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5/8/2015

Module & Programme Specification System

Final Year Project Report

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1. Introduction

The purpose of this project is having all the module and programme specification documentation into one place where users will be able to access them easily. At the moment, the university has all of these documentation created onto files, which are then stored onto the system WISDOM.

The process of checking these specification are used in each school which are done through documents. This takes more time as each time a document is checked for approval, more copies will be made with changes to be tracked until a finalise version is approved to be stored into the system. This means that documents would need to be sent to the users through this process checking (e.g. Module Leaders) and then wait till the users have sent the documents around to the other users until that documents end back to SAVP. This is more of a hassle as it can take more time for the process and more documents are produced since changes will be made.

By having these module and programme specification documents in a database, a web system can be easily designed to allow these users to access the information easily. This system can also then allow other requirements needed such as comparing documents or searching for keywords which will save more time than looking through those words in each document. By having this system, it will deal with the problems of making the process of validating these module and programme specification more easily and quicker.

2. Literature Research

2.1. Introduction

The following product will be used within the University of Huddersfield as a structure for dealing with module and programme specification documentations. The University of Huddersfield has many programmes for students which they can apply for and within those programme, they are structured in a way which have modules. Each programme will have a selection of module and both those programmes and modules will have information for students who are applying to study a certain subject area at the university.

The project that is being built will be hosted within the University because of the nature of the business. The project will have business information to do with the university such as module and programme information which can affect the business. The reason for this is because module and programme specification are used within the University of Huddersfield to help as a guidance for students who have selected a certain course.

To make sure, the information will need to be secure and only be accessed to those who are dealing with the information. A secure system will need to be built those that no one from the outside or any unauthorized person from the inside will access the system.

2.2. ASIS

ASIS which stands for “Applicant and Student Information System” is a system that has been created and used by the University of Huddersfield. The system is created by a software that was supplied by Tribal. The main purpose of the system is it is a record system for the whole of the university to hold information about academics and personal data for applicants and students.

The information that is used in ASIS is transferred to databases used throughout the campus such as Student Finance, Office, Blackboard and Student Portal. As (University of Huddersfield. (11 June 2014). *About Asis.*) says, the system is used across all three of the university campus location in order to manage information on applicants, students and alumni.

ASIS is mainly used within the web portal area known as “My Students” and “MY Details” which are University web application for students and staff members. As it says on (University of Huddersfield. (11 June 2014). *About Asis.*), ASIS can also be access throughout the university for staff members with a system known as the client server access, this is for purposes of training sessions for staff members.

One of the key points of ASIS is that this system is used for modules and programme. For example in the My Student/Details pages, module information can be accessed for both student and staff members. The information explains what courses the student is on and each module that is linked to the course.

The modules are linked through a diet so in a way it shows a selection of modules that is assigned to a certain course. Students are also able to have a selection of optional modules which they may want to take.

2.3. Wisdom

Within (University of Huddersfield. (26 March 2014). *Information Systems*.) University of Huddersfield says that Wisdom is a system that has a purpose of document and record management system compared to ASIS which is more of a data system.

With Wisdom, the university uses this system to store electronic documents. The system can be accessed throughout the university by staff members who are able to get electronic version of certain documentation. Wisdom is also integrated with other university products such as Unilearn, ASIS, Outlook and Portal.

One of the main part of the Wisdom system is that it stores all of the module and programme specification in electronic version of documents. As the university has all of the module/programme specification in word format, these are stored within Wisdom.

These documents then can be linked to other projects such as for example, module specifications can be obtained through Unilearn in documentation version. These documents are used as a guidance for students who use Unilearn for their modules.

2.4. Similar Products

2.4.1. University My Details site

The following site below is accessed by students who want to access their details that the University of Huddersfield have stored through the ASIS system. The site was created by using the Tribal tools which was given by Tribal. As it says (Tribal. (N.A), Tribal is an organisation that gives access to learning and helping to deliver the highest quality education and training.

The key point to this product is to allow students to view their details while studying at the university. The site main key points are:

- To allow students to view information about module taking
- To allow students to select optional modules they want to take
- To allow students to view and update their personal information e.g. address, name, d.o.b
- To allow students to access additional services
- To allow students to access student finance
- To allow student to access module evaluation

Year	Module Code	Module Title	Credits
11/12	CFM2175	Computing Science And Mathematics	20
11/12	CFP2125	Project 1	20
11/12	CFS2143	Hardware And Networks	20
11/12	CFS2160	Software Design And Development	40
11/12	CFT2112	Studio 1	20
12/13	CI12350	Team Project	20
12/13	CIS2343	Object-Oriented Systems Development	20
12/13	CIS2344	Algorithms Processes And Data	20
12/13	CIS2360	Relational Databases And Web Integration	20
12/13	CIT2318	Web Design And Programming	40
12/13	CSP0000	Placement Lectures	0
13/14	CSP2010	Personal Social And Technical Skills	60
13/14	CSP2020	Self Assessment Skills	60
14/15	CHI2550	Modern Database Applications	20
14/15	CHP2524	Individual Project	40
14/15	CHS2517	Large Systems Environments	20
14/15	CHS2546	Distributed And Client Server Systems	20
14/15	CHT2520	Advanced Web Programming	20

Figure 1 My Student Page from University of Huddersfield. (December 4th 2014). My Student

Now if we compare this site to the product that is going to be built within this report. As you can see, the main key area of the focus is to do with the module and programme information. The “My Details” product has a focus on module information which gives the student a general overview of the module they are taking.

So you will get information such as the module code, title, credits. This shows only a limited information for the student.

2.4.2. University Online Module Guide

The following site below is an online module guide that is used within the University of Huddersfield for students to access module documentations.

The main purpose of the site was to allow a student or staff member who study/work at the University of Huddersfield to access this site and navigate through in order to find a module specification. They will then be able to get the selected module documentation and export the document into a word file.

The main key points of the site is that:

- The online module guide can be accessed by anyone at the university
- The site uses a site map navigation to help find a module document
- Users are able to select a selected school in the university
- Users are then able to select a subject area in that school
- Within that subject area, users are able to select a module
- Users are then presented with the module and a link to the word file
- Users download the module word document

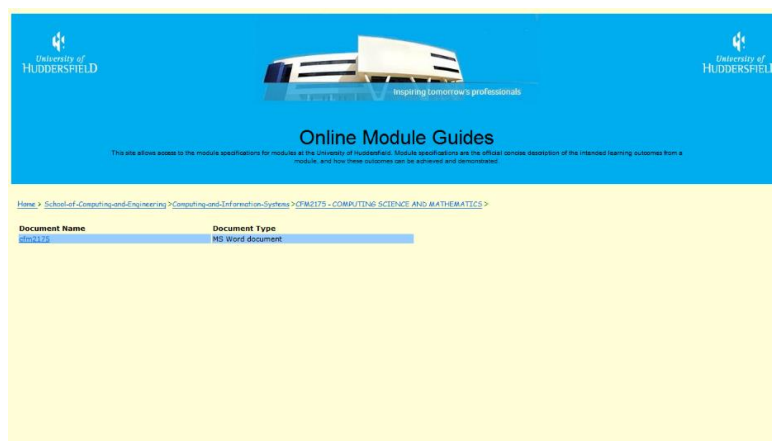


Figure 2 Module Guide Site from University of Huddersfield. (N.A).

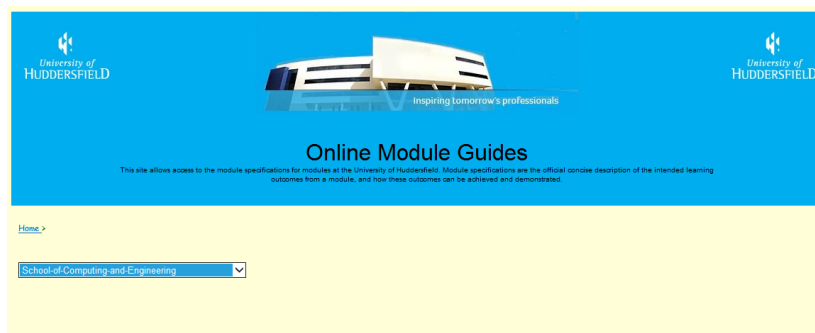


Figure 3 Module Guide Site showing navigation from University of Huddersfield. (N.A).

The visual of the website is structure in a simple way as you have the main log at the top with the main title and description. The navigation of the site is used with a dropdown menu allowing users to select which area/subject they want. A key feature is the site map as you notice there isn't a back button. So the users can use the sitemap to navigate back to a point if they made a mistake.

2.4.3. Module Specification Site Version One – Placement Site

The following project is the Module Specification site which mainly focuses on the area of module specification. The site was built last year on placement as a first attempt version for the University of Huddersfield to use.

The main focus was to deal with a way of schools to access module specification through a site that not only allowed them to get the documentation but to deal with key business area of dealing with module specification that have been done through paperwork.

The main purpose of the site was to get all module specification into a database system which allowed a staff member to view the module specification and access the document. The users also able to make changes to a certain module which then gets processed through a validation business process that the university uses.

The main key points to this site are:

- To have a login system with role membership of users (e.g. Module Tutor, Head of Department)
- To allow users to search for module specifications
- To give users more accessibility of searching for specification by filter options
- To allow users to view specification documents
- To allow users to get word and pdf version
- To allow users to make changes to the module specification
- To process the changes through the University validation business process of checking modules.

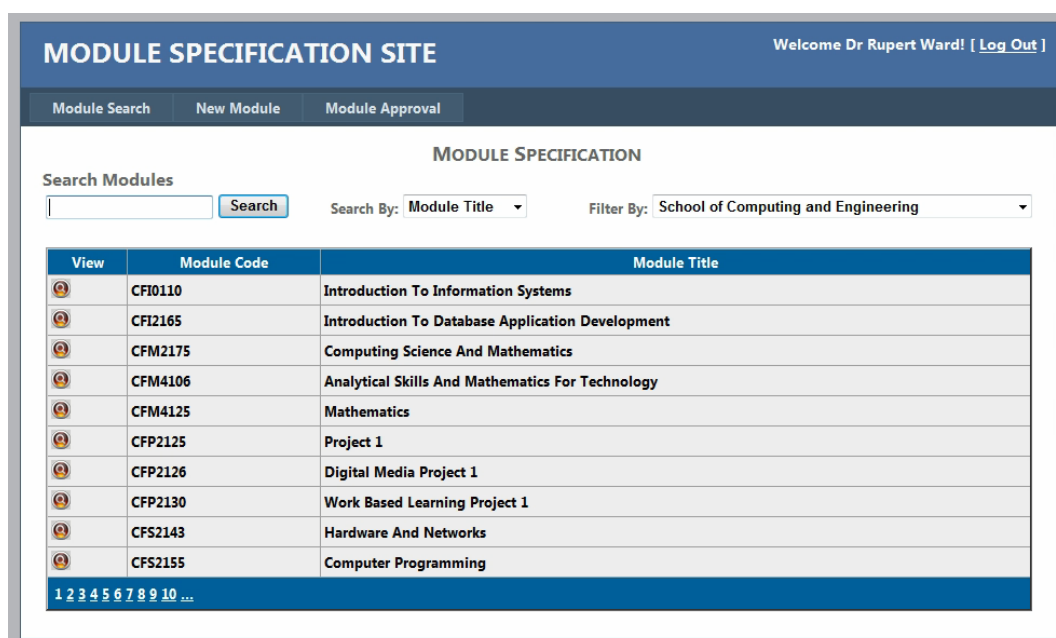


Figure 4 Version one of Module Specification Site

The main site shows a structure of a user being able to search for all of the module specification which are stored into a database system. The site allows user to filter the option by several ways such as school, module title and code.

2.5. Theory of Continuous Improvements

The main purpose of this project is to create a system that is more of an improvement toward other system that have been created by the university. This is where theory of continuous improvements comes into this.

As Tech Target. (September 2009) says that continuous improvements is a long term approach to achieve small incremental changes in processes in order to improve efficiency and quality. So this means that by taking a look at the system, we can know what small changes that could have been done there to improve efficiency and quality and make those changes into the new application.

By looking at the other system previously, you can see that most of these systems have a set of requirements that have been met. For example both ASIS and Wisdom system have information within about both Module and Programme specifications.

Now if we compare these system, we can see that they are not nearly as perfect as they are. There are certain key area that are missing within the system that can frustrate users or have users to use other methods which can take more time to do part of the work for both module and specification.

For example it can be frustrating for users who would want more information about module specification when in ASIS you would see only certain parts such as module code/title/credit. With the new system all of the specification information would be display onto the system so a user would be able to view any information in that specification.

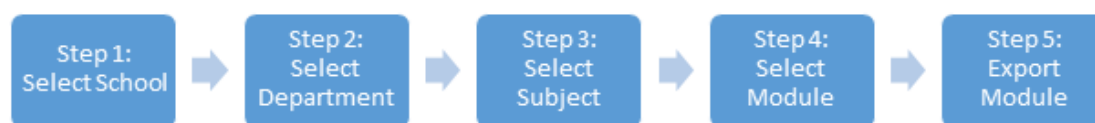


Figure 5 Simple Access to Module file from Module Guides

If you look at figure 5, you can see that this is a basic process for getting a module document from the module guides site. You can see that it is frustrating for users as they must go through a 5 step process in order to get the document.

As it says on (Iowa State University. (N.A).) “Continuous improvement is most effective when it becomes a natural part of the way everyday work is done.”. So if we improve on the way to get module documents in the most effective way when people need it, it would help them with their work every day.

Now using theory of continuous of improvements, we can improve that previous system with the getting a module document by making changes which are most effective according to (Iowa State University. (N.A).). So if we make the step shorter in figure 6, it is simply straight forward to get a document for the user.

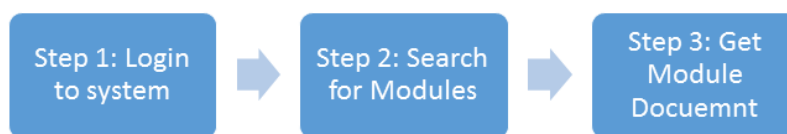


Figure 6 New Application Process of getting a module document

2.6. Business Process

Module and Programme specification are a key part in the business process for the University of Huddersfield. The main area of the business process focus for this topic is to do with Module and Programme specification.

Throughout all of the university, both of these area are used within many of the system in the university such as ASIS, Wisdom, Unilearn and Portal. The university uses these as part of their business process in order to make sure that the company function.

With business processes, it is more of a collection of linked tasks which ends in the delivery of a product for the client according to (Appian. (N.A).).

There are many users within the university where both module and programme specification affect them in several ways. The main client this project is focusing is on are the one in the Computing Library services and Computing and Engineering.

The main three area of focus on business process are:

Culture

The culture is an important part to the business process for the university. As (Schmiedel, T. & Brocke, J.V. (16 August 2012).) says “managing the culture of an organization to achieve objectives of efficient and effective business processes.” The focus is to do with the way how the university operate within the current climate. Having module and programme specification function in the university is a key part as these are used to help make the business run.

The university is an educational organisation so students will be their main customers who will be applying to study. To make sure that the students are happy with the organisation, they would need to be made sure that they are selecting the right courses and area.

Having information in both programme and module specification is the key for the business to achieve this. Information would need to be made sure that it is correct in these documentation and give the appropriate details to the students so they can be sure that they are picking the right subject area.

Relationship

The relationship is another part which plays with the business process. As (Lambert, D.M. (February 2009).) says that “In a business-to-business environment, customer relationship management is the business process that provides the structure for how relationships with customers are developed and maintained.

With module and programme specification, there is a big relationship not only between both of these but around the organisation. There will be many departments that would be using both of these information.

For example, there many seven schools within the university which uses both programme and module specification documentation. The users within these school are module/subject leaders, head of department. Then you have other departments such as registry for each school who validate the specifications.

The other departments then focus on area such as computing and library services because of the information being hosted there. There is a relationship link between these are systems which hold the information about these specification are hosted in one location but are linked throughout the all of the university in other departments.

Communication

Communication is also a key part for the business process as the communication between users who are using the system is used each day within the university. As (Business Case Study. (N.A).) says, effective communication is vital for all businesses so including the university.

The communication with this is huge for the business because there are many people who play part of this. For example with the module specification, each school would be validating their own modules. Within that school you would have users such as subject/module/head of department communicating with each other.

The communication would be linked by sending modules to each other to be checked for validation and these go through a process within the business which then get sent to other departments such as registry and SAVP.

2.7. Server Hosting

Server Hosting will be used to make sure that the product is hosted within the University of Huddersfield. This would mean that only staff members within the university will be able to access the system and won't be able to access outside.

What server is that according to (Rouse , M. (N/A).) that hosting is used in several contexts in which could have different meaning.

Server that the product will be hosted on will be on Aspen because of the hosted site being at the University of Huddersfield. But here is a comparison between Aspen and another server host.

2.7.1. ASPEN

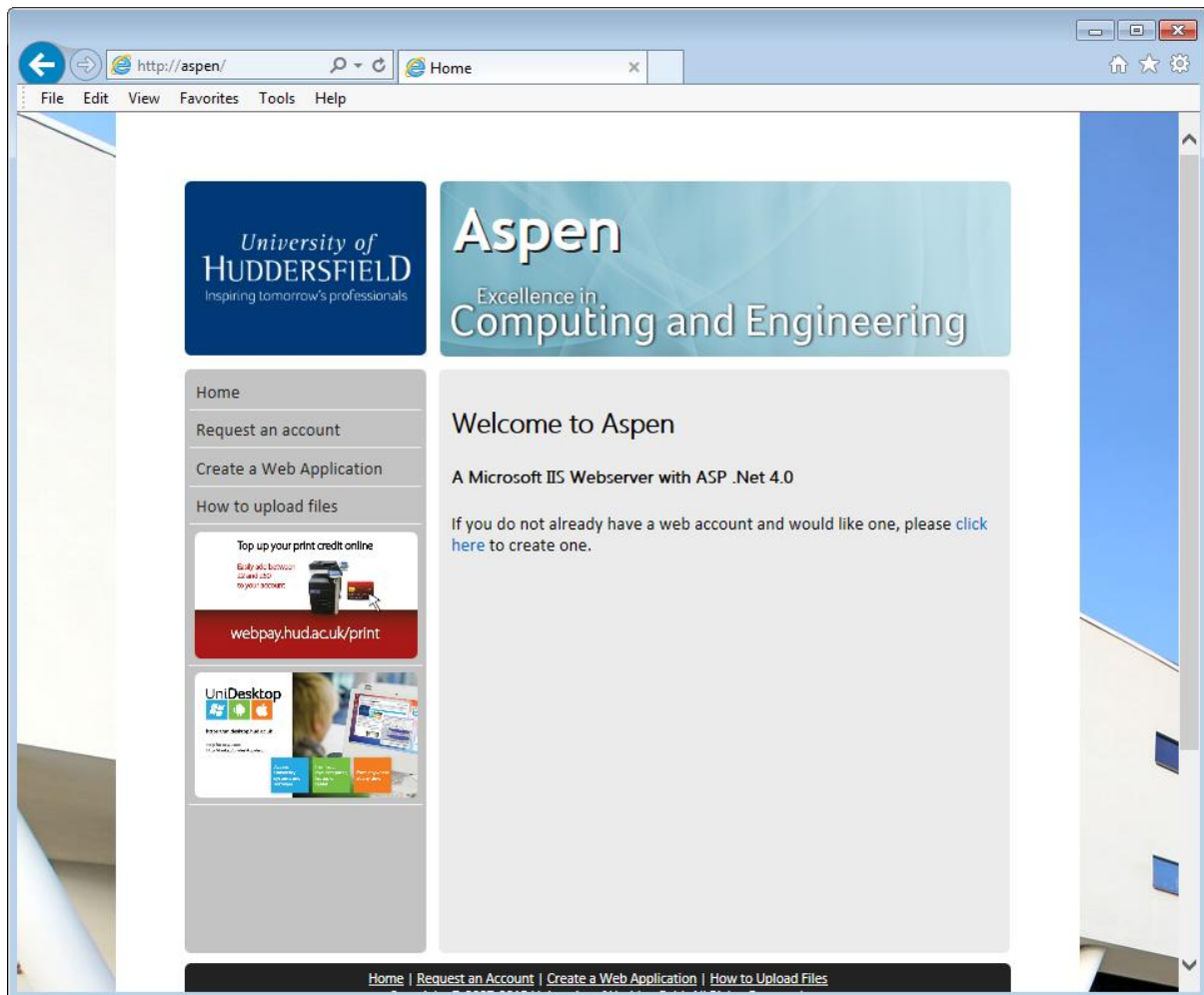


Figure 7 Aspen Host site from University of Huddersfield. (N.A). Aspen

This is a host site called Aspen which is used within the Computing and Engineering Department. The site is used to host university application that can only be accessed through the university. The host uses visual studio and SQL server as a way to host the net.

2.7.2. Azure

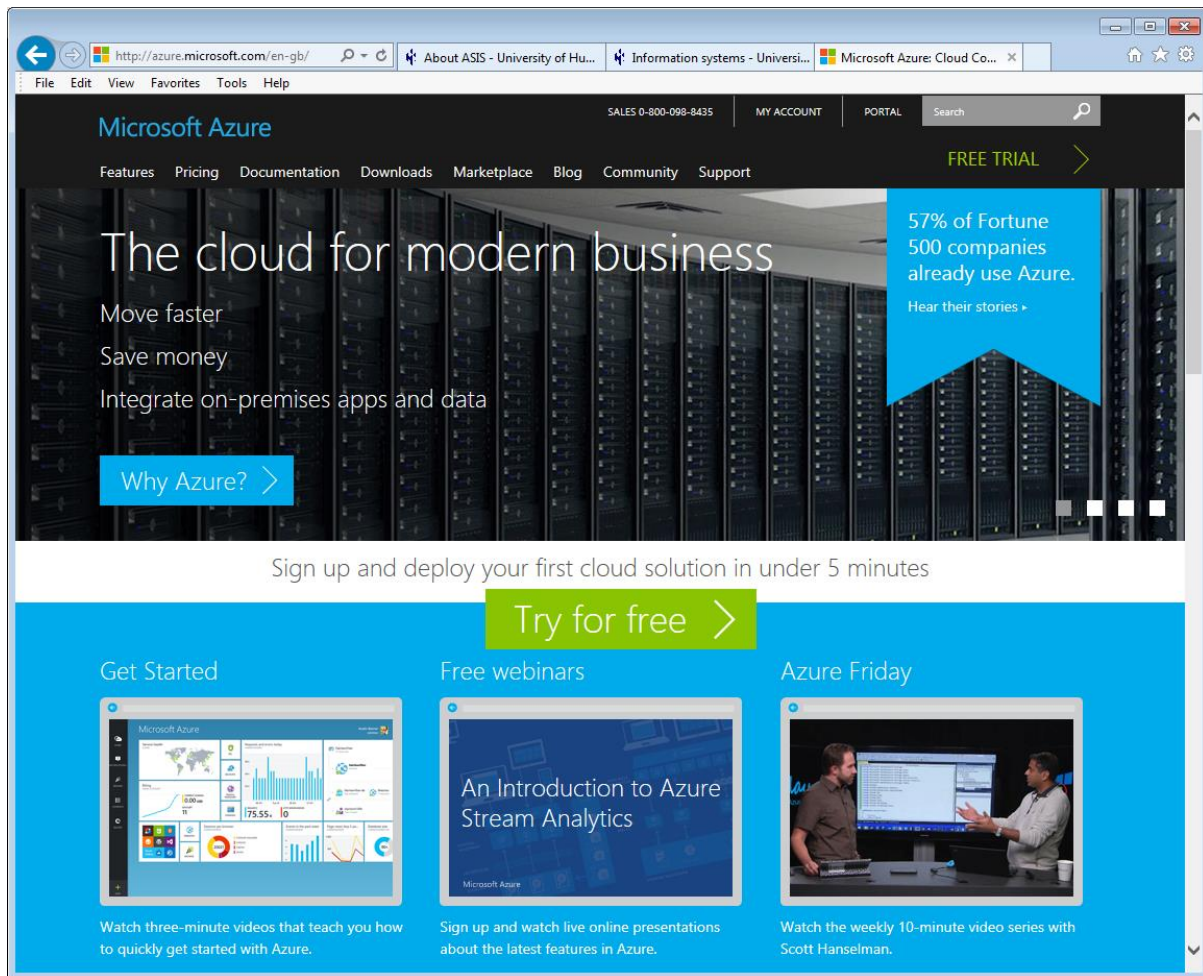


Figure 8 Azure Hosting site from Microsoft. (N.A). Azure

Azure is a hosting site that is created by Microsoft. The main purpose that Azure does is that it allows developers to host their site onto the Azure server when they have developed in Visual Studio.

The main disadvantages about using this compared to ASP.NET is that the cost. You will need to make a payment in order to use the Azure site with registration.

2.8. Methodology Research

2.8.1. About Project life cycle

Project life cycle is used for every project that goes through a series of part which are split up into stages. So this means a project is split into each stage which develops into a full project. This allows a project to be planned carefully and monitor the project to see how it is going and how it will develop at the end.

How the project life cycle works is that the whole project would be split into stages with tasks in each one which you can monitor and do. Each stages work by steps so in the life cycle you would have a step for planning, analysis, design, implement, testing and evaluation. So you would do this in a cycle by starting to do the planning stage and the move to the next stage so your project develops until the last stage.

As (Merrie Barron) said that the Project has beginnings, a middle period during which activities move the project toward completion, and an ending (either successful or unsuccessful).

What this means from the website above is that each project which will use a project life cycle will have a start on it which will then develop by using the cycle. It will develop and the person will monitor with activities throughout until the project reaches to the last stage which will be the end of the project and you will know either if the project was successful or it wasn't successful.

2.8.2. Different life cycle models

There are different types of project life cycle models which people use for their projects. The reason why there are different types of project life cycle models is because each models s suited for a project. So each project will be suited to match the project and the people who are monitoring the project which will be good for them.

There are different types of project cycle model but they all used for the same reason. Each cycle works in a different way which also as a diagram to show how they work.

For example the "Waterfall model" is one which works likes a waterfall which water fall down in each stages showing the development of the project.

The other example is the life cycle model which the spiral model which works from the middle as the start of the model and then develops in a spiral shape to the end of the line as the end of the project cycle.

2.8.3. The Waterfall model:

The first project life cycle model is the waterfall model which works like a waterfall. The way how this life cycle model works is that the project is split into each stages and step up in a waterfall stairs shape. The water goes down each stage showing the development of the project until it reaches to the last stage of the project.

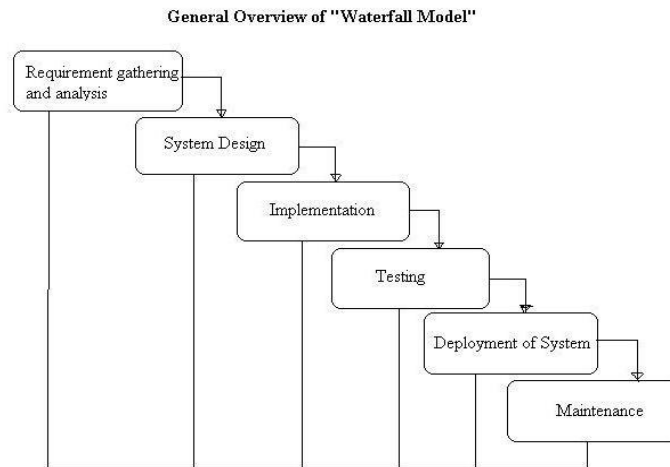


Figure 9 Waterfall Model from ISTQB Exam Certification. (N.A).

The waterfall model is commonly used within the software development cycle. As explain above, it works by water flowing on each step till it each the end of a step, it goes down to the next step. So an example would be it is like a model on a cliff where the water will reach to the end of the cliff and then go down to the next cliff and repeat this until it is on the last cliff.

There are different types of stages for the waterfall model depending on the project. Mainly the waterfall model would start with the stage of the requirements/analyst or planning. Then the stages would go down to the design stage, implementation stage, testing and the reviewing. The problem with this is that when you have done the requirements stage and gone down through the stages to testing stage, you can't go back to the other stage such as the design and the requirements/analyst.

The phases of a waterfall model are simple as each step goes down according to (TechTarget). First you would have the analysis, information and requirement stage. This is where you would have the requirements and analysing the information. Then you would have the project design stage where this phase will be used to design the project such as designing the website with storyboard, navigation diagram, input and output or designing the database such as DFD, normalisation and data dictionary. The next phase will be

There are advantage and disadvantages about using the waterfall system. These can either help the project out but will have some problems using the model. The advantage about using this model is that it is easy to use. As it is in a waterfall shape, this will be easy to use for projects since each step are clearly step up in order and you will know what each stages will be.

According to (TechTarget), A schedule can be set with deadlines for each stage of development and a product can proceed through the development process like a car in a carwash, and theoretically, be delivered on time.

2.8.4. The Spiral model:

The spiral model is another life style model which works different as it is in a spiral shape. The spiral model which is also known as the spiral lifecycle model is an IT model which you would use within the software development methods. This model is different because it has the features of the waterfall model and the prototyping model. Because the spiral model is different, it is used for larger and more complex projects which will have more things in.

The spiral model was created by a person called Barry Boehm which was in 1988. This was in his article a spiral model of software development and enhancement.

How the spiral model works is that it is set up into 4 stages of the model which would be the Planning, risk analyst, design and evaluation. So the model works by eliminating the problems in each stage which works like the waterfall model because it eliminates a problem before moving onto the next stage.

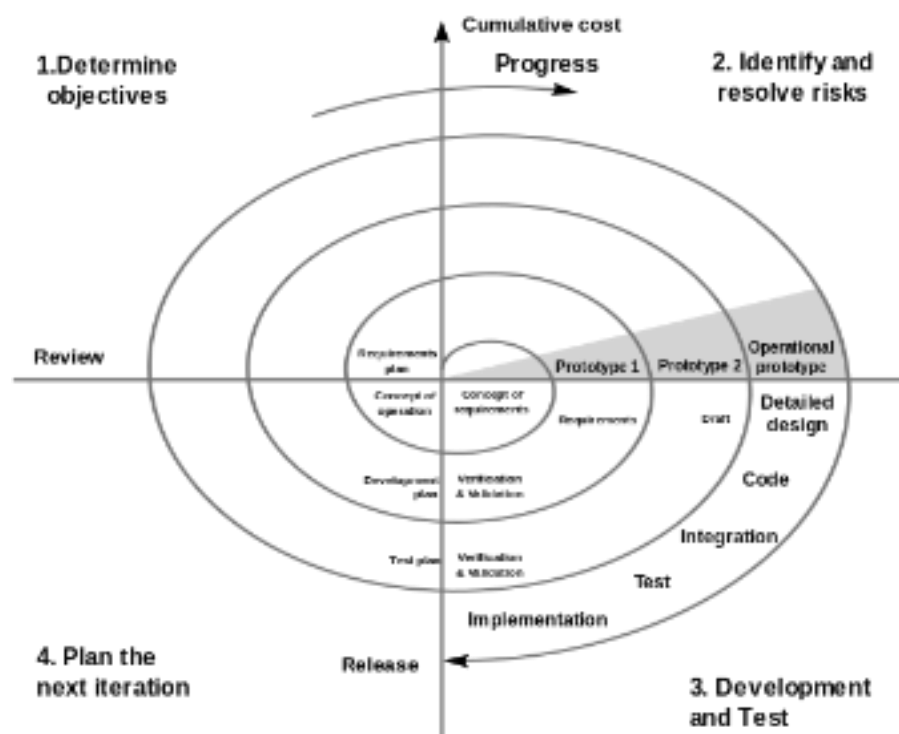


Figure 10 Spiral Model by Boehm. (14 November 2004).

According to (Buzzle), the process progresses in spiral sense to indicate iterative path followed, progressively more complete software is built as we go on iterating through all four phases. The first iteration in this model is considered to be most important, as in the first iteration almost all possible risk factors, constraints, requirements are identified and in the next iterations all known strategies are used to bring up a complete software system.

So what this means that the spiral model works in a complicated way than the waterfall model because the way how the spiral model works is that as it is in a spiral shape with four stages, it forces on each stage and the main problems such as the risks and all the requirements and any strategies will need to be used if any problem occur.

As the spiral model is a complicated life cycle model, it does have some advantages and disadvantages like other life cycle models. The advantages about the spiral lifecycle model is that firstly it is an in depth model which allows the project a good understanding of the risks and the analyst. It is also good for big projects since these kinds of models are more complicated and harder to use than other models such as the waterfall models.

The disadvantages of using the spiral model are that it is a complex system to use. It is much harder to use and is in more depth than the other model. The model would be used with larger projects since it goes through more in depth which allow the project to grow so it would mainly for larger projects. The spiral model is also used for large expensive projects so project using a less budget would not be able to use this.

2.8.5. RAD Life Cycle Model

The RAD life cycle model which stands for Rapid Application Development is another life cycle model which is used within software developments and within information systems. The RAD is a model which is simple as it goes like a circle. It goes through stages as first it will go through the planning and requirements of the project then the design of the project and the implantation which will then lead to the evaluation/feedback.

The RAD life cycle model is much simpler than the spiral model as this model is to avoid planning and is used as a faster way for the project and in a higher quality. This will also allow people who use this model to change the requirements easier than the other models. The RAD also allows re-using certain thing within the project such as within software development, it will be able to re-use software.

There are different advantages and disadvantages about using this model and those are that firstly the advantages of using the RAD model is that it is a quick and simpler model to use. It allows saving time and quickening up the project by reducing the development time. It allows customer to have a look at the design quicker which will then allow feedback on the design and any development and improvement needed.

This is another advantage of using RAD as this means by using this model, it allow software within the project to be developed faster and by the time it is develop quicker than other models, it will still have the maximum quality on it.

The disadvantage of using RAD model is that the documents and research will be less so it will have problem competing with other project using other models as other models will be in more depth.

2.8.6. Conclusion

After looking through different types of life cycle models, I have decided that the waterfall model which would be best to use for this project. The reason why I have chosen this model is because it is the model common and simple model out there.

This model will allow me to follow instruction on what needs to be done in a simple step. First for the project, it would start at research of the project and then the planning. This will then allow me to gather the requirement and focus on the design which will lead to the implementation and testing. Finally an evaluation of the project of what been done.

Other type of life cycle model would work with my project but some models may have problem like for example with the spiral model, it is a more complex model and will be for bigger project which have a larger budget if the project was sponsored. As my project isn't that big and has a less budget, this would not be the best model to use so this is why I have chosen the waterfall model and it fit in better for the project

2.9. Testing Research

There are different types of testing methodologies which can be used when testing software's. These methodologies can use different testing techniques to help decide which testing method is the best for your software that you are testing.

I will be finding out different testing methodologies and testing methods and seeing which ones will be the best to use for the current software project I am working on.

2.9.1 Black Box Testing

Black Box testing is basically a testing method which allows people who have no knowledge about design and coding to be able to test software product. What this means is that people with no knowledge of knowing about the application and the design and coding are able to test the system and this testing is used to find out about the requirements and if they match.

As said on by (Parekh, N. (n.d.)), the black box testing allow the user to test the requirements of the specification to see if it matches but they do not need to have any knowledge about the design and coding. The expert who already know about coding and expert would already know about the system and allowing people with no knowledge would give more feedback about the system.

Like (Parekh) mention, In order to implement black box testing strategy, the tester is needed to be thorough with the requirement specifications of the system and as a user, should know, how the system should behave in response to the particular action.

2.9.2. Usability Testing

Usability testing is basically testing the software of usability for users who may have problem using the system. What this means is that you would test the system to see if the system is capable to be used by “all” users rather than certain users. By “all” users, this would mean people who may have eye sight problems or colour blind problems.

Not only that, but usability testing is mainly used to allow the tester to test the system out such as a prototype or dummy system to find out if there are any changes that would be needed. This means the tester would test the system until they find any changes and those changes then would need fixing to allow the system to be more user friendly and easy to use.

As said on the (Parekh, N. (n.d)), usability testing is mainly to help with the people designing the system to know what might need changing. (Parekh) says that “Developer/designer of the system need to incorporate the feedback”, this means that the designer can use the feedback from the tester who is doing the usability testing and use this feedback to find any changes they would need to do for the system.

The way how usability testing works is that the users test the product for the usability. The product would be a dummy version rather than the real one and the user then test this and find out if there are any errors or problems or changes needed. These feedbacks are then given back to the designers and they would use this to improve the product with the feedback so that it would be more user friendly and easy to use. The feedback would be about the testing and also about what the user think of the product.

2.9.3. Compatibility Testing

Compatibility testing is basically a testing method which would allow the user to test the product to work on a certain device or something. For example, let us say the user has a product of a web application. The compatibility would be that the user would test that application onto the web so they can see if the application is capable of running onto the web.

Not only does compatibility testing allow you to find out if the product works on other devices such as web, hardware and mobile device, the testing also allow the user to find out if the product works on different versions. For example, the product might be tested to find out if it works on different web browsers and versions such as Firefox and chrome.

As it says on the (Parekh, Software Testing - Compatibility Testing), compatibility testing is very useful for the developers who are testing their system/product. This allows knowing what the system/product will need so it can work properly such as needing hardware, software or networks. “Compatibility testing can help developers understand the criteria that their system/application needs to attain and fulfill

3. Project Requirements

3.1. Introduction

As part of a project that was set up by Computing and Engineering and Computing ad Library services was to create a system to allow staff members to access and obtain module specification information more easily.

This then lead to work on a system to help make the process of checking each module specification easier. Each school had a different process of validating module specification. The system would have a database rather than having all specification through paperwork which are accessed through ASIS.

This project will continue working off from the first prototype by making a second prototype system which will combine both module and programme specification into the system.

The purpose of this project is having all the module and programme specification documentation into one place where users will be able to access them easily. At the moment, the university has all of these documentation created onto files, which are then stored onto the system WISDOM.

The process of checking these specification are used in each school which are done through documents. This takes more time as each time a document is checked for approval, more copies will be made with changes to be tracked until a finalise version is approved to be stored into the system.

This means that documents would need to be sent to the users through this process checking (e.g. Module, Course Leaders) and then wait till the users have sent the documents around to the other users until that documents end back to SAVP. This is more of a hassle as it can take more time for the process and more documents are produced since changes will be made.

By having these module and programme specification documents in a database, a web system can be easily designed to allow these users to access the information easily.

This system can also then allow other requirements needed such as comparing documents or searching for keywords which will save more time than looking through those words in each document. By having this system, it will deal with the problems of making the process of validating these module and programme specification more easily and quicker.

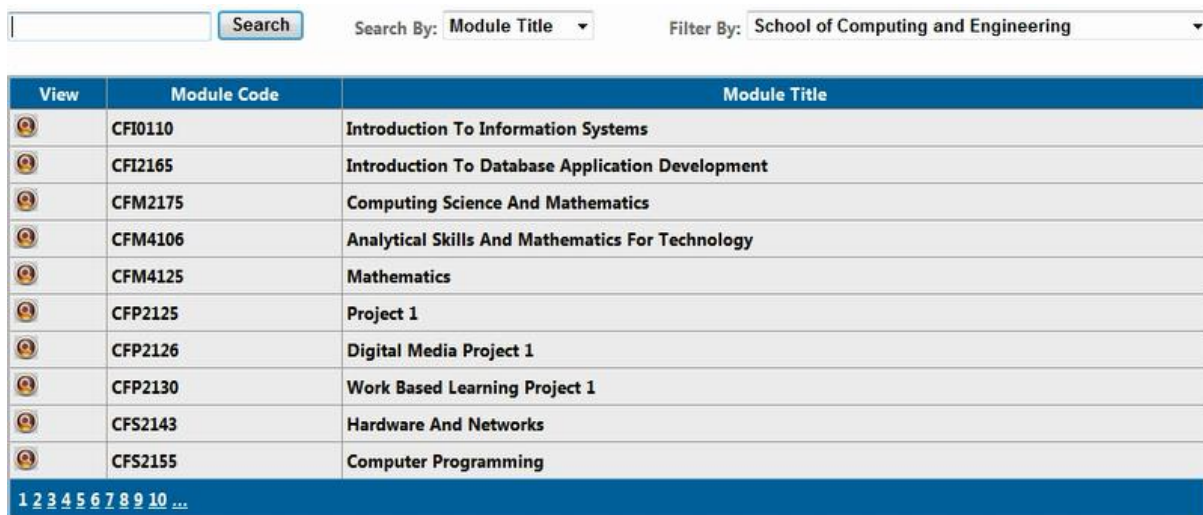
2.2. Project history, problem and Initial solution

3.2.1. Project history

A brief history of the this project first started last year while in placement when a system was asked to be developed to allow University module specification to be stored into a database system. The specification are all stored within a system called WISDOM which are file based.

To have all these specification into a database, this would allow the information to be accessed more freely such as allowing the University to build a system that can access and manipulate the information more easily.

As part of the project, a first prototype system was created to allow one school which was computing and Engineering to access module specification information. The system was used to edit module specification and extract them into a new format.

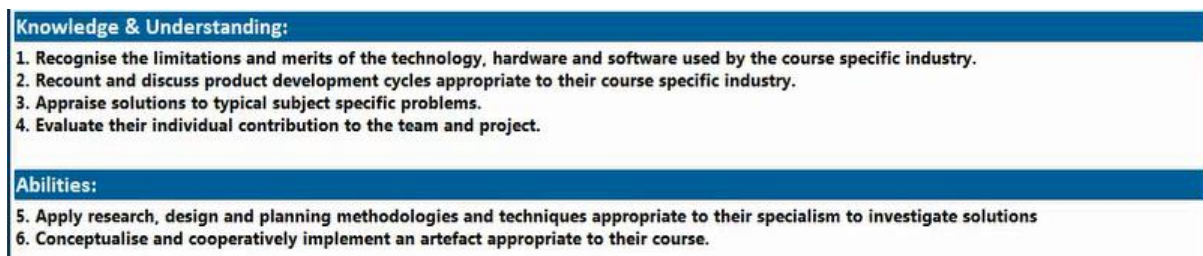


View	Module Code	Module Title
	CFI0110	Introduction To Information Systems
	CFI2165	Introduction To Database Application Development
	CFM2175	Computing Science And Mathematics
	CFM4106	Analytical Skills And Mathematics For Technology
	CFM4125	Mathematics
	CFP2125	Project 1
	CFP2126	Digital Media Project 1
	CFP2130	Work Based Learning Project 1
	CFS2143	Hardware And Networks
	CFS2155	Computer Programming

1 2 3 4 5 6 7 8 9 10 ...

Figure 11First Prototype system - Module Search

Figure 1 shows the first prototype which was created. This prototype system was simple as it would allow SAVP to search for module specification and the system would display all the information. In figure 2, SAVP would be able to edit the information and extract into a new template format such as a Word/PDF.



Knowledge & Understanding:
1. Recognise the limitations and merits of the technology, hardware and software used by the course specific industry.
2. Recount and discuss product development cycles appropriate to their course specific industry.
3. Appraise solutions to typical subject specific problems.
4. Evaluate their individual contribution to the team and project.
Abilities:
5. Apply research, design and planning methodologies and techniques appropriate to their specialism to investigate solutions
6. Conceptualise and cooperatively implement an artefact appropriate to their course.

Figure 12First Prototype system – Showing information about the module specification

3.2.2. Project Problem

The main problem with this project is to deal with how the system will be used within the University to help make sure that the Module/Programme Specification can be accessed, validated and find information more easily.

The first prototype system that was built had many problem when in development such as how the system would be connected with other systems (ASIS/WISDOM) and if this system was helpful for the school.

As part of the first prototype, this system was tested within one school, the Computing and Engineering department which was used by registry members there. There was some positive feedback and the prototype was shown to the other schools. The main issue was that not enough other schools contributed in the budget to use the system.

This now leads to further expanding on from the first prototype to allow programme specification to be used. The system will still be used with the Computing and Engineering school but will be developed with new requirements.

3.2.3. Project Solution

As a solution this project will be a second “prototype” system which will still be used within the Computing and Engineering department. The system will be hosted in this school rather than being in the Computing and Library services.

This prototype will allow the users to test the system and see if there is any issues. By having users test the system out, it will allow further improvements and help figure out if any problems occur. This then allows the system to be expanded towards other schools in the university which will need the hosting server to be hosted in the Computing and Library services.

3.2.4. Product development

The following product that will be developed are:

- A database system – Which will hold all the module and programme specification.
- A Login system – to allow certain access to users such as module/course/head of department and SAVP.
- A web system – To display the module/programme information on a web application.

3.3. Aims and Objectives

The aims and objectives is to get a module specification system working for all the schools in the university can use.

The system should allow each school, registry and SAVP to validate module specification more easily. So allowing a way to use the system to check update or create a module, which will follow a process of being checked.

The system must be able to work for all schools. This means that the first prototype system was used within the Computing & Engineering School. So the new system must meet all requirements for the whole of the university.

Each school will have different processes of validating module specification. This will need to be researched to find out the processes and how to fit those into the system.

- To have all documents stored into a database system
- Produce a product that will be fit to use for School of Computing and Engineering to use.
- Provide easier, quick access to module and programme information for staff members
- Allow Subject area leaders to identity learning outcomes and assessment details for their courses and modules.
- Able to use the system to deal with specification validation process for staff members and SAVP Admins.
- Making sure that the system can be expanded to other schools at the university.

3.4. Clients and Users

3.4.1. Clients

The Client for this project is James McDowell who is located at the University of Huddersfield Computing and Engineering department. James McDowell job role is the university teaching fellow for Computing and Engineering and was appointed Director of Teaching and Learning. As part of this, he deals with the SAVP area in the school who are one part of the users for this project to deal with Module and Programme specifications.

As James was interested in the first version of Module Specification project that was created on placement last year, he has decided to be the client for this project which will expand on the first version which will include the programme specification and an improvement on the module specifications.

One area of the discussion with James was about hosting the database and website on Aspen which will be within Computing and Engineering rather than at the Computing and Library services where the original system was held. As part of this, an account has been created by James which allow myself to develop the system while James can use the system to show to the users, which mainly will be the SAVP group.

3.4.2. Users

As this system will be held within the Computing and Engineering section, there will be several of users who will be using the system. The main area of the users will be SAVP Admins who are reasonable with dealing with the specification documentations. The other users will be staff members who will be using the system to update and check their module/programme specification. These users are Module Leaders, Course Leaders and Head of Department.

SAVP Admin/Head – The SAVP Admins and Head of SAVP will need access to the system as they are the main group to validate modules. Their job on the system is to check a module that has been changed and either approve or reject it. The Head of SAVP will be the final person to check and if approved, the module specification will be updated. They are also able to search for key words to compare documents which can then be made into reports.

Module Leader – The module leader will be the first person to make changes to their module specification on the system. So they will need rights to making changes. The module leader will have access to the system which they can make changes to their documents.

Course Leader – The course leader will also need rights to the system as they will need to either approve or reject a module that has been submitted for changes by the module leader. The course leaders will also be able to edit their module/programme specifications.

Head of Department – The Head of Department from each school will need access to the system. The job for this user is similar to the Course Leader who will be either approving or rejecting a module.

3.5. Specification and requirements

3.5.1. Feasibility study

System: Module and Programme system

Purpose of the system:

- Access module and programme specification from database
- Search for specification from web application
- Allow users to compare documents
- Obtain documentation and reports easily
- To be able to edit module and programme specification
- Go through the university validation process of checking specification

System scope:

- Will need a database system to be built
- Will need to run on server - ASPEN
- Will be hosted in the Computer and Engineering department
- Database SQL servers, ASP.NET and ASPEN will be used.

Current deficiencies

- Current system uses module and programme specification word files
- There is no database system with all module/programme information together
- Validation process for specification done by word files which is slower

User requirements

- Access specification easier
- Search for module/programme quickly
- Obtain a word file specification if needed
- Find key words containing in the document
- Compare two specification quickly
- Find assessments/outcomes more easily

Cost benefits/limitations

- New system will reduce the amount of manpower working in the receptionist area
- Cost of software for the system and hardware for system network
- A limitation of which software on each computer system (e.g. Accountant area system will have specialist accountant software only)
- Hardware limitation in area to connect the system together in the business
- Benefit of security software on each system to protect the business
- Benefit for staff training for user specialist software

3.5.2. SWOT Analysis

<u>Strength</u>	<u>Weakness</u>
<p>Access Module/Program online – While there are system that do this in the university, this system would allow to do further tasks for the users</p> <p>Compare two specs – The system will allow the users to quickly compare two specification for example learning outcomes.</p> <p>Key search – The system will look through key words and display all spec containing those key words</p> <p>Validation – The system will allow the SAVP to validation modules online than through word files.</p>	<p>Location – limited to one school at the moment which is Computing and Engineering</p> <p>Hosting – The site will be hosted in the Computing and Engineering department rather than within Computing and Library services</p> <p>Admin – The system will need to be looked after by someone until future development from Computing and Library services.</p> <p>Software/Hardware – Will need to be made sure that the system is working with the current hardware/software</p>
<u>Opportunity</u>	<u>Threat</u>
<p>Expanding the location – Allowing the system to be used within other schools in the future.</p> <p>Hosting – Moving the system to Computing and library services which will have better hosting for the whole of the university.</p> <p>Staffing – More staff members with the experience will be able to look after the system</p> <p>Software & Hardware – Able to deal with maintenance when move to the Computing and Library services</p>	<p>Security – Making sure that the system is secured as the information will be used for the university about module/programme specification.</p> <p>Correct details – making sure that the information is correct as these will be used as specification for students.</p>

3.5.3. MoSCoW Requirements

M – Must have

- Database system with Module and Programme Specifications
- Able to search Module and Programme specification
- View Module and Programme specification
- Obtain Word file of specification from system
- Compare two specification
- Compare two section area
- Search for keywords
- Login system with multiple users
- Admin section

S – Should have

- Search by feature – e.g. Module code/name
- Filter feature – e.g filter by school
- Validation process
- Display table of all assessments
- Display table of all learning outcomes

C – Could have

- Feedback form
- Admin changes e.g. colours changes
- Produce reports

W – Won't have

- Admin User interface changes.

3.6. Project Plan

The following product development plan has been created with Microsoft Project. This plan will be used for the product to track each tasks and sub tasks. The project plan will be updated each time with completed tasks, new tasks or any amendments that change for the project. The previous project plan version will be kept to show the changes that have been made.

The project plan will be split into two terms and there will be three sections. The first section will be the project report and product. This will show all the tasks and sub tasks that will be needed to complete both the report and the product.

The second section are milestones which are used to show important dates that will need to be done within the project. The final part will be a plan for meetings with the client. This will show the progress of communication with the client have been made.

An estimated number of number of hours used for the project will be around 10-13 hours per week. This will allow to complete tasks within the section for example – the research section will have a list of tasks, tasks will be done in any order but to make sure that harder tasks have more time than the easier tasks.

The following below is a product plan and an explanation on how the plan will work with this project.

	★	▲ Module and Programme Specification System Project	160 days	Mon 29/09/14	Fri 08/05/15
	★	▲ Report Documentation And Product	160 days	Mon 29/09/14	Fri 08/05/15
✓	★	Table of Context	7 days	Mon 29/09/14	Tue 07/10/14
	★	▷ Literature Stage	21 days	Tue 07/10/14	Tue 04/11/14
	★	▷ Requirements and Analysis Stage	20 days	Mon 10/11/14	Fri 05/12/14
	★	▷ Design Stage	40 days	Mon 08/12/14	Fri 30/01/15
	★	▷ Implementation Stage	42 days	Mon 12/01/15	Tue 10/03/15
	★	▷ Testing Stage	15 days	Wed 11/03/15	Tue 31/03/15
	★	▷ Evaluation Stage	28 days	Wed 01/04/15	Fri 08/05/15
	★	▲ Milestones Hand in	141 days	Fri 24/10/14	Fri 08/05/15
	★	Extended Project Proposal	0 days	Fri 24/10/14	Fri 24/10/14
	★	Term of Reference	0 days	Fri 14/11/14	Fri 14/11/14
	★	Analysis - Design Completion Date	0 days	Tue 30/12/14	Tue 30/12/14
	★	Poster Presentation	5 days	Mon 12/01/15	Fri 16/01/15
	★	Outline Report and Summary Progress	0 days	Fri 20/02/15	Fri 20/02/15
	★	Deliverable of Project Report	0 days	Fri 08/05/15	Fri 08/05/15
	★	▲ Schedule Meetings - Client	160 days	Mon 29/09/14	Fri 08/05/15
	★	Client Meeting 1	0 days	Mon 27/10/14	Mon 27/10/14
	★	Client Meeting 2	0 days	Mon 17/11/14	Mon 17/11/14

Figure 13- Time Plan of the Project Plan

4. Design Specification

4.1. Domain Analysis

The main area for the module and programme specification system will be having all of the module and programme information stored into a central database system. As both information are stored on documentation (word files). A solution for this is to use an extraction program to extract all of the module and programme information out of these files and store them into the database system.

Before this is done, some design will need to be done of how the database will be structure for both of these documentation. To do this, we will need to know what information is needed to be stored into the database. By checking out APPENDIX we can make sure that the following items are entities and objects.

Firstly we will make a number of assumptions to make sure that all of the requirements for building the database system.

Assumptions:

- A Module table which will have the basic module information with a Module ID
- A Programme table which will have the basic programme information with a Programme ID
- A Course table which many courses and be link to many modules.
- A Location table which many location can be link to many modules (e.g. Queengate, Barnsley)
- Staff table which many staff can be link to many modules
- A Department table where many staff can have one department
- A school table where one school can be link to one department
- Learning methods where many learning methods can be link to many modules
- Many modules can be linked to many programmes
- Programme can link learning outcomes to Modules

So with these assumption, we can consider that the main entities that will be used are:

- Module
- Programme
- Courses
- Location
- Staff
- Department
- School
- Learning Methods

4.2. Database Normalisation final process

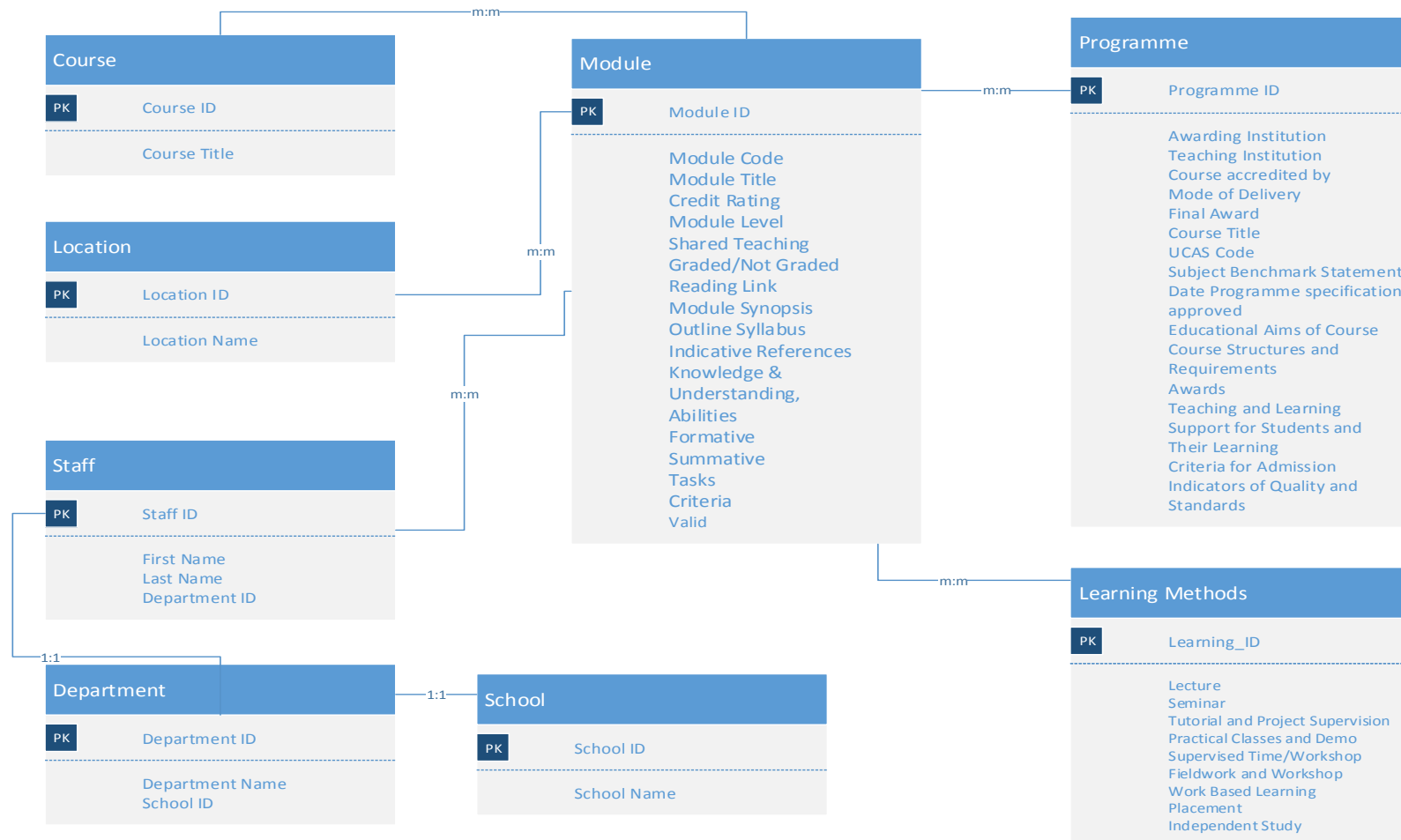


Figure 14 3rd Normalisation database structure

4.3. Entity Relationship Diagram

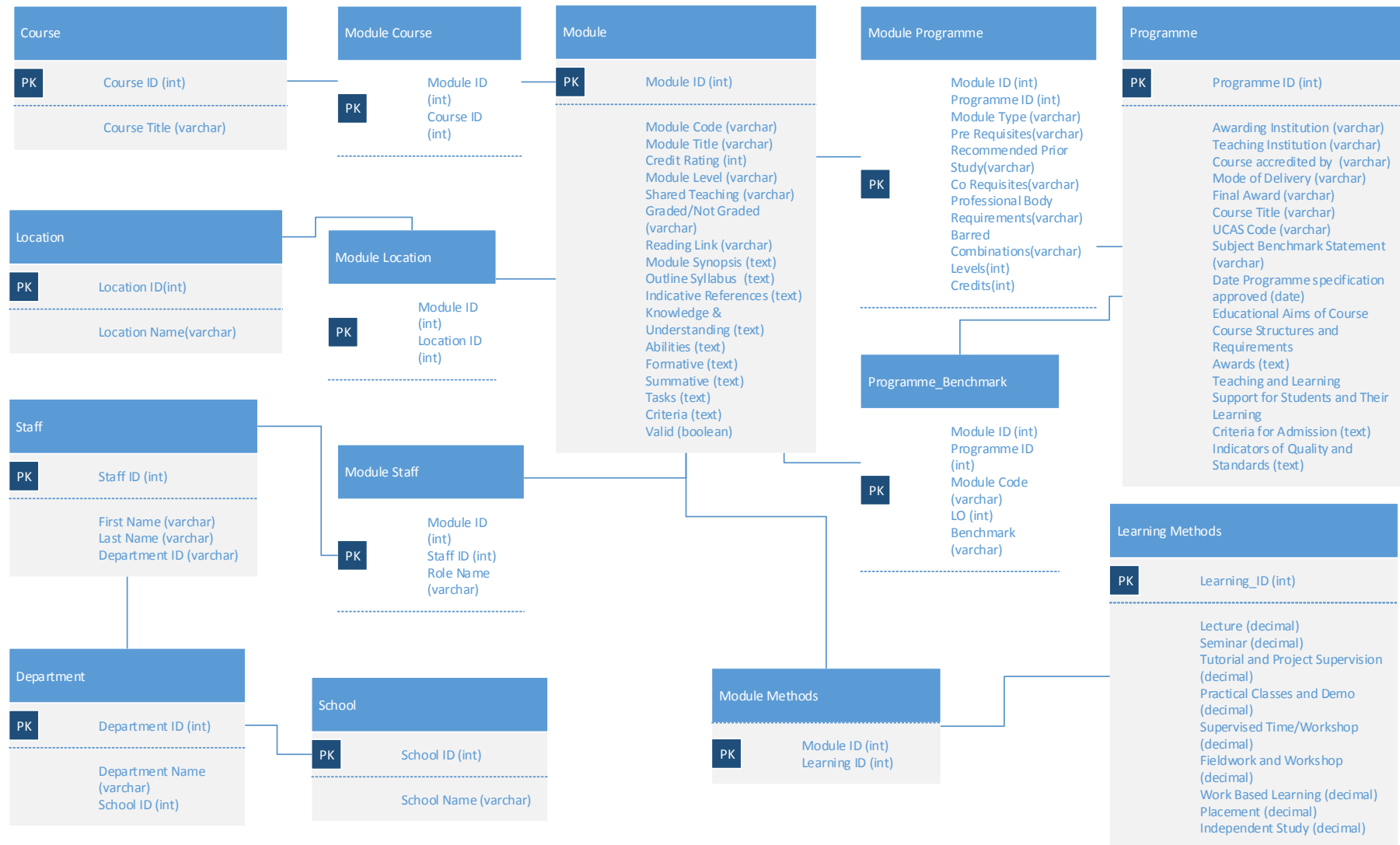


Figure 15 Entity Relationship Diagram

4.4. UML Design

4.4.1. Use Case Diagram

Visual Paradigm Community Edition [not for commercial use]

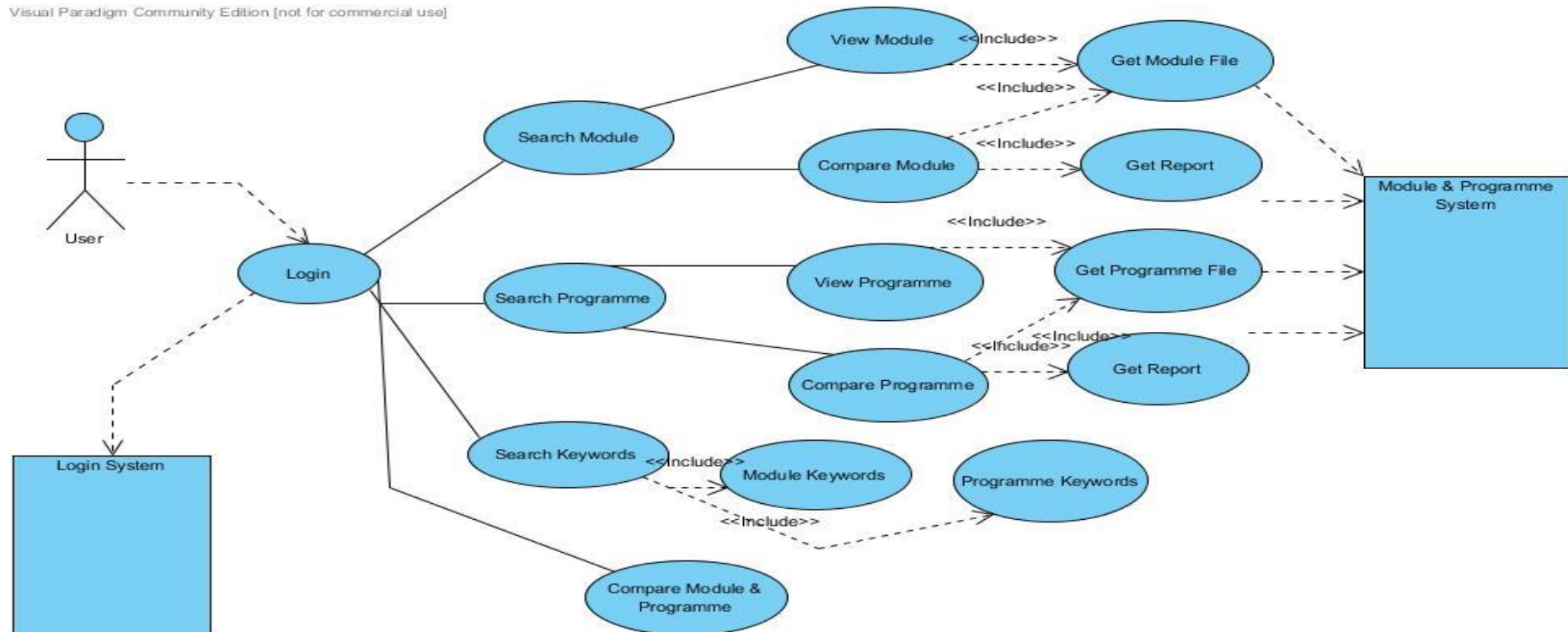


Figure 16 Use Case Diagram showing the user interacting with the application

4.1.2. Sequence Diagram

Example Sequence Diagram of showing validating a programme benchmark when trying to edit a learning outcome

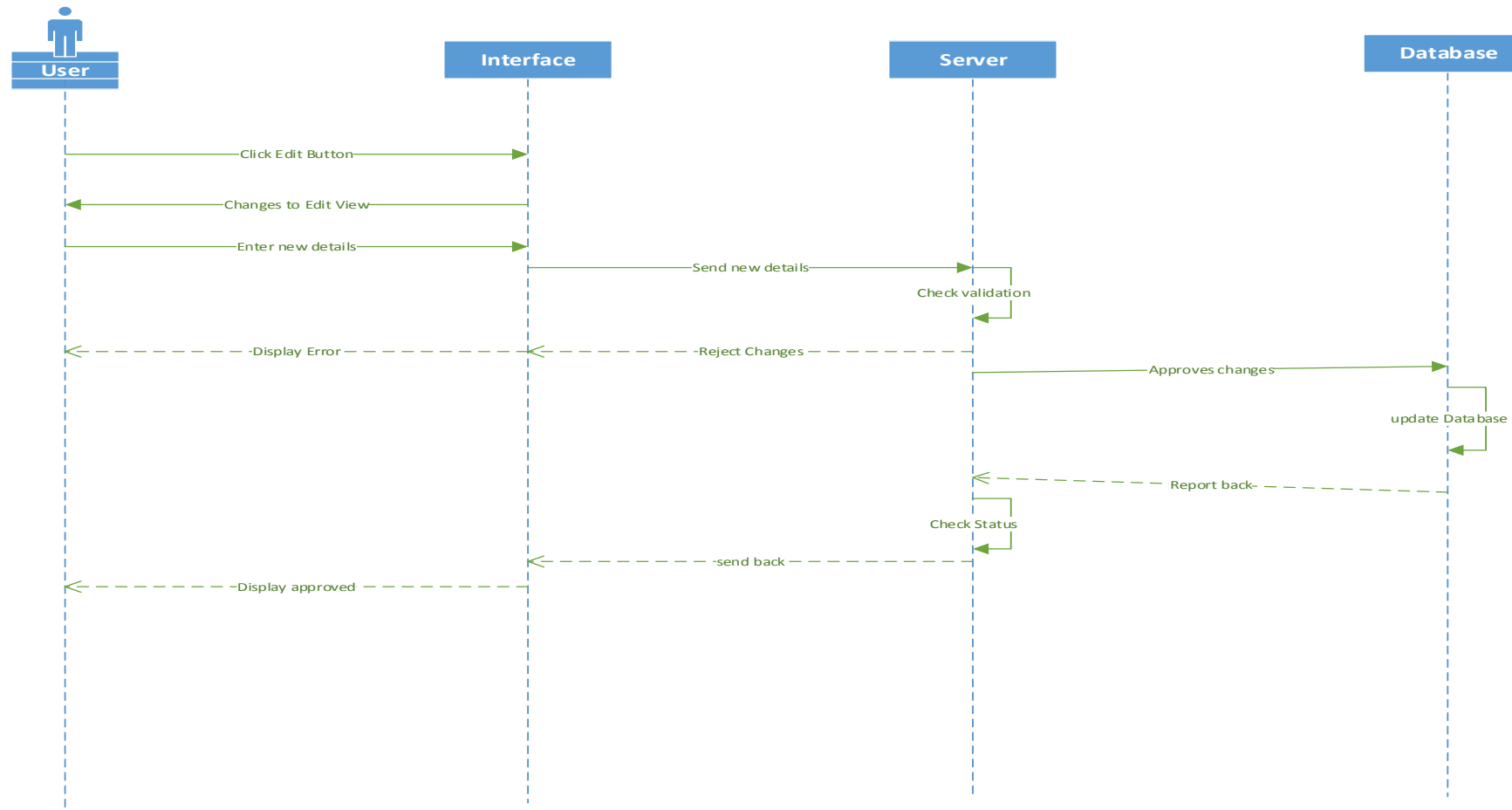


Figure 17 Sequence Diagram

5. Implementation

The development of this product has been created within Visual Studio using ASP.NET and C#. The product development is set up into stages which are mainly to do with the users who will be using the products. There are three main around to this development which are to do with the main product of Module/Programme specification, the Login system and the Admin around system.

5.1. Module Search Page

University of HUDDERSFIELD
Inspiring tomorrow's professionals

Module & Programme Specification

Register Log in

Module Search Programme Search Compare Feedback

Module Specification Search

CFI Search

Filter by School: School of Computing and Engineering

Filter by: ☐ Module Code ☐ Module Title ☒ Keyword Search

16 record(s) were found using the keyword(s): CFI

	Module Code	Module Title
Select	CFI2165	INTRODUCTION TO DATABASE APPLICATION DEVELOPMENT
Select	CFI2260	The Information Society
Select	CFI0110	INTRODUCTION TO INFORMATION SYSTEMS
Select	CFI0115	SOFTWARE PACKAGES
Select	CFI0120	INTRODUCTION TO INFORMATION SYSTEMS DEVELOPMENT
Select	CFI0125	WORK BASED LEARNING PROJECT 1
Select	CFI0130	INTRODUCTION TO E-BUSINESS
Select	CFI1107	INFORMATION MODELLING AND DEVELOPMENT
Select	CFI1242	INTEGRATED PACKAGES FOR BUSINESS INFORMATION SYSTEMS
Select	CFI2145	Fundamentals of Information Systems

1 2



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The following is the search page for searching for module specification. The page allows the user to search for a module and gives them several optional of filtering their search such as code, title and keyword.

One requirement was to allow the user to search through all modules with any keyword search. By having keyword select, a query was made to check through all modules information and not only the code and title to see there is that keyword. This would then allow the selected module with those keywords to be displayed.

5.2. Module Details Page

CFI2165 INTRODUCTION TO DATABASE APPLICATION DEVELOPMENT

Return to Search

[View Word](#)
[View PDF](#)

Valid Module Specification

Module Details

Module Information

Courses

Learning Methods

Learning Outcomes

Assessment

CFI2165 - INTRODUCTION TO DATABASE APPLICATION DEVELOPMENT

School	Location
School of Computing and Engineering	Queensgate
Credit Rating	Module Level
40	F

Pre- Requisites: None

Recomendded Prior Study: None

Graded: Not Graded

Co_Requisites: None

Professional Body Requirement None

Barred Combination: None

Reading List

<http://library3.hud.ac.uk/myreading/lists/CFI2165>

Approved Date

Approved: SAVP Chairs Action January 2012

Version: 02

Effective: 2011/2012

The following is the module details page where users will be able to display all of the module information. Tabs are used to help user find which module information they want to without scrolling.

Each information is editable for the users and when a module become invalid, the valid message gets changes to invalid to inform the users.

The users also have an option to get the module specification document through two version which are Word and PDF.

5.3. Programme Search Page

The screenshot shows a web browser window with the URL `http://localhost:62633/Programme`. The page is titled "Module & Programme Specification" and includes navigation links for "Module Search", "Programme Search", "Compare", and "Feedback". The "Programme Search" section has a search bar and a "Search" button. Below the search bar, there is a "Filter by School:" dropdown menu set to "All". There are also radio buttons for "Programme Title" and "Keyword Search". The search results are displayed in a table with the following content:

	Programme Title
Select	BSc Comp Sys Design & Management

The footer of the page reads "© 2015 - University of Huddersfield".

The following is the search page for searching for Programme specification. The page allows the user to search for a programme and gives them several optional of filtering their search such as code, keyword and filtering by school.

One requirement was to allow the user to search through all programme with any keyword search. By having keyword select, a query was made to check through all programme information and not only the code and title to see there is that keyword. This would then allow the selected programme with those keywords to be displayed.

5.4. Programme Details Page

The screenshot shows the 'Viewing Specification' page for the 'BSc Comp Sys Design & Management' programme. The header includes the University of Huddersfield logo and navigation links: 'Module & Programme Specification', 'Module Search', 'Programme Search', 'Compare', 'Feedback', 'Register', and 'Log in'. The main heading is 'Viewing Specification: BSc Comp Sys Design & Management'. Below this, there are icons for 'View Word' and 'View PDF', a 'Return to Search' button, and a 'Valid Module Specification' label. A tabbed interface shows 'Programme Details' as the active tab, with other tabs for 'Programme Information', 'Course Structure', 'Subject Benchmark', and 'Assessment'. The content area displays the programme name and a table with details:

BSc Comp Sys Design & Management	
Teaching Institution:	Awarding Institution
University of Huddersfield	University of Huddersfield
Mode of Delivery: N/A	UCAS Code: Not in UCAS
Course accredited by: N/A	Final Award: BSc(Hons) Computing and Internet Systems

This is the Programme view page where the users will be able to view the programme specification and the details. Tabs have been used again similar to the module details page in order to make the page is user friendly.

The page has programme details and information which will show users all the programme information. In the course structure it has a list of courses structure for that programme. The subject benchmark display a table information of benchmark statements and finally the assessment explains the assessment for the programme.

5.5. Feedback Page

The screenshot shows a web browser window displaying the 'Feedback Form' page. The browser's address bar shows 'http://localhost:62633/Contact.asp'. The page header is blue and contains the University of Huddersfield logo, the title 'Module & Programme Specification', and navigation links: 'Module Search', 'Programme Search', 'Compare', and 'Feedback'. There are also 'Register' and 'Log in' buttons. The main content area is titled 'Feedback Form' and includes the instruction: 'Use the following form to give feedback about this website. An email is required to be filled out.' Below this are three input fields: 'Name:', 'Email:', and 'Feedback:'. The 'Feedback:' field is a large text area. At the bottom of the form are 'Submit' and 'Clear' buttons.

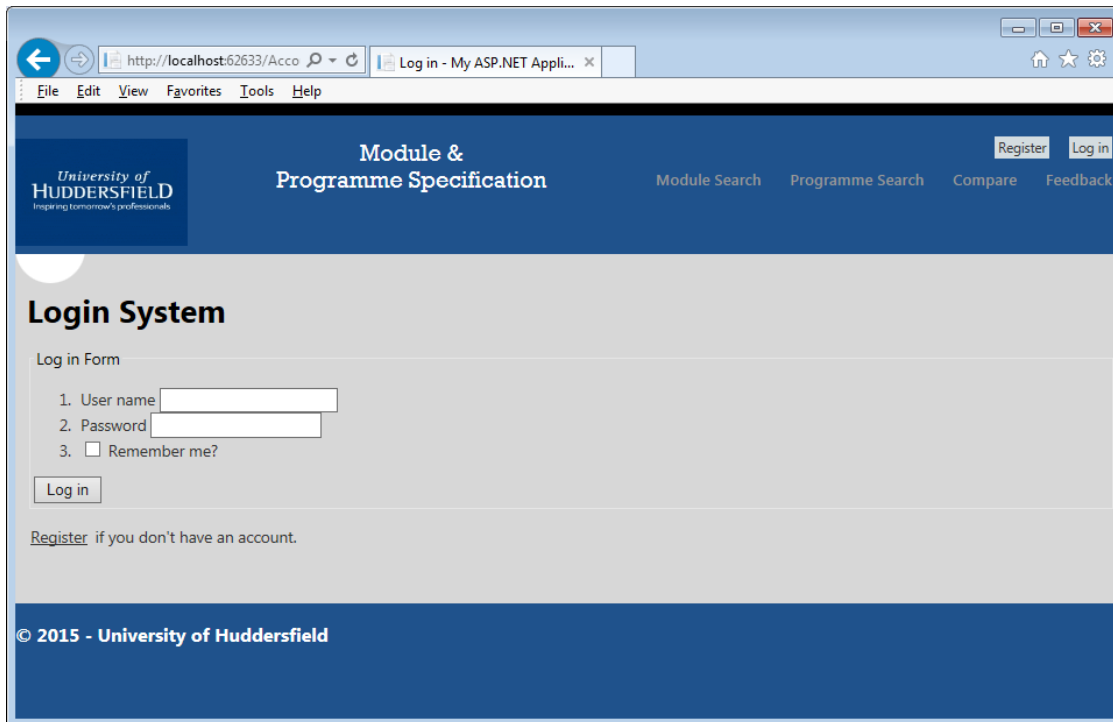
The following is the feedback page which allows the user to give feedback to the developer about the site. The feedback form allows the user to type their name, email and feedback and then able to submit it.

One of the requirements was to be able to send an email when the user has submitted the form. The following below shows that an email is sent to scsespecs when the user fills out the form. The text from the email textbox is take out and out into the from field.

```
{
    String r = getemail.Text;
    System.Net.Mail.MailMessage mail = new System.Net.Mail.MailMessage();
    MailAddress from = new MailAddress(r);
    string to = ("scsespecs@hud.ac.uk");
    SmtpClient clientobj = new SmtpClient("MIRAGE.AD.HUD.AC.UK");
    mail.From = from;
    mail.To.Add(new MailAddress(to));
    mail.Subject = "Thank you for your email";
    mail.IsBodyHtml = true;
    mail.Body += "Dear user,";
    mail.Body += "<br />";
    mail.Body += "<br />";
    mail.Body += "This is an email to inform you that your <br />";
    mail.Body += "has been sent to the site administrator.";
    clientobj.Send(mail);

    Response.Redirect("~/Members/ApprovedMessage.aspx");
}
```

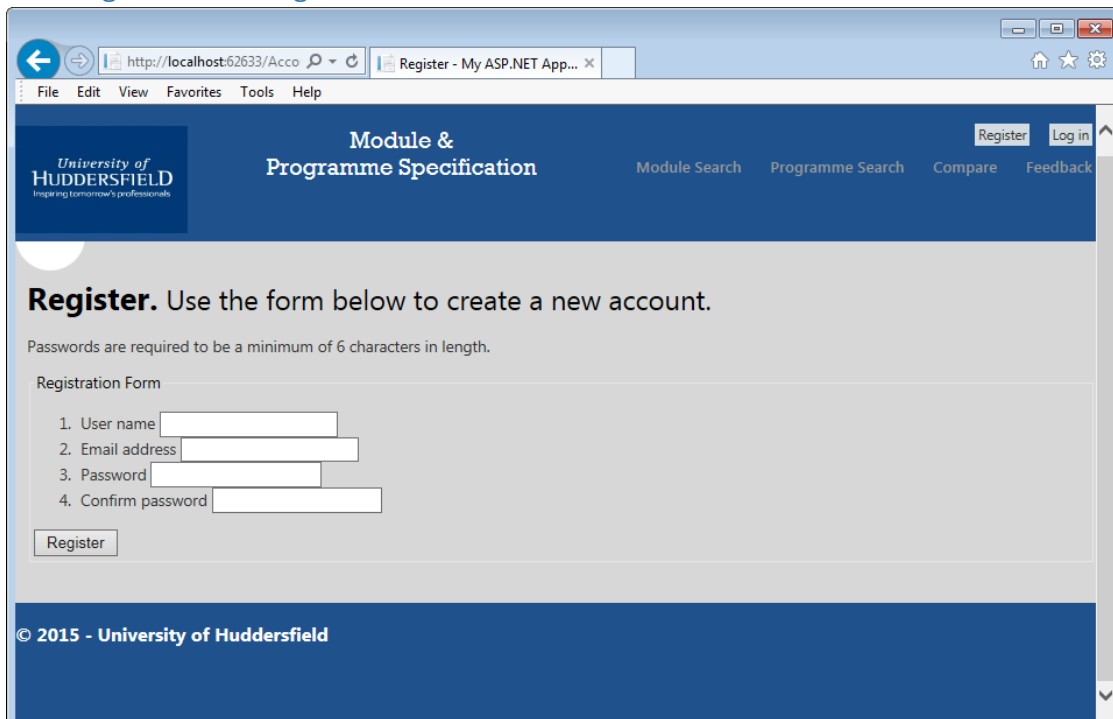
5.6. Login Page



The screenshot shows a web browser window with the URL `http://localhost:62633/Account/LogIn`. The page title is "Log in - My ASP.NET Application". The header features the University of Huddersfield logo and navigation links: "Module & Programme Specification", "Module Search", "Programme Search", "Compare", and "Feedback". There are "Register" and "Log in" buttons in the top right. The main content area is titled "Login System" and contains a "Log in Form" with the following fields: "1. User name", "2. Password", and "3. ☐ Remember me?". A "Log in" button is at the bottom of the form. Below the form, there is a link: "Register if you don't have an account." The footer displays "© 2015 - University of Huddersfield".

The login system which is used for the system. The log in system has a basic of user name and password which also has validation put in place.

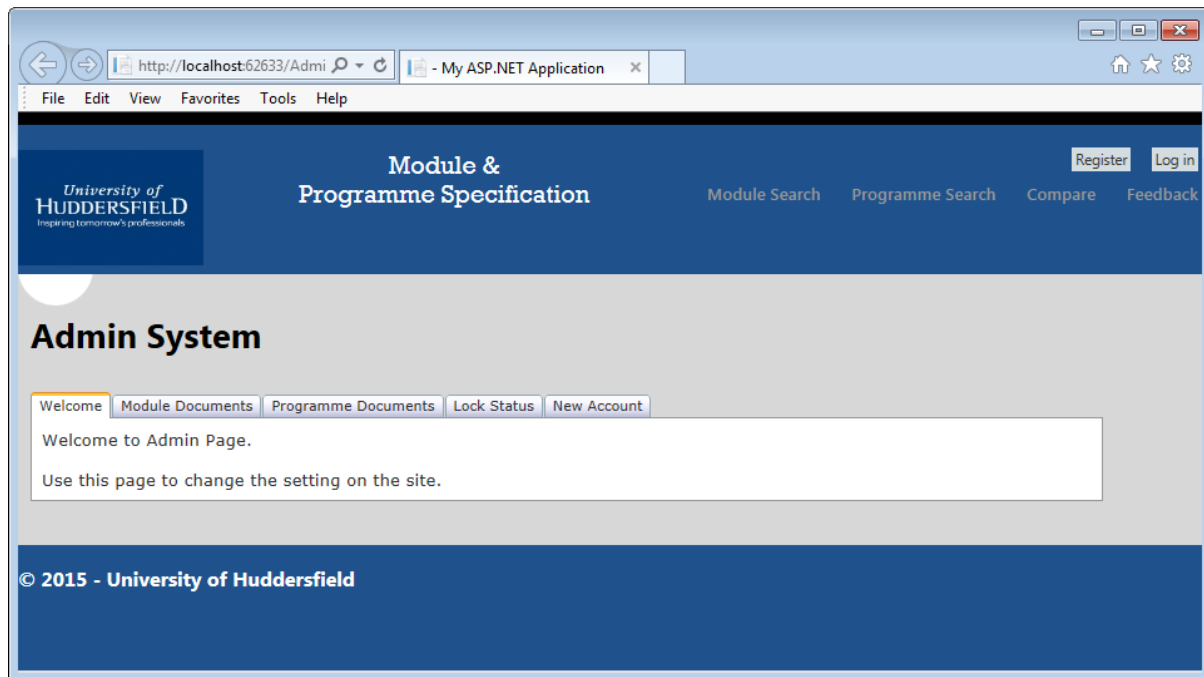
5.7. Register User Page



The screenshot shows a web browser window with the URL `http://localhost:62633/Account/Register`. The page title is "Register - My ASP.NET Application". The header is identical to the login page. The main content area is titled "Register. Use the form below to create a new account." and includes a note: "Passwords are required to be a minimum of 6 characters in length." Below this is a "Registration Form" with the following fields: "1. User name", "2. Email address", "3. Password", and "4. Confirm password". A "Register" button is at the bottom of the form. The footer displays "© 2015 - University of Huddersfield".

The register system is used by the admin to create a new account for the user. This system allows the admin to fill out the form with validation such as compare password to confirm password and email validation.

5.8. Admin Page



The admin system is used by the admin who is scspects. The system will be used for the admin to change any module or programme information if an issue arises. The system also allows the admin to change the lock status of both module and programme specification and to extract any word file into a zip folder.

While the admin section is limited, in future development, more tools can be added such as able to change colour of text for users or having more control of user accounts.

6. Testing

6.1. User testing

1	Test Plan for Module Search			
Test No	Name of Test	Type of Test	Priority of Test	Pass Status
1	Search Module	High	Functional	Module documentation was able to be searched with no problems.
2	Search module by code "CFI"	High	Functional	Module documentation was able to be search all module with the code "CFI"
3	Search module by title "science"	High	Functional	Module documentation was able to be search by title "Science" and displayed all result of science in the title
4	Filter module by schools "Computing and Engineering"	Medium	Functional	Module result displayed all information about computing and engineering courses.

2	Test Plan for Module Details			
Test No	Name of Test	Type of Test	Priority of Test	Pass Status
1	Export Word document	High	Functional	Was able to get a Word documentation file
2	Export PDF document	Low	Functional	Was able to get a PDF documentation
3	Make changes to Module details "updated information"	High	Functional	Was able to update information about module title and reading link successful
4	Make changes to Module information "updated information"	High	Functional	Was able to update information about module synopsis and syllabus
5	Check validation for learning methods	High	Functional	Was able to validate learning methods that was linked with credit. Typed total hours of 201 and credit rating 20 and validate displayed successful informing it can't be changed

6	Make changes to Learning outcomes	High	Functional	Was able to update information about module knowledge and abilities
7	Make changes to Assessment	High	Functional	Was able to update information about module Formative and Summative

3	Test Plan for Programme Search			
Test No	Name of Test	Type of Test	Priority of Test	Pass Status
1	Search Programme	High	Functional	Programme documentation was able to be searched with no problems.
2	Search module by title "Comp"	High	Functional	Programme documentation was able to be search all module with the title "Comp"
3	Filter module by schools "Computing and Engineering"	High	Functional	Programme result displayed all information about computing and engineering courses.

4	Test Plan for Programme Details			
Test No	Name of Test	Type of Test	Priority of Test	Pass Status
1	Export Word document	High	Functional	Was able to get a Word documentation file
2	Export PDF document	Low	Functional	Was able to get a PDF documentation
3	Make changes to Programme details "updated information"	High	Functional	Was able to update information about Programme title successful
4	Make changes to Programme information "updated information"	High	Functional	Was able to update information about Programme details successful
5	Check validation for Benchmark	High	Error	Error message prompted when typing in the wrong benchmark

6	Remove one benchmark and display warning	High	Functional	Able to remove one benchmark and display warning of invalid programme
7	Change status of valid programme	High	Functional	Was able to make valid programme to invalid

5	Compare Modules			
Test No	Name of Test	Type of Test	Priority of Test	Pass Status
1	Type no information to display error	High	Functional	Error message was displayed saying enter a search term
2	Type information not relating to module "djdhdhdhd"	Low	Functional	Display message with "no result found"
3	Type information about two module with learning outcomes selected	High	Functional	Was able to display both module and learning outcomes to compare
4	Type information about two module with Assessment details selected	High	Functional	Was able to display both module and assessment details to compare

6	Feedback Page			
Test No	Name of Test	Type of Test	Priority of Test	Pass Status
1	Enter incorrect email "fjffjffj"	High	Functional	Validation message displayed informing enter correct email
2	Click submit with nothing in textboxes	Low	Functional	Error message display showing required fields

3	Enter all information and submit	High	Functional	Field submitted and went through successful page
4	Click clear button to clear all textboxes	High	Functional	Cleared all the textboxes
5	Check email to see if notification has been sent	High	Functional	Email sent in a professional layout informing users feedback has been sent.

6.2. Client and stakeholders feedback

Feedback was given by the clients and users who tested the system out to make sure that the system requirements were met and if any changes were made. .

User Interface Design Questions:

Question	Yes	No	comment
Was the login screen clear for the user?	X		None
Was the register user page clear for the user?	X		None
Was the Module search page clear for the user?	X		None
Was the Programme search page clear for the user?	X		None
Was the Module Details page user interface design good for the user?	X		Tabs helped a lot with no scrolling
Was the Programme Details page user interface design good for the user?	X		Same as above
Was the feedback page clear for the user?	X		None
Was comparing both module design good for the user?		X	Some improvement of displaying could be done such as tabs.

Function Testing

Question	Yes	No	comment
Was the validation helpful for the login screen?	X		None
Was the validation helpful for the register page?	X		None
Were the validation helpful for the module page?	X		None
Did you find the filter option useful for the module search?	X		None
Were the validation helpful for the programme page?	X		None
Did you find the filter option useful for the programme search?	X		Could do with some more filter options
Were you able to edit each information correctly on the module details?	X		Yes but some could be blocked for some users who don't need to edit those bit
Were you able to edit each information correctly on the module details?		X	Same as above
Was the email function helpful when sending an email?		X	Don't think an email notification is needed when sending feedback.

Browser and Accessibility Testing

Question	Yes	No	comment
Did the web application work on your browser? Please state which browser in comment		X	Firefox. Some of the banner at the top was all over the place
Are you able to read the text clearly?	X		Could fix the text in the banner and the login button
Are the colour scheme any good?	X		None

7. Evaluation

7.1. Project Evaluation

The overall of the project is that the project has developed much further than when it first started back two years ago in placement. When the first time the project was given, the first prototype system was built, there was only the focus on module specification. The feedback given from the previous project was excellent since many clients were involved.

The developed of that project went either further toward the current project that has been done in this report. The previous project was good that it lead to developing another version but this time having both module and programme specifications.

The development of the current project that has been developed has been progressed in a good pace throughout the year. The project had different milestones which you can see in 3.6 of the requirement specification. Feedback was given each time throughout those milestones and with the poster presentation being the biggest part of the feedback.

The poster presentation allowed both the clients, examiner and other people who wasn't involved in the project to give feedback. One feedback was about how more area of the background research could be expanded. As the project mainly is to do with the university, background such as other systems in the university could be done and compared to the system being built in this project.

The time keeping of the project has been changing throughout the year as there were many issue that were arise such as one key part of the project was the system would needed to be change. The main reason for this was that equipment's were very limited for this year project compared to last year in placement.

While in placement, the previous project was able to have all equipment stored and information retrieved as it would be for staff members. While this year while being a student, you are limited to the amount of equipment, software and information to get.

For example that information about programme specification were needed to be got from the school as there wasn't any access to get through the system such as WISDOM because of security issues.

So there were too much optimistic with the time scheduling of the project which lead to some major changes to the time plan but this generally relaxed throughout and the project was able to be completed successfully on time.

7.2. Product Evaluation

While analysing all of the requirements back in the requirement stages in section 3, the development of this product has nearly met all of the Moscow requirements that were set. The system requirements were able to display all module and programme specification documentation.

The product was able to search through all module and programme specification documents and display the information for the user. The basic must and should requirements were also met as the client wanted to be able to compare information quickly.

The compare requirement was set by the client James who wanted the university staff members to be able to search for two module specification and quickly display both of the information together.

The product did deliver this as the user was able to search for two module documents through the product and with the “should” requirement, be able to select what kind of information they wanted to compare.

With feedback, the requirement was done correct but the way of the design could have been improved according to most users. In section 6 of testing you could see that one user said that tabs would have been better to use as this would help the user not being able to scroll down the page and make the application more user friendly. This when the amended from this feedback to make sure that the compare page was more user friendly.

Another requirement that was met was the benchmark statement display for the users. The key part of this product was being able to see the benchmark for the programme specification that linked to the module specification.

The benchmark played an important part as they would allow the user to see what module has a benchmark and which learning outcome that benchmark meets. The development for this was more complex than anything else in the product as linking these within the database had to be done correctly.

A query was used to allow the benchmark to be extracted from the database to be displayed within the application. Then by using HTML to create a table layout, these bench mark could be display onto the programme details page. This allowed further development with the help of JavaScript and Ajax to display the module and learning outcome information when hovering over each benchmark.

There was a reason for this as it would allow the users to see the connection between the programme and module learning outcomes in a clear view without having to open another window to compare. This makes it easier in the application compared to previously having to use paperwork documentation as it helps the client and users save time. While this part of the development was the hardest, it was quite a challenge which made it the best part of the development compare to other parts.

One key issue that prompt up with the project was that the database system had to be changed throughout the development of the product. The reason for this was mention before in the evaluation about the limitation of equipment and software used.

Having to use the hosting site Aspen which this product will be hosted on, there were more of technical difficultly which not only delay the product develop but affect the time plan of the project.

With some research, a solution was developed by changing the database system temporarily. This allowed the product to still be hosted so users were able to test the system.

While this was a temporarily solution, the product which would have future development would be able to change back to the original database system as SQL Server is far more secure than using an Access database system.

Since the change was major, the design of the database (see section 4) were changed to make sure that they met the design that was fitted for using an access database system. These changes were changed the values of the data field as database system will have different type of variable fields.

7.3. Personal Development Evaluation

The background research and product development phases for this project has helped me build my knowledge about web and database application development. The development has improved my awareness of issues that have been prompting throughout the project and product and project as these skills can be helpful when going into industry.

I have gained more knowledge and background research about the system that have been developed within the university and how the organisation works. For example having knowledge about how the ASIS and Wisdom system works within the university, this allowed my knowledge to develop solution on how to make the system improve rather than copying.

By having an improved system and using social skills with clients and users to find out what key area they found frustrating with the old system, this allowed the skills to develop in a way that a software developer would have skills for working for a company.

Poster presentation and user testing feedback session have been a big involvement toward the personal development as this allowed communication with clients and users. Having communication skills helped to see what clients needed and this help toward meeting the requirements and improving on feedback. Finally having worked with the project, report writing skills have been a good practice as writing in a formal way to allow clients to see the progress throughout this project.

8. Conclusion

The final conclusion is that the project has been very challenging with the development of module and programme specification. While the requirements were most simple, the development stage was more challenging as having to get the database and application working in a way to meet the user requirements.

Throughout the project the feedback and milestones have helped massively toward the completion of the project as feedback from these session were used to make sure that the project would meet the requirements. While there were issue such as the database changes which lead to the time plan changing, the project will still able to complete successfully.

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11. Appendices

Appendix A – Module Specification Template Guidance

1. **MODULE CODE**
2. **MODULE TITLE**
3. **SCHOOL/s INVOLVED IN DELIVERY**
4. **NAME OF COURSE(S)**
5. **MODULE LEADER**
6. **LOCATION**
7. **MODULE TYPE**

Keywords: *compulsory*
 core
 optional
 stand alone

8. **CREDIT RATING**
9. **LEVEL**
10. **LEARNING METHODS**
 Populate with spreadsheet data
11. **PRE-REQUISITE/S**
12. **RECOMMENDED PRIOR STUDY**
13. **CO-REQUISITE/S**
14. **SHARED TEACHING**

This heading will likely be missing in all specs; it should be included and state “None” in all cases for SCE.

15. **PROFESSIONAL BODY REQUIREMENTS**
16. **GRADED OR NON-GRADED**
17. **BARRED COMBINATIONS**
18. **SYNOPSIS**
19. **OUTLINE SYLLABUS**
20. **LEARNING OUTCOMES**

Keywords: *Knowledge and Understanding*
 Abilities
 Tutor Reassessment
 Final Element
 Anonymous Marking

21. **ASSESSMENT STRATEGY**
- 21.1 **Formative Assessment**
- 21.2 **Summative Assessment**

Keywords: *Assessment tasks*
 Assessment criteria

22. **LEARNING STRATEGY**
23. **RESOURCES REQUIRED**

Will need to be deleted/flagged on the program

24. **INDICATIVE REFERENCES**

Appendix B – Programme Specification Template Guidance

- 1 Awarding Institution**
- 2 Teaching Institution**
- 3 School and Department**
- 4 Course accredited by:**
- 5 Mode of Delivery**
- 6 Final Award**
- 7 Course Title**
- 8 UCAS Code**
- 9 Subject Benchmark Statement**
- 10 Date Programme specification approved**
- 11 Educational Aims of Course**
- 12 Intended Learning Outcomes**
 - Knowledge and Understanding
 - Skills and Other Attributes
- 13 Course Information**
 - Structures and Requirements
 - Levels
 - Modules
 - Credits and Awards
- 14 Teaching, Learning and Assessment**
- 15 Support for Students and Their Learning**
- 16 Criteria for Admission**
- 17 Methods for Evaluating and Improving the Quality and Standards of Teaching and Learning**
- 18 Regulation of Assessment**
- 19. Indicators of Quality and Standards**

Appendix C - Programme Specification Template

Following is a list of headings to be used on all new programme specifications and all existing programme specifications when they come up for reapproval using either the University's or a School's QA systems (eg a School Accreditation and Validation Panel).

Under some of the headings, cross-references *given in bold italics* are made to specific sections and pages of two related university curriculum development handbooks entitled respectively:

- 'Designing Programme Specifications'
- 'Designing Module Specifications'.

AWARDING INSTITUTION

Normally the University of Huddersfield

TEACHING INSTITUTION

This will usually be the University of Huddersfield but may be a collaborating/ franchise partner.

SCHOOL AND DEPARTMENT

COURSE ACCREDITED BY:

Give details of any professional or statutory body which accredits the course.

MODE OF DELIVERY

State whether the course is full-time, part-time or sandwich and the extent to which it is distance-learning, work-based, practice-based etc

FINAL AWARD

FD, BA, BSc, MA, MSc, HND etc.

COURSE TITLE

Provide the full title of the validated course.

UCAS CODE

Provide the relevant Code (UCAS, NMAS etc).

SUBJECT BENCHMARK STATEMENT

Provide the titles of relevant benchmark statements. For example whilst the 'Chemistry' benchmark statement would be appropriate for BSc (Hons) Chemistry, the benchmarks statements for *both* Psychology *and* Sociology would be appropriate for BSc (Hons) Behavioural Sciences.

For further information on subject benchmark statements, refer to:

- *'Designing Programme specifications' section 1.2.*
- *'Designing Module Specifications' section 1.6.*

DATE OF PROGRAMME SPECIFICATION APPROVAL

Provide the date when the programme specification was validated.

EDUCATIONAL AIMS OF COURSE

Provide brief educational aims. These focus more on the nature of the intended student experience (in contrast with the 'Intended Learning Outcomes' which focus on the nature of student achievement). The vocabulary used to express the aims should reflect the level of the course in the National Qualifications Framework.

INTENDED LEARNING OUTCOMES

Course learning outcomes should give an accurate 'portrait' of a graduates knowledge abilities and skills after successful completion of the course. Remember that, in QAA Discipline Audit, you should be able to demonstrate how all the course outcomes are assessed.

For information on writing learning outcomes, refer to:

- *'Designing Programme specifications' sections 2.1 and 2.2 (Stages 3 and 4).*
- *'Designing Module Specifications' section 1.1 to 1.3.*

Learning outcomes in programme specifications may be categorised as follows:

- **Knowledge and Understanding Outcomes including:**
 - Intellectual Abilities
- **Ability Outcomes including:**
 - Professional/practical Skills
 - Transferable/Key Skills

For an example of how learning outcomes might be included in a programme specification, refer to 'Designing Programme specifications'.

19 COURSE STRUCTURES AND REQUIREMENTS, LEVELS, MODULES, CREDITS AND AWARDS

Include information on the above in an abbreviated and accessible format. Make clear the extent to which delivery of the course is flexible.

For two contrasting examples of how this section might be represented, refer to Section 2.2 of 'Designing Programme specifications' (Stage 5).

TEACHING, LEARNING AND ASSESSMENT

Teaching & Learning Strategies and Assessment Strategies for the course should be aligned to the course learning outcomes and should represent a distillation of the Teaching & Learning and Assessment Strategies used on the course's modules.

For an example of how Teaching & Learning and Assessment Strategies might be aligned to Learning Outcomes in a programme specification, refer to Section 2.2 of 'Designing Programme specifications' (Stage 7).

SUPPORT FOR STUDENTS AND THEIR LEARNING

Provide a brief statement of student support both at University level and at the level of the School and/or Course.

- *University level:* You might include references as follows:
 - "The Library (library and computing facilities) provides induction and ongoing support for all students".
 - "A distributed network of learning support units is available to all students."
 - "Student Services provides specialist advice in the areas of careers advice, pastoral care and chaplaincy, day care nursery, counselling, accommodation and welfare, financial support, disability support, a shop for part-time work, sports facilities etc."
 - "The International Office provides help and support for all overseas students."
- *School level:* You might include school-based induction, learning support units, and personal tutor systems
- *Course level:* You might refer to Student Handbooks, Module Guides, year tutors and personal tutors.

CRITERIA FOR ADMISSION

- Briefly state the University's (and where appropriate the professional/statutory body's) requirements for admissions governing the course. You will find these in Section D2 of the University's 'Regulations for Awards'.
- Give a brief account of additional admission requirements such as interviews.
- State any opportunities for mature students to apply for admission with credit (see Section D3 of the University's 'Regulations for Awards') and, where relevant outline any opportunities for the accreditation of prior and experiential learning.

20 METHODS FOR EVALUATING AND IMPROVING THE QUALITY AND STANDARDS OF TEACHING AND LEARNING

Using accessible language and avoiding University jargon (including acronyms), briefly refer to the processes for quality enhancement at both University and School level:

- *University level:* Include references to:
 - Outcomes of periodic reviews
 - The University's effective external examiner system.
 - Mechanisms for student feedback (including independent student satisfaction survey).
- *School level:* You might mention course evaluation questionnaires, Student Panels, student representation on committees etc.

REGULATION OF ASSESSMENT

Using accessible language and avoiding University jargon (including acronyms), briefly outline those assessment regulations applying to the course which would be of interest to prospective students – for example:

- An overview of assessment details is provided in the Student Handbook and a full assessment brief provided within module guides.
- The minimum pass mark is 40% for each module.
- Normally full-time students must achieve 120 credits in each stage in order to progress. Exceptionally, in the light of good overall performance elsewhere, students may be allowed to trail one 20-credit module into the following year.
- To qualify for the award of honours degree, students must complete all course requirements.
- In calculating the numerical average for the Bachelor's degree with honours, all 'Honours' level credits in the course will carry a weighting of two and all graded 'Intermediate' level credits carry a weighting of one.

19. INDICATORS OF QUALITY AND STANDARDS

Using accessible language and avoiding University jargon (including acronyms), provide brief details of (a) the outcomes of recent QAA Subject Reviews and/or Discipline Audits and (b) recent professional body reviews.

OTHER REQUIRED OR RECOMMENDED INFORMATION

Required information relating to Personal Development Planning

All higher education institutions are required to have in place by September 2005 arrangements for Higher Education Progress Files (HEPF). An HEPF must include, in addition to an academic transcript, *"a fully operational and auditable Personal Development Planning (PDP) process"*. PDP is described as *"a structured and supported process undertaken by students to reflect upon their learning, performance and/or achievement and to plan for their personal, educational and career development."* PDP must feature in all student's courses *at every stage* and this must be reflected in the Programme specification.

There is no separate heading on the programme specification for PDP, but designers of specifications should ensure that the students' opportunities for PDP (whether as part of course delivery and/or assessment or as part of the personal tutor arrangements) are described in appropriate detail under relevant headings of the specification. Recommended headings for inclusion of PDP opportunities are:

- Heading 14: 'Teaching, Learning and Assessment'.
- Heading 15: 'Support for Students and their Learning'.

Recommended information relating to the Special Educational Needs and Disabilities Act (SENDA) 2001

The terms of SENDA are based on the principle that disabled students should receive full access to education and should have the same opportunities as non-disabled people to benefit from whatever provision is available. The legislation requires that '*reasonable adjustments*' should be applied to prevent disabled students being placed at a substantial disadvantage in comparison to students who are not disabled.

Precept 8 of the QAA Code of Practice for Students with Disabilities recommends that "*Programme specifications should include no unnecessary barriers to access by disabled people. Institutions should consider establishing procedures which ensure that programme specifications give sufficient information to enable students with disabilities and staff to make informed decisions about their ability to complete the course.*"

There is no separate heading on the programme specification for SENDA requirements, but designers of specifications are recommended to ensure that the extent to which the design, delivery and assessment of the course SENDA-compliant are described in appropriate detail under relevant headings of the specification. Recommended headings for inclusion of SENDA compliance are:

- Heading 13: Course Structures And Requirements, Levels, Modules, Credits and Awards (in relation to flexibility of attendance requirements).
- Heading 14: 'Teaching, Learning and Assessment'.
- Heading 15: 'Support for Students and their Learning'.

For further information on SENDA and its implications for curriculum design, refer to :

- *'Designing Programme specifications' section 2.2 (Stage 7).*
- *'Designing Module Specifications' section 2.4 and section 3.*

Appendix D – Term of References

Term of Reference – Module Specification Project

Brief Problem of Project

The purpose of this project is having all the module and programme specification documentation into one place where users will be able to access them easily. At the moment, the university has all of these documentation created onto files, which are then stored onto the system WISDOM.

The process of checking these specification are used in each school which are done through documents. This takes more time as each time a document is checked for approval, more copies will be made with changes to be tracked until a finalise version is approved to be stored into the system. This means that documents would need to be sent to the users through this process checking (e.g. Module Leaders) and then wait till the users have sent the documents around to the other users until that documents end back to SAVP. This is more of a hassle as it can take more time for the process and more documents are produced since changes will be made.

By having these module and programme specification documents in a database, a web system can be easily designed to allow these users to access the information easily. This system can also then allow other requirements needed such as comparing documents or searching for keywords which will save more time than looking through those words in each document. By having this system, it will deal with the problems of making the process of validating these module and programme specification more easily and quicker.

Users / Audience

Product

The main product will be a web based system which will have a database system. This system will be hosted on Aspen which is held in the Computing and Engineering department, which will have a staff account and email address connected. The web based system will be created by using Visual Studio/ASP.NET and the database will be created with SQL Server 2012 express edition.

The product will also be connected to some of the university systems, for example – ASIS information to get course and tutor listing to be display on the web system, being able to use the system to upload documents to WISDOM.

There will be a program also created to parse through all of the programme specification into the database. The purpose of the program is to automatically get the data out of the files and insert the data into the database.

As a prototype has already been created from placement, the module specification database and web based system for the module specification will be moved into Aspen. Another database will be created for the programme specification which will hold the data for these. The web based system will have improvements and will be recreated so that both the module and programme specification data can be used in one web based system.

Analysis and Research summary

The research area around this project is mainly to deal with the programme specification. Since most research was done about the module specification back in the placement when the first prototype was created, all the information has been collected for module specification. Now the main focus of this project is to get the programme specification extracted into the database and to work on the web based system for the users.

The same area of research will be needed for the programme specification as the module specification was researched. For example with the module specification, the research areas were:

- Compare samples of module specifications for data – Gathering 30 specification and comparing what information mostly shows up in the specification that can be used to store into the database
- Study how the module specification works – A specification had a layout which is used by the university and must follow that standard.
- Research any restriction that are in the specification – For example in the module specification, the total hours must be the same as the credit rating but the total hours were in hundreds (credit 20 = total hours 200)
- Researching the area of how users will be using the module specification - for example how module specification will be validated.

These area will also need to be done for the programme specification in order to make sure that the right data is used to be put into the database and the database design is correct. The area around how these specification will also need to be researched so that the development of the website will have the requirements for the users in order to get any information of the programme specification.

An example of the research that was done was looking through both the module and programme specification layout template. This allowed to give an idea of what kind of data was needed and what will be needed for the database. An example of the module specification research is below that was researched from the template to make sure what key data was needed..

25. MODULE CODE

26. MODULE TITLE

27. SCHOOL/s INVOLVED IN DELIVERY

28. NAME OF COURSE(S)

29. MODULE LEADER

30. LOCATION

31. MODULE TYPE

Keywords: *compulsory*
 core
 optional
 stand alone

32. CREDIT RATING

33. LEVEL

34. LEARNING METHODS

Populate with spreadsheet data

35. PRE-REQUISITE/S

36. RECOMMENDED PRIOR STUDY

37. CO-REQUISITE/S

38. SHARED TEACHING

This heading will likely be missing in all specs; it should be included and state “None” in all cases for SCE.

39. PROFESSIONAL BODY REQUIREMENTS

40. GRADED OR NON-GRADED

41. BARRED COMBINATIONS

42. SYNOPSIS

43. OUTLINE SYLLABUS

44. LEARNING OUTCOMES

Keywords: *Knowledge and Understanding*
 Abilities
 Tutor Reassessment
 Final Element
 Anonymous Marking

45. ASSESSMENT STRATEGY

21.3 Formative Assessment

21.4 Summative Assessment

Keywords: *Assessment tasks*
 Assessment criteria

46. LEARNING STRATEGY

47. RESOURCES REQUIRED

Will need to be deleted/flagged on the program

48. INDICATIVE REFERENCES

[Skills and knowledge required for development](#)

The following skills and knowledge that are needed for the development of this project are:

Knowledge:

- Knowledge of how programme specification works – Since programme specification will be used, knowledge is needed on what information these documents have and what needs to be stored.
- Knowledge of Aspen – Since the website is to be hosted on Aspen, knowledge is needed to be known on what the area is.
- Process of Programme specification – Knowing on how programme specification are validated.
- Knowledge of user interface evaluation – creating different designs and getting feedback on improvements and why they are needed.

Skills

- Aspen – Skill needed to know on Aspen hosting site and how this will work.
- SQL Server 2012 – Further expand on skills of using SQL Server 2012 for advanced uses such as reporting services
- ASP.NET – further expand on skills of using ASP.NET and advanced features that will be needed and using MVC
- Report writing – improve skills of report writing which will be needed for the project report.

The following skills that have already been learnt from placement and in term 1 are ASP.NET, SQL Server, knowledge area around module specifications and the process of module specifications.

The knowledge needed for term one will be the area of programme specification and the process of validating these.

In term 2 the skills need to be learnt will be mainly to do with Aspen which will host the site. Further expanding on ASP.NET and SQL Server will be needed to be learnt for extra feature that may not prop up in placement when learning these.

NOTE: The following sections has been left out for the moment since the project had changed. Since waiting for a discussion with the client about the requirements for the new plan of this project, the user requirements are still waiting to be discussed. I have discussed with my project supervisor about this and give an update version when had a discussion with the client about this.

Product development plan

The following product development plan has been created with Microsoft Project. This plan will be used for the product to track each tasks and sub tasks. The project plan will be updated each time with completed tasks, new tasks or any amendments that change for the project. The previous project plan version will be kept to show the changes that have been made.

The project plan will be split into two terms and there will be three sections. The first section will be the project report and product. This will show all the tasks and sub tasks that will be needed to complete both the report and the product.

The second section are milestones which are used to show important dates that will need to be done within the project. The final part will be a plan for meetings with the client. This will show the progress of communication with the client have been made.

An estimated number of number of hours used for the project will be around 10-13 hours per week. This will allow to complete tasks within the section for example – the research section will have a list of tasks, tasks will be done in any order but to make sure that harder tasks have more time than the easier tasks.

The following below is a product plan and an explanation on how the plan will work with this project.

- **Identifying the tasks and sub-tasks:**

Figure 1 shows the tasks and sub tasks for the project plan. Each section will be a tasks which will have tasks inside them. For example the research section will have sub tasks of research such as background research, existing product research while the evaluation section will have section such as personal, product and project evaluation tasks.

- **Estimating the duration of each task**

Each task has a duration of when the task should be completed. The first three section literature, requirements and design are in term 1 which each have a time set to them. These will be completed within term 1. While implementation, testing and evaluation will be completed in term 2.

- **Identifying milestones**

The second section has milestones in figure 1. These milestones are used for important tasks that must be completed within a date.

- **Scheduling your time eg. Gantt chart**

- Figure 2 will show the whole layout of the Gantt chart and a schedule of the time plan of each tasks and the milestones.

- **Re-planning to fit the time available**

There are some days left out between out tasks such has between Literature and Requirements stage tasks. This is to allow replanning if a problem occurs.

	★	▣ Module and Programme Specification System Project	160 days	Mon 29/09/14	Fri 08/05/15
	★	▣ Report Documentation And Product	160 days	Mon 29/09/14	Fri 08/05/15
✓	★	Table of Context	7 days	Mon 29/09/14	Tue 07/10/14
	★	▷ Literature Stage	21 days	Tue 07/10/14	Tue 04/11/14
	★	▷ Requirements and Analysis Stage	20 days	Mon 10/11/14	Fri 05/12/14
	★	▷ Design Stage	40 days	Mon 08/12/14	Fri 30/01/15
	★	▷ Implementation Stage	42 days	Mon 12/01/15	Tue 10/03/15
	★	▷ Testing Stage	15 days	Wed 11/03/15	Tue 31/03/15
	★	▷ Evaluation Stage	28 days	Wed 01/04/15	Fri 08/05/15
	★	▣ Milestones Hand in	141 days	Fri 24/10/14	Fri 08/05/15
	★	Extended Project Proposal	0 days	Fri 24/10/14	Fri 24/10/14
	★	Term of Reference	0 days	Fri 14/11/14	Fri 14/11/14
	★	Analysis - Design Completion Date	0 days	Tue 30/12/14	Tue 30/12/14
	★	Poster Presentation	5 days	Mon 12/01/15	Fri 16/01/15
	★	Outline Report and Summary Progress	0 days	Fri 20/02/15	Fri 20/02/15
	★	Deliverable of Project Report	0 days	Fri 08/05/15	Fri 08/05/15
	★	▣ Schedule Meetings - Client	160 days	Mon 29/09/14	Fri 08/05/15
	★	Client Meeting 1	0 days	Mon 27/10/14	Mon 27/10/14
	★	Client Meeting 2	0 days	Mon 17/11/14	Mon 17/11/14

Figure 18- Time Plan of the Project Plan

Appendix E – Gantt Chart

