

# Development and Testing

## A Summary of Changes and Consideration of New Elements

This document discusses the main technical aspects of the website, after its implementation, the difficulties that appeared along the way and the methods used to make everything function properly.

### 1. Changes

There were next-to no changes in style, however there were many changes in content and coding choices. Initial links added to the footer, for the sole purpose of making the page look professional, such “Careers” and “FAQ”, proved unnecessary and of no interest to a young audience. Therefore, they were replaced with direct links to more engaging content, such as “Games”.

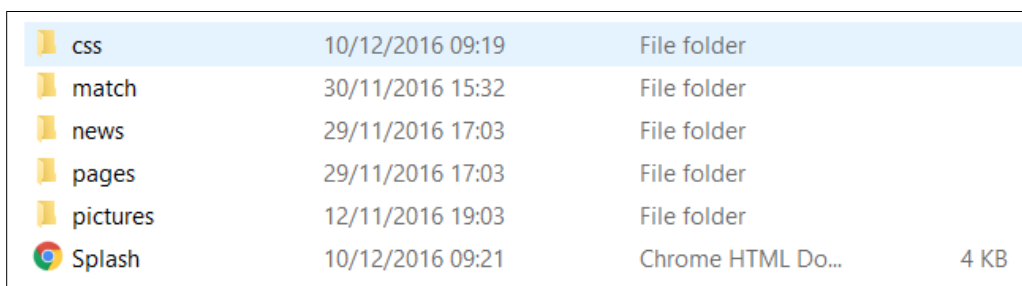
All code was optimized, through the usage of classes instead of distinct ids and application of the same classes to elements across multiple pages, ensuring both a consistent style and an easier-to-read CSS file.

The most important change occurred in programming the game. Implementation of a game accessible to blind users had been discussed, however it proved to be too complicated and beyond the scope of the website and was dropped. The game is now unplayable by an unattended visually-handicapped person.

### 2. Organization

All the CSS properties are within the same file, under clearly labeled comments, making for easier navigation.

Templates were created for **blog-like pages**, such as news articles (using the class “blog”), for **collections of links** (“News” and “Smart Stuff”, using the class “story”) and for **short articles** with an emphasis on pictures (“About Us” and “Videos”, using the class “founder”). Some pages have an added id, to create small differences, while maintaining a consistent style.



css	10/12/2016 09:19	File folder	
match	30/11/2016 15:32	File folder	
news	29/11/2016 17:03	File folder	
pages	29/11/2016 17:03	File folder	
pictures	12/11/2016 19:03	File folder	
Splash	10/12/2016 09:21	Chrome HTML Do...	4 KB

Figure 1 – Folder Layout

The “normalize” CSS file was added as a preventive method, to ensure the website would still be legible, in the unlikely case that the customized CSS file would be lost or deleted. As it preserves browser defaults, it is a better choice than reset. The website loses its beauty in the

absence of its CSS properties, but it remains readable, the links work as expected and navigation is still intuitive.

The main folder contains only the Splash page independently from the others, as it allows faster access to the website. Everything else went into clearly labeled folders, containing all the pages, pictures, news articles and CSS files. The Matching Pictures game was developed and saved within a separate folder (“match”), for easier navigation and to keep the pictures required for the game in a separate folder from any other images.

The only place where debugging was essential was in developing the Javascript game, where console.log was used extensively, as some variables initially did not behave as expected. It was necessary therefore to find exactly where they broke or changed and debugging eventually resulted in a clean, working game. All console.log commands have since been removed from the final file.

### 3. Optimization

Taking into consideration that all the pictures are very small, their loading time is short and do not disrupt the general loading of the page. The simple animations and transitions and the lack of transformations simplify the website and ensure it has as little complex information to process as possible. Besides making for an efficient minimalistic design, it does not overload and tire the user with constant movement and flashing images.

The canvas size was set so that the game remains playable on mobile. The Javascript may be blocked by Internet Explorer and, on a prompt, has to be allowed to run. It works smoothly on all other browsers.

### 4. Security

All the data submitted through the form remains private, as no user can access what others have submitted. Any Javascript entered into the form is either ignored or taken as text and not implemented, making any Cross-Site Scripting Attack attempts futile. This has been verified to make sure it would pass any security tests.

Possible security issues can be posed by the personal email address to which all forms are sent and which may be hacked. If the website goes public, keylogging and even phishing might become an issue, as hackers could gain access to the source code and the domain host and, in the worst case, the email account.

### 5. Testing

As the website was written in a mobile-first approach, it transitions beautifully from a width of 480px to 1200px and wider. The game too works in both formats, as can be seen in *Figure 2* and *Figure 3*. The website was tested for the most common security breaches (XSS) and has so far proven secure.



Figure 2 – Mobile Display



Figure 3 – Desktop Display

There are few changes across browsers. The only noticeable one is in the footer, which uses a linear gradient (Figure 4), available on most browsers, but unsupported by Internet Explorer. To maintain style, the gradient was replaced by a solid background (Figure 5). Other elements using gradients were given preventive properties, with solid colours.

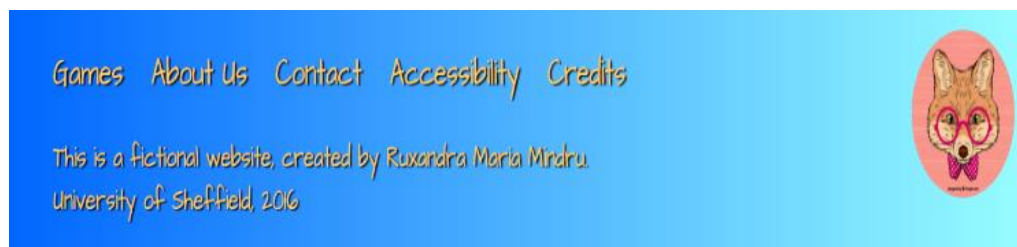


Figure 4 – The Google Chrome Display

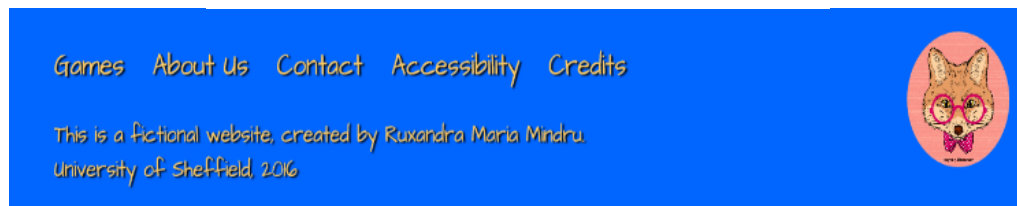


Figure 5 – Internet Explorer Display

With the help of online tools such as <http://www.color-blindness.com/coblis-color-blindness-simulator/>, the page was tested and proven to be visible to most users with vision afflictions.

## 6. Word about the Credits Page

Many pictures were used to bring *SmartFox* to life and none are owned by its programmer. All references to image creators are provided on the website's page, "Credits", as well as in the Javascript file.

## 7. Conclusion

This document has discussed the progression of the website from hand-drawn plans to code, the changes that took place and preventive methods, ensuring quick load and security. The website is now functional, responsive and intuitive, aimed at young children and hoping to make them curious about the world, through fun games and fascinating articles.