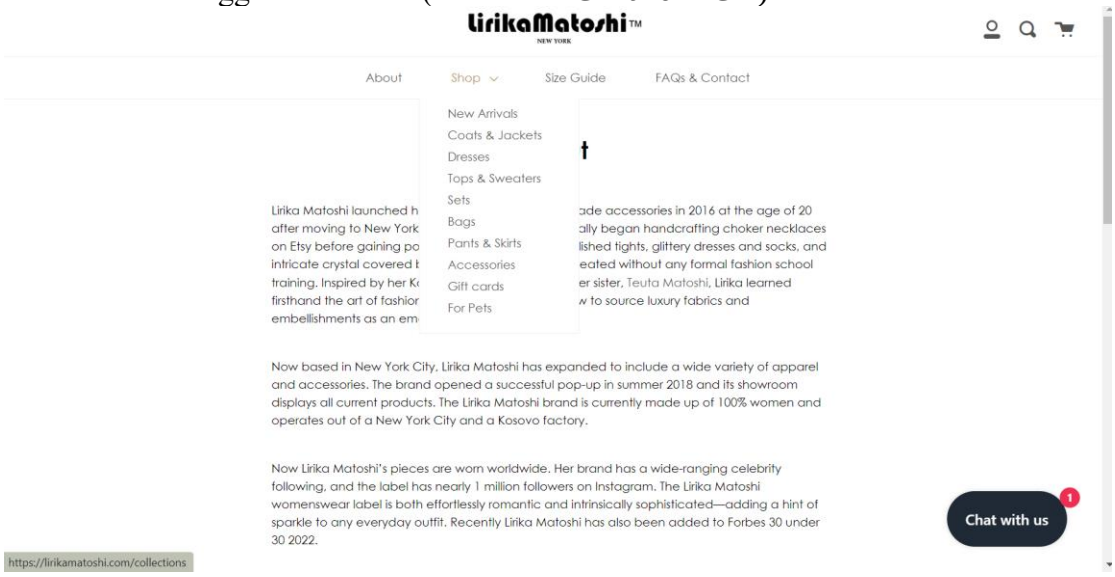
The archetypical users of this website will be Bejewel's potential customers, buyers spend of handmade and sustainable jewellery. This website gives Bejewel a platform to communicate with users where they can 1) display their jewellery, 2) sell their jewellery 3) have info about the business and 4) receive feedback about their business.

2. Research

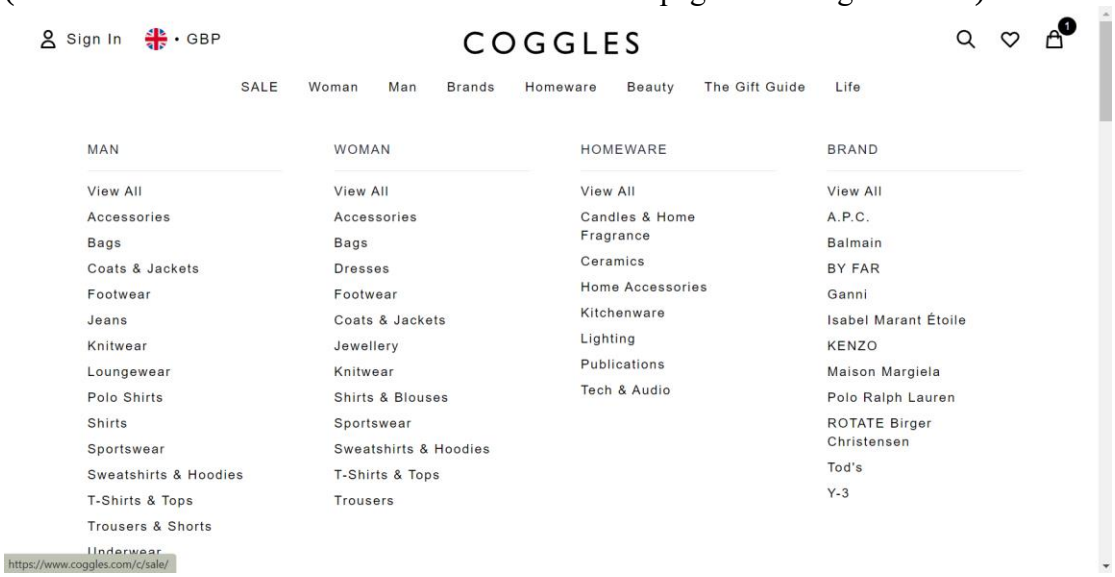
Links to my researched websites: https://lirikamatoshi.com/, https://www.coggles.com/c/info/about-us/, https://www.teutamatoshi.com/

I initially researched ecommerce websites with similar content and aesthetics as mine such as “Lirika Matoshi”, “Teuta Matoshi” and “Coggles”s websites.

I mainly took inspiration from “Lirika Matoshi”s website as I enjoyed their minimal and clean aesthetic, the font styling they use is elegant and I wanted to emulate that too. I liked the idea of having a dropdown menu for the shop as well and this was also found in the “Coggles” website. (Refer to FIG 1 and FIG 2)



(FIG 1 – Screenshot from “Lirika Matoshi”s about page and navigation bar.)

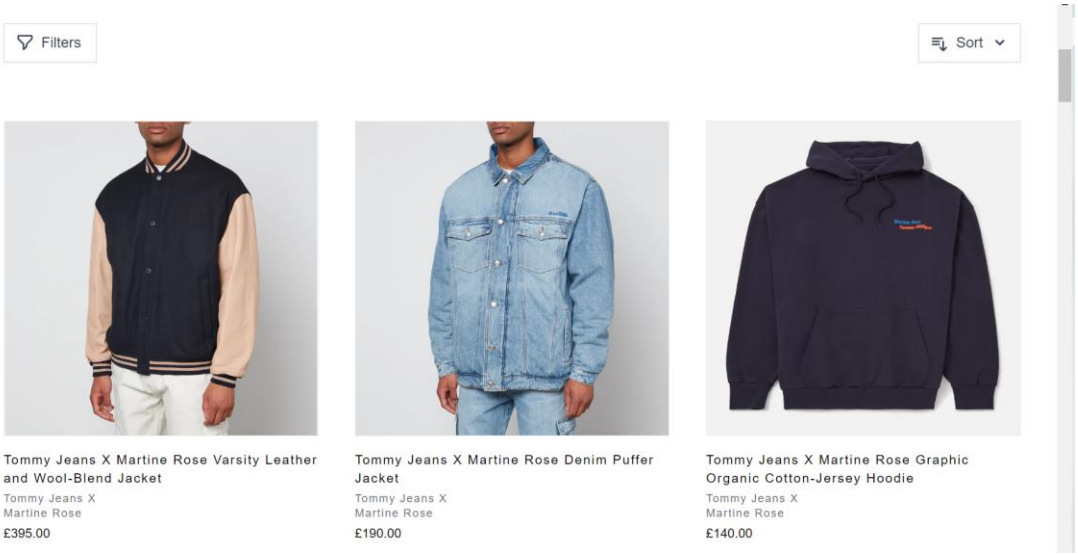


(FIG 2 – Screenshot of ”Coggles”s navigation bar)

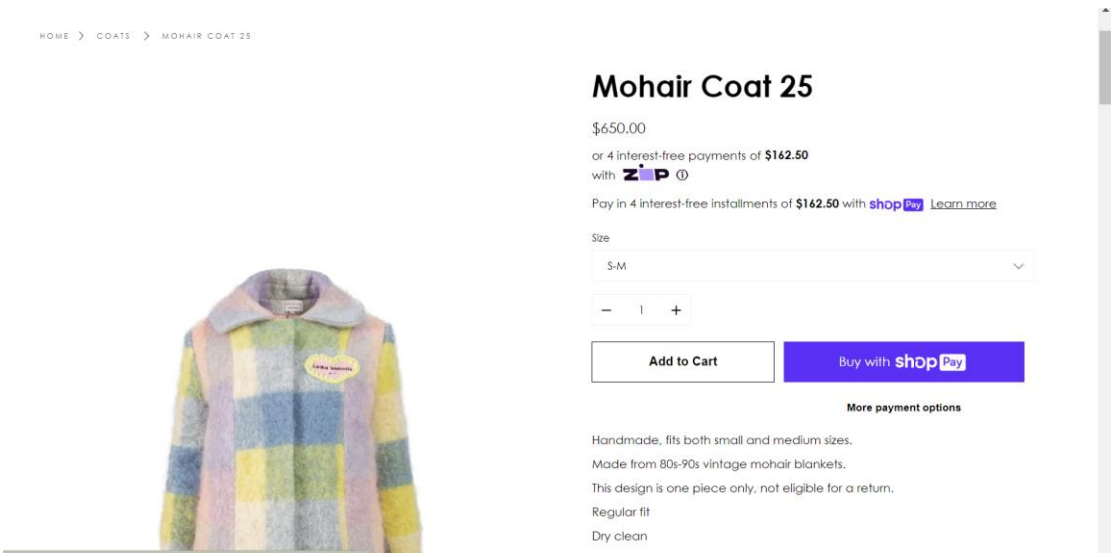
A common theme between websites I researched was that their home page brought users to a page with background images that spanned the whole entire and a button that leads to shop page (Refer to FIG 3). I really liked this and wanted to add it to my website too.

(FIG 3 – Screenshot of ”Lirika Matoshi”s home page)

I also observed that ecommerce websites typically have shop pages with product cards displaying to the user an image of the product, it’s name and it’s price. (Refer to FIG 4) With sites such as “Lirika Matoshi”, “Coggles” and “Teuta Matoshi”, clicking the product cards bring you to another page with more detailed information including sizing and options to add the product to the basket (FIG 5). I chose to combine these two features and employ simple product cards on my own website with an image, name, price and option to add and subtract to the basket,

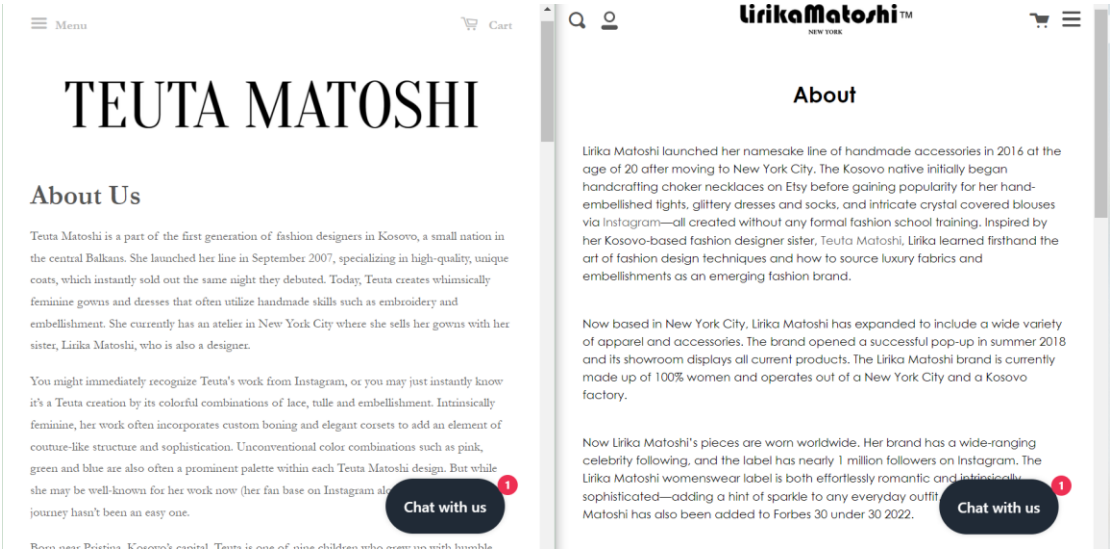


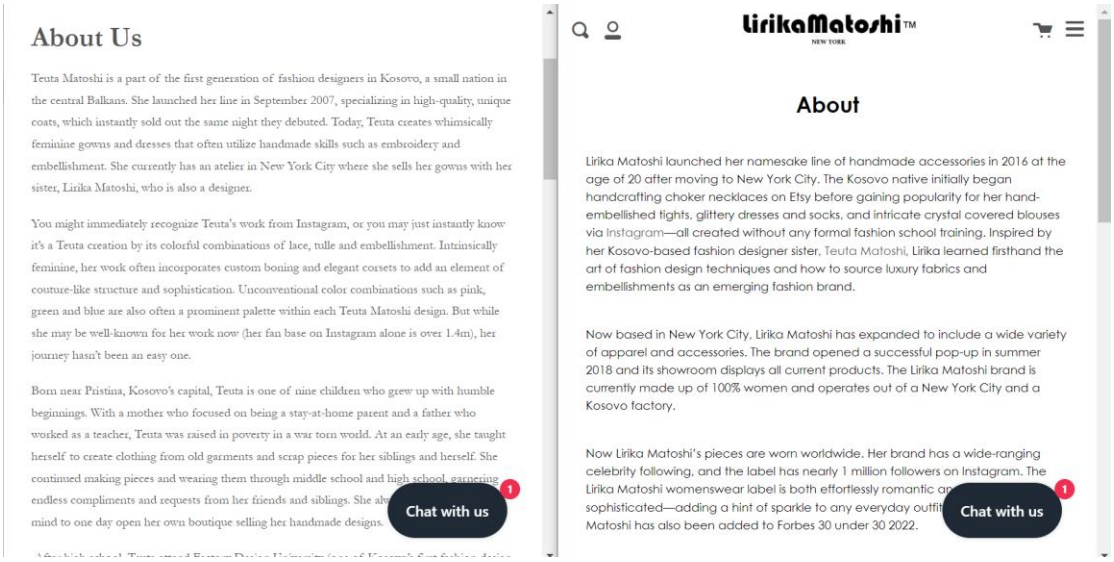
(FIG 4 – Screenshot of “Coggles” product cards)



(FIG 5 – Screenshot of “Lirika Matoshi” detailed product information)

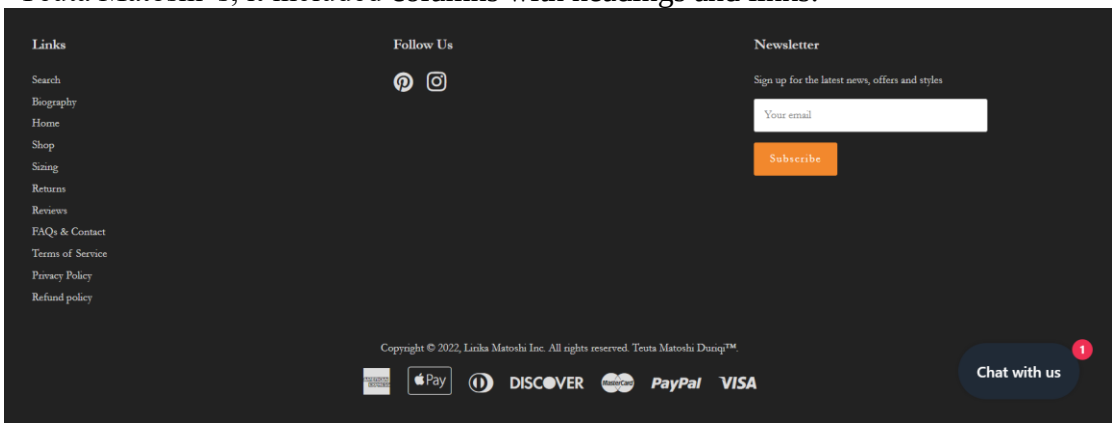
Another common theme across these websites was that the “about page” was typically text heavy and contained a lot of information (FIG 6). I recognised the importance of including this on my own website.





(FIG 6 – Side-by-side comparison of “Teuta Matoshi” and “Lirika Matoshi” about pages.)

I observed the composition of each websites’ footer and I enjoyed the layout of “Teuta Matoshi”s, it included columns with headings and links.



3. Technology Selection and Site Architecture

The version of HTML used was HTML5, the version of CSS used was CSS 3 and the version of Bootstrap used was 4.3.1. For my HTML, I tried containing most of my elements within the <main> tags within sections to divide up my content and I used a variety of semantic tags such as <article> and <aside>. I chose to use class selectors rather than ID’s for my CSS. for elements with ID’s, I targeted them with my JavaScript instead.

The development of my website was conducted with responsive design in mind, beginning with a mobile-first approach because in this generation, a large portion of users for ecommerce sites will be using their mobile devices to view the website. I chose to avail of Bootstrap, a CSS framework for developing responsive and mobile-first websites, for this because their components have breakpoints that control how the layout can be adapted at a particular screen size. I linked in Boostrap with a CDN and gave my HTML elements classes that had Bootstrap styles applied to them. When I

wasn’t using Bootstrap, I used media queries to control the site layout at different breakpoints.

The Bootstrap components I used with breakpoints already in them were the navigation bar and footer. The links in the navigation bar are collapsed into a hamburger menu at the large (>992px) breakpoint and on larger screens the links are in a row. The elements inside the footer are stacked on top of one another at the large (>992px) breakpoint as well and are in a row on larger screens.

For the most part, I contained my elements inside the Bootstrap container and used their grid system of rows and columns by adding classes to my HTML elements. This allowed me to control my site layout at different viewports because my elements stacked on top of one another at small screen sizes and expanded to be next to each other at larger screen sizes. An example of this was how I used a grid with one row and two columns for my about page. I had my sections "About Bejewel” and “How Our Jewellery Is Made” in the first column and my article in the second column. I used large (>992px) breakpoints here too so that on screens larger than 992px, the columns in that row would be next to each other but on screens less than 992px, the columns stack. I did the exact same thing in the contact page with my image and contact form.

I mainly expect users to view this website through their mobile devices because my archetypical users visit ecommerce websites and online shop using their phones so I chose to take a mobile-first approach when designing (you can see this in my lo-fi wireframes).

My strategy for cross-browser compatibility was to initially create my website using Chrome and then test it on other browsers such as Microsoft Edge and Mozilla Firefox. I used google fonts so that I had a font that would likely load in all browsers avoided using features in HTML and CSS that weren’t supported by all browsers.

4. JavaScript Functionality

I employed 5 JavaScript features in my website, 1) form input verification, 2) incrementing the quantity of products selected for the basket, 3) decrementing the quantity of products selected for the basket, 4) generating product cards from data in an array, 5) update the display of the quantity of products selected for the basket for each product and 6) calculate and display of the quantity of products in the basket.

Function 1) Form input verification

Function 2) Incrementing the quantity of products selected for the basket
In my generated product cards on my shop page, each one has a div given the ID “buttons”. Because of an onlick() event, the function “increment” is called every time the user clicks the increment button on the product card. The function searches if the product is already in the basket, if the product isn’t already in the basket then the ID is appended to the basket array and the quantity is 1, the product is already in the basket then only product quantity is incremented by 1.

The basket array is also stored in the local storage so that the data is still there when the page is refreshed.

Function 3) Decrementing the quantity of products selected for the basket
In my generated product cards on my shop page, each one has a div given the ID "buttons". Because of an onlick() event, the function "decrement" is called every time the user clicks the decrement button on the product card. The function searches if the product is already in the basket, if the product isn't or local storage is empty, don't do anything. Otherwise, decrement the product quantity.

Function 4) Generating product cards from data in an array.
In my HTML file (shop.html), there is a div given the ID "productCards". When my function "generateProductCards" is called, I used JavaScript to manipulate the DOM of the HTML by selecting the div with the ID "productCards" and changing the content of it.

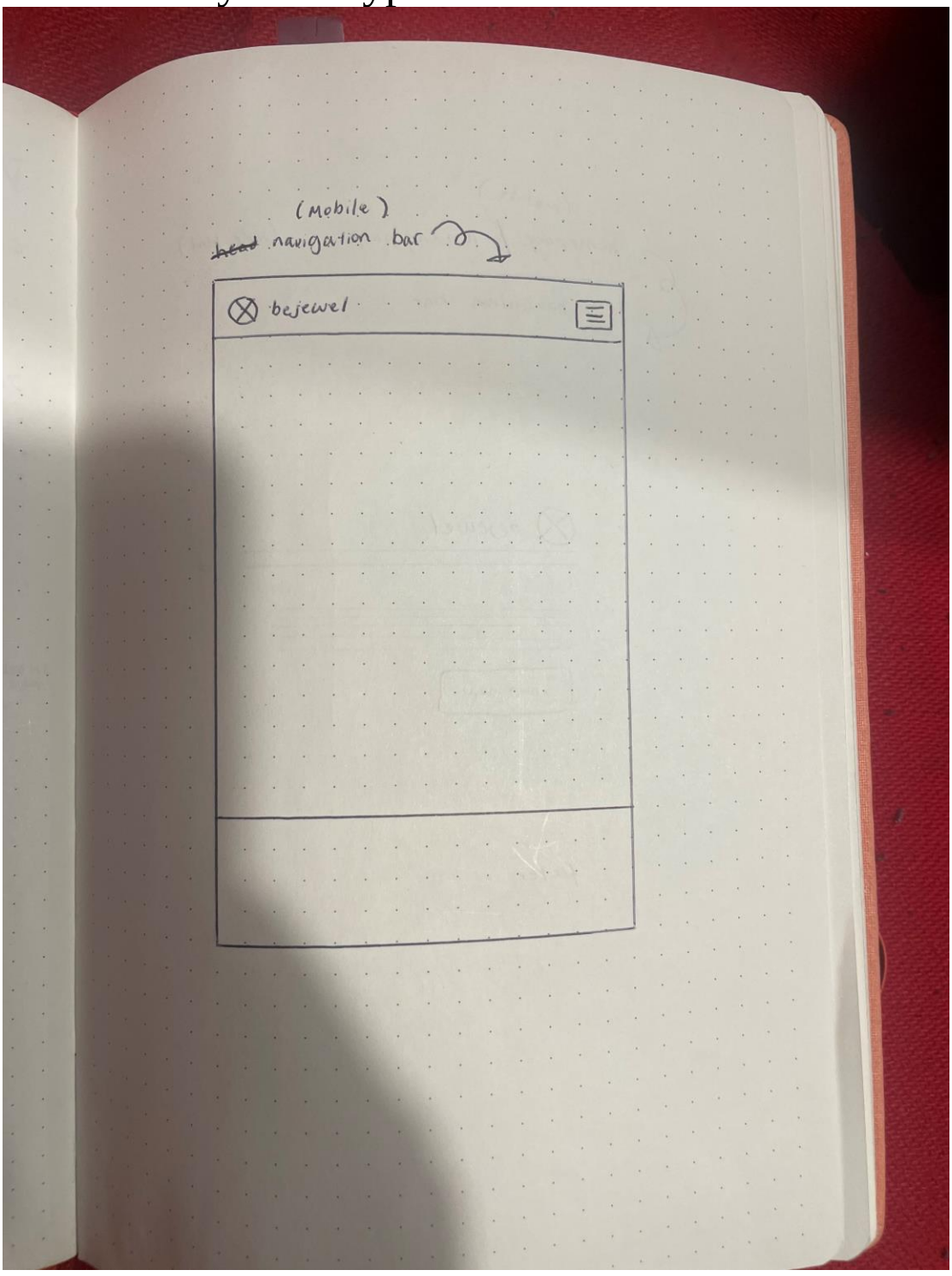
First, I created a separate JavaScript file (productData.js) that can linked in and read first in my HTML files. It contains an array with objects "id", "name", "img". "alt" with different values for each product card. In my main JavaScript file (main.js) I have the function "generateProductCards" that uses the map() method to create a new array eachProduct containing the variables id, name, price, img and alt with values from my array productData. It then returns a div with HTML code for my product cards for each product using the variables in the array eachProduct.

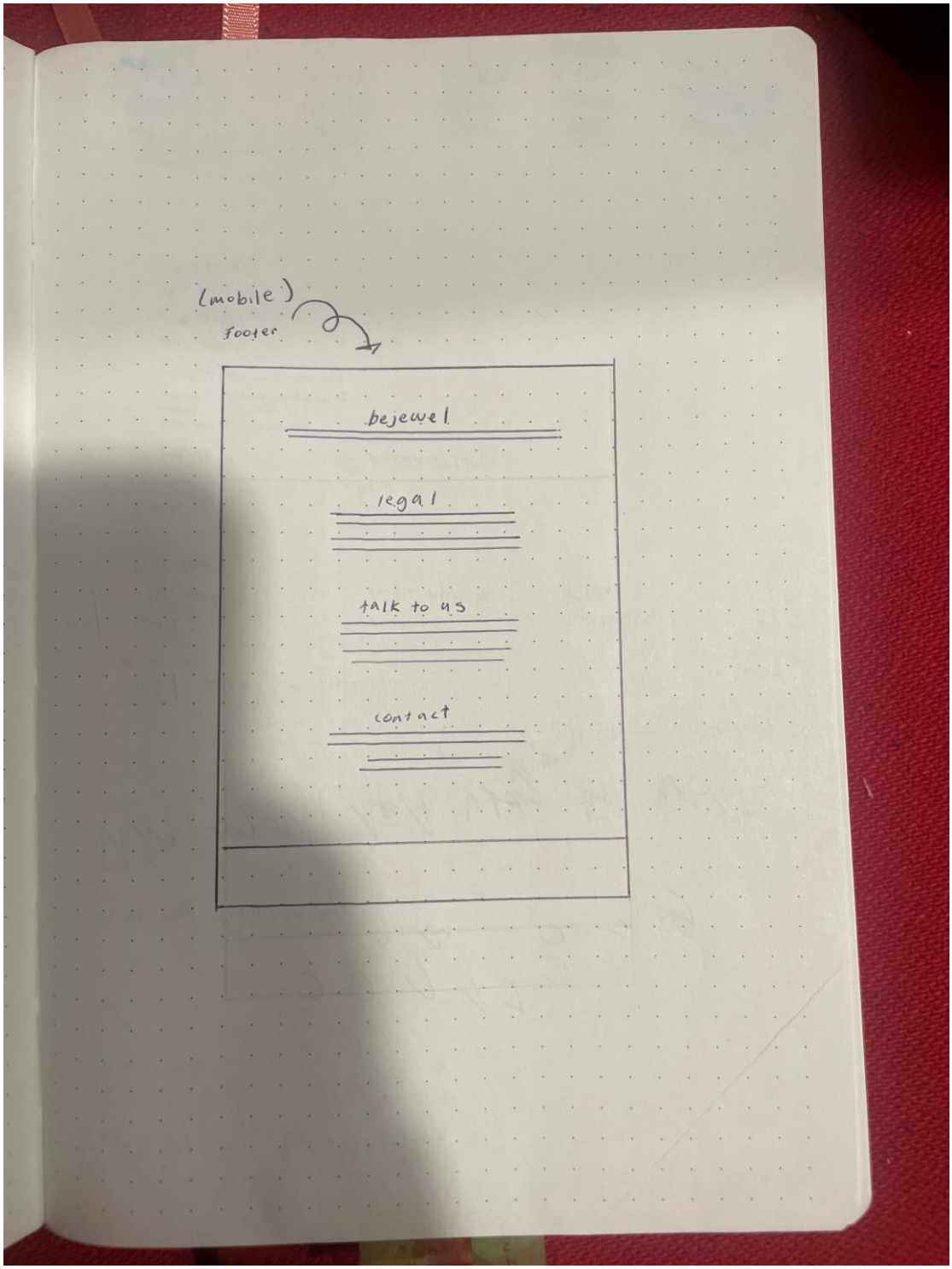
The result is a grid of product cards displaying the image, name and buttons for each product.

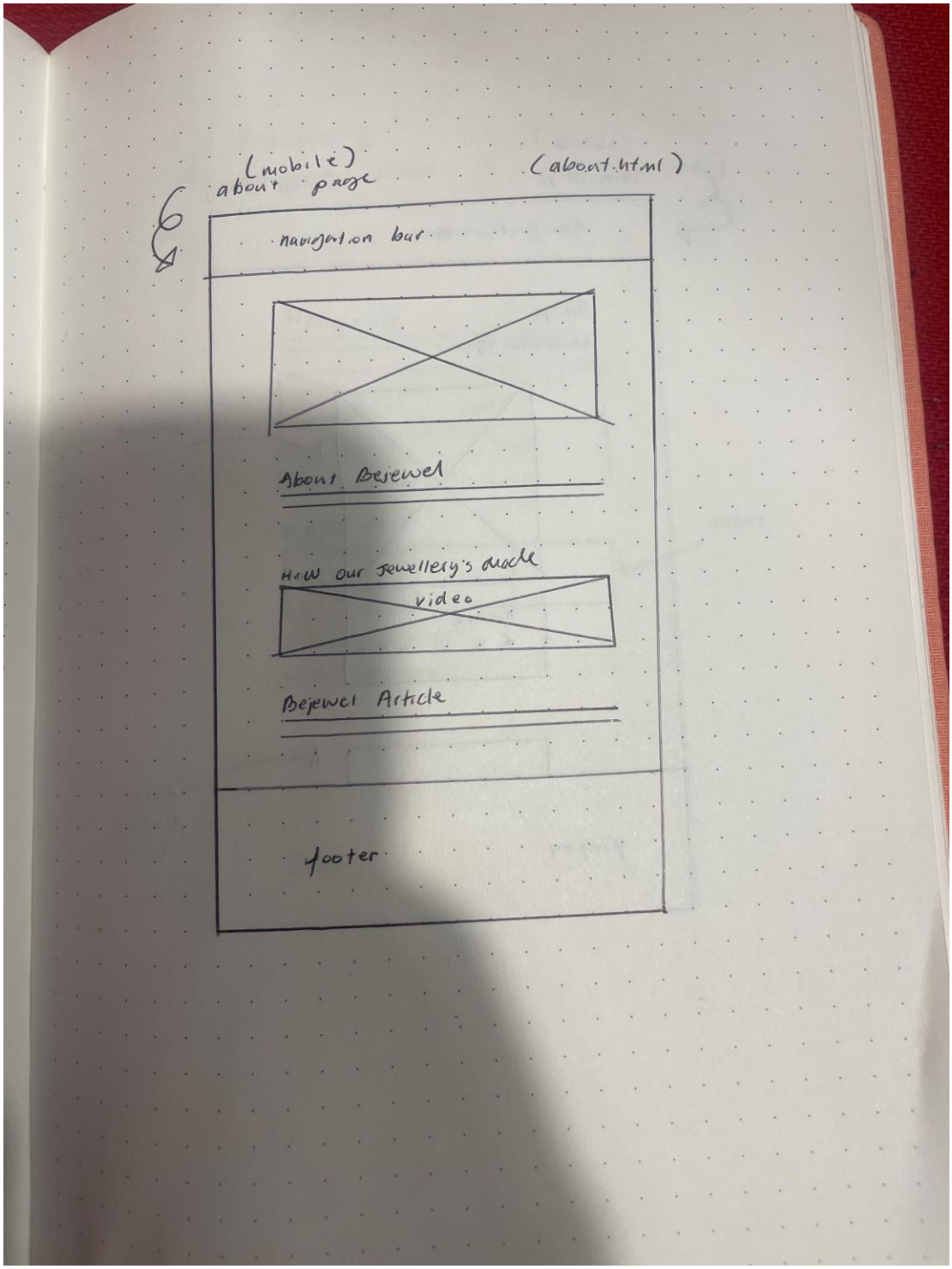
Function 5) Update the display of the quantity of products selected for the basket for each product
This function is called whenever the increment and decrement buttons are clicked, the product quantity for each product is stored in the product variable and when the function "update" is called, it searches if the product is in the basket and if it is then the quantity displayed to user is updated by manipulating the DOM, the id is changed to the value of the variable product.

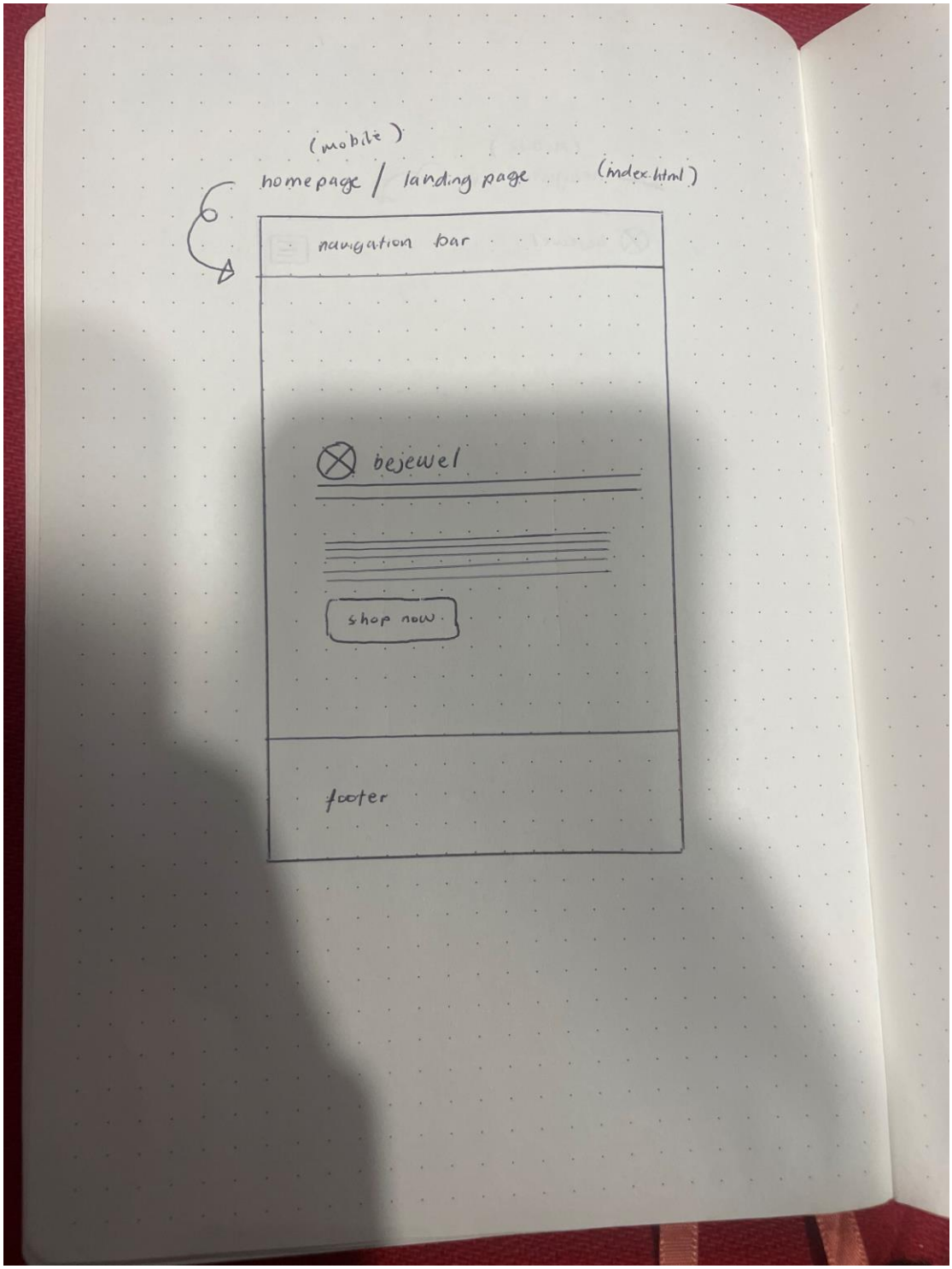
Function 6) Calculate and display of the quantity of products in the basket
This function is called whenever main.js is read and it stores the amount of products selected for the basket and stores it in a variable. It then uses the innerHTML property to display the quantity of products in the basket.

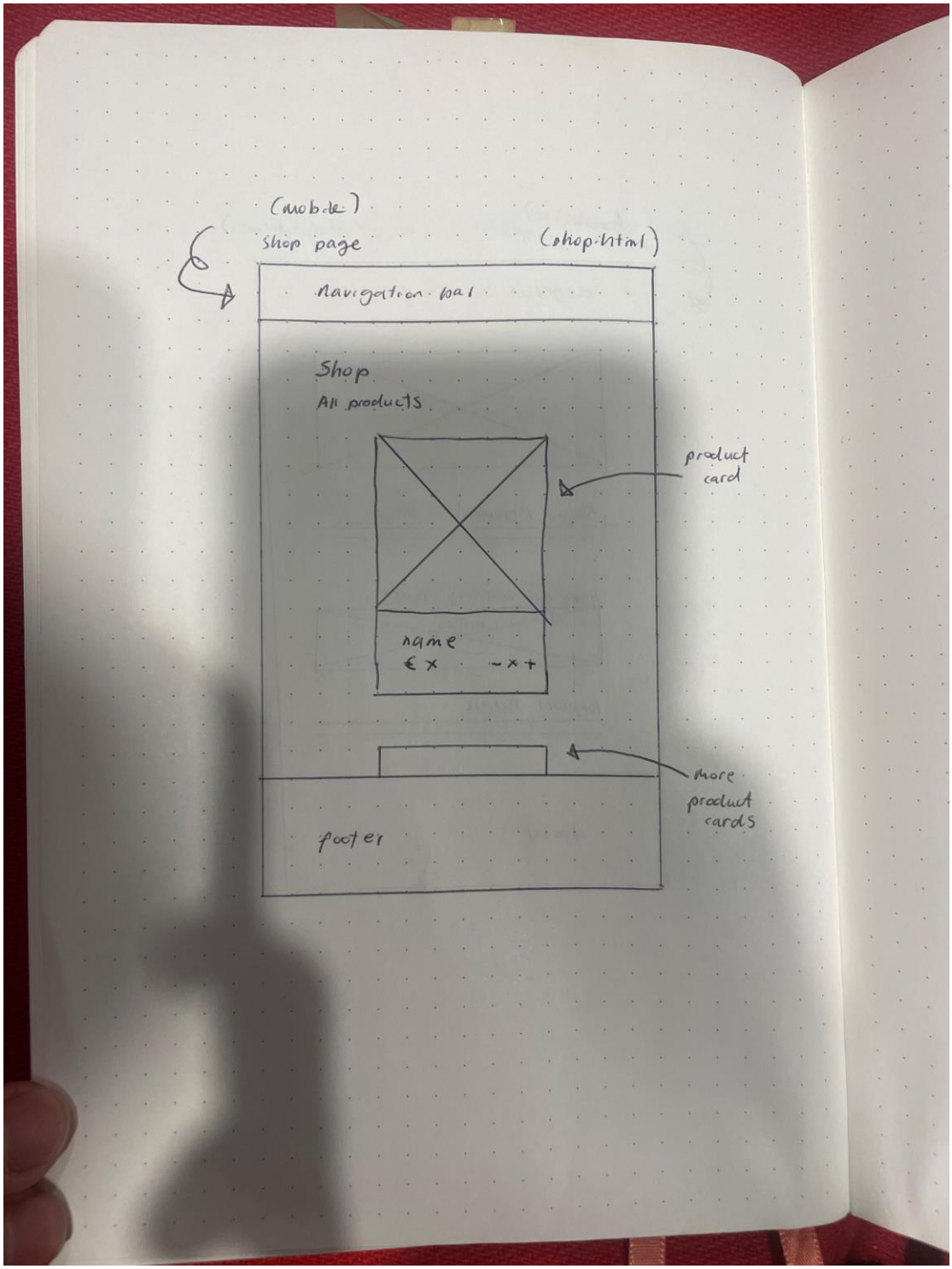
5. Low Fidelity Prototype

6. 


(mobile)
footer
bejewel
legal
talk to us
contact


(mobile)
about page
(about.html)
navigation bar
About Bejewel
How our jewellery's made
video
Bejewel Article
footer


(mobile)
homepage / landing page
(index.html)
navigation bar
bejewel
shop now
footer


(mobile)
shop page
(shop.html)
navigation bar
Shop
All products
product card
name
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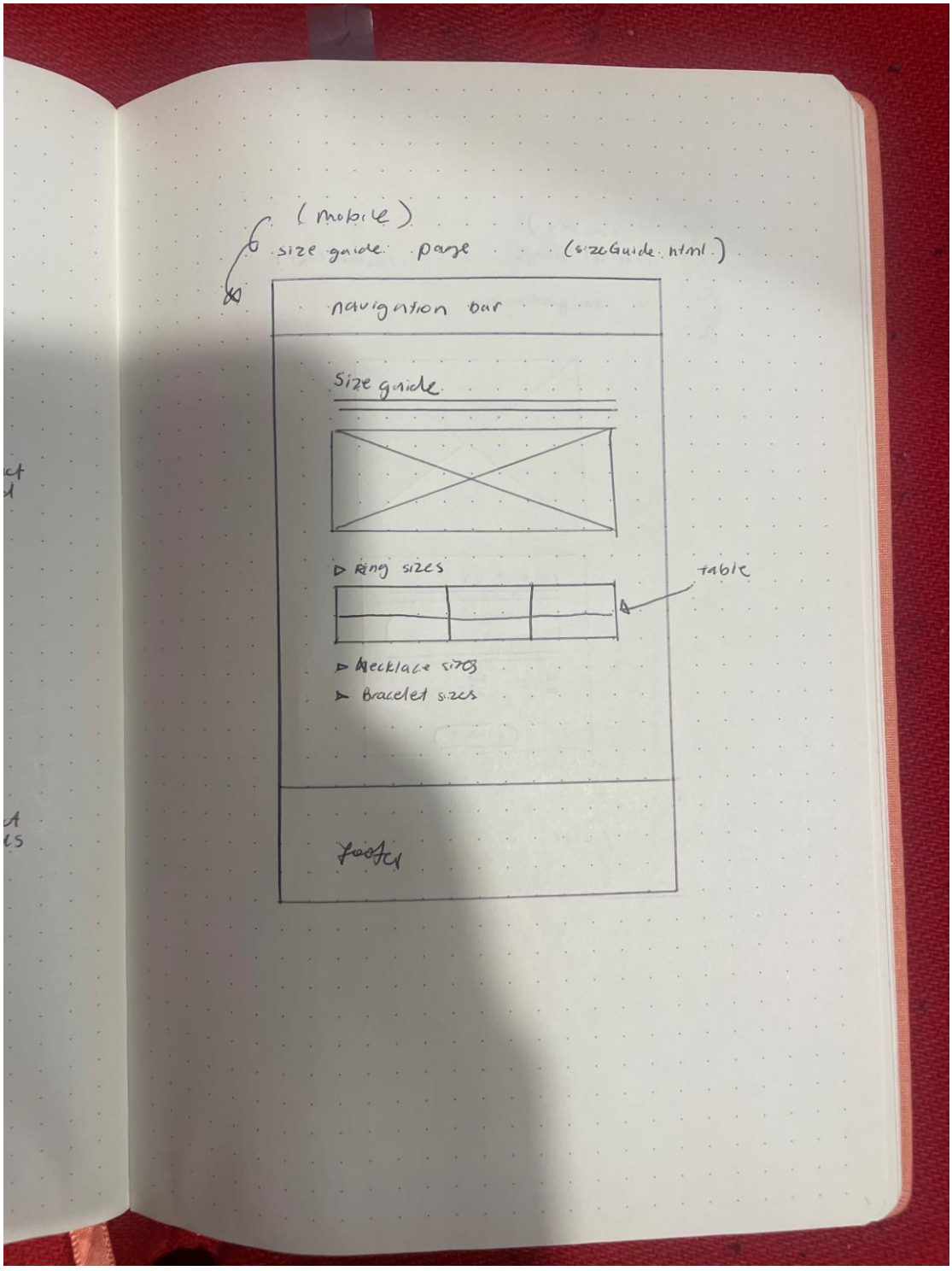
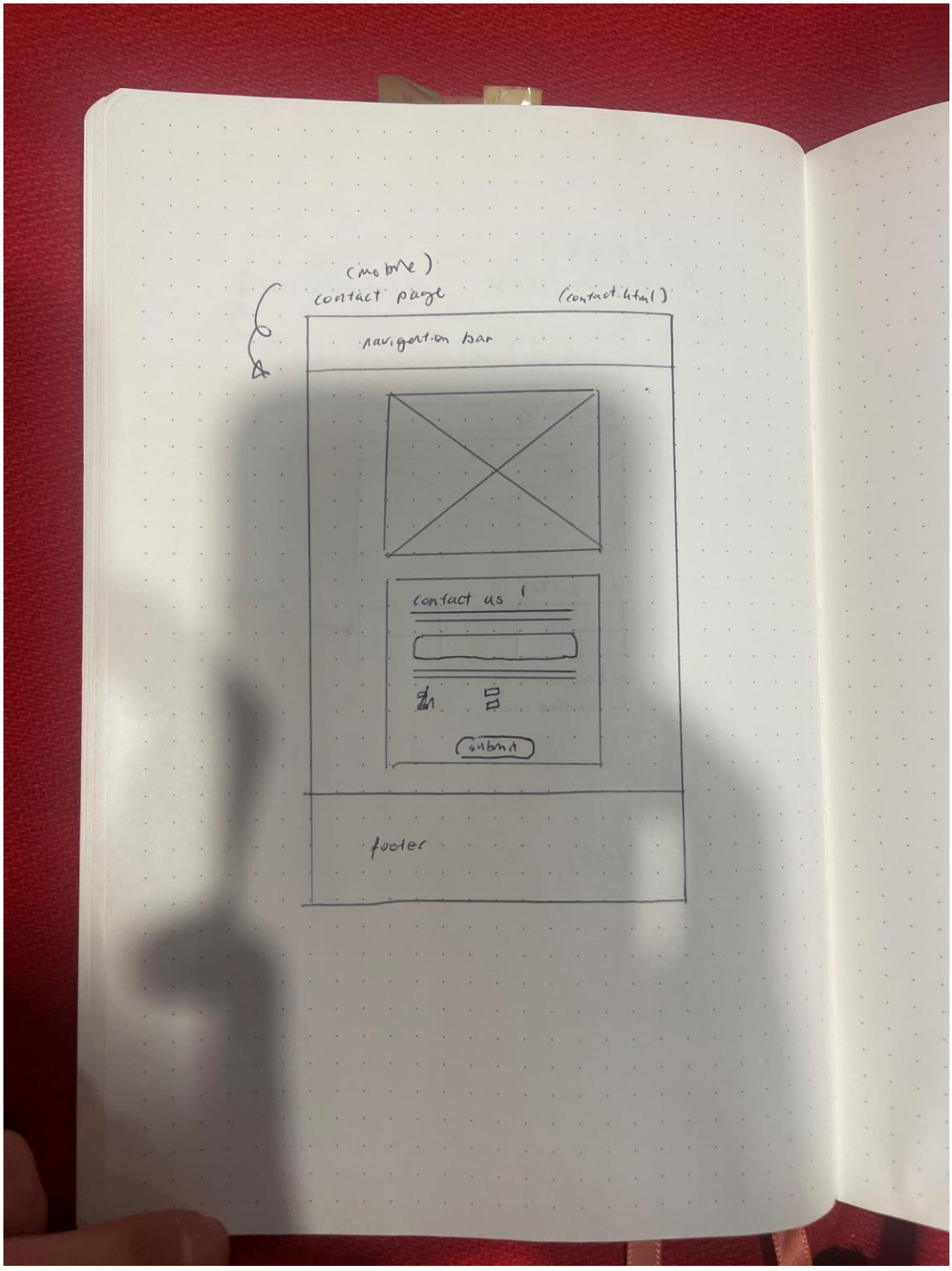
- x +
more product cards
footer


(mobile)
size guide page
(sizeGuide.html)
navigation bar
Size guide
Ring sizes
table
Necklace sizes
Bracelet sizes
footer



Evaluation of my wireframes:

- It's good that they're minimal and also set out the site layout and type of content I need to include on my website. It's a decent foundation.
- It's good that they're examples of mobile-first design and I designed my website for mobile devices first/
- However, if I had more time I'd create wireframes for larger screens such as desktops.

7. Development Plan

I created a timeline with steps to complete each week in order for my website to be created.

Timeline for Web Development CA

Week	Plan
Week 1 – Nov 7 - 13	Problem Description Research Technology Selection and Site Architecture
Week 2 – Nov 14 – 20	Low Fidelity Prototype JavaScript Functionality Website Creation - HTML
Week 3 – Nov 21 - 27	Website Creation – CSS & JS
Week 4 – Nov 28 – Dec 4	Website Creation – CSS & JS
Week 5 – Dec 5 - 11	Final Report Draft,

Before touching any code, I typed up the content for the website in MS Word, such as the article about Bejewel and the about sections. This was so that I could fully invest my time into coding rather than trying to write content.

I began by creating and organising the files I needed to use in my website project (the HTML, JavaScript and CSS files) using the correct file structures with Separation of Concerns in mind (a folder for images, styles and scripts). I then created a template to use for all my HTML files recognised that I needed to reuse some HTML code, such as the Bootstrap components for the navigation bar and footer, the linking for fonts, Bootstrap icons, stylesheets and scripts.

Then I created the HTML code for the home, about, size guide pages while using sections and semantic tags and the Bootstrap grid. Then I invested my time into styling my HTML elements in my CSS files. After that, I created my contact form in my HTML page “contact.html”, I styled it in CSS and then added form input validation in JavaScript.

After that, I created the shop page, “shop.html”, and my JavaScript functionality simultaneously. I created the function “generateProductCards” to generate the product cards and then I styled them with my style.css file.

8. Testing Plan

For HTML validation, I chose to use a HTML validator (validator.w3.org) to ensure that my markup was free from errors and in compliance with HTML5.

- index.html: Validated with 6 errors and 1 warning. The errors were from using backslashes in the path segment delimeters, this problem is found throughout my entire website because I copied my relative paths using VScode. The warning was from my section lacking a heading, this is also a consistent problem throughout my project but can easily be rectified if I had enough time.

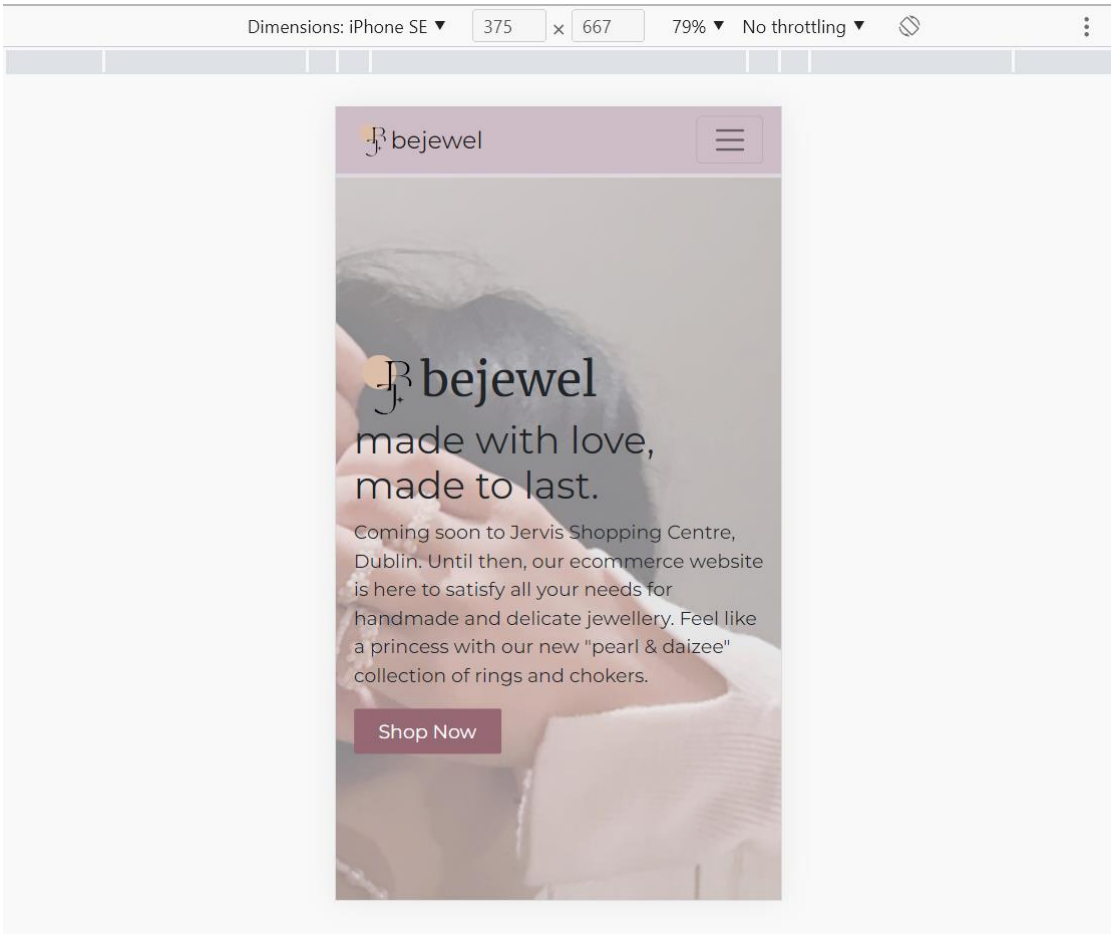
- ahout.html: Validated with 8 errors and 2 warnings. 7 errors were from using backslashes in my paths again and 1 was from using an obsolete attribute in my iframe element when I copied the <iframe> tag from the Youtube video. My errors were from using the <h1> tag for things other than top level headings, I understand that doing that is incorrect and hinders accessibility because screen readers don't interpret that correctly.
- contact.html : Validated with 19 errors and 5 warnings. The errrors are from backslashes in paths and attributes that aren't allows in the input tag. The warnings are from attributes not serializable in XML.1.0.
- shop.html: Validated with 5 errors and 1 warning. The errors are from backslashes in the paths while the warning is from sections lacking headings.
- sizeGuide.html: Validated with 7 errors and 4 warnings. The 7 errors are from backslashes in my paths and the warnings are from sections lacking headings again.

For CSS validation, I chose to use a CSS validator (jigsaw.w3.org) to ensure that my stylesheets are free from errors and in compliance with CSS3.

- style.css: Validated with 4 warnings and 1 error. The 4 warnings are from imported stylesheets not checked in direct input and file upload, I'm assuming these are from inporting Bootstrap, and from variables not statically checked. My warning is from using "top" as an "algin-items" value when that isn't valid.

I mainly used Chrome as my browser and can verify that my elements are displayed properly on it but I tested cross browser compatablitiy by opening my website on Microsoft Edge and Firefox. On Microsoft Edge, my website behaves normally the same way it does on Chrome except the margins are much larger but it doesn't interfere with the site layout. On Firefox, my website behaves the same way it does on Chrome.

To test if my website was responsive or not I used chrome developer tools and the inspect tool. My pages appear as set out in my lo-fi wireframes on small mobile screens.


Dimensions: iPhone SE
375
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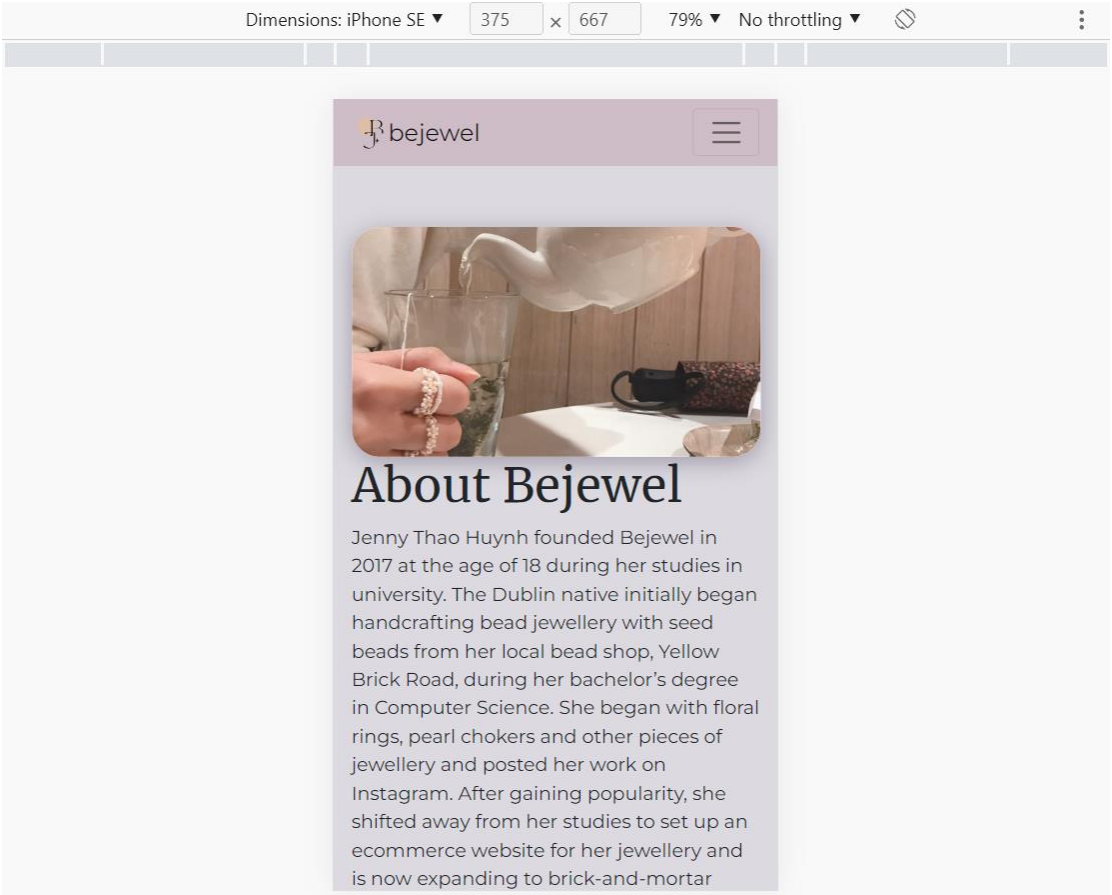
No throttling
bejewel
bejewel
made with love,
made to last.
Coming soon to Jervis Shopping Centre, Dublin. Until then, our ecommerce website is here to satisfy all your needs for handmade and delicate jewellery. Feel like a princess with our new "pearl & daizee" collection of rings and chokers.
Shop Now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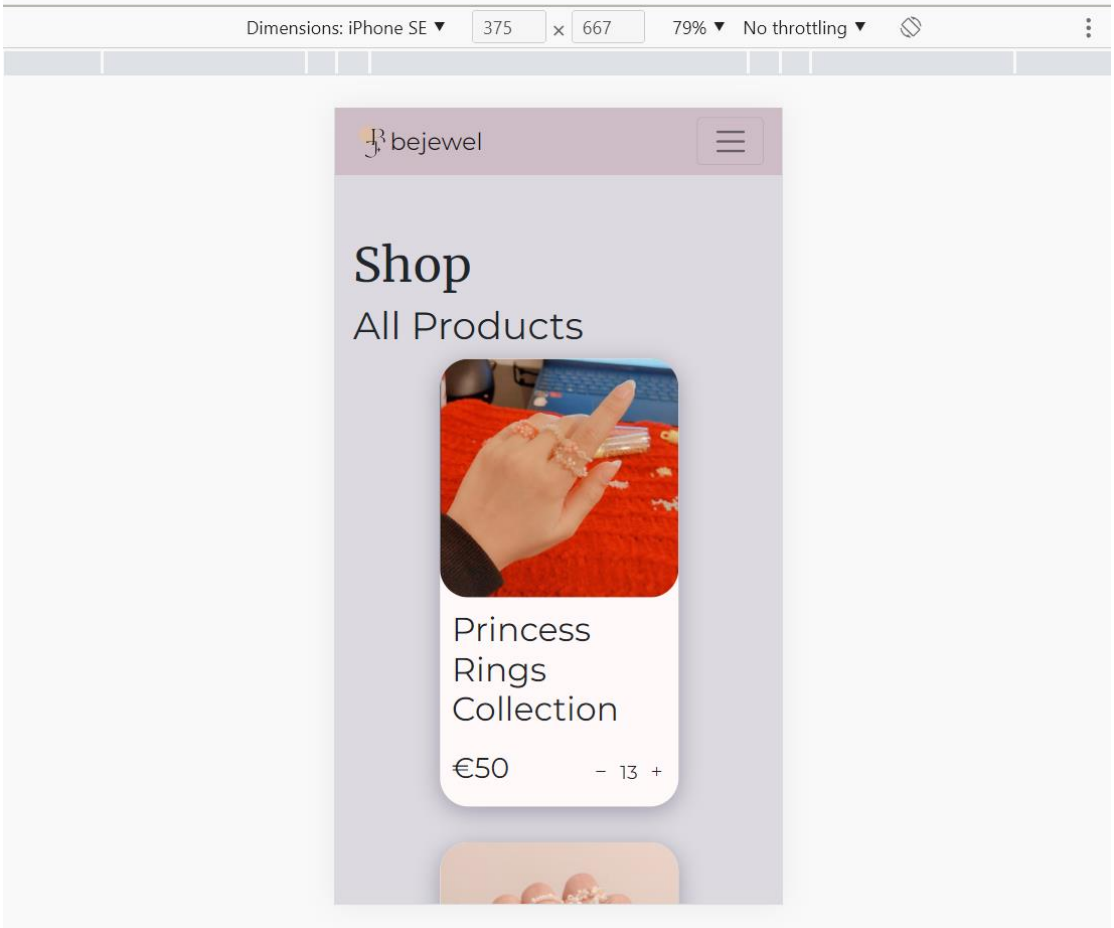
bejewel
About Bejewel
Jenny Thao Huynh founded Bejewel in 2017 at the age of 18 during her studies in university. The Dublin native initially began handcrafting bead jewellery with seed beads from her local bead shop, Yellow Brick Road, during her bachelor's degree in Computer Science. She began with floral rings, pearl chokers and other pieces of jewellery and posted her work on Instagram. After gaining popularity, she shifted away from her studies to set up an ecommerce website for her jewellery and is now expanding to brick-and-mortar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bejewel
Shop
All Products
Princess Rings Collection
€50
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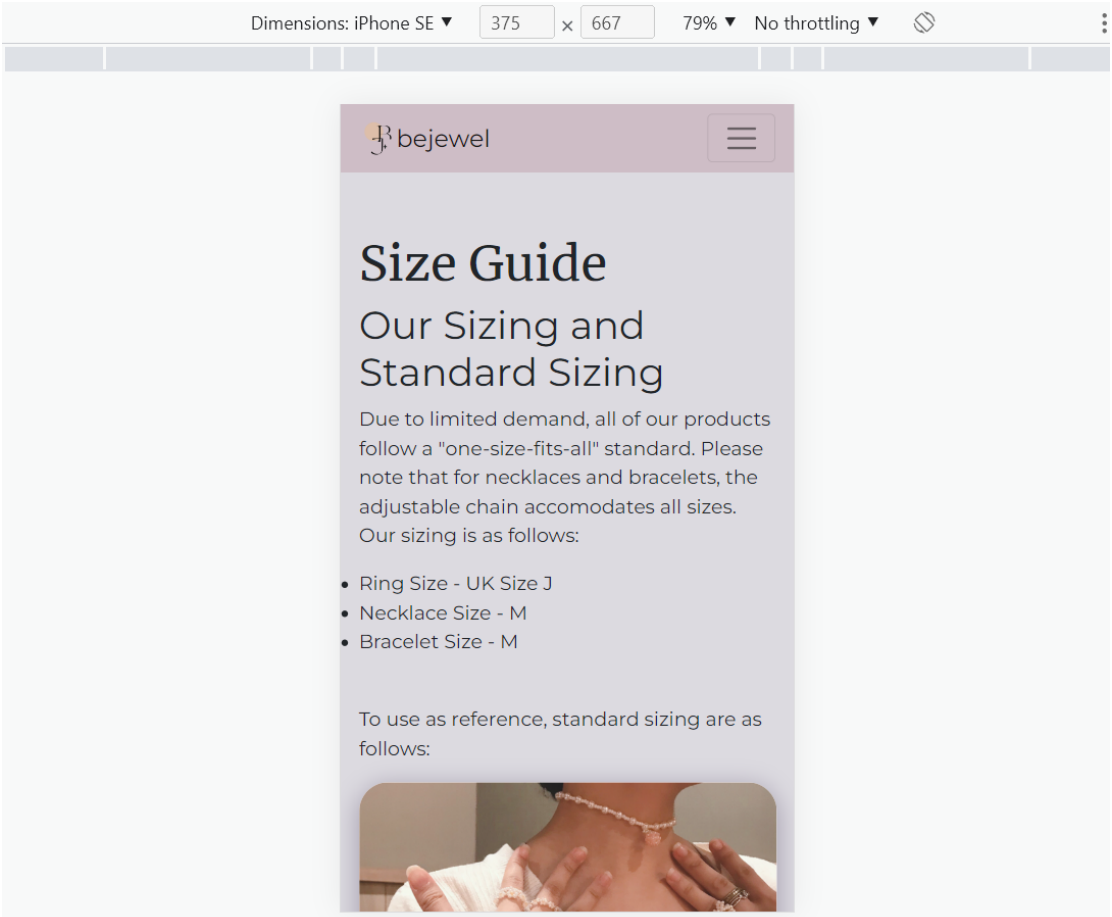
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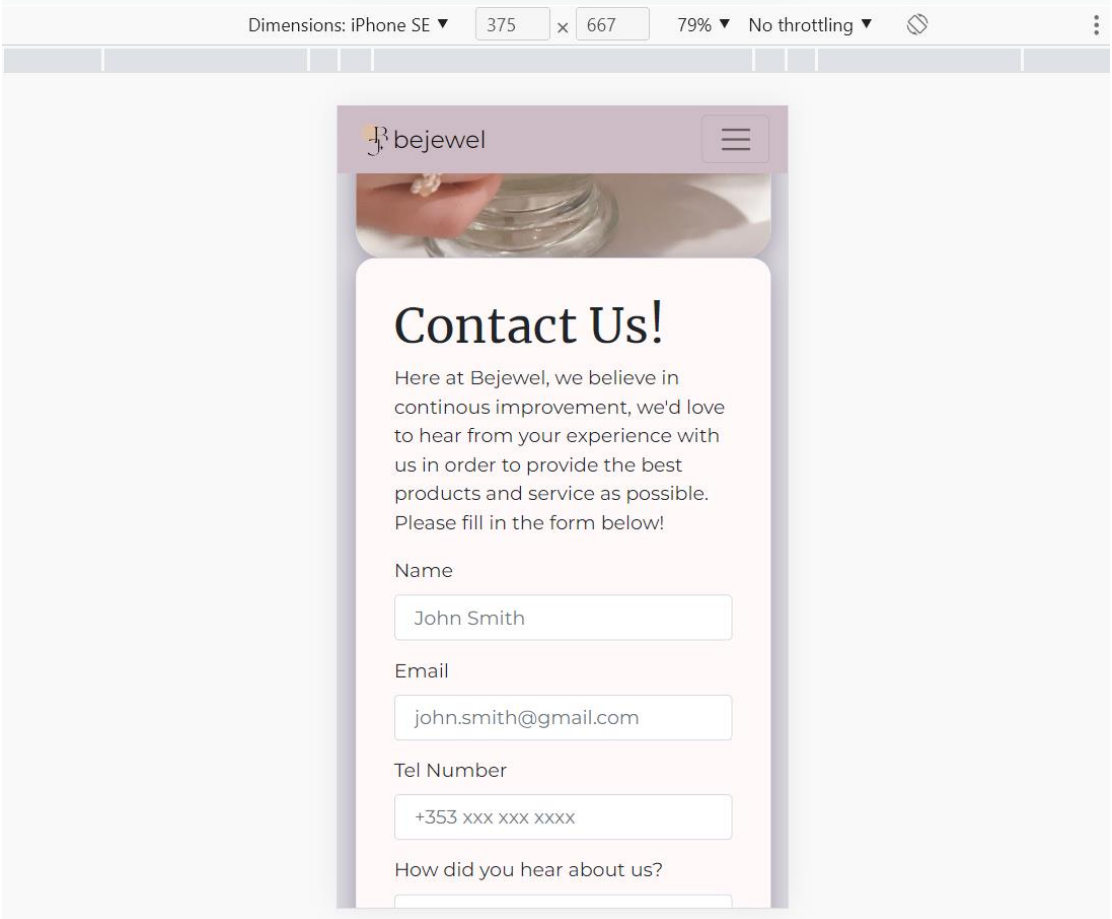
bejewel
Size Guide
Our Sizing and Standard Sizing
Due to limited demand, all of our products follow a "one-size-fits-all" standard. Please note that for necklaces and bracelets, the adjustable chain accomodates all sizes. Our sizing is as follows:
Ring Size - UK Size J
Necklace Size - M
Bracelet Size - M
To use as reference, standard sizing are as follows: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bejewel
Contact Us!
Here at Bejewel, we believe in continous improvement, we'd love to hear from your experience with us in order to provide the best products and service as possible. Please fill in the form below!
Name
John Smith
Email
john.smith@gmail.com
Tel Number
+353 xxx xxx xxxx
How did you hear about us?

9. Site Evaluation

I evaluated and tested my website by getting users (my peers) and asking for their feedback. After collecting their feedback, I've completed the heuristics evaluation under the following headings:

1) Visibility of System Status
- Users found it unhelpful that there was no visual indication that users were selecting or hovering over the product cards or incrementing and decrementing buttons.
- Users found it helpful that the colour of the primary button changes upon hovering.

2) Match between system and real world
- Users found the language used in the website to be understandable and accessible.

3) User control and freedom
- Users found it helpful that the navigation bar showed where the current page was.
- Users didn't find it helpful that the navigation bar was the only way to navigate through the pages and there weren't any easier ways to return to their previous page.

4) Consistency and standards
- Users felt like the site was similar to other ecommerce websites they were familiar with.
- Users felt like the site didn't include all features that ecommerce websites usually have, such as display what's in their shopping basket, select sizes and submit orders.

5) Error Prevention
- Users found that in the contact form, the placeholder text told them what format to input their text data in.

6)_ Recognition rather than recall
- Users didn't find it effective that the logo in the navigation bar doesn't bring the user back to the home page, it was non intuitive.

7)Help users with errors
- Users found it helpful that when submitting the contact for, a message displays telling them what to correct.
- Users didn't like the alert when they didn't fill in the checkboxes correctly because it wasn't consistent with all the other error messages.

8) Help and documentation
- Users didn't find it helpful that the links at the footer didn't actually bring the user to any pages.

You must describe how you evaluated your website using appropriate heuristics.

10. Deployment

I chose not to deploy my website because it is not a requirement!

Appendices

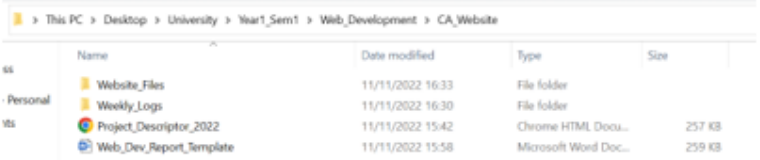
Web Dev 1

Weekly Project Report – Week 1

Please provide a brief overview of the research or tasks that were completed on your project this week. (This should take no longer than 10 minutes to complete):

This week was focused on laying out the foundation for the rest of my project and getting started on planning my concept for my website.

- I read and understood the CA Project Brief.
- I organised folders on my PC so I have an organised system.



- I created a timeline to follow for the 5 weeks until my project is due.

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Week 5 – Dec 5 - 11	Final Report Draft,

Web Dev 1

Weekly Project Report – Week 2

Please provide a brief overview of the research or tasks that were completed on your project this week. (This should take no longer than 10 minutes to complete):

I spent this week working on my report. I filled in information under the headings problem description, research, technology and site architecture.
I spent the majority of my time investigated three ecommerce websites, Lirika Matoshi, Coggles and Teuta Matoshi and noted common features between all of them and features I wanted to include on my website such as the footer, navigation bar and home page/ landing page.

After deciding what content to put in my website, I created some low fidelity wireframes for my website pages with mobile-first design in mind. I only created wireframes for mobile devices and if I were to go back, I'd create wireframes for desktop devices too.

Web Dev 1

Weekly Project Report – Week 3

Please provide a brief overview of the research or tasks that were completed on your project this week. (This should take no longer than 10 minutes to complete):

After touching up my low fidelity prototypes, I began by creating my templates for the HTML files including common features such as linking in my stylesheets and scripts, my navigation bar and my footer.

I added HTML code for the content for my home page, my about page and my size guide page. I also began to work on my main stylesheet styles.css by declaring custom properties to be applied to the root element of my document in between the <html> tags such as my colours, font families and font sizes.

I then added styling for my containers and buttons.

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Weekly Project Report – Week 4

Please provide a brief overview of the research or tasks that were completed on your project this week. (This should take no longer than 10 minutes to complete):

I spent a lot of my time this week following a Youtube tutorial to create my shop page. I began by creating my shop.html file and adding my template for HTML code. I then created a div with the id "productCards" that would be targeted in my JavaScript code. I created functions "generateProductCards", "increment", "decrement", "update", and "calculateBasket" for JavaScript functionality in my shop page. This was really time consuming and I didn't have enough time to create a basket page that displays to the user the products selected for the basket and their quantity.

I then created a contact form, styled it and implemented input validation with JavaScript functions.

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Weekly Project Report – Week 5

Please provide a brief overview of the research or tasks that were completed on your project this week. (This should take no longer than 10 minutes to complete):

I gathered feedback on my website from my peers to complete the "site evaluation" section and I gathered the common features of all their feedback.

I spent this week putting together my Report under the headings JavaScript functionality, development plan, testing plan, site evaluation and I collected all my weekly reports and attached them to my appendices.