WEB-BASED PROJECT DOCUMENTATION REPOSITORY SYSTEM

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WEB-BASED PROJECT DOCUMENTATION REPOSITORY

SYSTEM

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I

DEDICATION

To my beloved family and friends

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A huge warm thanks to all my encouraging family and friends in Jordan, also I would thank my friends in Utara Universiti Malaysia (UUM).

ABSTRACT

The purpose of this study is to explain the need for a web-based application to provide the information technology student's projects with the necessary and essential resources. The proposed system provides students with an efficient system to search and retrieve about the previous information technology master projects with the information on the topics of projects, list and details of submitted projects. Project Document Repository System supports unified access, efficient documents utilization and management through a simple to use, standard web browser interface. The study identifies the main features and functionalities to manage and organize project's documents. The proposed prototype will make the process of storing, searching and retrieval of the project document become more effective, easy and faster. The prototype is tested and evaluated to achieve the objectives of the study.

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CHAPTER ONE

INTRODUCTION

1.1. Overview

Today most of the organizations are becoming increasingly aware of the need to properly manage the document-based enterprise content that has a direct bearing on the workforce's productivity and business efficiency. After all, 75 percent or more of the enterprise's documents are under construction and unmanaged. These documents come in various forms such as office documents, scanned images, application reports, emails and drawings (Kobayashi and Takeda, 2000).

Since its inception, the World Wide Web (WWW) has come to stand for numbers of different concepts (Berners-Lee et al, 1994). The WWW incorporates the idea of a boundless of world information in which all the items have a reference by which they can be retrieved.

The organizations that developed the information systems, which based on the WWW, now find themselves in a difficult position. In an attempt to gain a competitive and strategic advantage via the WWW, they must follow the latest technology. The organization's WWW presence must have a high level of technical sophistication and

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functionality. In addition, they need to an outstanding design if they want to get the benefits of using the WWW (Cronin, 1997).

Faculty of Information Technology in UUM offers variety of programmers. It has three departments namely information technology, intelligent system, and information communication technology .All departments offer PhD and master programmers, so this will produce long amount of research materials which mainly consist of project reports and research paper.

A master student is expected to carry out a supervised project and submit a report on the work performed. She/he needs to determine his/her proposal for the project with a new idea or develop a previous work. Each student needs information on the different topics of the project's list and gets more details of previous submitted projects that have factual data for the current projects. Students can select their projects in two ways. They are Issued Project List and Internal Self-instigated Projects.

Web-based application has been chosen to manage all the master IT student's project's documents. Zou and Kontogiannis (2000) found that with the explosive growth of the internet, businesses of all sizes aim to apply a wide solutions network to their IT infrastructures by migrating their legacy business processes into the web-based environments and establishing their own on-line services.

A web-based application has been chosen as a tool for developing a system because the internet can facilitate distributing the project's documents that enable an effective

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storage and retrieval (Ginsburg & Kambil, 1999).In addition, the web provides a new media for gathering, storing, processing, presenting, sharing, and using information. Apart from that, project's directory can be accessed anytime and anywhere because of its capability as a web system.

Project Documentation Repository System (WPDRS) is a web-based management solution document that supports unified access, efficient documents utilization and management through a simple to use, standard web browser interface. The system will be capable to store the entire master IT student's project's documents that have been completed by the students. The application will be a repository and a center for projects documents.

1.2. Problem Statement

Currently, there is no efficient system to search and retrieve about the previous information technology master projects, so the retrieved of information is difficult and not accurate. Information is provided manually on the topics of projects, list and details of previous projects submitted. Therefore, each student has to determine his proposals for the project without any given information about what others have done and what is acceptable for master projects. Hence, the study suggested the uses of Web-based project's document repository system (WPDRS) to solve this problem. The online projects repository system is repository for the earlier information technology master projects, in order to keep all the project's documents in one place and provide efficient search and retrieval functions.

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1.3. Study Questions

- What are the requirements for Web-based projects repository system?
- What are the user's requirements towards the use of Web-based projects repository system?

1.4. Study Objective

The objective of this study is to build a web-based application for projects documentation repository system for accessing relevant search result of previous project documents.

1.5. Study Scope

The proposed web project's documents repository system for the master IT students is by providing those students with the appropriate facilities for web projects directory information through the internet.

The Prototype for WPDRS covers two-points of view: They are the users and the administrator. The users are those who are willing to search about articles through the Projects documents Repository system while the administrator is who is responsible to manage all information about projects.

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1.6. Study Significance

This study is suitable to implement in UUM because it is not require any additional services and new technological programs. It identifies the main features and functionalities to manage and organize projects documents. The proposed system will make the process of storing, searching and retrieval of the project document become more effective, easy and faster. The system will utilize the existing web infrastructure, thus UUM does not need high investment to take advantages of the web-based site.

So, the study will:

1- Provide students with solutions to search what project have previously been completed.

2- Help student to determine their proposal for the project by giving them an opportunity to see what others have done and what is acceptable for a master project.

3- Act as an archive to provide supervisors with a list of projects that have been completed. This will help them to find new ideas and offer them to students.

1.7. Report Organization

Chapter One

It explains and identifies the background of the study and the study problems that need to be solved which gives motivation to this study. The objective, scope and its significance has been identified and described well.

Chapter Two

In this chapter, the discussions and the practices of this service will identify from the related literature reviews to the issue of a prototype for WPDRS.

Chapter Three

It describes and discusses the study methodology that is adapted in this study.

Chapter Four

It discusses the system analysis and design of a prototype for WPDRS.

Chapter Five

This chapter provides the proposed system discussion and evaluation using the questionnaire to measure the user acceptance. In addition, evaluation uses testing method such as unit, integration, and system testing.

Chapter Six

The final chapter gives the conclusion about the study. Recommendations and directions of future work are discussed, too.

1.8. Summary

The first chapter gives an insight of the project by describing the motivation factors that lead to the selection of the area studied. It also explains the objectives of conducting the study, as well as its significances to the real world situation. These elements are important as it ignites the implementation of the project. The next chapter deals with the literature review which elaborates on related works that have been established in the same field.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter will discuss the web-based application, web application architecture, search engine, electronic documents and repository system .Beside, some of the related work applications and tools are used to build a system.

2.2. Web and Web-based Application

The Internet is rapidly becoming a key resource for locating information that relevant to a particular field, engaging in professional discourse, accessing published material, and checking on tomorrow's weather. It has become the foundation for tomorrow's electronic community, providing access to government, media, scientists, friends and relatives. Access to the internet is now becoming a requirement of doing business for many enterprises.

According to Hefley and Morris (1995), there are several factors have led to increase the size of internet including increased bandwidth, relaxation of government restrictions,

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and less expensive connection options. One major factor which has led to the popularization of the internet is the World Wide Web (WWW), which provides a hypermedia layer over information and resources available on the Internet.

Information or application made available via the World Wide Web is a web. In addition, it is called internet based. Web is a computer programming system created by Donald knuth as the first implementation of what he called "literate programming". The idea that one could create software as works of literature by embedding source code inside descriptive text, rather than the reverse (Van Wyk, 1990).

Casal (2005) defines the web application as a software application that delivers or receives its functions to end-users from a Web server, through a network. The web based application is software or services that are offered over the WWW and use a web browser to access them. In this study, the web application's user able to access the website and do online retrieving and searching for project document for previous projects document submitted.

2.3. Repository System

UUM Universiti has witnessed an exponential growth in digital information available for teaching and learning .As the quantity of information continues to increase and these collections expand, there is need for a repository that can provide appropriate storage

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and access to all these valuable materials in a flexible and extensible manner for the foreseeable future.

If we consider Lynch's (2003) definition of repositories we see an emphasis on the significance of these services rather than on a particular software product or type of content: 'A university-based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members'.

According to Crow (2002), repositories are being constructed today to address the needs of scholarly communication in a digital environment. Previous studies and reports have considered repositories from a number of different perspectives, however these studies have tended to emerge from one particular community or have considered a particular type of repository. A significant emphasis in existing work has been the role of institutional repositories in reforming scholarly publication, notably in reports for SPARC (Scholarly Publishing & Academic Resources Coalition) (Crow, 2002) and for PALS (Publisher and Library/Learning Solutions) (Ware, 2004).

According to Kumar et al (2004), many organizations need for a repository that can provide appropriate storage and access to all valuable materials which led them to select a digital library solution that can assimilate current collections and accommodate new materials, as they become available.

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According to Tenopir & King (2000), a repository is a place where data are stored and maintained. A repository can be:

- A place where data are stored.

- A place where specifically digital data are stored.

- A place where multiple databases or files are located for distribution over a network.

- A computer location that is directly accessible to the user without having to travel.

- Across a network.

- A place where anything is stored for probable reuse.

- A place to store digital data.

Clayton, Biddle, and Tempero (2000) describe basic repository functionality and it must perform each of these functions well. The expectation is that a repository must:

- Store the software components (or references to them).

- Provide a mechanism for finding components.

- Provide a mechanism for acquiring components.

- Provide a mechanism to manage (adding and organizing) components.

2.4. Roles of Institutional Repositories

Crow (2002) states that the role of institutional repositories in three points: Firstly, increasing the institution's visibility, public value, and status through indicated institution's quality and demonstrate the scientific, societal and economic relevance of

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its research activities. Secondly, re-shape the scholarly communication process by providing tools to assist universities. Thirdly, provides the foundation for a new disaggregated model of scholarly publishing due to a global system of distributed, interoperable repositories while institutional repositories centralize, preserve, and make accessible an institution's intellectual capital in the same time.

2.5. Document Repository

According to SangYeob and SeungDae (2008), most organizations use paper document for their business and enterprise work. Also their custody cost for paper document was increasing rapidly. When using the electronic document instead of the paper document, organizations can reduce document deposit and costs. Also electronic document can be backup in the safe place by remote mirroring system. Document repository system must provide secure repository service, digital notary service, and delivery service. Basically, secure repository service store electronic document in a safe way and offer document creation, management, search, backup and recovery.

According to Haomin (2007), document repository should have the following characteristics: Firstly, persistence which refers to documents continues to exist in an unaltered state, for a time period defined by local and regulatory requirements. Secondly, availability which the primary purpose for document repository is to provide a documented records that supports present and future retrieving anywhere and anytime. Then wholeness and potential for authentication, documents are an assemblage of

There are several categories of search engines on the web such as AltaVista, Google and others. These search engines consists of components that has different feature to cater for different type of searching patterns depending on users searching needs. According to Harris (2000), search engine has special feature that seem to cover the same function but may have different methods of ranking hits, and may cover different areas of searching.

In this study, the component and features are investigated and considered in helping to develop a search engine to access previous PDF project documents. The most important features that used in this study are: Firstly, indexing the system to index the words in the document. In this study the indexing process include index all PDF project document files for each semester, so the indexer will extract each document page into words and records the occurrence of each word in the page. Secondly, format of search result which refers to search result to display details of document .Finally, accuracy of search which refers to the system need to be able to return document that the users search for.

2.7. Related Work

Dspace is an open source system that acts as a repository for digital research and educational material produced by an organization or institution. Dspace was developed by MIT and Hewlett Packard to address the preservation and dissemination needs of MIT. DSpace is designed to operate as a centralized, institutional service to capture, preserve, manage, and disseminate the intellectual output of MIT faculty and researchers

(Branschofsky and Chudnov, 2002).DSpace has at its core a model which attempts to address the real needs of a flexible institutional repository. Long term digital preservation is a key aim of the DSpace system and MIT (and others) are investing considerable research in enhancing this aspect of the repository software (Crow, 2004).

DSpace allows end-users to discover content in different number of ways, including: via external reference, such as a handle, searching for one or more keywords and browsing though title, date and author indices see Figure 2.4. It includes integrated subsystems for web-based and batch submission, submission workflow management, cross-content metadata schema, index and search, archival package management, access policy control, robust provenance , history logging, persistent identifiers, and administration (Tansley et al,2003).

Figure 2.1: Dspace Interface ("Dspace", 2009).

Dspace is adopted by many universities throughout the world such as Islamic Science University of Malaysia , University Malaya, University Tenaga Nasional , University Malaysia Perlis ,Cairo University , University of Newcastle ,and iversidade de Brasília (Kimpton, 2009).

ePrints was developed by the University of Southampton with the aim of enhancing open access to scholarly materials. ePrints was created in 2000 as an open source software package for building open access repositories (Tansley, and Harnad, 2000).The software was developed in PERL and manages a MySQL database layer. It has now reached version 2. ePrint has many similar features to DSpace. Long term digital preservation is not cited as a key aim of this development (Tansley et al, 2003;Crow, 2004). See Figure 2.5, and Figure 2.6.

ntro to Information Technologies — |e|prints

Welcome to LIS 2600 Intro to Information Technologies

This repository supports LIS education at the University of Pittsburgh's School of Information Sciences. The students using this service in Summer 2008 are enrolled in the FastTrack MLIS degree program.

Latest Additions

View items added to the repository in the past week.

Search Repository

Search the repository using a full range of fields. Use the search field at the top of the page for a quick search.

Browse Repository

Browse the items in the repository by subject.

About this Repository

More information about this site

LIS 2600 Intro to Information Technologies supports OAI 2.0 with a base URL of http://oaire.exp.sis.pitt.edu/cgi/oai2

Figure 2.2:ePrint Interface ("ePrint", 2009).

Abstract

The social Web is transforming the way information is created and distributed. Blog authoring tools enable users to publish content, while sites such as Digg and Del.icio.us are used to distribute content to a wider audience. With content fast becoming a commodity, interest in using social networks to promote and find content has grown, both on the side of content producers (viral marketing) and consumers (recommendation). Here we study the role of social networks in promoting content on Digg, a social news aggregator that allows users to submit links to and vote on news stories. Digg's goal is to feature the most interesting stories on its front page, and it aggregates opinions of its many users to identify them. Like other social networking sites, Digg allows users to designate other users as "friends" and see what stories they found interesting. We studied the spread of interest in news stories submitted to Digg in June 2006. Our results suggest that pattern of the spread of interest in a story on the network is indicative of how popular the story will become. Stories that spread mainly outside of the submitter's neighborhood go on to be very popular, while stories that spread mainly through submitter's social neighborhood prove not to be very popular. This effect is visible already in the early stages of voting, and one can make a prediction about the potential audience of a story simply by analyzing where the initial votes come from.

Item Type: Article

Uncontrolled digg, social networking
Keywords:

Subjects: T Technology > T Technology (General)
Z Bibliography. Library Science. Information Resources > ZA Information resources
Q Science > QA Mathematics > QA75 Electronic computers. Computer science

ID Code: 42

Deposited By: Brynne Norton

Deposited On: 17 Jun 2008 16:11

Last Modified: 19 Jun 2008 12:36

Figure 2.3: ePrints Results ("ePrints", 2009).

FEDORA is a comprehensive repository and digital library system developed from the FEDORA architecture at Cornell University and the University of Virginia. The system is open source. It is designed to be a foundation architecture upon which full featured institutional repositories and other interoperable web based digital libraries can be built. (Wyles, 2005) FEDORA is currently being tested by a variety of institutions across the US and UK including the Library of Congress. The software is implemented in JAVA. Long term digital preservation is not cited as an initial aim of this development but

technology watch functions have been mentioned as development goals for new versions of the software (Crow, 2004).

MyCore is open source system. It is a flexible repository system designed by a group of German universities working in collaboration. MyCore is written in JAVA and it incorporates a flexible database layer allowing different database backend to be used with it. Long term digital preservation is not cited as a key aim of this development (Crow, 2004; Lützenkirchen, 2004).

ARNO is the project that is funded by IWI (Dutch acronym for "Innovation in Scientific Information Supply")—Academic Research in the Netherlands Online—.It was developed to support the implementation of institutional repositories and link them to distributed repositories. Project participants include the University of Amsterdam, Tilburg University, and the University of Twente. Released for public use in December 2003, the ARNO system has been in use at the universities of Amsterdam, Maastricht, Rotterdam, Tilburg, and Twente (Wyles, 2005).

2.8. Application and Tools Used to build a Web

The web consists of several applications and tools e.g. PHP, MySQL, Apache web server, UML, and Rational rose. The following section will elaborate these.

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2.8.1 PHP Scripting Language

PHP is a HTML embedded scripting language. PHP uses for building web pages and it is better, faster and easier to learn than others scripting language like CGI, ASP and ColdFusion. Other reasons are:

- PHP is free.

- PHP is open source in nature therefore people can learn and use it without incurring any cost. PHP is much easier to learn and use PHP uses a friendly syntax. People without any formal programming background can write PHP scripts with ease after reading one good PHP book.

- PHP has built-in support for numerous types of databases. PHP is compatibility with different database such as MSSQL server, Oracle, and MySQL (Appu, 2002). Today, there are many existing various database servers or Database Management System (DBMS) which has functions on different platform. PHP has built-in support for most of them like dBase, FilePro, MySQL, Oracle and Sybase. For Access or SQL Server, PHP's ODBC (Open Database Connectivity) function needs to be used along with the database's ODBC drivers to interface with the database.

- PHP is one of several popular server-side scripting languages available today. It is considered an open source solution. PHP is server-side cross platform scripting language similar to Asp. It is designed for developers with programming experience but has the

advantage of being free and platform independent (Florescu,Levy,and Mendelzon,1998).
PHP allows for rapid development of dynamic, database-driven application.

2.8.2 MySQL

This study used MySQL relation database management system to implement the web-based database model for developing, the MySQL is very fast multi-threaded, and robust structured query language (SQL) database server. MySQL can be used by many programming languages including PHP, C, C++, Java, Lisp, and Perl (Moseley, 2007).

MYSQL has a well –deserved reputation for being a very fast database server that is also quite as a set up and use, with it is growing popularity as a back-end database for website, its visibility has increased dramatically in the year 2002.It supports interactive and non-interactive use. Besides that, MySQL is free open source software and functions as a Clint /server system that support different back ends, several different client programs and libraries, administrative tools and programming interface. It is providing ability to handle heavy loads and its security measures. MySQL enables PHP and Apache to work together to access and display data in a readable format to a browser (Glass et al, 2004).

2.8.3 Apache Web Server

Apache presents and acts a web server.The main function for apache is to parse any file requested by a web browser and respond by display correct results depend on code within that file(Glass et al, 2004).

The Apache server which is using in this study according to the Netcraft survey ("Netcraft Survey", 2009) is the most widely deployed web server at the time of this writing. In fact, the Apache server has grown each year since it first appeared in the survey in 1996. By any standard, Apache is very successful (Mockus,Fielding, and Herbsleb, 2000).

2.8.4   Unified Modelling Language (UML)

UML is a language for specifying, constructing, visualizing and documenting the system and its components. This technique is developed by Jim Rumbaugh and Grady Booch in the year 1994 then in 1995 the use case was added by Ivar Jacobson (Jacobson, 1998; Li, 2009) .

2.8.5   Rational Rose 2000

Rational Rose is a CASE (Computer Aided Software Engineering) tool that facilitates object-oriented analysis and design, better known as OOAD. For this project, Rational Rose 2000 is selected software used for system design. It is visual modeling tool to produce all the Unified Modeling Language (UML) diagrams.

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Rational Rose 2000 which encourages modeling based system development can increase the productivity of a developer. The development processes employing this software is capable of producing quality systems as the end result. Rational Rose is used in the development of system because:

- It is easy to use: Rational Rose provides a simple and easy interface.

- It is used throughout the software development process: From defining the user requirements to implementation. Rational Rose is used at any stage in the life-cycle process.

- It helps in creating project documentation: Use the models created in Rational Rose as a basis for documentation in system development (Charvat, 2002).

2.9. Summary

In this chapter, the definition and related concept is defined as what is the repository system, web and web-based, and the role that the repository plays. Beside that it discusses the component of the system: Firstly, search engine to provide a mechanism for finding components. Secondly, database to store the software components. Finally, tools that use to build the system and web application .To give good image about system we preview five related work which are Dspace, Eprint,ARNO, MyCore and FEDORA. The next chapter discusses the Methodology.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

Methodology can be defined as organized, documented set of procedures and guidelines that include the frameworks, techniques, methods, patterns and procedures used to accomplish a set of goals and objectives. This chapter presents an overview about the methodology used to design project document repository system (WPDRS). Also it defines what the activity of research is and how to go on. The main stages of system processes will be.

3.2 Study Design Methodology

This study adopted The General Methodology of Design Research proposed by (Vaishnavi & Kuechler, 2004). The design research methodology or sometimes called "Improvement Research" contained the major phases as shown in Figure 3.1. These phases are: Awareness of Problem, Suggestion, Development, Evaluation, and Conclusion.

Knowledge Flows	Process Steps	Outputs

Awareness of Problem → Proposal

Suggestion → Tentative design

Circumscription

Development → Artifact

Evaluation → Performance measures

* Operation and Goal Knowledge

Conclusion → Results
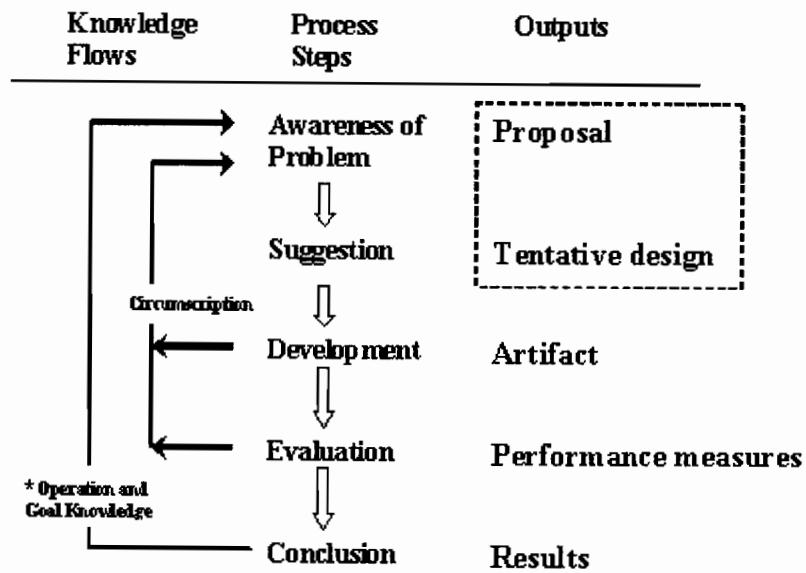
Figure 3.1: The General Methodology of Design Research

(Vaishnavi & Kuechler, 2004).

3.2.1. Awareness of Problem

The primary objectives of this phase are to observe and identify the problem areas. The problem is: There is no efficient system to search and retrieve about earlier information technology master projects, so the retrieved of information is difficult and not accurate and information is provided manually on the topics of projects, list and details of previous projects submitted. Based on the problem for this study the researcher is going to determine the problem then elaborate the objectives and the scope of this study, as well as the problem which is required to be solved. In this stage, the awareness of the problem will be solved through interviews with the master IT Students, and document review to observe the project document details. The output of this phase is a Proposal.

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3.2.2. Suggestion

The study suggested a Web-Based Project Document Repository System (WPDRS), and creates a prototype for Web-Based Project Documentation Repository using UML diagrams to help in solve the problems .We mentioned these problems in the previous phase. The output of this phase is the tentative design.

3.2.3. Development

The Tentative Design is implemented in this phase. The techniques for implementation will of course vary depending on the artifact to be constructed .In this phase WPDRS will be developed. The evolutionary prototyping methodology is the normal technique used for web-site development and large project with many users (Knight,Steinbach,,and Kellen, 2001).The prototyping approach process contains four main steps which were adapted from (Laudon & Laudon, 2000), as shown in Figure 3.2.

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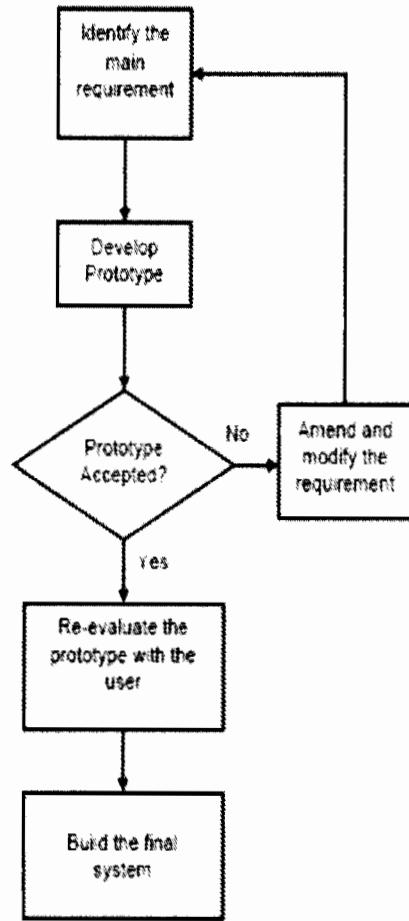
Figure 3.2: The Prototyping Approach (Laudon & Laudon, 2000).

Gordon and Bieman (Gordon and Bieman, 1995) found that the benefits of using prototyping were:

- Improved system usability.

- A closer match of the system to users needs.

- Improved design quality.

- Improved maintainability.

- Reduced development effort.

The process of prototyping involves the following steps:

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3.2.3.1.   Identify the Problem and the Initial Requirements

Regard to the base of requirements that will be identified in the awareness of the problem step, the information will be gathered from the master IT student and department staff where the prototype will be build. Also the system architecture and design requirement will be defined and the project's schedule will be defined (The project schedule is attached in Appendix C).

In this phase, the requirements about the system will be defined. For the purpose of this project, the object oriented approaches that will be used is Unified Modeling Language (UML).Three diagrams are used to define the application requirements in order to develop WPDRS during analysis phase they are:

i.   Class Diagram.

ii.   Use Case Diagram.

iii. Sequence Diagram.

These diagrams will be presented in the chapter four.

3.2.3.2.   Develop Prototype

Prototyping is the process of putting together a working model in order to test various aspects of the design, illustrate ideas or features and gather early user feedback. The

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purpose of prototyping is to eliminate the possibilities of uncertainty and misunderstanding, and to verify a solution at an early stage of design.

This phase basically involves programming and coding of the system .The initial prototype is developed by including programming (coding). This study used PHP Programming Language to develop the prototype. In the end of this phase, the overall architecture of the system is developed. All the activities are achieved by referring to the object-oriented methodology such as class diagram, use case diagram, and sequence diagram. Essentially, a prototype enables to fully understand how easy or difficult it will be to implement some of the features of the system. It can give users a chance to comment on the usability and usefulness of the user interface design and to access the fit between the software tools selected the functional specification and the user needs.

Prototypes can be categorized in various ways. According to Bahrami (1999), there are four commonly accepted prototypes. There are:

i) Horizontal Prototype

Horizontal Prototype is a simulation of the interface but contains no functionality. The advantages are very quick to implement, providing a good overall feel of the system, and allowing users to evaluate the interface on the basis of their normal, expected perception of the system.

ii) Vertical Prototype

Vertical Prototype is a subset of the system features with complete functionality. The principal advantage of this method is that few implemented functions can be tested in great depth. In practice, prototypes are hybrid between horizontal and vertical. The major features of the interface are established so the user can get the feel of the system

iii) Analysis Prototype

Analysis Prototype is an aid for exploring the problem domain. This class of prototype is used to inform the user and demonstrate the proof of a concept. It is not used as the basis of development, however, and is discarded when it has served its purpose. The final product will use the concepts exposed by the prototype, not its code.

iv) Domain Prototype

Domain Prototype is an aid for the incremental development of the ultimate software solution. It often used as a tool for the staged delivery of subsystems to the users or other members of the development team. It demonstrates the feasibility of the implementation and eventually will evolve into a deliverable product.

For the purpose of this project, the horizontal and vertical prototype will be used. The prototype will be conducted for several times until the end user satisfied. Users can generally provide better feedback about requirements when examining prototype.

3.2.3.3.   Implement and Use Prototype

Select five UUM IT students to examine the prototype and provide feedback to add or improve. Once prototype is accepted see section 5.4.1, the development of final system will begin. The additional implementation will be added onto the system based on prototyping.

3.2.3.4.   Revise and Enhancing the Prototype

By using the feedback both of the specifications and the prototype can be improved. Testing and User Acceptance Test will be conducted after develop the final system.

3.2.4. Evaluation and Conclusion

The Web-Based Project Document Repository will be evaluated by running the system on simulation and trying to test the system. Corresponding to the development steps, the knowledge is obtained in this step can lead to the improvement of the proposal. In this phase the researcher tries to test the Web-Based and evaluate it by observing the

performance of the system. Testing is the final phase in system development. This study will use one technique to evaluate and test of the Web-Based. The technique is user testing (questionnaire). There are at least 30 people as samples to rate the user satisfaction with the Web-Based and to evaluate the system see section 5.4.4.

3.3 Summary

This chapter has presented the methodology of the study, which describe the project development methodology and acts as a guideline in developing the system along with the process of developing project. For this study the general methodology is adopted which consists of five phase which are: awareness of problem, suggestion, development, evaluation and conclusion. For development phase the prototype approach is used .Next chapter will present the analysis and design phase that are the first and second phase in project development methodology process.

CHAPTER FOUR

ANALYSIS AND DESIGN

This chapter discusses the analysis and design of the system that has been developed in a web based environment. This chapter defines the functionalities, interface, and generalized design principles for developing the Web-based Project Documentation Repository System (WPDRS).

4.1. Introduction

The aim of this chapter is to provide the highlight about the system functionality which identifies the functional requirements and the non functional requirements. The UML diagrams will be presented in the analysis and design part from this chapter by identifying the use case diagram, class diagram, sequence diagram, and the collaboration diagram.

4.2. System Requirements

The importance of this step is that, all the system's requirements which need to build the proposed system will be presented in this step to give the highlight about the

system components. The starting point for capturing system's requirements reflects how the system wants to operate. Therefore, it is critical to capture, analyze, and understand the system's requirements before trying to create system specifications.

The system's function can be divided into two views, management system (The Administration) and operation system (The Students).

4.3. Web Application Architecture

The World Wide Web has succeeded in large part because its software architecture has designed to meet the needs of an internet-scale distributed hypermedia system. The internet is the technical infrastructure on top of which the web is built and based on Clint/server scheme. The web Clint is the computer that initiates services request and uses software called web browser.

The web server, on the other hand, is the program or the remote computer that stores web pages, documents, and other information. It provides this information when is requested. The user via a web browser contacts a web server, either by typing the URL into the location box or by clicking a link on a web page. Accessing a web server means contacting it via its network address. The web server will accept the request, search for the information, and respond by sending a document in the form of a web page. The web browser will then interpret the document and display it on the user screen .Through the world, thousands of these process take place on the web every hour. As the web is being widely used in various e-commerce activities, web servers and browser now include

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widely used in various e-commerce activities, web servers and browser now include different forms of authentication abilities such as encryption to ensure more secure information exchange.

According to Vass et al, (1998), to exchange information, the server and Clint communicate each other using a common language called a protocol. Irrespective of location, computer type and operating system the web makes things uniform with its own well-defined protocol termed Hyper-Text Transfer Protocol (HTTP). Thus, any web client can communicate with any web server-and vice versa. See Figure 4.1.

Figure 4.1: Web Browser and Web Server (Williams and Lane, 2004).

Web based applications are kind of like an interactive website on steroids. The user interface of the application is composed of web pages which present the Client Tier, also called the presentation layer, includes usually a web-based GUI (graph user interface), browser software (Firefox, Internet explorer ,etc.),HTML, CSS ,and (client-side) script. Each web page, like the screens of traditional applications, presents information to the user. The Clint use Application Tier (Middleware) also called the logic tier or business tier to control the functionality of the application such as logic, decision-making, processing, and calculations. For example, web server (Apache HTTP),Sahana (Server-

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processing, and calculations. For example, web server (Apache HTTP),Sahana (Server-side PHP Scripts) ,and OpenMRS (Server-side Java Applications).See Figure 4.2. The information normally comes from database server which presents data tier that holds all the data for the web application, which present database server (manages the storage and retrieval of the data),MySQL (Open Source Database Management System (DBMS) Server and the user can view, modify or delete the information they have access to (Degan, 2003;Williams and Lane, 2004).
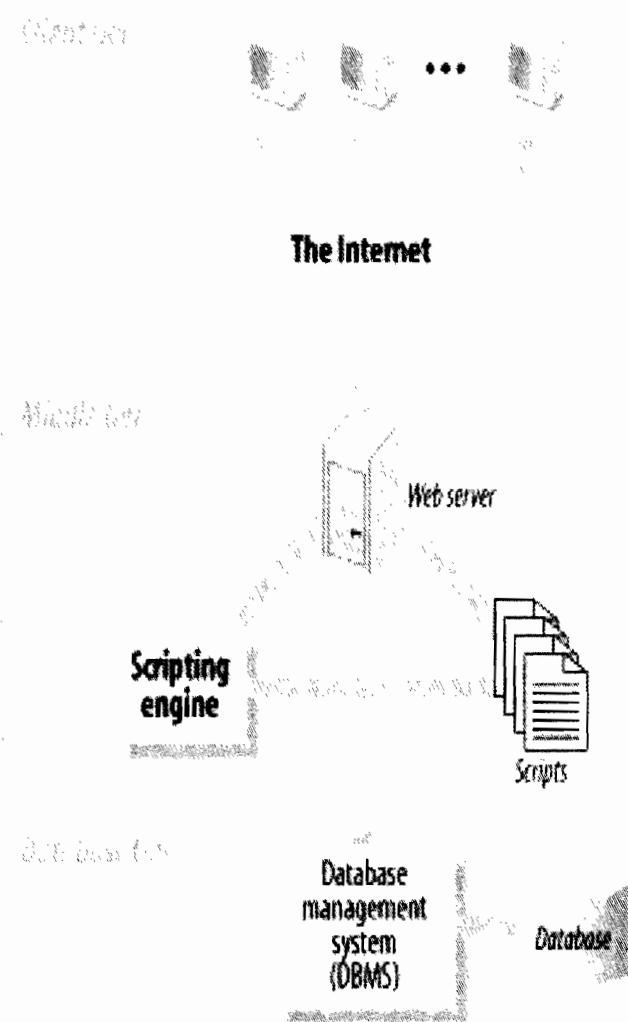
Figure 4. 2: The Three-Tier Architecture Model (Williams and Lane, 2004).

For this project, client-server architecture will be used .The System architecture for this project looks at the structural design of the solution as a three-tier model as depicted in figure 4.3. Each tier performs specific functions and uses different technologies.

The client-server architecture uses a program that operates on a server to provide services to the database that would normally be provided by the workstations or clients in a desktop database system.

The client-server architecture processes a request made by a client at the server level instead of at the client level as it does in the client-based architecture. The standard implementation of this architecture is based on database servers that use the Structured Query Language (SQL) to manipulate the data (e.g. MSSQL Server, Oracle, Sybase SQL Server and Informix).
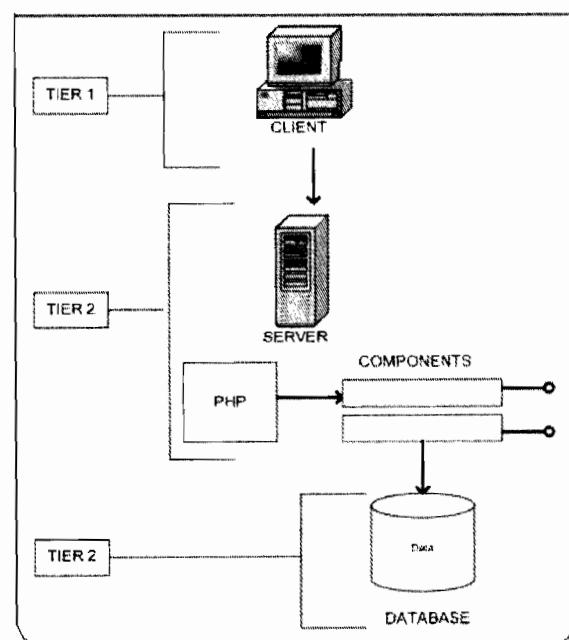
Figure 4. 3: System Architecture.

i) Tier 1:

Tier 1 represents the user interface, navigation methods and tools. This is where the entire user experiences take place. This layer also provide graphic interface for users to interact with the applications, input data, view results, manages data manipulation and formatting once the computer receives it. In web applications, the browser performs the tier 1 tasks.

ii) Tier 2

Tier 2 provides a link between the interface and data service layer. This tier contains the business logic established in the requirements phase performed earlier. Business logic or rules that govern application processing, connects the user at one with the data and the other at the end.

iii) Tier 3

Tier 3 represents the data services, provided by a data store, which manage provide access to the application data. For this project, the author will use MySQL database.

4.4. Functional Requirements

Listed below are the functional requirements and non-functional requirement of the system. The priority is determined based on user and administrator requirement which are observe from awareness of problem. In The priority column, the following short hands are used:

- **M** – Mandatory requirements (something the application must do).
- **D** – Desirable requirements (something the application preferably should do).
- **O** – Optional requirements (something the application may do).
- WPDRS- Web-Based Project Documentation Repository System.

4.3.1. Functional Requirements (User/Student)

Table 4.1 presents the functional requirements for student user.

Requirement ID	Requirement Description	Priority
WPDRS _01	User/ Search	
WPDRS _01_ 01	The proposed WPDRS system supports UUM students (User) to search documents about any words that he/she want to enquire about though the system search page.	M
WPDRS _01_ 02	The user will be able to search documents according to the year study and semester.	D
WPDRS _02	User/ Download Document File	
WPDRS _02_ 01	The proposed WPDRS system provides a student to view/download document base on his/her search.	M
WPDRS _03	User/ Browsing	
WPDRS _03_ 01	The proposed WPDRS system provides user to brows project documents by classification and publishing year. Beside, preview all Project's document.	M

Table 4.1: Functional Requirements (Student).

4.3.2. Functional Requirements (Administrator)

Requirement ID	Requirement Description	Priority
WPDRS_04	Administrator/ Login	
WPDRS_04_01	WPDRS provide the administrator to login through his/her pages by the username and password.	M
WPDRS_05	Administrator / Upload Documents File	
WPDRS_05_01	Administrator has the ability to upload project documents file to the server with all needed information.	M
WPDRS_06	Administrator / Update semester Profile	
WPDRS_06_01	The administrator has the ability to manage the project's documents by updating semester profile (editing) and deleting the related information of semester profile and semester files.	M
WPDRS_07	Administrator / Index Semester Documents	
WPDRS_07_01	The administrator has the ability to index the project's documents and sort them into database.	M

Table 4.2: Functional Requirements (Administrator).

4.5. Non-Functional requirements

Non-functional requirements describe all aspects in optional way. Our project determines some of this requirements that help system to achieve its goal clearly and rapidly. See table 4.3 and table 4.4.

Requirement ID	Requirement Description	Priority
WPDRS_8	Usability	
WPDRS_8_01	• The WPDRS should be easy to use. • The WPDRS should present the easy functions that make the user able to practice his or her activities on his or her page. • The system should be clearer for the users in these areas by provide them with the appropriate guide to the system.	M
WPDRS_9	Requirement for Performance	
WPDRS_9_01	The WPDRS can make a good performance according to hardware & software environment used. The system should response in an optimal time, without any delay or non-consistency in database.	M

Table 4.3: Non-Functional Requirements-1

Requirement ID	Requirement Description	Priority
WPDRS _10	Reliability	
WPDRS_10_01	The WPDRS must not generate errors when used probably on its operational environment. The system must provide the users of the system with the flexibility to detect the alternative solutions during the lack.	M
WPDRS _11	Security and safety	
WPDRS_11_01	• The system should prevent illegal access to the database, while marinating a high level flexibility. • The system should reject any person whose ID is not identical to the one which stored in the database.	M

Table 4. 4: Non-Functional Requirements-2.

4.6. Use Case Diagram

A use-case describes the behavior of the system and shows who the actor interact with the system (Suyono, Nor, Yusof, & Rashid, 2006) and it represents the lists of capabilities the system must provide (Kimmel, 2005).

In this project there are two actors which are the administrator and the user. They interact in six use cases. Figure 4.4 shows the use case diagram for this system:
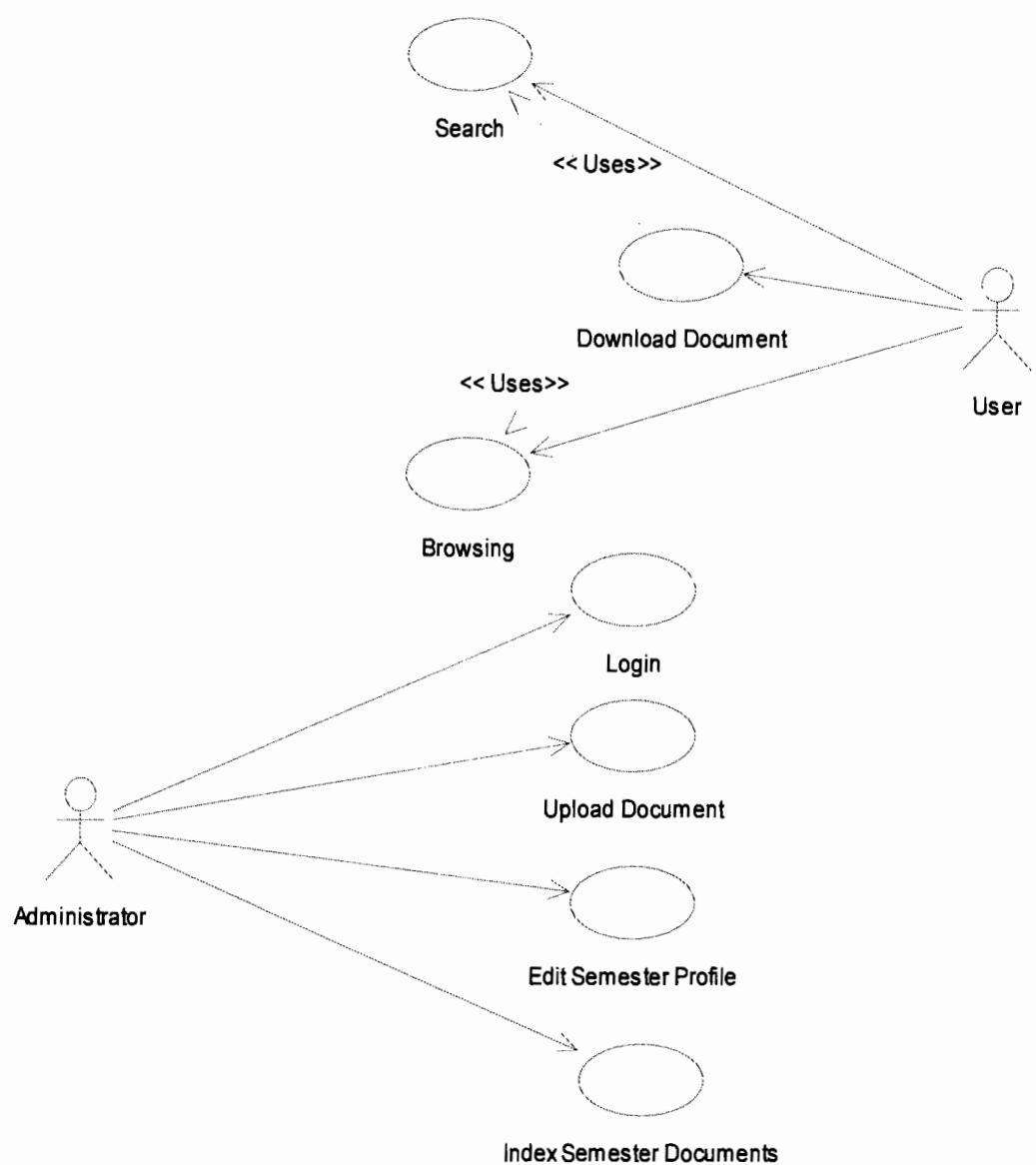
Figure 4. 4: Use-case Diagram.

Figure 4.4 presents the WPDRS use case diagram that illustrated the user and the administrator functionality. Furthermore, the proposed WPDRS supports the administrator to edit, index, uploads, and login. Moreover, the user will be able to search, browsing and download project documents.

4.7. Use Case Specification

4.7.1. Use Case: Search (WPDRS _01)

User   Search
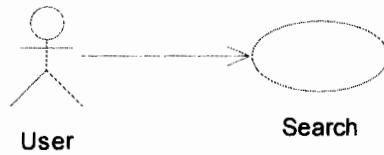
Brief Description

This use case allows a user to search project's document files that have been indexed and located in database about any words that he/she want to enquire about.

Pre-Conditions

Not applicable.

The Characteristics of Activation

Execution depends on the customer demand (Even driven).

Flow of Events

Basic Flow (WPDRS _01_01):

1. The use case starts when the system displays the search page.

2. The user has to enter the keywords and click the button search to find the match document files.

3. The system displays the match document files in the search results page. (**E-1**: Not Match, **E-2**: Common Word, **E-3**: Short Word).

4. The use case ends.

Alternative Flow:

Not applicable.

Exceptional Flow:

- (**E-1**: Not Match): If the system is unable to match the keyword with any document files in database, the message "No Match" will be shown on the screen.

- (**E-2**: Common Word): The keyword is a common word, the system will show message "Common Word "on the screen.

- (**E-3**: Short Word): The keyword is a short word(less than three letters), the system will show message "Short Word "on the screen.

Post-Conditions

The user has obtained search results.

Rule(s)

Not applicable.

Constraint(s)

Not applicable.

4.7.2. Use case: Download Document (WPDRS _02)
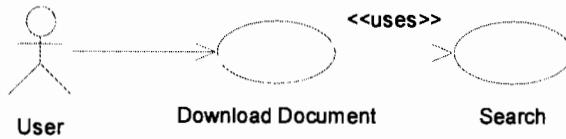
Brief Description

This use case allows user to download or view the file that has been found by system base on his/her search keywords.

Pre-Conditions

The users have been made search and get result (WPDRS-01).

The Characteristics of Activation

Execution depends on the customer demand (Even driven).

Flow of Events

Basic Flow (WPDRS _02_01):

1. The use case starts when the system displays the search result page.

2. The administrator clicks the file's title to download/view the document. The location of the document to be stored also must be determined.

3. The actor needs to click button "Save/open" to save the files.

4. The use case ends.

Alternative Flow:

Not applicable.

Exceptional Flow:

Not applicable.

POST-CONDITIONS:

The download is done.

RULE(S)

Not applicable.

Constraint(s)

Not applicable.

4.7.3. Use case: Browsing (WPDRS _03)
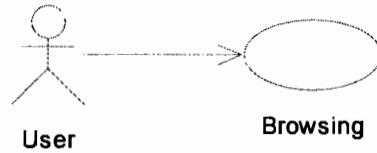
User   Browsing

Brief Description

This use case allows user browsing project document base on publisher year and classification. The user may download or preview the list of all the project's documents that have been located in repository.

Pre-Conditions

Not applicable.

The Characteristics of Activation

Execution depends on the user demand.

Flow of Events

Basic Flow (WPDRS _03_01):

5. The use case starts when the system displays the search page.

6. The user selects browsing type.

7. The system presents result page.

8. The use case ends.

Alternative Flow:

Not applicable.

Exceptional Flow:

Not applicable.

Post-Conditions

The user has obtained browsing result.

Rule(s)

Not applicable.

Constraint(s)

Not applicable.

4.7.4. Use case: Login (WPDRS _04)

Administrator   Login
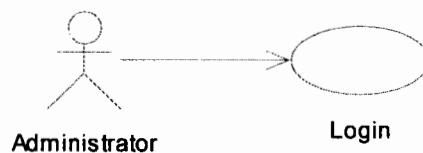
Brief Description

This use case allows for the validation of the authenticity and authority of the given. As a result of a successful login, the administrator user is presented with his/her control panel and the set of operations they have been granted privileges to perform.

Pre-Conditions

Administrator user must have current and valid ID and user name.

The Characteristics of Activation

Execution depends on the administrator's demand (Even driven).

Flow of Events

Basic Flow (WPDRS _04_01):

1. The use case starts when the system displays the login form.

2. The system requires the actors (administrator system) to login by entering their username and password as verification to enter the system and press login.

3. The administrator control panel will show once login successful (**E-1**: Invalid username or password).

4. The use case ends.

Alternative Flow

Not applicable.

Exceptional Flow

(**E-1**: Invalid username or password):

- At Step 3 in the basic flow, the system determines that the username and password combination is in error.
- The system indicates that the combination is invalid to the registered user without indicating whether it's the username, password or both.
- The system displays the denied pages with a message "Be sure you have authority user name & password".
- Return to step 2 in the basic flow.

Post-Conditions

The administrator login successfully.

Rule(s)

Not applicable.

Constraint(s)

Not applicable.

4.7.5. Use case: Upload Document (WPDRS _05)

Administartor   Upload Document
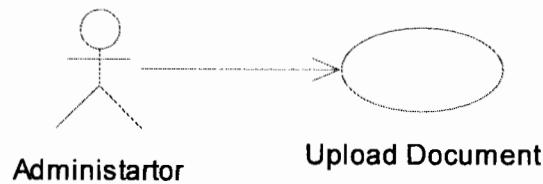
Brief Description

This use case allows the administrator to upload project's document files to server.

Pre-Conditions

Administrator user must login (WPDRS _04).

Characteristics of Activation

Execution depends on the customer demand (Even driven).

Flow of Events

Basic Flow (WPDRS_05_01):

1. The use case starts when the system displays the uploaded file form.

2. The administrator will enter all the information (browse the file's location, file's name, author, supervisor, study year, semester and classification).

3. The administrator submits form by click on upload for process confirmation.

4. System will display a message "The file has been uploaded "on the screen once the upload is successful (E-1: Missing information).

5. The use case ends.

Alternative Flow:

Not applicable.

Exceptional Flow:

(E-1: missing information):

The admin must enter all the requirement fields if not, system will display message based on the missed fields.

Post-Conditions

Project document is uploaded.

Rule(s)

Not applicable.

Constraint(s)

The type of document file must be PDF file.

4.7.6. Use case: Edit Semester Profile. (WPDRS _06)
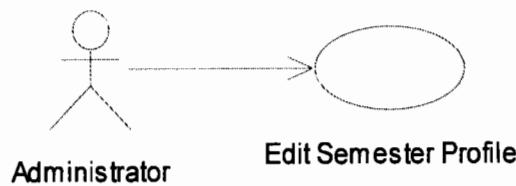
Administrator   Edit Semester Profile

Brief Description

This use case allows the administrator to manage the project documents by updating semester profile (editing) and deleting the related information (Semester profile and semester files).

Pre-Conditions

The administrator user must login (WPDRS _04) and already upload project document files to server (WPDRS _05).

The Characteristics of Activation

Execution depends on the customer demand (Even driven).

Flow of Events

Basic Flow (WPDRS_06_01):

1. The use case starts when the administrator selects an option from semester profiles page

2. The system displays the semester details page.

3. The administrator selects Edit (**A-1** select Delete option) to update the semester Profile.

4. The system displays the update page.

5. The administrator makes update and confirms the process by click on update button.

6. The use case ends.

Alternative Flow: (WPDRS_06_02):

(**A-1** Select Delete Option):

3. Select delete option to delete specific semester profile.

4. The system shows a message "Are you sure you want to delete? Index will be lost" to confirm the deleting process.

5. The administrator confirms the process.

6. Go to Step 6 in Basic Flow (WPDRS_05_01).

Exceptional Flow

Not applicable.

Post-Conditions

The editing is done and stored in the database.

Rule(s)

Not applicable.

Constraint(s)

Not applicable.

4.7.7. Use Case: Index Semester Documents. (WPDRS _07)

Administrator   Index Semester Documents
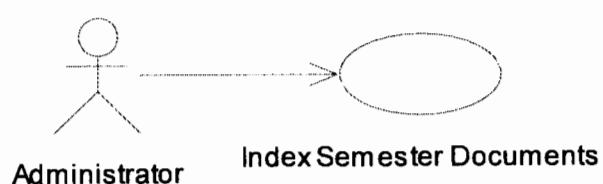
WEB-Bas

WEB-Bas

Brief Description

This use case allows the administrator to index all projects' document files that belong to specific semester and store it in database.

Pre-Conditions

Administrator user must login, and upload project document files to server.

Flow of Events

Basic Flow (WPDRS_07_01)

1. The use case starts when the administrator selects index from semester details page.

2. The system displays the index form pages.

3. For specific location on server the actor will submit by click on start index button (A-1 Click Re-index Button) to process confirmation

4. System will display indexing pages consist indexing process details.

5. The use case ends.

Alternative Flow

(A-1 Click Re-index Button):

The semester files have been indexed before.

Exceptional Flow

Not applicable.

Post-Conditions

All project documents for a specific semester are indexed and stored in the database.

Rule(s)

Not applicable.

Constraint(s)

Not applicable.

4.8. Sequence Diagram

The sequence diagram is a unified modeling langue (UML) diagrams that shows the processes that execute in sequence. The sequence diagram shows the sequence of the message, which are exchanged among roles that implement the behavior of the system, arranged in time. It shows the flow of control across many objects that collaborate in the context of a scenario (Latronico and Koopman, 2001). The sequence diagram (interaction) captures the behavior of single use case showing the messages passed between those object of the case and describe the sequence of operation in that use case.

There are three kinds of objects:

a) Boundary: It is the boundary the user and it actors (interface).

b) Entity: It is the information a system uses (date).

c) Control: It is the control logic of the system (who does what).

For this project design, there are sequence diagrams for each use case. They are the success scenario and failure scenario.

4.8.1. Search Sequence Diagram

The user sets the word/s and makes a search. The system matches words with keywords that are stored in the database. Then the results will be presented in the result search page. For statistic the system will save search log in the database .Figure 4.5 illustrates the sequence diagram for the success scenario for search use-case.
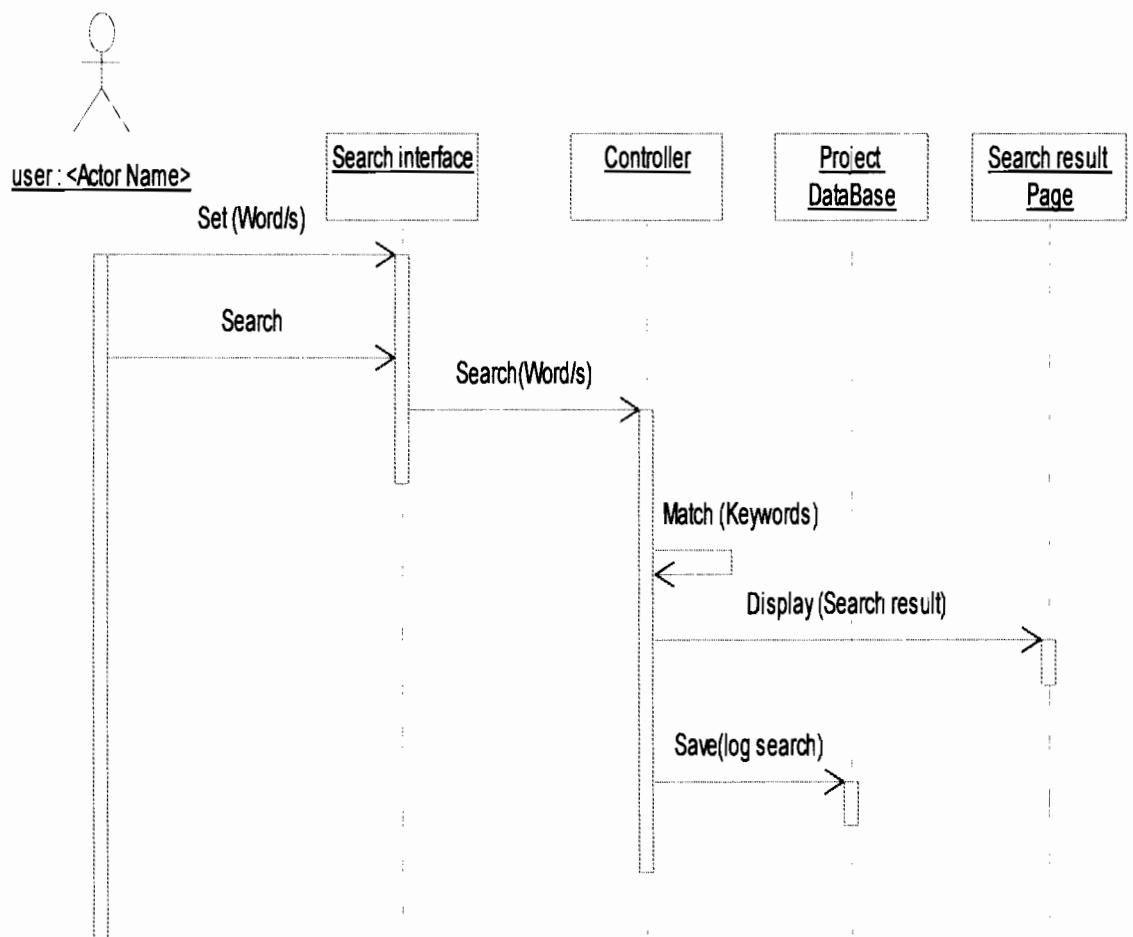
Figure 4. 5: Search Sequence Diagram -Success Scenario.

The failure scenario for search will happen if user sets word/s that no match, common words, and short word. The search log will be saved in the database .The sequence diagram for the failure scenario for search use-case is shown in Figure 4.6.
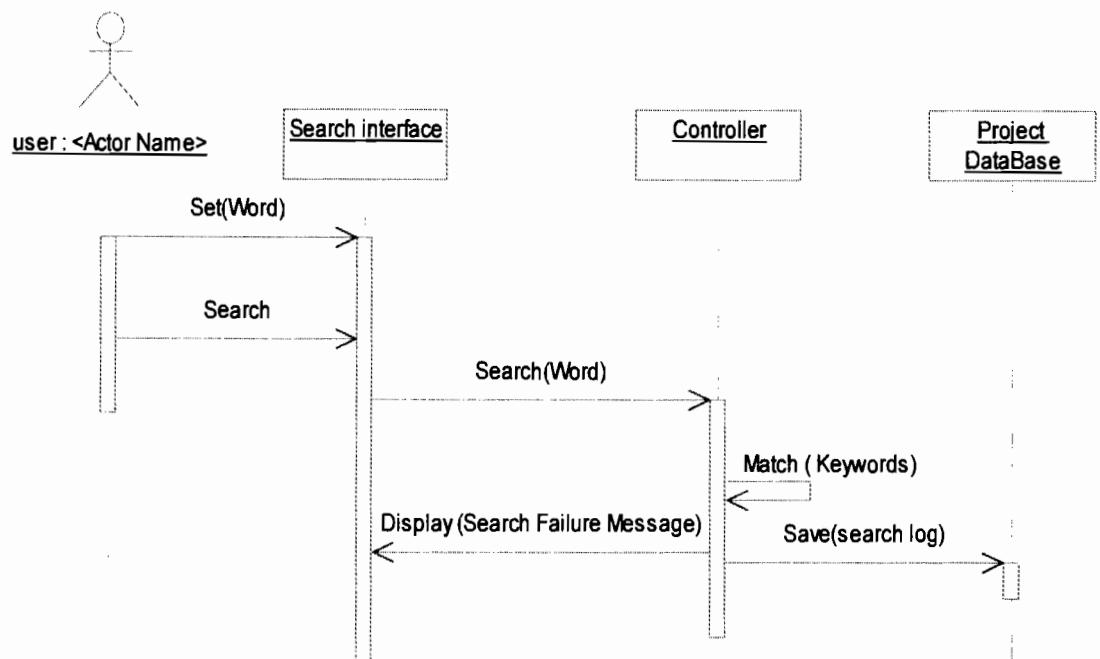
Figure 4. 6: Search Sequence Diagram - Failure Scenario.

4.8.2. Download Document Sequence Diagram

User can download or view document's file that has been found by a system base on his/her search keywords. User needs to select the document title from document list in search result page and set the stored location. Figure 4.7 illustrates the sequence diagram for the success scenario for download document use-case.

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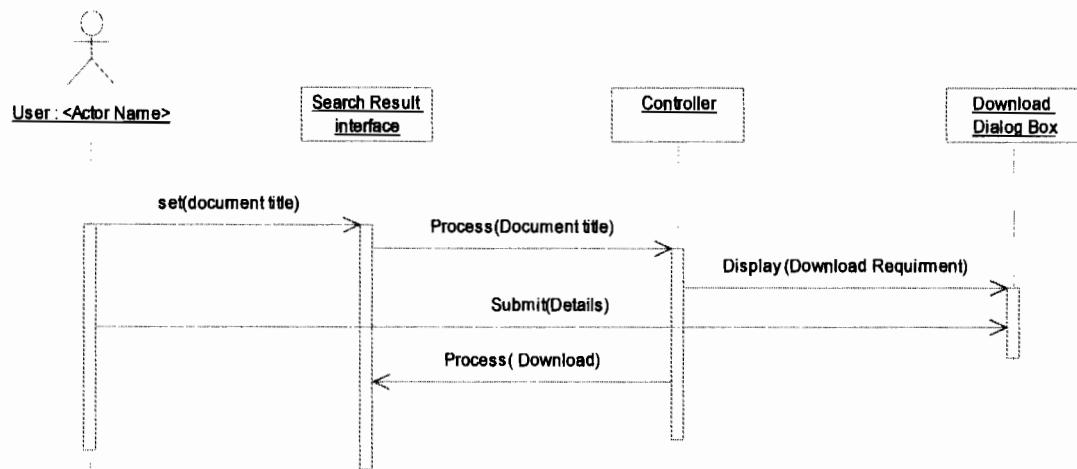
Figure 4. 7: Download Document Sequence Diagram - Success Scenario.

The failure scenario state if the user cancels downloading process. The sequence diagram for the failure scenario for download document use-case is shown in Figure 4.8.
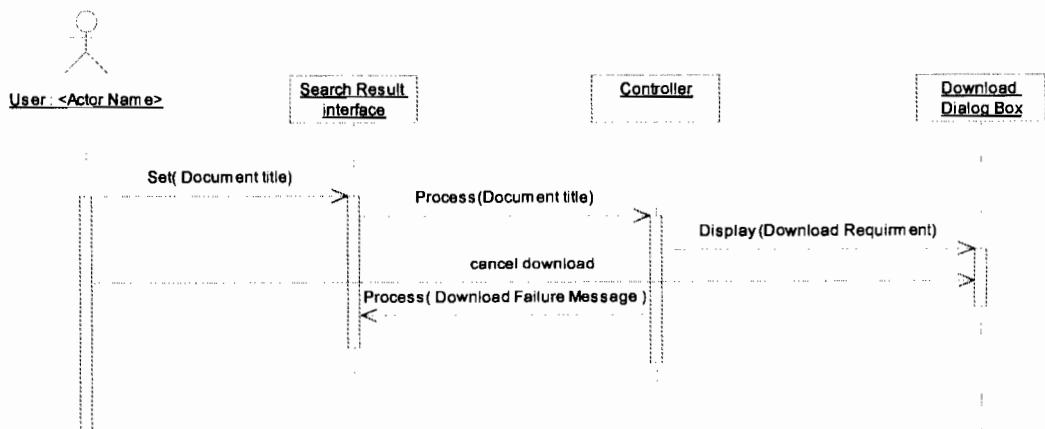
Figure 4. 8: Download Document Sequence Diagram - Failure Scenario.

4.8.3. Login Sequence Diagram

The administrator needs to set and enter his/her user ID and password, then submit the process to login to administrator control panel. Figure 4.9 illustrates the sequence diagram for the success scenario for Login use-case.
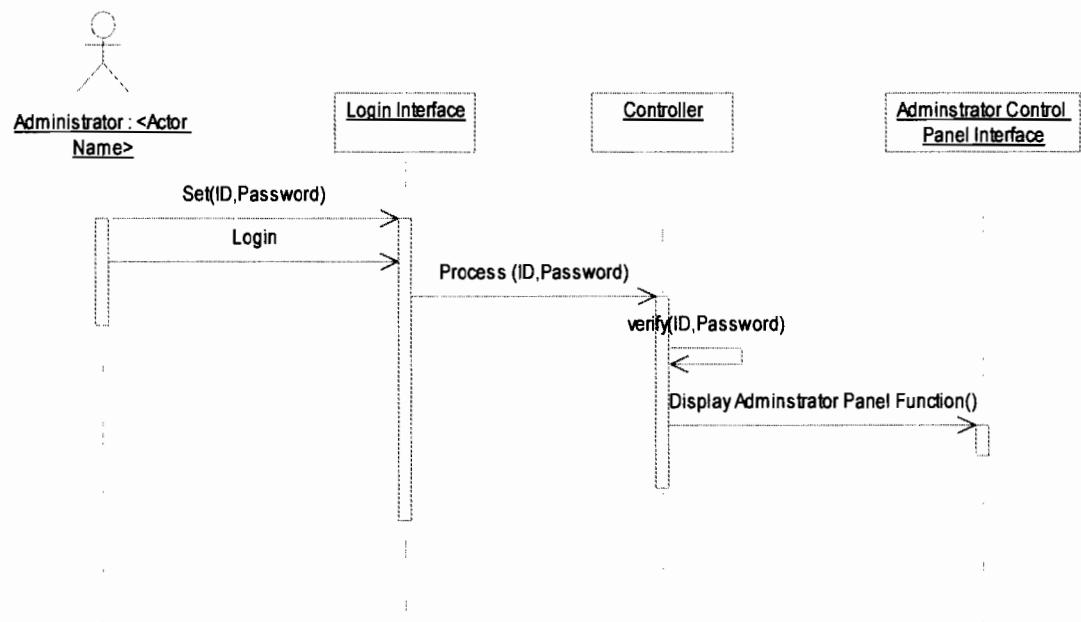
Figure 4. 9: Login Sequence Diagram - Success Scenario.

The sequence diagram for the failure scenario for login use-case is shown in Figure 4.10.
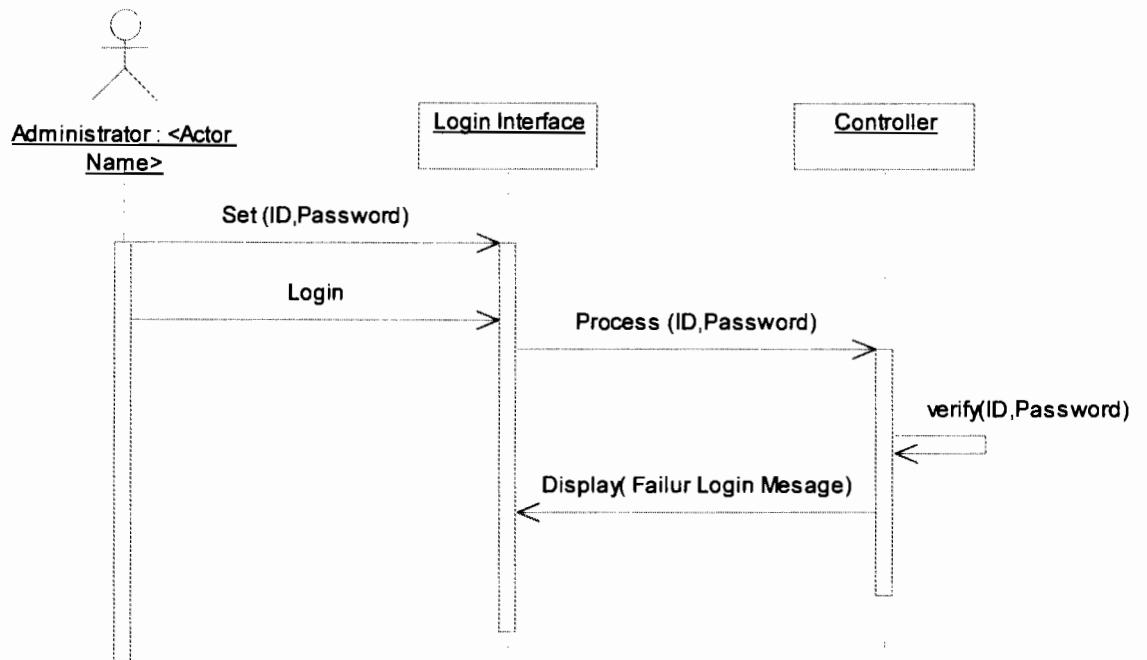
Figure 4. 10: Login Sequence Diagram - Failure Scenario.

4.8.4. Upload Document Sequence Diagram

The administrator needs to enter the publication year, semester, author's name, supervisor's name, classification and document file's location. The system will make a folder to include the file in it, also add the semester information to semester profile list. Figure 4.11 shows the sequence diagram for the success scenario for upload document use-case.
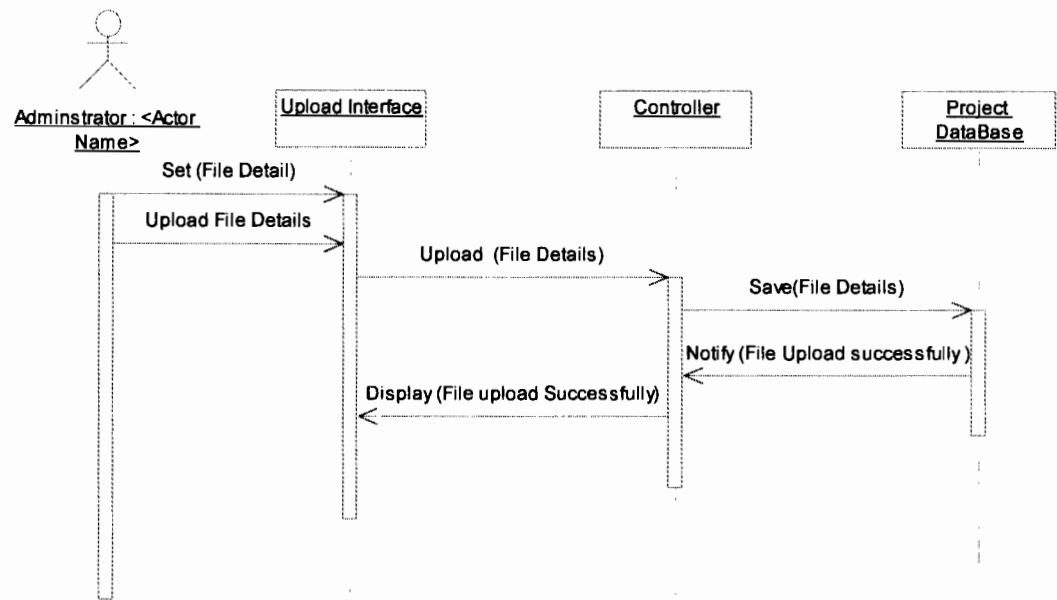
Figure 4. 11: Upload Document Sequence Diagram - Success Scenario.

The sequence diagram for the failure scenario for upload document use-case is shown in Figure 4.12.
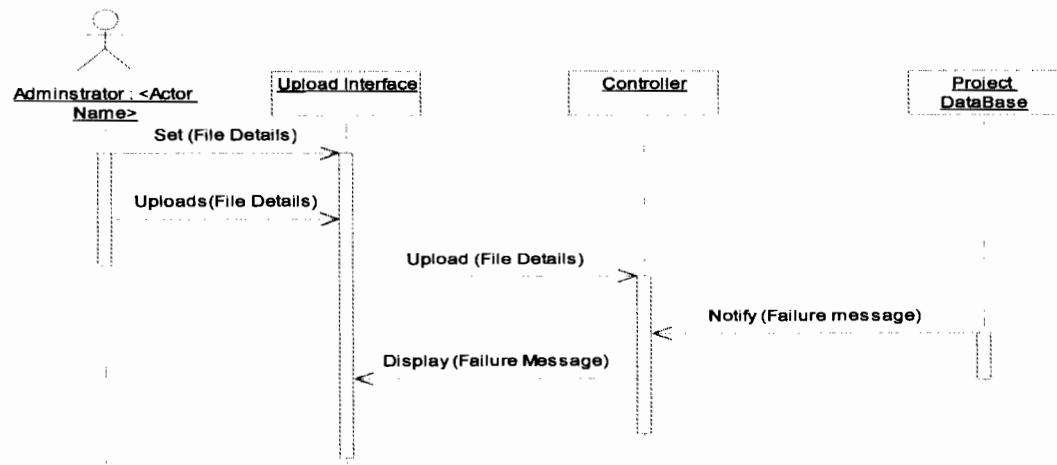
Figure 4. 12: Upload Document Sequence Diagram - Failure Scenario.

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4.8.5. Edit Semester Profile Sequence Diagram

The administrator selects options from the semester profile list page. The system will retrieve the semester details. Then the administrator selects edit /delete. To update, the administrator needs to make changes and submit the process. To delete, user just select delete then the system shows a confirmation message. Figure 4.13 shows sequence diagram for the success scenario for update semester profile use-case.
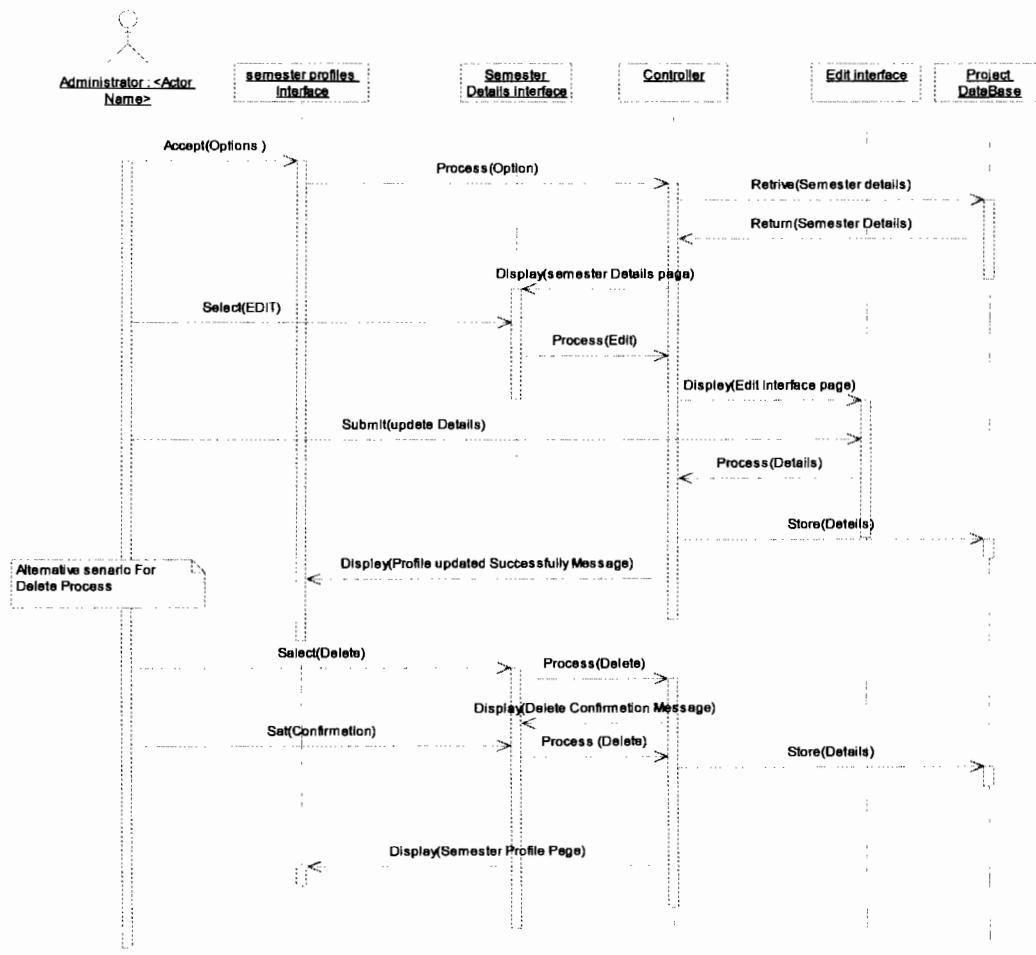
Figure 4. 13: Edit Semester Profile Sequence Diagram - Success Scenario.

No failure scenario for the edit sequence diagram.

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4.8.6. Index Semester Document Sequence Diagram

The administrator needs to determine the semester to index. The administrator selects index in semester profile page. The system will display the index form page .Then the administrator needs to submit by select start index. Figure 4.14 shows the sequence diagram for the success scenario for index semester document use-case.
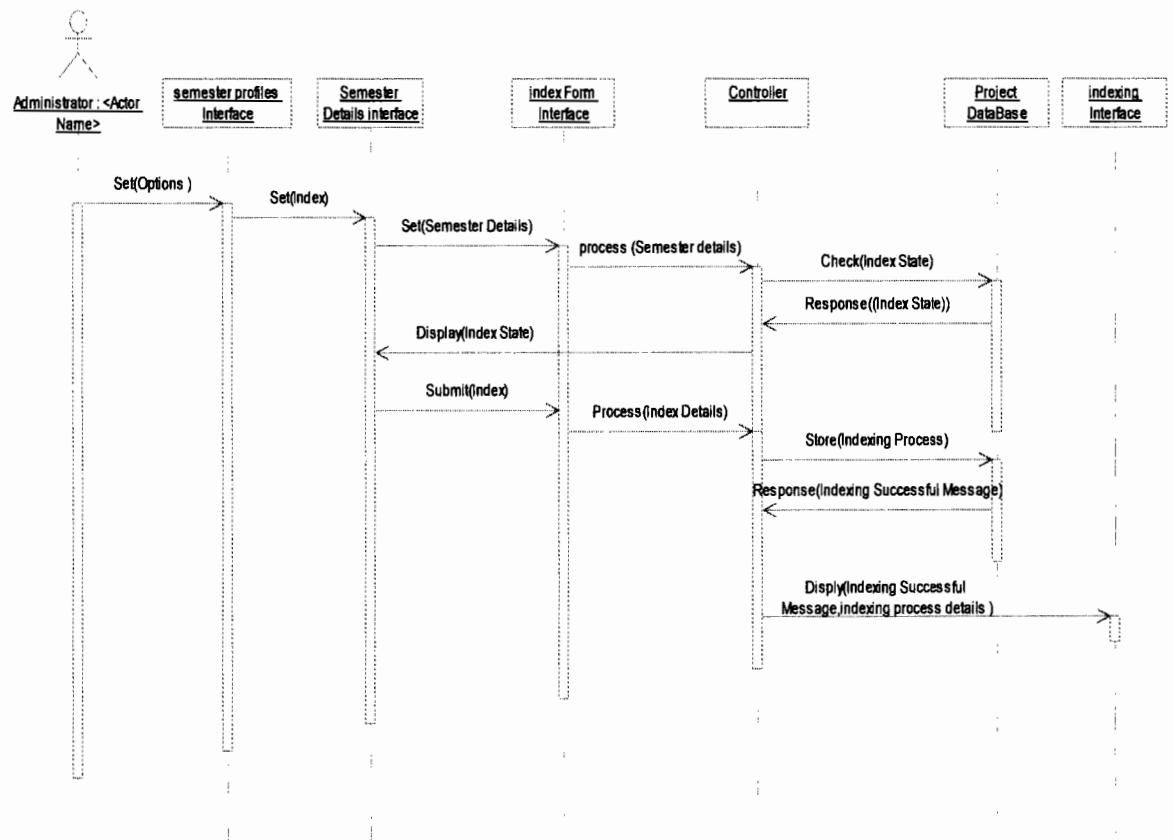
Figure 4. 14: Index Semester Document Sequence Diagram - Success Scenario.

No failure scenario index semester document use-case.

4.9. Collaboration Diagram

The collaboration diagram is an unified modeling langue (UML) diagram that shows what methods our objects will need and what pattern exist within our system. It is showing the order in which messages are passed since it captures the ordered sequence (Jalloul, 2004).

4.9.1. Search Collaboration Diagram
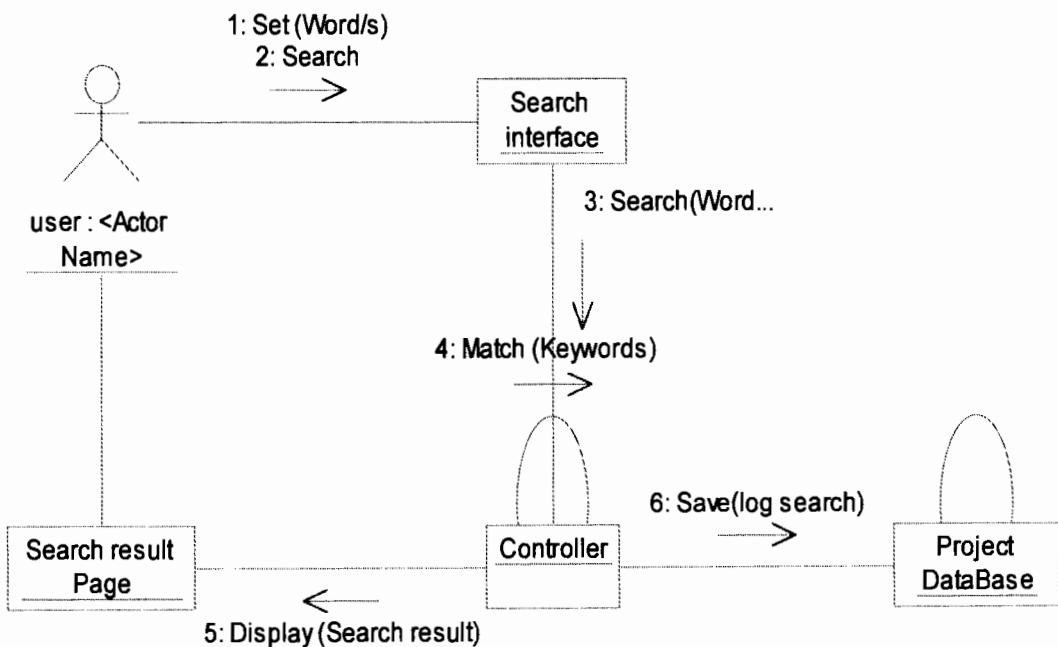
Figure 4. 15: Search Collaboration Diagram.

4.9.2. Download Document Collaboration Diagram
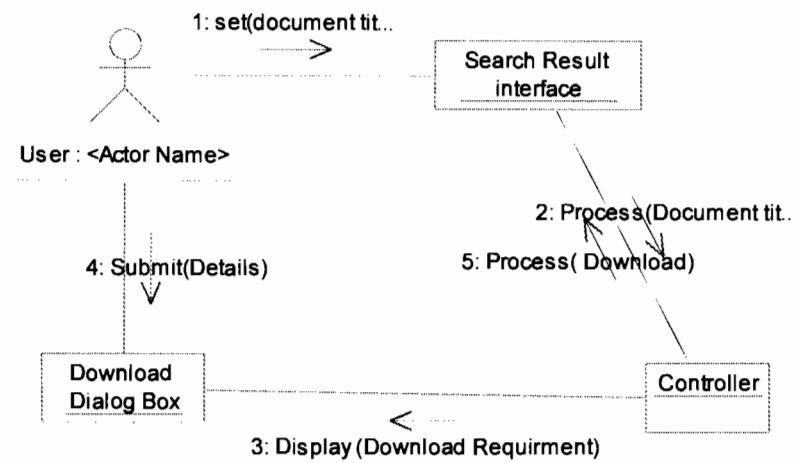
Figure 4. 16: Download Document Collaboration Diagram.

4.9.3. Login Collaboration Diagram
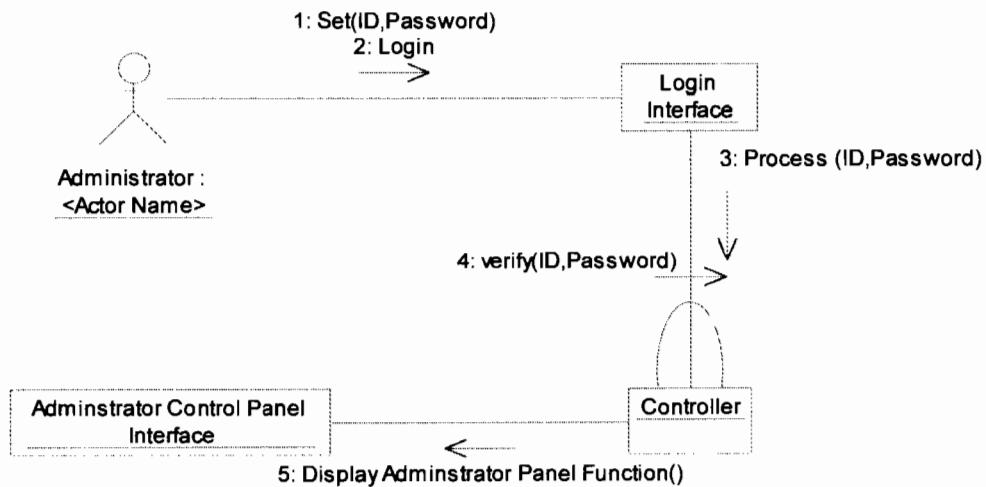
Figure 4. 17: Login Collaboration Diagram.

4.9.4. Upload Document Collaboration Diagram

1: Set (File Detail)
2: Upload File Deta...

Upload
Interface

Adminstrator :
<Actor Name>

6: Display (File upload Successful...

3: Upload (File Detai...

4: Save(File Details)

Controller

Project
DataBase

5: Notify (File Upload successfull...
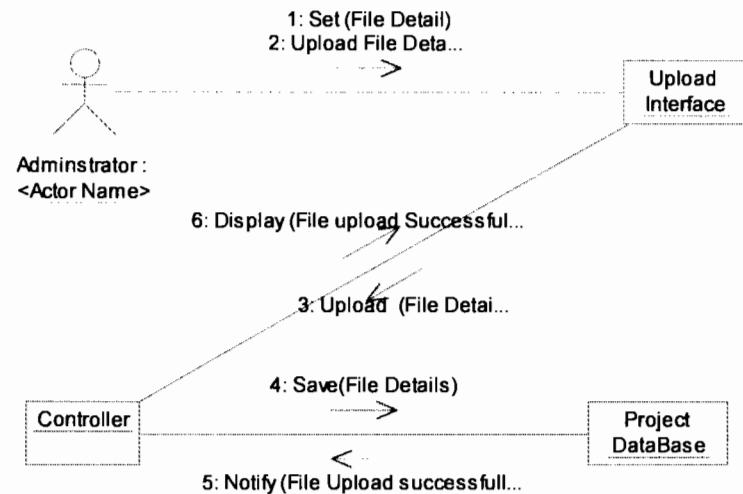
Figure 4. 18: Upload Document Collaboration Diagram.

4.9.5. Edit Semester Profile Collaboration Diagram

1: Select(Options)

semester profiles
Interface

Adminstrator :
<Actor Name>

2: Process(Option)

6: Select(Delete)
9: Set(Confirmati...

12: Display(Semester Profile Page)

7: Process(Delete)
10: Process (Delete)

3: Retrive(Semester details)
11: Store(Details)

Semester Details
interface

Processor

Project
DataBase

5: Display(semester Details page)
8: Display(Delete Confirmation Message)

4: Return(Semester Details)
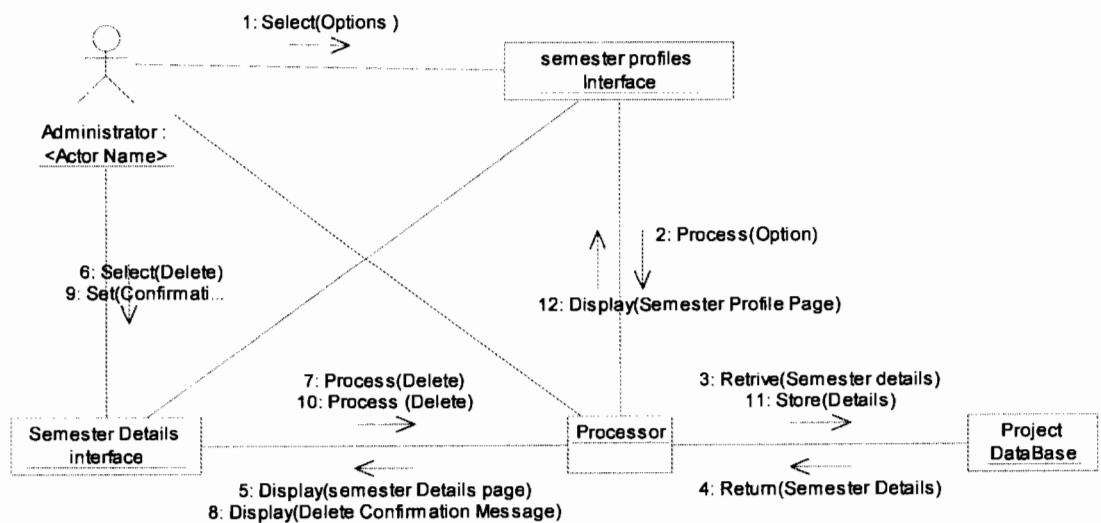
Figure 4. 19: Edit Semester Profile Collaboration Diagram.

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4.9.6. Index Semester Document Collaboration Diagram
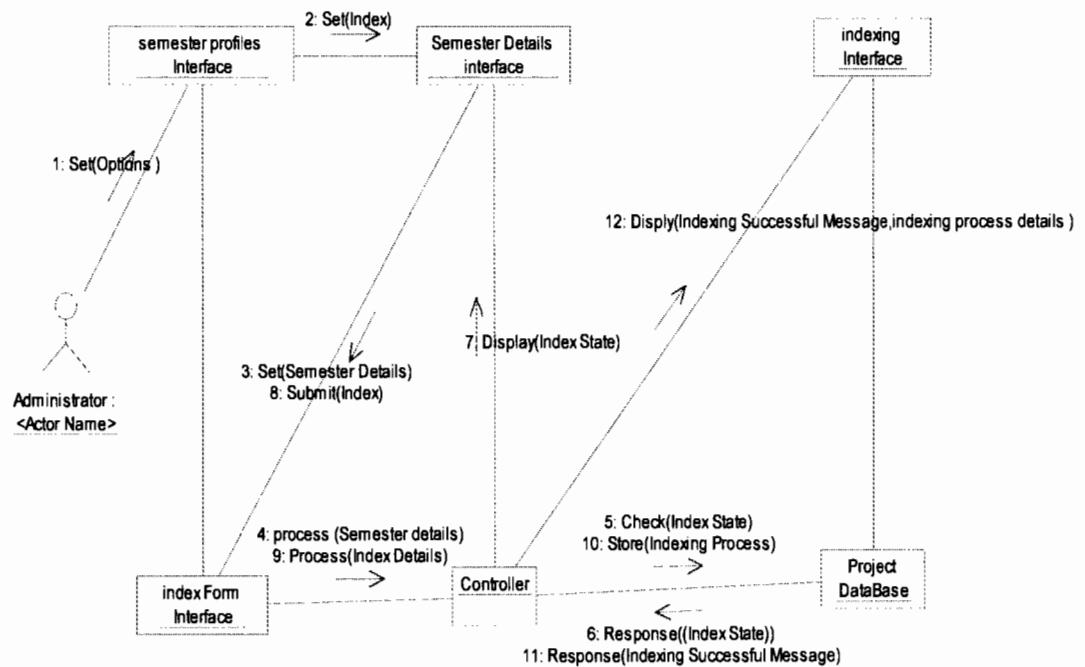
Figure 4. 20: Index Semester Document Collaboration Diagram.

4.10. Class Diagram
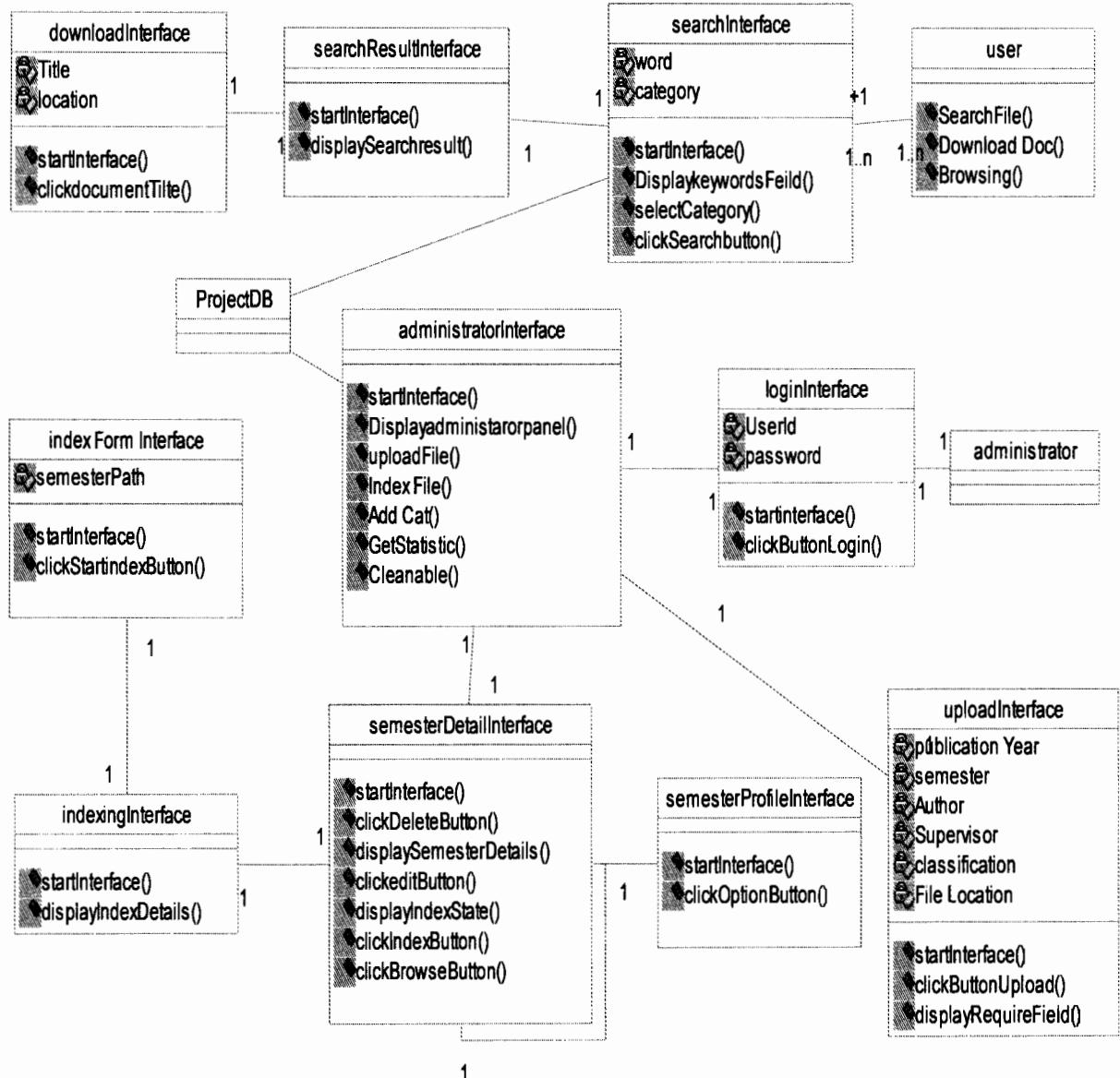
Figure 4. 21: Class Diagram.

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4.11. Design Prototype (User Interface of WPDRS)

User interface is presented in this section. For administrator interface see appendix D which is included each interface with description.

4.11.1 Search Page

Browsing By: Year, Classification, All Projects

Search

Categories

The search "" did not match any documents

Control Panel
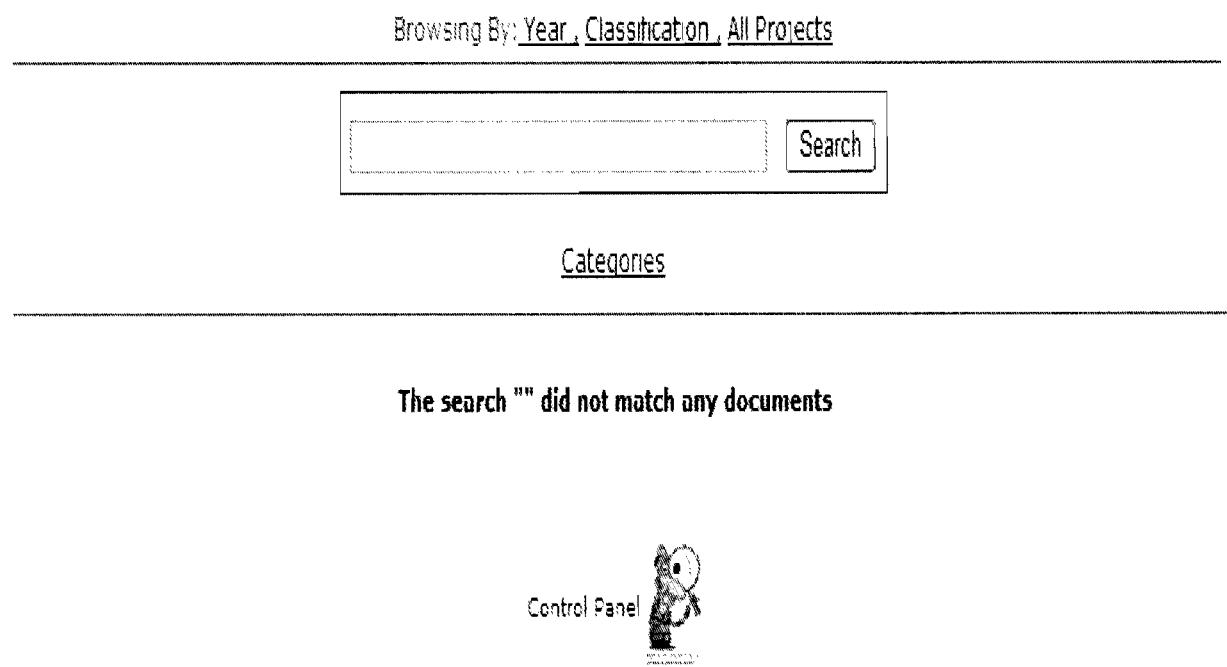
Figure 4. 22: Search Page Screen.

Description: This page provides r all users. Users enter word/s and search files that exist in database. User may choose to search in specific category.

4.11.2 Search Result Page

Displaying results 1 - 4 of 4 matches (0.1 seconds)

1. **Mobile**-Based Notification System for
Author Name :Qusay Mohammad AlZoubi
Supervisor Name :Dr Wan
Mobile-Based Notification System for University's Events QUSAY MOHAMMAD IBRAHIM AL-ZOUBI UNIVERSITI UTARA
MALAYSIA 2009 **Mobile**-Based Notification System for University's Events A thesis submitted to the Graduate School
in partial fulfillment of
File Size : 637.4kb

2. PSZ 19:16 (Pind. 1/97) UNIVERSITI
Author Name :Majed
Supervisor Name :Eid Mousa Eid
name. Corresponding address. **Mobile** number. Telephone number. Position in HBM Kluang Expected Result(s) Allow a
staff to reset the staff registration form. Allow a staff to submit the staff registration form. Allow a client to reset the
online
File Size : 1,554.7kb

3. ONLINE HELPDESK FOR MAYBANK ACCOUNT
Author Name :Ali Mousa
Supervisor Name :Eid Mousa Eid
is such as: To promote and **mobil**ize banking activities Continues improvement to the quality of life through imagination
and creativity To utilize funds of the bank for investment including financing and economic development. Maybank also
provides
File Size : 4,441.4kb

4. WEB-BASED ASSESSMENT OF INFORMATION
Author Name :Ali Mousa
Supervisor Name :Eid Mousa Eid
Messaging Service (SMS) via **mobile** phones. IRB are implementing tax payment through banks and introducing self-
assessment for the taxpayers. Department of Irrigation and Drainage (DID) have introduced "infobanjir", a flood
information system
File Size : 6,688.7kb

Result page: 1

Figure 4. 23: Search result Page.

Description: This page displays the successful search process. The user enters the word and submits by click on search as shown in Figure 4.44 .For each match document file this page shows the details(file's title, author's name, supervisor's name , highlight the word in context and the size of that file).

4.11.3 Search Result-Short Word Page

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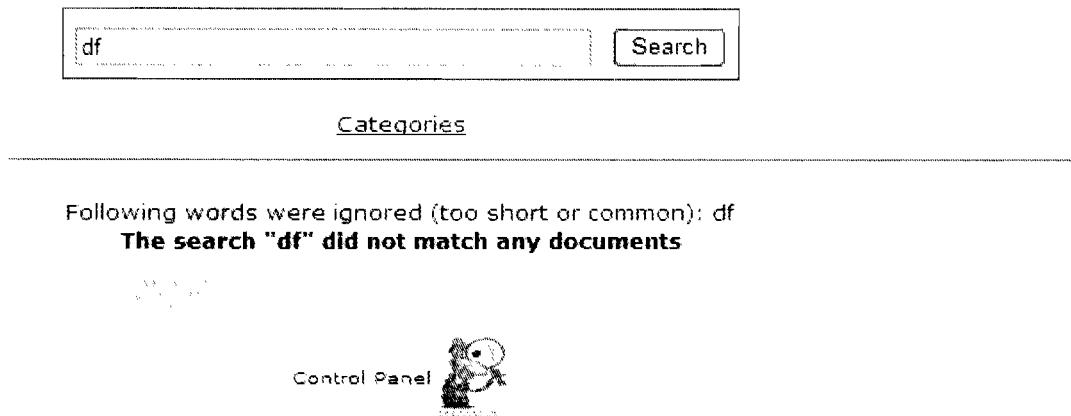
Figure 4. 24: Search Short and Common Word Screen.

Description: If the user enters query word that its length is less than three letters, the system displays "Following words were ignored (too short or common): df".

4.11.4 Did You Mean Page
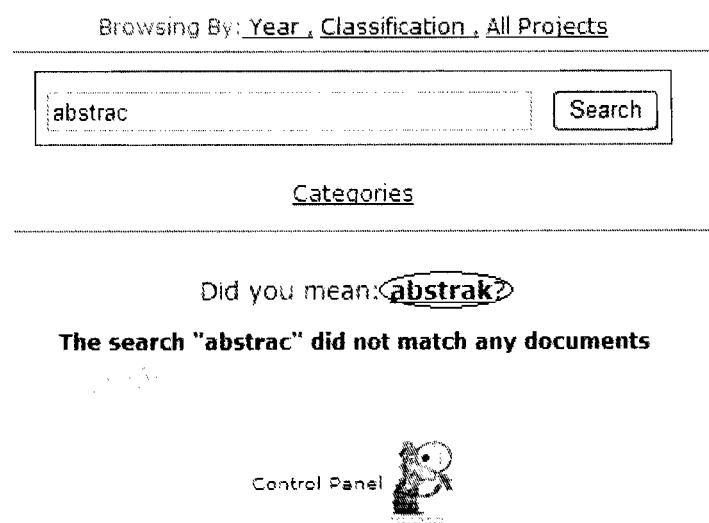
Figure 4. 25: Did You Mean Page.

Description: System displays a message "Did you mean?" to give the nearest word if it is not included in database.

4.11.5 Search By Category (study year, semester) Page

Browsing By: Year , Classification , All Projects

[....] [Search]

CATEGORIES

2008
First Second

2009
Second First Short

Control Panel

Figure 4. 26: Search Word by Category Page.

Description: The search page allows user to customize the search process by specify the category. The system displays the categories list and allow user to select one of the categories to search in it domain as shown in Figure 4.27.

Browsing By: Year , Classification , All Projects

[....] [Search]

Search: ○ Only in category "First" All semesters

Categories > 2009 > First >

Semester Site

Figure 4. 27: Search Word by Specific Category Page.

4.11.6 Browsing By Publication Year.

Browsing By: Year , Classification , All Projects

	Search

Study Puplishing :
2009
2008

Figure 4. 28: Browsing by Publication Year Page.

Description: This screen allows user to brows all project's file based on the publication year. User selects a year. Then the system will display the browsing results .The user is allowed to select and download the project as shown in Figure 4.29.

Browsing By: Year , Classification , All Projects

	Search

2008

[1] Project Name :PSZ 19:16 (Pind. 1/97) UNIVERSITI(2008)
Author :Majed. Subject :Others Project. Semester :First

[2] Project Name :Mobile-Based Notification System for(2008)
Author :Qusay Mohammad AlZoubi. Subject :Web based Project. Semester :Second

Figure 4. 29: Browsing Result (by Year) Page.

4.11.7 Browsing By Classification.

Browsing By: <u>Year</u> , <u>Classification</u> , <u>All Projects</u>

[_____] [Search]

Classifications

<u>Application based Project</u>

<u>Research type Project</u>

<u>Web based Project</u>

<u>Others Project</u>
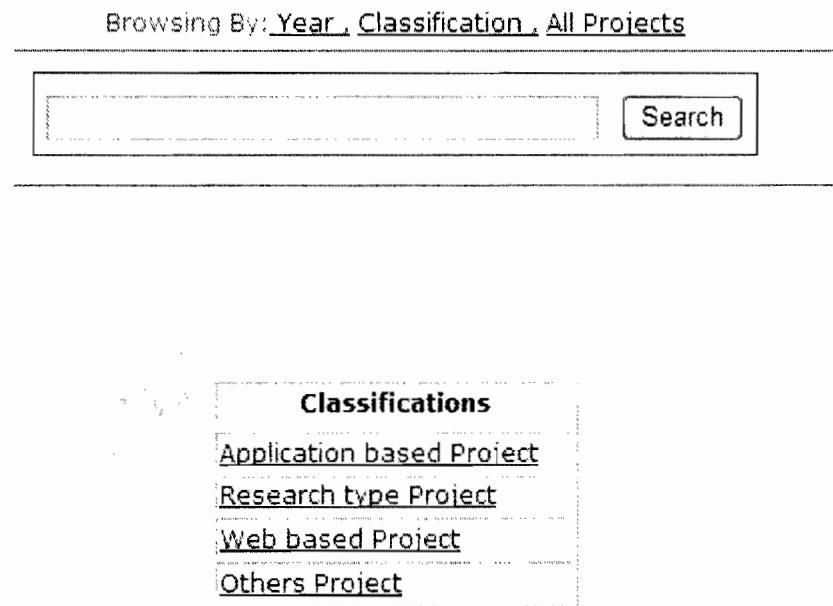
Figure 4. 30: Browsing by Classification Page.

Description: This screen allows user to brows project's file based on classification. User selects one of the listed classifications. Then the system displays the browsing results .The user is allowed to select and download project as shown in Figure 4.31.

Browsing By: <u>Year</u> , <u>Classification</u> , <u>All Projects</u>

[_____] [Search]

Others Project

(1) Project Name :<u>CHAPTER 1 INTRODUCTION The human heart</u>(2008)
Author :Ghassan Nashat Mohammed. Semester :Second

(2) Project Name :<u>Mobile-Based Notification System for</u>(2008)
Author :Qusay Mohammad Al Zoubi. Semester :Second
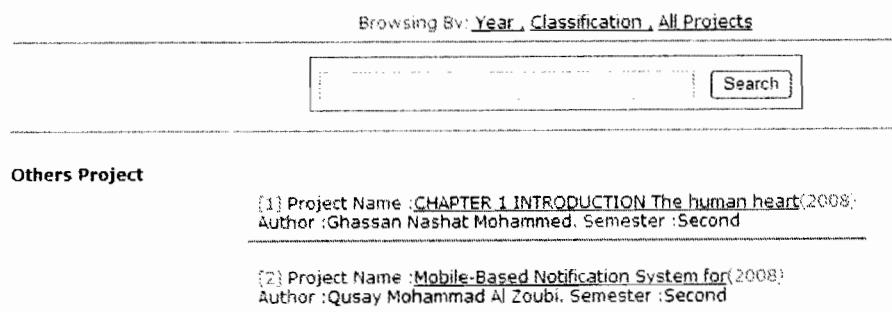
Figure 4. 31: Other Projects Classification Page.

4.11.8 Browsing All Projects.

Browsing By: Year , Classification , All Projects

[....] [Search]

[1] Project Name :CHAPTER 1 INTRODUCTION The human heart(2008)
Author :Ghassan Nashat Mohammed. Semester :Second

[2] Project Name :CHAPTER 1 INTRODUCTION 1.1(2008)
Author :Yusmariani Mohd Yus. Semester :Second

[3] Project Name :Mobile-Based Notification System for(2008)
Author :Qusay Mohammad Al Zoubi. Semester :Second

[4] Project Name :Mobile Ticketing Framework for(2008)
Author :Haider Hasan Mshali. Semester :Second

Figure 4. 32: Browsing All Projects Page.

Description: This screen allows user to browsing the all project's files that are located on database. The user is allowed to select and download project.

4.12. Summary

This chapter illustrates the Web-based Project Documentation Repository System (WPDRS) functionality for users and administrators. UML diagrams have been presented such as use case diagrams, sequence diagrams, and collaboration diagrams. Moreover, the system interface and contents have been explained.

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CHAPTER FIVE

EVALUATION AND DISCUSSION

This chapter discusses the system evaluation and results for Web-Based Project Documentation Repository System. This chapter defines the testing, plans of test, and the testing method. Beside it discuss the results for evolution.

5.1 Introduction

The purpose of the evaluation and testing is to ensure that the system does not malfunction in obvious ways and system fulfils the user's requirements. For the purpose of this project; unit, integration and system testing will be implemented. For integration testing strategy, black box testing is selected. The concept of black box testing is used to represent a system whose inside workings are not available for inspection. In the black box, the test's item is treated as black, since its logic is unknown. Writing a user manual is an example of the black box approach to requirements. The user manual does not show the internal logic, because the users of the system do not care about what is inside the system.

5.2   Test Plan

The Software Test Plan is designed to describe the approach, resources, and schedules of all testing activities (Schach, 2008). The plan will identify items to be tested, the features to be tested, the types of testing to be performed, the personnel responsible for testing, the resources and schedule required to complete testing. The purpose of the software test plan is such as:

- To achieve 100% correct code and ensure that all functional and design requirements are implemented as specified in the documentation.
- To provide a procedure for unit and system testing.
- To identify the test methods for unit and system testing.

5.3   Process of Test Plan

- Identify the requirements to be tested. All test cases shall be derived using the current design specification.
- Identify a particular test to use to test each module.
- Review the test data and test cases to ensure that the units have been thoroughly verified and that the test data and test cases are adequate to verify proper operation of the units.
- Identify the expected results for each test.
- Perform the test.

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- Document the test data, test cases used during the testing process (Pressman and Roger, 2007).

For this project, the accurate technique to implement the test plans is by concern the four stages of testing. The reason by applying that in WPDRS is to ensure that the qualities of the system before it can be implemented in real environment.

5.4 Testing Method

The test plan outlines the entire testing process and includes the individual test cases. Test plan is usually designed to plan the testing to be done. The types of testing that will be deployed are as follows:

5.4.1 Unit Testing

Unit testing is conducted to verify the implementation of the design for one software elements (e.g., unit, module) or a collection of software elements. The purpose of the component testing is to ensure that the program logic is complete and correct and the component works are designed. All individual units will be tested separately.

Black-box testing, also called behavioral testing, focuses on the functional requirements of the software. That is, black-box testing enables the software engineer to derive sets of input conditions that will fully exercise all functional requirements for a program (Pressman and Roger, 2007).

For system interface part, the system interface testing became an important function where it will ensure that all the data is saved correctly and there is no loss of data or data base anomalies in the system. As part of testing, the system will be looking for any signs of the collision between the interface components and those of the user as a reason to ensure there is no confusion among the application on the system when they are running simultaneously. At the end of the test all the results should be positive. All of the system components should work properly. Actual output is valid if the expected output is similar with what the system really is done.

The following modules were tested:

No	Test Case	Objective	Input	Expected Output	Actual Output
1	Login	Provide administrator to login to control panel.	Enter valid user name and password	Display administrator control panel.	Valid
			Invalid username or invalid password	Show invalid authority message, administrator need to re-enter username and password again.	Valid

Table 5. 1: Black Box Testing, Unit Testing-1.

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No	Test Case	Objective	Input	Expected Output	Actual Output
2	Download document	Supports user to download project document.	Document title	Show download dialog box, user need to select location and confirm process.	Valid
3	Search	Supports user to search project documents for any word/s.	Match Word/s	Display search results.	Valid
			match word/s User select publisher year or semester	Display search results base on year or semester.	Valid
			No match word/s	Show no match message.	Valid
			short Word/s	Show short message.	Valid
			common word	Show common word message.	Valid

Table 5. 2: Black Box Testing, Unit Testing-2.

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No	Test Case	Objective	Input	Expected Output	Actual Output
4	Browsing	Provide user to browsing all project documents or browsing by classification or publishing year.	User select Publication year	Display list of publication year which is used to view specific year documents.	Valid
			User select Classification	Display list of project Classification which is used to view specific Classification documents	Valid
			User select All project	Display list of all project documents.	Valid
5	Index Semester Documents	Allows the administrator to index all project document files that belong to specific semester.	Semester name	Display indexing page with state message for each document in that semester.	Valid

Table 5. 3: Black Box Testing, Unit Testing-3.

No	Test Case	Objective	Input	Expected Output	Actual Output
6	Upload document	Allow the administrator to upload project document files to server.	Year, semester, project title, author name, supervisor name, classification, and file location.	Show successful upload message.	Valid
			Administrator did not fill the required fill.	Show popup required field message.	Valid
7	Edit Semester Profile	Allows the administrator to manage the project documents by updating semester profile (editing) and deleting.	Select semester profile	Display semester profile.	Valid
			Select edit	Displays update semester profile.	Valid
			Select delete	Display popup message to confirm deleting.	Valid

Table 5. 4: Black Box Testing, Unit Testing-4.

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5.4.2 Integration Testing

Integration test is performed after the unit testing and before system testing (Ma et al, 2007). In this method of testing, it concerns all user interface and use-case testing both in application interface and system management parts to ensure that the interface would work accurately. The system started the test with the each interface function of system. After that, it is tested in every sub component or functions of the system. In this method of testing, the testing shows that all the update, delete and insert functions done in PHP are automatically done in MySQL.

5.4.3 System Testing

System testing is done to test the entire system. The system should behave as stated in the Requirements portion. For this project the testing includes:

I. Performance Testing

Performance is defined as the behavior of a system with respect to time and physical resources(Daou,1998).This test is used to test the run-time performance of software within the context of an integrated system. Performance testing occurs throughout all steps in the testing process. The performance is a test based on speed fined that the application responds quickly enough for the intended users (Meier et

al, 2007). The evolution result for this test is acceptable since the system is tested using laptop computer.

II. Reliability

The amount of time that the software is available for use as indicated by the following sub attributes: maturity, fault tolerance, recover ability. The evolution result for this test is acceptable.

III. Requirement Testing.

Every part in the system had been tested in order to test whether requirements were met.

IV. Security Testing

Security testing attempts to verify that protection mechanisms built into a system (Pressman and Roger, 2007). The system security was tested and all input data is tested and validated to know whether or not it is accepted by the system. Example of the security testing is the used of administrator login. Administrator user is granted access to different system functions.

5.4.4 User Acceptance Testing

User acceptance test is a system test performed to determine whether the system fulfils user requirements. Acceptance testing is typically the last round of testing before the system is handed over its users. According to Bahrami (1999), user satisfaction test or user acceptance test is the processes of quantifying the usability test with some measurable attributes of the test, such as functionality, cost, or ease of use. Gause and Weinberg (1989) have developed a user satisfaction test that can be used along with usability testing.

Bahrami (1999) pointed out that a well-targeted sample to conduct this use acceptance test is six to ten participants that can identify 80-90 percent of most design problems. Talebpour et al. (2009) argues that among several models of testing user satisfaction Technology Acceptance Model (TAM) is the most widely used one. Based on TAM model there are two main factors influence the user satisfaction; Preserved Usefulness (PU), and Preserved Ease of Use (PEU) (Money and Turner, 2004).

Bueno and Salmeron (2008) illustrated that Preserved Usefulness (PU) test the degree of which a person believes that using a system will enhance his/her job performance. While PEU tests the degree of which a person believes that using a particular system will be very ease (free of offer). The advantages for using this test are: it is giving you feedback from the point of view of the user. It is usually quick. To evaluate the user acceptance of the proposed system a field study used to carry out this process. Details are below.

5.5 The Survey

This study utilizes survey as a test method to evaluate WPDRS.

5.5.1 Survey Instrument

A survey instrument consists of 10 items. It is consists of two sections. The First section contains the demographic information. The second section evaluates PU and PEU of the proposed system. There are two perceived to be test. They are usefulness and perceived ease of use. A five-point liker scale was used to measure respondents' agreement or disagreement from 1 (Strongly Disagree) to 5 (strongly agree). The adopted questioner is appended in Appendix A.

5.5.2 Participants and Data Collection

This system was tested by master IT students. A total of 30 questioners were distributed (Fotis & Bix, 2006), and all were collected. All respondents were master IT students.

5.5.3 Data Analysis and Results

For data analysis SPSS Ver. 17 is used. The statistical package for the social sciences (SPSS) is a system for statistical analysis .It is free and eases of use (Hull, 1976). The results are described below.

❖ **Age**

Table 5.5 shows that 17 (56.7 %) respondents are between 21 and 25 years old ,9 (30%) are between 26 and 30 years old, 4(13%) are between 31 and 35 years old.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-25 Years old	17	56.7	56.7	56.7
	26-30 Years old	9	30.0	30.0	86.7
	31-35 Years old	4	13.3	13.3	100.0
	Total	30	100.0	100.0	

Table 5.5: Frequency distribution of age.

Based on Pie Chart, the most respondents are between 21 and 25 years old. See figure5.1.

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Age
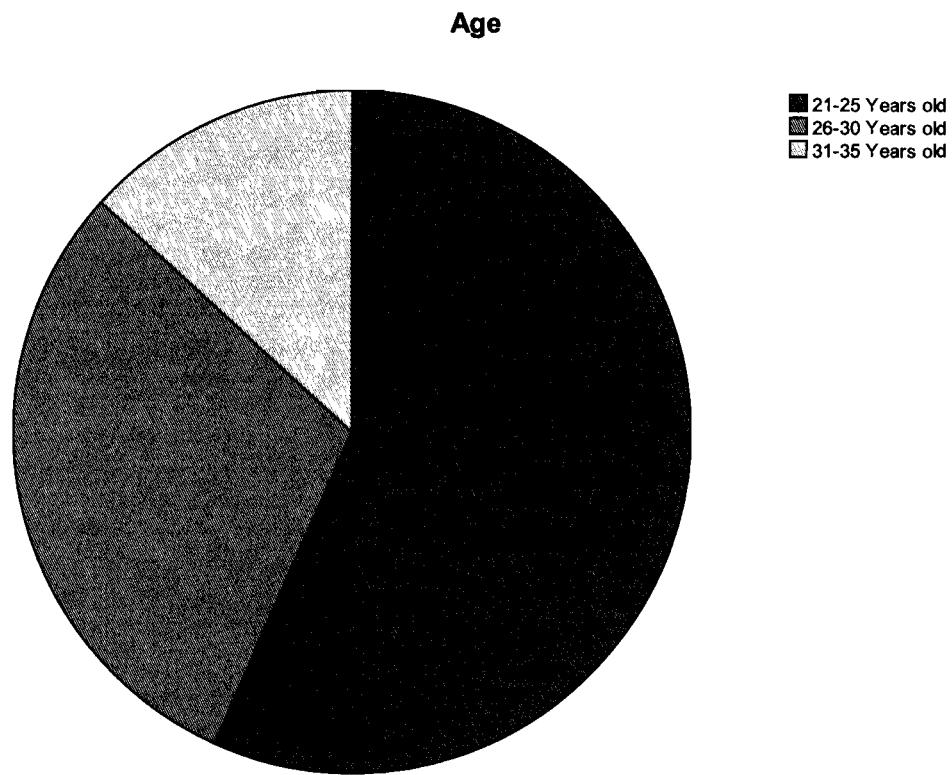
Figure 5. 1: Pie Chart Frequency distribution of age.

❖ **Gender**

The respondents were also classified by their gender. In this study, the respondent gender is grouped into two categories, that are male and female .From results that are obtained, there are 30 respondents responded to the survey on the WPDRS. Table 5.6 shows that 25 (83.3%) respondents are males and 5 (16.7%) are females.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	25	83.3	83.3	83.3
	Female	5	16.7	16.7	100.0
	Total	30	100.0	100.0	

Table 5. 6: Frequency distribution of gender.

Figure 5.2 shows Pie Chart, which represents the respondents' gender. Based on Pie Chart the most respondents were male.
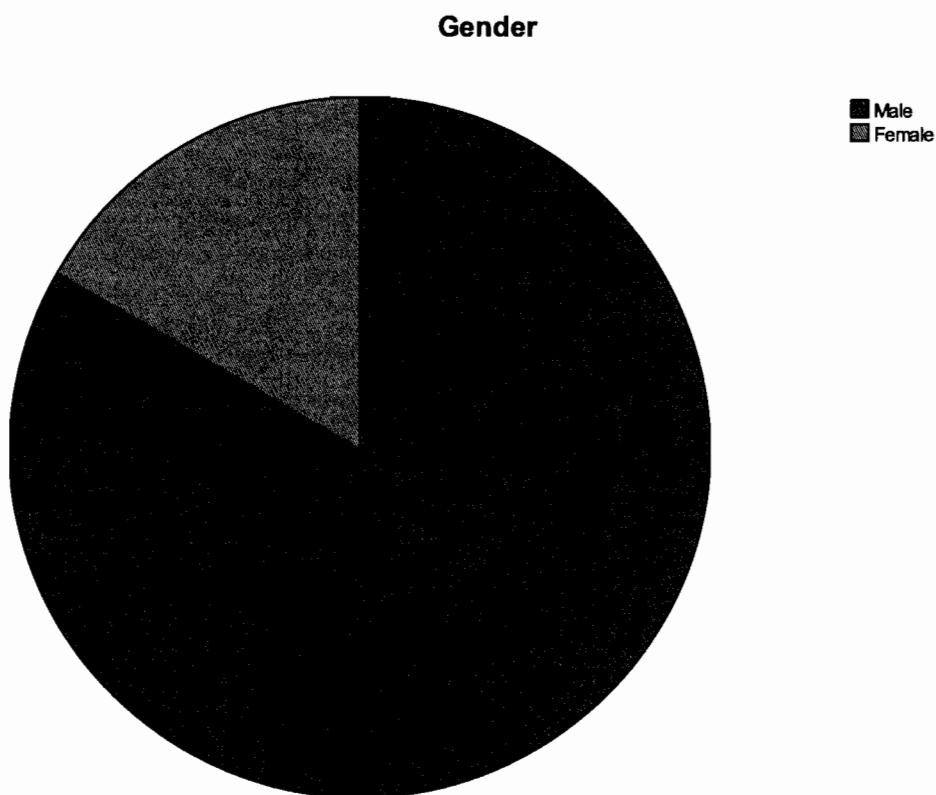
Gender

Figure 5. 2: Pie Chart Frequency Distribution of Gender.

❖ **Experience**

Table 5.7 shows that 28 (93.3 %) respondents have an experience with similar systems .On the other hand, 2 (30%) respondents don't have any experience with similar systems.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	28	93.3	93.3	93.3
No	2	6.7	6.7	100.0
Total	30	100.0	100.0	

Table 5.7: Frequency distribution of Experience.

❖ **Perceived Usefulness**

This section discusses the respondents' perceived usefulness using 1 to 5 scales respectively. Four sets of questions were posed to find out the perceived usefulness. Table 5.8 shows the description of respondent's perceived usefulness. See Appendix A for survey questions.

	N	Minimum	Maximum	Mean	Std. Deviation
Question 1	30	4	5	4.93	.254
Question 2	30	4	5	4.63	.490
Question 3	30	4	5	4.73	.450
Question 4	30	4	5	4.67	.479

Table 5.8: Description of the respondent's perceived usefulness

There were 30 respondents in this study. In the table, respondents are represented by *N*. By looking at the mean for each question answered from question1 until 4, which show that all of them are greater than 4 (Agree) which mean that overall respondents reaction toward the system are strongly agreed or they agreed with the system perceived usefulness. The (4.93) mean was given to question asking "It saves my time when I use it".

On other hand, the lowest mean (4.63) was given to the question asking "The use of system provides the most relevant results based on the search performed". This shows that the respondents somewhat feel that the system provides the relevant document but less results. The standard deviations show that the questions have different variability among the other. For more details see appendix B.

❖ Perceived Ease of Use

Six set of questions were posed to examine ease of use of the system. Table 5.9 shows the description of the respondents' perceived ease of use.

	N	Minimum	Maximum	Mean	Std. Deviation
Question 5	30	4	5	4.50	.509
Question 6	30	4	5	4.97	.183
Question 7	30	4	5	4.93	.254
Question 8	30	4	5	4.87	.346
Question 9	30	4	5	4.90	.305
Question 10	30	4	5	4.83	.379

Table 5. 9: Description of the respondent's perceived ease of use.

There were 30 respondents in this study. Table 5.9 shows that all questions from question 5 until 10, have the mean greater than 4(Agree) which means that overall respondents' reaction toward the system are strongly agreed or they agreed with the system perceived ease of use the highest mean (4.97) was given to the question asking "It is simple to use" .On the other hand, question 5 has the lowest mean (4.50) .This means that the respondents somehow feel that the system provides ease of use but not quite flexible. The slandered deviations show that all sex questions have different variability.

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5.6 Discussion of Results

According to the results from the list of techniques that used to evaluate the system, we can say that the system is acceptable. In addition, according to the results from the tables shown earlier, it can be concluded that the respondents were quite satisfied with the system prototype in terms of usefulness and ease of use that contribute towards finding relevant previous project documents.

5.7 Conclusion

The development phase is completed with system testing and User Acceptance Test (UAT). Unit and system testing is conducted to make sure that the system run effectively and error free. For integration testing, black-box testing is conducted to test the functionality of the system. Users' comments and suggestion are gathered and improvements have been made to the system.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

This chapter focuses on the conclusions and recommendations. The conclusion explains how this study achieves the goals, according to the objectives and problem statements of this study. This chapter also includes the recommendations to the further development of Project Documentations Repository System.

6.1 Conclusion of Study

The objective of this study is to build a project documentations repository system (WPDRS) for accessing relevant search result of previous project documents to be used by Master IT students. The prototype was developed to help student to access/view relevant previous project documents. In addition, the system provides a useful and convenient way of finding previous project document based on search performed. The system has been tested to validate its functionality. Generally, base on the results obtained from this study in chapter five, most students agree with the usefulness and ease of use of the system. In summary, this project had achieved its objectives.

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6.2 Limitations

Some problems and limitations revealed throughout and earlier in the development of the project as follow:

- The prototype has been tested only for master IT students.

- The web based prototype was tested using *"localhost"* server, namely Apache. To test prototype laptop computer is used. The prototype hadn't been tested in real environment due to lack of resources. The real environment represent using web server in local network or on the internet.

- The prototype supports only PDF files. Word, Excel file, and HTML pages are not supported by this system.

6.3 Recommendations and Future Work

In order to overcome the limitations mentioned above, several suggestions are recommended. Firstly, in future the system should consist of all the previous project's documents of all previous year rather than this year only. Secondly, future testing will be done using real environment to get real results and more accurate results .Finally; the system should support other types of documents such as word files and html pages.

This project had achieved its objectives and WPDRS has been developed. Suggestions for enhancement of the system have been recommended for the future development of this project.

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APPENDIX A

USER ACCEPTANCE TEST

WEB-BASED PROJECT DOCUMENTATION REPOSITORY SYSTEM

Objective: To evaluate how users use the proposed system so that the result of the test can be evaluated based on the users' responses.

Instruction: Please fill up the following section <u>A</u> and <u>B</u>.

Section A. The Demographic Question

Please kindly tick (✓) your answers to the given statements.

- What is your gender?

    [ ] Male   [ ] Female

- What is your age group?

    [ ] 21-25 Years old   [ ] 26- 30 Years old

    [ ] 31- 35 Years old   [ ] > 35   Years old

- Do you have experience with similar systems?

    [ ] yes   [ ] No

Section B. Usefulness & Ease of use.

Instruction: please tick (✓) in the appropriate box to indicate the extent to which you agree or disagree with the following statements on the use of the system.

Guidelines: The numbers 1 to 5 represent the following:

1= Strongly Disagree	2= Disagree	3= Not Sure	4= Agree	5= Strongly Agree

Perceived Usefulness Project documentation repository system.						
Item	Description	1	2	3	4	5
1	It saves my time when I use it.					
2	The use of system provides the most relevant results based on the search performed.					
3	The system provides a useful and convenient way of finding pervious project document.					
4	Using the system has enabled me to access/view relevant previous project documents.					

Perceived Ease of use Project documentation repository system.						
Item	Description	1	2	3	4	5
5	It is flexible use.					
6	It is simple to use.					
7	It is user friendly.					
8	I learned to use it quickly.					
9	I easily remember how to use it.					
10	I can use it successfully every time.					

Additional comments / remarks:

_____

_____

_____

Thank you for participating in this survey

Name: Ali Mousa Al Sbou.

University Utara Malaysia

APPENDIX B

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Question 5	30	4	5	4.50	.509
Question 6	30	4	5	4.97	.183
Question 7	30	4	5	4.93	.254
Question 8	30	4	5	4.87	.346
Question 9	30	4	5	4.90	.305
Question 10	30	4	5	4.83	.379
Valid N (listwise)	30				

Statistics

		Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	Question 10
N	Valid	30	30	30	30	30	30	30	30	30	30
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		4.93	4.63	4.73	4.67	4.50	4.97	4.93	4.87	4.90	4.83
Std. Deviation		.254	.490	.450	.479	.509	.183	.254	.346	.305	.379
Minimum		4	4	4	4	4	4	4	4	4	4
Maximum		5	5	5	5	5	5	5	5	5	5

Frequency Table

Question 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	2	6.7	6.7	6.7
	Strongly Agree	28	93.3	93.3	100.0
	Total	30	100.0	100.0	

Question 2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	11	36.7	36.7	36.7
	Strongly Agree	19	63.3	63.3	100.0
	Total	30	100.0	100.0	

Question 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	8	26.7	26.7	26.7
	Strongly Agree	22	73.3	73.3	100.0
	Total	30	100.0	100.0	

Question 4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	10	33.3	33.3	33.3
	Strongly Agree	20	66.7	66.7	100.0
	Total	30	100.0	100.0	

Question 5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	15	50.0	50.0	50.0
	Strongly Agree	15	50.0	50.0	100.0
	Total	30	100.0	100.0	

Question 6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	1	3.3	3.3	3.3
	Strongly Agree	29	96.7	96.7	100.0
	Total	30	100.0	100.0	

Question 7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	2	6.7	6.7	6.7
	Strongly Agree	28	93.3	93.3	100.0
	Total	30	100.0	100.0	

Question 8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	4	13.3	13.3	13.3
	Strongly Agree	26	86.7	86.7	100.0
	Total	30	100.0	100.0	

Question 9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	3	10.0	10.0	10.0
	Strongly Agree	27	90.0	90.0	100.0
	Total	30	100.0	100.0	

Question 10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	5	16.7	16.7	16.7
	Strongly Agree	25	83.3	83.3	100.0
	Total	30	100.0	100.0	

Pie Chart

Question 1
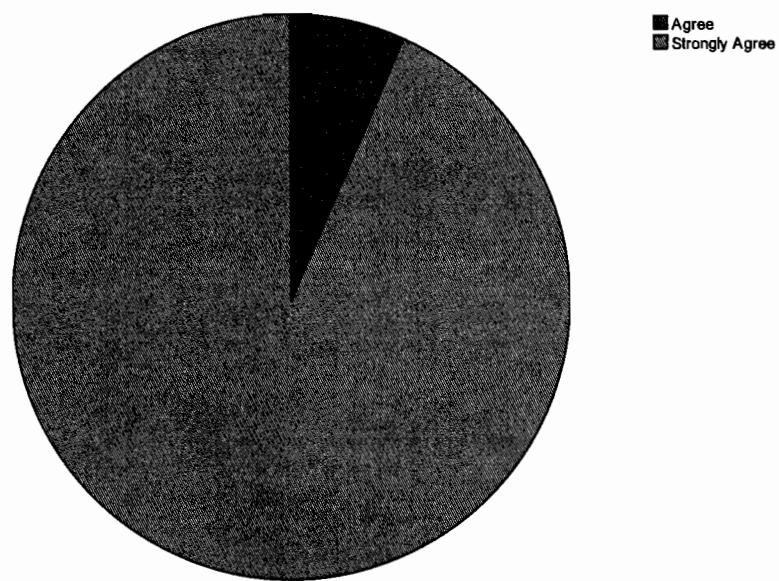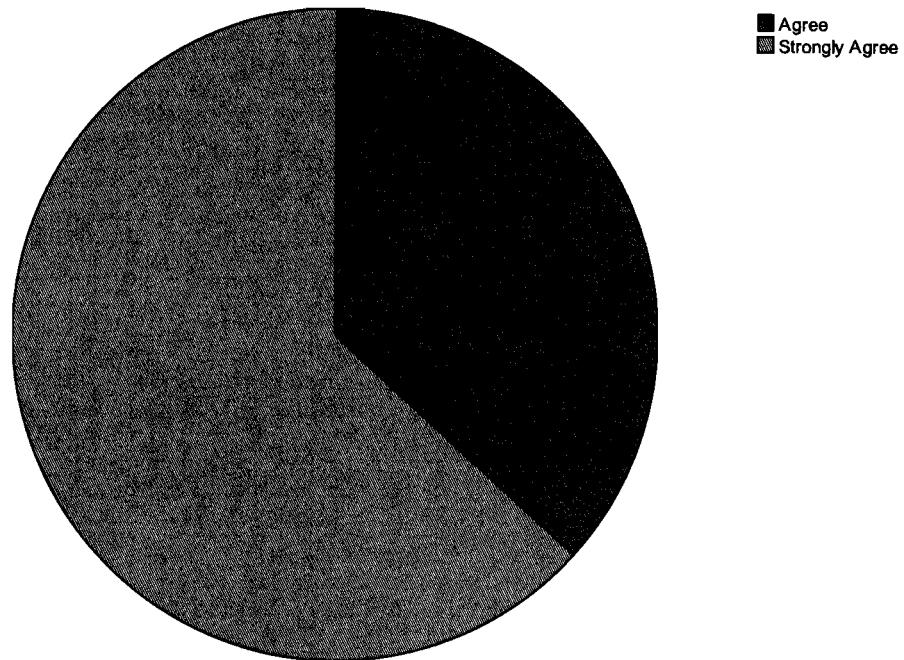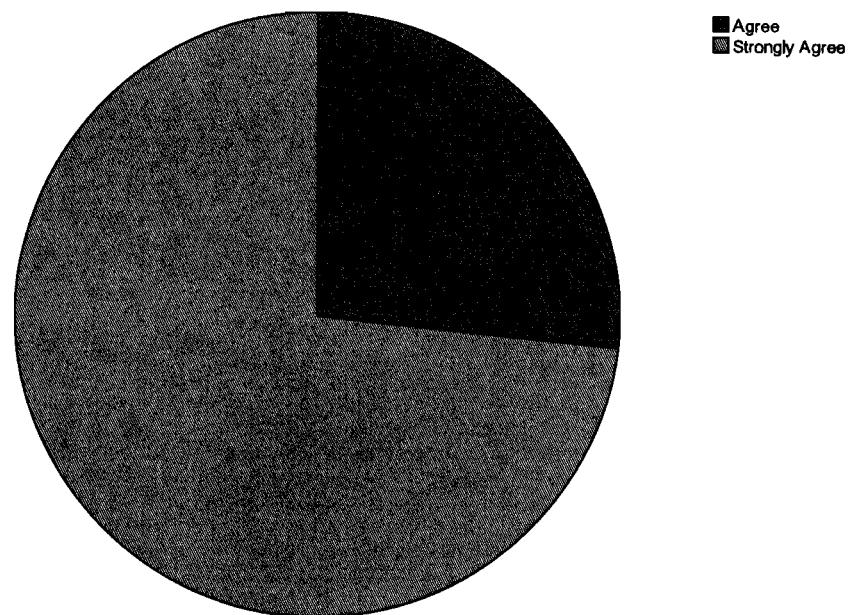
■ Agree
▨ Strongly Agree

Question 2

■ Agree
▨ Strongly Agree

Question 3

■ Agree
▨ Strongly Agree

111

Question 4

- Agree
- Strongly Agree

Question 5

- Agree
- Strongly Agree

Question 6

Agree
Strongly Agree

Question 7

Agree
Strongly Agree

Question 8

Agree
Strongly Agree

Question 9

Agree
Strongly Agree

Question 10

Legend:
- Agree
- Strongly Agree
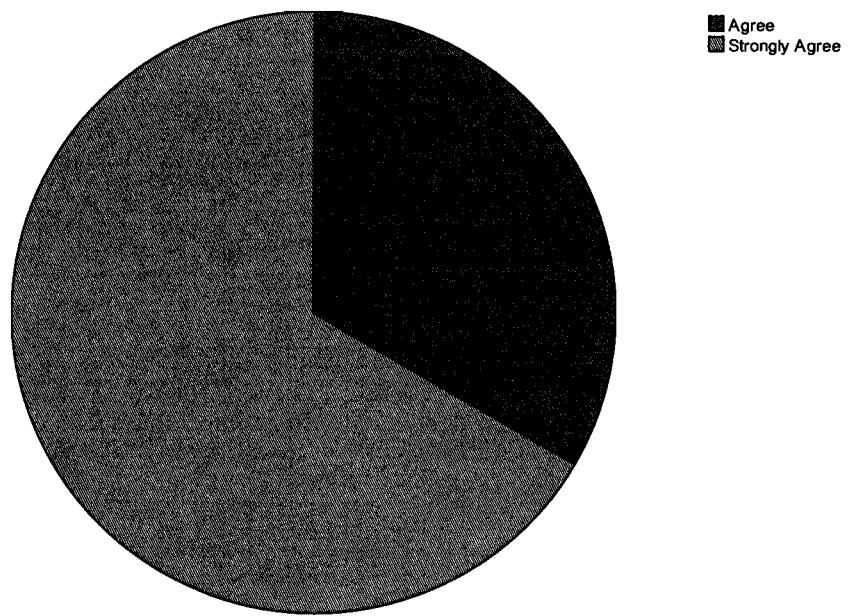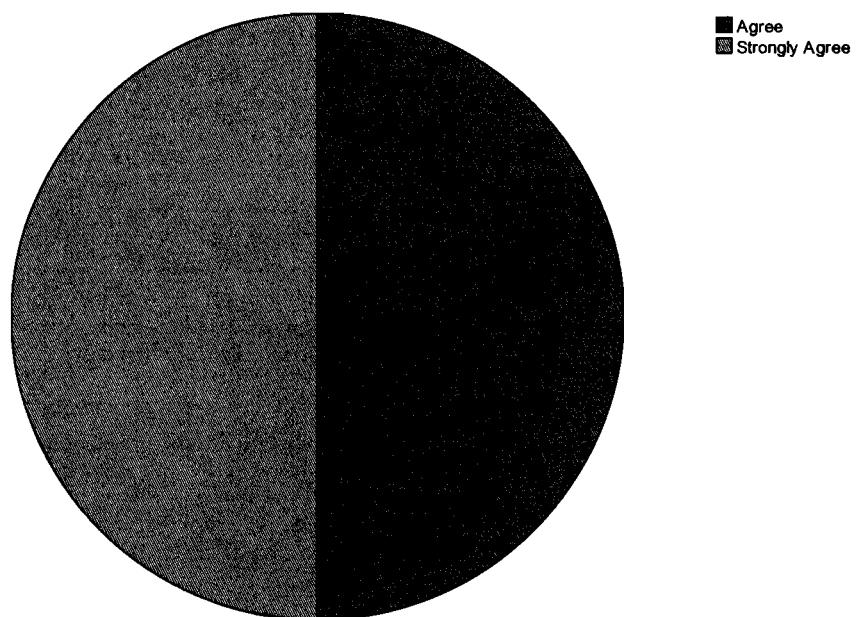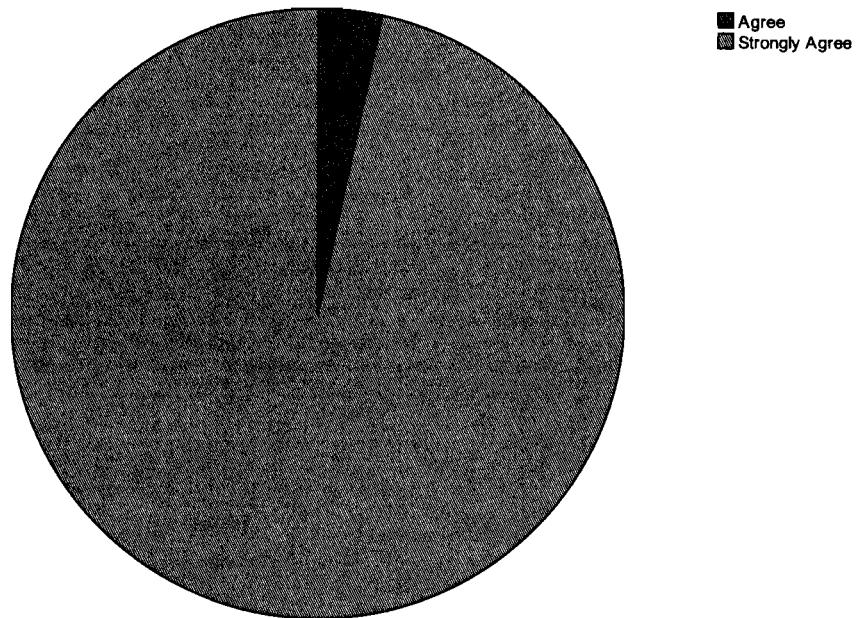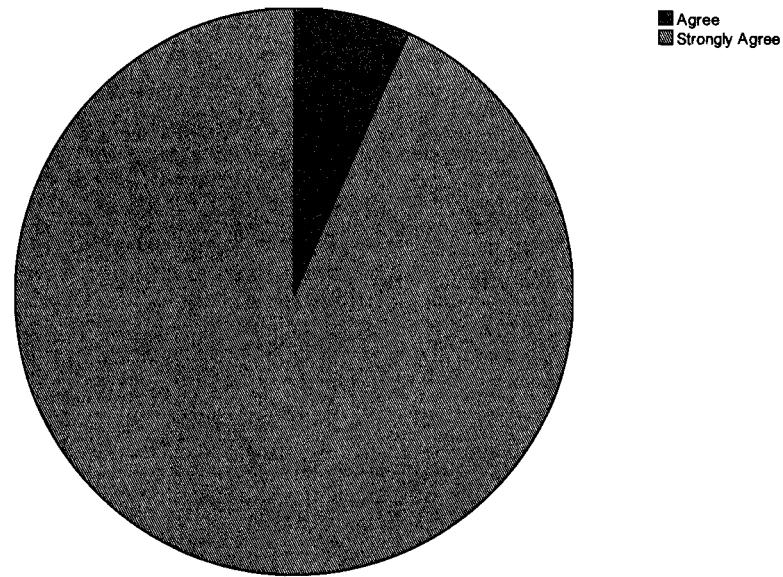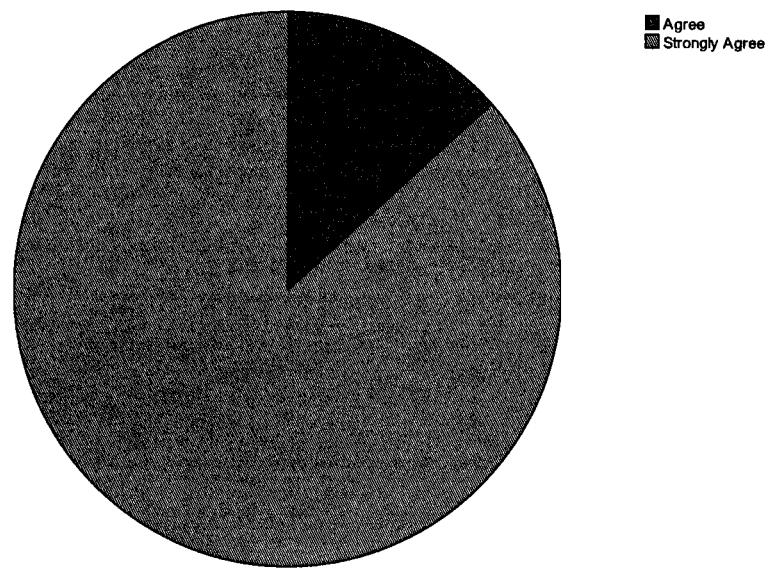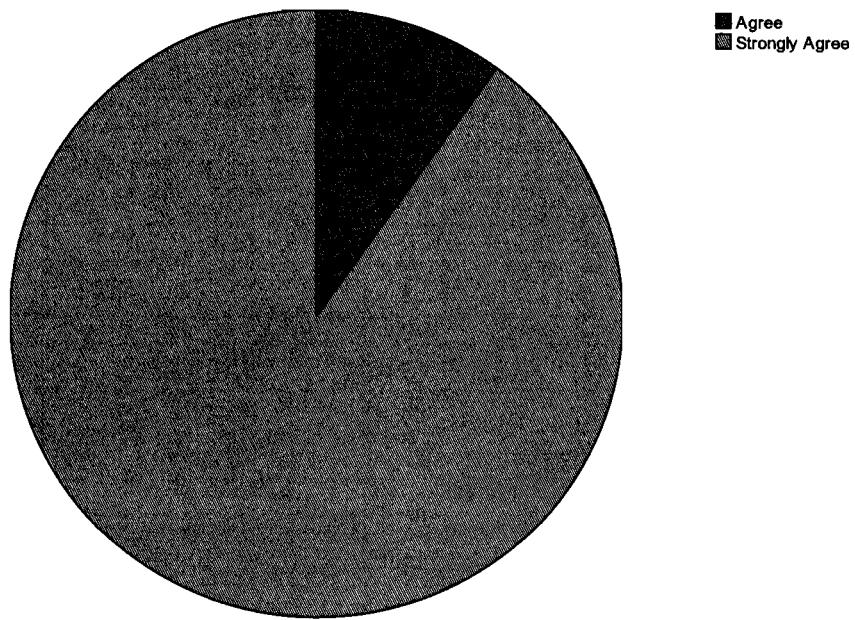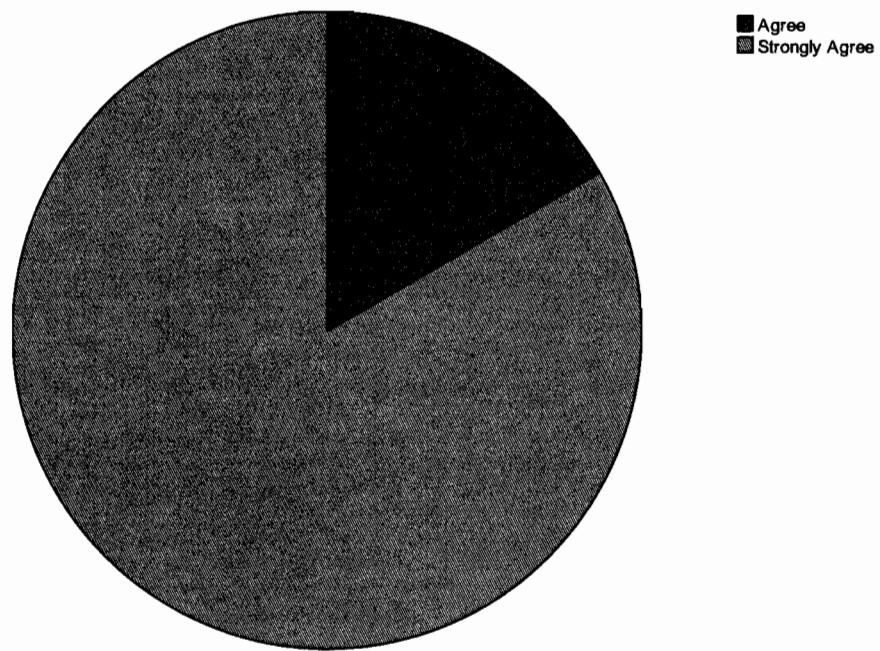
APPENDIX C

GANTT CHART

Month	July	August	September	October
Weeks				
Proposal	4July -19July			
Literature Review	4July -7 Oct			
Analysis &Design		24July -1Sep		
Development		1Aug -7Oct		
Evaluation &Results				1ct -19Oct
Documentation	4July -22Oct			

APPENDIX D

## User Interface of WPDRS

Home Page
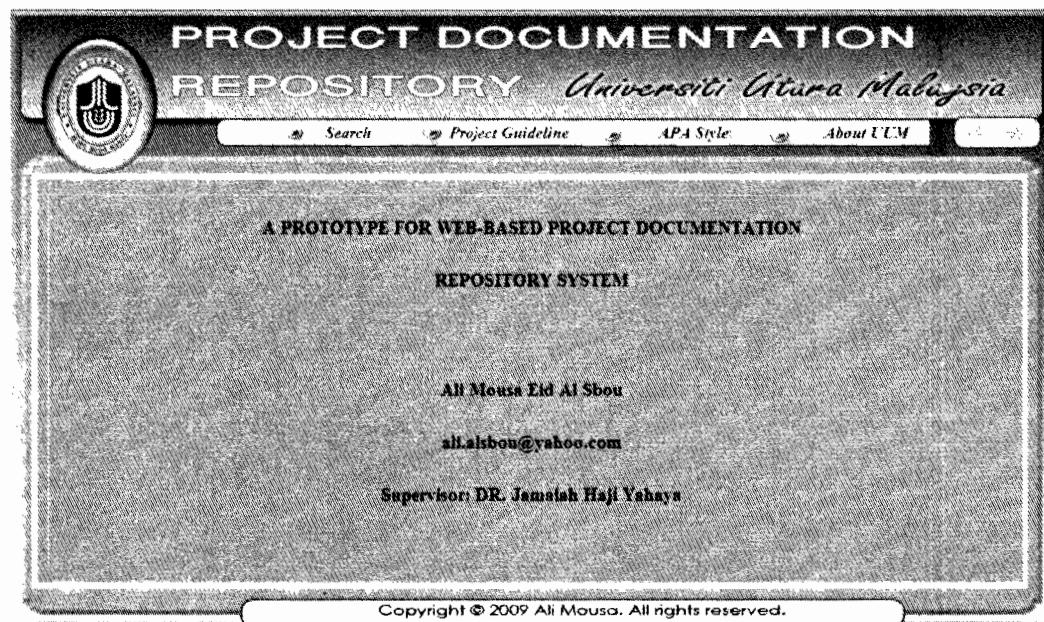
Figure D. 1: Home Page.

Login Page

Login

Username [ ]

Password [ ]

Log in

Figure D. 2: Login Page.

Description: The administrator needs to enter his user name and password to login to administrator control panel. Invalid data causes the system to show login failure Message "Be sure you have authority user name & password".

Administrator Control Panel Page

Semesters category	Upload Documents	Semester's Profiles	Statistics	Clean tables	Log out

Admistrator Control Panel

Welcome

Figure D. 3: Administrator Control Panel Page.

Description: The control panel page consists of all the main functions. The administrator uses this page to manage the system.

Semester Category Page

Semesters category	Upload Documents	Semester's Profiles	Statistics	Clean tables	Log out
Add category					

Category First added.

2008		Edit Delete
First		Edit Delete
Second		Edit Delete
2009		Edit Delete
First		Edit Delete
Second		Edit Delete

Figure D. 4: Semester Category Page.

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Description: This page allows administrator to add new and update category. Category represents the study year as main category and semester as sub-category. For each main category (study year) there is will be sub-categories (semesters).The administrator allows to edit and delete any category. If administrator deletes the main category, all sub-categories for that category will be deleted.

Add New Semester Category Page

Add year study (main category) page

Semesters category	Upload Documents	Semester's Profiles	Statistics	Clean tables	Log out

Parent: >(Top level)

Category: 2009

Add

Create subcategory under

2009
2007

Figure D. 5: Add Year Study (Main Category) Page.

Description: This page allows administrator to add new category (main, sub-category). For add new main category user need just enter the study year and click on "Add" button. Then the system will present semester category page with "category name" that will be added as shows in Figure 4.24.

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Figure D. 6: Add New Category Page.

Add new semester category for specific study year page

Figure D.7: Select Main Category page.

Description: This page illustrates how to add new sub-category by selecting the main category from study year list, and then enter the sub-category name as shows in Figure 4.26.

Figure D.8: Add New Sub-Category Page.

The administrator needs to click "Add" to submit the process. Finally, the system

presents semester category including the new category as shows in Figure 4.27.

Figure D.9: Semester Category Include New Category.

Upload Document Page

Figure D.10: Upload Document Page.

Description: This page allows the administrator to upload project document files.

The administrator fills all require fields (year, semester, title, author name,

supervisor name, classification, and location of file).

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Add New Project Document File

Semesters category	Upload Documents	Semester's Profiles	Statistics	Clean tables	Log out

Upload Project Document File

Publication Year	2008
Semester	Second
Project Title	Mobile Based Notification System for University's Events
Author Name	Qusay Mohammad AlZoubi
Supervisor Name	Dr Wan Rozaini bt Sheik Osman
Calssification	Others Project
Project File Location	C \Documents and Setting Browse...

upload

UUM©2009.

Figure D.11: Add New Project Document Page.

Description: The administrator must fill all the fields as follow:

1. Select the publication year from lists of category that hav been added before.

2. Select the semester based on the publication year.

3. Enter the project's title.

4. Enter the author's name.

5. Enter the supervisor's name.

6. Select the classification.

7. Enter the file's location.

The system displays the successful message "File Name Uploaded Successfully" .All steps shown in Figure 4.30.If user misses any field the system displays popup message with the name of the missed field.

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Figure D.12: Successfully Add New Project Document Page.

Semester Profile Page

Figure D.13: Semester Profile page.

Description: This page displays a list for all semesters that had been enter to the system and give indexing state for each of them.

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Semester Profile Details Page

| Semesters category | Upload Documents | Semester's Profiles | Statistics | Clean tables | Log out |

```
                        Semester Details                              Edit
   Semester      Second                                               Re-index
   Study Year    2008                                                 Browse Files
   Description:  non                                                  Delete
   Last indexed: 2009-10-21                                           Back
```

Figure D.14: Semester Profile Details Page.

Description: This page displays the specific semester profile and allows the administrator to manage (editing), index, browse files and delete profile.

Edit Semester Profile Page

| Semesters category | Upload Documents | Semester's Profiles | Statistics | Clean tables | Log out |

Edit Semester Profile : Second

```
   Semester Path      http://localhost/Search_Engine/admin/uploads/Second2008/
   Study Year         2008
                      non
   Short Description:

                              Update
```

Figure D.15: Edit Semester Profile Page.

Description: This page allows the administrator to manage (editing) and insert new value for semester profile. If the administrator makes update, the system will display a message "Profile Updated" as is shown in Figure 4.34.
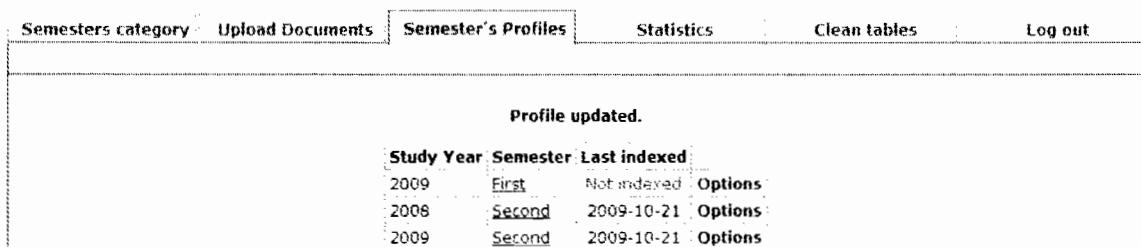
| Semesters category | Upload Documents | Semester's Profiles | Statistics | Clean tables | Log out |

Profile updated.

Study Year	Semester	Last indexed	
2009	First	Not indexed	Options
2008	Second	2009-10-21	Options
2009	Second	2009-10-21	Options

Figure D.16: Update Semester Profile Page.

Delete Semester Profile
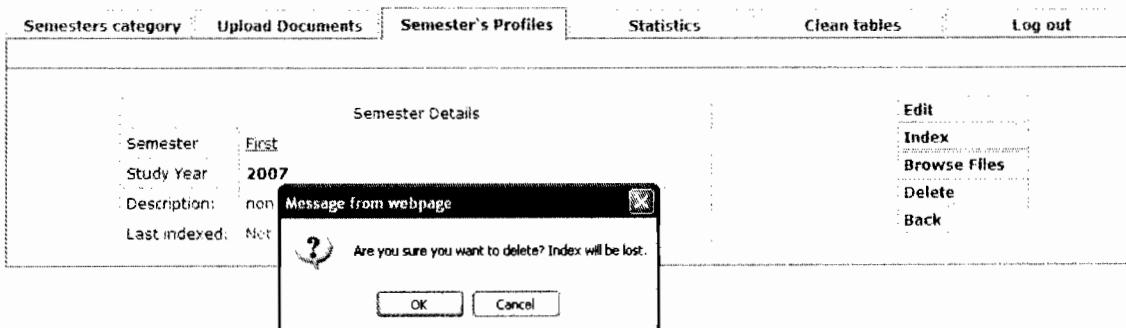
| Semesters category | Upload Documents | Semester's Profiles | Statistics | Clean tables | Log out |

Semester Details

Edit
Index
Browse Files
Delete
Back

Semester   First
Study Year   2007
Description: non
Last indexed: Not

Message from webpage

?   Are you sure you want to delete? Index will be lost.

OK   Cancel

Figure D.17: Delete Semester Profile Page.

Description: This page illustrates the delete semester profile from the semester list. The system allows the administrator to confirm the process or cancel. If s/he conforms, the system will delete the semester from semester profile as in the Figure 4.36.

| Semesters category | Upload Documents | Semester's Profiles | Statistics | Clean tables | Log out |

Study Year	Semester	Last Indexed	
2008	First	Not indexed	Options
2008	Second	2009-10-18	Options

UUM©2009.

Figure D.18: Semester Profile - Delete Page.

List of Project Document File Page

| Semesters category | Upload Documents | Semester's Profiles | Statistics | Clean tables | Log out |

Files of Semester Second / 2009

Files per page: 10   Files contains: [   ] Filter

Vacant Parking Places System Using WAP Technologies	Delete
e-Procurement	Delete
analyze and diagnose the ECG signal	Delete
Mobile Web-based Rural Information System for Tropical fruits Diseases	Delete
M payment using mobile phone application in University Utara Malaysia	Delete
An Improved Linear Feedback Shift Register (LFSR based) Stream Cipher Generator	Delete
Mobile Ticketing Framework for Malaysias Cinemas	Delete
MOBILE BASED ACADEMIC COURSE REGISTRATION SYSTEM IN COLLEGE OF ARTS AND SCIENCES OF UNIVERSITI UTARA	Delete
ONTOLOGY APPLICATION FOR THE ALQURAN	Delete

Pages: 1 2

Figure D.19: List Indexing File Page.

Description: This page displays the list of file for each semester. The path (location) of semester will be presented with a link for each document file in that semester.

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Statistics Page

Semesters category	Upload Documents	Semester's Profiles	Statistics	Clean tables	Log out
Top keywords	Most popular searches	Search log			

Semesters:	4
Files:	7
Categories:	9
Keywords:	5273
Keyword-link realations:	4616

Figure D.20: Statistics Page.

Description: This page allows the administrator to get basic statistics and information on contents of the web-based. The details are answer of following questions such as: How many semesters? How many files in the all semesters? How many keywords have been stored in database?.

Top Keywords Page

Semesters category	Upload Documents	Semester's Profiles	Statistics
Top keywords	Most popular searches	Search log	

Keyword	Occurrences
knowledge	6
such	5
figure	5
set	5
data	5
much	5
systems	5
people	5
available	5

Figure D.21: Top Keywords Page.

Description: This page shows the administrator the top keywords and occurrences for each keyword.

Most Popular Searches Page

Upload Documents	Semester's Profiles	Statistics	Clean tables	Log out

Most popular searches | Search log |

Query	Count	Average results	Last queried
can	22	9.6	2009-10-05 03:39:30
yes	21	0.0	2009-10-05 02:43:21
com	10	10.0	2009-10-05 03:20:50
	4	0.0	2009-10-05 03:40:48
knowledge	1	9.0	2009-10-05 02:45:02

Figure D.22: Most Popular Searches Keywords Page.

Description: This page displays the most popular searches keywords that user used to query about it .Beside, how much time did the user query take. In addition, last query time and average result.

Search Log Page

s	Semester's Profiles	Statistics	

:s | Search log |

Query	Results	Queried at	Time taken
	0	2009-10-05 03:40:48	0
can	11	2009-10-05 03:39:30	0.01
can	11	2009-10-05 03:39:30	0.01
can	11	2009-10-05 03:39:30	0.01
can	11	2009-10-05 03:39:30	0.01
can	11	2009-10-05 03:39:30	0.02
can	11	2009-10-05 03:39:29	0.03
can	11	2009-10-05 03:39:17	0.01

Figure D.23: Query Search Words Page.

Description: This page displays the query word, results, query time and query taken time.
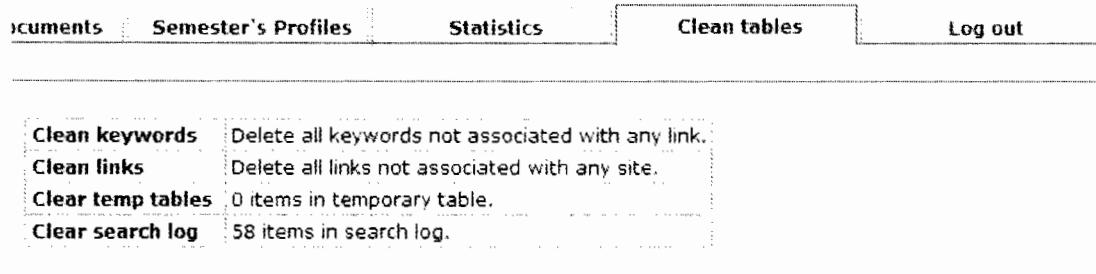
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Clean Table Page

)cuments	Semester's Profiles	Statistics	**Clean tables**	Log out

Clean keywords	Delete all keywords not associated with any link.
Clean links	Delete all links not associated with any site.
Clear temp tables	0 items in temporary table.
Clear search log	58 items in search log.

Figure D.24 : Clean Tables Page.

Description: This page allows the administrator to make a refresh for keywords, links, temp, and search log table after delete semester or files.