1.1.1.1.1.1 The University of Reading

Faculty of Science

School of Systems Engineering

Final Year and MEng Group Projects

< SE31P11 >

< Project ID: *371* >

< Student Mailer System >

Project Initiation Document

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<Anthony Worrall>

V3, 2013-04-18

The supervisor   *Person identified in approving the hereby project initiation document*

Name	Anthony Worrall

Date

Signature

Fill in section below, if the project has industrial input.

Company Partner

Name of organisation involved in the project

Name and contact details *of the person in the company who may provide some inputs to the project*	**Title** *(e.g. Mr/Mrs/Dr)*	**Name**	
	Address		
	Tel. No.	**Fax No.**	**e-mail address**

Acknowledgments

Firstly, I sincerely offer my appreciation and gratitude to my supervisor Dr Anthony Worrall, who has provided encouragement, relevant assistance with patience and guidance in kicking-off my project. Also, my thanks to the ITNG support team, who has provided prompt assistance with the remote desktop set-up?

I have been blessed with a friendly and smiley personal tutor, a big thank you for your encouragement and advice when urgently required. My appreciation to all the lecturers whom organised the lectures to kick-off our individual project end of summer term and beginning of autumn, Dr Virginia Ruiz thanks for clearly emphasising how important the individual project is, this has been a huge motivation.

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1 Introduction

The Project Initiation Project is a comprehensive detailed document that describes all stages involved in the development and implementation of in the Student Mailer System. The Student Mailer System is web application that provides robust mailing system to user (staff of system engineering) at the University.

This document will explain in details the background, need and purpose of the project, the desired achievement/outcome of the project from user's perspective. This describes the management procedures of the project, necessary management factor for the project to succeed. Also, it entails the description of the project development stages starting from the first stage to the final delivery stage, it also described each development stage, it processes and perspective outcome. It also relates a well carefully thought project plan, timings, deadlines and milestones. It identifies the risk and contingencies, explain the risk management procedure and control.

An overall aim of this document is to provide a more in depth understanding/plan into the project life cycle including the management and development phases of the project and also as a guide towards writing a good professional project report. It provides a more comprehensive understanding of the system's functional and non-functional requirement, detailed design of the systems implementation and constructive implementation and designing phase. It also provides a better project management strategy.

2   Project Definition

2.1   Background

School of Systems Engineering at the University of Reading plays a major role in conducting out-standing research, providing excellent quality teaching, conducting learning activities both internally and externally. Hence, it caters for large amount of student approximately xx per year which is prone to increase on a yearly basis.

According [1], on a yearly basis systems engineering caters for 500 undergraduates, 25 taught postgraduate course, 9 MSC by research, 55 full time research post graduate and 31 part time research postgraduate. Also, systems engineering consist of several types of staffs which include academic, non-academic, ITNG and school management. The School of System's engineering recognises the importance of effective communication between school staff and student with it direct positive impact on teaching system. The official means of communication within the school is emails and other academic web application such as blackboard.

Currently, School of Systems Engineering email mechanism is very generic and does not provides a means for user to build email recipient based on their personal requirement. Hence, regardless of the intended targeted set of student, staff can only send emails to a list of predefined student that share a generic property, for example staff can send emails to the final year student mailing list. The current mailing system provides mailing list functionality which generates a list of student email based on generic criteria's such academic level or modules. This mailing list is what is provided to staff as email service. This mailing mechanism does not provide satisfactory service to staff, Hence there is a for improvement on the mailing mechanism.

The University Of Reading School Of System's engineering requires new mailing system which provides 24-7 flexible email service that allows user to customise a set of student to email. Therefore transforming the school current predefined mailing list mechanism to a user-generating mailing list mechanism.

Student Mailer system is a mailing services delivered via a web application. Essentially it provides users with the ability to filter or search for student based on university existing criteria's that relates with students such as degree, academic level, personal tutor, programme and many more. Based on this functionality to find a set of students, from the result user can choose which student to email. This process essentially provide uses the ability to build a personal mailing list. Also, web application in-cooperate administration functionalities.

2.2   Project Objective and Desired Outcomes

2.2.1   2.2.1   Academic objectives and outputs

The core academic object of the final year project is to exercise the academic materials taught in the previous year. It demonstrates in practise the technical, project management, software development, requirement analysis and testing technique skills that was learnt during previous academic years. Also, this project provides student with the opportunity to individually develop more skills, explore and discover their talent within their chosen fields. It enables student to research, successfully find and process information to provide a working solution.

Having completed the Database module during first and second year where I learnt all about database application theoretically and implemented a database solution. Hence, this increased my problem solving skills. Given this academic background, part of my academic objective is to demonstrate my database and problem solving skills developed over the academic years by developing and delivering a working query system.

The Student Mailer project provides an opportunity to personally learn, develop certain skills and conduct research which demonstrates good willingness and passion for software development skills. For example, student mailer system would develop using Microsoft technology such as ASP.NET, MSSQL and ISS 7.0, along with technologies such as JavaScript and CSS. I am not familiar with these technology and but I have chosen to personally learn and familiarise myself in other to successfully deliver a working system.

Being responsible for the development and delivery of a system is an opportunity that provides an insight to how systems development operates within the industrial world. It reveals in one system academic knowledge, strength and skills developed whilst at the university.

The academic output is to provide a system that demonstrates my academic ability and skills learnt whilst at the university. Also, it stands to proof my academic capabilities, skills and prospective achievement within the software development field. In a nut shell the final year project is an exercise that transforms academic materials into a product that demonstrate and prepares student skill set to fit into prospective organisation.

2.2.2   Personal objectives and outputs

Personally, my underlying objective towards my project is to develop my technical skills whilst taking on a role of responsibility and successfully deliver a working system that can be of importance to the school of systems engineering. Being wholly personally responsible for the development and delivery of an end-to-end application is an experience that will enhance my skills in multiple areas. Skills I personally aim to develop are as follows

- excellent programming and general technical skills
- project management and organisation skills
- Analytical and problem solving skills
- Excellent verbal, oral communication skills and solid research work
- Database Application and Transactional SQL skills.
- Time Management skills
- A practical understanding of software agile development challenges and possible solution of overcoming them
- Customer interaction skill particularly gathering requirements and information.

Having successfully completed a summer placement where I learnt developing web applications using .NET with a backend database, my personal objective for the project is at developing this technical skill set further.

My underlying theme of this project is to achieve a first so as to successfully boost my final year result. Considering my career ambition to be a developer upon graduation, as part of my personal ob-

jective is to deliver a working system that demonstrated my both technical and project management skills to future employers.

2.2.3   System objectives and outputs

The main system's objective is to enhance the university current mailing mechanism. Also, the project aims to deliver a running application that provides user with enhanced emailing mechanism to what is currently available.

The project aims to provide a system that tick all user requirement boxes. This means the system must conform to requirement specification derived upon successful requirement analysis. Also, the project aims to delivers administrative functionalities.

This project aims to deliver an easily accessible and secure application. Given the variety of staff, system aims to provide a service that is accessible 24/7 and across all platforms. Considering that student mailer deals with the university's student sensitive data, concerns for security becomes high. Student Mailer aims to implement and deliver a quality authentication mechanism, therefore providing a secure web application.

Also, student mailer objective includes developing a system whose functionality is easily reusable and the application itself can be enhance after the project development life-cycle.

Further to objective of providing a web application that can be evolved, student mailer should be implemented in such way that it sub-systems can effectively communication and integrate with similar external sub-component. Also, it development platform should be easily deployable.

Given the above explained systems objective, student mailer output should essentially have the below output.

- Student Mailer should be a working system successfully delivered to users
- Email mechanism should be better when compared to the current mailing mechanism.
- Provides a more flexible option for defining set of students to send emails
- System should have built in log-in system
- Should have Administrators that manages web application.
- System should ideally be a web-based service that is available and accessible 24-7 to permitted users.
- Should reliable and reusable system that can be evolved when need arises.
- Should use deployable and integrate-able technology for implementation of web application.

2   Constraints and Assumptions

In software development constraints is one of the major milestones used to measure the progress/success of the project. In other words, to prepare a successful project plan, system constraint and contingencies will be identified, analysed and measured. The system would be developed as a web application, hence list of identified constraint and contingencies includes:

- Accessibility
  - Accessibility is one of the major challenges that will be encountered when developing the student mailer system. The system need to be easily accessible by people of various backgrounds such as abled, disable, young, old, technical and non-technical staff. Easily accessible website can be achieved by designing the GUI and functionalities in a user friendly manner which suit all types of background as mentioned above.
- Availability
  - The system must be available and ready to work when required by users at any chosen time. This implies a 24-7 available web service and users can log-in on request.
- Web Security
  - Considering data content of the web service (which includes student confidential data) and also the log-in security functionality (hold information of users)they is high demand to ensure data are protected and not lost t any given point of service.
- Database Security
  - The web service derives and manipulate information from a back-end database, this means web application as an existing communication and right over the database. It is important to ensure that data within the database is not maliciously controlled if web application is compromised.
- Reliability
  - The system as to be 100% reliable at any point of use. This means that if an error is encountered due to a fault or an errors, web application can handle and quickly recover from exception event and that exceptions does not render the web application unavailable.
- Time Management
  - Due to multitask and limited time to complete the project, time management is a major constraint that should be tailored properly. Each phase of development will appointed a task time, milestones and deadline which will be calculated as necessary using Grant chat principle.
- Unclear/Unambitious Requirement
  - Requirement is the first stage of development plan and it is very crucial that this stage is well analysed as it will provide a solid background to design and build upon. Requirement must be precise, non-ambitious, there should be common understanding and interpretation between developer and users.
- Compatibility
  - It is important the web service is compatible with the all version of browser i.e. internet explorer, Mozilla.

2.4   The user(s) and other interested parties

The primary users of the student mailer system are the Staff of systems engineering, secondary users are the university and management body. Staffs is a very wide role and can be sub-categorised which includes academic staff, non-academic staff (receptionist, security), ITNG staff and finally school of management staff.

The Alexander's taxonomy as taught in business requirement module is adopted to critically analyse users, their relationship to the system, needs and concerns. This is done by defining their business rules and concerns.

Table 1 – Stakeholders and respective role (Alexandra taxonomy)

Stakeholder's Role	Business rules and concerns
University **(Political Benefit)**	Wants to provide reliable and flexible mailing system within the university so as to increase internal communication with variety of category of students.
School of Systems Engineering (neighbouring system)	• Wants to provide systematic, flexible, better communication service to the employees and student within engineering school. • Is concerned with the challenges of a better mailing quality service in the technological world. •
School of Systems Engineering Staffs (Functional Beneficiary)	• Wants to be able to send emails to a group of student based of specific customers criteria's. • Must be registered and Log-in to access the internet based mailing services. •
ITNG Staff **(User Administrator/Database Administrator): (Functional Beneficiary)**	• Want to be able to provide technical help and support to users (staff) upon system delivery. • Wants to be able to create users, manage users and assign roles to users.
Project Supervisor: (Functional Beneficiary, Main communication link)	• Requires a system that provides enhanced, secured, flexible mailing services. • Wants to be able to create users, manage users and assign roles to users (Users Administrator)
Project administrator (Virginia Ruiz)	• Sets project deadline • Controls project standard and delivery • Controls project generic activities such as external presentation, rules surrounding technical report.
Project supervisor (Anthony Worrall)	• Provides guidance for the project flow while in need of assistance • Signs and dates user logbook of work

	• Primarily project customer.

2.5 Interfaces

3 Project approach

It is well known in the engineering world that a successful project must be accompanied with an excellent, well managed and organised project approach (management) which involves breaking down the whole development task into well-defined phases and each phase is carried out effectively. The project development approach will be a mixture of two project management approach, which is **waterfall approach** and **Scrum**. Basically, this project is divided into solvable pieces of project called sprints goals which developed on for a given number of weeks/days as required; each sprint of project will undergo the relevant stages of waterfall. At the end of each sprint I will meet with the project user (supervisor) to demonstrate the project (achieved sprint goal), access the progress with supervisor and take note of changes as appropriate. This allows s project's direction to be adjusted or re-oriented based on completed sub-project. Formally, the scrum methodology is built of a product owner, scrum master and team member. In reference to the student mailer project, the product owner represents the main user which in this project content is the project supervisor (Dr Anthony Worrall) and scrum master and team will be I (Aminah, student).

As stated earlier each sprint will involve a waterfall life cycle, this implies that requirement, design, implementation and testing phases will be carried out at each sprint. A sprint requirement phase will be when discussing with product owner (supervisor) on the next feature desired to be implemented; the result of this phase will be the requirement specification which will be used as a development guide for the next waterfall phase (design). The design phase simple specifies how the feature will be implemented into the system. Afterwards, the implementation begins, during implementation there would be developer testing. The following phase will be testing of the feature by product owner during next scrum meeting. The final stage is the project delivery which will take place week one term 9 where project will be demonstrated and accessed by internal board of examiners.

3.1 Investigation and Research

Investigation on the concept/need of a student mailer system from the users is carried out so as to capture the existing problem which leads to a better understanding and outline of user's goal, purpose and achievement of the system to the users.

The university currently have a mailing facilities which allows staff to email group of student, but due to the technology and population advancement, there is need for a better mailing system which provides advanced flexibility to the mailing system. The solution to the existing problem is to provide a mailing service that gives users the extra functionality necessary to send emails to user's specified groups of student within the university. The goal is to expand the university mailing services so as to enhance communication via the University mailing system.

Firstly, due to the emailing service requirement and need for user's accessibility and availability requirement the system need to be available via the on the web (Web Application). Also, there is need for a database connected to the web application where information is stored, retrieved and manipulated. Considering the extra advanced features of the student mailer the technology adopted during implementation phase must be able to support this features as necessary.

Available Web Development Technologies

Server Sided:

- Java technology
    - There are multiple overwhelming java technologies that can be used for web application development. For the student mailer applications the combination of Java technologies relevant are:
        - Java API's
        - JavaScript (scripting language)
        - Oracle database (Oracle Developer): Create Database and database is managed via oracle developer, JBOC enables developer to invoke database command from java programming language
        - Java Mail API and the JavaBeans Activation framework: Java technology that can be used to send emails and notification
- Microsoft .NET technology
    - Microsoft .NET technology is one of the fastest growing web development technology that is been used by most web application developing company. Microsoft .NET technology effectively adds-up information, users, program system and hardware. The .NET framework supplies the SMTP class that enables sending of e-mail messages; also there is readily available class that support added functionality, MailMesssage class.
    - It is platform independent which satisfy the requirement of portability. For the student mailer application the combination of relevant .NET technologies relevant are:
        - .NET framework
        - ASP.NET Express developer
        - MS SQL server Express or MS SQL server web R2

- PHP
    - PHP a server-sided scripting language embedded into HTML source code and interpreted by web server that has a PHP processor was originally created for developing web applications.
- Other server sided technology available for web development are Ruby on Rails, Python, and ColdFusion.

Database Management System:

DBMS are packaged software's that are used to manage data in a database. There are various popular readily available DBMS which includes:

- Oracle
- Access and SQL server from Microsoft
- DB2 from IBM
- Open source DBMS MySQL

Scripting Languages:

- HTML
- CSS
- JavaScript

Adopted Web Technology:

During the summer term the initial chosen web development technology was PHP technology i.e. developed in PHP using Dreamweaver with a DBMS MyPHPAdmin provided by the university. The university C-Panel will be the web hosting services.

Following a comprehensive research into web development technologies and a better understanding of the student mailer system's requirement, the web development technology as been changed. Microsoft .NET technology will be adopted i.e. developed in ASP.NET using C# with Microsoft SQL server and Management tool as DBMS. During the summer I started tutorials on ASP.NET (c#), MS SQL server. Also with 10 weeks of work experience as a junior .NET web application developer, I have gained sustainable skill set to develop this application using Microsoft .NET technology.

Investigation into Current Mailing Mechanism

3.2   Requirements Management

Requirement is the first and most critical aspect of a project development. The requirement management involves the requirement analysis, requirement communication which leads to requirement specification (final agreement with users).

 Requirement analysis will be carried out in three main stages:

Business Requirement:

The Cockburn's use case model was constructed to represent the scenario so as to figure out the business requirement and its detailed prospects by breaking down the main scenario into smaller detailed point.

2.1.1.1   Cockburn Casual Use Case
The university want to provide a new student mailer system in order to achieve facilitate intranet communication between staffs and students in School of System engineering .The University of Reading student mailer system will have registered users permitted to access the student mailer system. All permitted staff can log into the system in order to carry the following functions

- Customise a group of student to send emails to (Build Query)
        Staff can build query by various commands.

- By year, By Programme, By module, By Degree
- By degree and programme
- All current placement
- By Programme and year
- By year and programme
- By Year taking a specific Module i.e. all second year taking Algorithm.
- By Module across a year, by module across all years.
- By Module across department
  - Same year
  - different year
- Finalist across all department
- Transferred students and suspended students
  - Across all years
  - By year
  - By Programme
  - By Degree

After customising groups of student to send emails to, staffs can either

- Send Broadcast email to the list of student (result from query built)
- Select some students from the list of student to send Broadcast emails
- Send a personal email to a specific student from the list of student.
- Modify the list of student
  - Staff can view, edit and update information of a selected student.

- Staff can Add and delete students from mailing list
- Edit and Update student from mailing list.
- Administrator function

    The user administrator can create a user, create and edit user profile that holds information about the user. Also, assign roles to the user, grant user permission and also inactivate users when required. In summary the user admin manages the users of the system maintaining the systems security.

2.1.2 Functional requirement

After a well informative interview with the user in other to fully capture requirement, the object oriented approach with be use of static behaviour diagram known as **Use Case** will be designed to identify and clarify the system requirement in other to break down the requirement into main functional units. The **Use Case Description** document will be used for further analysis of functional units.

The **use case** is designed and developed so as to analyse the main context of the system, outline its key functional requirement and its corresponding users. The use case diagram illustrates a breakdown of features that is desired by users and shows which users is concerned with the features. The use case diagram also serves as a guide to ensure user requirements as been satisfied when designing how the system would be implemented.

The **use case description** further analyse each functions of the system in details. It explains further the interest of stakeholders in the system, flows of event that will successfully provide satisfactory

These are requirement affecting the quality of the system which includes,

Non-Functional Requirement	
• Availability	The system is designed to be a service and is required to be available provided there is access to the internet.
• Ensure data consistency	There is high priority that that information within the database is consistence after and before query.
• High security standards	Ensure security from hackers
• No Data loss	Ensure no data within database lost during transaction or unexpected interruption/ breakdown.
• Accessibility	Ensure layout and design of website is easy to use and access. Good GUI.
• Reusable	Good coding standard include comments, ensure code is readable by future developer and able to evolve functionality
• Good Coding standards	Include comments and well structured coding, abide to OOP.
• Excellent documentation standard	Supporting document should be of professional standard.

3.4 Implementation

The system's implementation is mainly the technical aspect of the project. The student mailer system will be developed progressively in different phases. The main implementation plan is to develop the **database** aspect of the system and then develop the **web interface** stage.

There are various readily available web development technologies to be adopted, the chosen web development technology is **.NET (C#)** and the DBMS used to manage the database is **SQL SERVER MANAGEMENT STUDIO.**

Database Implementation

The first phase of the project will be analysing, setting, designing, implementing and managing the database that supports the system. The database will be set up on the remote desktop provided by ITNG by downloading MS SQL SERVER. The MS SQL SERVER provides a database engine. Using the MS SQL management tool, a connection will be created to the database engine provided by MS SQL SERVER. Most of the database implementation and management will be done remotely and on the remote desktop. There will be two database engines for this project. The first database

created will be for data regarding the students data, the second database that will be created is the security database, this database will mainly hold data's that are related to the user log-in details, their profile information including username, password, roles, department, email …. and web applications information.

Web Interface Implementation

The second implementation phase of the student mailer system will be the student mailer web interface. The first aspect of these phase is to develop the query web page (Interface that allows user to select a customised group of student to send emails), this will also be a means of testing the validity and verifying the database implementation. After the successful implementation of this stage, the emailing functionality would be implemented, allowing users to send emails to the list of student (result obtained from query). Afterwards, other feature like log-in system, managing mailer list via the web, uploading spread sheet, keeping record of sent email history would be implemented.

At every implementation stage there should be a corresponding document to support the implementation process. The requirement documentation already provides a guide for the implementation stage, but at each implementation phase there should be a record of the process of implementation and progress of the stages. The project plan is to abide to the scrum methodology which requires a weekly (or 2 weeks) sprint goal/plan.

3.5   Testing, Deployment and Operation

Testing is the last lap of technical aspect of software development, the purpose of a testing phase is to ensure the system satisfy users intended requirements, the goal and achievement of the system. The student mailer system will be tested by adopting various testing mechanism learnt over the years.

The two main testing procedures of the system are
* **Verification** and
* **Validation** of the System.

Testing would first be carried out by the developer (I) after which users are requested to test the system. Following the scrum methodology as earlier stated earlier, the users would be required to test and provide feedback on the current deliverable at each scrum meeting.

2.1.2.1   System Verification and Validation:
        The software validation testing is used as a high-level checking that determines if the student mailer system conforms to the functional requirement specification of the system; it ensures the system satisfies the user's need/wants/goal, it asks the question *"Are we building the right student mailer"*. Software verification on the other hand asks the question "**Are we building the student mailer right?"** Also verification checks for conformance, completeness, correctness and consistence in the student mailer system.

 A test plan document designs a protocol that is used to verify if the developed system meets the user's requirement specification as agreed to during the requirement analysis stage.

To verify and validate the system the student mailer system test document will be provided that will include the following

- **Test Items (functions):** It is a list of what to be tested; they are component of the system that requires testing from a technical point of view.
    - o Documentation (Requirement and design specification)
    - o Database (1st and 2nd normalisation)
    - o Web Interface functions. (Query, mailer manager, Log-in systems etc.)
- **Test Features:** This are features of the system to be tested from the user's point of view and not a technical testing.
    - o The users will be testing that the system satisfies there goal in terms of functionality.
    - o Also non-functional requirement will be tested and scored by users this includes: ease of use, friendly and professional graphical user interface.
- **Feature not to be tested (if applicable)**

System pass criteria- There are certain criteria that the systems item and features tested must pass. Criteria's are listed in figure X.

5   Organisation

The student mailer organisation scheme carefully manages the communication between parties concerned with the system. The student mailer system has various categories of parties and stakeholders including:

- Project Manager also referred to as scrum master/team (Myself)
- Product owners including the project supervisor (main user), staffs of systems engineering (other users, stakeholders) and the School of Systems Engineering (business body).
- Co-project manager are colleagues taking CS project related to student mailer project.

The project manager (I) must keep a close relationship with all parties concerned with the system especially the users, this is to ensure excellent communication which will have a great positive impact on the success of the project.

The scrum meeting and weekly meeting with the project supervisor (Anthony Worrall), entail review of product success, discussing user changes, frequent user feedback on the developing system. Frequent users feedback will ensure system validation; it will reduce developing of unrequired functionalities which will save lots of time.

Also, there is a regular weekly Thursday gathering where co-project managers spend roughly six hours to discuss, interact and seek advice as necessary on projects. This gathering is a resourceful means of communication with similar minds and discussing relevant issues that would benefit the project.

A termly meeting will be organised with the project supervisor and stakeholder representative, where the project manager will demonstrate the achieved success of the system (presentation). The supervisor (main user) and stakeholder's (moderator) representative will provide a feed-

back to the customers measuring the success of the project and providing advice, feedback with necessary help on how to improve the project.

6   Management strategy

The project management strategy will identity feature in the project that requires hand-on management and provide management strategy for these features. This section will include:

- Quality Management
- Item Configuration
- Risk

2.2   Quality Management

The student mailer project has adopted various development techniques to ensure the delivery of user satisfying student mailer system but it is of utmost importance that a quality management technique that identifies the qualities of the project and enforces how these qualities will attained and maintained.

The qualities of the Student mailer projects are milestones to measure amount of work focus:

- Quality project research
- Numbers of days per week on project work
- Numbers of hours per day on project work
- Relationship with supervisor
- Good project plan

Attaining these qualities in variably means *how requirement will be delivered*,

- **Attaining quality project research**
    - o To achieve an excellent quality research, project manager (I) will have to reference a lot of related available, apply skills learnt from these resources in my project and demonstrate from my project the impact of these researches.
- **Number of days per week, hour per day**
    - o As a project manager I plan <intend> to work on the project every day, but the minimum number of days per week to work on this project is 5 and minimum of 6 hours per day.
    There is a section of my log book that ensures these quality is maintain, it is a spread sheet that records the amount of days and hours I work on my project and calculate the total at the end of each week, if the minimum time is not met I am required to work extra hours the following week to make up for the previous week. If over all, I do not meet the minimum quality of work, this means I have not attained the quality of work required for the project.
- **Relationship with supervisor**
    - o It is essential I have a regular meeting (weekly) meeting with my supervisor, a weekly meeting is the minimum requirement, if this is not maintained it invariable means an important project quality has not be attained. Also, according to the scrum meth-

odology the project is adopting there is regular a scrum meeting which could be two week or monthly depending on functionality to be implemented.

2.3   Item Configuration

Student mailer system consists of smaller versions known as sub-versions. These sub-versions are groups of related functionalities of the system that perform a major function of the system that has been approved by the supervisor. It is important to control, monitor and carefully manage the different versions of the system so to be able reverse, keep back-up, update and commit changes made to the overall system and subversion.

TortiseSVN is a versioning control system popularly known as a Revision Control Software, it provide a rich graphical user interface that gives functional solution to the existing sub-versioning problem.

Feature of TortiseSVN and how it helps the project:

- Easy and Understandable GUI – TortiseSVN come with a rich understandable graphical user interface and does not need extra documentation for developer to understand it functionalities.
- Commit— Commit made changes to the main project, this changes can be viewed on other computer working on this same project.
- Update: It updates changes to the project, changes can also be revised when need be.
- Reverse: Reverse the current version to a chosen previous state.
- Diff: If an unexpected error occurred, I can check the difference between the SVN version and my current version of the system.
- Restore previous version: Restore the previous version of file in the project.
- Backup

There are many other features that helps solve sub-versioning problems.

This also implies I can keep a home version of the project and a lab version of the project and manage, control, track all versions easily using TortiseSVN

2.4   Risk

Please refer to appendix for more description

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6.3   Risk

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3   Project Plan

4   Tools: grant chat

This section includes planning of the project development stages. A breakdown of the entire task to be carried out and a rough period schedule will be fixed to each task. Furthermore to project planning a grant chat is designed to guide the project plan, Identify deadlines, critical date (start and end date) and milestones.

Task Breakdown
Summer Term: Duration- 12 weeks (Non-Official)
Week 1 -3:
Task 1: Complete research and investigation for project
Task 2: Further project planning
Task 3: PHP Tutorial
Task 4: Documentation, log book

Week 4-6:
Task 1: Tutorial on ASP.NET
Task 2: Complete project design, implementation planning.
Task 3: Documentation
Task 4: Organise project management
Week 7-10
- Tutorial on ASP/Databases
- Organise project management

Week 11-12
- Completing Project Initiation document

Autumn Term:

Week 1 & 2 – Sprint One
Task 1: Design database model (entity relation diagram), documentation, log book
Task 2: Verify database module, design database Relation model.
Task 3: Completing Project Initiation Document.
Task 4: Verification and Validation of database design from user (supervisor)

Week 2, 3: Sprint Two
Task 1: Test of Sprint one
Task 2: Implement Sprint one changes
Task 3: Implementation of database
Task 4: Implementation of database
Task 5: Documentation and Log book
Task 6: Web GUI Design

Week 4, 5, 6: Sprint Three
Task 1: Test Sprint two and implement changes
Task 2: Website Design- creating wireframe
Task 2: Verification of design (during sprint meeting)
Task 3: Implementation of website – Basic Search and Email functionality

Week 7, 8: Sprint Four
Task 1: Test Spring three and implement changes
Task 2: Documentation and log book
Task 3: Implement log-in system
Task 4: Implement log-in system
Task 5: Version 1 of web application archived

Week 9 & 10: Sprint Five
Task 1: Test Sprint four and implement changes
Task 2: Documentation and log book
Task 3: Implement database admin section
Task 4: Review of project
Task 5: Brainstorm advance ideas for advance search

Christmas Break: Implement Sprint Five changes and test web application

Week 1 & 2: Sprint Six
Task 1: Project Document, log book and Application version 2 archived
Task 2: Verification of report
Task 3: Implement Advance Search – Build Search function
Task 4: Test Build Search functionality during sprint meeting

Week 3 & 4 – Sprint Seven
Task 1: Implement changes to build search functionality
Task 3: Implement save search functionality
Task 2: Make changed to database structure to support saving search

Task 2: Verification of report.

Week 4 & 5 – Sprint Eight
Task 1: Test Sprint Seven and implement changes.
Task 3: Implement save search functionality
Task 2: Make changed to database structure to support saving search
Task 4: Preparation for project demonstration in week six

Week 6 & 7 – Sprint Nine
Task 1: Test System
Task 3: Make changes
Task 2: More test and changes
Task 4: Project demo

Week 7 & 8 – Sprint Ten
Task 1: Test sprint nine and implement changes
Task 2: Implement Student group functionality
Task 3: Make changes to web application architecture
Task 4: Begin project report

Week 8 & 9 – Sprint Eleven
Task 1: Finalise Web application functionality
Task 3: Changes to web GUI and user friendliness
Task 4: Deploy application
Task 4: Test deployed application

Week 8 & 9 – Sprint Twelve
Task 1: User Testing
Task 3: Project Evaluation
Task 4: Rounding up project
Task 5: Project Implementation end
Task 6: Project SCARP and poster
Task 6: Version two for project report

5   Project Control

The project progress will be monitored by abiding to the project plan, late deadlines or milestone will be avoided but if it occurs extra hours to be invested in the project. Progressive feedback from user (supervisor) will be used as a milestone to measure the progress of the project and if need be re-plan the project strategy/plan.

The log book is developed to record individual task and progress made during the project, this will be used has a reflection of how project progress is abiding to project plan at every stage. If the reflection is positive the project success is positive, if otherwise a strict planning will be designed and more hours spent on project.

MOSCOW, Project mitigation, sprint progressive feedback

References and Appendices

References

1. Library, April, 2012), The University of Reading. Systems Engineering Collecting Policy. [Online] (http://www.reading.ac.uk/web/FILES/library/policysystems.pdf