Project Bazaar

Timothy Walkiden
Dept of Computer Science, Edge Hill University
timothy.walkiden@edgehill.ac.uk

1. OVERVIEW OF PLANNED PROJECT/RESEARCH

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 learnt 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. There are a number of issues that are obvious from the outset:

- Students possibly do not understand what a project actually is or what it entails.
- Students may never have seen a completed project before
- There is no easy method for lecturers to advertise the projects they have for students to undertake.
- The skills students need for a future career may not align to the projects lecturers have planned.
- Mis-understanding of the structure and process of project.

There are more than likely a number of other issues that will have to be researched and identified at the beginning of the project. From this a web based solution will be designed and developed.

2. PROJECT AIM

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

3. PROJECT OBJECTIVES

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

OB1 : Conduct background research.

- Conduct literature survey to understand the differences between a final year dissertation and project.
- Undertake desk research of free-lance websites and portfolio sites to gather key design and usability inspiration.

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

- Prepare a questionnaire(s) for students at different levels.
- Conduct a pilot of survey(s) and amened questions.
- Conduct survey(s) and analyse results.

OB3 : Design and build a web based solution to aid students.

- Gather Content for the site (e.g. examples of project topics from staff, and previous carried out dissertations, as well as creating relevant advice content for students to learn about project and the processes.
- Design and Build the website.
  - Model the structural and interaction flow of the site using various UML diagrams.
  - Create BDD tests to make sure all the necessary requirements are available within the website.
  - Code to pass tests.
  - Design and conduct user tests.

4. METHODOLOGIES

To answer OB1 and to understand the project and what a project/dissertation actually is an extensive literature review will be undertaken. To aid understanding of both interaction design and user experience, Desk research will be carried out in two distinct areas:

- Freelance websites (to look at how projects should be advertised)
- Designer and developers portfolio sites (to look at how exemplar work should be presented)

To build on this knowledge and to answer OB2, a survey will be carried out using students and lecturers as sample audiences to gain a better understanding of the problems surrounding the projects. The survey questions will be informed by the literature found in the lit review. The survey will be pilot tested on a small sample before being finalised and released to the full sample audience. All results will then be analysed in full and results fed in to the design.

TO meet OB3 their will be various UML and diagrams created (e.g. ERD for design the database, Use Cases for the interaction flow) based on the results of the survey and developer knowledge. The actual development will utilise BDD testing to make sure the necessary requirements are available and work as designed within the website. A focus group will be used to test two different designs to see what features/designs they like and those they do not. As the website is targeted at students, it is important to ensure they are included throughout the process (user centred design).

Cognitive walk throughs, coupled with a feedback survey will be used to help evaluate the site and content. During the walk through eye tracking will be used to test the engagement of students with the content.

Throughout the development process a project management tool will be used to plan and layout the tasks that need to be done in a certain order. The over arching development methodology that will be adopted is scrum (figure 1). The first part of scrum is the product backlog which is controlled by the product owner. The product backlog contains all the desirable outcome which the user expects from the product in the order of most important to least. The next stage is to start creating the sprint, the first stage is the sprint planning which is where they take the product backlog and start adding them to the sprint backlog to be able to decide what need to happen in the next iteration. A iteration like in figure 2 shows 5 steps the first is the discovery of which product backlog will be worked on in the iteration. Then their is the designing of the product and then the design is developed for testing before is is deployed. At the end of each development day their is a daily scrum. A daily scrum is where the developers talk about what they achieved yesterday, what they would like to achieve today and then is their anything that stopping them carrying out a task. During this process their is a task board which shows task that have not been started and then show which task are currently in progress. The last section is in the task board which shows the task which are completed.

5. TECHNOLOGIES

Standard technologies such as: Git and GitHub will be utilised throughout the build.

- Back end CMS development
  - Laravel (latest stable version)
  - MVC - OOP
  - SQL
  - API development
  - TDD/BDD testing using CodeCeption
  - CI testing (Jenkins, Travis, codeship or equivalent)
- Front end site development
  - Html5
  - CSS3 via SASS(SCSS)
  - React
  - Mobile first responsive design
- UX
  - image optimisation (file size, file type, responsive images, svg images)
  - code optimisation
  - Prototyping tools (InVison and Blasmiq)
  - Colour theory
  - Interaction design to make sure the website can be used on multiply devices.
  - user research (flow diagrams, persona's, activity diagrams, state machine diagrams, surveys, eye tracking)

there are more technologies i think you could add to each main bullet point

References

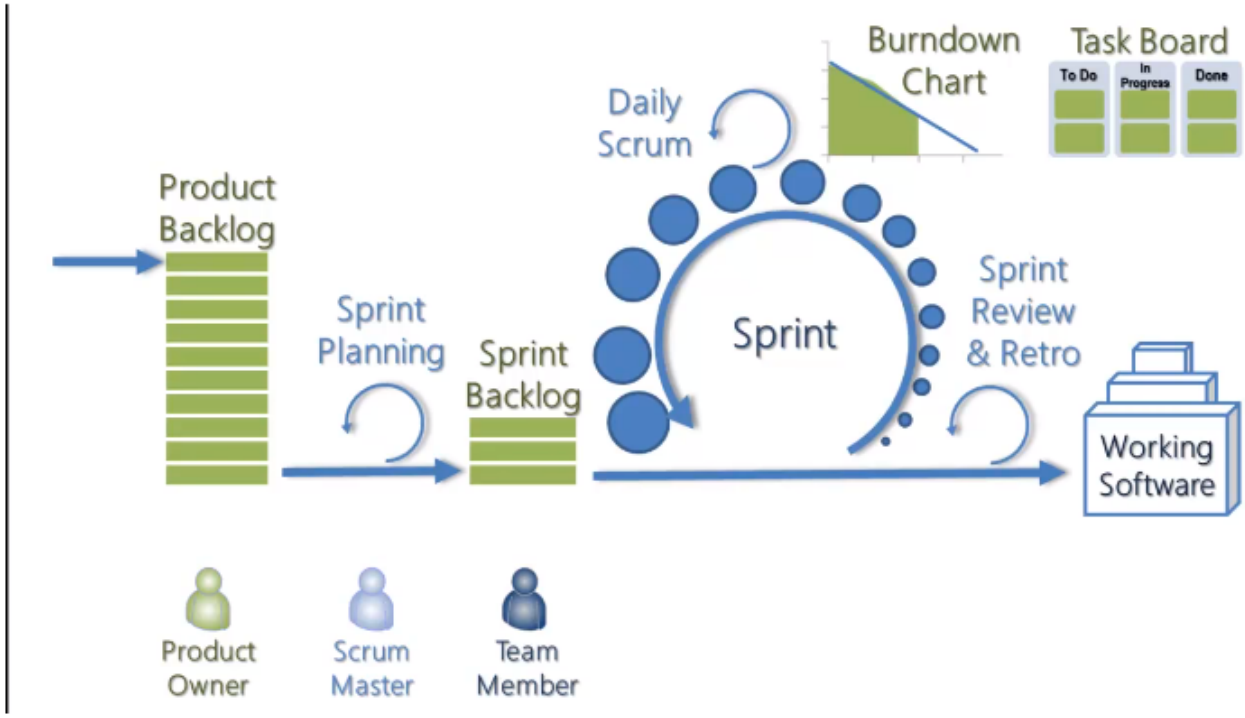

Figure 1: scrum

Figure 2: agile sprints

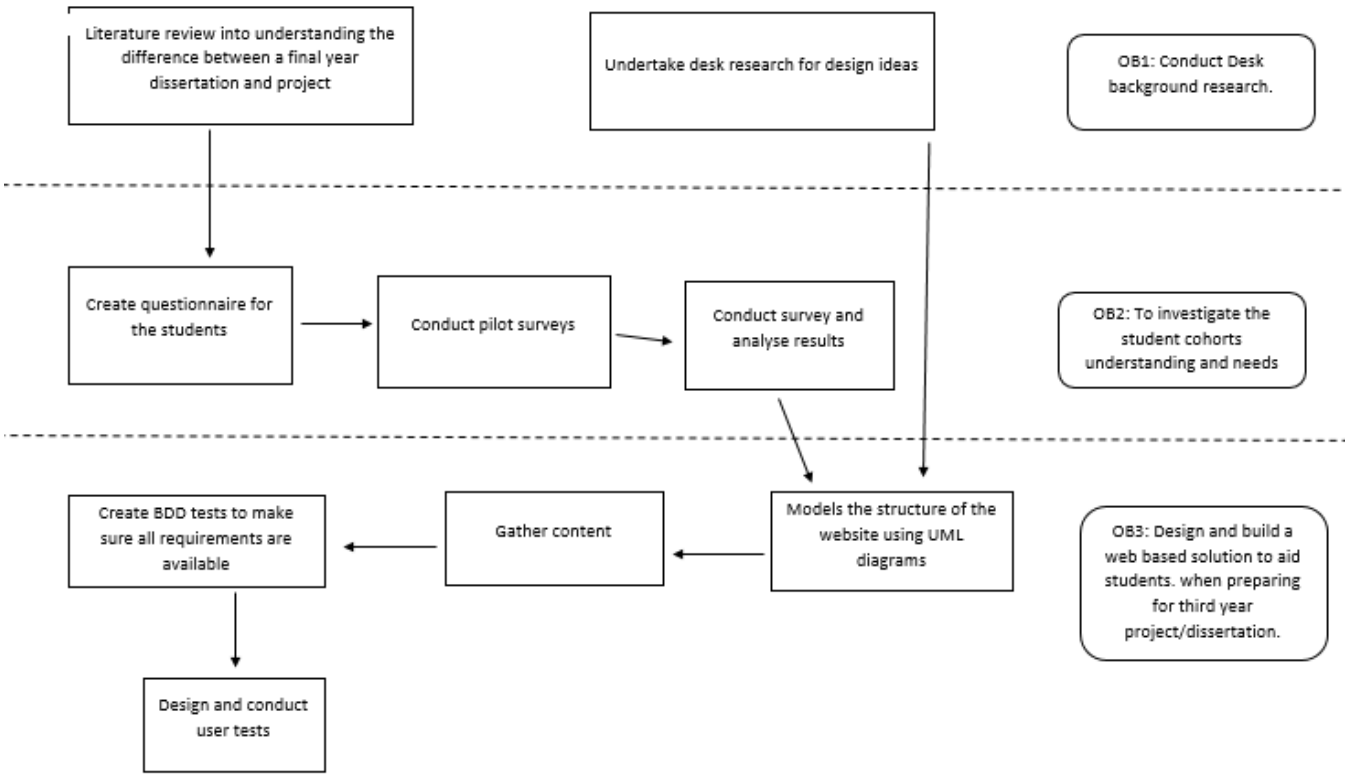

Figure 3: conceptual diagram