

EDGE HILL UNIVERSITY

CIS3300 – RESEARCH AND DEVELOPMENT
PROJECT

BSc WEB DESIGN & DEVELOPMENT

Project Bazaar Proposal

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1 Introduction

In the last year of an undergraduate degree most students are required to carry out a third year project which can either be a research dissertation or a software project. The aim of both is to encourage students to build upon the skills they have learned during their degree in an area of research they find interesting as well as exploring a research topic in depth. The project also builds students skills in managing a sizeable project from beginning to end. As the project/dissertation needs to be a yearlong, most students need to be able to either develop their own topic or undertake a lecturer set project. This will be the base of the whole project by creating an on line system that allows staff to add suggestions as they think of them with the method of allowing the student to contact them once they have found a topic they wish to choice.

The current system which is being used is the lectures will send their ideas to the module leader which will then advertise them within blackboard. Blackboard is the online learning system in which all notification and module content is kept for student to get access from however there is no way at the moment where students can directly contact their lectures through the system on which projects they are interested in.

2 Project background

In this section we will be exploring two aspects of this project the first is what is an undergraduate dissertation/ development project. The final aspect which will be looking at briefly will be the current research into problem student find they have with final year projects.

Before we can look at the problems the project will be trying to solve we need to first understand the client. The brief was set out by Edge hill University Computing Department. The university has been offering higher education to student since 1885 and focus on making sure they provide student with the chances to expand their knowledge which they were awarded gold in teaching excellence framework.(University, 2017) The computing department themselves aim is to try and produce high calibre graduates ready to go straight into the industry with a success rate of 91.4%.(University, 2016) One way the computing department make sure their students are ready for the industry is making all their undergraduate and master student carry out a final long year project. The department believe that this will benefit them by providing them with the chance to be creative, enhance their practical/ analytical skills, understand the importance of time management and self-evaluation.

The second aspect of the project is what is a final year project. The computing department has the responsibility to make sure that their course goes along with the guidelines set out by the British Computer Society accreditation. According to the 2015 guidelines the Society, 2015 expect their student to carry out an individual final year project which should allow the student to apply practical skills and analytical skills which has been learned over the three years. The project should also allow the student to be able to be creative when dealing with a real world problem. The last year project needs to be able to test the student ability to be able to self-manage and self-evaluate themselves.(Society, 2015; Shankapal, 2014) A self-help book for student undertaken a final year project also explains that the use of the final project is also away to train student to become professional is carrying out research or a development project.(Berndtsson et al., 2013)

However a final year project can be confused with a dissertation. Shankapal, 2014 has already stated that a final year project is used to test the knowledge of what student have learned inside a class room. However a dissertation is a chance for student to develop on their knowledge to come to a new discovery in a specific area of research. Another source describe a

dissertation as away to get information on how a topic affects a specific users or even compare two groups of user against each other.(Biklen et al., 2007)

So far in this section we have explored what is the difference between a dissertation and development project. However, is there an actual problem occurring when student carrying out final year project/dissertation. According Todd* et al., 2004 their independent inquiry into dissertation found that the most challenging aspect of the final year project is creating a specific research idea and make sure that the project has a precise focus. Easterby-Smith et al., 1991 also tells us that in his opinion that it is very unlikely that you will find a student that is able to clear focus from the start of a development project and this then can delay the start of their project.

Another university which allows their student to either carry out a dissertation or a final year project also states their their student found picking a topic hard. However they found that 31 out of 42 when picking a would base it around a personal interest.(A IAnson et al., 2004) Even though both of these studies are linked around dissertation more then development project is shows that when student need to come up with their own ideas they automatically struggle to either to make sure it suitable topic or have trouble making sure they stay focused with in the project. This shows that there is a need for students to be able to access ideas to make sure that they can see how focused a project needs to be.

As well Silen, 2003 explains that creating a new project idea can be come 'chaotic' when coming to terms with what they need to achieve is such a short period of time. The other possible issues which can occur when student carry out a final year project is establishing the correct methods within the guidelines and making sure students have outlined a realistic scope.(Berndtsson et al., 2013) This is only a few of the problems student occur over the time they have to carryout research but it is very clear that their is a need for some sort of support section to improve the way that student approach sections of the reports.

3 Project aim and objectives

3.1 Project Aim

The aim of this project is to investigate the problems students have with planning and undertaking a third year project with a web based solution.

4 Project Objectives

To meet the aim, the following objectives will need to be achieved:

OB1 : Conduct desk background research

OB2 : To investigate the student cohorts understanding and needs when preparing for third year project/dissertation.

OB4 : Design and build a web based solution to aid students.

5 Scope

The research side will include:

- Questionnaires which will find the common problem third year student are having carrying out their project
- Questionnaires which will find out what student would like to now before they pick their final year project
- carry out desktop research into the layouts of free-lance website and portfolio sites to find out how to layout the system.

The system which will be created will included:

- A login system for staff to access the website
- A form which will allow staff to upload project ideas
- A form which will allow staff to upload previous project for student to get a sense of what a project looks like and how to write one

- A system which allows staff to be able to add advice on key parts of the project and have written advice on each sections of the final year report.
- A student email checker to make sure that only Edge Hill student can access the projects and previous projects.
- A response system to allow student to contact staff once they have decided which project they would like to take part in
- A filtering system to allow student to filter the project by topic and staff members.

The system will not include:

- A way for student to suggest their own projects and get feedback on the project from staff
- A chat section between staff and students
- A student login system for them to save project they are interested in.

6 Deliverables

By the end of this module the following will be submitted:

- A working website application
- A section of the report which will cover all the research into the problem students are having with final year projects
- A section of the report which will cover the research into the layout of the web application
- A section of the report which will cover the usability, functional and behavioural testing of the web application

7 Methods

The main method which will be used to answer objective 1 will be literature review which will be used to explain the overall what is a development project, why they are needed with in an undergraduate degree and research into current articles into what problems student have in the final year project. The main reason for using a literature view is because it helps provide the theoretical background and helps to conduct a link between what we currently now about the area of study and what the project going to try to prove(Kumar, 2014). This will be linked to objective 2 to see if edge hill students and other research studies share the same problems when dealing with final year projects.

Another method which will be used to answer objective 1 will be desk research to undertake a comparison to website similar to then one which will be created to come up with design ideas. The type of desk research which will be used is external desk research which is a type of secondary research, the research will not use to collect data but to review how similar system work.(Travis, 2016)

The aim of objective 2 is to find out the needs for students the main research tool that will be used to gather the data will be questionnaires. The main structure of a questionnaire is a list of open and closed questions which is used to get specific data from a target audience. According to Kumar, 2014 the main reason for using the questionnaire as a research tool is it make sure that all the users are kept anonymous from the research. As well can be carried out quickly with high amount of participants. However, the only problem with this method is the response rate especial when dealing with the students that have already left university.

The final objective is the development stage. The build will have individual methods but there will also be an overarching method which will be one of the agile development method. Hughes et al., 2009 state that the practice of agile development will lead to good practice because of the link the method creates between individuals and the team they are working in. The type of agile approach which will be carried out in this project will be scrum. One of the key reason for using the scrum method within this project the method allows for rapid adjustment and allows the developer to be able to identify and work on problems quickly.(Alexander, 2017)

The next method used within the development process will be focus groups because it allows the researcher to collect qualitative data on their

attitudes and opinions to a product.(Agadoni, 2017) The focus group will mainly be used to carry out to compare two designs for the application with the intention of creating a third final design for the website. The type of focus which will be used is mini focus groups because it allows the focus group to get intimate approach to a topic.(Agadoni, 2017)

The other development method which will be using during the development process is behaviour driven development. The main aim of the BDD testing is to be able to test the behaviour of the functionality of the application.(Sale, 2014) BDD testing allows the developer to set out steps they which a user to carry out to either get to a feature or interact with a feature. (Sale, 2014)

Once the website has been built and content has been added to the website there will be usability testing. The main usability testing which will be used a traditional moderated usability test, this is where a small group of 5 to 10 user will have a session with a moderator. During the session the moderator will give the participants small task to carry out and give them the opportunity to think out loud to show the different steps they have carried out to complete the task.(Albert et al., 2013) Albert et al., 2013; Allen et al., 2012 explains that the main reason for using this method is to observe a user to gather feedback on design of the website and collect issues within the task carried out.

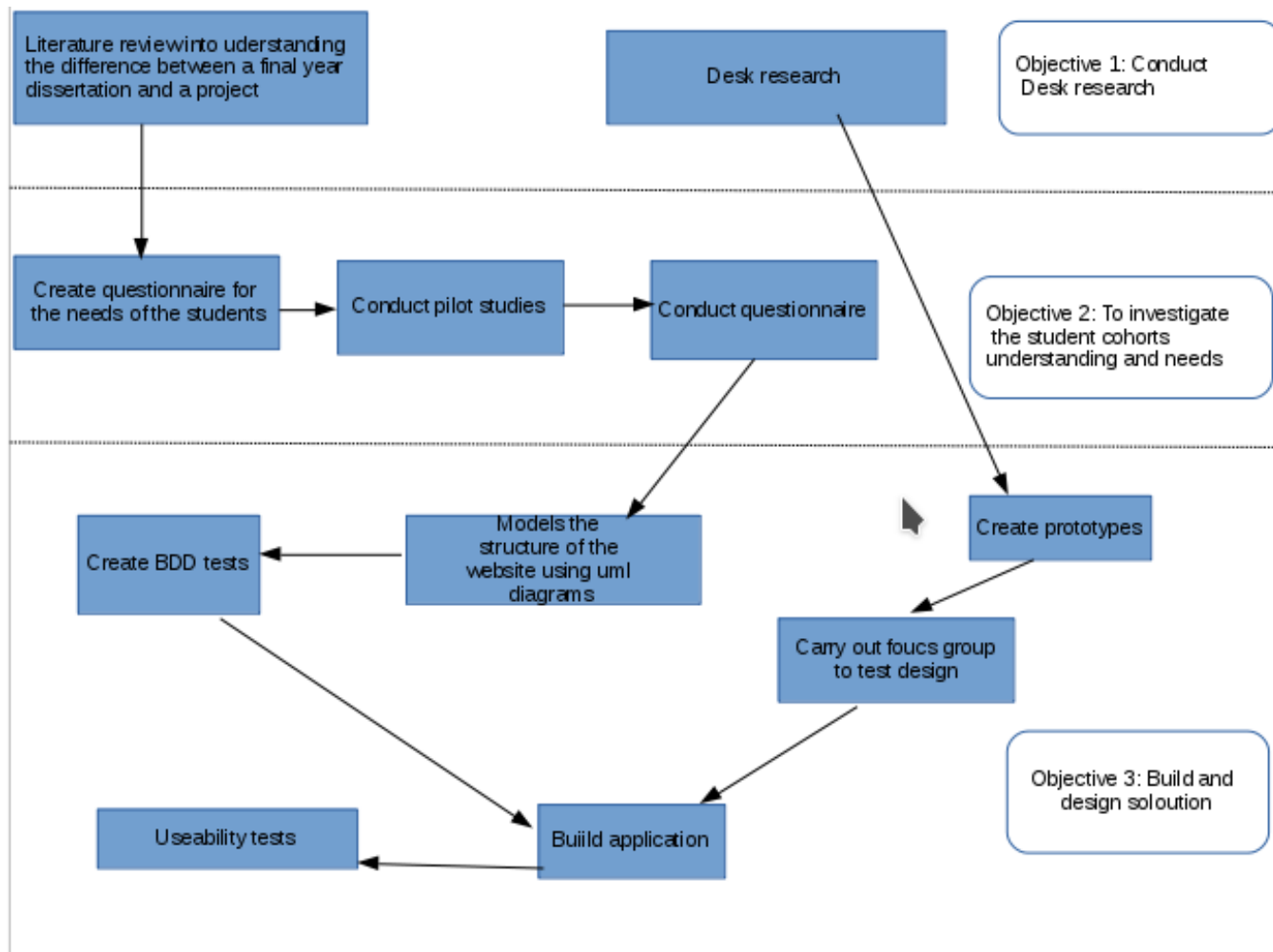


Figure 1: Conceptual Diagram

8 Resource required for the project

8.1 Resource for objective 1:

As this is background research not resource are need just the books for the library and access to free lance website online.

8.2 Resource for objective 2:

- Access to current students to understand what they will look for when deciding which project to choice.
- Access to current students to find out what they would of liked to have had before deciding their final year project.
- Access to student to determine what they found most difficult about their final year project

8.3 Resource for objective 3

- LA ravel 5.5
- PHP Unit
- MySql sever
- CodeCeption
- Trello
- Version Control
- list of project and previous project example to test the website
- project module handbook and assessment material
- list of staff email and their pathway of interest
- CI testing

9 plan of work

Project outline write up	2 days	Sat 07/10/17	Mon 09/10/17	
Ethics agreement check and supervision agreement	1 day	Tue 10/10/17	Tue 10/10/17	1
Create project proposal with ethic all ready discussed	5 days	Tue 10/10/17	Mon 16/10/17	1
Gantt chart	5 days	Tue 10/10/17	Mon 16/10/17	1
create project backlog for over arching methodolgy	3 days	Tue 10/10/17	Thu 12/10/17	1
user case diagrams	2 days	Wed 18/10/17	Thu 19/10/17	3
personas	2 days	Wed 18/10/17	Thu 19/10/17	3
Objective 1 conduct liltertaure research	14 day	Wed 18/10/17	Mon 06/11/17	3
Start Build	0 days	Fri 20/10/17	Fri 20/10/17	6
conduct testing	0 days	Fri 20/10/17	Fri 20/10/17	
develop Uml diagrams	3 days	Fri 20/10/17	Tue 24/10/17	
ERD	3 days	Fri 20/10/17	Tue 24/10/17	9
create BDD tests	3 days	Mon 30/10/17	Wed 01/11/17	10
flow diagram	3 days	Thu 02/11/17	Mon 06/11/17	9
activity diagram	3 days	Tue 07/11/17	Thu 09/11/17	14
Build backend of the website	17 day	Fri 10/11/17	Mon 04/12/17	15
undertake desk research	3 days	Fri 20/10/17	Tue 24/10/17	9
analyse desk research	2 days	Wed 25/10/17	Thu 26/10/17	17
create questionnaire about content	3 days	Fri 20/10/17	Tue 24/10/17	9
supervisor check questionnaires	2 days	Wed 25/10/17	Thu 26/10/17	19
send out questionnaire	5 days	Fri 27/10/17	Thu 02/11/17	20
analyse questionnaires	2 days	Fri 03/11/17	Mon 06/11/17	21
create content for the front end	4 days	Tue 07/11/17	Fri 10/11/17	22
design two example of the front end of the website	3 days	Wed 25/10/17	Fri 27/10/17	17
create question for focus group	2 days	Mon 30/10/17	Tue 31/10/17	24
carry out focus groups	3 days	Wed 01/11/17	Fri 03/11/17	25
analysis focus group	3 days	Mon 06/11/17	Wed 08/11/17	26
build front end website in mobile and desktop	20 day	Thu 09/11/17	Wed 06/12/17	27
finish build	47 day	Fri 20/10/17	Mon 25/12/17	9
create cognitive walkthorugh tasks	3 days	Tue 26/12/17	Thu 28/12/17	29
conduct cognitive walkthrough	3 days	Fri 29/12/17	Tue 02/01/18	30
analyse the results	3 days	Wed 03/01/18	Fri 05/01/18	31
end of development and start write up	20 day	Mon 08/01/18	Fri 02/02/18	32

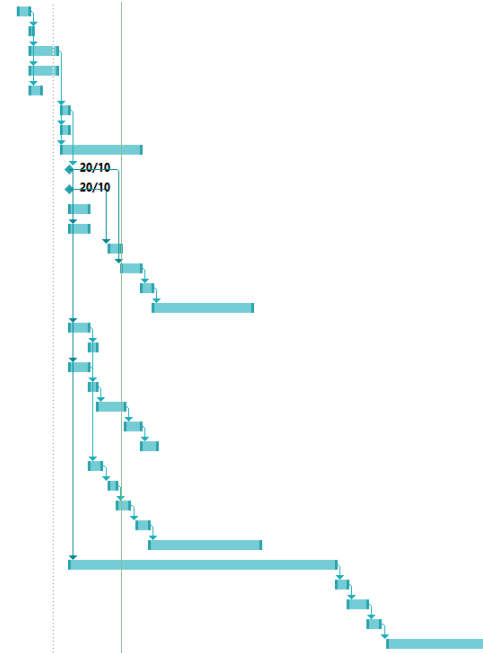


Figure 2: Gantt chart

Action back log	Status	Sprint ready
Sprint one		
create proposal	In progress	Yes
create bit bucket account	Not started	Yes
link trellor to bitbucket	Not started	Yes
set up new laravel project	Not started	Yes
link bit bucket to slack	Not started	Yes
Back log needing to be add to a sprint		
create activity diagrams	Not started	No
create ERD	Not started	No
create user case diagrams	Not started	No
Create personas for staff, student, non-edgehill student	Not started	No
develop tables	Not started	No
migrate tables to mysql	Not started	No
seed data for pathways	Not started	No
create bdd test for creating previous project	Not started	No
create bdd test for delete previous project	Not started	No
create bdd test for edit previous project	Not started	No
create bdd test to create new project	Not started	No
create bdd test to delete new projects	Not started	No
create bdd test to edit new project	Not started	No
create bdd tests for adding staff	Not started	No
create bdd test for edit staff	Not started	No
create bdd to test permissions	Not started	No
create bdd to test header options	Not started	No
create the add staff function to website	Not started	No
create new learning material form	Not started	No
create new previous project form	Not started	No
create new project form	Not started	No
extra project data to website	Not started	No
extract previous project from database	Not started	No
extract saved learning material from database	Not started	No
create edit and delete learning material	Not started	No
create edit and delete project	Not started	No
create edit staff	Not started	No
create email checker	Not started	No
create function to allow certain staff to edit content	Not started	No
create the filtering options for the projects	Not started	No
create the response feature of the project	Not started	No
add validation to new users	Not started	No
add validation to previous project	Not started	No
add validation to project	Not started	No
develop some accessibility	Not started	No
research content for website through questionnaires	Not started	No
create seed for learning section	Not started	No
gather learning advice	Not started	No
carry out desk research	Not started	No
design high fidelity	Not started	No
design low fidelity	Not started	No
carry out focus group for designs	Not started	No
create front end look	Not started	No
gather project and previous project resource	Not started	No
image optimisation	Not started	No
add content to website	Not started	No
carry out cognitive walkthrough of the website	Not started	No

Figure 3: project backlog

10 Project Risks

One of the possible risks which may occur is not being able to get enough research from the different students to work out which advice they need before choosing and during their projects. The chance of this happening is low as there are lots of opportunities to talk to the relevant student however the impact would be high as this would impact what sort of support it provides on the website. So overall this would have medium impact but if this does happen the research would need to be turned in to more a literature research from other universities which would mean that the result may not always be relevant to the department.

The other problem which needs to be addressed is if there are any issues with the hardware, there is a possibility of this happen and the consequence would be very high as work would be lost. The impact of this on the project would cause the development to be stopped. However, through the use of version control this will keep the impact level down as it will be easy to pull back to an early version of the project.

The last problem will be not getting access to past projects which need to be tested when uploading to the website. The like hood of not getting the previous project is low as the department has many examples that can easily be accessed, the consequence of not getting them is also low as it will not affect the development. The overall impact would mean that the testing would not be completely accurate.

11 Ethical considerations

One of the ethical consideration is the personal information that will be stored on the database about the staff member that will be using the website. The other ethical consideration when dealing with the database is making sure that the previous project author is kept hidden so they cannot be tracked back to the students.

Another ethical consideration which will need to be considered is that the product will be used within the educational environment, this means that there will be student with different needs that need to be considered when design the functionality of the website for example students that are visual impaired.

The main ethical consideration is the background research which will in-

involve student so their personal information which will need to be kept hidden at all times. The main research method which will cause ethics problem is questionnaire, focus groups and cognitive walk-through. The questionnaire can be carried with great anonymity as there is no face to face and there is no need to save their names. The other two can be protected through consent forms which allows them to justify the research and what will happen to the data.

12 Conclusions

The project proposal has set out what needs to be achieved over the next couple of months to successfully deal with the problem student occur during their final year project. The objectives are their to be able to first carry out research to identify the exact problem Edge Hill student are having when dealing with their final year project. The final objective is to design and develop a solution to improve the way student feel towards the problem. Also during this proposal the methods and the possible ethical issues have been set out to make sure that there are no problems when carrying out the research. The report as well has set out the resource which are need to develop the project and carry out the selected methods. All these requirements come together in the plan for work, the plan of work is their to determine the length of time the development will take and how everything is linked together. In conclusion the project proposal has set out a route which needs to be followed to create a final web application to advertise and support student final year project.

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13 Appendix A: Ethical Check List

Self-Assessment

If your research involves human participants, are any of the following concerns relevant?	
No	1. The involvement of vulnerable participants or groups, such as children (under the age of 16), people with a learning disability or cognitive impairment, or persons in a dependent relationship?
No	2. The sensitivity of the research topic, e.g. the participants' sexual, political, or legal behaviour, or their experience of violence, abuse or exploitation?
No	3. The gender, ethnicity, language, or cultural status of participants?
No	4. The use of deception, trickery, or other procedures that may contravene participants' full or informed consent, without timely and appropriate debriefing, or activities that cause stress, humiliation, or anxiety, or the infliction of more than minimal pain?
No	5. Access to records of personal or other confidential information, including genetic or other biological information, concerning identifiable individuals without their knowledge or consent?
No	6. The use of intrusive interventions, such as the administration of drugs or other treatments, excessive physical exertion, or techniques such as hypnotherapy without the participants' knowledge or consent?
No	7. Research related to the NHS is strongly advised to seek advice from their supervisor before commencing the project

Figure 4: self-assessment form

Please discuss your project with your supervisor.

Otherwise, your project may be considered **low ethical risk**. Please sign below and submit your self-assessment document to your supervisor and upload it to BB.


Approval for Low Risk Research Projects	
I can confirm that : (confirm you have read these)	
<ul style="list-style-type: none">- I have read the Edge Hill University Framework for Research Ethics http://www.edgehill.ac.uk/research/research-ethics-governance/- I have read the Computing Departments Ethics Policy Document (see BB).- I agree to abide by their principles	
Your name	Timothy Walkidea
Date:	17/10/17
Supervisor's name	Dr. Webb 
Date	19/oct/17.

Figure 5: signature