Leeds Beckett University
Faculty of Arts, Environment & Technology

BSc (Hons) Computing
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Advanced Internet Development B:
Reflection and Evaluations

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Contents

Article I.   Reflection

This section of the report is reflecting on the guest lecture presented by Jonathan Healey for Net Construct. The lecture clarified the importance of making an impact with a website which involved technical and marketing aspects merging together. The three main points to ensuring a website becomes successful is acquisition which uses SEO to get users onto the websites, conversion which uses CRO to keep the users on the websites long enough to get some value out of them and retention which involves CXM to make sure users return.

This was relevant to the development of part A of the module – the portfolio, because it helped to get users to the website with the use of SEO techniques such as focusing on the technical build and the site content, as well as the use of an online SEO site checker. The lecture also gave an insight into what prospective employers are looking for in a candidate.

Although there was not enough time to investigate further into CRO and CXM it did provide some useful real-life examples i.e. key demographics and IP address lookups, which would be useful in terms of the final project.

Article II.   Web Application Development Evaluation

Section 2.01 EC Test Driven Development

Testing a website is important to ensure it complies with the web standards; if everything is working correctly, it not only helps users want to return, but it also helps in terms of SEO, CRO and CXM.

Test driven development is where a developer produces the requirements and designs before any code is written. It is important to conduct ongoing testing throughout development to ensure the outcome produces clean code. A test will be created, and it will then be run, if it results in a fail, amendments will be made and the test will be run again, this process will be repeated until the test is passed.

When performing tests on a website, a number of topics could be looked at, for example, one could test the functionality of the website, the usability, the accessibility, the performance, the security, the validation, the responsiveness, the persuasiveness, the navigability, or the compatibility, although these are the main areas that are looked at when testing, there is still a number of other areas that could be tested.

There are a number of advantages to testing via a TDD for example there is a short feedback loop so you can always see where you have gone wrong, so it becomes clear what the problem is and this then makes the problem easier to rectify which will result in less time spent on the de-bugger, and less time spent on re-design and re-development, making this testing method very cost efficient.

There are only a few problems with this testing method for instance TDD can be very time consuming so therefore reduces productivity, and if the design and requirements are evolving throughout the development of the project the initial tests will become invalid.

Something to consider with using the test driven development method is the fact that there are no statistics to prove that this method is more successful than other methods, however this is probably due to the fact that companies would not develop the product using a test driven development and then develop the product again without one, so finding useful statistics is difficult.

For the final year project some initial requirements were created along with initial designs and testing documents. It was clear that the requirements catalogue and initial designs would be likely to change after the interview with the chosen target audience and research into accessibility, usability and developing for seniors had been conducted.

In order to prevent the initial tests becoming useless and invalid, a start on the implementation was made without testing, and once the experiment and research was fully executed, the use of a testing cycle was introduced.

When developing the final product, tests were not pre-written like they usually are within a test driven development cycle but short functions and pieces of code were written a few lines at a time, followed by piloting a test and making the necessary amendments, so the method of a test driven development was still partially followed.

The amendments were sometimes put in place to change the output, and more than often, to correct a small error that had been made in the syntax, without this ongoing testing process one small syntax error could take hours to locate and fix, and could also result in breaking previous fully-functioning code.

By testing regularly this saved a great deal of time towards the end of the project because when It came to the final testing of everything on a validator and responsinator, everything validated perfectly and the site was fully responsive, proof of validation can be found in appendix 4.06.

The final testing also included testing against a test plan that was produced early on during the planning and preparation of the product, the test plan can be found in appendix 4.07, this was used to test against the security, the usability, the accessibility, the responsiveness and the compatibility of the website.

A struggle that did arise was the fact that when implementing a function that had been pre-written by somebody else, it was difficult to locate and fix any problems that occurred because it involved a lengthy piece of code that had not been tested every few lines.

A solution to this problem was to remove this piece of code completely, test that everything was working again and gradually add a few lines at a time, ensuring to continuously test the function until the output was successful.

Although this process did probably result in a loss of time during implementation, and was probably one of the reasons certain technical aspects of the product could not be completed, with stronger planning and project management skills to ensure more time is allocated to implementation and testing, this method would prove to be very useful, and has proven to be very useful in a number of companies that currently do use this method.

Article III.   User Experience Evaluation

Section 3.01 Web Usability and Accessibility

Web usability and accessibility guidelines are used when developing websites to ensure they provide equal opportunities by catering for a wider audience. Web accessibility concentrates on allowing people access to websites for example people with disabilities may require certain functions to be put in place in order to be able to use the website, and web usability focuses on how useable and easy the website is to use, once it has been accessed.

The main advantage of concentrating on web usability and accessibility is it allows a diverse range of people to be able to interact on the web, even if people suffer from visual, physical, auditory, neurological, cognitive, or speech problems. If websites are built with simplicity and are easy to use, there is a greater chance users will return, which will then generate more income for the business.

There are also many other advantages to web usability and accessibility, one being that because of the strict standards required in developing a product which is usable and accessible, it produces high rankings on search engines, internally and externally.

The methodology usually used to evaluate web usability and accessibility involves testing with a range of users, there are a number of testing methods which can be used, popular methods include cognitive walk-throughs, observations and interviews.

Testing directly with users is useful because immediate feedback from the target audience can be given, which would allow room for changes if needed before the product is launched, and this would hopefully decrease the risk of failure.

In order for the evaluations to remain fair, control variables will be put in place which will stay constant throughout the whole process, for example a control variable would be 'participants will all be given the same brief and task sheet.'

Before the experiment a number of documents will need to be drawn up, for example a test plan, a task list, a user profile sheet, a user consent form and a short brief of how the experiment will be monitored. The data collected will then be separated into qualitative and quantitative date before been analysed.

For the final year project a property website and content management system was developed for seniors, by aiming the project at a particular user group such as the elderly, it was essential the product was accessible and useable.

To ensure that this was the case, special functions were integrated into the product and a set of guidelines derived from the National Institute of Aging

and the research conducted into developing for seniors was used to help produce a strong requirements catalogue.

In order to get an insight into what the user group wanted and needed from a website, a short interview was conducted with five participants between the ages of 50-60 looking at the SAGA website and the silver surfer's website, as these websites were also built specifically for the target audience.

The participants were also asked to fill out a user consent form which can be found in appendix 4.01 and a short user profile form which can be found in 4.02, this was used to find out how often – if ever, the participants used the internet, what they used the internet for and what operating systems and browsers they used.

After analysing the data that had been gathered, it was then used to produce a report, and determine new requirements for the requirements catalogue, which can be found in appendix 4.03.

The new requirements consisted of a text enlargement function, a speech function, a contrast changing function and a language changing function, amongst many others.

After the implementation of the project was complete, a plan was drawn up to conduct another short interview on the final product, using the same five participants, and similar questions that was used on the SAGA and silversurfers websites, the questions that were used on the first interview can be found in appendix 4.04, and the questions that were chosen for the product interview can be found in appendix 4.05.

This allowed for an insight into the users perspectives, to see if any of the accessibility features and functions were used, and to find out what the users liked and disliked about the product.

A disadvantage of conducting an interview with users is the fact that, they may forget parts of the website and may have to revisit the site in order to answer some of the questions.

It is also important to conduct a semi-structured interview as a pose to a structured interview, due to the fact a basic script with a mixture of open and closed questions would prove to be more beneficial, as it allows room to probe the interviewee for a more in-depth answer if required.

An important factor to consider when testing web usability and accessibility with participants is that fact that, the environment they are testing the product in is not a real-life scenario, however although it does not mimic real-life usage, it is considered one of the best testing methods in order to support users needs and expectations.

Article IV.   Appendices

Section 4.01

Conduct a short semi-structured interview to evaluate the usability and user experience of two websites aimed at seniors (http://www.silversurfers.com**) and (**http://www.saga.co.uk**)**

Principal Investigator: Joanne Kennedy

THE PURPOSE OF THE STUDY

This usability study aims to evaluate the targeted websites. Thank you for volunteering to participate in the exercise, by doing so you are helping the University to better meet the needs of the students and its employees. This exercise is an important element in a programme of research into the usability of the web.

Firstly I would like you to complete:

1. **An Informed Consent form**
2. **A User Profile Questionnaire**
3. **A Semi-Structured Interview**

Any Questions?

I believe that there is effectively no risk involved in the participation in the proposed research. All participation in the research is entirely voluntary, and can be stopped at any time. At the end of each session participants will have the opportunity to comment on the way the research was conducted. Data will be held for research analysis by Leeds Metropolitan University. All personal data will be treated confidentially, and no one will be identified in published material.

INFORMED CONSENT FORM

I agree that by signing the attendance schedule I am agreeing to take part in the above Leeds Metropolitan University evaluation project. I have read the **Explanatory Statement**. To take part means that I am willing to:

- **Complete a user profile document**
- **Take part in a semi-structured interview**

Data Protection

I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party. No identifiable personal data will be published.

Withdrawal from being a participant in the study

I understand that my involvement as a participant is voluntary, that I can choose to withdraw my consent to be a participant in the evaluation part of the assignment without being penalised or disadvantaged in any way.

Date	Time	Full name	Signature

Section 4.02

Gender:
- ☐ Male
- ☐ Female
- ☐ Prefer not to say

Age:

Occupation:

Do you use the Internet?

(If yes to the above answer)
Which browser do you use on a regular basis?
- ☐ Internet Explorer
- ☐ Google Chrome
- ☐ Mozilla Firefox
- ☐ Apple Safari
- ☐ Other

Which OS do you use on a regular basis?
- ☐ Windows
- ☐ MAC
- ☐ Linux
- ☐ Other

On average, how many hours are spent browsing the Internet per week?

What are the main purpose/activities you use the web for?

Section 4.03

Task No.	Description	MoSCoW	Started	Done
1.0	Interface, Usability & Accessibility			
1.1	Consitent look and feel	M		
1.2	Viewable on a 1024 wide screen	M		
1.3	Responsive design	M		
1.4	Cross browser compatibility	M		
1.5	Meets WAI Guidelines	M		
1.6	Supports IE7 and above	M		
1.7	Supports Lower Browser Viewing	C		
1.8	Avoid colours that clash	M		
1.9	Avoid layering shades of same colour	M		
2	Break Information Into Short Sections	M		
2.1	Clearly Number Each Step	M		
2.2	Allow Sufficient White Space	M		
2.3	Allow Space Around Clickable Targets	M		
2.4	Use Symbols and Icons	S		
2.5	Avoid Unnecessary Pop-ups and Visuals	M		
2.6	Make Use of Previous and Next Buttons	S		
2.7	Ensure Dropdowns Open and Close On a Click	M		
2.8	Use Action Words In Links	M		
2.9	Minimize Vertical Scrolling	S		
3	Keyword Search Function	S		
3.1	Offer Telephone Number and Email Rather Than a Form	M		
3.2	Ensure Pictures Reflect Audience	M		
3.3	Use Meaningful Alt Tags On Pictures	M		
3.4	Make It Easy For Users To Change Contrast	C		
3.5	Make It Easy For Users To Change Text Size	M		
3.6	Provide A Speach Function To Hear Text Read Aloud	C		
3.7	Use High-Contrast Colour Combinations e.g Black Text Against White Backgrd	M		
3.8	Language Translater	M		
3.9	Advanced Property Search Function	M		
4	Newsletter Sign-up	C		
4.1	SEO Techniques	S		
4.2	Availabiliy Calendar on Property Page	S		
5.0	Security			
5.1	Server side validation	M		
5.2	Client side validation	M		
5.3	Encryption	S		
6.0	Owner Account			
6.1	Profile	M		
6.2	Update Details	M		
6.3	Manage Properties	M		
6.4	Change Password	M		
6.5	Picture uploader	M		
6.6	Manage Availability Calendar	C		
7.0	Admin Account			
7.1	Manage All Properties	M		
7.2	Manage All Users	M		
7.3	Manage All Booking	S		

Section 4.04

1. How easy did you find the silversurfers website to use?
2. How easy was the content to read on the silversurfers website?
3. Did you see a way to enlarge the text on the silversurfers website?
4. Did the find the navigation easy to use on the silversurfers website?
5. How did the silversurfers website initially make you feel?
6. How did you find the colours used on the silversurfers website?
7. What did you like about the silversurfers website?
8. What did you dislike about the silversurfers website?
9. Remember one thing about the silversurfers website?
10. Think of one thing that you would of liked the silversurfers website to have had?

11. How easy did you find the saga website to use?
12. How easy was the content to read on the saga website?
13. Did you see a way to enlarge the text on the saga website?
14. Did the find the navigation easy to use on the saga website?
15. How did the saga website initially make you feel?
16. How did you find the colours used on the saga website?
17. What did you like about the saga website?
18. What did you dislike about the saga website?
19. Remember one thing about the saga website?
20. Think of one thing that you would of liked the saga website to have had?

21. Which website did you like best and why?

22. How easy did you find the 'Property Costa Blanca' website to use?
23. How easy was the content to read on the 'Property Costa Blanca' website?
24. Did you see a way to enlarge the text on the 'Property Costa Blanca' website, and did you use it?
25. Did the find the navigation easy to use on the 'Property Costa Blanca' website?
26. Did you see a way to hear the text read aloud on the 'Property Costa Blanca' website, and did you use it?
27. Did you see a way to go back to the homepage from other pages of the 'Property Costa Blanca' website, and did you use it?
28. How did the 'Property Costa Blanca' website initially make you feel?
29. How did you find the colours used on the 'Property Costa Blanca' website?
30. Did you see a way to change the contrast of the 'Property Costa Blanca' website, and did you use it?
31. What did you like about the 'Property Costa Blanca' website?
32. What did you dislike about the 'Property Costa Blanca' website?
33. Remember one thing about the 'Property Costa Blanca' website?
34. How did you find the use of forms on the 'Property Costa Blanca' website?
35. Think of one thing that you would have liked the 'Property Costa Blanca' website to have had?

Section 4.06

Index

Markup Validation Service
Check the markup (HTML, XHTML, ...) of Web documents

Jump To:	Notes and Potential Issues Congratulations · Icons

This document was successfully checked as HTML5!

Result:	Passed, **1 warning(s)**
Address :	http://holajoanne.com/PropertyAppNew/
Encoding :	utf-8	(detect automatically)
Doctype :	HTML5	(detect automatically)
Root Element:	html

About Us

Markup Validation Service
Check the markup (HTML, XHTML, ...) of Web documents

Jump To:	Notes and Potential Issues Congratulations · Icons

This document was successfully checked as HTML5!

Result:	Passed, **1 warning(s)**
Address :	http://holajoanne.com/PropertyAppNew/aboutus.php
Encoding :	utf-8	(detect automatically)
Doctype :	HTML5	(detect automatically)
Root Element:	html

The Costa Blanca

Markup Validation Service
Check the markup (HTML, XHTML, ...) of Web documents

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This document was successfully checked as HTML5!

Result:	Passed, **1 warning(s)**
Address :	http://holajoanne.com/PropertyAppNew/costablanca.php
Encoding :	utf-8	(detect automatically)
Doctype :	HTML5	(detect automatically)
Root Element:	html

Blog Archive

Markup Validation Service
Check the markup (HTML, XHTML, ...) of Web documents

Jump To: Notes and Potential Issues   Congratulations · Icons

This document was successfully checked as HTML5!

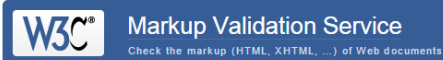|	
Result:	Passed, **1 warning(s)**
Address :	http://holajoanne.com/PropertyAppNew/blogarchive.php
Encoding :	utf-8 (detect automatically)
Doctype :	HTML5 (detect automatically)
Root Element:	html

Contact Us

Markup Validation Service
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Result:	Passed, **1 warning(s)**
Address :	http://holajoanne.com/PropertyAppNew/contact.php
Encoding :	utf-8 (detect automatically)
Doctype :	HTML5 (detect automatically)
Root Element:	html

Terms and Conditions

Markup Validation Service
Check the markup (HTML, XHTML, ...) of Web documents

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Result:	Passed, **1 warning(s)**
Address :	http://holajoanne.com/PropertyAppNew/termsandcon.php
Encoding :	utf-8 (detect automatically)
Doctype :	HTML5 (detect automatically)
Root Element:	html

15

Login

W3C®
Markup Validation Service
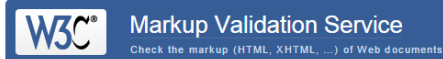Check the markup (HTML, XHTML, ...) of Web documents

Jump To: Notes and Potential Issues   Congratulations · Icons

This document was successfully checked as HTML5!

Result:	Passed, **1 warning(s)**
Address :	http://holajoanne.com/PropertyAppNew/login.php
Encoding :	utf-8	(detect automatically) ▼
Doctype :	HTML5	(detect automatically) ▼
Root Element:	html

Register

W3C®
Markup Validation Service
Check the markup (HTML, XHTML, ...) of Web documents

Jump To: Notes and Potential Issues   Congratulations · Icons

This document was successfully checked as HTML5!

Result:	Passed, **1 warning(s)**
Address :	http://holajoanne.com/PropertyAppNew/register.php
Encoding :	utf-8	(detect automatically) ▼
Doctype :	HTML5	(detect automatically) ▼
Root Element:	html

Mail

W3C®
Markup Validation Service
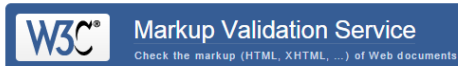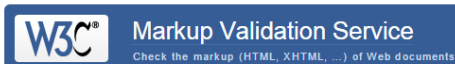Check the markup (HTML, XHTML, ...) of Web documents

Jump To: Notes and Potential Issues   Congratulations · Icons

This document was successfully checked as HTML5!

Result:	Passed, **1 warning(s)**
Address :	http://holajoanne.com/PropertyAppNew/mail.php
Encoding :	utf-8	(detect automatically) ▼
Doctype :	HTML5	(detect automatically) ▼
Root Element:	html

Main Search

Markup Validation Service
Check the markup (HTML, XHTML, ...) of Web documents

Jump To: Notes and Potential Issues   Congratulations · Icons

This document was successfully checked as HTML5!

Result:	Passed, **1 warning(s)**
Address:	http://holajoanne.com/PropertyAppNew/property.php?location=Albir&type=Villa&status=For+Sale&bathrooms=1&bedroomsmin=Studio&be
Encoding:	utf-8 (detect automatically)
Doctype:	HTML5 (detect automatically)
Root Element:	html

Quick Search

Markup Validation Service
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Result:	Passed, **1 warning(s)**
Address:	http://holajoanne.com/PropertyAppNew/_keysearch.php
Encoding:	utf-8 (detect automatically)
Doctype:	HTML5 (detect automatically)
Root Element:	html

Individual Property

Markup Validation Service
Check the markup (HTML, XHTML, ...) of Web documents

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This document was successfully checked as HTML5!

Result:	Passed, **1 warning(s)**
Address:	http://holajoanne.com/PropertyAppNew/individualprop.php?id=18
Encoding:	utf-8 (detect automatically)
Doctype:	HTML5 (detect automatically)
Root Element:	html

- *Cannot put owner and admin pages in W3C validator due to the redirect to index if not logged in for validation and protection purposes.*

Section 4.07

Task No.	Description	Passed
1	Check mandatory fields are validated and indicated by asterisk (*) symbol	
2	Check error messages are displayed properly	
3	Check error messages are displayed in same CSS style	
4	Check confirmation messages are displayed using CSS style different from error messages	
5	Field labels should be standard e.g. field accepting user's first name should be labelled properly as 'First Name'	
6	Validate mark-up for all web pages (validate HTML and CSS for syntax errors) to make sure it is compliant with the standards	
7	Check text on all pages for spelling and grammatical errors	
8	Check functionality of buttons available on all pages	
9	User should not be able to submit page twice by pressing submit button in quick succession	
10	All fields on page (e.g. text box, radio options, dropdown lists) should be aligned properly	
11	Enough space should be provided between field labels, columns, rows, error messages etc	
12	Scroll bar should be enabled only when necessary	
13	Upon click of any input text field, mouse arrow pointer should get changed to cursor	
14	User should not be able to type in drop down select lists	
15	Check all pages for broken images	
16	Check all pages for broken links	
20	Check if window is re-sizable and responsive	
24	Test individual pages for errors	
25	Test on a responsinator	
26	Test on multiple browsers and platforms	
27	Test out any forms	
28	Test against requirements catalogue	