Development of UTP Training Online Application System

By

Nurul Amira Bt Mohd Ghani

Dissertation submitted in partial fulfillment of

the requirements for the

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(Business Information Systems)

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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the

Business Information System Programme

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Approved by,

_____
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UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

September 2012

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 the original work contained herein have not been undertaken or done by unspecified sources or persons.

_____

(NURUL AMIRA BT MOHD GHANI)

ABSTRACT

This report present a new developed web based system that help to solve the tasks of Human Resource department (HRM) of Universiti Teknologi PETRONAS (UTP) in training application of its staffs. Training management are very common tasks that need to be done by the HR department almost every day. However current systems are manual systems and not being integrated yet. These are lead to inefficiency of data management especially in monitoring the status of requests. The paper will gives an overview of the underpinning project developed especially in its objectives, problem encountered, scope of study, methodology as well as the findings in developing this project. In order to develop this project, the methodology based on System Development Life Cycle (SDLC), generally three major steps, which is planning, implementing and analysis is being used. The project looks at the related works by researchers from variety of scope of study, which includes training management concepts. It developed using PHP Framework and having MySQL as the database. A prototype demonstrates an idea on how the overall system help HRM staff to reduce time needed for every request to be handled. This approach shall help HRM to have a better enhancement in their database management system. Implementation of this new system has been proven reduced the time taken needed for every cases handled by HRM staff. It also helps improve the efficiency and effectiveness in storing the data into this structured system as time taken to apply and endorse can be reduced. Besides speed up the overall process and increase its flexibility, paper usage also can be reduced as the no more hardcopy form being involved. Testing of the project shows that the system able to provide a desired solution which allow users to apply training via online. This shows that the developed system will be having net advantages once implemented.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

UTP   Universiti Teknologi PETRONAS

HRM   Human Resource Management

MVC   Model-View-Controller

CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

Education is now longer seen as something just has when you are young rather its regular doses are required throughout our academic life. In the fast changing competitive world and modernized era, technology advancement has brought a huge difference in doing things and has made education a commodity freely traded all over the world. Nowadays, there are many methods to be educated other than attending school such as attending seminars or training. Thus, to keep track with this development, 'Training Online Application System' is a system developed in order to ease the training process of Human Resources Department of University Technology of PETRONAS (UTP) by using automated way rather than old-way manual system.

This system is to help the end users who are UTP staffs/applicants to fill up the training application via online. On the other side, HRM be able to simplify and create easiness of their daily work process since all the procedures of the training take place online from the beginning until the end. When it comes to create easiness for end users for sure both parties get benefits from it.

To further discuss about the project, this section consists of four (4) main subsections includes the problem statement, the background of the project as well as the objectives and scope of study.

1.1 Problem Statements

All staffs in UTP are facing several difficulties if the current method for the training process is still being deployed as they are the people who apply for training program and thus involve in these problems.

One of the main problems with the current system is the maintenance and the procedures of the training process, which is done manually. The training data and form are stored manually before by using Microsoft Excel, papers and sorting the database into a pile of the papers. As a result, this had created problems within the database management as the database containing important previous training records might be loss plus searching for data will be difficult and take a very long time. So there will be confusion among the HR staffs thus conflict is arising. With this system, the storage is made virtually making the database easy to stored, record, search and sort whatever information that we need. Thus, the system is made to enhance the database storage that is used previously.

On the other hand, recording all the training information traditionally into Microsoft Excel will sometimes lead to error due to human mistakes such as wrongly inserting the data, duplication and redundancy. Besides that, the historical training data might be lost since all the recording materials are tangible and some might misplace them, thus leading to a huge problems to Human Resources staffs if it does happen. Plus, in order to keep the record of Training Form, it acquire a lot of spaces that's mean all the file need to be place at the right location and need to have a proper labeling of the file to differentiate between all the training categories. This will create some troublesome to the training process and will delay other training progress.

Apart from that, those staffs who wish to attend any training are required to fill up the Application for Training Programme Form (Appendix 1) respectively and get the approval from their immediate supervisor. Then that form has to be submitted to Human Resources Training Coordinator for them to verify and seek the verification from Manager of Human Resources. For oversea courses, prior approval must be obtained from Vice Chancellor. If everything goes smoothly and all the approvals have been received, Human Resources Training Coordinator will send an email to the training organizer and proceed with the registration. From here we can see that by processing manually, it creates long time for a single training process to be completed. Due to this situation, some of the staffs who wish to

attend training might think it is quite troublesome and create difficulties in term of time and complexity for them whereby they have to submit the form manually and directly to HRM.

The other problem that appears is timing. The manual-based system takes a long time to deliver the data to be checkup by the applicants. There was a time whereby the applicants had to contact the HR training coordinator several times to check whether their application has been approved or not. HR Training Coordinator also sometimes unable to respond applicants' request immediately.

The highlight of the problem is that everything is decentralized and done manually. By utilizing the Training Online Application System, the database storage that is being used previously can be centralized and enhanced as well as making searching for information, retrieving and updating data are easier for the HRM, thus boosting the performance index for the whole department.

1.2 Background of Study

Processing training application is very important task that need to be done by the department of HRM in UTP. However current system is manual and time-consuming works. As there are interrelated and a growing number of new and existing requests, it is getting hard to manage and supervise every single request efficiently and effectively. A new automates system which is Training Online Application System is basically about everything that needs to be completed for one whole cycle of training process which is starting from the beginning till the end. The system is created in order to applicants be at ease for the training application which is made virtually hence reduce the data loss. Besides, it is also aligning with the mission of department "go-green and paperless work" whereby the needs of paper usage are reduced.

Training Online Application System is a system that provide a lot of advantages, not for the staffs itself but for the whole organization as well. The system has its own security whereby it limits to the authorized person to view or enter the certain area. Training Online Application System allows staff to submit their training application via online and they routed via workflow for further verification by immediate supervisor and Human Resources Training Coordinator. The forms later forwarded online to top level endorser. However, there are no

changes to Human Resources Training Guideline. Below is the overview and significant of the Training Online Application system:

- Automated form of training to process their training application via Online
- Applicants require filing the training form and attaching all necessary brochures/documents as request by Human Resources
- Implement automated workflows with email notification for verification, approvals and upon confirmation by Limits of Authority.
- Implement a centralized, automated training processing solution, to capture key information from training online form and transfer it into Training System whereby the training database will be stored.
- Increase productivity which is shorter processing time and efficiency whereby reduce manual error across the automated training system
- Improve transparency and accountability in the training process
- Human Resources are able to generate training report from the system.
- All the process of the training takes place online from the beginning until the end

1.3 Objective

The main objective of having this project is as the following:

- To develop an automated web based system in managing the training application by HRM in order to improve overall process efficiency, faster turnaround time and promote transparency.

1.4 Scope of Study

The scopes of this system are about the functions and modules that will be comprised in this system. The scopes for this system are consisting of users which are the Limits of Authority (LOA), applicants and HRM. The project focuses on determining the right and suitable way to reduce the workload of HRM as well as at the same time simplify the training process for applicants by using automated system.

This report also focuses on how to make an interactive training web-based whereby all parties could gain benefits from it. For instance, training master reports can be generated from the system whereby HRM can analyze the statistics of staff undergo training, the cost incurred, the competency gap and suggestion can be made to the staff in order to increase the competency level.. Hence, the top managements can get the overview for a particular training, assessing the feasibility to the budget available and get the overview of the training history. Overall, by having this system, it creates more easiness in daily work process and eliminate difficulties mentioned.

The target users for this application are UTP Staffs and HRM. This report also focuses on the Web-Based application. This report also focuses on designing a good interface to the user. The good interface should be considered in this system. All GUI are based on report and makes the user feel comfortable to use the system.

CHAPTER 2

LITERATURE REVIEW

2.0 LITERATURE REVIEW

This chapter will be divided into three sections. The first part is about the definition of training from many point of views and the second part is about the comparing a few existing system that is being used with the system that being deployed, which is Training Online Application System.

2.1 Definition of Training

Training can be defined in many ways based on different sources. The definition of the word training helps us think about what we are in evaluated. Training involves learning, but it is rather more than that. Training implies learning to do something and, when it is successful, it results in things being done differently. Much of what people learn during their live is a result of unplanned experience. Although this can be powerful, it is not very efficient way of learning. If what is to be learned can be described or specified, then activities can be planned that will facilitate learning by making it easier and quicker [1].

On the other hand, training also can be described as a systematic and planned effort to adjust or expand ability/attitude/knowledge through learning experience, to achieve effective performance in an activity or range of activities. The purpose, in the work situation, is enable a person to acquire abilities in order that he or she can perform adequately a given task or job and realize their potential [7].

Based on these two references, it is clearly stated that course and training plays significant roles in today working environment as a way to capture knowledge from existing workers and to retain it for future workers in order to improve their knowledge and skill through other method of educations. Increasingly, management recognizes that training offers a way of developing skills, enhancing productivity and quality of work, and building loyalty to the organization. As for in UTP, the human resources department has realize this benefit, and they came up with giving an opportunity to all staff whereby they can apply for any training they

wish to attend either external local or external overseas. The factors that human resources department consider are the complexity of the work environment, the rapid pace of organizational and technological changes, and the growing number of jobs in fields that constantly generate new knowledge. Hence, training is very crucial for staff in order for them to succeed and develop their career growth.

2.2 Comparison with Existing System

2.2.1   ESI Online Training

According to ESI International Website, this organization provides corporate training programme which focuses on the unique business needs of each organization in order to improve business performance. It has been recognized as a leader in innovative project management, business skills training, business analysis, contract management and sourcing management training. ESI International's training can be delivered in a mix of three arrangements based on the specific organizational business requirement which are onsite training within an organization, e-training as well as public classroom [3].

Every training course is challenging yet comprehensive as its classroom counterpart. This system had been used to provide training and organizes training virtually. Participants from any part of the world can join the course since the participants only need the internet connection and they will receive the id right after completely registered as participants. Participants are ready to be trained directly from their desk by only having an internet connection. As a conclusion, ESI's Training programme uses the power of the internet to reach students anytime, anywhere [3].

A problem with ESI's Training Programme is that it does not provide any medium to generate training report as compared to Training Online Application System. Especially for training provider company, ESI's Training should be able to generate a report whereby they can analyze how effectives their online training is and the number of participants registered within a certain period. This statistic is very crucial in order for ESI's Training to improve their service and become a leader in this area.

2.2.2 SAP Training Management

Another system that almost similar with Training Online Application System is SAP Training Management. According to an article, SAP is all powerful software and everything, roughly more than 70 percent of all Fortune 100 and more than 50 percent of all Fortune companies use SAP as their core ERP software [2]. SAP Training Management component has a wide range of powerful functions to enable HR to plan and manage all kinds of business events from training events to conventions simply and efficiently. Its flexible reporting and appraisal functions provide HR team with important decision support feedback to ensure that the business events they offer are both high quality and effective. Training and Event Management is an integral part of SAP HR and has interfaces to all of the relevant SAP application components, making it a basis for extending and updating company employee's skills and knowledge. Integration with Personnel Development lets HR convert training proposals directly into bookings for employees with qualification deficits or needs.

In short, SAP Training management are able to execute the first step first step of training process which is booking the attendance until the end of process which is generating the reports. However, the only drawback of this system is new business solutions may have to fit within the current system, technology must be compatible and human resources must adapt to handle data in certain processes. Besides, SAP is the high cost of purchasing and implementing this program. The company must purchase the software and hardware necessary to run the system. Costs include labor costs of internal information technology employees as well as external consultants to oversee the process. This involves training each employee in the functions they have access to. Ongoing costs incurred such as software maintenance and periodic upgrades. Another disadvantage of SAP is the complexity built into the software. Most companies implement one feature or function of the software at a time, allowing employees to gain familiarity with the software before moving forward. The complete implementation process may take several years [9].

2.2.3 Summary

Based on the comparison between all the existing systems that mentioned above, it can be summarized that each system developed have an own rules and guide that must be followed by user similar with Training Online Application System. Training Online Application System has its own methods to make the system more efficient and systematically based on

user requirements specified by UTP Human Resources. The most advantages that make Training Online Application System different from other training systems are that it is easy for staff to use because it provides online registration training course. This system will implement a centralized, automated training processing solution, to capture key information from training online form and transfer it into Training System whereby the training database will be stored. This is the significant unique of the Training Online Application System.

Moreover, Training Online Application System developed by using the Web-Based with PHP as programming language. The interface of the system is Web-Windows-Based where it is easy to handle by user, which is just clicking and moving the mouse to communicate with the program. The user-friendly interface will make user fell easy to understand the program and convenient. Table 2.1 below is the comparison that can be made from Training Online Application System with other existing system.

Table 2.1: Comparison between Training Online Application System with Other Existing System

Specification	Training Online Application System	SAP Training Management	ESI Online Training
Submission form via online registration	Yes	Yes	Yes
Flexible time	Yes	Yes	Yes
Improve training effectiveness for organizations	Yes	Yes	Yes
Able to generate training report	Yes	Yes	No
High cost implementation	No	Yes	No

2.3 Model-View-Controller Concept

Training Online Application System is developed by using PHP framework called CodeIgniter. CodeIgniter development is based on the Model-View-Controller. Model-View-Controller is a concept introduced by the inventor of Smalltalk's, Trygve Reenskaug in 1979 to encapsulate data along with its processing (model) and isolate it from the process of

manipulation (controller) and presentation (look) to be represented on the User Interface [12]. Model-View-Controller (MVC) is probably one of the most quoted patterns in the web programming world in recent years. It creates an independent environment for development, testing and maintenance. More precisely, the technical definitions of MVC architecture are divided into three layers [13].

- Model - The model represents data and the rules that govern access to and updates of this data. Often model objects retrieve and store data from a database. The model is a collection of functions used in the controller to keep the code clean.
- View - The view renders the contents of a model. It specifies exactly how the model data should be presented. If the model data changes, the view must update its presentation as needed. The view basically deals with displaying the dat, this part of the program will take care of what the end-user sees as information processed by the controller.
- Controller - A controller offers facilities to change the state of the model. The controller interprets the mouse and keyboard inputs from the user, commanding the model and/or the view to change as appropriate. A controller is the means by which the user interacts with the application. The controller will use the model for the processing (extracting, updating) the data, then the new information will be sent to the view, which will then display the information based on templates.
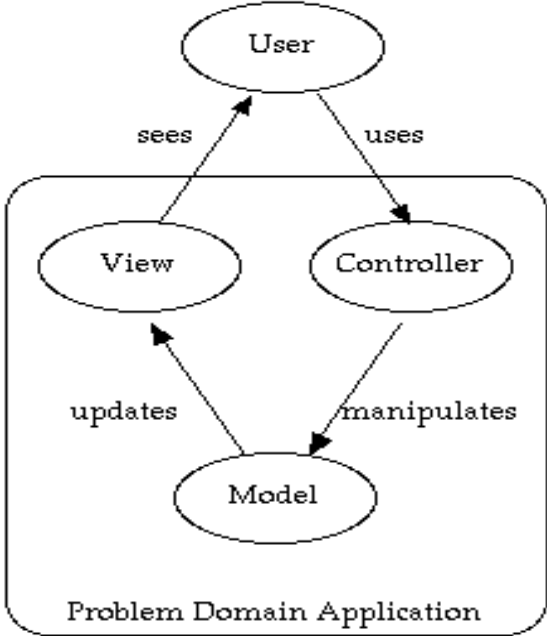
Figure 2.1: The basic Model-View-Controller Relationship

Both the view and the controller depend on the model. However, the model depends on neither the view nor the controller. This is one the key benefits of the separation. This separation allows the model to be built and tested independent of the visual presentation. The separation between view and controller is secondary in many rich-client applications, and, in fact, many user interface frameworks implement the roles as one object.
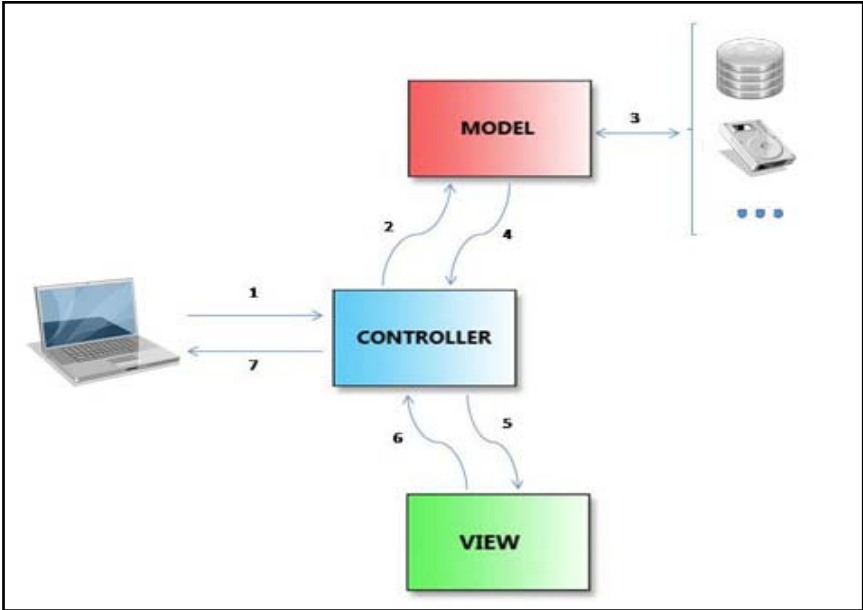

Figure 2.2: Model-View-Controller

The 2.2 figure above shows how the user request to view is handled. The controller receives the user request as an HTTP GET or POST request. The controller examines the request and the parameters and calls the model. The model is responsible for getting that information from the database, apply filters or logic if necessary and return the data representing. The controller will use the appropriate view to present these data to the user. The view basically deals with displaying the data, this part of the program will take care of what the end-user sees as information processed by the controller. Once the model functions are performed, the resulting data is sent to the view, which will in turn send it to the browser. The general view is a mini-application that helps render certain information, based on various templates.

The advantages of using a MVC are many and very diverse. The MVC architecture has the following benefits [10]. The separation between model and view allows multiple

views to use the same model. Consequently, an application's model components are easier to implement, test, and maintain, since all access to the model goes through these components. Using a MVC is that a change of a system does not have an effect upon another. For example, a change in the controller that handles the database does not require a change in the view that displays the result. MVC also separates the PHP code from the HTML allowing better focus of resources and a cleaner code.

CHAPTER 3

METHODOLOGY

3.0 METHODOLOGY

3.1 Prototyping Methodology Model

This chapter will cover the details explanation of methodology that is being used to make this project complete and works well. The method is use to achieve the objective of the project that will accomplish a perfect result. In order to develop this project, the methodology based on System Development Life Cycle (SDLC), generally three major steps, which is planning, implementing and analysis being used.
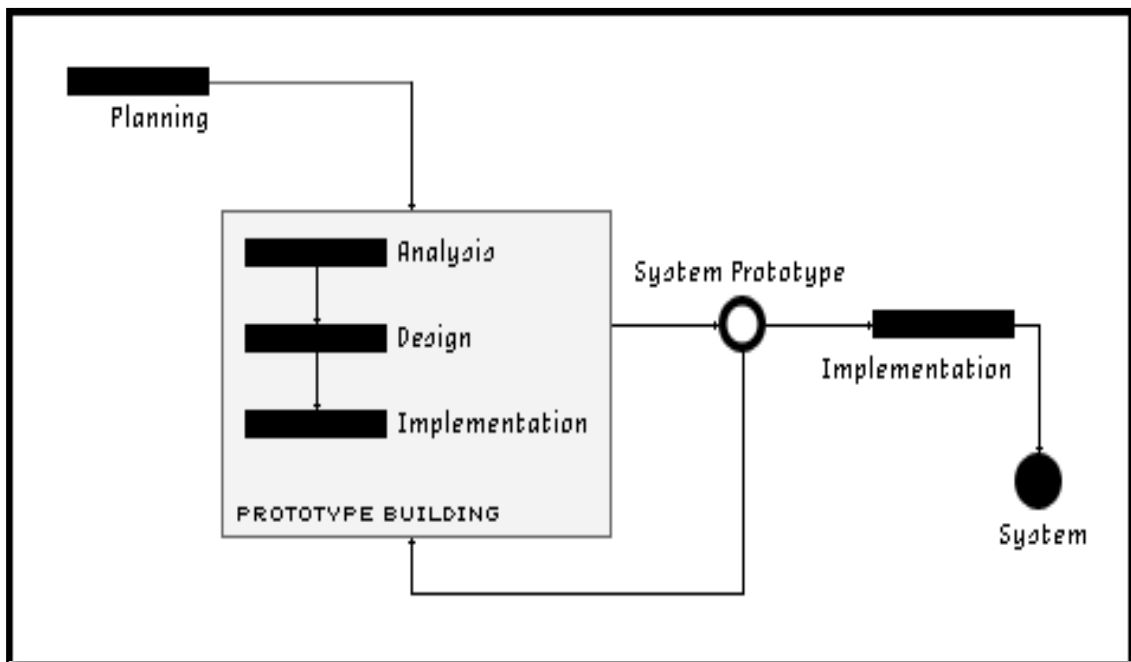
Figure 3.1: Prototyping Methodology

Prototyping methodology is used in the development process. Prototyping methodology is chosen as it allows continuous improvement and development of the project. The advantage of prototyping methodology is that, it accelerates rapid development processes.

3.1.1 Planning

In this project initiation phase, the systems business value and fundamental process of understanding why an information system will be build will be identified. This phase involved estimating time, cost, quality, change, risk and issues to make sure the project is completed within the budgeted resources. The planning phase produced a milestone-driven schedules, feasibility analysis and detailed project planning schedule for the development and implementation of the system. Work done in this phase is including discussion on project feasibility with HRM staff and research on similar project previously done by others. Project management was done after project initiations which included work breakdown structure of the project, checking project timeline and check the details of system requirement.

3.1.2 Prototype Building

In the prototype building phase, the prototype being developed part by part and presented to the users. They have to provide comments and the comments will be used to re-analyze, re-design and re-implement a second prototype that provides more of the features. This process shall continue in the cycle until the analysts, users, and agreement for the prototype had provided enough of agreed functionality. In the prototype building, the stages include:

a) Analysis

The main purpose for this phase is to gather user requirement so that at the end of project, it will produce a system that meet clients expectation. This phase investigate the current available system; identify opportunities and improvement as well as developing a new concept for the systems. For this system, there are interviews conducted to HRM staffs of UTP regarding this system. The deliverables of this phase are system proposal and high level initial design. Main component are analysis strategy on current situation of business conduction and requirement gathering from project stakeholders of what they expect from the to-be system.

b) Design

This phase will focus more on the technical part of the system especially on how the system will operate in term of hardware, software, network infrastructure, user interface, forms, reports, and the specific programs, databases and files that will be needed. This is the

development of the basic architectures design for the system, interface design, database and file specification and program design. System developer will understand and get familiar with the programming language used before getting ready to code the system.

c) Implementation

The main activity involved in this implementation part is implementing developed system and recoding according to the user requirement as well as to remove critical error found in the program to make sure the program run successfully for the next implementations. The steps involved in implementation phase are system construction and installation.

3.1.3 System Prototyping, Testing and Final Implementation

The final phase is the implementation phase. This is the phase where the actual system being implemented. The goal for this system is to implement the system correctly, efficiently on the device involved. The system will later be tested to ensure it performs as per designed. Testing is one of the most critical stages. The deliverable from this testing phase is Internal Testing, Unit Testing and Application Testing. This is to make sure that the system produced is error free and in a high quality condition. The testing environment simulates a majority of the targeted platforms to make sure it work successfully on the targeted test platform, without having a significant issues as well as to make sure it continue to operate well after installation. In the deployment phase, it involves finalizing user documentation, finalizing the system set-up and conducting user training to get user familiar with the new system.

3.2 Key Milestone

Table 3.1 and 3.2 below show key milestone of FYP 1 and FYP 2 in the planning phase:

Table 3.1: FYP 1 Key Milestone

Milestone	Date
Submission of proposal to research cluster	08/02/2012
Meeting with HRM staff	20/02/2012
Submission of extended proposal	29/02/2012
Viva: Proposal Defense and Progress Evaluation	21/03/2012
Submission of Interim Report	11/04/2012

Table 3.2: FYP 2 Key Milestone

Milestone	Date
Submission of Progress Report	10/10/2012
Poster Exhibition and Pre-EDX	28/11/2012
Submission of Dissertation (soft bound)	30/11/2012
Oral Presentation	05/12/2012
Submission of Technical Paper	19/12/2012
Submission of Project Dissertation (Hard Bound)	19/12/2012

3.3 Gantt Chart

Table 3.3: Gantt Chart

Activities	Month										
	2	3	4	5	6	7	8	9	10	11	12
Planning - Requirement Gathering - Feasibility study	▓	▓									
Analysis - Survey - Interview sessions	▓	▓	▓	▓	▓	▓	▓	▓	▓		
Design - Design the process flow - Design the databases - Design the System Interface - Hardware and software requirements		▓	▓	▓	▓	▓	▓	▓	▓		
Implementation - Develop the system				▓	▓	▓	▓	▓	▓		
Evaluation, Testing, and Further Enhancements - Unit testing - Enhance and Improve - Training									▓	▓	▓

3.4 Tools

Generally, information are collected by studying documents needed, checking existing database, supervise new form coming in and implementation of criteria that necessary in the system as requested by HRM department. The technology used in developing this project including:

- CodeIgniter is an open source framework used in building dynamic web sites based on PHP

- XAMPP is free and open source web server to run the system

- MySQL is free and reliable for database development

- Photoshop for icon and image editing

- MySQL Workbench to reverse engineer MySQL to Class Diagram

- HTML for the front-end application

- Javascript and JQuery is a scripting language to process input in client browser before sending them over to back-end and supporting front-end for interactivity user interface

- CSS for presentation and formatting of the front-end interface

CHAPTER 4

RESULT AND DISCUSSIONS

4.0 RESULT AND DISCUSSIONS

4.1 Data Gathering and Analysis

The purposed of this data gathering is to get the clearer picture of the disadvantages and problems arise when using current training application system. All UTP Staffs regardless of their profession whether academic staff or non-academic staff are the main resources that I focus as they are the people who involve in these problems. During the data gathering process, few methods had been conducted. Firstly, questionnaires are done based on the feedback from the respondents in term of how they view the current training process. These questionnaires are designed to be quantitative which focuses more on the feedback of the respondents based on the survey given via online. At the same time, for the second method, the interviews are done to several non-academic staffs in UTP from Human Resources Department. Besides, document analysis techniques and observation are also become one of the method in gathering the user requirement. Followed the result obtained from the gathering techniques used by author as discussed earlier.

4.1.1   Document Analysis

The scope of the document analysis techniques includes studying the technical documentation of the current manual system been used by HRM department unit. The main purpose of this documentation analysis is to get better understanding on the as-is system, identify the weakness and come out with ideas on how the to-be system should be.

The study on the technical documentation concludes that the to-be system has to automate the manual process that currently being implemented by HRM department. Instead of having manual mechanism to apply for training, the to-be system automates this system and can be done online. Appendix 1 illustrates the manual form that currently being use by HRM staff to process the training application from applicant.

4.1.2 Questionnaires

Generally the questions are commonly asked about how the UTP staff views the current training process. In the questionnaires, genders and type of professions are asked to the respondents in order to get more accurate results on how the difference in genders and professions affect the data produced. The respondents are also asked about the average period taken for one training application being processed by HRM. Moreover, a question on the opinion of the current training process whether it is complicated and troublesome in term of time consuming and effort are also included in the questionnaires. Furthermore, the respondents are required to rate how convenience is the current training process

Figure 4.1 below shows the average duration or period taken for training application to be processed and approved by HRM. About 53 percents or 16 of respondents agreed that the normal duration taken for one complete cycle of training process took about 1 week and 47 percents of it indicates that it took more than one week. On the other hand, no respondents agreed that the training process take less than one week.
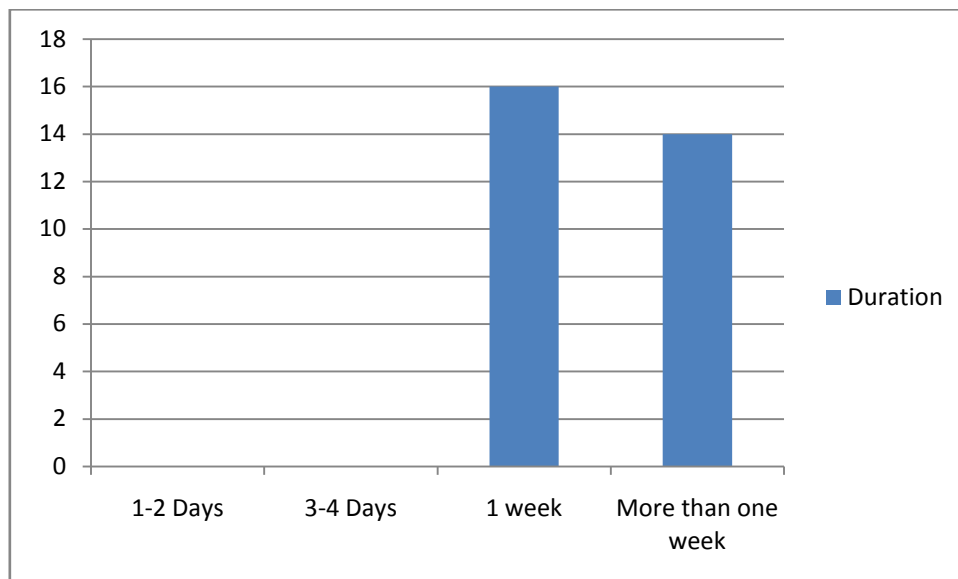
Figure 4.1: Duration taken for training application to be processed

Figure 4.2 below shows the responsive given from the applicants who think that the current training application process is quite complicated and troublesome in term of time and effort require. Majority of the respondents with rating 80 percents agree with the complicated process of the current training procedures meanwhile 20 percents of them does not agree.
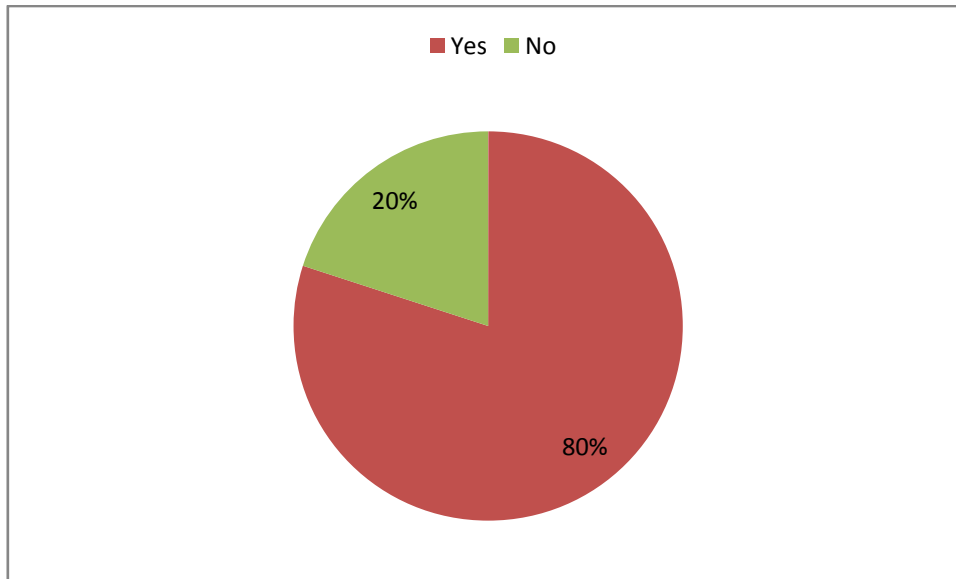
Figure 4.2: Percentage of respondents who think that current training application process is complicated and troublesome

Based on the results, most of the respondents are aware of the difficulties that arise while current training application process is being deployed. One complete cycle for training application to be processed and to be confirmed on average took about more than one week which is quite long waiting time for the applicants. Since majority of them are really concern about this issue, the proposal on making training application system via online received a positive feedback and they are fully support with this project.

4.1.3 Observation

By doing personal observation, the reality of the situation can be seen. It helps the author in preparing the interview questions. From the observation, it shows that HRM is having problems in handling their process manually. It is very difficult for them to track previous file due to it been stored in hardcopy form. Current procedures of training systems require applicant who wanted to apply for training is to fill up separated hardcopy forms and submit it to HRM department using hardcopy form. They need to get the endorsements from their immediate supervisor. From HRM side, they have to manually check the hardcopy form. Any errors or problems will be informed later after they done checking. Then they have to get the approval from another authority. This process is a time consuming work.

4.1.4   Interview

HRM staff has been chosen as the target interviewees. The main purpose of the interviews conducted is for author to get a better understanding on how business process training application being conducted. These series of interviews have helped author in identifying major problems encountered by HRM staff in conducting these tasks.

Three interview sessions have been conducted with Executive of HRM department. Table 4.1, Table 4.2 and Table 4.3 provide summary report of the 1st, 2nd, and 3rd interview sessions. A lot f information collected from these 3 interview sessions.

Table 4.1: Interview report for 1st Interview Session

Date: 16th February 2012	**Interviewer** : Nurul Amira Bt Mohd Ghani
Person Interviewed: Mr Khairul Badrisham B Ramly & Ms Ruziana Ayu Bt Ibnu Ruslan	
Email: khaibad@petronas.com.my, ruziana_ayu@petronas.com.my	
Purpose of Interview: - To meet person-in-charge in Training Application system. - Understand the brief information about the department intentions - Identify HRM business process - Identify major problem(s) encountered in each of the business process.	
Summary of the Interview: - Business process in training application identified. - Information of the current business process of the unit is tabulated. All business process being done manually. - The major problem in the current business process is difficulties in monitoring every case closely as it being stored in hardcopy form.	

Table 4.2: Interview report for 2nd Interview Session

Date: 20th April 2012	Interviewer : Nurul Amira Bt Mohd Ghani
Person Interviewed: Ms Ruziana Ayu Bt Ibnu Ruslan	
Email: ruziana_ayu@petronas.com.my	
Purpose of Interview: • To have a better understanding on information flow and system requirements expected form HRM department. • Collect documents needed such as hardcopy form and collection of database. • Identify major problem(s) encountered in each of the business process.	
Summary of the Interview: • Information of the current business process compiled. • Business requirements identified and discussed. Eliminate the hard copy form of training application.	

Table 4.3: Interview report for 3rd Interview Session

Date: 3rd October 2012	Interviewer : Nurul Amira Bt Mohd Ghani
Person Interviewed: Ms Ruziana Ayu Bt Ibnu Ruslan & Ms Faridah Usain	
Email: ruziana_ayu@petronas.com.my, faridahusain@petronas.com.my	
Purpose of Interview: • To discuss on business requirement and to-be system to be developed. Ask feedback from HRM staff regarding the to-be system. • Ensure to-be system meets requirements and expectations of HRM department. • Discussion on additional features to be added into the system	

Summary of the Interview:
 	
• To-be system discussed and meets HRM requirements.
 	
• Additional requirement including:
 	
   ✓ status of application send to email of applicant and HRM will be included into the system
 	
   ✓ HRM has the authority to edit and view all the applicant's training form
 	
   ✓ features that allow applicant to upload training brochures/attachments must be included in the system
 	
   ✓ applicant can update their profile in the system in the event of changing the	

designation and department

✓ HRM can track the training status from the system

✓ Compulsory and optional section in training form that must be filled by applicant

4.2 Modeling and Design

4.2.1 Class Diagram
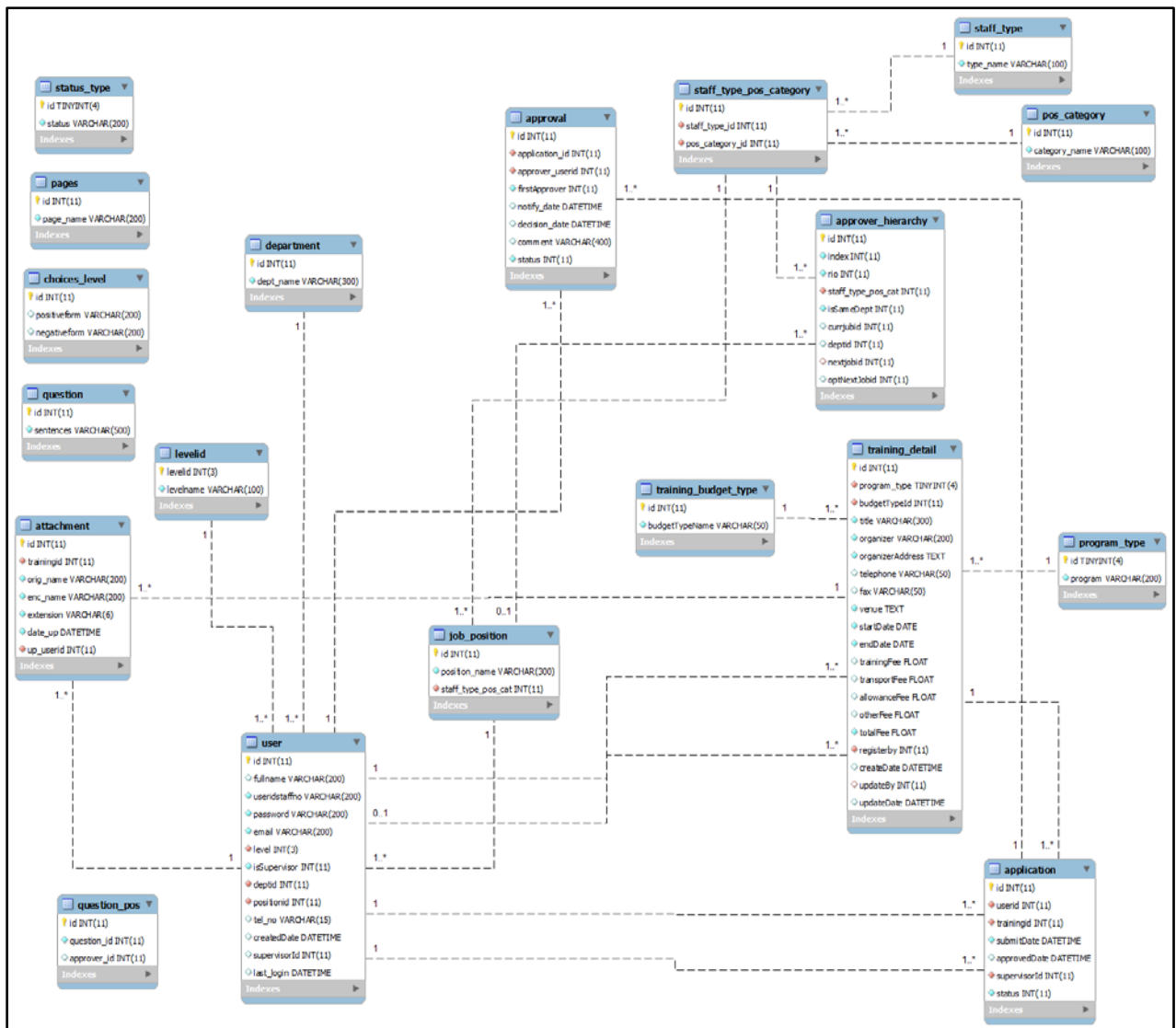
Figure 4.3: Training Online Application System Class Diagram

Class diagram stores and manage information in the system. It shows the classes and the relationship among classes that remain constant in the system. Figure 4.3 above shows the class diagram for Training Online Application System.

4.2.2 Use Case Diagram
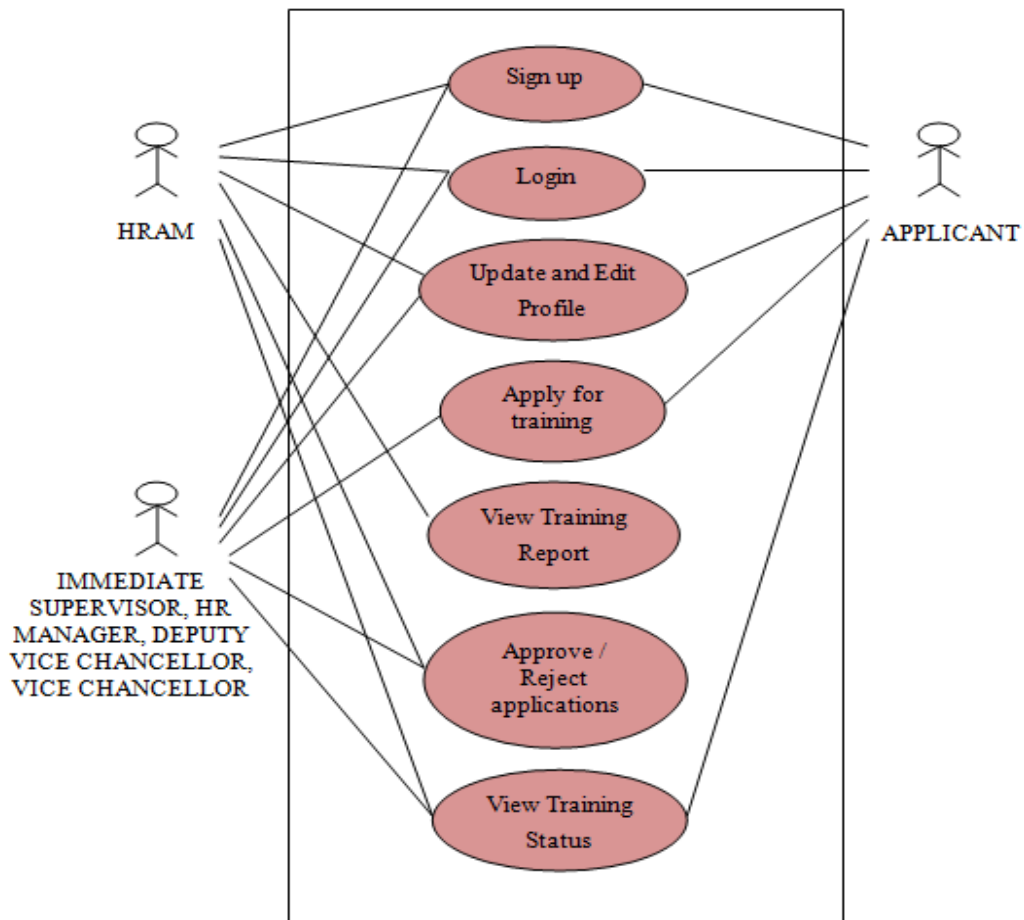
Figure 4.4: Use Case Diagram

Table 4.4: Description of the use case diagram

USER	DESCRIPTIONS
HRM	HRM staffs are given the authorization to access Training Online Application System. They are responsible in managing the system including update and edit applicant's profile, view training report, view training status and approve or reject training applications.
Applicant	UTP staffs are applicants who initiate the entire process. They will be able to apply for training, update and edit their profile and view the training status.
Limits of Authority (Immediate Supervisor, HR Manager, Deputy Vice Chancellor, Vice Chancellor)	Limits of Authority are the one who are responsible for endorsing training applications.

4.2.3 System Flow Chart
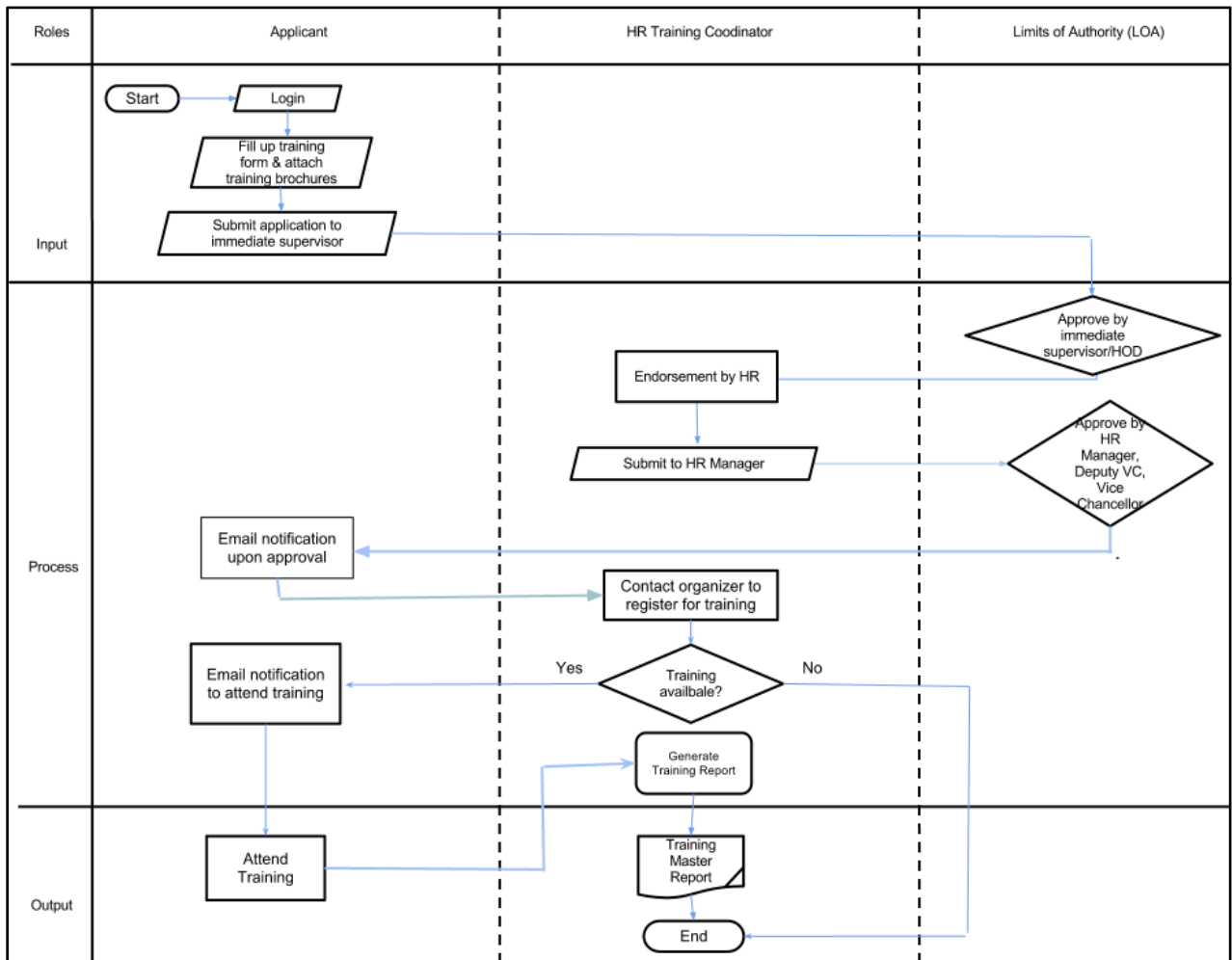
Figure 4.5: System Flow Chart

Figure 4.5 above shows the new training online application system process flow. This flow chart describes the overall activities involve in the particular domain. Starting with applicant login into the system and fill up the training application form. The form will be routed to the limits of authority for approval process. Once it has been approved, HRM will start to register for applicant training by contact the training organizer. If the training is available, applicant will receive an email notification to attend the training. If not, the registration will be cancelled and applicant can start to apply other training. At the end, HRM can generate the training report from the system.

4.2.4 As-Is and To-be Diagram

a. Applicant Process Flow
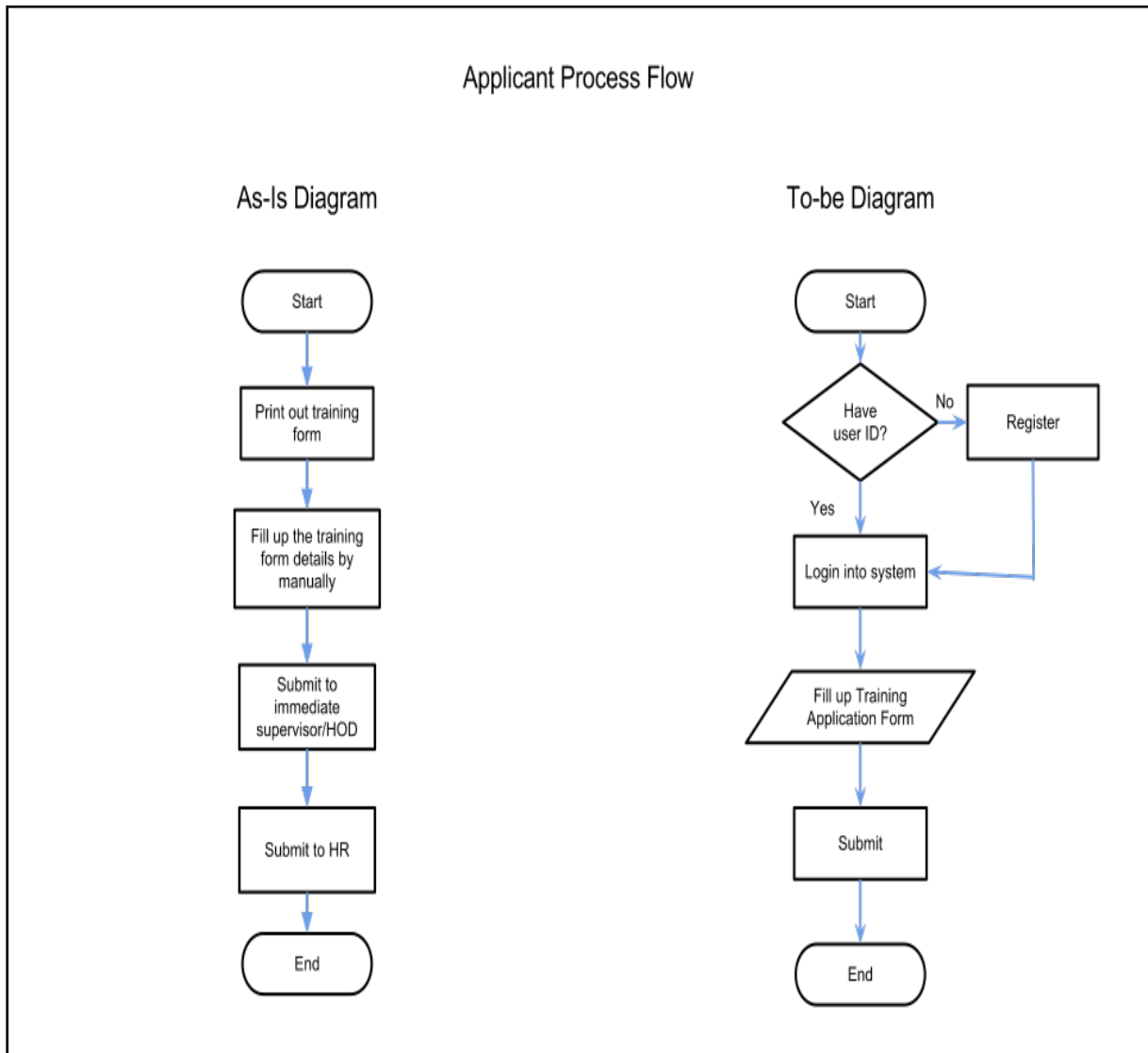
Figure 4.6: Applicant Process Flow

Figure 4.6 above shows that the comparison between the current applicant processes flow and the new applicant process flow. For the as-is diagram, applicant will fill up the training application form manually whereby for to-be diagram, applicant need to login into the system and fill up the training application form. Then to form will be routed automatically to the limits of authority (LOA).

b. HR Training Coordinator Process Flow
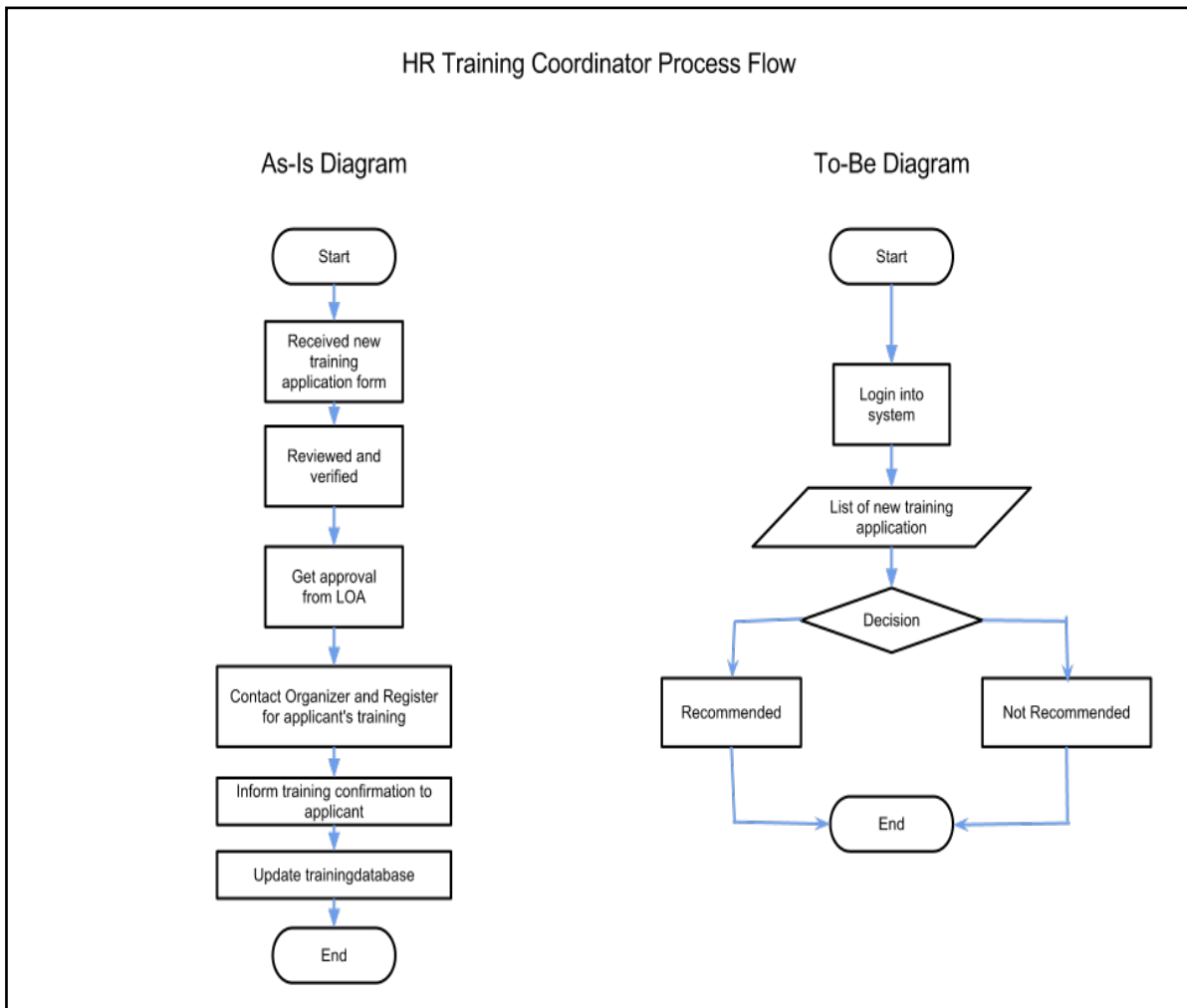
Figure 4.7: HR Training Coordinator Process Flow

Figure 4.7 above shows that the comparison between the current HRM processes flow and the new HRM process flow. For the as-is diagram, HRM will receive the application form and need to process it manually. Meanwhile, for to-be process flow, HRM will receive an email notification that indicates that there is new training application. Thus, HRM can eventually complete the training process automatically instead of doing it manually.

c. Limits of Authority Process Flow
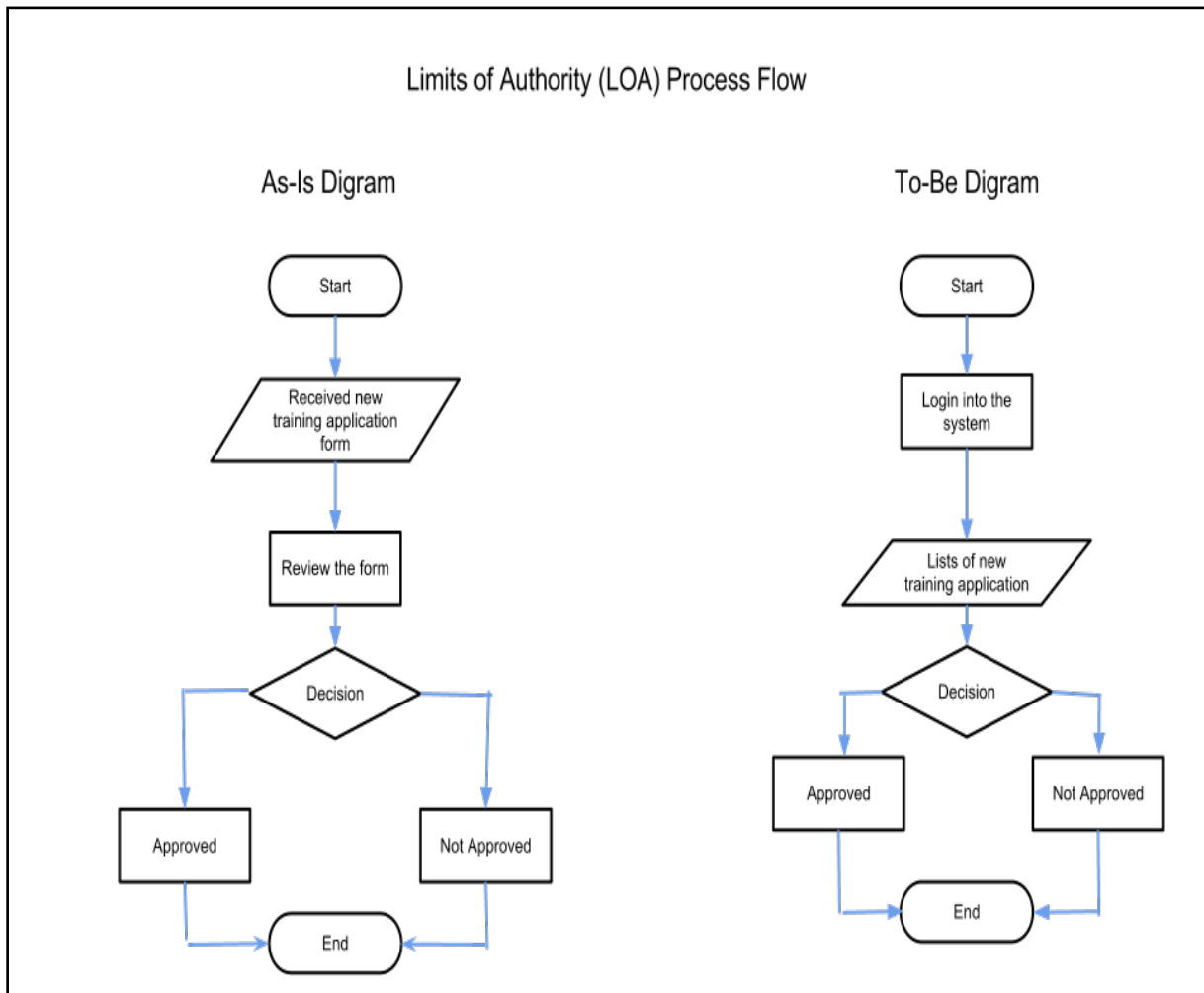
Figure 4.8: Limits of Authority Process Flow

Figure 4.8 shows that the comparison between the current Limits of Authority (LOA) process flow and the new LOA process flow. For the as-is diagram, LOA will receive the application form and need to endorse it manually. Meanwhile, for to-be process flow, LOA will receive an email notification that indicates that there is new training application to be endorsed.

4.3 System Architecture
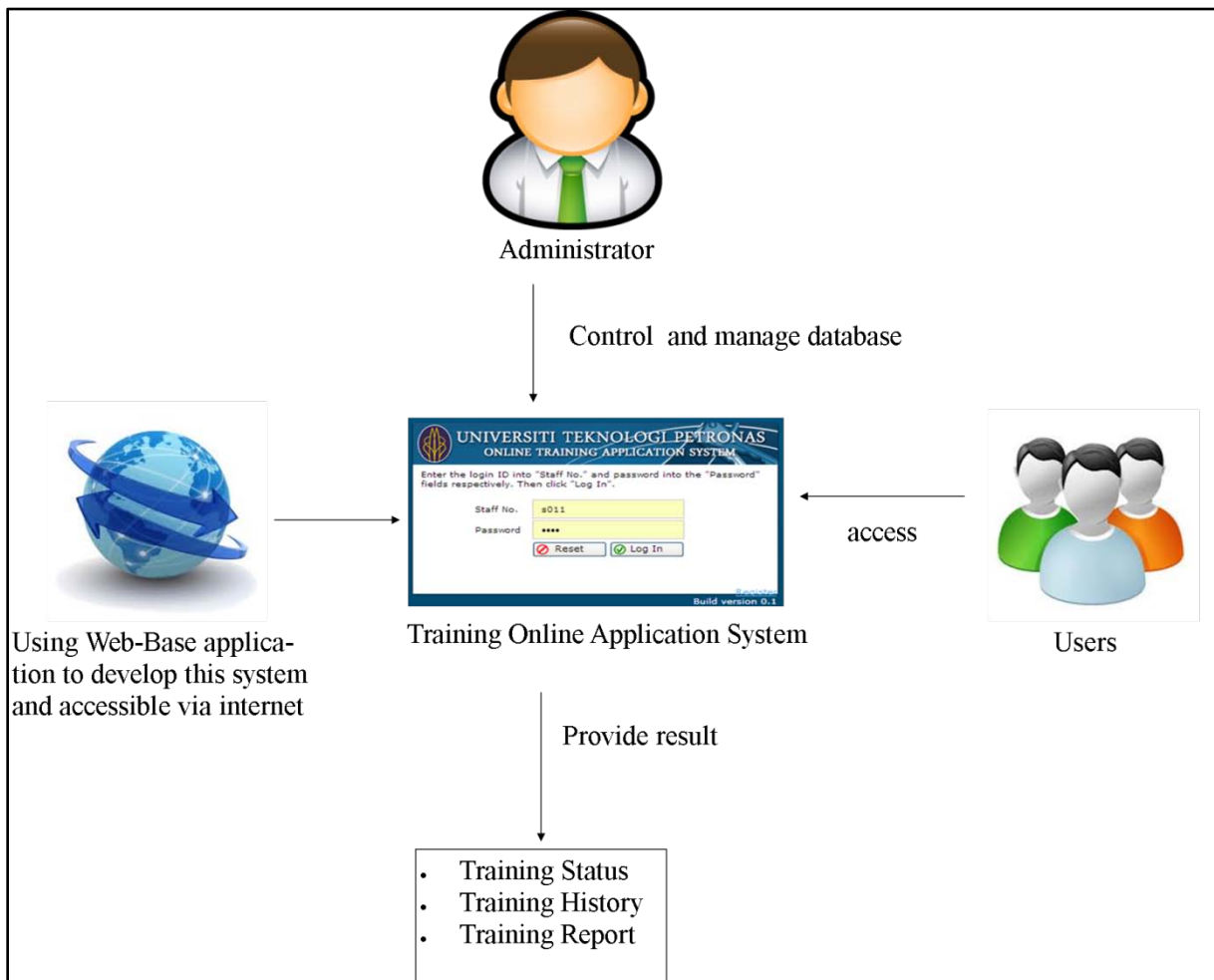
Figure 3.2: System Architecture

From the Figure 3.2 above, it is understood that the system is managed by administrator. The administrator will manage the centralized database of the system; this is where all relevant information is stored. There will be sign up features for the first time applicant. Applicant can register online and need to fill up application form. The user needs to enter their staff ID and password to connect into the system. The user login is to ensure that the process of manage the training data become more effective, efficient and more secure. Meanwhile, other roles such as HRM and Limits of Authority (LOA) will be assigned by the administrator. All the users can easily access to the Training Online Application System anywhere and anytime since it is a web-based application and no installer is needed. This system will be hosted in either general server or UTP server.

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4.4 System Interface

Figure 4.9: Login page

Figure 4.9 above shows the first page that a user sees when the application is opened is the login page. The user needs to enter their staff ID and password. The system will connect to database, will check the entry is found it will allow access and if not, it will return an error message and will require a user to register into the system first.

Figure 4.10: Sign up page

Figure 4.10 above shows that all users need to sign up and create his/her username and password to access into the system. The username and password will be stored into the database. It is for user authentication to access the system.
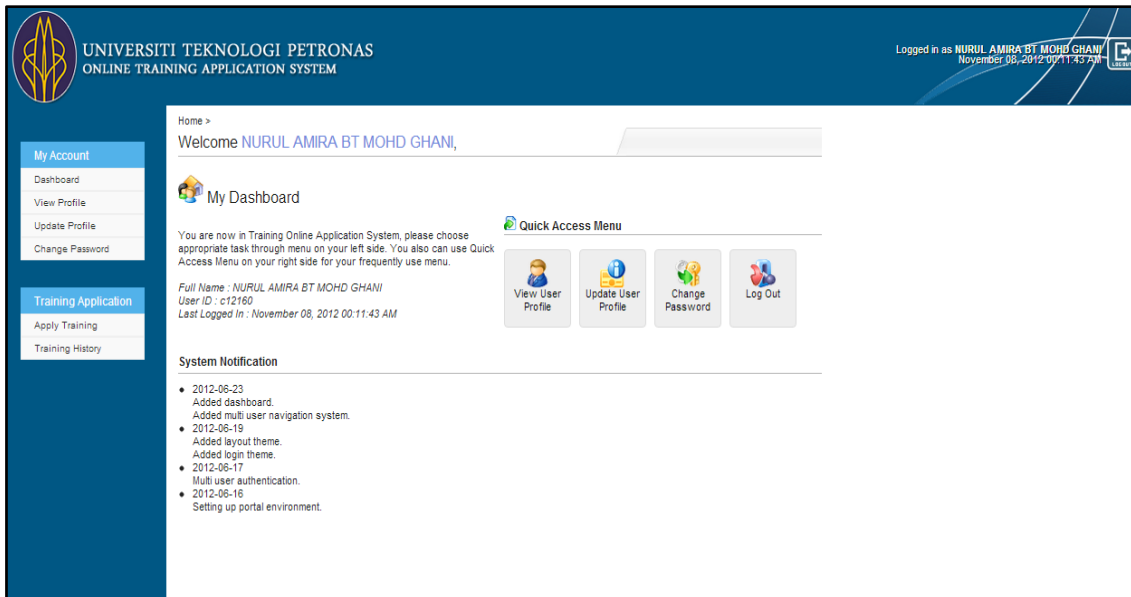
Figure 4.11: Home page

In figure 4.11, after login, user will be directed to home page where he/she can choose to update their profile, apply new training as well as can view their training history record.
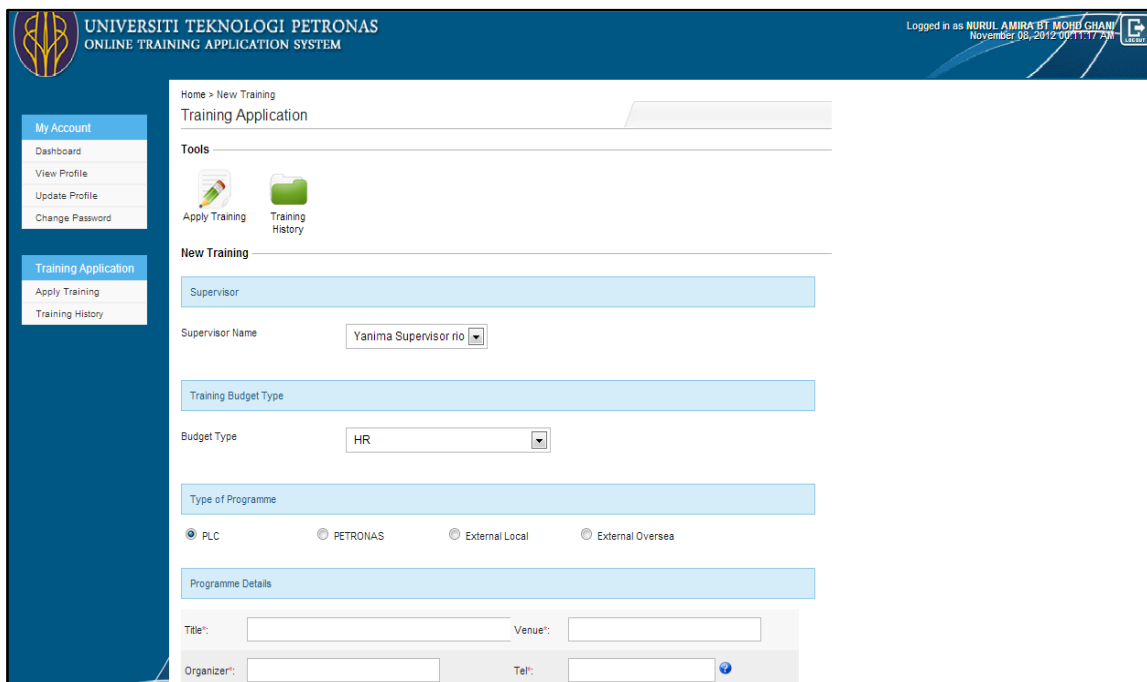
Figure 4.12: Form application page

Figure 4.12 shows the page where a user can apply for training by just simply filling up a new training form.

Figure 4.13: Training History Page

Figure 4.13 shows that a user also can check their previous training record by simply click Training History button.

Figure 4.14: Training Report Page

One of the most important aspect in this system is HRM be able to generate training report as shown in figure 4.14 which consists of finance report, training provider report, general report as well as attendee report.

4.5 Usability Testing

After developing the system, a usability test of the system has been conducted. This testing was conducted toward two HRM staffs. Tests were carried out to check the effectiveness of the system and improvements need to be carried on. This test is basically focused to obtain the user satisfaction that includes system interfaces, system functions, problems and defects. Table 4.5 below shows the testing results and rating given by the HRM.

Table 4.5: Usability Testing

Elements	Rating	Remarks
1) **Interfaces**		
a) Color	5	Good color and theme based on UTP logo
b) Font size	5	Readable
c) Layout	4	
2) **Functionality**		
2.1 Applicant		
a) User login & user registration	5	User login into the system by unique using staff ID. If the same staff ID is registered, and error will be appeared
b) User apply new training	5	Error will be appeared if user did not fill up all the required fields in the form
c) User check training history	5	Applicant can track back their previous training as well as check the current status of their application
2.2 HR Training Coordinator		
a) Endorse training request	5	Received new application and can either approve or reject the requests and provide comments
b) Generate training report	3	Can successfully generate training report and sorted by year and department
c) Edit and manage training application	5	Be able to edit the user's training application such as changes in training

		dates, fees, etc.
2.3 Admin		
a) Edit and manage user access level	5	Be able to set and change the access level for each user
b) Form routed from one endorser to another endorser	3	Form routed successfully from one endorser to the next endorser
3) Time to run	4	The application does not take long time to run
4) Email notification	1	Need to be included in the future work because no SMTP server to test the email notification

Marks:

1 – Very dissatisfied

2 – Dissatisfied

3 – Neutral

4 – Satisfied

5 – Very satisfied

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.0 CONCLUSION

Training Online Application System is able to achieve the objective which is to automate the training application process. This system which its main focus is the transformation of an old manual system to a centralized and computerized system. The previous system uses physical paper storage coupled with decentralized database using Microsoft Excel to store information of the archived training data. Forms are still kept in physical copies with only selected attributes are keyed in into the database. Such a method would only invite data redundancy and effectiveness resource usage. Data searching, which is one of the main work requirements for the Human Resources Department, is a very time consuming process when done using the previous system.

The Training Online Application System eliminates mentioned problems by centralizing the system and automated the housekeeping task from the beginning of training request until the end of training process. This will increase the productivity of both Human Resources Department and UTP Staff as well as at the same time will reduce the overhead and resources for the whole department and the organization itself. In short, Training Online Application System is able to meet the objectives automate the verification and approval by Human Resources in order to improve overall process efficiency, faster turnaround time and promote transparency.

5.1 Recommendation

As for recommendation, it would be better if this Training Online Application System is being integrated with Finance Department so that all payment for training fees can be made via online.

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APPENDICES

Appendix 1: Training Programme Form

JUSTIKASI *(Justification)*
Hendaklah di isikan oleh Penyelia / Ketua Jabatan / Seksyen. *(To be filled by Supervisor / Head of Dept / Section)*

i. Sejauhmana program ini
berkaitan dengan tugas
beliau yang terkini :
(How relevant this program to staff current job)

Di calonkan oleh : Penyelia / Ketua berkenaan **Suggested by :** *(Supervisor / Head of Department)*	**Nama :** *Name :*	**Jawatan :** *Designation :*
	Tandatangan : *Signature :*	**Tarikh :** *Date :*
UNTUK PSTM DAN PENTADBIRAN *(For HRM and Administration)*		

i. Adakah program ini telah dikenal pasti menerusi TNI / TNA ?
(Is this programme been identified throungh TNI / TNA ?)

YA [ ] *(Yes)* **TIDAK** [ ] *(No)*

ii. Adakah kursus ini berkenaan dengan tugas atau bersifat
pembangunan ? Kenapa ? *(Is this cource functional or developmental ?) Why ?*

KOMEN : Dicadangkan / Tidak dicadangkan
(Recommended)   /   (Not Recommended)

Penyelaras Latihan, PSTM
Training Co-ordinator HRM

KOMEN : Di sokong / Tidak di sokong
(Approved)   /   (Not Approved)

Pengurus, PSTM
Manager HRM

KELULUSAN *(Approval)*		
	DISEMAK / DISAHKAN OLEH *(Reviewed / Certified by)*	**DILULUSKAN / TOLAK** *(Approved / Not Approved)*
TANDATANGAN : *(Signature)*		
NAMA : *(Name)*		
JAWATAN : *(Designation)*	**Timbalan Naib Canselor / Ketua Jabatan / Seksyen berkenaan** *(Deputy Vice Chancellor / Head of Deprtment / Section Concerned)*	**Naib Canselor / Pengurus Kanan PSTM** *(Vice Chancellor/ Senior Manager HRM)*
TARIKH : *(Date)*		

Nota : Untuk kursus luar negeri, perlu mendapat kelulusan terlebih dahulu daripada Rektor
(Note)   : (For Overseas Courses, prior approval must be obtained from Rector)

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