CERTIFICATE OF APPROVAL

E-Village Management System
(EVMS)

By

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Approved By,

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1) SQL (computer program language)
2) Relational database
3) Database management

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements and that original work contained herein have not been undertaken or done by unspecified sources or persons.

NUR AZIMAH BINTI LATIF

ABSTRACT

This paper reports that the functionality and usability of the online system on the internet. The web technology delivers the promise of access to information from anywhere in the world. The purpose of this project called is to integrate the online approaches to a Residential College Registration and helps their staff to organize the data and information into better style and format. The methodology used to develop the system for the whole project until it complete will be software process development. It starts from analysis phase where it need to analyze the current system and problem statement that occurred. The scope of this study is to ensure there is no more data redundancy, reduce delay response time to acquire an information and easy access to register rooms. In other view, it would help management staff mainly to analyze the data, update records, searching and deleting records and maintaining the information. The result of this study is the importance of online system related to a management and admission in a large organization especially universities. The report concludes on a rather critical view of the importance of online system, as well as the author's own stand in the midst of debate. Next, will be the shortcomings and recommendation that author makes with regard to the project.

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In the name of Allah and the Most Gracious and Most Merciful.

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ABBREVIATIONS

EVMS	E-Village Management System
WWW	World Wide Web
RCSU	Residential College Support Unit
UTP	Universiti Teknologi PETRONAS
ACS	Academic Central Services
PHP	Hyper text Preprocessor
HKMA	Hong Kong Monetary Authority
API	Application Program Interface
Md5	Message Digest 5

CHAPTER 1

INTRODUCTION

1.1 Background of Study

This report basically will study on online basis system and analysis on paper-based documentation and online-based documentation. In overall, this project title is ***"E-Village Management System (EVMS)"***. Even tough there are previous research has done similarly to this topic, but this paper has it significant compared with others.

Basically, this project is studying on university environment in term of registration system. This environment has been adopted into UTP scenario whereas the current system has still doing manual registration.

We are now in an information technology (IT) globalization which is required us to make a difference and convergence in current system that being doing as for now. The purpose is only to make the process easier and better manageable and consistency. From manual to online system required some process and methodology for it to be develop. The benefits would be the students and the management it self for managing thousands of records. Word of 'online' had showed apparently that it is available and reliable on 24/7 daily.

While the students having their privilege for choosing their preferred room, the staff could minimize repetitive work such as key-in records, sorting a form, disseminate the documents and others and also may reduce zero redundant records. This study would lead into further components and aspects.

1.2 Problem Statement

Information is a major part of organizations who works with it daily. Failure to maintain the information will surely impact the efficiency of the organization. In a highly competitive information industry nowadays, organizations should be able to acquire information, minimize the response time and optimize the opportunity in order to take advantage over the competitors.

In UTP scenario, currently they have a department called as RCSU that manage the registration and maintain student's village records every semester. But the way they organize these records is using traditional approach or usually called as manual system. This activity may need a lot of work and documents to file, sort, distribute, collect and keep. In addition, it also consume a lot of time to manage these records every semester and maintain it accuracy and confidential concurrently.

Using traditional approach obviously is out dated method because in UTP currently had already start doing for online system such as course registration, course confirmation, check exam result, leave management system and so, why don't RCSU unit doing the same thing as well?

In other issue, the questions; "I want to stay at ground floor!", "Why name has at other village as well?", "I have to be early during the hostel registration day to get ground floor room!" are always being encountered among students every semester. It never stops, until the students are being used into that scenario again and again. But this problem would never continue from now. By developing an appropriate system, this 'night mare' can say goodbye to us soon.

1.3 Problem Identification

From the analysis that has been done previously, the author had identified some issues that may tend to the problem of the current system which is categorized into two (2) type of users; students and staffs.

Student may encounter a problem in term of the followings:

- Time

  Student should come early during hostel registration day or the day before if they would like to choose their preferred room. If the students, are from foreign countries they may be delayed for the registration day.

- Clarity

  Definitely, if the students failed to get their favorite room, they will argue and will not satisfy. The management has been said that the room is basis on 'first come first serve'.

- Convenience

  Perhaps, the room that they registered is not convenience for them to study, sleep and rest.

While the staff may encounter a problem in doing:

- Update the records
- Find the records
- Repetitive works
- Redundant records
- Keeping the records

1.4 Significant of the Project

The final product of the system is able to provide extensive functional requirements that relates directly to a process the system has to perform or information it needs to contains. The following are the significant of the currents system toward new system to be develop. Table 1 shows the functional requirements of the current system towards the new system.

- Maximizing the online-based usage
- Efficiently in time
- Accuracy
- Quick search and research
- Manual vs. online

Table 1 – Functional requirements

Current System	New System
Manual student's registration • Students have to come back early and register on paper for their room. • Student can not get room's update	Online Registration • Students need to online to register their rooms on certain date to be announced later.
Track the students • Staff needs to open each folder or file to track the specific students for some purposes. • In some cases, staff needs to get the records from other villagers that consumed a time to get it.	Online Search students • Staff can track the student's information online and get other student's information from different villages.
Check room status • Student unable to check the room availability on time because they have to go management office to confirm the room status • Staff needs to open file of registered room which is consume of time.	Online check room status • Student may check the room availability before make any registration • Staff also may check the room availability to monitor the room status

Log report • Student needs to go management office to make any of maintenance report.	Online log report • Student can submit log report via online. • Staff may update the report status. • Staff may delete unnecessary report posted.
Announcement alert • Sometimes, student not alert with an announcement regarding to village news and activities. • The announcement has been post by pasting a memo on the wall.	Online post announcement • Staff may post latest news or announcement online. • The submitted announcement will appear at student main page.
Records update • Staff needs to open the file to update the student's information if there is a room changes or the student leave UTP.	Online records update • Staff may insert lateness registration into a system. • Staff may insert, update and delete records such as log report, villages and etc.

1.5 Objective of Study

- To implement and directly convert the manual registration system into online basis.
- To help management staff to manage thousands of records in an appropriate methods.
- To reduce redundant records.
- To benefits the student and staff of having online privileges.

1.6 Scope of Study

The user requirement of this study for a new system should describe the functional and non functional requirements so that they are understandable by system users without detailed technical knowledge [1]. The followings are the user requirements of this project that should provide.

1.6.1 Online room registration

1.6.2 Online check room availability

1.6.3 Authentication function

1.6.4 Search and research student records

1.6.5 Updated, delete and save new records.

1.6.6 Log report for maintenance work

1.6.7 Update status of log report

1.6.8 View results in appropriate table format

1.6.9 Post and view announcement

1.7 Project Timeline

- View ***Appendix 1*** for Gantt chart

CHAPTER 2

LITERATURE REVIEW

In cyber world, there are a lot of new technologies and methods have been discovered to make human life easy day by day. Everything could be done with one (1) click of finger with supporting gadget. Although the literature covers a wide of such theories, this review will focus on five (5) major themes regarding online issues which emerge repeatedly throughout the literature reviewed. These themes are; the types of online system, the different between paper-based and online-based, the importance to human needs and wants, the costs to develop the system and finally the advantages and disadvantages of using online. Although the literature presents these themes in a variety of contexts, this paper will primarily focus on their application on online-based issues that will relate and directly affected to a newly developed ***"E-Village Management System (EVMS)"*** which is being implemented by the author.

Most of early theories of online or electronic system on the web were chunk into various types, has different users and also has consequences. Wright, K. B. [2] has focused to conduct online survey research. Even tough it has come with a lot of argument such as the accuracy of the result, but he already distinguished the pro's and con's of having this type of system. Helen C. Barrett [3] found that it is difficult to research electronic portfolios today because of the emergence of very diverse models of implementation, especially in some of the new commercial tools that are available. She says that online assessment system could then be designed with database tools more aligned to other data management tools used in the school or college, without disrupting the integrity and authenticity of the student portfolio. However, trust in online environments also had become an issue among the internet researchers. "Trust has become central to societal and economic development" said by Izak Benbasat [4]. Eric Clemons and Karl Reiner Lang, [5] explore issues related to information products using the theories of resource-based competitive advantage and newly vulnerable markets.

In their paper, "Newly Vulnerable Markets in an Age of Pure Information Products: An Analysis of Online Music and Online News," they discuss the music recording and newspaper industries, where the basis for competition has changed dramatically with the advent of the Internet. New Internet technologies have created the capability for music artists to become their own producers and distributors of their music recordings, leading to the potential for record label disintermediation. In addition, the demand for online person-to-person exchange of MP3 music has grown beyond most observers' expectations, creating the courage for other new technological innovations and lawsuits that are aimed at controlling third-party distribution and protecting copyright holders.

So far, we've been discussed about online assessment, online survey and online stores. But there are still many online categories available on the web such as online newspaper, online booking, online government and many more. Scott Bonhem and Robert Beichner [6] had revealed the issues on online homework on their articles "Online homework: Does it make differences?" They had outlined a study of computer-graded homework vs. human-grade homework in large introductory-physics courses. The study compared the performance of students using an online homework system to those submitting their work on paper in traditional manner. Although, we are moving towards wireless world, but a legacy approach and techniques is not just forgettable because, the original system still has a lot of shape could be revealed. Obviously, not all people make use the facilities and technologies available. Some of them are still having no any idea what is online system and how it works? But there are number of an increasing users participates in online systems for certain activities such as e-ticketing, e-hotel reservation, auction on the web and also online banking. This promotes the awareness of people of experiencing them selves in the latest technology.

This will discussed the major difference between paper-bases approached and online-based approached. Mike Unwalla [7] had distinguished these two (2) approaches from a usability perspective. He has outlined three (3) main listings; types of users, paper documentation and online documentation. He categorized the users into four (4) which is absolute beginners, novice, competent and advanced. In EVMS, the author had distinguished two types of users which are students and management staffs who are will become end users.

These users have differences in term of software that they used and their needs from the systems. He further states that there are several types of documentation for all typical users and advantages and disadvantages to users. For example, the users of user guide is a beginner and competent, thus to be useful to novices, must set the context, and make everything clear. It is supported with printed material guideline for user to understand the context and supported with pictures and provided with optional language.

Furthermore, he had outlined several types of online documentation such as online manual, online video, context-sensitive (window), computer based training and figure out some of the pros and cons. Basically, this application may benefit much to users who are regularly used online net and it is easy to search on keywords, useful in training environments where users don't expect to perform useful work and might be hard to persuade users to work through printed material. As for the purpose of the author in this EVMS, this application will have a lot of advantages and reliable from now and onwards. It wills benefits for students and staff who are regularly browsing on the net and therefore will alert them to use EVMS via online.

As in the real environment at university, they step toward into online system for their management activities, academic and also learning platform. For example, in E-Learning blackboard for UTP, [8] become a platform for student and lecturer to provides and download lecture materials or post an announcement. This activity will make easy for users rather than using printed handout and need to make a lot of copies for all students. EVMS will provide various functions that may help end users to manage thousand of records and makes easier due to registration process. The most objective that the author had stressed out was to ensure the system is user friendly and zero redundant records. EVMS were including a useful function and the most useful is it is paperless documentation.

Apparently, online documentation or online system has major advantage in term of portability, availability, user friendliness, ease of use, readability, cross-referencing, and accessibility of content. Kevin B. Wright again had outlined the advantages of online survey on his research is that may access to unique population.

This idea has being supported by Garton, Haythornthwaite, & Wellman, 1999; Wellman, 1997 [9], that it takes advantage of the ability of the Internet to provide access to groups and individuals who would be difficult, if not impossible, to reach through other channels. A second advantage is that Internet-based survey research may save time for researchers. Therefore it is similar to EVMS, whereby the management staff will have a benefit by saving their time to re-write the name list of students and sorts the list according to respective villages.

As already noted, online surveys allow a researcher to reach thousands of people with common characteristics in a short amount of time, despite possibly being separated by great geographic [10]. But the most advantage of using online as a platform of your daily activities is a less time consuming. The recent studies by Lieva, Baron, & Healey, 2002 [11] says that online system may also save time by allowing researchers to collect data while they work on other tasks.

Even tough lot researchers found a lot of advantages of using online system, but there still a lot of disadvantages found. Some researchers access potential participants by posting invitations to participate in a survey on community bulletin boards, discussion groups, and chat rooms. However, access issue arises when a community moderator may delete the unwanted post, or the researcher may be inundated with emails from irate members of the community [12]. But the most danger in online system is the online attacks. Recent studies outlined by HKMA [13] several types of line attacks that possible on the net. Online attacks defined as different types of attackers (e.g., serious hackers, interested computer novices, dishonest vendors, and disgruntled current or former employees) could pose a potential threat to an institution's information security. But this problem has come out with several products to prevent and cure it such as anti-viruses soft wares [14].

Mike Unwalla again had outlined the cost of online documentation in his research. Costs can be categorized thus: development cost, production cost and maintenance cost. Bachmann and Elfrink [11] state that online system could save money by moving to an electronic medium from a paper format.

In other point of views, conducting online interviews, either by email, or in a synchronous "chat" format, offers cost savings advantages. Costs for recording equipment, travel, and the telephone can be eliminated. In addition, transcription costs can be avoided since online responses are automatically documented. In university environment, cost of disseminate a flyers and papers or open a counter for admission or posting an announcement and printout registration form could be reduce by minimum supervision of man power or staff at management which is this costs can be eliminate by having newly EVMS.

The case study about SDL [15] International, is a medium-sized software house on topics "Good documentation reduces costs and increase sales" had found the results that can reduce support costs and generate new sales. In an organization, costs are a crucial part that requires deep analysis and knowledge. Newer creation software and web services costs can vary from very little to thousands of dollars depending upon the types of features and services selected; however, this is relatively inexpensive compared to the cost of traditional paper-and-pencil surveys.

This paper brings together work in two (2) areas of online system. Kevin B. Wright had distinguished paper-bases and online-based documentation and the recent studies has made by several researchers on types of online and its pro's and con's. By the way, what makes the online system makes so important to researchers and users? It is just because of it affordability. It may save thousands of dollars over traditional research methods and allows companies to do more with their budgets. Companies with even small budgets can now participate in market research and have information at their fingertips. Second, utilizing online survey technology enables companies, for the first time, to quickly and affordably understand the attitudes, behaviors, and opinions of their current or target customers.

The Market Research Magazine had claimed that "Market Research executives rate the internet as the most important factor shaping the research industry in the 21st century". [16]. Third, in author point of views EVMS is enable to compete in market industries as well as not just limited for universities or education merely but in e-commerce and e-business industries such as e-booking and e-ticketing.

In summary, the author had already discussed five major themes and findings of online issues. While internet become a vital to human in their routine activities, but still it is not become a total power in the technologies. EVMS basically can be something that very useful and can become a platform to online technologies as a basic interface between various types of users. By the research that has been done by the author which well understood to develop the best practice and techniques for EVMS to take over in registration and management process and activities. The development has become increasing rapidly but in online environment, it stills a basic life in Internet era for gaining profits and improving skills and knowledge.

CHAPTER 3

METHODOLOGY

3. Project Methodology

3.1. Introduction

This project will be divided into 2 main parts. The first part will be executed in Jan 2006 semester and the second part will be on July 2006 semester. The first part will discuss mainly about the data analysis and data modeling of the project. This document will focus on the research of how to develop the proposed system and how to design it to the web base application.

Project methodologies that will be used for this project will closely with the Iterative life Cycle [figure 1] it is done just the same as with the Waterfall method [17]. The iterative development process has many advantages [18]. It has the advantages of prototyping because the end users have portions of the system to critique early in the development cycle. Because of this project need to be implemented within 2 semester duration and its development need to start from analysis phase, so this methodology is suitable to support it. For furthermore research, this methodology part will be discussed in the next paragraph. The project time line had illustrated in ***Appendix 1***.

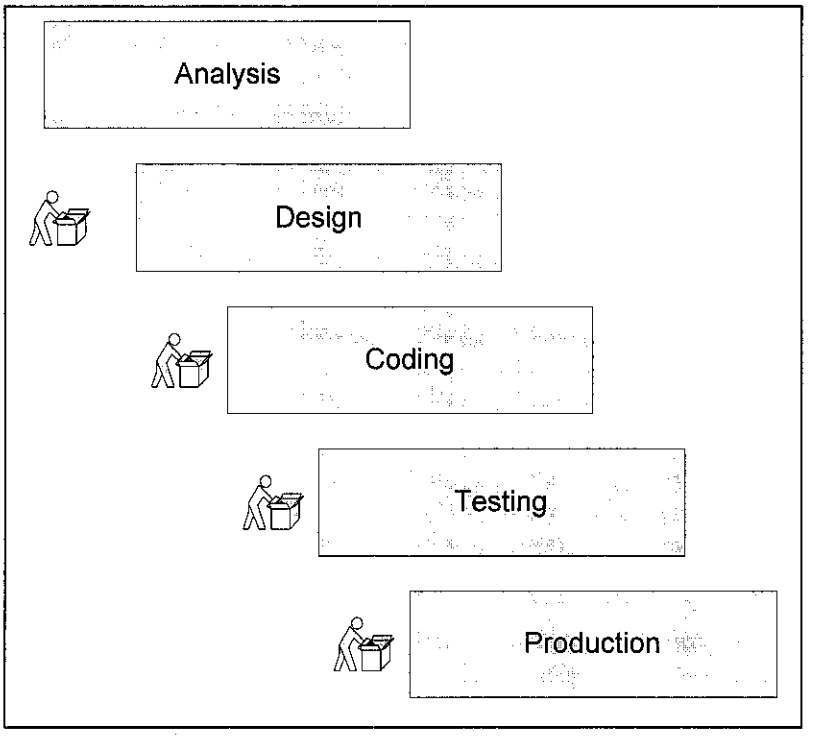

Figure 1 – Iterative Life Cycle

3.2. Iterative Life Cycle

- **Analysis**

  During FYP part I, the author already made an analysis about the current system and new system that will be developed. The issues occurred during current system and problem anticipated the user has been discovered in depth. Analysis that already had done the authors by interview session with the executive at RCSU department and UTP students; see ***Appendix 2***. Some other research on other universities and colleges about online registration at their place had been done by the author using online. So far, the feedback that the author received is the users really need the new system for them to register their room hostel and the staff also is waiting the implementation of the current system. After done, with the analysis and collection of information the author proceed with design part.

- **Design**

  During this stage, the author had design the interface for the web browser as the platform of the user interaction or called as Application Program Interface (API's). Currently, this work has been done during FYP part II. The method that the author used to design is PHP and the database is PHP MyAdmin integrated with MySQL. Web server being using is Apache. Why was the author used PHP as the language is because it is an open source language and it is suitable for web development projects and PHP is compatible with various databases such as MySQL, MS SQL server, Postgre SQL and others. The advantages [20] using a database to store the information obtained by using web pages are:

  - Automation of the repetitive tasks performed while managing data
  - Timely updating of data
  - Provision of easy access to the data stored in various tables of a database
  - Storage of a large volume of data in a systematic manner
  - Quick and efficient search for and retrieval of specific data from a large volume of data

  See ***Appendix 3*** shows the UML modeling diagram for use case, class diagram and sequence diagram for the whole system. The user interface has been designed by the author separately for different users; students and staff. The reason's why because students frequently using this system for registration purpose or make log report for any maintenance defects. They just only make one time registration each semester. Thus, the most regularly using the system is the residential college staff where by they work on these records daily to maintain, update and monitoring the system as well.

- **Coding**

  Next, the author proceeds with the coding for each pages required to attempt the system. At this stage, the author identified some functionality for the system run appropriately with all the error handling provided. The most crucial part for writing the codes is the checking of existing records and designs the coding for the result of each query. The author finally manages to do the check system availability provided with error handling for existing records. Others error handling such as empty fields, existing user name, forgotten password recovery, update, insert, delete records which is done by the admin or residential college staff and login/logout function. Basically this coding has been perform in SQL language which is all the new records will INSERT into the database, the query function will SELECT specific records from database and UPDATE selected data into database. The author also had set up the connection from interface design with database connecting on Apache server.

- **Testing**

  After done at coding stage, the author had proceeds the testing stage where each interface with coding needs to be tested. The author had observed the flows of the system. After done with an observation, the author deigned the user manual for both users; student and staff to operate the system. See ***Appendix 4*** for user manual interface. The author had tested each and single functions to check if there is any incomplete task or inconvenience activities for users while using the system.

  After the whole system completed, the author was test the system on the UTP net by using the UTP students as the user for registration. This testing is to test the system performance to cater thousands records at one time. Through this testing, the author could figure the performance of EVMS and its capabilities for error handling functions. This testing result will be discussed in the next chapter 4 in this report.

- **Production**

  Finally, after done the testing stage and designed the user manual, the author had produced the final product which is called ***'E-Village Management System (EVMS)"***. This final output will benefit especially to UTP students and RSCU staff and management unit mainly. The user manual of EVMS may refer in ***Appendix 4.***

3.3. Tools and Equipment

- Macromedia Dreamweaver 8
  - For web development and HTML and PHP coding and editing.

- PHP myAdmin/MySQL
  - Used to create databases necessary for the module. It is very fast, robust, relational database management system. Enable to efficiently insert, search, delete, and update and retrieve data.
- PHP
  - Server-side scripting language designed used for the web system. It is open source software.

- Apache Server
  - The platform as a web server running on a localhost at port 80.

- Development and construction hardware
  - The hardware that is used in the development and construction of the proposed system is the personal computer. The specifications of the notebook are the followings (common specification):

    - Module:
      - Microsoft Windows XP Service Pack 2
      - Version 2004 and above

    - Computer:
      - Intel Pentium 4 2.0 GHz above
      - 256 MB of RAM

3.4. Architecture Design

For the development of this project, **Figure 2** below shows the overall architecture for the proposed EVMS from the user's point of view. When the users decide to access the system or service, they must login into the system through the internet. They have to enter the username and password for authentication. The web server (Apache) transfers the user's request to application programming interface (PHP) which then is directed to the EVMS's database (PHP myAdmin/MySQL) for data saving purpose. For the purpose of this project, the scope has been narrowed down specifically on the study and development of the online registration and management system with its functionality and usability due to date's notifications.

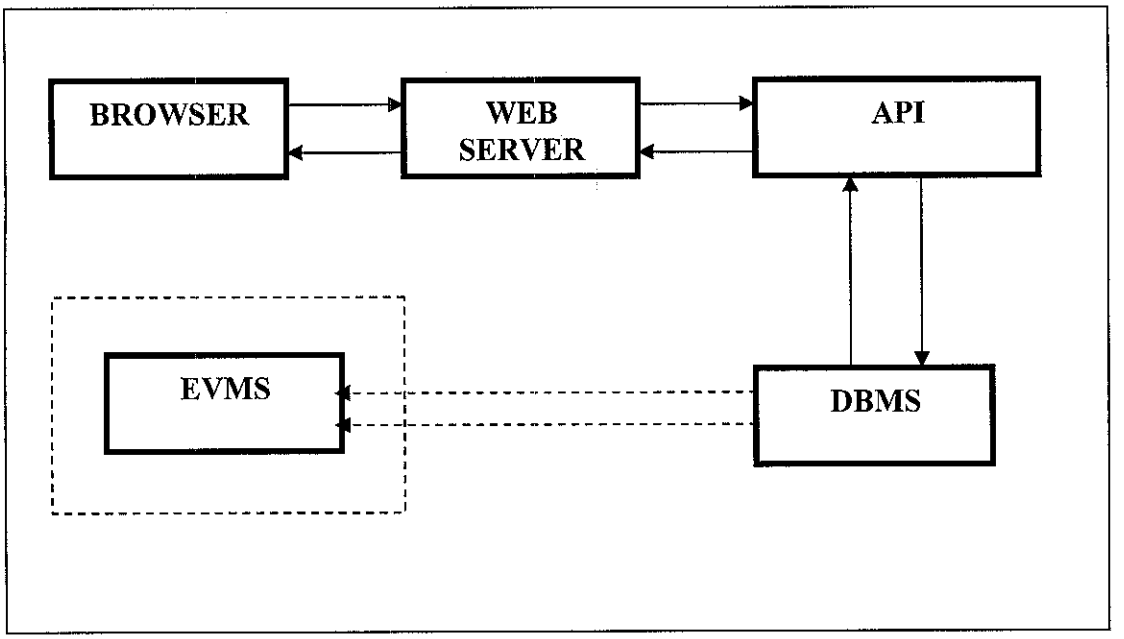

Figure 2- Overall Architecture of EVMS

CHAPTER 4

RESULTS AND DISCUSSIONS

4. Results and Discussion

4.1. Data Gathering and Analysis

In this project, gathering data and raw information has been done early of the semester. The author was interviewing with the residential executive Mr. Zulkefli Bin Ramli [19] about the current system them using. See ***Appendix 2-1*** for the questionnaire and results. The author made the question on questionnaire form and taped the interview session. The response the author got is expected. He agrees that this current system still lack of integrity of gathered the whole data. This problem arise beginning of the semester. They will find out the clarification after half of the semester. After make some comparative advantage and analysis, the author come out with the ideas to bring this system into online system.

Others, the author also had done few surveys with colleges and other individual about their personal opinion of the current system in UTP and as summarized, they also not satisfied with it and request for some implementation if possible. Basically, information that the author got are from user experienced and satisfaction. See ***Appendix 2-2*** for questionnaire form and the results.

4.2. Findings

As the result, we know that the important of online and functionality capability into the system. Through the analysis that has been summarized, the author found that majority of the UTP's staff mostly and students generally interested to have new system for village registration. Unfortunately, the author only held oral survey and short interview with selected people.

As traditionally, RCSU staff able to increase their efficiency in term of time and documentation in order to sort, add, delete, retrieves and update student's information and registration for each village on the web. For instance, online system can help management design Web sites with paths that can be traveled easily by end users, saving time and effort.

After conduct a short interview with Mr. Zulkefly Bin Ramly, the results the author got is manually work process of current system. Currently, RCSU of UTP are still backward of maintain students record for hotel registration efficiently. He being said, previously they using fully write on hands document for registration records base on form but now they move forward into Microsoft Excel documentation. What they did is save those records separately according to their village and save it in one folder namely; i.e. Semester July 2006 for example. At certain time, if there are any changes, the information will not be updated through out these respective departments. In addition if the records are redundant inter village records, they unable to detect it and later in it will give problem to respective person to get specific records when they need it. Obviously, they totally do not have the best practice and techniques in their system.

4.3. Results

This project will be done using web site application. First of all, the author should determine who will be using the system and next determined the main features needed in the system. The results of the system should be able to perform the function and task that being design to provides information for both parties.

4.3.1. Functionality Features in E-Village Management System (EVMS)

The first finding is about to be embedded in the system. The research was done through observation of the existing systems. However, the current system does not have an online system. Therefore, the system are depends on the current manual system, bases on these information it has been converted into online system. After several functions were being identified, the implementation is begun and complete in time. After performing the observation and survey, the author had identified main function that useful to the EVMS. **Table 2** below shows the main functions embedded in the system and their description according to different users.

Table 2 – Functionality and description in EVMS

Function	Description	User: Student	User: Staff
Login	Login into the EVMS	Yes	Yes
Student Page	The main page for students process and activities	Yes	
Registration	Student may register room only once for that semester	Yes	
Check room status	Student may view all registered room before making registration	Yes	
Log report	Student may submit a report due to maintenance defects	Yes	

Create an account	New student who does not have a password to log in may register and proceed with the room registration process	Yes	
Password recovery	EVMS provide forgotten password recovery if the user lost their password	Yes	
View Announcement	Student able to view any announcement made by the management at student main page	Yes	
Admin Page	The main page for staff to perform the queries on the page		Yes
Post Announcement	Staff may post an announcement and will view at student main page.		Yes
Search	▪ Registered room list ▪ Student name alphabetically ▪ Student info		Yes
Add	▪ New student records ▪ New village list		Yes
Update	▪ Update personal profiles	Yes	
Update	▪ Status of log report. ▪ Remark students		Yes
Delete	▪ Student records ▪ Log report ▪ announcement		Yes
Logout	Logout from the EVMS	Yes	Yes

4.3.2. System Testing and Performance

After complete the system, the author had set up the system on the server of village 3. In order to test the system, students are become the end user whereby they need to try the system online. As for the initial step, before they can access to the system, they need to create an account with valid information and the most crucial data is student ID, full name and password. After the account registration process successful, student may login into the EVMS by enter student ID and newly password. Once the login page redirect to student page, the main link are available for student to click such as edit profiles, register room, check rooms availability, log report and logout. This function will help user by directly click on the link.

During the stage of uploading the system on the intranet of village 3, these following errors are occurs.

- Student cannot login with their newly password.
- Student name contains with symbol 'or " can not create a new account.
- Staffs who are searching the student info according to alphabetical names using small or capital caps are not returning the results correctly. Some info is missing.

Therefore, the author had to come out the solution for these errors in order to ensure the system is compatible without errors. Finally, the author had settled the problem by identifying several functions that could embed into the system which is "**$fname = addslashes($fname);**" for symbol in name fields and "**$fname = strtoupper($_POST['fname']);**" to convert the fields into upper case and "**$password = strtolower ($_POST['password']);**" to convert string to lower case. These functions are very useful in order to get a better format of results when staff search for name list of student registered for that respective semester.

The author supervisor's, were request to collect student records for every village but since the network for villages in UTP are split, therefore it can not do as he ask for. So, the author only cater village 3 only. Since 4 days of uploading the system to the village network, less than 50 students are participating. But it does not mean that the system is not reliable but perhaps the reason why they not participate because of them not sure about it yet. Since there is no formal announcement has been made to clarify on that registration trial issue. Up to this stage, there are no errors that occur during login and registration process.

4.4. Discussion

4.4.1. Error Handling Functions and Issues

The followings are the some output that results from the function that has been identified from **Table 2** above. The most crucial function is checking registered room and room registration done by the students. The author concern for this system because to ensure no redundant records made by students and double entry key in records by management staff. **Figure 3** shows the message error that will display if the respective room that students wish to register has been booked. By having this system, zero redundancy records will be efficiently used and staffs need not to type the name list one by one.

Some are the error handling that useful in this system are:

- Once the house unit is registered, the second student is not allowed to register it again.
- Once a student made any room registration, he or she can not make second request again.
- Once a student created an account to the system, he or she can not make second account again.
- Apparently, a student may not register on behalf his/her friend by using same ID login.

The advantages of this restriction are:

- Zero redundant records
- Having a unique user ID
- Easy to sorts the records
- Easy to find students

4.4.2. User Identification Advantages

In EVMS, there are two main users which are students and staff. These users must be a valid user to the system in a way to access the system. Therefore, the author must have a usability function in order to make the system user friendly and not being abuse by unauthorized person. Starts from login authentication, once a student login in as for example; 6740 throughout the process, the system will recognize his or her as 6740. After login successfully, respective student may having their privileges to *register their preferred room, report due to maintenance defects, view an announcement, view list of staff and fellows* and the most functional privilege is *update personal profiles*. From time to time, student may update their personal profiles such as phone number, email address, courses and password.

The reason the author had set up this limited fields that able to update because after study the user behaviors. Frequently, the phone number and email address are usually changing by users and the courses also possible to be changed. For example, in UTP's foundation student will switch to undergraduate according to their respective courses.

This is possible happen to UTP students. For password cases, is commonly may be updated by user and the author had given flexibility for them in this system. In some cases, the author had provides a *password recovery system* for user who might loss or forgot their password.

It is possible to happen because EVMS is seldom being access by students and minimum they will login once in a semester. The chances for them to forgot their password is absolutely high. Therefore, the author had set up with student ID and parent or guardian name in order to retrieve that particular student password. After all, they need to login and after successfully login; they have choices to change their new password under *edit profiles* function. All mentioned functions and privileges definitely will make the registration process easier and user might not have any curious to login to the system after all.

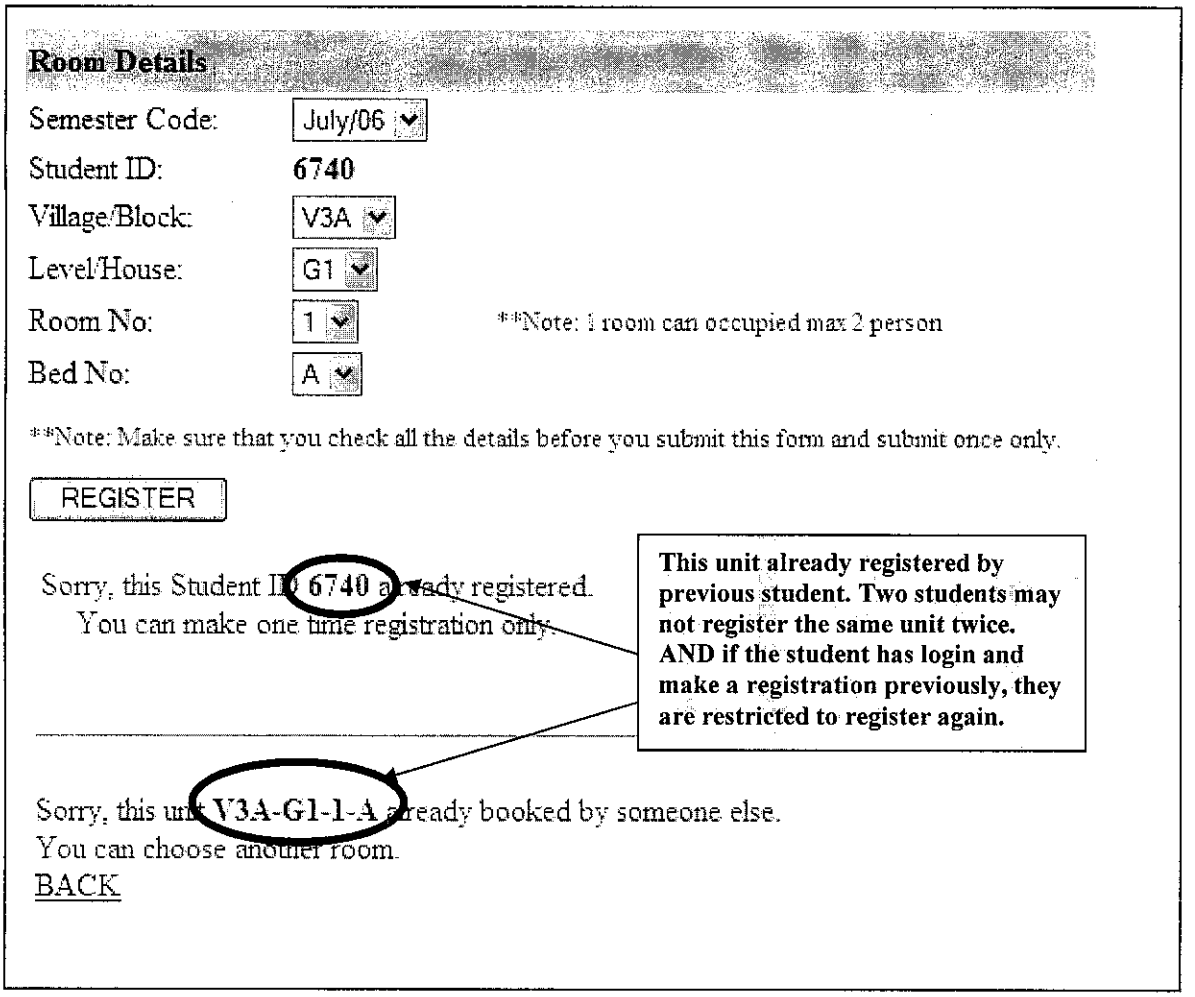

Figure 3- Register room error handling

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5. Conclusions and recommendations

5.1. Conclusion

In relation to the goal of developing the E-Village Management System (EVMS), it appears that a lot of knowledge had to be applied during development phase. The author need to know what the functions are is useful to parties, user and management staff. This system is not built only for staff merely, but also for students to have privileges of online system registration. There are several advantages gain from the studies and the research analysis. One of them is to ensure that the system developed will be sufficient enough and contain necessary functions. When having all the function in the early stage, the author will have clear views of what to do and it becomes the guideline throughout the process.

In advanced, a study on how to develop the system is another issues. It does provide the author on how to play with PHP codes and function. Besides knowledge, the study also provides a guide during the technical work such as integrating Application Programming Interface (API) with web server and database management system (DBMS). Testing must be made for the whole system works to figure out the errors that were not noticed by the author and studies on user behavior. For example, after completing the studies about database connectivity, the system should be tested on the real network server.

The whole purpose of the project is to explicitly show how the World Wide Web (WWW) can be utilized to improve the work activities today. Everyone is talking about how the Internet will, is and has changed people life. The internet has booming and is hailed as the greatest 'invention' give to mankind, sitting at the top right next to sliced bread.

As conclusion, the author is saying that we need to look at all factors, the good as well as the bad. Before we jump onto the bandwagon and start whatever we want to do on the internet. For this project, the reliability is an important issue which the author understood even if it was fully implemented.

5.2. Recommendation

5.2.1. System Recommendation

For system specification, the author would recommend to have the followings specification.

Operating System:	Linux, Macintosh
Web server:	MS SQL Server or Tomcat
Database:	MySQL or Oracle 9i
Open Source:	SAP or Java

5.2.2. Security Recommendation

The author currently developed EVMS only with login function and some error handling with invalid input. But, the author would like to recommend by using session functions and cookies function from PHP codes to enable in EVMS. Therefore, the system will be secured with added of digital signature that would also require Secure Sockets Layer (SSL) to be enabled. Unfortunately, digital signature only supports Microsoft Certificate Server which is not being using in EVMS. Therefore, it is recommend that the hardware supporting this module be running on a system that could run the ideal system, so that maximum performance could be achieved.

In addition, the user password security needs to have encrypted functions. So that it will not being misuse by imposter person. Perhaps, the techniques such as md5 and others can be adapted into next implementation.

5.2.3. Future Recommendation

In future hopefully that EVMS could be implemented via phone or SMS registration. By having this facilities, may reduce time of browsing on the net. In addition, create a multi functions package for management staff others than add, delete, update and searching. For example, using data mining techniques which with simple query, the results will be varies for user to choose their preferences.

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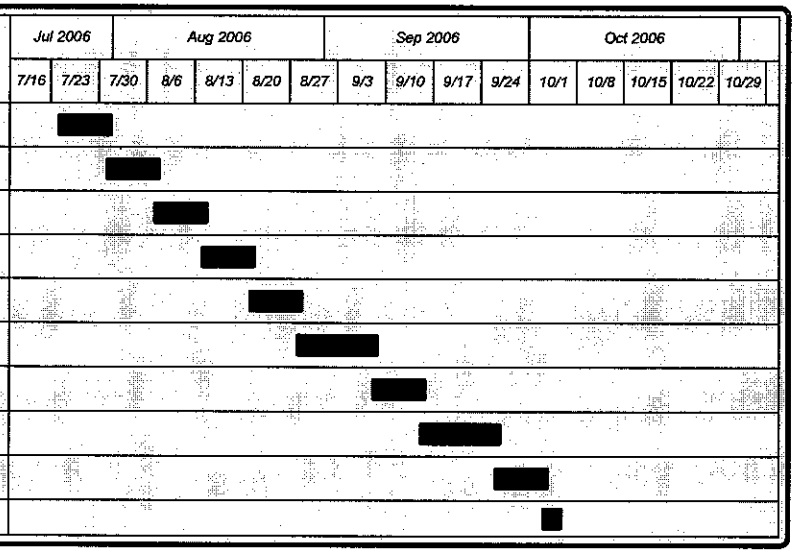
APPENDIX 1

FINAL YEAR PROJECT PART II
GANTT CHART

ID	Task Name	Start	Finish	Duration
1	Develop student page	7/24/2006	7/31/2006	6d
2	Develop user authentication page and room registration.	7/31/2006	8/7/2006	6d
3	Prepare progress report	8/7/2006	8/14/2006	6d
4	Prepare final draft report	8/14/2006	8/21/2006	6d
5	Develop admin page	8/21/2006	8/28/2006	6d
6	Create multi functions for admin	8/28/2006	9/8/2006	10d
7	Check error handling and testing system performance	9/8/2006	9/15/2006	6d
8	Prepare final report	9/15/2006	9/26/2006	8d
9	Prepare materials for oral presentation	9/26/2006	10/3/2006	6d
10	Final Presentation and EDX	10/3/2006	10/5/2006	3d



APPENDIX 2

ENDIX 2-1

Final Year Project Questionnaire Survey
Nur Azimah Binti Latif
For FYP Part 1 Jan 06

E-Village Management System (EVMS)

Set :Staff Questionaire

Name of Interviewee: *En. Zulkefly Bin Ramli*
Department: *Residential College Support Unit*
Position: *Executive*
Contact No: *012-459 5085*
Email: zulkefr@petronas.com.my
Date: *2nd February 2006*
Venue: *RCSU Office, Village 2*

Instruction: Please tick in the box.

Close Ended Questions:

1. What is your satisfaction using current system? Please tick in the box.

   ☐ Unsatisfied ■ Moderate ☐ very satisfied

2. Any improvement since it's being using? Please tick in the box.

   ■ Yes ☐ Never

3. Do you wish to have a new high technology system for RCSU maintenance records? Please tick in the box.

   ■ Yes ☐ Not Interested ☐ No idea

Note: The result

Open ended Questions:

1. Describe the brief process of current system doing. (i.e. Manually records the students information into PC, fill up a form for new registration, paper based or document based & etc.).
    a. *Registration are doing manually by filling up the form*
    b. *Save the records in one folder name; Jan2006 and inside the folder are the list name sorting by respective villages.*

2. List the main entity for the system records (i.e. Students contact details, student's academic achievement, student's previous room's records & etc.)
    a. *On the registration form, only need to fill up Name, matric No, programs, and room number only.*
    b. *For other records such as clearance form, check list form, network form has to collect it at village office. See* ***Appendix 3*** *for several forms as reference.*

3. How is the connection (link) between records interring village. (i.e. V3 can records of V4 & vice versa)
    a. *After compile those records into one folder name, they send the softcopy through email to JPSP unit, Finance Department, ACS and all villages' office.*

4. Describe the efficiency level of the current system. (i.e. Is it ok or need some improvement if needed [put in a range]).
    a. *I would say not very effective and efficient because it consumes time to manage this records and key in manually into PC. I would say 3 out of 10.*

5. How to maintain thousands records every semester and redundancy of students name if they register twice?
    a. *Name or the information of the students can be redundant and unable to detect it immediately.*
    b. *Very rare to change this records.*

E-Village Management System (EVMS)

Set :Student Questionaire

Instruction: Please tick in the box.

Course: ☐ BIS ☐ ICT ☐ MCE ☐ CV ☐ CHE ☐ EE

Gender: ☐ Male ☐ Female

Close Ended Questions:

1. What is your satisfaction using hostel registration in UTP? Please tick in the box.

   ☐ Unsatisfied ☐ Moderate ☐ very satisfied

2. Do you think this current system for hostel registration is effective and efficient? Please tick in the box.

   ☐ Yes ☐ No

3. Do you wish to have a new high technology system for hostel registration system? Please tick in the box.

   ☐ Yes ☐ Not Interested ☐ No idea

- **Results obtained based on student surveys.**
- **Total number of correspondent is 100 people**

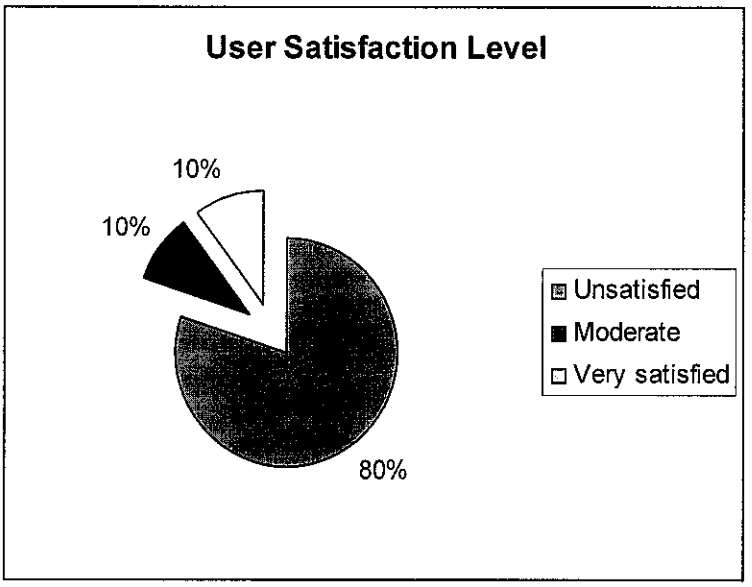


Figure 2-1 – User Satisfaction Level

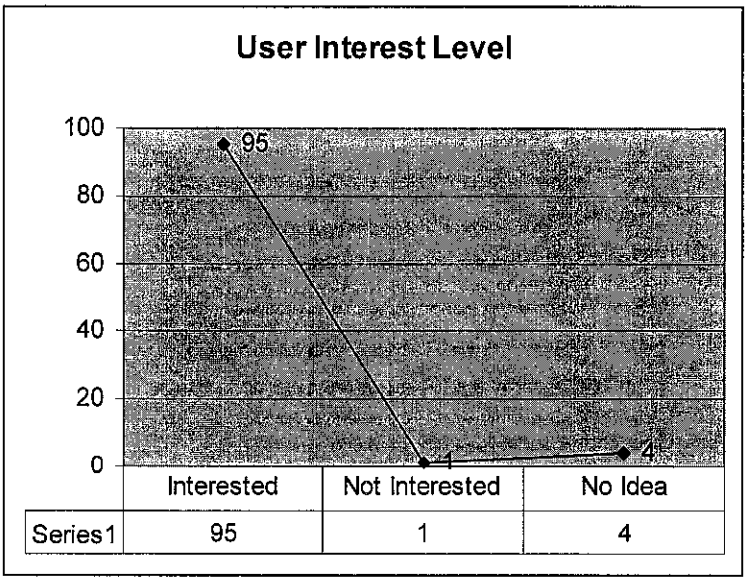


Figure 2-2 User Interest Level

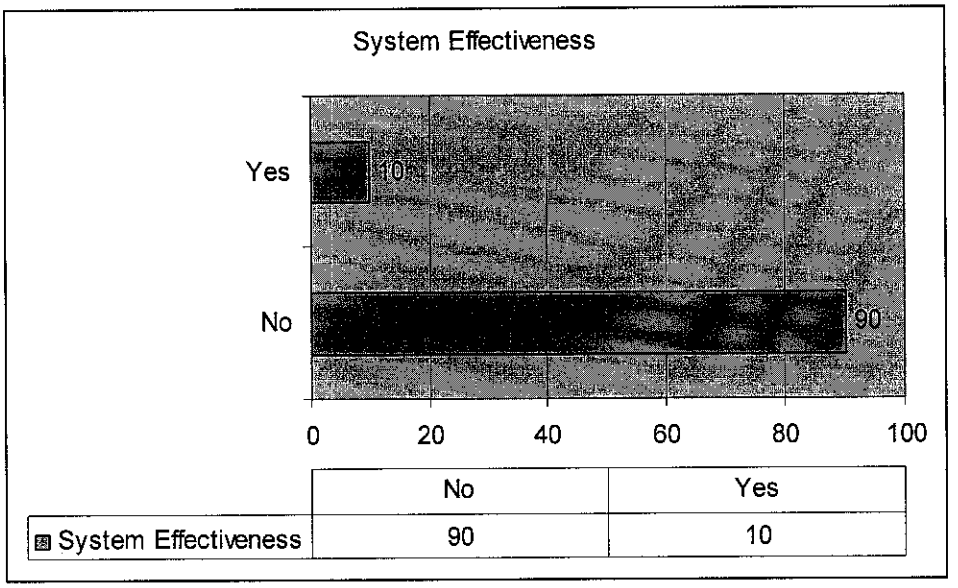
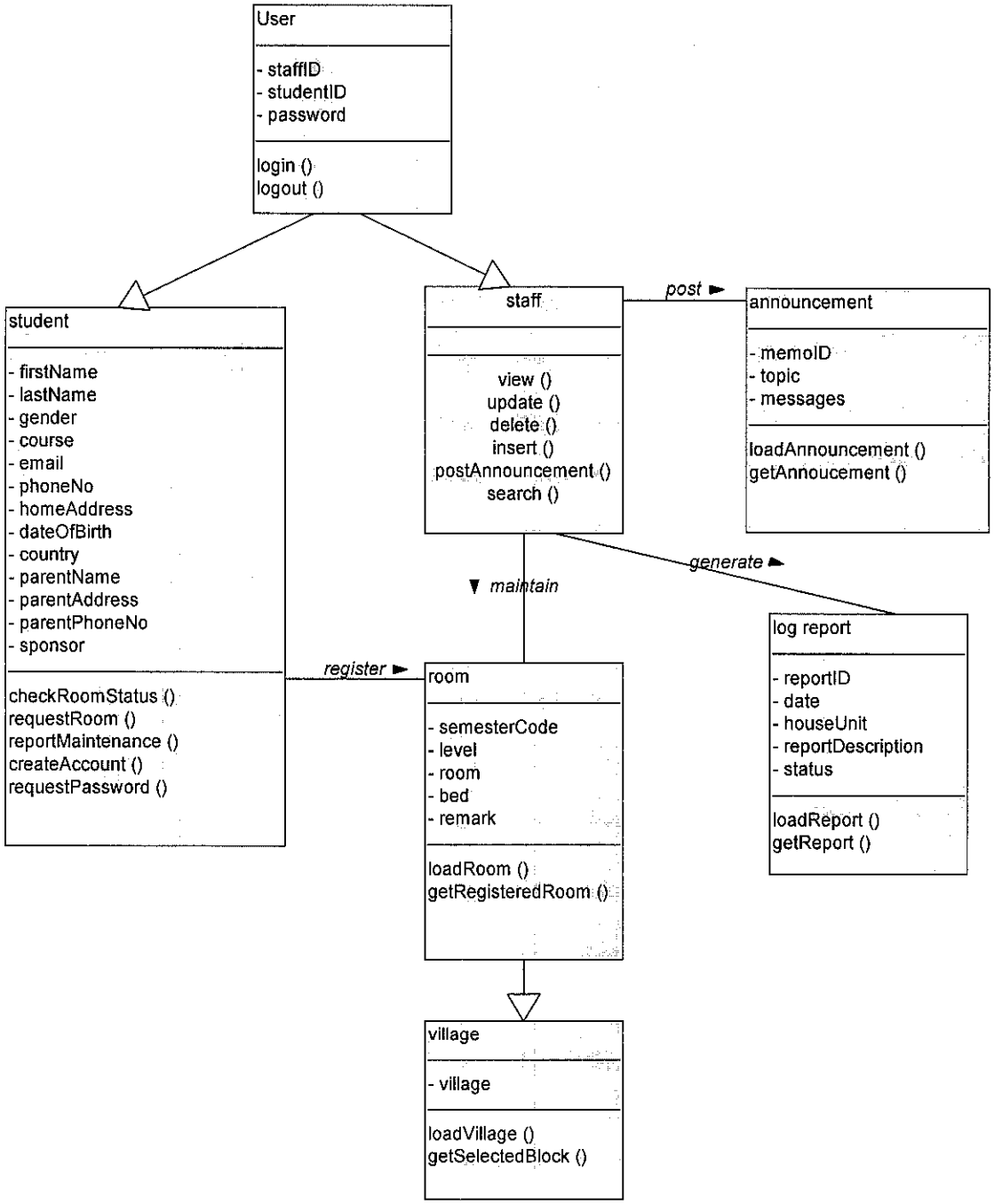


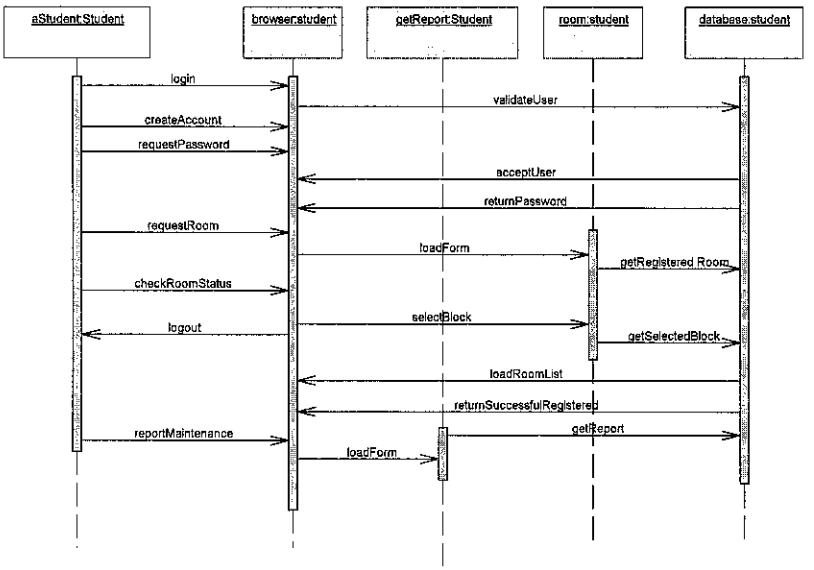
Figure 2-3 System Effectiveness Response

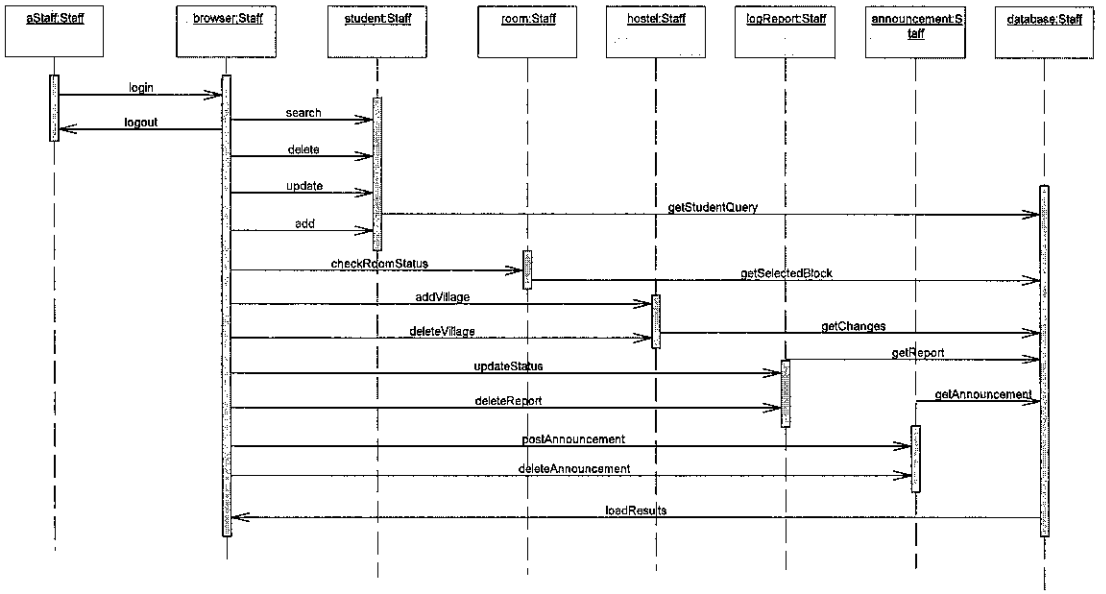
APPENDIX 3

Class Diagram

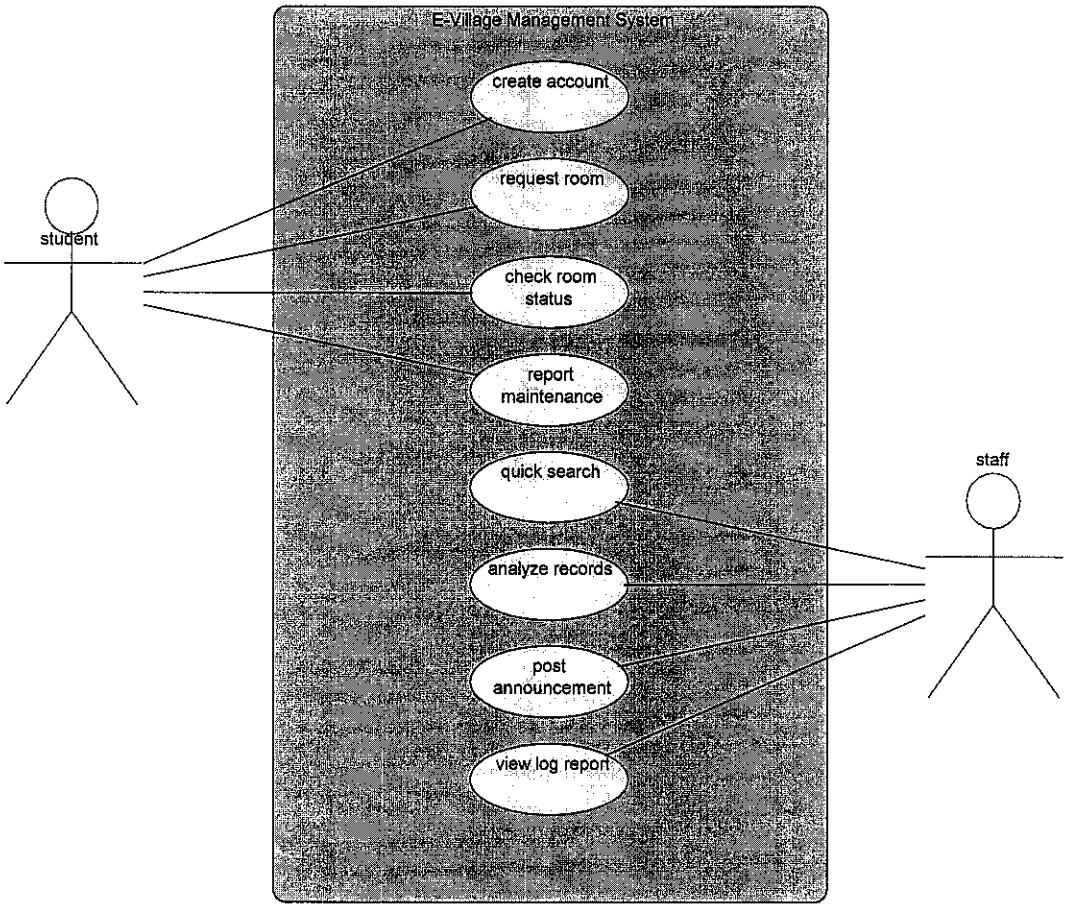


Sequence Diagram

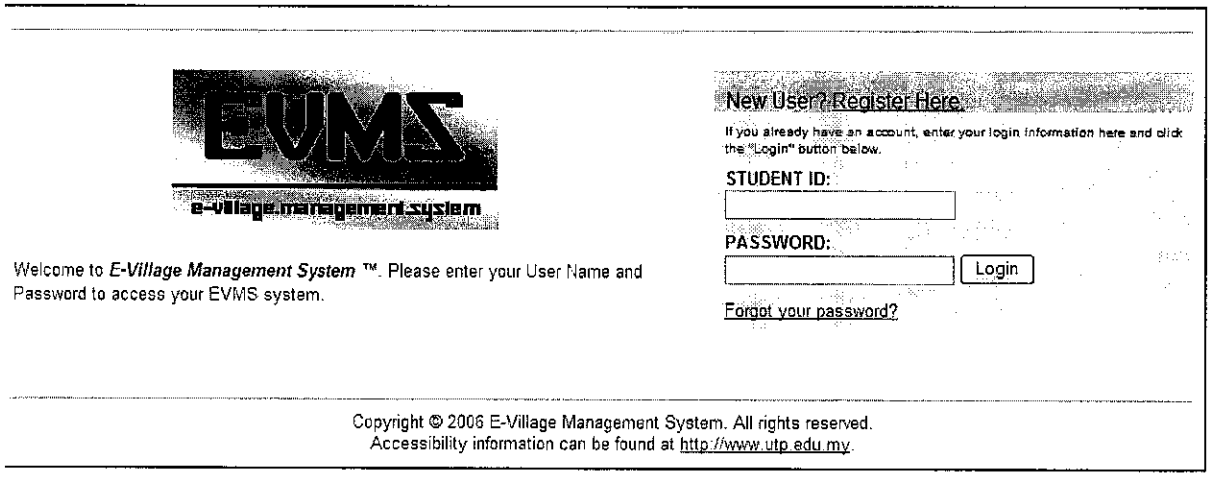




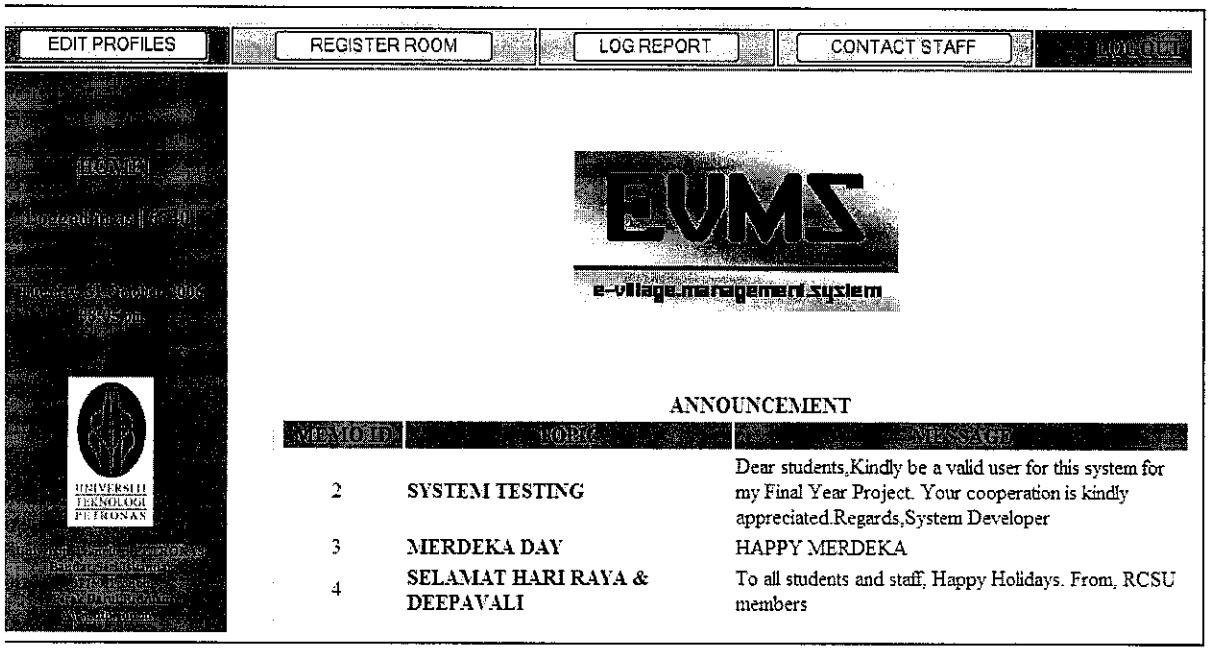
Use Case Diagram



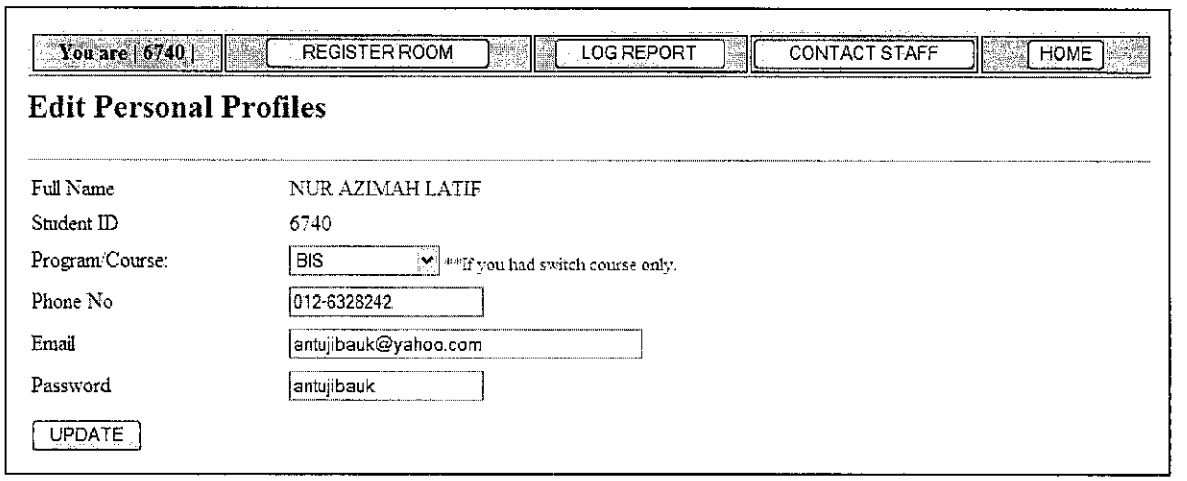
APPENDIX 4



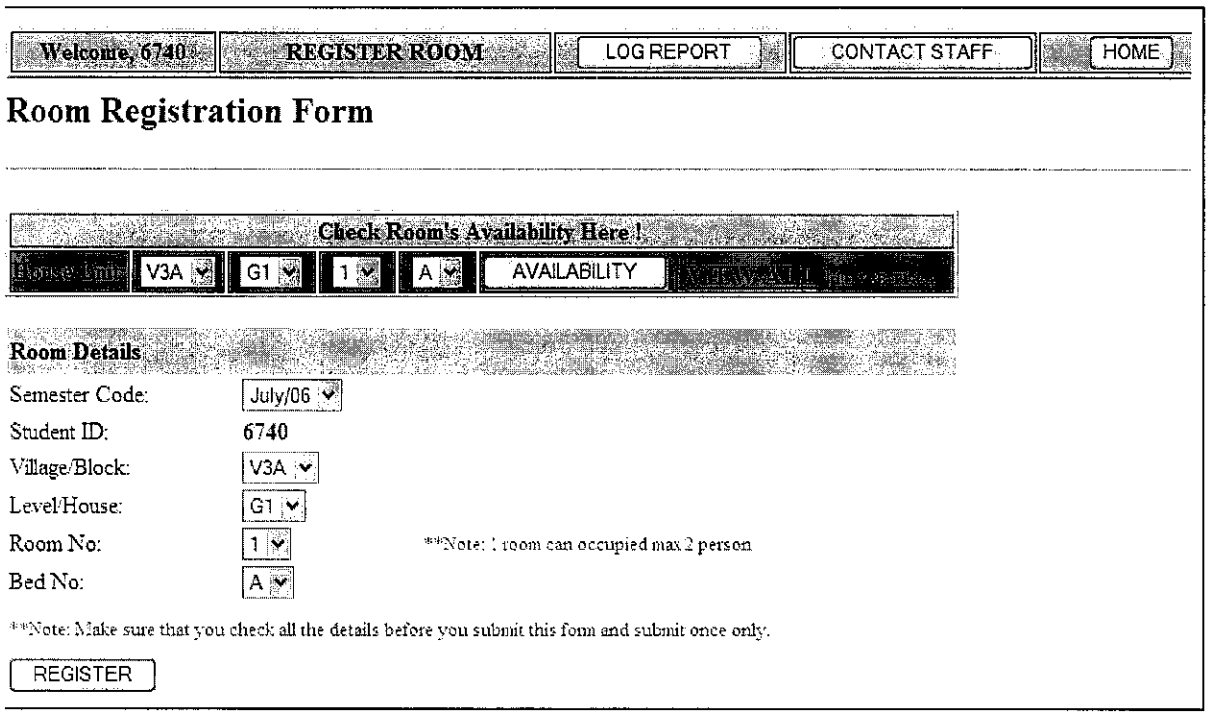
Appendix 4-1 Student login



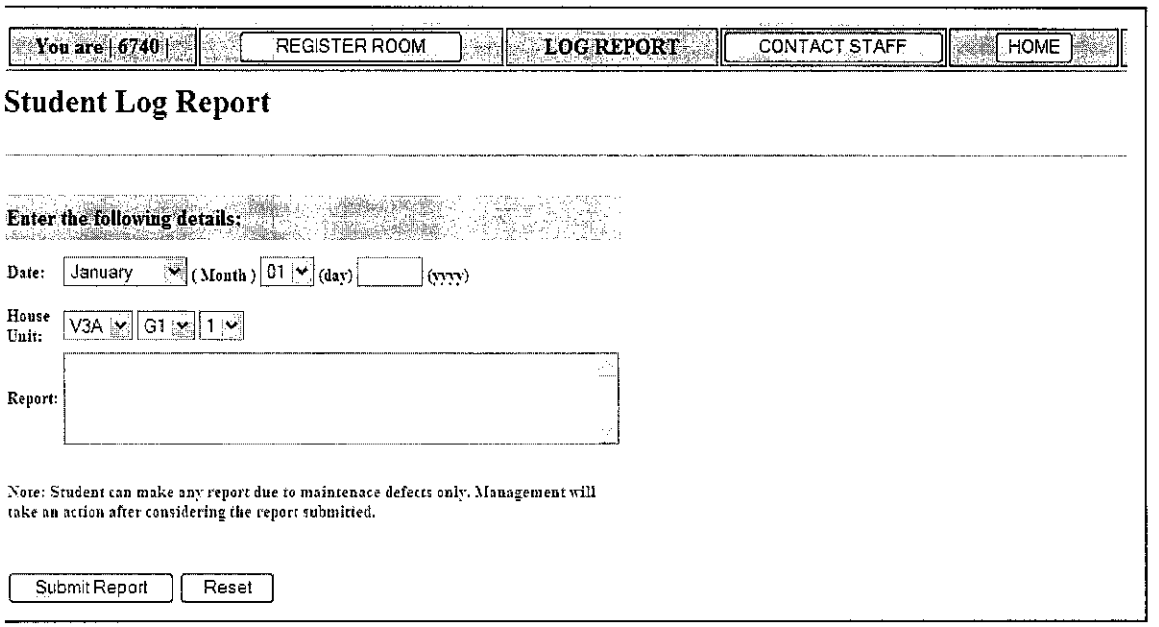
Appendix 4-2 Student main page



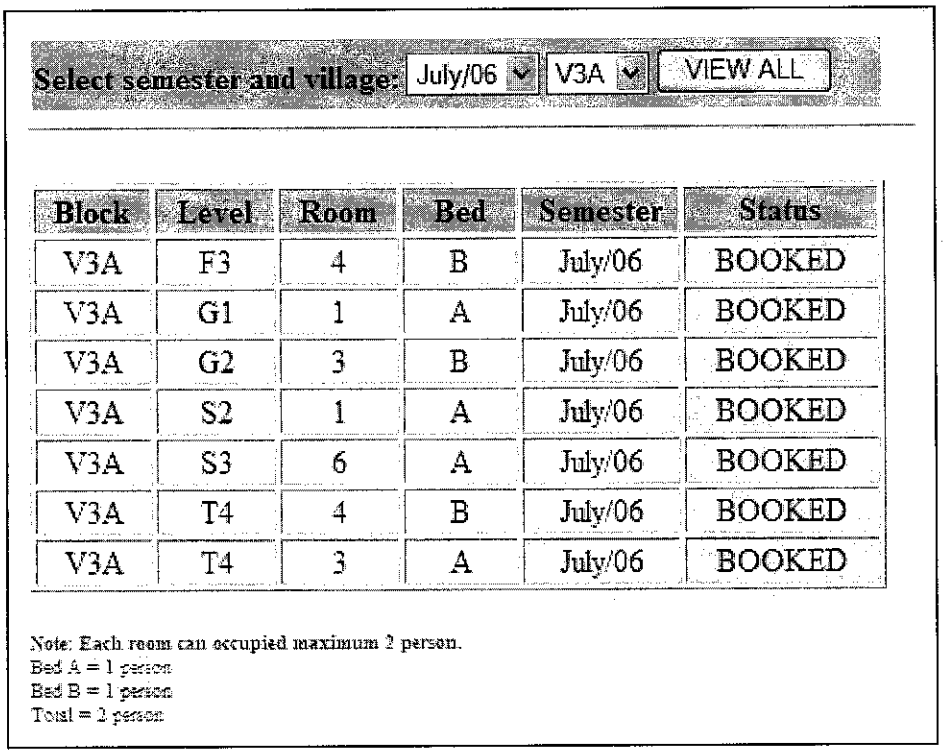
Appendix 4-3 Student Update Personal Details



Appendix 4-4 Room registration form



Appendix 4-5 Report Maintenance Form



Select semester and village: July/06 V3A VIEW ALL

Block	Level	Room	Bed	Semester	Status
V3A	F3	4	B	July/06	BOOKED
V3A	G1	1	A	July/06	BOOKED
V3A	G2	3	B	July/06	BOOKED
V3A	S2	1	A	July/06	BOOKED
V3A	S3	6	A	July/06	BOOKED
V3A	T4	4	B	July/06	BOOKED
V3A	T4	3	A	July/06	BOOKED

Note: Each room can occupied maximum 2 person.
Bed A = 1 person
Bed B = 1 person
Total = 2 person

Appendix 4-6 View room list (registered)

Welcome, 6740 | REGISTER ROOM | LOG REPORT | CONTACT STAFF | HOME

Staff and Management RCSU

RESIDENTIAL COLLEGE

Talhah Hassan
Manager
Tel: 605 368 8440
HP: 012-522 1164
Block O
talhah_hassan@petronas.com.my

Muhammad Baharum B Kartaji
Executive
Tel: 605 368 8441
HP: 016-505 3609
Block O
baharka@petronas.com.my

SUPPORT STAFF

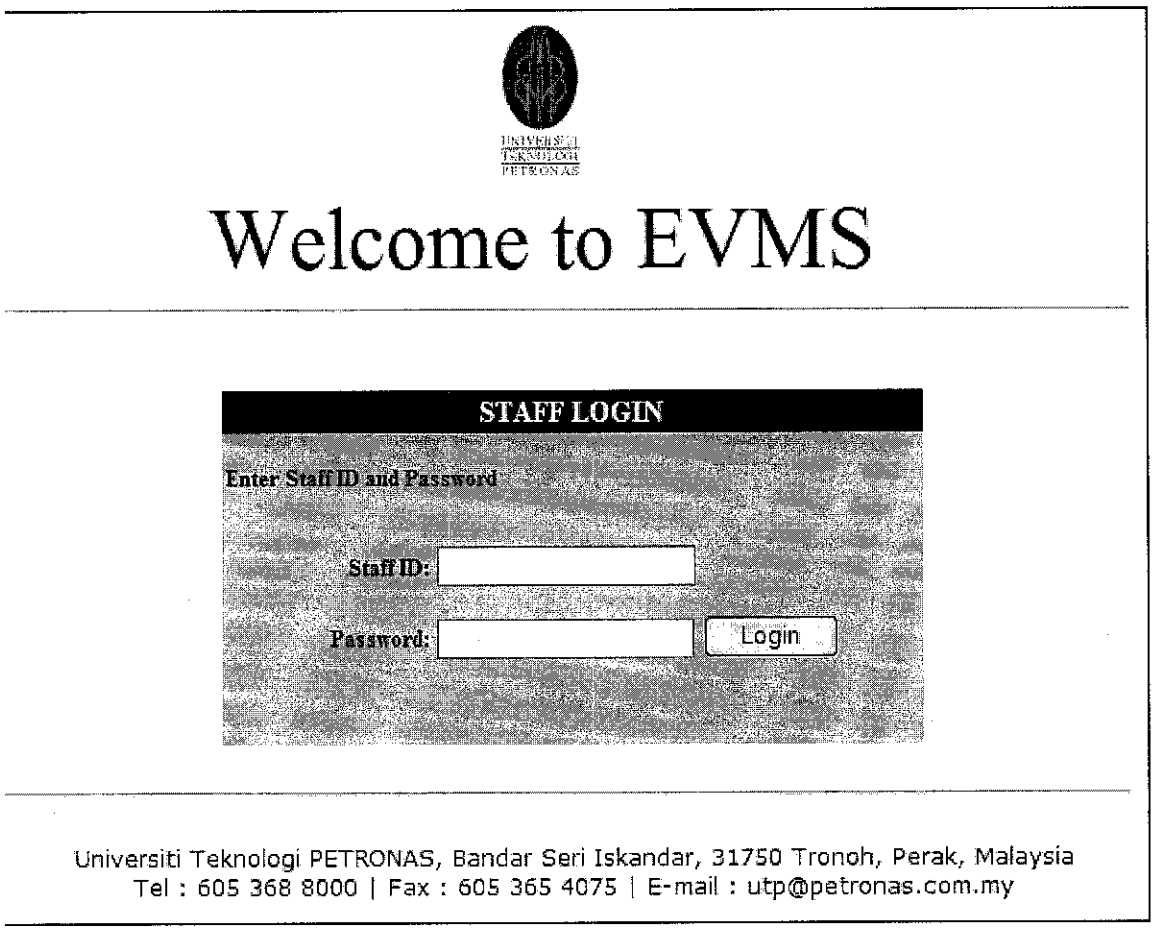
Noor Idahwati Mohd Zain
Village 1/Block O
Tel: 05-368 8443
HP: 012-547 9957
nooridahwati@petronas.com.my

Alias bin Mat
Village 2/Block O
Tel: 05-368 84432
HP: 012-496 3957
aliasmt@petronas.com.my

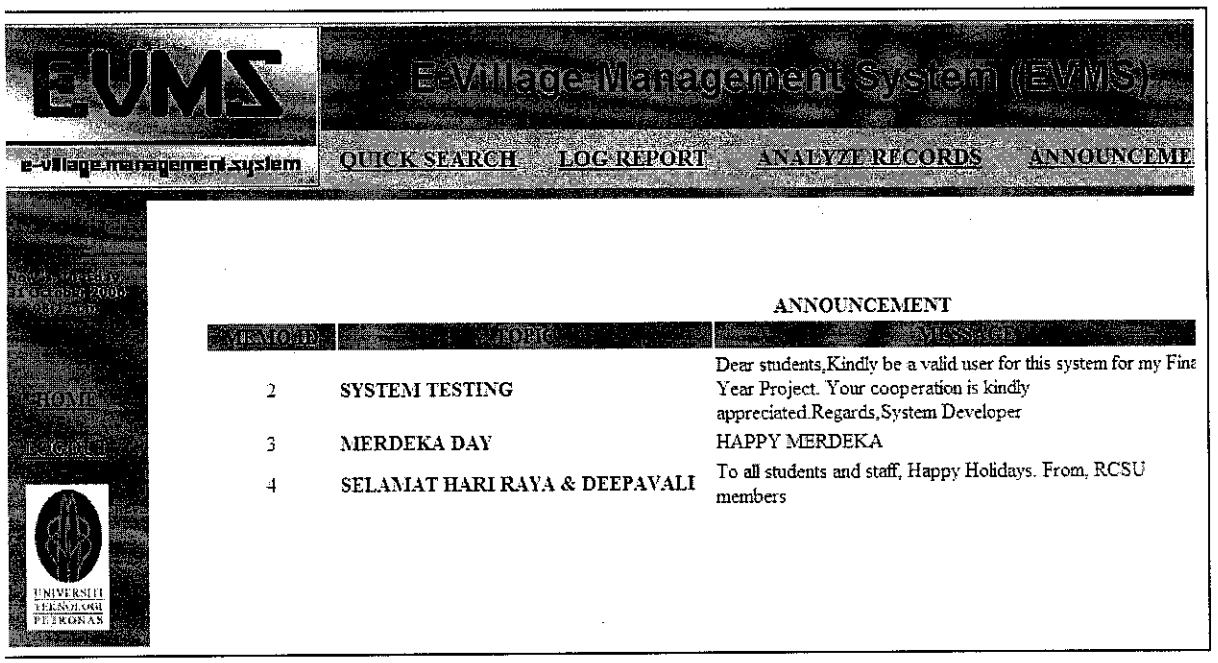
Roshidah Binti Mohd Salidin
Village 3
Tel: 05-366 7670
HP: 012-544 356
roshisa@petronas.com.my

Mior Sazali bin Mior Ahmad
Village 4
Tel: 05-365 4081
HP: 012-434 5485
miorsazali@petronas.com.my

Appendix 4-7 Staff Contact Information



Appendix 4-8 Admin/Staff Login



Appendix 4-9 Admin/Staff Main Page (EVMS)

| SEARCH STUDENT BY ID | SEARCH STUDENT BY NAME | VIEW ROOM LIST | REMARK STUDENT |

Searching Individual Student By ID:

Semester Code: July/06

Student ID:

SEARCH ID RESET

Appendix 4-10 Quick Search functions

| VIEW LOG | DELETE LOG | UPDATE LOG STATUS |

View by month : January VIEW

Date	House Unit	Report Description	Report ID	Status
January-1-2006	V3E-S4-5	Pintu Pecah	5	DONE
January-1-2006	V3C-G3-4	Lampu tidak menyala.	8	DONE

Appendix 4-11 Log report functions

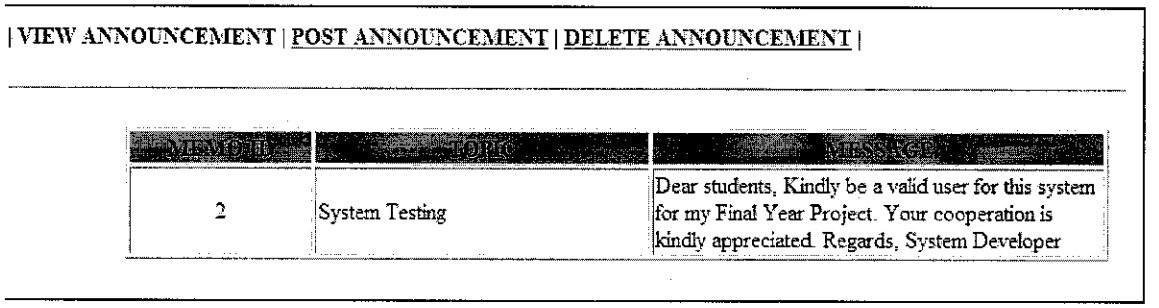
| ADD STUDENT | DELETE STUDENT | ADD VILLAGE | DELETE VILLAGE |

Add New Village/Block:

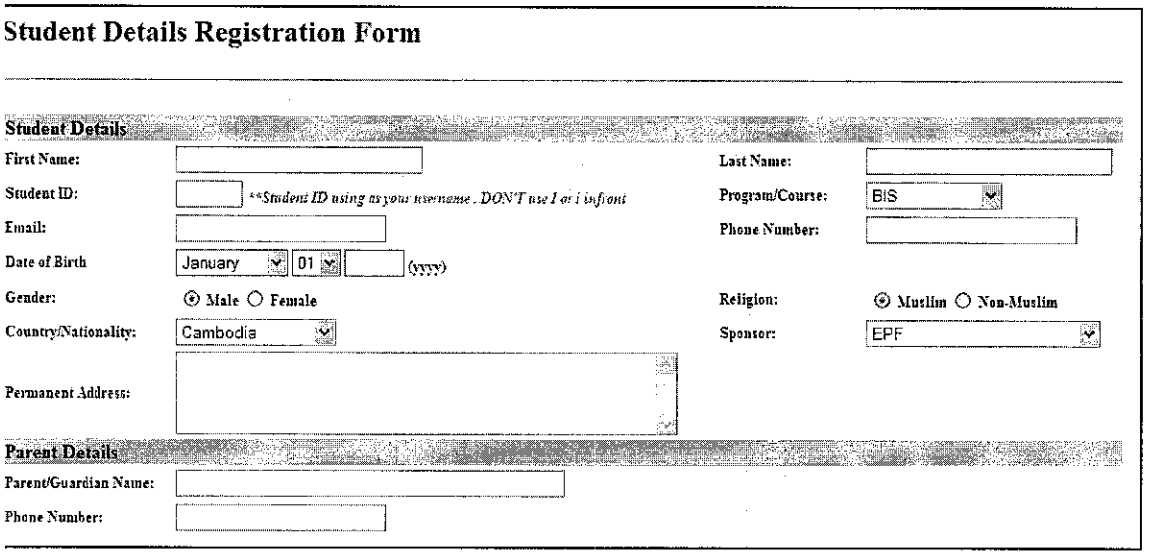
Village: i.e. V3A or V4C

ADD VILLAGE RESET

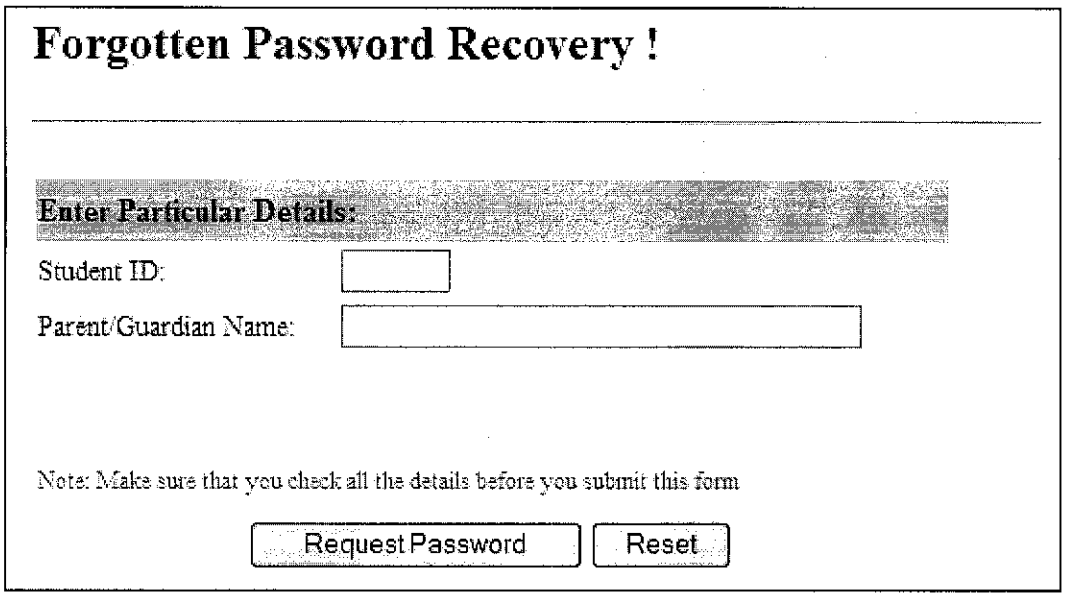
Appendix 4-12 Analyze records functions



Appendix 4-13 Announcement function



Appendix 4-14 Create an account form for student



Appendix 4-15 forgotten password recovery form

Total record(s) found: 6

Student ID	Full Name		Program	Phone No	Semester	House Unit			
9128	NADIA ASYIKIN	KASSIM	EE	012-8883958	July/06	V3B	S2	2	A
6740	NUR AZIMAH	LATIF	BIS	012-6328242	July/06	V3B	T1	3	A
5754	NUR DIANA	MOHD. NURI	EE	012-5905848	July/06	V3D	G2	2	B
5616	NURUL	ATIKAH	EE	019-5560814	July/06	V3D	G2	1	A
5750	NURUL	SHAIDATUL SHIMA	EE	0123942330	July/06	V3D	G2	2	A
7516	NURUL NABILA	ABU BAKAR	ICT	016-4230052	July/06	V3B	S3	4	A

Appendix 4-16 Results for search by name

Total record(s) found: 7

Student ID	Full Name		Program	House Unit				Notify Key	Semester
5699	MAT SAHNIZAM	TAMAT	CV	V3A	F3	4	B	KEY	July/06
1234	ABDULLAH	BADAWI	CHE	V3A	G1	1	A	KEY	July/06
3875	SYAIGUL AMIR	ABU NAWAR	BIS	V3A	G2	3	B	KEY	July/06
8477	SYAHENAZ	KAMAROLL ZAMAN	CHE	V3A	S2	1	A	KEY	July/06
5513	FOO	YONG SIANG	CHE	V3A	S3	6	A	KEY	July/06
5695	KHAIRUL AZHAR	MUKHTAR	CV	V3A	T4	4	B	KEY	July/06
5968	ZAINUL ARIFIN	JUMALUDIN	EE	V3A	T4	3	A	KEY	July/06

Appendix 4-17 Results for view room list (by block)

View by month : January VIEW

Date	House Unit	Report Description	Report ID	Action
January-1-2006	V3C-G3-4	Lampu tidak menyala.	8	DELETE
January-1-2006	V3A-G3-3	kipas tidak berfungsi	14	DELETE

Appendix 4-17 Delete selected report viewing by month

You are successfully log out from EVMS

Return to Login.

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Appendix 4-18 Logout page from EVMS