All Gifited Learning Board Project Proposals

Dingxin (Martin) Yu

Student ID: 42834821

School of Information Technology and Electrical Engineering

University of Queensland

Supervised by

Associate Professor

Dr. Xue Li

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1. PROJECT OUTLINE

1.1 Detail of the Course and Stakeholders

CSSE3006 (special project in computer system and software engineering) is for final year bachelor of IT students at University of Queensland. The purpose of the course is to develop the student's research and problem solving skills within an industry setting. Students will be given a significant industry-based project that integrates technical, commercial and other factor. The following contents are the details of academic supervisor, industry supervisor and CEED program director.

Industry supervisor: Ms. Pamela Lim.

Email address: pamelaliusm@gmail.com.

Web page: https://www.facebook.com/liupam

Academic supervisor: A/Prof. Xue Li.

Email address: xueli@itee.uq.edu.au.

Address: Room 78 – 650, GP South Building, University of Queensland.

Contact number: +61 7 336 52379.

Web page: http://itee.uq.edu.au/~xueli/

Current research projects: Mistake-Driven Learning in Interactive Document Classification Knowledge Discovery from Long Temporal Event Sequences Mining Distributed, High-Speed, Time-Variant Data Streams

CEED program director: Mr. Graham Willett.

Email address: ceed@corptech.com.au.

Address: Brisbane Technology Park, 30b McKechnie Drive, Eight Mile Plains.

Contact number: +61 7 3841 5500.

1.2 Executive Summary

All Gifted learning board is design to help student from grade 1 to 12 in studying knowledge online. The reason why it is called All Gifted learning board is because the best gift to a child is the gift of education. With the help of modern technology, All Gifted learning board provides a wider environment for child education. User of learning board can be divided into two roles, student and instructor. Users have several functionalities such as To-do list, message, manage account, view/enroll a course (It depends on the role of the learning board) and start a new course. Generally, the learning board is like an open course system but in style of social network, which means student can enroll the course by following the available course on the board. Learning board also provides environment for instructor who can put the course related learning material online. Instructor can view each follower's study performance. The framework measures each course. For example, Lexile level for reading and Maxile level for Math. The marking system is quite different from traditional grade system. Instead of the grade, students are given a level from 0 to 1200 throughout the course as they complete assignments. It gives a flexible way for student in completing the course.

For this project, an eLearning network system needs to be built on windows azure platform using ASP.NET MVC5, clearDB (MySQL database on azure platform) and entity framework with couple of functionalities. The network system is also using C2C (client-to-client) architecture, which means it is in style of social network (e.g. Facebook, Twitter).

This document shows the details of proposed project plan including 4 sections, which are project outline, research design and methodology, project management schedule and reporting.

1.3 Client Profile

Ms. Pamela Lim was a well-known entrepreneur in Asia 10 years ago. Her passion and drive as an entrepreneur helped her excel in the fast-paced, dog-eat-dog world of business where so few succeed. She has won numerous entrepreneur awards in Singapore and the rest of Asia, including Top 10 Women entrepreneur in 1999, The Most Promising Woman Entrepreneur in 2000 and Entrepreneur of the Year in 2001.

Pamela started a company with just three employees, which grew into one that has business and operations in 7 countries. The company managed to get approved for dual listing in NASDAQ and SGX, a commendable feat as it's the first ever Singapore company to achieve a first level listing approval.

She selflessly gave up the entrepreneurial and business world in 2004 with the passing of her father-in-law to raise her 5 young children. She started teaching and took to it with zealous dedication. Today, she is a lecturer for undergraduate and graduate innovation, business, entrepreneur and strategic management. She has dedicated the next few years to research into education.

As a mother and an educator, she is constantly searching for answers and alternatives to Education and is curious about the most important aspect in societies. Pamela is currently writing the first community book in the world, co-writing her book with her blog readers at her new blog www.all-gifted.com The blog and book is peppered with many interesting and informative perspectives of her findings and struggles.

1.4 Project Descriptions and Scope

This project is to build a social media based eLearning system on cloud platform (Windows azure). It is a single student project. Both of the application and database need to be finished in next 15 weeks. There are particular functionalities for different roles in the learning board network system. This learning board is based on C2C (client-to-client) network system. In other words, it is a social media (e.g. Facebook, Twitter) liked eLearning system.

Load balancing is one of the most important features of cloud computing. It aims to optimize resource use, maximize throughput, minimize response time, and avoid overload of any one of the resources. With the benefits of the cloud-computing platform, the network system will never crush if plenty of users log in the system at the same time.

The learning board is using 3-tier architecture in which the presentation tier, logic tier and data tier are developed and maintained as independent modules. In this case, the user interface, functional process logic, computer data storage and data access are built independently. Presentation tier is the top-most level of the application. It translates tasks and returns to something the user can understand. Logic tier makes the logical decisions and evaluations. It also helps processing data between the two corresponding layers. Data tier is use for storing and retrieving data from database or file system. It passes the data back to logic tier.

The following contents are the list of functional decomposition of the learning board network system.

Includes:

General:

- Database implementation
- Azure platform integration
- C2C (client to client) network modeling
- Math framework (multiple choice questions, matching game, puzzle, work problems)
- Reading framework (multiple choice questions, matching game, puzzle)
- Analytical tool for student performance

All users:

- Login functionality
- Message communication
- To-do list
- Set different roles in the application

Instructor:

- Create/add course function
- Add (pin) various materials to the learning board
- View students performance
- Marking system

Student:

- Follow the course in the learning board
- View study performance

Excludes:

- User Interface design

1.5 Project Objectives

The All-Gifted eLearning network system is help student learning skills from grade 1 to grade 12 such as Math problem solving skills and article reading skills. The to-do list reminds the deadline for each assignment. The pinterest style client-to-client network system gives a fresh user experience to students.

In summary, the learning board provides services such as Math program, reading program, to-do list, and new grade system and pinterest style user interface. All of the services above are helping student from grade 1 to 12 students in studying.

2 Research Design and Project Methodology

2.1 Client Requirement

The network system needs to be built on windows azure platform (Cloud platform) using ASP.NET MVC5, ASP.NET Identity 2.0, MySQL and Visual Studio 2013. A MySQL database is an add-on on the windows azure platform hosted by ClearDB. Instead of adding material on the normal eLearning system instructor 'pin' the relative course materials on the learning board like this.

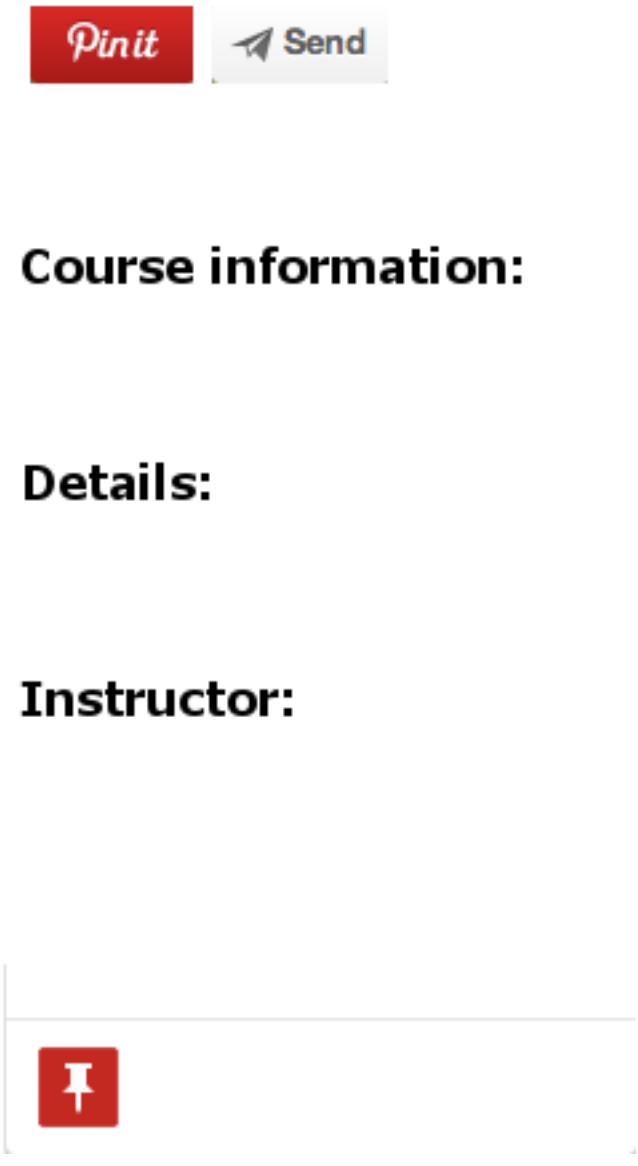


Figure 1: Sample for pin course

In addition, this project needs to be done in 15 weeks. Therefore, agile software development methodology is chosen for the project. Design, Build (Coding), Initial test, Bug fix, Final tests and Deployment are the main procedures of the project under the methodology.

The following list is a summary for client requirement:

- ASP.NET MVC5
- Windows Azure Platform
- ClearDB
- Pinterest style user interface
- ASP Identity 2.0
- Math program
- Reading program

2.2 Prior work and Key Literature Review

The learning board network system is never done before, but similar product has been published. For example, moodle (https://moodle.org/) is a famous open source template for eLearning system. This template provides general information for eLearning system. It helps developer to distinguish the relationship between different roles in the network system. In addition, MSDN .NET application tutorial and forums are the key literature for this project. ASP.NET MVC5 is the latest framework published by Microsoft. The online tutorials (http://www.windowsazure.com/en-us/develop/net/) provide not only the initial start for beginners, but also give a lot of ideas in building ASP.NET MVC5 application. It helps developer to have a general understanding about the new features in the latest framework. Besides, forum is an excellent platform for developers to solve the problem together. (Microsoft forums: http://forums.asp.net/)

2.3 Research Methods

Agile software development methodology is chosen for this project. Due to the limited develop time and it is a single student project, the basic functionality of the network learning system can be developed in a short period time by using this development methodology. Furthermore, iterative, incremental and evolutionary method is suitable agile method for this project. The whole project is broke into small tasks with minimal plans. Iterations are short time loop that typically last from one to four weeks. Each iteration involves in planning, requirement analysis, design, coding, unit testing and user test. At the end of the iteration a working product is demonstrated to stakeholders. In this case, it minimizes overall risk and allows the project to adapt to changes quickly.

2.4 Resources

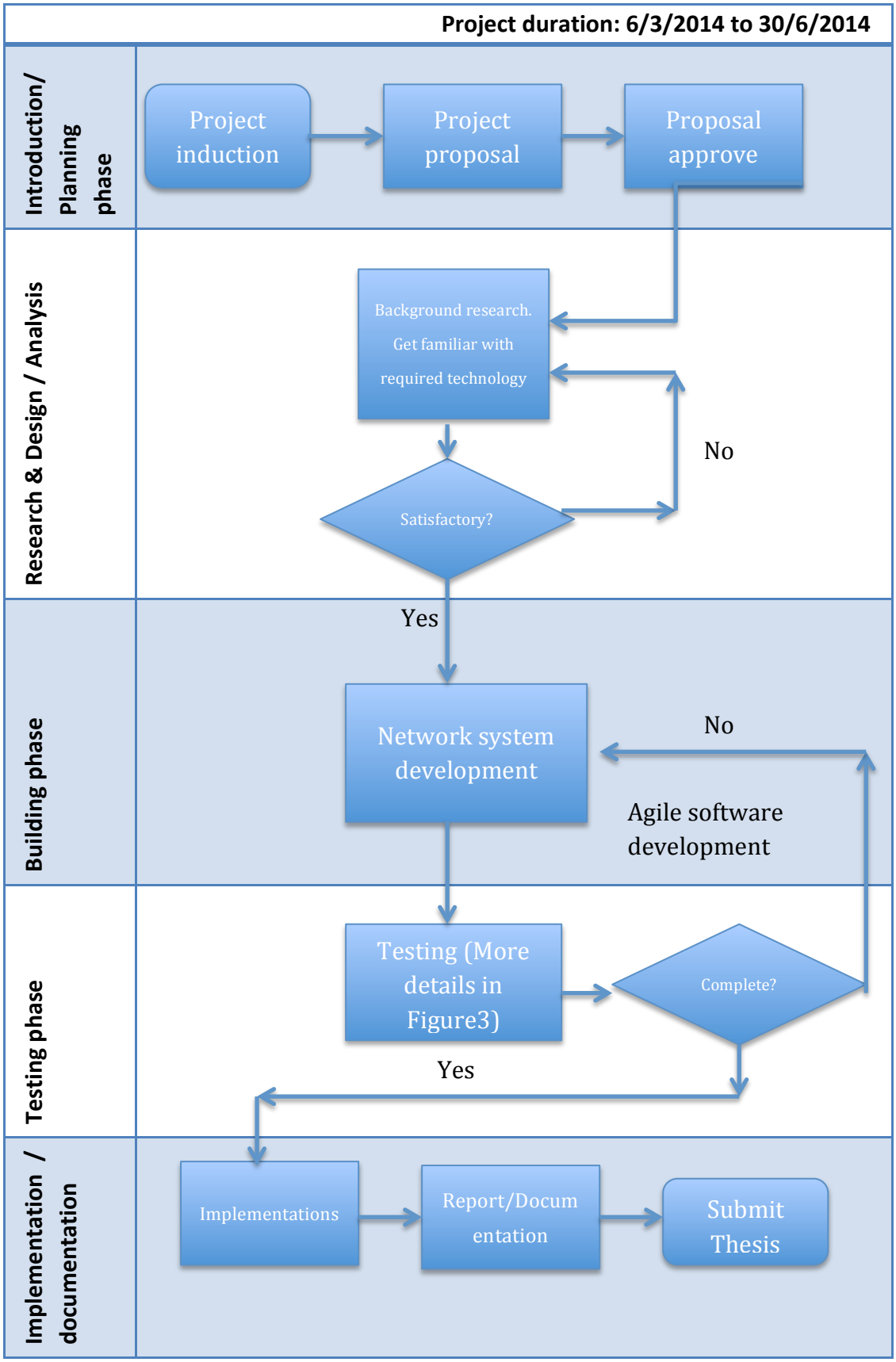
The following list is resources for the project:

- **MVC5 tutorials**
  http://msdn.microsoft.com/dn308572#fbid=a_plSIB5IYP
- **Azure .NET application tutorials**
  http://www.windowsazure.com/en-us/develop/net/
- **Visual studio C# forums**
  http://msdn.microsoft.com/en-us/vstudio/hh341490
- **ClearDB (MySQL on azure) support:**
  http://www.cleardb.com/developers/help/faq
- **ClearDB forums**
  https://getsatisfaction.com/cleardb/searches?page=3&query=azure&sort=recently_active&style=topics

- **Pinterest**
- http://www.pinterest.com/
- **Moodle eLearning system**

  https://moodle.org/

2.5 The Process Methodology Flowchart



The building and testing phase are using agile software development methodology. The details show in figure 2.

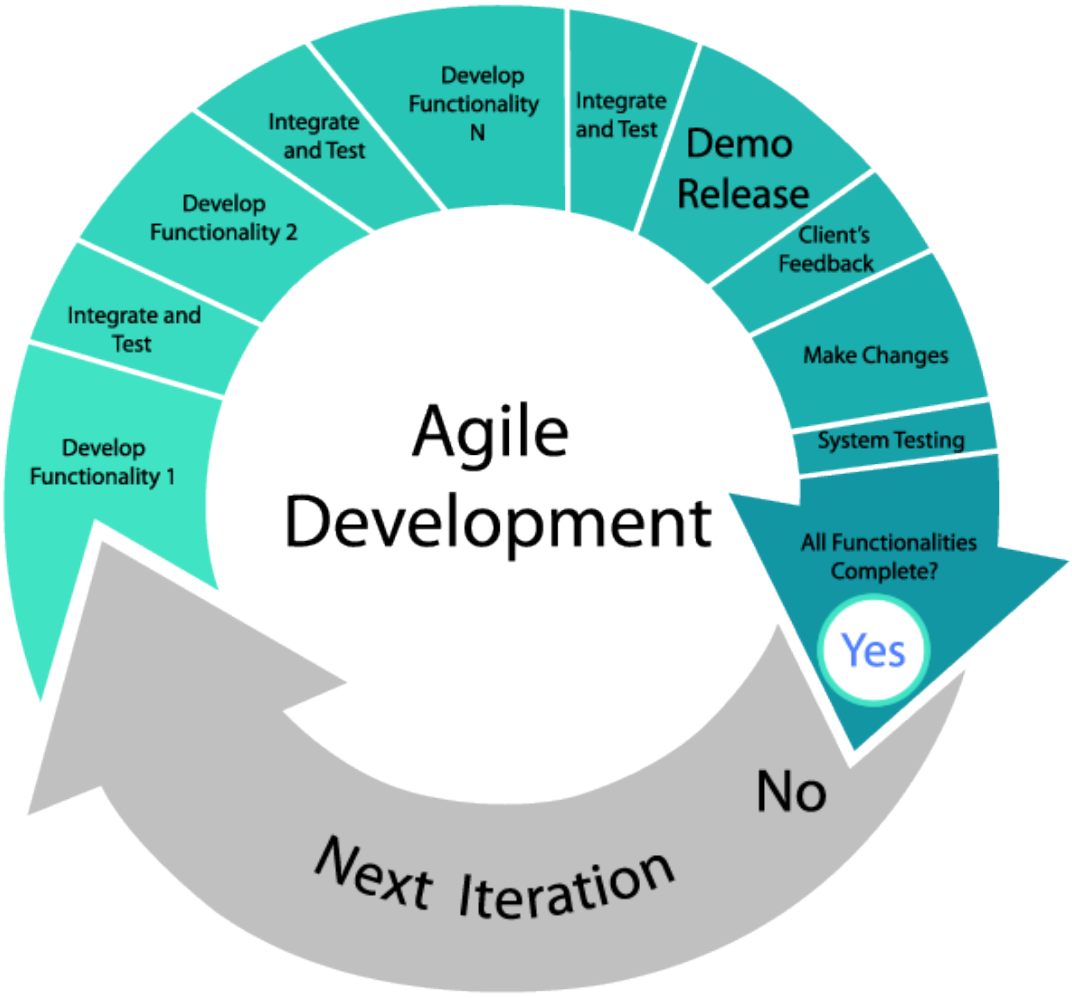


Figure 2: Process methodology flowchart (Agile software development)

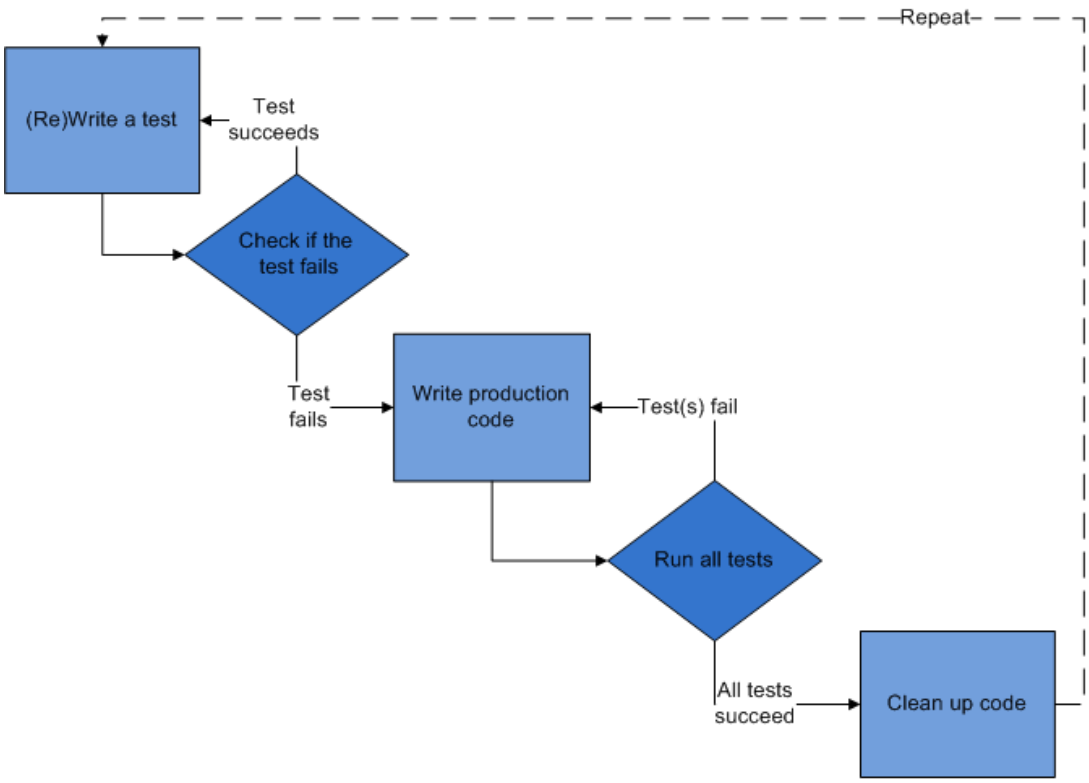


Figure 3: Test process in agile development methodology

3 Project Management Schedule

3.1 The List of Key Tasks

The following content is the list of key tasks:

- Familiarization with the project
- Project definition
- Key literature review
- Database design & Application design
- Coding
- Initial test for network learning board system
- Bug fix / New functionalities
- Final test
- Implementations
- Documentation / Deployment

3.2 Timeline Analysis

Phase	Task	Description	Milestone
Introduction & Planning	Familiarization with the project	Understanding the basic project scope.	CEED project proposal. 28 Mar 2014
	Project definition	Analyzing the project brief and writing the proposal	
	Key literature review	Prior work	
Research & Design	Database design & Application design	Define the ER of the database and application functionalities	28 Mar 2014
Building	Coding	Build web application functionalities	30 Apr 2014
Testing	Initial test	Test the whole system	31 May 2014
	Bug fix	Fix minor bugs	
	Final test	Final test of the whole project	
Documentation & Implementation	Implementation & Documentation / Deployment	Project demonstration in forms of presentation and report	Final Thesis & Presentation 16 Jun 2014

3.3 Project Gantt chart

See appendix A.

3.4 Management of Planning Risk

The schedule of the project is critical by using agile software development methodology. The whole project needs to be finished within 3 iterations under the methodology. Therefore, the weekly meeting with client and a good time management is necessary.

3.5 Documentation System

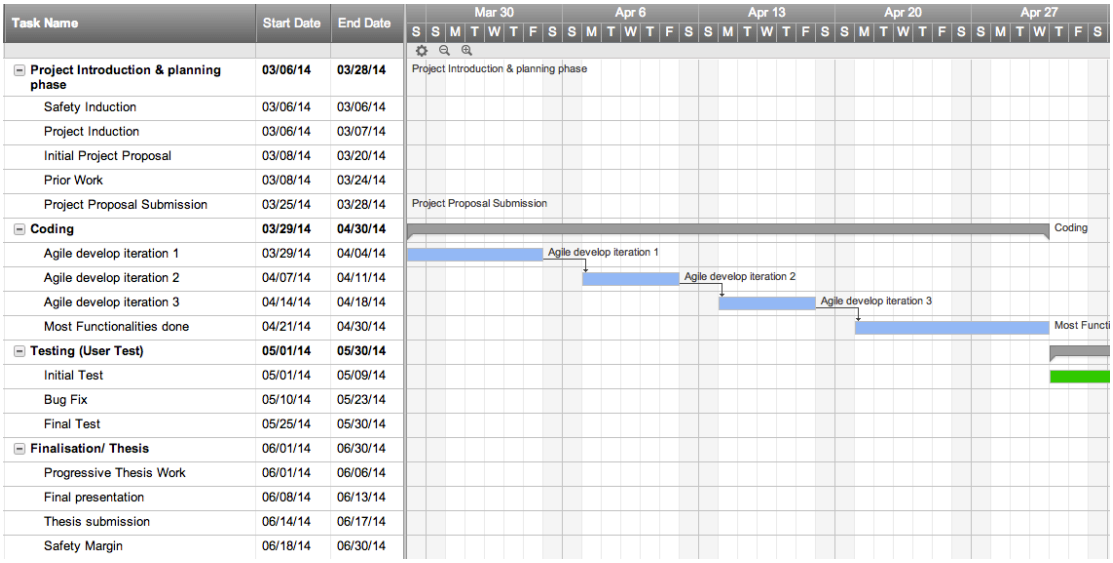
Github is used for documentation backing up including project proposal, weekly meeting record, presentation slides and final thesis. The following address is the Github repository for backing up the documentation.
https://github.com/bnerDY/eLearning-Dashboard

4 Reporting

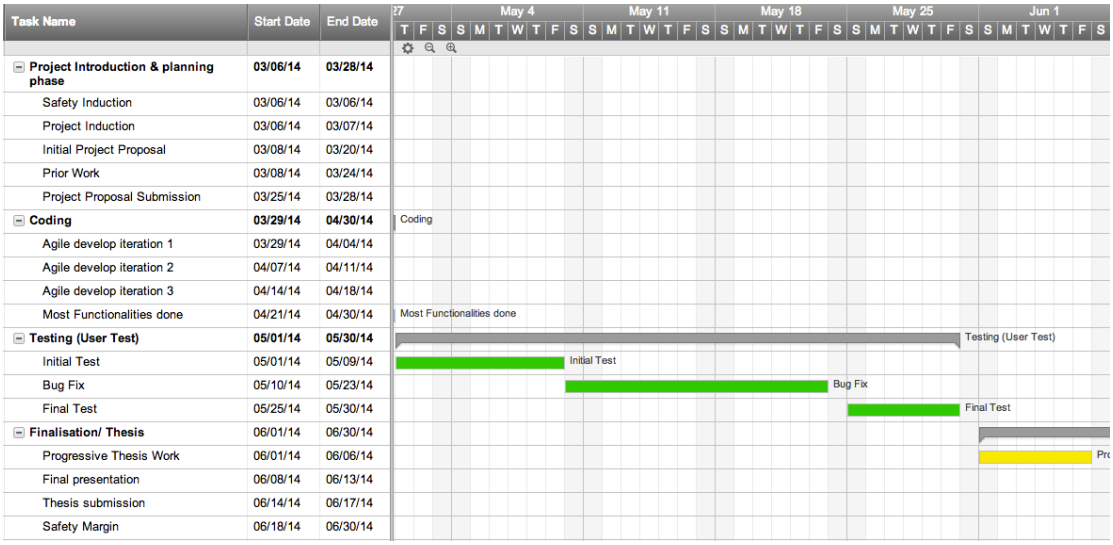
The report keeps the record of the weekly meeting with client. Any new requirements from client will be recorded in the report.

Appendices

A. Project Gantt Chart



Task Name	Start Date	End Date
Project Introduction & planning phase	**03/06/14**	**03/28/14**
Safety Induction	03/06/14	03/06/14
Project Induction	03/06/14	03/07/14
Initial Project Proposal	03/08/14	03/20/14
Prior Work	03/08/14	03/24/14
Project Proposal Submission	03/25/14	03/28/14
Coding	**03/29/14**	**04/30/14**
Agile develop iteration 1	03/29/14	04/04/14
Agile develop iteration 2	04/07/14	04/11/14
Agile develop iteration 3	04/14/14	04/18/14
Most Functionalities done	04/21/14	04/30/14
Testing (User Test)	**05/01/14**	**05/30/14**
Initial Test	05/01/14	05/09/14
Bug Fix	05/10/14	05/23/14
Final Test	05/25/14	05/30/14
Finalisation/ Thesis	**06/01/14**	**06/30/14**
Progressive Thesis Work	06/01/14	06/06/14
Final presentation	06/08/14	06/13/14
Thesis submission	06/14/14	06/17/14
Safety Margin	06/18/14	06/30/14



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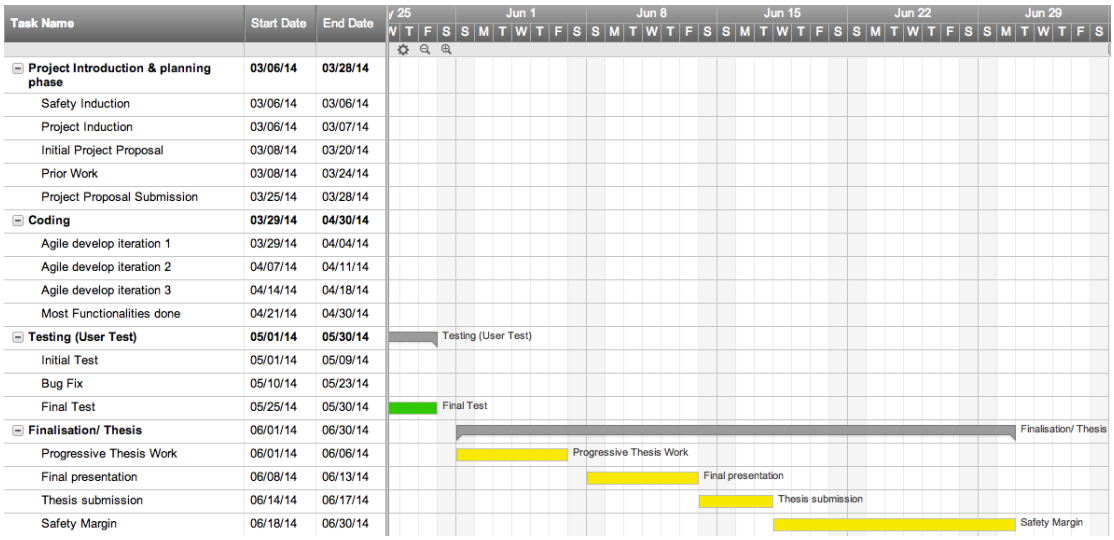

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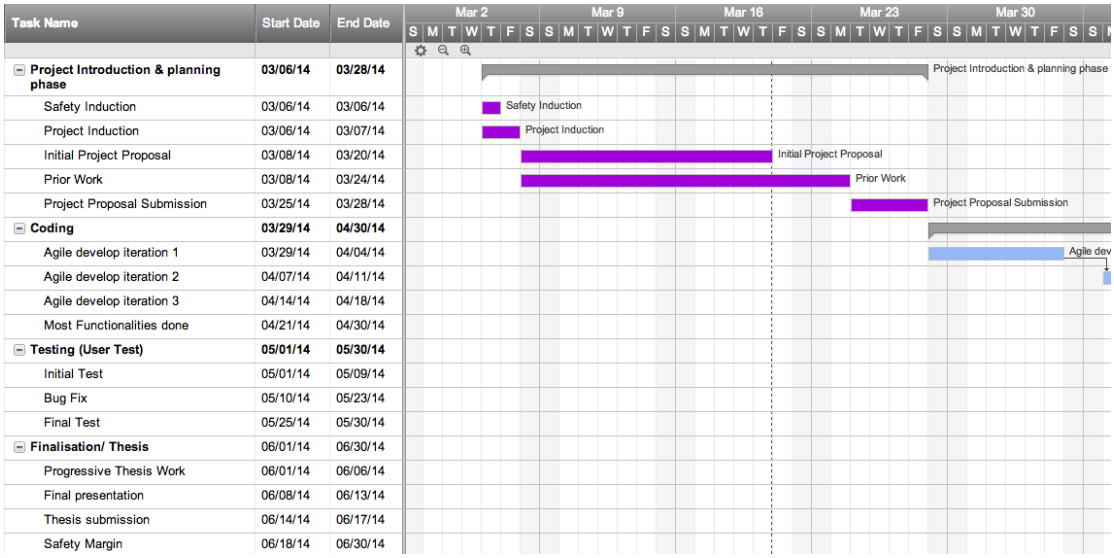

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