The Analysis and comparison of three chosen websites and the technology used across each

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Introduction

In October 2014, the company NetCraft reached an extraordinary milestone during their web server survey where they officially confirmed that there were over one billion websites on the world wide web (Internet Live Stats, 2016), which continues to increase daily and is being updated in real-time. There are millions of websites based around the same theme or idea for example sports, gaming, media etc. Which means that developers have to design the websites carefully to ensure uniqueness and functionality for it to be deemed successful. According to a research paper about the characteristics to produce a good website, some of the following concepts were identified; visual design, readability, content, personalization and responsiveness (Al-Salebi, 2010). This can also be supported by another article that states appearance, content functionality, usability are some of the key elements of an effective website (Spirtz Web Solutions, 2012). After taking all this into consideration it is important to question how successful regularly used websites are. This essay will analyse three chosen websites by comparing them in relation to the technology used in each and how successful they are in portraying their message or achieving their primary purpose.

Microsoft

Introduction

The first website for analysis is going to be Microsoft. According to a recent article Microsoft is amongst the top ten for the largest technology companies in the world having a revenue of $86.5 billion (Sharf, 2016). With over a billion users running or utilising Microsoft products, this is a clear indication to the necessity of a successful and well developed website, which will be accessed daily from numerous users.

Inspection & Technologies Used

From an overall look of the inspection without actually focussing too much on the code it is obvious that the website has been constructed with HTML5. HTML5 was officially standardised and recommended in 2014, which was approximately fourteen years after the recommendation of XHTML 1.0 in the year 2000 (Shannon, 2012). The document type definition <!DOCTYPE html> clearly identifies the HTML5 usage, which is an instruction to the browser informing it about the version of HTML being used for the website. Furthermore, the xmlns specified below the type definition contains a specification for an xml document.

Another technology that could also be easily identified alongside the HTML5 is JavaScript. JavaScript was created by Brendan Eich in 1995 and had the purpose of providing behaviour to static webpages. In other words it allows pages to be dynamic so for example allowing users to interact more with the webpage through aspects such as pop-ups or text validation (Machajewski, 2016). JavaScript files can be highlighted by the .js extension.

The final standout technology is CSS. Cascading Style Sheets are simply used to organise the layout of a website this could include various different characteristics such as font, colours, sizes etc. CSS was first released in 1996 however it needed amendments which saw it republished in 1999 (Hissom, 2011). The current and latest standard is CSS3, these files can be recognised with the .css extension.

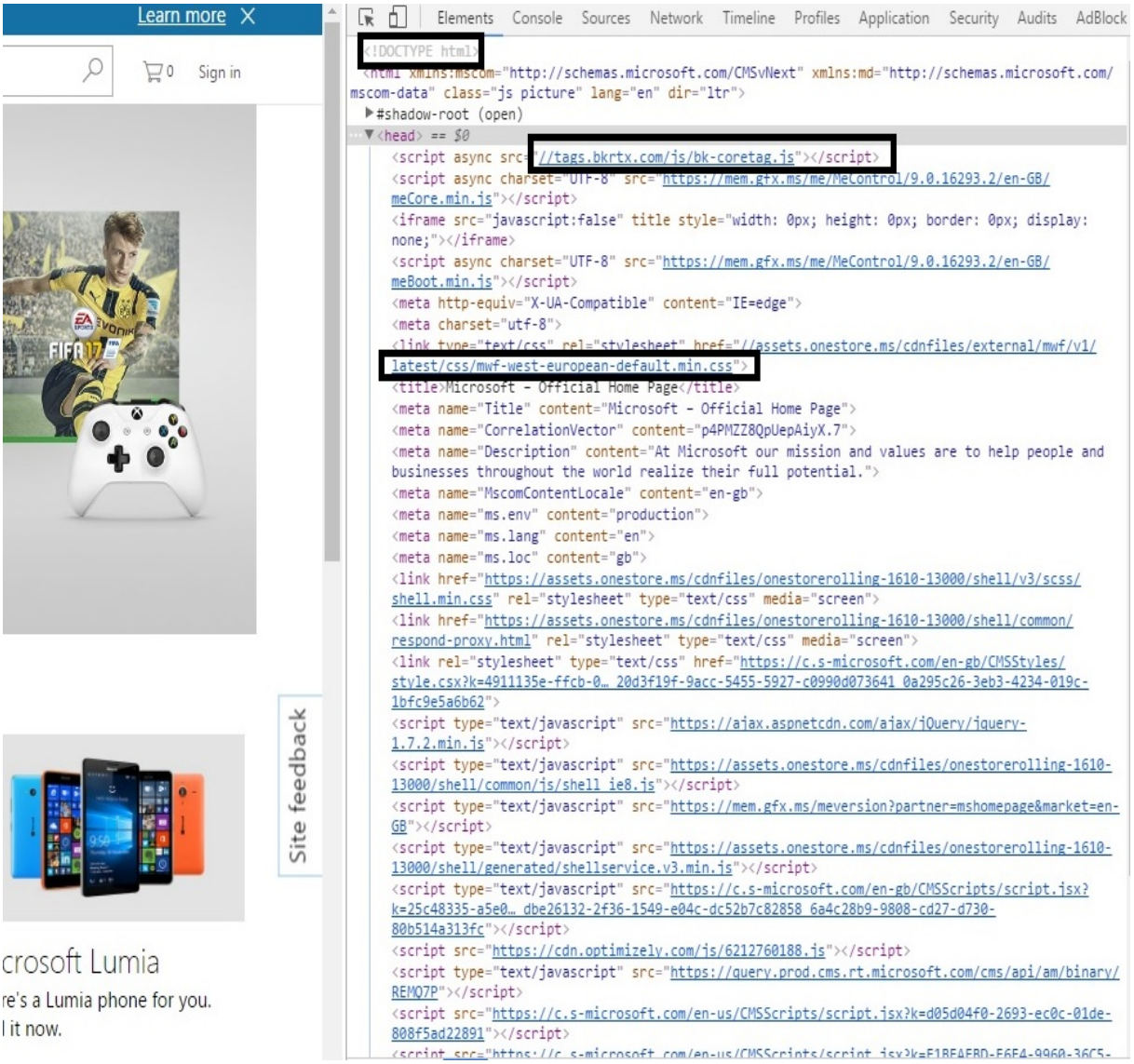

Figure 1: Initial Inspection of the Microsoft website homepage, highlighting the extensions discussed above

Diverting attention onto the code in-depth and in specific, the sources Microsoft have used for their website, the JavaScript library called jQuery and a web development technique called Ajax come into the frame. Ajax is based around the idea of loading data asynchronously without actually reloading the whole page. The advantages of this are that response time is faster which improves performance and speed, alongside this it also reduces traffic between client and server (Baldota, 2011). On the other hand, the JQuery library makes it easier to use JavaScript, the motto "write less, do more" clearly highlights the purpose of the library (W3Schools, 2016). The actual script file code itself is quite complex to read and to understand however utilising the JavaScript beautifier tool, it becomes clearer as to what the file does. Figure 2 (below), shows characters that are part of a somewhat switch statement, which is possibly being used for validation purposes.

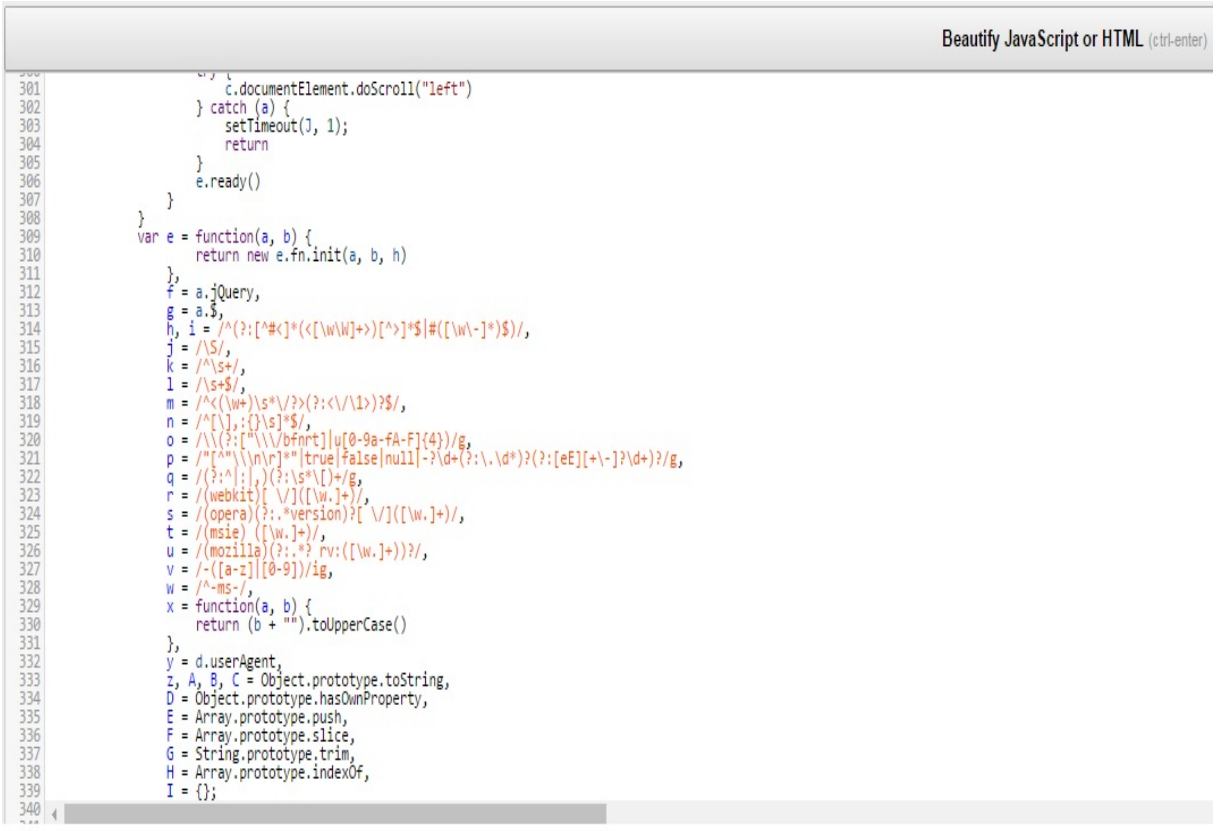

Figure 2: JQuery file made more readable using the JSbeautifier tool.

Inspecting the page elements and source code there is no clear sign of any technical issues or faults in the code. The breakpoints are also being utilised successfully and the website has a responsive layout, for example it can be resized as required. One of the more noticeable things about the homepage is the slideshow of products changing every five seconds. After conducting research this is being facilitated by Akamai. The images being displayed are pointing to Akamai servers. Akamai are a global content delivery network found in 1998, who attempt to provide a fast, reliable and secure service (Akamai, 2016).

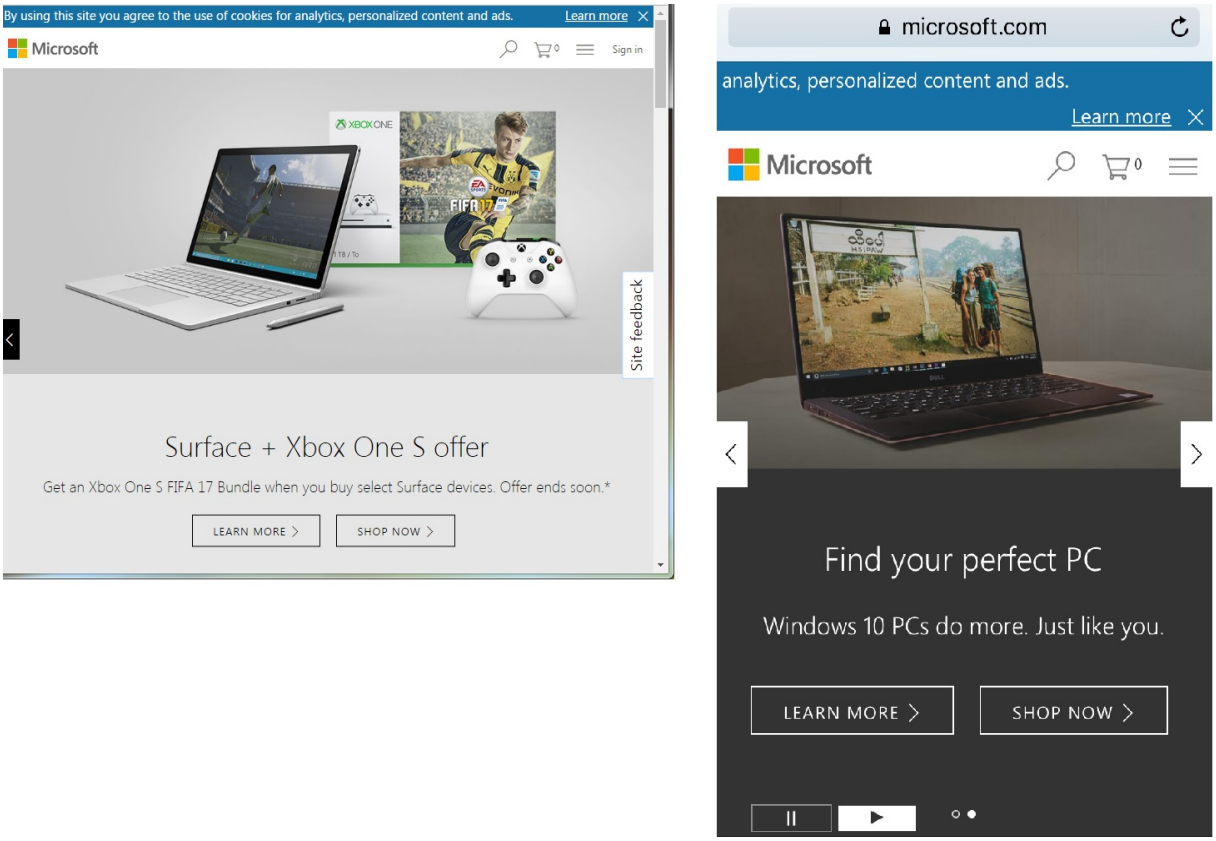

Figure 3: Demonstration of the responsive layout, one from the browser website (left) and the other a mobile website(right)

How successful is the website for its primary purpose?

The primary purpose for this website is made apparent by looking at the homepage. The navigation bar clearly demonstrates that Microsoft are attempting to advertise their products and support their users. In relation to the visual aspect of the page, the content relies solely on images with one slideshow, which is surprisingly all that is needed to make the website attractive. Alongside this the website is responsive and really well structured so the user could easily find what they are looking for. The JavaScript used for the navigation bar, presents a reliable and fast selection list when a button is clicked. The Microsoft website on the whole is an excellent, well developed website, but this is expected from such a dominant technology company.

Issues Identified

The only noticeable issues for any average website inspector would be that the code is quite complex and hard to follow. Due to the fact that there are different libraries and techniques being used for different parts of the website it is quite hard to figure out what relates to what. In regards to HTML, although there is a lot of information on the source page, it is possible to figure out parts of the website through string values. There were no console issues found.

BBC Sport Football

Introduction

The second website for analysis is going to be BBC Sport Football. Found in 1922 the broadcasting company continues to dominate ninety-four years onwards. With an estimated revenue of £5.166 billion in 2014/15 (Wikipedia, 2016), it is necessary to have a well-developed website to stay in competition with other news sources such as Sky Sports.

Inspection & Technologies used

Upon initial inspection there are instant similarities to the Microsoft website, such as the HTML5 declaration at the top. The noticeable difference in comparison to Microsoft is the html id, which is different to the xmlns specification from Microsoft. The id is for a unique HTML element which is possibly because the Football page is a part of the BBC Sport main HTML document. There is also a link to an xml file, which is identified by the .xml extension and is used for informational formats (Rouse, 2010). The link takes the user to a very simple website with very minimal css. Furthermore, JavaScript is another noticeable similar language being utilised for the website. CSS on the website is obvious, however there is no reference upon initial inspection, but will surely be somewhere further down the elements page.

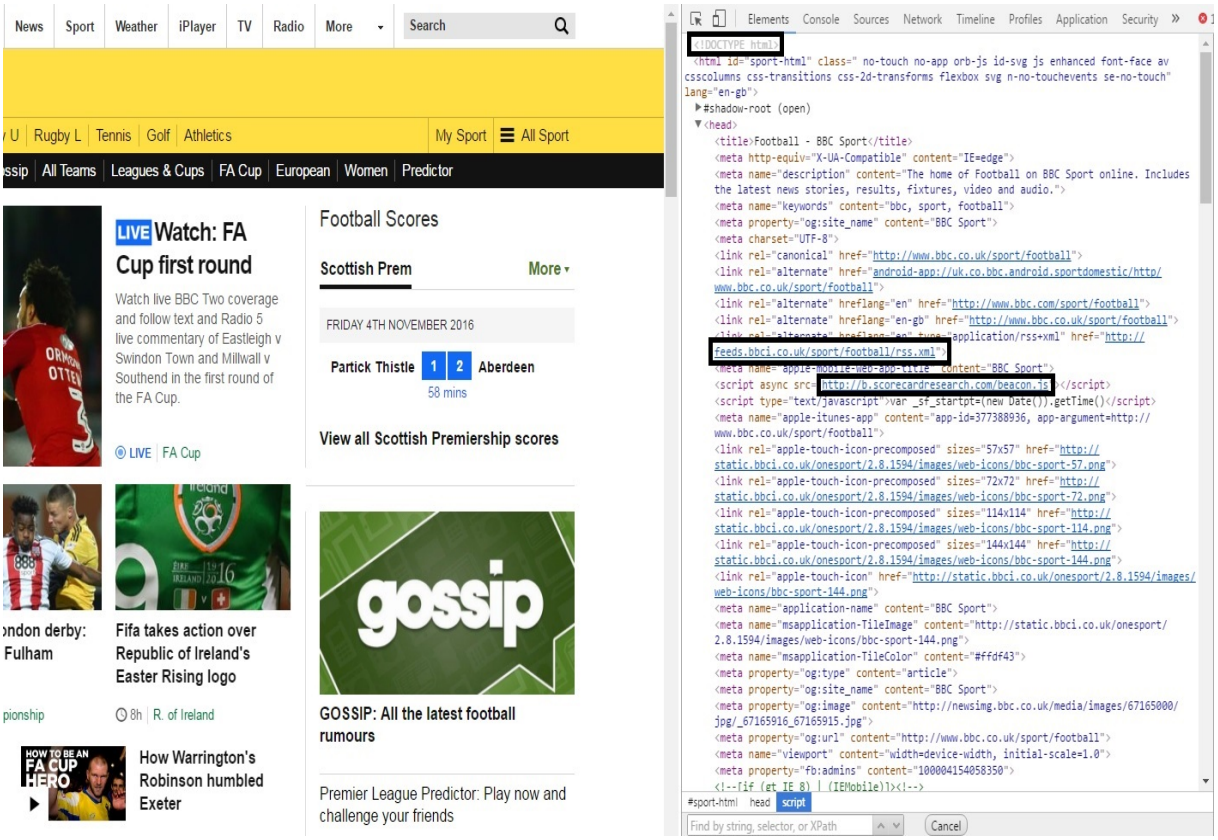

Figure 4: Initial Inspection of the BBC Sport Football website homepage, highlighting the extensions mentioned above

In-depth inspection of the code has finally presented the css stylesheet which has been used for the overall look of the website. There is also a noticeable framework called Barlesque used and after conducting some research, the discovery was made that the framework was developed by the BBC themselves and it is used for the layout of webpages on the BBC website. It also is accessible from any external or development servers (BBC, 2014). Research into the sources in particular the notifications user interface, there are various, .svg extension files. SVG which stands for Scalable Vector Graphics, was developed by W3C and initially released in 2001, with the purpose to provide an XML based vector image format for two-dimensional graphics for animation and interaction (Wikipedia, 2016). The SVG images are easily located on the website as opening them in the inspection section shows how they look will appear on the website.

Similarly, to the Microsoft analysis, the JavaScript file is too complex to read so has been simplified to make it readable. The first noticeable concept is that there is a comment at the top to state when it was last modified which possibly is to make other developers aware of the changes that have been made. Without actually focussing on the code, through website structure it is clear that the specific JavaScript file is used for the main notifications of the page. The BBC Sport Football page is also responsive and resizes as required, however it seems to react slightly slower than the Microsoft website. The most interesting aspect of the website is the live scores and the way in which these are updated. After some more inspection the concept of "data-react-checksum" comes to attention. The checksum is used as a reaction on the client side, so if the output from the server matches the client then it is automatically updated.

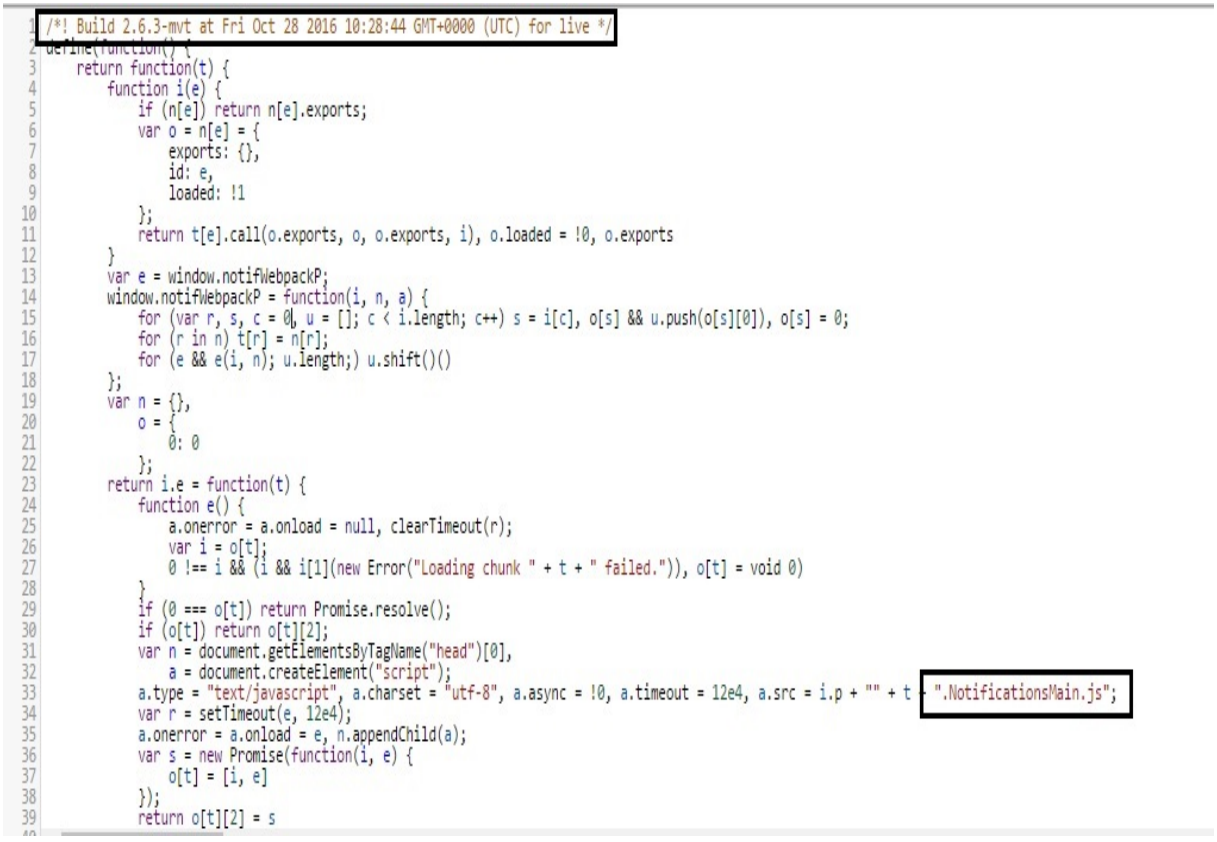

Figure 5: Highlighted comment and filename in the simplified JavaScript file

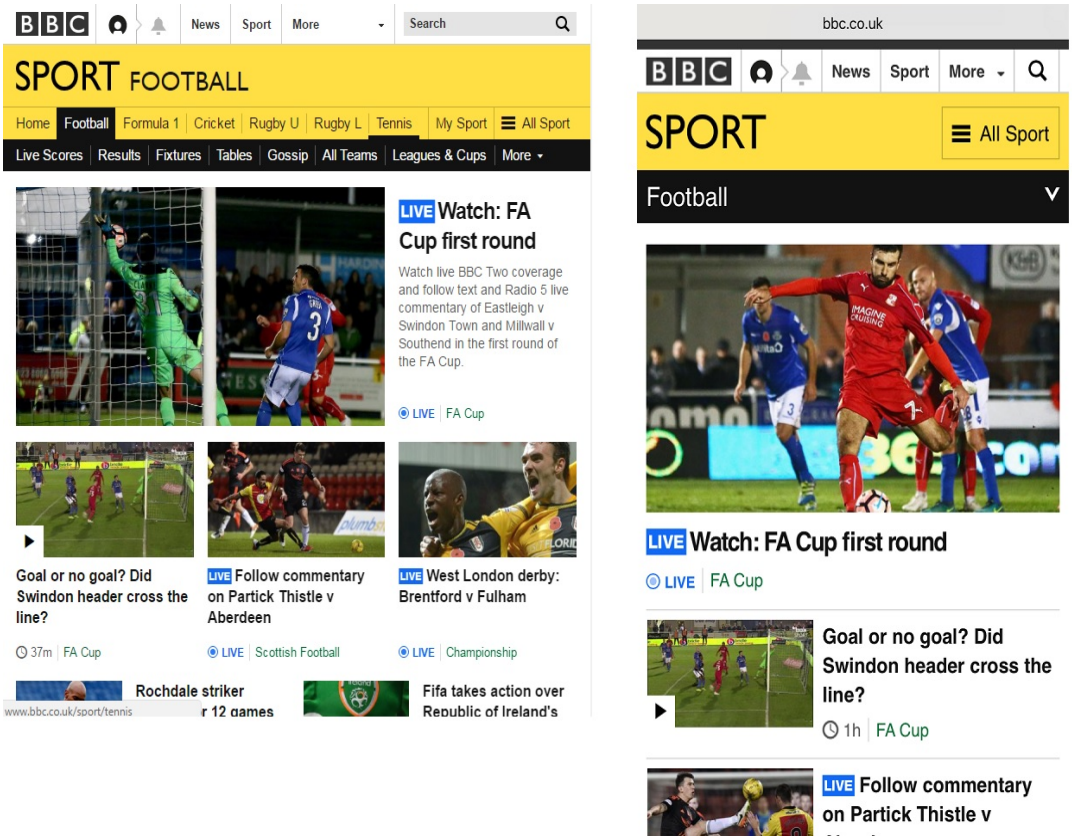

Figure 6: Demonstration of the responsive layout, one from the browser website (left) and the other a mobile website(right)

How successful is the website for its primary purpose?

The primary purpose for this website is to deliver football news effectively. In relation to navigation there are two dominant menu bars - the main one at the top is for the BBC in general which also links to other BBC services and the other is for specifically the sports pages. The differentiation to the Microsoft navigation bar is that there is no drop down list, clicking any button takes you to a different page. The content has a mixture of images, videos and a table. It is easy for the user to find what they are looking for as most of the information is available on the page. The table can be identified by the table class which can be found under mid-way through the inspection. The BBC Sport Football website, although not as attractive and presentable as the Microsoft website, still excels. Primarily because the content is sufficient for the user and the website is really easy to use. The code is easier to follow in comparison to that of Microsoft, which is beneficial to inspectors.

Issues Identified

The standout issues for the BBC website are the three warnings portrayed in the console aspect in the inspection; two of them being related to parse blocking which limits users with poor network connectivity from viewing these elements. In regards to visual issues the website looks really simple, although simplicity can make websites easy to user, there is always a chance that dull looking websites would get ignored. However the dominant BBC name possibly helps the website succeed.

EA Sports FIFA

Introduction

The final website for analysis is EA Sports FIFA. Electronic Arts is a global entertainment company founded in 1982 and noted current net revenue of approximately $4.4 billion. They deliver various products and services for example games and content (EA, 2016). The analysis is going to focus on the specific page for Fifa, a video game released on 27th September 2016.

Inspection & Technologies Used

Without actually inspecting the webpage it is fair to say that the website is very interactive. There is a video that is continuously looping and being used as the dominant background. Initial inspection shows the same HTML5 document declaration as Microsoft and BBC. However there is no sign of JavaScript or CSS files which highlights the difference in structure in comparison to the other two, however the overall look of the website shows various signs of both being used. The standout feature during the initial inspection is the svg class, which was previously discussed and is possibly being used for the animations or images of the website.

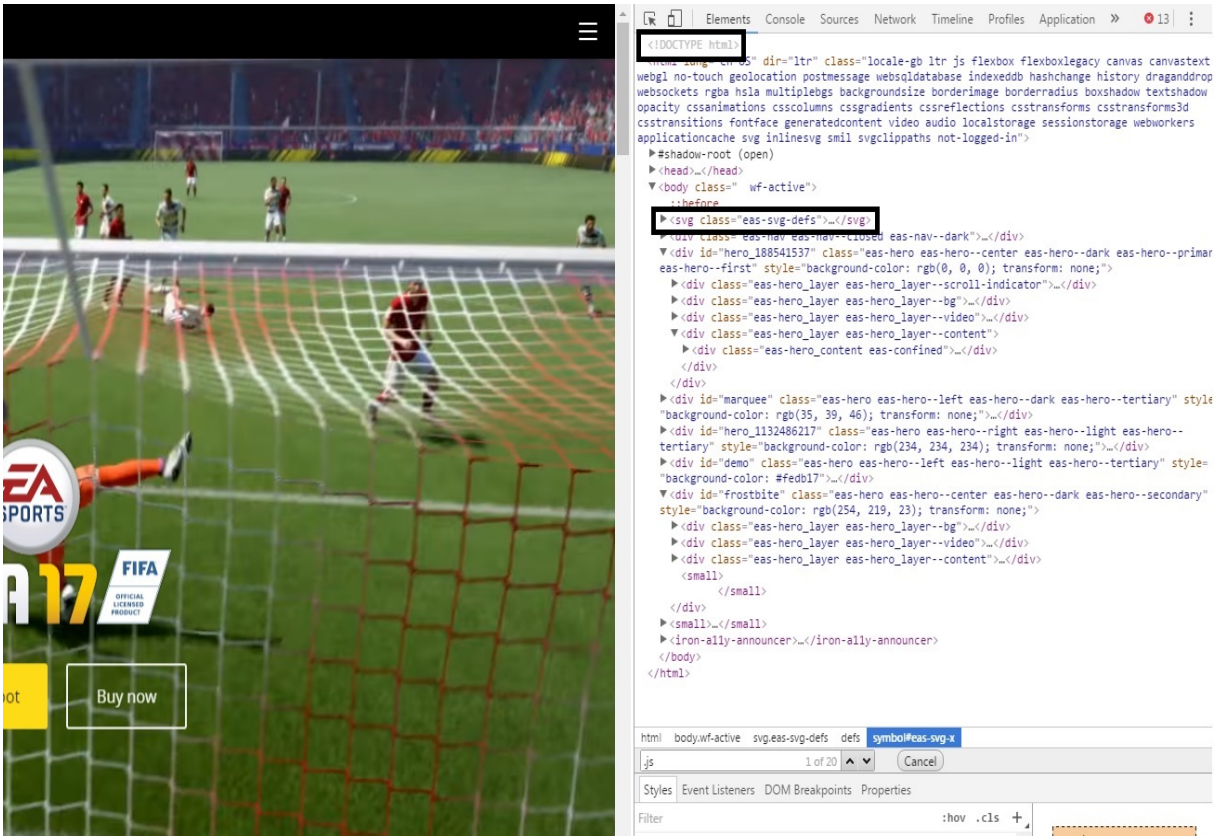

Figure 7: Initial Inspection of the EA Sports Fifa website homepage, highlighting the extensions mentioned above

In-depth inspection has various standout features such as the css stylesheet, that has become noticeable alongside the JavaScript file. The differentiation in comparison to the previous two websites is an link to a YouTube video, upon opening the link it has become clear that the looping background video is in fact a YouTube video. The link has been marked up using the ¡iframe¿ tag. After undertaking research, the findings show that this is a reference for an inline frame. The inline frame is an HTML document embedded inside another one, the tag is normally used to insert content from different sources which explains the YouTube video. Browsing the sources shows similarities to Microsoft as the Ajax technique has also been used for the JavaScript file which once again has been converted to a readable standard and is possibly used for the validation and verification of the website. Alongside this there are also two images that are being

accessed from the Akamai servers, perhaps for fast content delivery. There is also a JavaScript API reference to CSE servers identified, which relates to custom search components, probably used to support the websites search engine.

Similarly, to the other two websites discussed. The EA Sports Fifa website is also responsive and resizes as required. However one of the clear differences highlighted in the screenshots below are that when the window is a certain size the video stops and an image is show instead. Alongside this the navigation disappears and is show as a side menu.

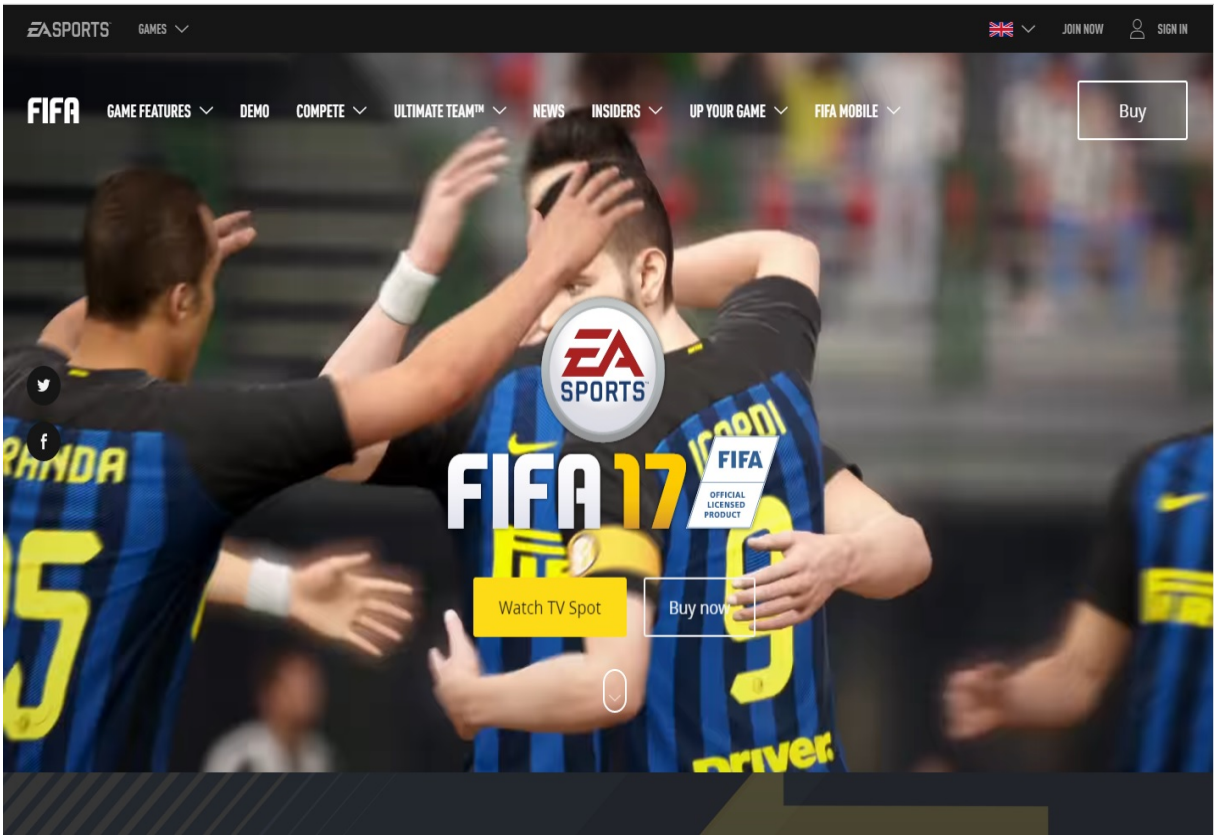

Figure 8: Before resizing the video is still looping and notice the menu items at the top

Figure 9: After resizing the background has turned into an image and the menu will be displayed on the left after clicking the button on the top right

How successful is the website for its primary purpose?

The purpose of this website is to advertise the new product released by EA, in this case the game Fifa 17. The page on the whole is quite simple, however it is superior than the BBC sport website because it looks more attractive and engaging although this could just be a matter of opinions. There are various links in the navigation bar and JavaScript has been utilised similarly to the Microsoft website to show a drop down list upon highlighting of a menu item. The main difference and successful element of

this website is the country flag, located at the top right of the website which allows users to present the website in their preferred language. This is an excellent addition as it would attract attention from users all over the world. This website is arguably the best of the three in regards to visuals and attraction, it is simple yet elegant when it comes to advertising.

Issues Identified

Although the successful look and functionality, the console has generated authentication errors which are linked to a JavaScript file. Alongside this and ADBlocker stops some resources from being loaded which should be addressed by EA. In regards to visual issues, there are two links to social websites such as Twitter and Facebook, which remain static as you scroll throughout the page, this could be annoying for some users.

Figure 10: Shows the console errors and the static icons discussed

Comparison Table

Technologies	Microsoft	BBC Sport Football	EA Sports FIFA
HTML5	✔	✔	✔
JavaScript	✔	✔	✔
CSS	✔	✔	✔
Responsive Layout	✔	✔	✔
Console Issues	✘	✔	✔
Understanding Code	Difficult	Average	Above Average
Mobile Friendly	✔	✔	✔

Figure 11: Shows a comparison of technologies used in websites and also a difficulty rating of code structure

Conclusion

After analysing and comparing the three websites it is fair to say that HTML5, CSS and JavaScript are the essential components of a successful website in the modern era. Alongside this it is also vital that a website is mobile friendly. This could be supported by an article that stated Google urged developers to make their websites mobile friendly as handheld devices are increasing daily in popularity so it is important for a website to allow access from any location or device(Hickman, 2011). Microsoft was the best constructed page which although had difficult code to understand, it worked as required and was genuinely quite easy to use. BBC Sport and EA Sports, both had recognisable console issues which need to be addressed by the developers. The EA Sports website is more animated and engaging than the BBC. In support of the BBC they probably have more website visitors as the website is updated daily for the latest news updates. Overall in relation to the key elements of a website discussed in the introduction, it is fair to say that all three have a good appearance, the content matches their target audience and after full navigation of the websites they are deemed functional and successful.

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