Introduction

My webpage has now been coded, tested and even hosted at https://conorl67.github.io/ (see image 2.1).

This project submission will detail how the paper prototype transferred to the webpage which I shared a number of people in order to ensure a favourable user experience. I will discuss

- Coding used HTML, CSS and JavaScript and why.
- Some of the features of the site.
- Some of the problems encountered and solutions implemented.
- Technical testing - tools used and results
- User testing – approach and feedback
- Site evaluation
- Further improvements and optimisation which can be implemented.

Image 2.1 – Mobile home page

2. Implementation

For coding my website I used HTML5, CSS3 and JavaScript. I encountered a few coding challenges which required me to amend the design during implementation. I also sought user input throughout implementation and built in changes based on this. I guess even now I'm still getting input and identifying further changes. However, for the purpose of this project report I have drawn a line on changes for my submission but will discuss further work planned / required on the site.

i. Use of CSS

In order to get a real learning experience I decided not to use a framework (my daughter created a very professional site using a framework and she has no experience in coding). All CSS coding is my own code. I used an external style sheet (mystyles.css), with no styling used in HTML5.

As discussed in submission 1, I used a 12 grid approach starting from a mobile design with a single column for mobile, two columns for tablet and three columns for laptop. Due to this mobile first design I was left with choice of what to do with all the space on the laptop screen, using the *Rule of Thirds* I decided to fil the right side of the screen with a relevant image, which would revert behind the content and become background in the tablet and mobile versions (see image 2.2).

I started with only 12 definitions for my grid however as I implemented content using similar width but different styling which I also needed to be responsive, I added modified classes for my grid.

I used a number of id's and classes to help position and style my content and I used pseudo class for navigation and links. I also used the CSS to style the standard HTML

tags such as *header*, *nav*, *p*, *footer* etc. I have grouped together and gave a heading to each section of these in my CSS file (mystyles.css)

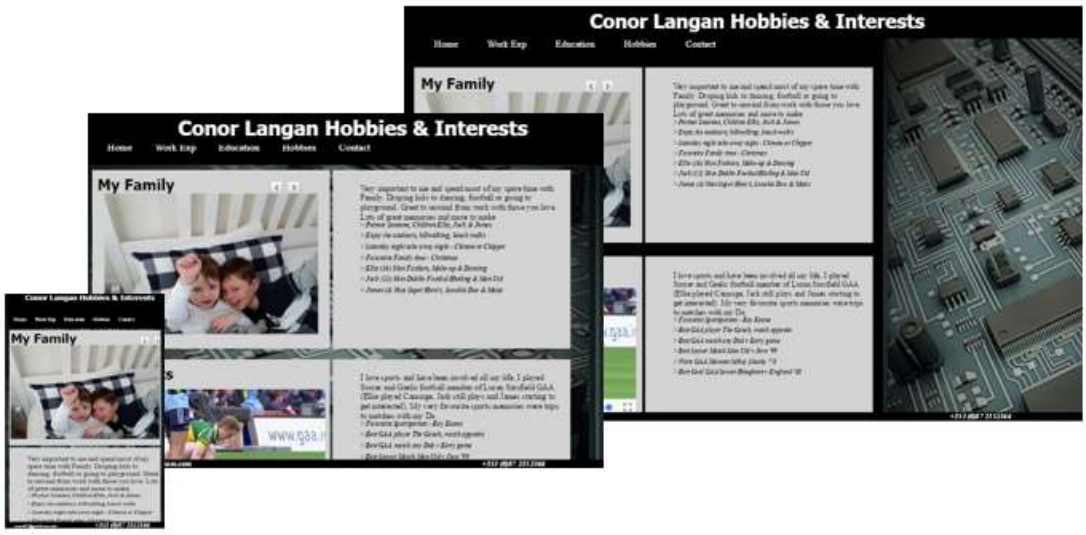


Image 2.2 – Site transition from single column to double to three column Laptop version

ii. Use of HTML

I followed the HTML page setup template which we were introduced to earlier in the course.

```
<!DOCTYPEhtml>
<html>
<head>
<meta>
<title>
</head>
<body>
        Content
</body>
</html>
```

I also used the following HTML5 tags (and more) on my website, which were convenient when writing and editing script as they are more descriptive than .

<header> <footer> <nav> <section>

<input> <h1> <h2> <button> <form>

The attributes of the tags were also useful particularly when connecting with JavaScript to access content. By accident I found I could use <i> and <b> tags which allowed me to turn on italics and bold which I found very handy and efficient.

Regarding the content my website is a CV website and I used a page each for the main sections. Whereas good practice for a typed CV is max 2 pages I was able to fit more

information into the webpage CV. I believe the content is appropriate as I stuck closely to main heading in CV however later in the evaluation section I will share feedback on the content for user evaluation testing which I completed.

iii. Responsiveness

To address responsiveness of the site I had the following main approaches.

- **Mobile first design** – Starting with mobile made it easier to consider how things would move around when going to bigger devices. Thinking in single column allowed me to understand how individual sections could move as screen size adjusted.

- **Grid** – Setting up the grid was critical as I could picture where on the grid the sections I was viewing from a mobile perspective could be placed and sized for bigger screen sizes. the for managing different content across different device sizes. By setting up rows and columns using a combination of div's and classes I could build these sections and not have to size and style every piece of content individually. I initially came across a problem in that having 12 grid columns but favouring a particular few (col-2, col-3, col-6 and col-8 in mystyles.css), if I amended these to suit one use of this it skewed the other uses of it. I overcame this quite simply by making another version of the grid column with the required attributes.

- **Media Queries** – Allowed me to change how the pages rendered and overlapped as the screen sizes changed. Using this in conjunction with my grid I could manage the responsiveness I needed through coding.

- **Avoided absolutes** – By prioritising percentages or relatives (ex EM's) rather than absolutes I could manage how the site transformed together and kept symmetry and similarity (Gestalts Law). I could place content within div's as a percentage (images and text) and these transformed according to device whilst maintaining relative dimensions.

- **No unnecessary content** – whilst less is best in terms of speed, it is also good for responsiveness and one of the principles of *Flat* website design. I faced the challenge of filling up the larger screen size and overcame this using the image on the right-hand side of the screen. My initial thought was to drop this I moved away from the three column layout however I decided to keep the theme and use the same image as background on the single and double layouts. After that all content is the same across the three device types, no unnecessary content.

iv. Use of JavaScript

I have two features in my website which use JavaScript,

a) Image Slider on my Hobbies page which allows the user to click through some photos of my family. With help of W3 schools I generated the code below for this

Implementation, Test & Evaluation

```
<section class="hobhead">My Family
<button class="leftbutton" onclick="plusDivs(-1)">&#10094;</button>
<button class="rightbutton" onclick="plusDivs(+1)">&#10095;</button>
<img class="sliderFam" src="Jack+James.jpg">
<img class="sliderFam" src="Ellie+James.jpg">
<img class="sliderFam" src="HellFireKids.jpg">
<img class="sliderFam" src="Kids+Me.jpg">
<img class="sliderFam" src="FamilyPizza.jpg">
</section><!--closing div for job image-->
```

This is the HTML portion of the code which basically establishes buttons for left and right which call the JavaScript function ShowDivs(n) which steps through the images forward [plusDivs(+1)] or backwards [plusDivs(-1)] that have the class "sliderFam".

```
var Index = 1;
showDivs(Index);

function plusDivs(n) {
  showDivs(Index += n);
}
function showDivs(n) {
  var i;
  var x = document.getElementsByClassName("sliderFam");
  if (n > x.length) {Index = 1}
  if (n < 1) {Index = x.length}
  for (i = 0; i < x.length; i++) {
     x[i].style.display = "none";
  }
  x[Index-1].style.display = "block";
}
```

This is the JavaScript where the getEletment command is used to access the images calling "sliderFam" name we assigned them in the HTML above and the function steps through these using a loop. The style.display command determines which image is blocked and which is displayed.

b) The second JavaScript is the Form checker on my Contact page. This is code which I generated myself which gives the user a review of information that they have submitted on the form by means of an alert popup.

```
<form class="table" name="projForm">
    <tr class="form"><td>Name:</td><td><input type="text" name="name"></td></tr>
    <tr class="form"><td>Company</td><td><input type="text" name="company"></td></tr>
    <tr class="form"><td>Phone:</td><td><input type="numerical" name="phone" id="phone"/></td></tr>
    <tr class="formE"><td>Email:</td><td><input type="text" name="email" id="email"/></td></tr>
    <tr class="form"><td>Enter preferred contact date:</td><td><input type="date" name="date" min="no
    <tr class="form"><td><input type="submit" value="SUBMIT" onclick="return javaTest();"></td><td><i
```

```
function javaTest() {
    var v = document.forms["projForm"]["name"].value;
    var w = document.forms["projForm"]["company"].value;
    var x = document.forms["projForm"]["phone"].value;
    var y = document.forms["projForm"]["email"].value;
    var z = document.forms["projForm"]["date"].value;
     alert("***************THANK YOU***************\nYou
}
```

HTML script above assigns the name to each of the inputs such that we can call their content using the document.forms[name assigned to form][name assigned to input].value command. We also set the onclick attribute of the submit button to run the below java function.

Creating a JavaScript function we simply assess each of the inputs javaTest() and display them using the alert command.

v. Images

For images these were contained within <section> within in grid section divs and size and alignment was set relative to these <section>'s. As the screen size changed and the grid 's responded accordingly the image sizes transitioned relative to the <section> that contained, or better still, constrained them. This was also applicable for the video also.

vi. Technologies

I used the following technologies on my website,

a) Video – see Hobbies page, My Sport
b) Audio – see Hobbies page, My Music
c) Image Slider – See Hobbies page, My Family
d) Forms – see Contact page, Let Me Contact You
e) Download – see Contact page, Download My CV

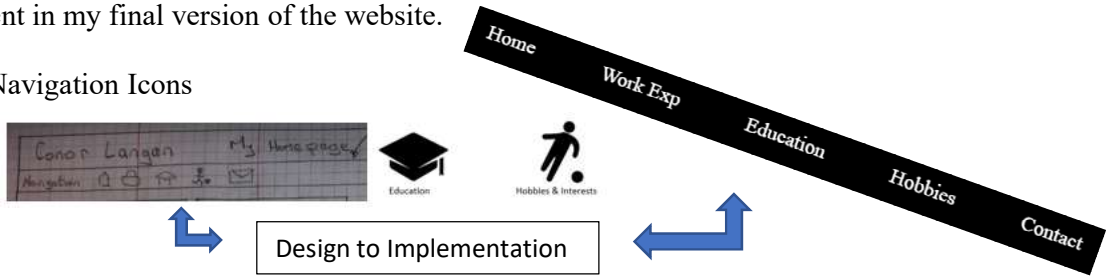
The *forms* definitely fit with the theme of the site and initiated contact with intended audience (potential future employer). The *download* also fits well with the site theme and feedback during user evaluation was that recruiters make initial review using websites (LinkedIn for example), however the almost always want to have the paper in their hand in the traditional format they like.

Other technologies were more in keeping with a social media site (some user feedback was why not sign up to Facebook) rather than a CV type site. That said the content had a lot to do with it, I guess I could use these technologies to show case projects, presentations which I may want potential employers to be aware of.

vii. Design v Implementation

In closing this section on *implementation,* I should say a few words on what changed and why from my design stage. Overall the website turned out as I had envisaged and close to my original design. That said there were two main aspects which I did not implement in my final version of the website.

a) Navigation Icons

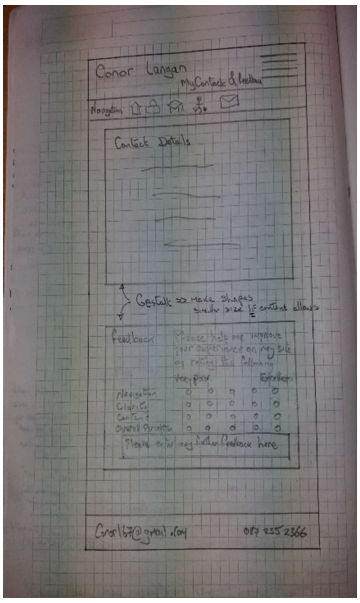


I had intended to use icons in my navigation bar using symbols as metaphors instead of using words. In the design phase I had a quick check on the internet and could find suitable images for these metaphors. In the implementation phase I spent a lot of time trying to get these images to maintain a consistent quality and size. When I did eventually get this to work on the laptop screen is just didn't work on the mobile version. I reverted to using words on my navigation for this submission. Having reviewed several sites I will attempt to continue with these as a vertical right hand side navigation bar as I work on site improvements.

b) Feedback Buttons

I had a thought to use the website itself to acquire feedback on user experience, content and improvement suggestions. As a front end this was simple enough to code however it was nothing more than a visual. To make this really useful, I would need to have this tied to a database collecting the

input for compilation and analysis. To do this I would need to have a better understanding of JavaScript and some other programming. In the interest of priorities, I dropped this in favour of the *Let Me Contact You* form. I could write some simple JavaScript to feedback to the user which worked better than a form that did nothing.



3. Test & Evaluation

a. Disclosure

i. **CSS Code** – 247 line of own CSS code

ii. **CSS Code –** Zero lines of adjusted CSS code

iii. **CSS Framework** – No framework used

b. Speed Testing

I used the following a number of tests to determine the speed of my web page

Firefox Extended Status Bar

Using this I loaded each page of my website and recorded the load time (Image 3.1). The range of speeds was o.49 to 0.143 sec from a data driven perspective I had nothing to compare this to so I ran the same test for three sites I would use regularly and these returned load times as follows.

www.bbc.com	3.8 sec
www.manutd.com	1.7 sec
www.rte.ie	2.1

My site recorded the quickest scores, however my site also had less content than the others.

Image 3.1 – Speed test results from my website using Firefox Extended Status Bar

Test My Site with Google

Using this add on Google I performed comparison again with the three sites mentioned above. Image 3.2 below is a collage of my comparison across the 3 criteria which Google use to rate the sites – Mobile Speed, Desktop Speed and Mobile Friendliness. My site scored tops for Mobile Friendliness and Mobile Speed and second on Laptop Speed. While I can again mention the lower content on my site, in it's current format it does not suffer from any speed issues.

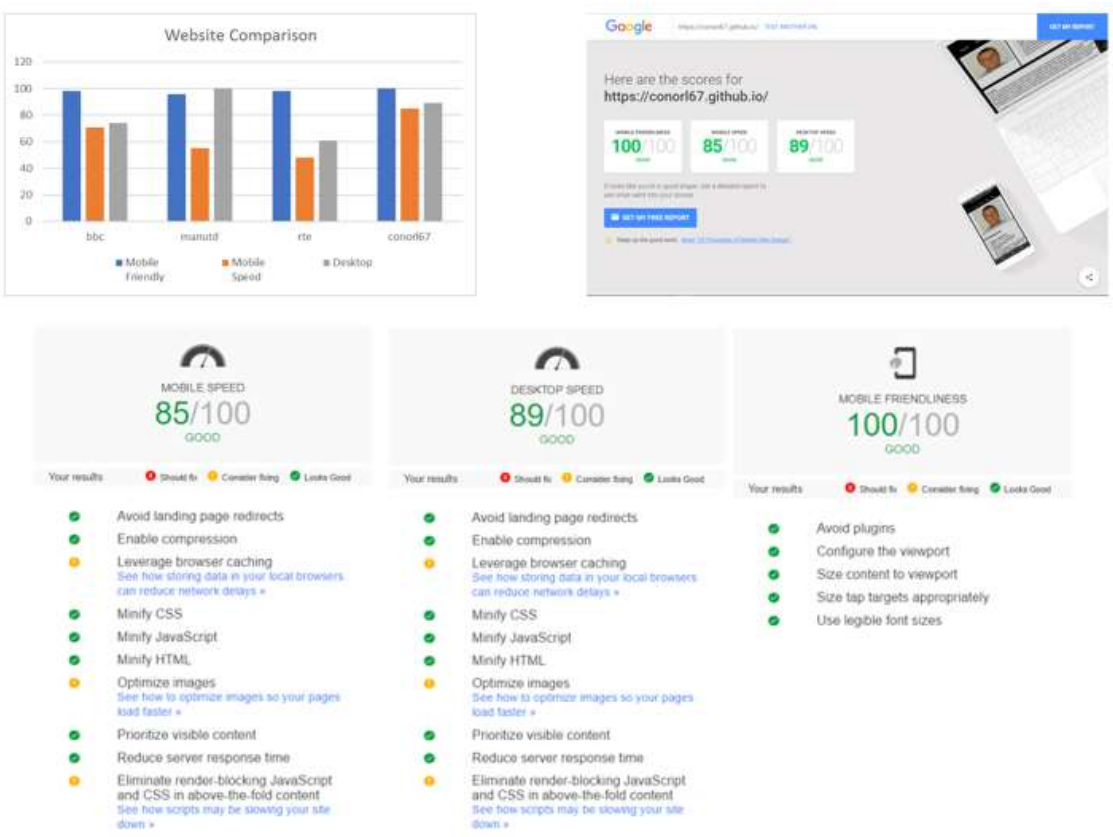


Image 3.2 – My site comparison with well know websites

My final test on speed was (having now got the site hosted) to include this as a question in my user experience survey. I will go into more details on the survey later however give the simple choice *too slow, acceptable or wow that was fast* I received a 100% response of acceptable.

So in concluding, each of the speed evaluation test indicated that site speed performance was not an issue and compared favourably with some common well known web sites. Of course as I add content and functionality and script this will have an impact on the speed fortunately I can refer to the above for managing the speed performance as I develop the site.

c. Responsiveness Testing

Testing the responsiveness of my site I used a number of tools and again included this in my user experience survey.

Chrome – Responsive Web Design Tester

I installed this Chrome add-on and ran a number of simulations of my site on this and responsiveness was good moving from laptop to tablet to mobile. I also accessed my site directly from my mobile (Samsung J5) and the site rendered pretty much as I had hoped for. There were a few minor tweaks which I implemented. Image 3.3 below is a

comparison of the contact page of my website using this Chrome Responsive Web Designer Tester on an iPhone 6, HTC One X and a Samsung S6, the fourth image isa screen capture from my own phone as I accessed the website directly on line. All images are pretty similar (the only noticeable difference is how the footer rendered on my phone online.

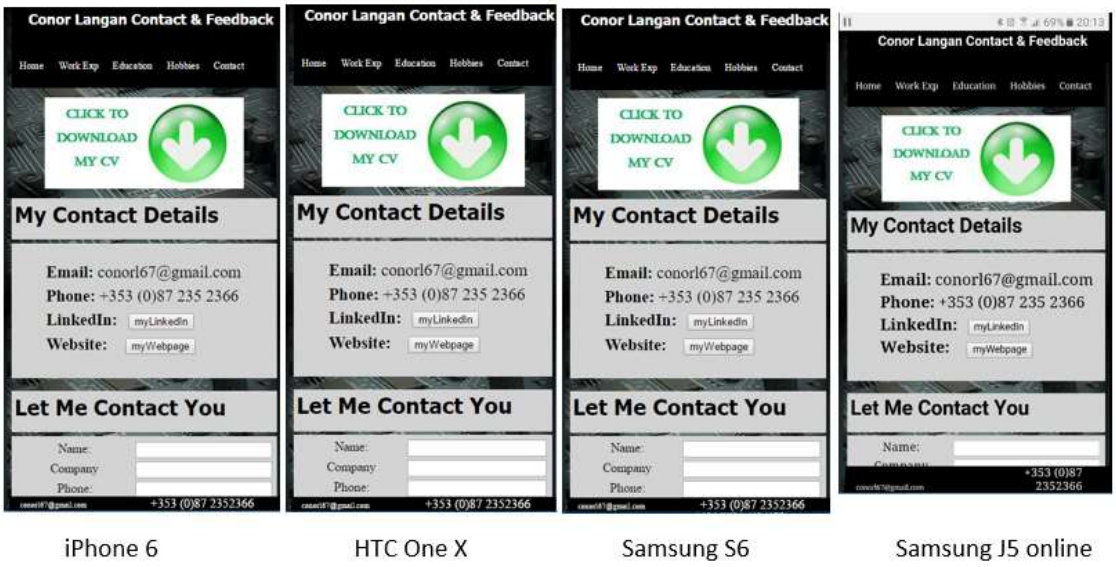


Image 3.3 – Website responsiveness across a number of mobile devices,

Chrome Developer Tools

Throughout my site implementation I used the Chrome Developer tools, to review how the code was rendering on Chrome and how the browser in built styling was interfering with my intended styling. I was able to overwrite this with my own code on a number of occasions to get the style I required. I also used the *Toggle Device Bar* in the Developer Tools to check how my Media Queries were working. Image 3.4 is an example of how I checked responsiveness as I was building my website.

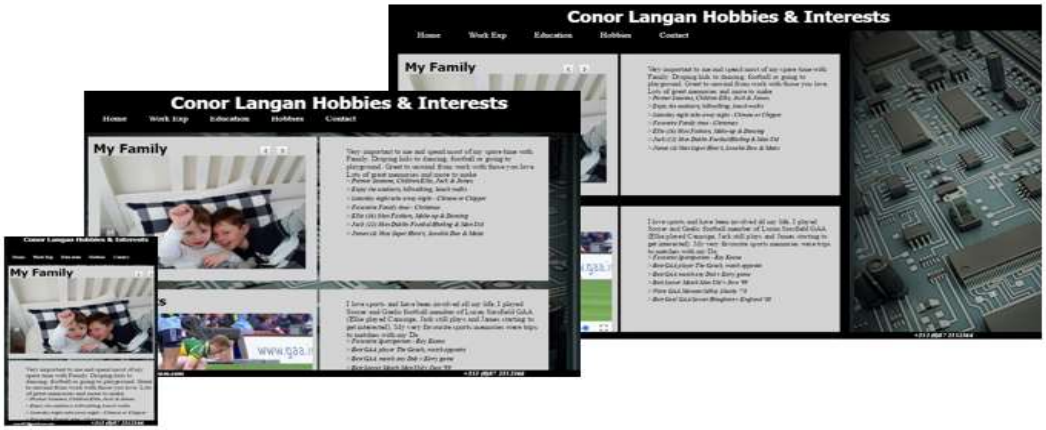


Image 3.4 – Example of Responsiveness using *Chrome Developers Toggle Device*

Final testing of the responsiveness was from my user survey again. I received feedback from a total of 11 people who used a total of 25 devices (15 mobiles, 8 laptops and 2 tablets) and feedback was quite good however there was some area's for improvement provided. Some examples included how text ran over on an IPhone 5s in the contact page and how the Click to Download did not show at all (when it worked great on all my screen sizes on using the previously mentioned tooling. This was resolved by changing the .JPG from capitals to small characters and reposting it.

d. Usability & Functionality Testing

As mentioned previously I compiled a survey which I called the *User Experience Survey* and sent this along with the link to my web site to a number of family, friends and professional acquaintances.

The survey questionnaire was as follows.

Hi All

I'm looking for a favour please for one of my college projects.
Please click on the following link in and answer the questions below
a) your computer b) a tablet (or reduce screen size to tablet size and c) your mobile.
https://conorl67.github.io/
Please be critical (this will be of more value to me than nice comments)
What is the purpose of this site?
Does the style of the site reflect this?
Did contents do what you expected them to?
Could you find the below items easily (how many clicks)?
- Please try some of the following in answering the above
  Play Video
  Play Music
  Complete and send contact details
  Read more detail on my work experience

For each of a) b) and c) please answer the following questions

What browser did you use?
What device did you use?
Q1 - How quick do you find the site to load (too slow, acceptable or "wow that was quick")?
Q2 - On which device did you prefer looking at my site?
Q3 - Did you loose any important features between devices?
Q4 - Was text readable and clear?
Q5 - How was interaction with site (difficult, acceptable or "great experience")?

Please provide any improvements you would recommend?

In the interest of time I have compiled the feedback as follows

Purpose of site – All responded that it was some kind of personal professional profile ("like a LinkedIn meets Facebook" was one comment)

Style reflective of purpose – Most were very nice and offered suggestions in the "just me preference but…" maybe the colour scheme was a little dark and the font a bit boring. Enough to confirm my own assessment that it looked amateurish and not as slick as what my daughter did with a framework in transition year in college. So what I achieved in learning I lost out in style, anyway no regrets the experience was great and when I do use a framework I'll do so with some better knowledge and understanding.

Contents do what you expected? – Apart form the CV download which I fixed and asked them to try again which they did successfully, all said that everything worked well and no problems. One of two colleagues with MSc's surveyed shared that while the form worked and he got some nice feedback of what he submitted he could enter "jibberish" and that I should build in some form validation control.

Could you find things easily? – All replied positively navigation was intuitive and everything was easy to find.

Responsiveness and overall experience – Again all were very nice and a few issues pointed out in a polite way. The overall sentiment was that people were impressed that I had generated this site and it worked "pretty well" on all their devices. However as mentioned previously without saying it the tone of the responses were that the site was functional and "good for a first attempt" but wasn't really polished or professional.

e. Outcome of Testing and evaluation

In summing up my findings I would say that the website was a great learning for me and as mentioned above "good for a first attempt".

Based on the above testers and survey feedback I think the site worked reasonably well in terms of functionality and responsiveness, speed and adaptability.

The area's for improvement are

Styling, both the coding of this itself and the artistic side, for that reason I will apply a framework and see if that can help address these.

Coding, with practice and further study (JavaScript for example) I hoe to see my websites improve over time (and include professional features such as form validation mentioned earlier.

Try it for yourself and see https:\\conorl67.github.io !!

Implementation, Test & Evaluation