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JUDUL: SCHOOL ASSET MANAGEMENT SYSTEM (SAMS)

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SCHOOL ASSET MANAGEMENT SYSTEM

NOOR HARTINI BINTI SHAMSUDIN

A report submitted in partial fulfillment of the requirements for the award of the degree of

Bachelor of Computer Science (Software Engineering)

Faculty of Computer Systems & Software Engineering

Universiti Malaysia Pahang

JUNE 2012

STUDENT'S DECLARATION

I declare that this thesis entitled "School Asset Management " is the result of my own research except it is stated in the references. The thesis has not been accepted for any degree and is concurrently submitted in candidature of any other degree.

Signature   : …………………………………

Name   : **NOOR HARTINI BINTI SHAMSUDIN**

Date   : …………………………………

SUPERVISORS DECLARATION

"I/We* hereby declare that I/We have read this thesis and in my/our* opinion this thesis is sufficient in terms of scope and quality for the award of the degree of

Bachelor of Computer Science (Software Engineering)"

Signature   : ……………………………………

Supervisor   : **ABDULLAH BIN MAT SAFRI**

Date   : ……………………………………

DEDICATION

In the Name of Allah, the Most Beneficent, the Most Merciful

Special dedication to my family members especially to my mother (Mdm. Habibah Binti Mohammad) and my father (Mr.Shamsudin Bin Yaacob) who always give encouragement financial support in the way for me to finish this undergraduate project

To my supervisor
Mr. Abdullah Bin Mat Safri

To my Deputy Dean (Academic & Student Development Affairs)
Dr. Adzhar Bin Kamaludin

To my friends
Nana,Hawa,Ayu,Madi,Wani ,Naimah and friends , my classmates and for my entire fellow colleague out there which contribute in helping me to develop this project.

To all FSKKP's staffs and lecturers
To all my classmates
And all my friends out there
Thank you for your supporting and teaching

Loving for learning...

Sincerly

Noor Hartini Binti Shamsudin

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ABSTRACT

Asset item devided two categories, inventory and model asset.At the school stationeries are used very commonly by people in an office. SAMS is a system from manual to computerized system.It is developed for staffs of the school to take any asset item such as stationeries they need and management of items at the school.Current practice use manual forms of log books to keep records of stationeries taken by staffs. This method burdens staffs who want to take stationeries from school counter. SAMS was the solution to this problem. This system can help staffs in the SK USJ20 manage the procedure of taking stationeries because one of the objectives of this project is to computerized the manual form asset stationeries item taken by staffs. Therefore, this system is will be very helpful and can make the management of asset stationeries item run smoothly. SAMS is developed by using Adobe Dreamweaver CS3 and Xampp Server.

ABSTRAK

Pendaftaran item Aset dibahagikan dua kategori, inventori dan asset. Peralatan menulis adalah peralatan yang biasa digunanakan oleh orang-orang di pejabat. Ia termasuk didalam harta modal sekolah. SAM S adalah satu sistem yang dibina untuk memudahkan pihak sekolah terutama pembantu tadbir menguruskan harta dan modal kerajaan sekolah.Sistem berkomputer dibangunkan untuk kakitangan sekolah untuk mengambil apa-apa butiran aset seperti alat tulis yang mereka perlukan dan pengurusan item di dalam sekolah.Sekolah menggunakan sistem manual seperti manual buku log untuk menyimpan rekod alat tulis diambil oleh kakitangan. Kaedah ini membebankan kakitangan yang ingin mengambil alat tulis dari sekolah. SAM S adalah penyelesaian kepada masalah ini. Sistem ini boleh membantu staf di USJ20 SK menguruskan prosedur mengambil alat tulis kerana salah satu objektif projek ini adalah untuk berkomputer yang bentuk alat tulis item aset yang diambil oleh kakitangan. Oleh itu, sistem ini sangat membantu dan boleh membuat pengurusanitem harta modal sekolah dan alat tulis berjalan lancar. SAMS dibangunkan dengan menggunakan Adobe Dreamweaver CS3 dan Xampp Server.

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CHAPTER 1

INTRODUCTION

1.1   Background

The School Asset Management System(SAMS) is proposed to be used by the primary and secondary school in Malaysia. Asset in school is divided by two categories the first is inventory stationery and second modal asset. Inventory asset is defined as any materials, such as paper,envelopes,pens, ink, rulers, etc. System is defined as an organized and coordinated method,or a set object or phonemena grouped together for classification or registration. SK USJ20 is acronym for "Sekolah Kebangsaan USJ 20" the school is a group learning Institute under direct jurisdiction of the Ministry of Education Malaysia. The financial management and asset the school has been discovered by management of Ministry of education.

The asset inventories such as stationeries are used very commonly by people working in an office. At the SK USJ20 in Subang Jaya Selangor, stationaries are

supplied for the use staffs. School Asset Management System (SAMS) in an asset booking and registration system developed for staffs of the school to take stationeries they need, keep booking and view the stationaries available. Other then that administrator responsible to approve the booking asset item. This system is a computerized the manual system asset management.

School Asset Management System is a web – based system developed by HTML, PHP and JavaScript scripting languages. The system interacts with a database using Server Query Language (SQL).

1.2   Problem Statement

The problem statement described for the conflict asset management of the school and problem which manage to the need simplify, record and printing certificate of each asset. Currently, a school asset management system at the school is performed manually, through a manual process. This, however makes the process laborious and time consuming.

The manual process normally will involve extensive paperwork and is prone to human error. The Microsoft Word and Microsoft Excel which currently used to record information of an asset sometimes can be mistaken , incomplete and miscalculate as well as non - integrated. It is also also troublesome tedious to trace the physical asset and track their movement.

According the problem discovered above, vulnerabilities arise because of the manual process flows and its effect on almost all categories of user such as the applicant, an administration office and staff.

Basically, there are two foremost statement of the problem which is to be solved by a proposed system ;

  i.   How the School Asset Management System, can be used to be improved and simplify the current process.

  ii.   How and what asset information can be integrated and shared among process or user.

Seeing such problems exist among the users, it motivates the author to develop SAMS, which is a computerized system solution that is developed based on Rapid Application Development (RAD)

1.3   Objective

There are two objectives identify in this study, which is :

i.   To develop based system computerized School Asset Management System for SK USJ20.

ii.   To produce Software Development Planning, Software Requirements Specification and Software Design Documentation.

1.4 Scope

The scopes are defined as the boundary of the functionality, user system and database. These elements are important to make sure that the scopes of the system do not override the boundaries of the system. For User scope's elements, above shows the scopes of the user involved. This system is a web-based application. It can be accessed via the Intranet so that staffs can make bookings before taking items from the counter whom the person eel in command of the system manage the inventory asset item. It has security elements whereas only authorized users can view the specific amount of the content of this web-based application based on their user level of the system. In the database framework, its contains a feq table the record the data history, information, staff details and item details. All documentations are referring to Software Engineering such as SDP,SRS, and SDD

i.   Administrator

a.   School admin uses this system to insert, update and delete the information such as asset details, and record all new assets issued.

      b. Manages staff such as register new staff, updated staff details and delete staffs.

      c. All school assets must to record and register for each asset such as computer, laptop and so on.

      d. Admin can view all request assets of the applicant before sending

      e. Admin will have to to handle the booking asset when that requested approved.

ii.   School Staff

      a. Staf can make bookings of items before taking them from the administrator.

      b. View status booking of users taken items.

1.5 Thesis Organization

The thesis consists of five chapters presented. An overview of the following chapters is as follows:

Chapter 1 is about the introduction of the system. In this chapter, the problem statement, objective and scope will be identified.

In chapter 2 , briefly explains about the reviews for the chosen project. This chapter is reviews that require to study to get complete information about the project. This chapter also explains about the technology that can use during the project development.

The methodology in chapter 3 purpose of this chapter is to discuss what methodology will be used while develop this system. Discussed on software process or flow process for School Asset Management System for Sekolah Kebangsaan USJ20. This chapter also explains about the justification of methodology used and hardware and software necessity.

Chapter 4 involves implementation that discusses about compilation of the processes involved in the project. This chapter involves data, the techniques of data and table that based on SQL and PHP tool's instructions.

Chapter 5 involves decision and discussion that elaborate about the result from stay analysis that have done by project research. The elements that should have in this chapter include result analysis, the problems of build project, and project solved. The last chapter is conclusion. This chapter mentioned about a summary that has to be done by the built project. The information includes in this chapter includes a summary of project, data summary and observation of the efficiency of the project and suggestion of the project approach to the next research.

CHAPTER 2

LITERATURE REVIEW

Literature review refers on interview, book, and the internet to get some information about this project to give a clearance perspective in developing for this project. This chapter will be discussed about overview of the manual system, study of the development tools and database management system. Its ultimate goal is to bring the reader up to date with current literature on a topic and forms the basis for another goal, such as the justification for future research.

2.1   Introduction

In Computer Science,information system is all about information technology and mediates the two opposing worlds of human activitiy (Steve Elky, 2006). Current system of the asset management system also has the system that can handle the process management as a computerized. But, there are few problem during using the system and that cause they used manually system. So , this literature review has been covered about the process of manual system as a result when the current system cannot use.

This literature review is for the purpose of getting some guidelines to implement the proposed project. Hence, in this section, a study has been done on certain related issues. First, an understanding on procurement process and the importance of asset management in general and in practice in the public sectors including Statutory bodies and ePerolehan application. Next, the completion and accuracy of the records which are commonly commented by the National Audit when auditing is done on the public sectors. The study further is continued by studying on various asset management systems. Strengths and weaknessess on the asset management systems under study are also identified. Figure 2.1 below ilustrates the Approach of literature review in order to gain the knowledge of the study area.

2.2   Understanding about Asset and Asset Management

It has been the aspiration of the government to continue improving efficiency and effectiveness in the management of an asset in the public sectors. In moving towards this, several steps have been introduced in the public sector asset management system which is in line with the development of technology. The focuses are given to the maintaining and maintenance aspect to ensure that government assets are well maintained and as such their usage and life span can be optimized. In the Seventh Year Plan (1996 - 2000), the government has allocated RM 250 million to upgrade and enhance the management of government assets in public sector, including the Federation of Statutory Body.

In the year 1999, efforts have been taken to integrate the asset-management system that has been developed separately and stand alone by various public agencies. Trial run for the implementation of the asset and store management system based on the regionalization, and operational store concepts are being carried out at four pioneer agencies. The agencies involved are the Defense Ministry, the Education Ministry, the Agricultural Ministry, and the Malaysian Royal Police. Through this approach, it is hope that the government asset and store management image could be improved from an outdated and inefficient system to a more sophisticated, economic and effective system in line with the effort to implement the electronic government (e-government).

The development of e-Procurement and Planning System & Electronic Budgetary Control (e-SPKB) are among the steps taken towards the realization of electronic government management.

2.2.1   Asset

Pekeliling Perbendaharaan (PP) Bill 2 Year 1991 described in details about asset , right from registration to disposal.The circular is a core circular for recoding the basic capital asset , inventory and office supplies information. Apart from that circular is give the defination of asset and explain all the forms used to record all assets. Need to record the basic information of capital asset, inventory and office supplies on a comprehensive basic which include information such as types, particulars, cost, placement, disposal , signature of officer responsible, inspection date, etc (preparation of asset record also depends on the availability and channeling of the basic documents)

Type of asset is divided into five :

a. Capital Asset : asset value equal to RM500.00 or more at procurement point.

b. Fix Asset : Building or Land

c. Inventory : value less than RM500 each at time of procurement.

d. Office Supplies : consumables of low value and not economic to be traced.

e. Store Items : not yet used items and need to be stored for operational use , maintenance etc.
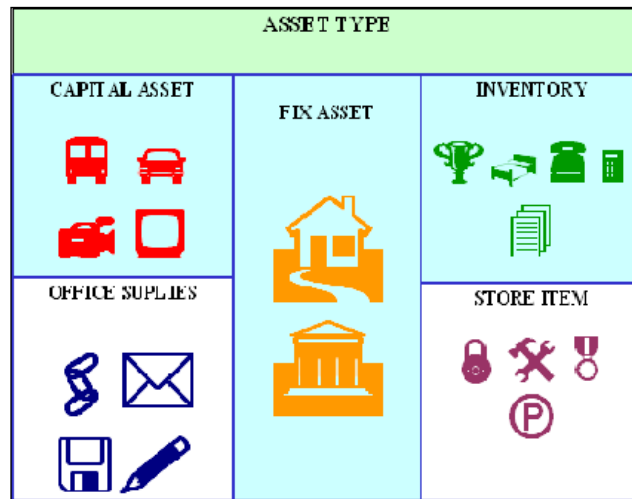
Figure 2.2: Five Type of Asset (Ministry of Finance, Financial Management Course)

2.2.2   Asset Management

The figure 2.3 below illustrates the boundary of asset management as defined the circular
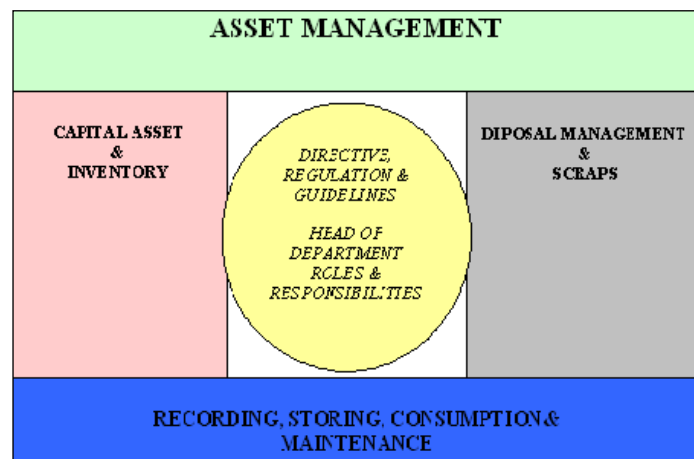
Figure 2.3:Asset Management(Ministry of Finance, Fiance Management Course)

2.2.3   Asset Management Flow

The Figure 2.4 below illustrates the flow of the asset management process as defined the circular.
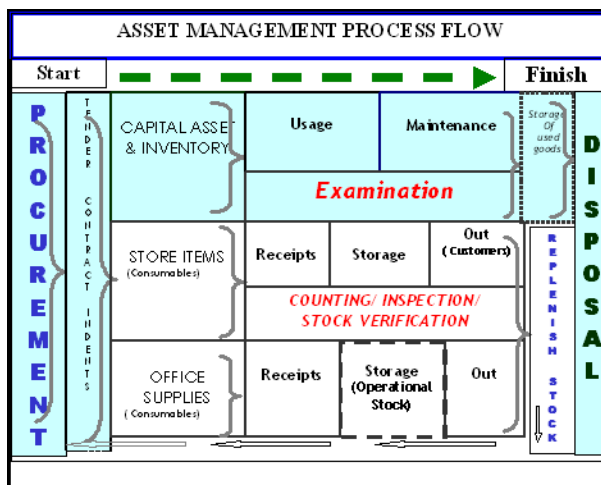
Figure 2.4 : The Asset Management Process Flow (Ministry of Finance)

2.3 Review Inventory asset management

The Multimedia Super Corridor (MSC) is a world – first , world-class act to help companies of the world test the limits of technology and prepare themselves for the future and attributes. To spearhead the development of the MSC and give shape to its environment, seven primary areas for multimedia applications have been identified. The seven flagship application are Electronic Government,Multipurpose Card, Smart Schools, Telehealth, R&D Clusters, E-Business and Technopreneur Development.

ePerolehan allows suppliers to present their products on the World Wide Web,receive, manage and process purchase orders and receive payment from government agencies via the Internet. The supplier's product catalogue is converted into the form of an electronic catalogue or eCatalogue, which can be viewed from any desktop with a web browser. The supplier is able to submit quotations, obtain tender document and submit tender bid through ePerolehan. ePerolehan allows suppliers to register or renew their registration with

the Ministry of Finance through the Internet. Suppliers are able to submit application, check application status and pay registration fees through ePerolehan.

ePerolehan is offering a comprehensive procurement system through the process of Quotation and Tender, which will be automating the entire system, starting from a formal application from user's workplace, proposal preparation, advertising, evaluation,invitation to the suppliers, up to payment completion.

i. Quotation :

    a. Quotation process is for any purchase with a total value of RM100,000 but less than RM200,000.

    b. Through the quotation process, invitation is sent out to the identified suppliers which enables prompt response from the suppliers

ii. Tender :

    a. Tender is for procurement with the value of RM200,000 or more

    b. The suggested system will simplify the procurement process, as online transaction will be quickly and securely implemented.

    c. It multiplies efficiency and noticeably reduces turnaround time and related costs.

Some of the functions and benefits of the quotation and tender process through ePerolehan:

    a. Status Monitoring: This system will monitor the status of Purchase Order that has been sent out.

    b. Consolidated Proposals: Proposals that have been received will be consolidated automatically for analysis. The Technical and Financial Proposals will be

separated automatically and directed to the respective committees for decision making.

c. Document Security: Proposals that have been accepted from the suppliers will be kept in a secure document server and may only be seen on the date of the opening of Tender.

d. Automatic Comparison Schedule: All proposals will be accumulated and a comparison schedule will be generated automatically based on the key comparison fields. This will save time and assist the Technical and Financial committees to carry out rating / ranking upon the accepted proposals.

e. Report: Different reports will be prepared to analyze the patterns of purchases and expenses.

With the unique qualities available in the ePerolehan system, it will simplify the procurement process of the Quotation and Tender. The procurement process will be better organized and more proficient, as the system aids the Approver, the Committee and the Committee Chairperson in the process of evaluation and decision making, as well as advancing the suggested decision promptly.

2.4 Motivation to Develop System

Accountant General comments has raised weaknesses for the year 1999 Records on the management of asset and store were not maintained accordingly and the officer-in-charge did not carry out physical inspection from time to time. Procurement of store goods was not done according to requirement where as the disposal action was not carried out according to the procedure.

Accountant General comments has raised weaknesses for the year 2001 among others are;

a. Capital Capital Asset Registry and Inventory Registry was not updated

b. 479 units of capital asset purchased for the period of 1999 to 2000 was not recorded in the registry; (In 8 State Departments / Institutes)

c. There is no proof that physical inspection was carried out on capital asset

d. Stock verification was not carried out (3 departments)

e. Capital Assets were not identified as "Hak Milik Kerajaan" (6 State Departments / Centers)

f. 20 units of laboratory equipment / office equipment valued at RM428,729 has not been used – reasons: basic facilities has not been installed / not enough staff)

g. Registry of Capital Asset do not follow the capital asset which were transferred permanently to districts (3 State Departments)

h. Capital Assets which were broken-down have not been certified for disposal

2.5 Review Sample of the Asset Management System

The following are three screen snapshots from internet .Some sample of screen design and information capture in the asset management system or application.

2.5.1   Asset Management System (AssetWin)

Some of the sample screens of Asset Management System are used by various US government offices such as Defense Logistics Information service, Honolulu Police Department, Illinois State Treasurer, Lake County Illinois and Iowa Army National Guard. Managing IT assets is getting more challenging these days because of the different mobile applications and numerous locations in which the IT assets are relocated to. Bar-coding plays an important role in managing these assets.
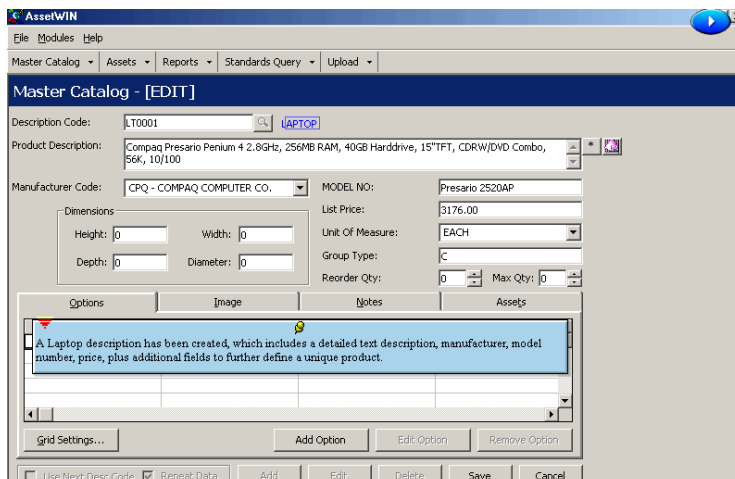
Figure 2.5 : Master Catalog - Edit
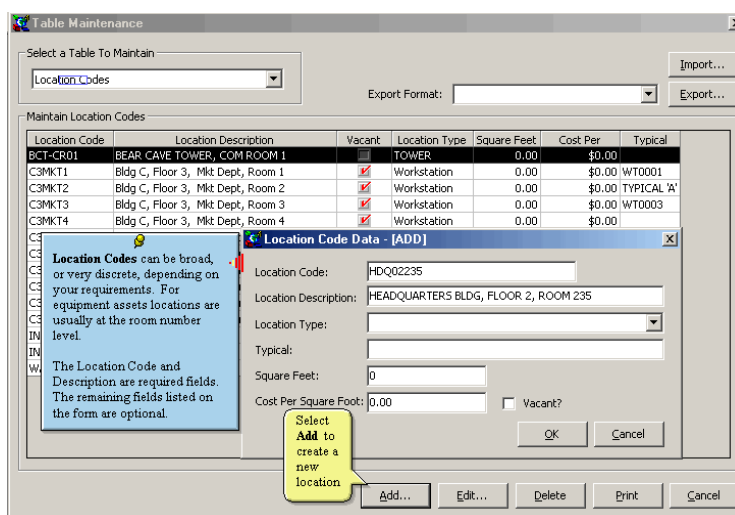
Figure 2.6 : Location Code Data – Add

2.5.2   MBJB Asset Management

This MBJB Asset Management System by "Majlis Bandaraya Johor Bahru ". This system show that user be able to manage the asset item record by online which that they did using manual way such as form record . The technology that uses is based on Web – based Application.

There are several advantages in this system. For example the user did not have much time review all the asset manualy. Moreover, it will not waste time when they want to pay it at anytime they want. Then, this system also has its own disadvantages. One of that is this system only can be used for the user target that do the asset management system"MBJB" only. Moreover, the user did not know the concept of MBJB asset management system when the system is crowded with the not related information provided.

The several One of the MBJB package available.The general section allows for setting default values for more common data entry items such as register new asset, division, group, location, building, aisle, bay, rack, and units of measure. When a new asset is entered the defaults will apply unless they are overwritten with the other data.

Figure 2.7 : MBJB asset management system

Table 2.1 below demonstrates the type of information which is important in managing asset. The information perceived to the system are asset detail, placement/reallocation, booking asset, registration user, and custodian.

System / Information	AssetWIN	MBJB Asset Management	SAMS
Asset Detail	Y	Y	Y
Placement / Reallocation	Y	Y	Y
Booking asset	N	Y	Y
Registration user	N	N	Y
Custodian	Y	Y	Y

Table 2.1 : Comparable on Information Captured

2.6 Techniques

This section will review on the current technique on the system , content management software , programming language, database language, web server and methodology

2.6.1 SDLC Waterfall Model

For the successful creation of any product, a well structured approach is required. System Development Life Cycle starts a logical order in which an information system could be developed successfully. This means delivery a quality system. The waterfall model is a sequential software development process in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of Conception, Initiation, Analysis, Design, Construction, Testing and Maintenance.
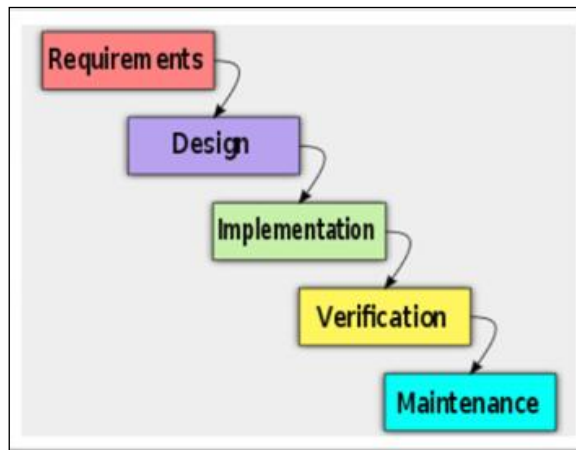
Figure 2.8 : Waterfall Diagram

The history of this SDLC Waterfall Model is originated in the 1960s to develop large scale functional business systems in an age of large-scale business conglomerates. Information systems activities revolved around heavy data processing and number crunching routines.

There are many advantages when using SDLC Waterfall Model in the system. One of it is clear project objectives. For example, when using this model the project objective is apparent because this waterfall model is shows step by step the approach. Secondly, the advantage is stable project requirements. For example, when step by step approaches use the project requirements that relevant to the system will be secure. Then, the progress of the system is measurable. This means the flow of the system development can see and can be monitored by the developer. Next, the strict sign-off requirements will apply when using this SDLC Waterfall Model in the system.

However SDLC Waterfall Model also has the weakness. There are some disadvantages that have found in this model. There are time consuming, never backward (Traditional), little room for iteration, and difficulty responding to changes. For example when the time consuming increase the system develop too slowly. This is happened because this model applying step by step style, the requirement must be done by follow the sequences. If the first requirement did not finish yet, then we cannot proceed to finish the second requirement. Thus, we must wait until the first requirement finish then we can continue to finish other requirements. This will cause the time-consuming and, the

developer must complete all requirements as agree with the customer. Moreover, the waterfall model cannot turn backward if any mistakes happen during the requirement. This is because this model using traditional language in the requirement. So, if any error found after proceed to other levels of a requirement the fault cannot be fixed back because this model never backward. Then, the disadvantage in the SDLC Waterfall Model is the little room for iteration is happened. Besides that, this model is difficulty responding to changes. This means if we want to changes something likes to add more requirements needed the changes could not happen. It will become complicated in the requirement, and it will disturb the progress of the successfulness system.

On the other hand, the example of usage SDLC Waterfall Model is in the manufacturing and construction industries which are highly structured physical environments. Besides that, this model is commonly used by such huge software-develop houses as those employed by the U.S Department of Defense and NASA, and for many large American government projects. Those who use such methods do not always formally differentiate between the pure waterfall model and the various modified waterfall models, so it can be difficult to separate exactly which models are being used and to what extent.(Alan Dennis,Barbara Haley Wixon,David Tegarden2 2002)[2]

2.6.2   Unified Modeling Language

Unified Modeling Language (UML) is a standardized general-purpose modeling language in the subject of software engineering. UML consist of a set graphic notation techniques to create visual models of software-intensive systems. The Unified Modeling Language (UML) is used to specify, visualize, modify, construct and document the artifacts of an object-oriented software-intensive system under development. UML propose a standard way to visualize a system's architectural blueprints, including elements such as activities, actors, business processes, database schemas, logical components, programming language statements and reusable software components. UML combines techniques from data modeling (entity relationship diagrams), business modeling (work flows), object modeling, and component modeling. It can be work with all processes, throughout the software development life cycle and across different implementation technologies.
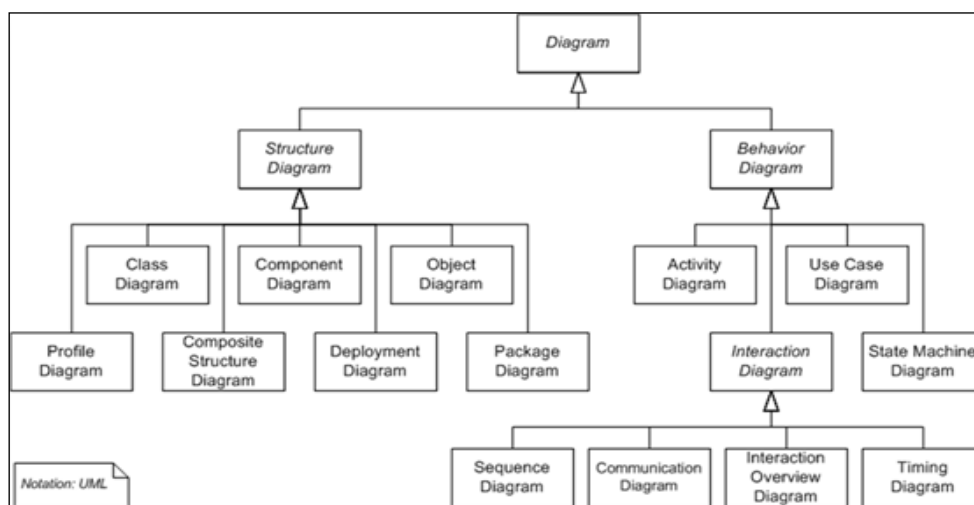
Figure 2.9 : UML Diagram

The development of Unified Modeling Language (UML) was created by Grady Booch, Jim Rumbaugh, and Ivar Jacobson in 1996 by combining the three modeling languages of each of the authors. The big three of the authors have their own specialized in each the modeling languages which are Object-Oriented Analysis & Design (OOAD) by Grady Booch, the Object Modeling Technique (OMT) by Jim Rumbaugh, and the Object-Oriented Software Engineering (OOSE) by Ivar Jacobson. Each one had its strengths and weaknesses. OOAD is good at low-level design, OOSE is good at high-level design, and OMT is good at the middle ground. So, all of three unifying their modeling languages and the first Unified Modeling Language was launched as UML 0.9 and then 0.91.

There are many advantages and disadvantages by using Unified Modeling Language (UML). One of the advantages is useful method of visualization and documenting software systems design. For example, using UML is very easy to understand because UML very practical by the software systems design. After that, UML uses object oriented design concepts and it is independent of specific programming language. Moreover, UML also used to support object oriented system analysis. Next, UML apply to develop the object models.

Meanwhile, UML also have the disadvantage when using it. Firstly, UML still no specification for modeling of user interfaces. Then, Business rule specification is a group exists for this within the Object Management Group, so should see something in UML. Besides that, UML is very poor for distributed systems which is no way to formally specify serialization and object persistence. Other disadvantage is no way to specify that an object resides on a server process and shared among instances of a running process.

The role of Unified Modeling Language (UML) is used to describe the functionality of a system in a horizontal way. On the other hand, UML used to produce several models at increasing levels of details. Then, UML is also appropriate for both new system developments and improvements to existing systems. (Alan Dennis,Barbara Haley Wixon,David Tegarden 2002)[2]

2.6.3   Rapid Application Development (RAD)

RAD is stand for Rapid Application Development is the concept that products can developed faster and of higher quality through gathering requirements using workshops or focus groups, prototyping and early, reiterative user testing of designs, the re-use of software components, a rigidly paced schedule that defers design improvements to the next product version, and less formality in reviews and other team communication. RAD is a type of software development methodology that applies minimal planning in support of rapid prototyping.
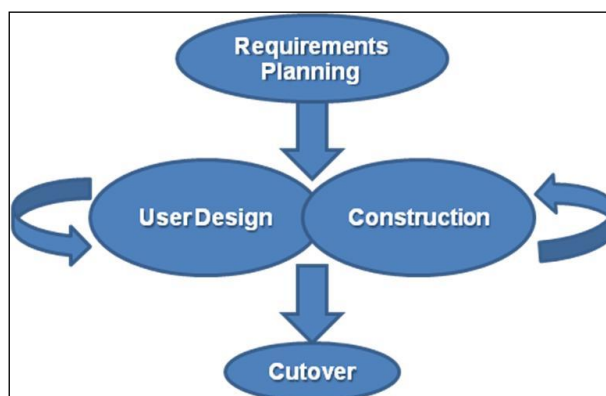

Figure 2.10 : RAD Diagram

The term originally used to describe a software development process introduced by James Martin in 1991. James Martin said in his book that "Rapid Application Development (RAD) is a development lifecycle designed to give much faster development and higher quality results than those archived with the traditional lifecycle. It is designed to take the maximum advantage of powerful development software that has evolved recently". Martin's methodology requires iterative development and the creation of prototypes. More recently, the term and its contraction have come to be used in a broader, generic sense that include a variety of techniques aimed at speeding application development such as the use of web application frameworks and other types of software frameworks.

There are several advantages by using Rapid Application Development (RAD) in the system. For example, RAD minimizes feature creep by developing in short intervals resulting in miniature software projects and releasing the product in mini-increments. Then, when using RAD it will lower the cost of changes through quick spirals of new requirements. Moreover, RAD captures the voice of the customer by involving them in the design and development of the application. Besides that, RAD also promotes strong collaborative atmosphere and dynamic gathering of requirements.

Meanwhile RAD also has some of the disadvantages. One of it is RAD use the short iteration that may not add enough functionality, leading to significant delays in final iterations. After that, when using RAD to developed the system, the programmers are required to work in pairs (which may be difficult for some developers). Next, the client may create an unrealistic product vision. Other disadvantage is when using RAD the product may lose its competitive edge because of insufficient core functionality and may exhibit poor overall quality.

The functionality and role of Rapid Application Development (RAD) is firstly, speed up the software development process to reduce response time and costs. On the other hand, RAD encouraged the creation of quick and dirty prototype style software. Then, RAD will construct software with little or no knowledge of programming.(Ivar Jacobson,Martin Griss & Patrik 1997)[5]

2.6.4   Comparison between Waterfall and RAD

SDLC Waterfall	RAD
A methodology, is all about building reliable systems	A methodology is all about building relevant systems.
Waterfall Model is that after the project requirements are gathered in the first phase, there is no formal way to make changes to the project as requirements change or more information becomes available to the project team	Rapid Prototyping Models is that time-to-market is greatly reduced.
Doing a home-improvement project (such as new hardwood floors) for the first time and only being allowed go to the hardware store one time	Rapid Prototyping skips many of the steps in traditional SDLC models in favor of fast and low-cost software development.
It might not a good model for complex projects or projects that take more than a few months to complete.	The idea is that application software is a "throwaway." If a new version of the software is needed, it is developed from scratch using the newest RAD techniques and tools.

Table 2.2 : Comparison between Waterfall and RAD

2.7 Tools for Development

Development tools reviewed on database, programming tools, language and web server .

2.7.1   Database

Database language are dedicated programming languages, tailored and utilized to defined a database,manipulate its content and query it. Database language are data-model – specific.

2.7.1.1 MySQL

One of the world's most open source database is MySQL. MySQL is a relational database management system (RDBMS) based on SQL (Structured Query Language) that flows as a server providing multi-user access to a number of databases.The database system that involve is used on the web. MySQL is allows to create a relational database structure on a web-server somewhere in order to store data or automate procedures. Free-software projects that require q full-featured database management system often use MySQL. For example is WordPress, phpBB, Drupal and other software built on the LAMP software stack. MySQL is also used in many high-profiles, large-scale World Wide Web products including Wikipedia, Google and facebook.

Advantage	Disadvantage
Free,Fast	Does not support a very large database size as efficiency
MySQL is also an adequate security mechanism by default.	Also does not support ROLE, COMMIT, and stored procedures in versions less than 5.0.
Reliable open source database	In the way MySQL transactions are not handled very efficiently
MySQL is an offering multiple variations.	MySQL replications happen in one way

Table 2.3 : Advantage and Disadvantage MySQL

2.7.1.2 Oracle

Oracle offers lots of feature/functionality for solving complex problems (Trujillo, 2008) [39]. It is the most widely used large-scale database in business society at present and its performance influences the effiency of application directly (Li, Honglin, & Yan, 2009)

2.7.1.3 Comparison between Database language MySQL and Oracle

Features/Functionality	MySQL	Oracle
Strengths	Great performance when applications leverage architecture	Aircraft carrier database capable of running large OLTP and VLDBs.
Application Domains	-Web (MySQL excels) -Data Warehouse -Gaming -Small/medium OLTP environments	-Medium / Large OLTP and enterprise applications. -oracle excels in large business applications. -medium/large data warehouse
Development Environment	PHP, Javam Ruby on Rails, .NET, Perl	Java, .NET , APEX, Ruby on Rails, PHP
Export/ Import	Easy, very basic	More feartures

Stored Procedures	Very basic featured limited scalability	Advanced features, extremely scalable

Table 2.4 : Comparison between MySQL and Oracle

2.7.2   Summary on Programming Tools

This sub topic is describes about what tools is use in developing the interface of the project. It is also told the advantage and disadvantages that have when usinf the tools.

2.7.2.1 Adobe Dreamweaver CS3

Macromedia Dreamweaver is a web development application originally created by Macromedia and is now developed by Adobe System, which acquired Macromedia in 2005. Macromedia Dreamweaver is available for both Mac and Windows operating systems. This Macromedia Dreamweaver is the software that empowers designers and developers to build standards-based website with confidence. The current versions have included support for web technologies such as CSS, JavaScript, and numerous server-side scripting languages and frameworks including ASP, ColdFusion, and PHP.

Macromedia Dreamweaver builds by macromedia developed by Adobe System There are a lot of advantages of Macromedia Dreamweaver. Firstly is a Macromedia Dreamweaver able support many kinds of animation. Then, when using Macromedia Dreamweaver make lots of web templates. Besides that, Macromedia Dreamweaver can support a large group of programming languages.Meanwhile for the disadvantages of Macromedia Dreamweaver are difficulties of using the software's tools, more expensive, and not easy because of lack of the beginner tools. For example, Macromedia Dreamweaver is very difficult to use because not many of software's tools can support it. On the other hand, it also more expensive compare to other tools. This is because Macromedia Dreamweaver has a lot of new application and functions that up-to-date. Moreover, not everybody include the developer or new

user able to know easily how to use Macromedia Dreamweaver because did not have beginner tools.

2.7.2.2 Adobe Photoshop

Photoshop is the leading digital image editing application for the internet, print, and other new media disciplines. It also one of the most powerful image modification programs on the market today. The persons that responsible build this tools of development are Thomas Knoll and John Knoll. It released in 1990 for Macintosh exclusively.There are many advantages when using photoshop in the system. One of the advantages is photoshop is the best image editor. Besides that, photoshop can do graphics and the text all in one program. Then, photoshop have layers that can change the size of each element independently. Moreover, photoshop can range anywhere from helping someone improve the quality of a photograph. For the disadvantages, photoshop does not have dictionary. After that, it can not make vector image. Next, photoshop have a lot of different tools. Meanwhile, when using photoshop in the system, it will takes up a large of room on the computer.

2.7.3   Web Server

Web servers are computer that deliver (server up) web pages. Every web server has an IP address and possibly a domain name. Any computer can be turned into a Web server by installing server softaware and connecting the machine to the Internet. There are many Web server software applications.

2.7.3.1   Easy PHP

Easy PHP is installs web server services onto the windows computer and allows quick and easy development of PHP and MysSql on a localhost.Easy PHP is launched in 1999.Many advantages and disadvantages about easy PHP when using it in the system. One of the advantages is an accessible. Then, it was easy when using easy PHP because easy PHP is an open source. Moreover, easy PHP is very flexible. Besides that, easy PHP can runs on many different operating systems.Meanwhile for the disadvantages, easy PHP will execute more slowly in

the system. After that, easy PHP is loosely typed. Next, when using easy PHP in the system it will open to security flaws. Then, easy PHP has ambiguous handling.

2.7.3.2 XAMPP

Xampp is a free and open source cross-platform web server package, consisting mainly of the Apache HTTP Server, MySQL database and interprets for scripts written in the PHP.Xammpp is developed by Apache Friends.There are several advantages when using xammpp in the system. Firstly xammpp is very easy to install and to use. Then, it also has better documentation. Next, xammpp is a user friendly. Moreover, xammpp can runs on multiple platforms.The disadvantage of using xammpp is xammpp is use filezilla server. The example of usage of xammpp is as development tools in the system. One of the basic roles of the xammpp is to allow website designers and programmers to test their work on their own computer and without any access to internet. (Wikipedia.com)[12]

2.7.4   Programming Language

This sub topic is describes about what tools is use developing the interface of the project. There are many tools can be used to create such as PHP, ASP.NET and JSP is the most popular programming tools for develop web pages system.

2.7.4.1 PHP (Hypertext Preprocessor)

PHP is one of the most popular server side scripting languages running today. It is used for creating dynamic webpage that inserted directly into the HTML that makes up a website. When a visitor comes to the website code is executed. Because PHP is a server side technology, the user does not need any special browser or plug - in to see the PHP in action

2.7.4.2 ASP.NET

ASP.NET is a web application framework developed and marketed by Microsoft to allow programmers to build dynamic Web sites, Web applications and Web servies.

2.7.4.3 JSP

JavaServer Pages (JSP) technology provides a simplied , fast way to create dynamic web content. JSP technology enables rapid developments of web based applications that are server and platform independent.

2.7.4.4 Comparison between PHP, ASP.NET and JSP

	PHP	**ASP.NET**	**JSP**
Security	PHP is a recognized safety performance	Safety is good, but there exist certain degree of security vulnerabilities.	Safety is the highest.
Platform incompatibility	Multiplatform	Single platform	Multi
Operating efficiency	Higher	High	Highest
Cost	Free	High	High

Table 2.5 : Comparison between PHP, ASP.NET and JSP

2.8 Chapter Summary

Asset management is one of the most important assignments given to public service personnel in managing public asset. Based on research done on existed system and technique.Assist the school system management system can be done through converting the current method into an online computerized system. Meanwhile at the same time implementing software engineering approach through the system development   ss for better reliability and maintainability.

CHAPTER 3

METHODOLOGY

The methodology in chapter 3 will discuss the approach and framework for the project. This chapter also explains about the system development life cycle besides software and hardware specification that is needed for this project development.

3.1 Introduction

This chapter describes the methodology in developing the project. Project methodology explains the overall framework of developing the project, and other hands explains the details task at every phase of the system development.

The approach used for project methodology is Rapid Application Development, which consists of four-phase Requirements Planning, User Design ,Construction and Cutover. Unified Modeling Language (UML) is used for modeling the diagrams.

3.2 Project Methodology

Rapid Application Development (RAD) is a method of software development methodology. RAD is a development lifecycle to give much faster development and higher-quality results than those achieved with the traditional lifecycle. According to Professor Clifford of Whitehead College, University of Redlands, defines that :

" *an approach to building computer systems which combines Computer-Assisted Software Engineering (CASE) tools and techniques, user driven prototyping, and stringent project delivery time limits into a potent, tested, reliable formula for top notch quality and productivity, RAD drastically raises the quality of finished systems while reducing the time it takes to build them.* "[1]

RAD has its own iterative way of methodology while developing the software. RAD is start with requirement gathering and planning, followed by user design, construction and the last stage, the cutover. Figure 3.1 shows the step of RAD.
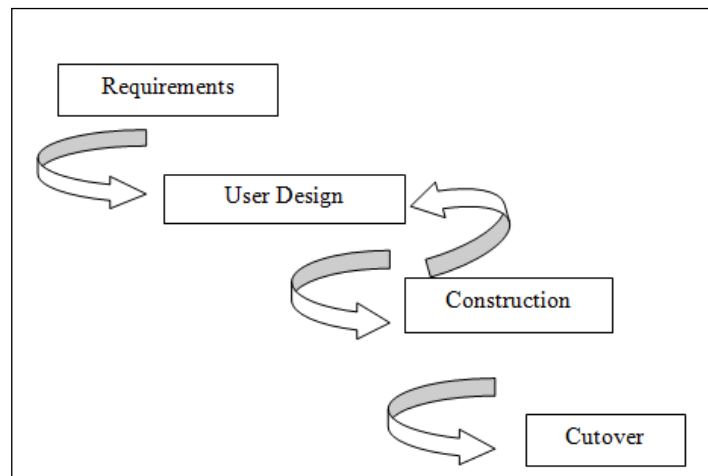

Figure 3.1 : Step of RAD

3.3 Rapid Development Methodology

a. Captures the voice of the customer by involving them in the design and development of the application through a series of collaborative workshops. In general, RAD systems provide a several tools to help build graphical user interfaces that would normally take a large development effort.

b. Increased the quality is better because delivered application meets the needs of users which a delivered system has low maintenance costs. Prototyping give the user early description to judge whether critical system requirements are being met by the system

c. Based on the study, one of the problems that had been identified with other software development practices was that clients often didn't really know what they wanted or didn't want until they saw a practical implementation.

d. It was through the process of customers commenting on an evolving application that new requirements were teased out. With the Rapid Application Development methodology, however, it became a standard and accepted part of the development process.

e. It was through the process of customers commenting on an evolving application that new requirements were teased out. With the Rapid Application Development methodology, however, it became a standard and accepted part of the development process.

3.3.1   Requirement Planning

In this phase of the development process where in the development team works closely with the cutomer to determine the customer's requirements for rhe product. The requirements phase identifiers the functionality, performance levels, and other characteristics which the product must satisfy in order for it to acceptable to the customer. Aim in this phase is to understand the exact requirements of the customer and then document them properly by deliverable of Software Development Plan (SDP), Software Requirements Specification (SRS) and Software Design Document (SDD). Software requirements we are dealing with the requirements of the proposed system, that is the capabilities that system, which is yet to developed, should have. It is because we are dealing with specifying a system that does not exist in any form that the problem requirements becomes complicated.

Interview session is done to gather information by collect related data from customer to get clear understanding about the system requirement. An interview was conducted with Puan Naimah Binti Mohamad Azmi , Administrator Assistant at Sekolah Kebangsaan USJ 20, Subang Jaya, Selangor Darul Ehsan. From the interview session , some problems has identified in between school property outflow, problem of record of property issued.

Besides, other goal is to find out any inconsistencies and incompleteness in the requirement and resolve it. In RAD method, this process or phase is continuously occuring until user is satisfied before the product being release. Figure 3.2 shows context diagram of the system which states the flow of data between the user and system to specify how they are interact. A system Context Diagram in software engineering and system engineering is a diagram that represents the actors outside a system that could interact with system. This diagram is the highest level view of a system.
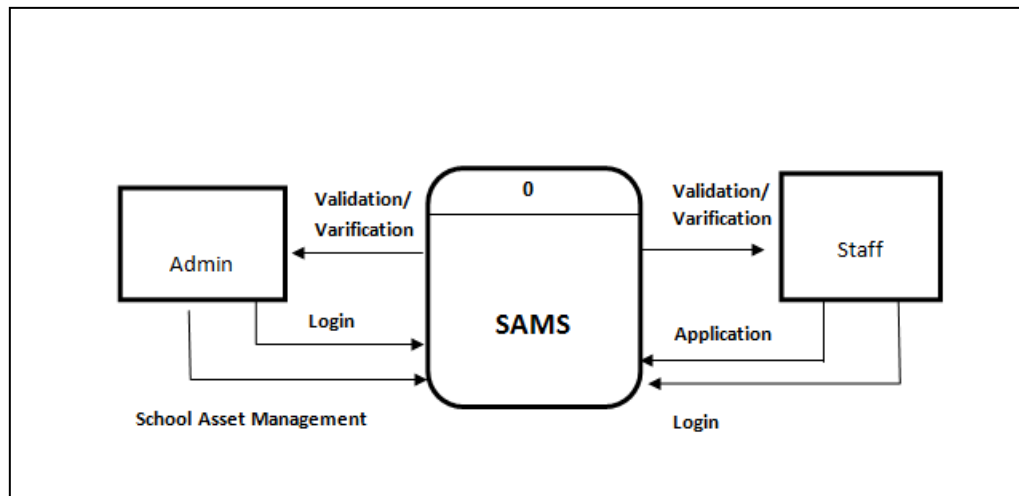
Figure 3.2 : Context Diagram of School Asset Management System

In figure 3.3 below shows the use case diagram to get a specific view interaction between the actors. Two major actors that involve in this system are the admin and staff.
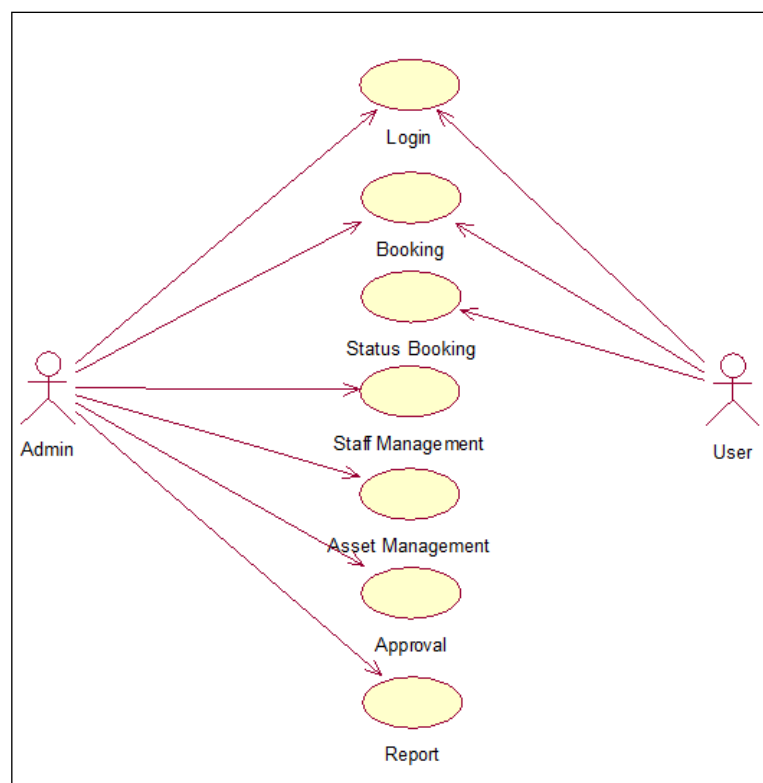

Figure 3.3 : Use Case Diagram of School Asset Management System

3.3.2   User Design

In this phase the requirements are describe in detail while the requirements discovered during requirements planning stage are developed into a data model such as Entity Relationship Diagram, formalizes business rules, and creates screen flows and layouts for important parts of the system. Complete SRS and SDD are produce during this stage.

SAMS has a total of seven modules consists of login module, request asset module, approval request asset module, manage profile module,order asset module, registration asset module and produce report module.

3.3.2.1 System Module

There are eight modules in School Asset Management System (SAMS). Refer the following below :
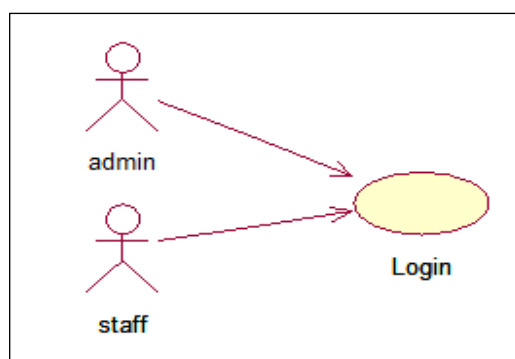
3.3.2.1.1   Login Module

Figure 3.4 : Login use case diagram

The login module illustrated by login use case diagram at the following figure 3.4 handles the authentication function used to validate users before entering and use the system and gains the system resources. The login module will

permit the user to enter username and password and check before allow entering the system.

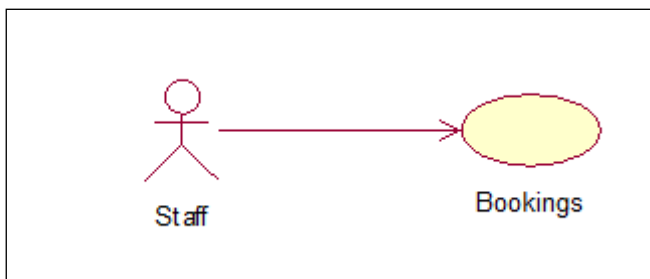| Use Case:	Login
ID:	SAMS-LG-01-V1
Scope:	Logging into system
Priority:	Create logging to use the system
Summary:	Staff, and admin can logging in by inserting valid username and password
Primary Actor:	Staff, and admin
Supporting Actors:	None
Stakeholders:	Public user
Generalization:	None
Include:	None
Extend:	None
Precondition:	Staff are already member of the system
Trigger:	Staff want to use system's application
Normal Flow:	1. Staff browse the system 2. Staff insert username and password into login page 3. System will validate whether the input is valid or not 4. Staff can directly enter the asset system
Sub-Flows:	None
Alternate Flow/ Exceptions:	1. If input username and password does not match, user fail to logging in
Post-Condition:	User can enter the system and use application provided
Non-Behavioral Requirements:	Availability and reliability of software
Open Issues:	None
Source:	Requirement collection
Author:	Noor Hartini Binti Shamsudin
Revision & Date	20 December 2011

3.3.2.1.2 Booking module

Figure 3.5 : Booking Asset Item use case diagram

This is fuction of the system when a staff want to booking the asset item. The trigger for this function will be staff to enter the id and password. The post condition for the function in the staff has been successfully booking into the system.

Use Case:	User Registration
ID:	SAMS-UR-02-V2
Scope:	Registering into the system
Priority:	Register for request procedure
Summary:	All user whether admin,user or senior admin able to register into system before use with valid information needed.
Primary Actor:	User , Admin
Supporting Actors:	None
Stakeholders:	Supplier
Generalization:	None
Include:	None
Extend:	None
Precondition:	None
Trigger:	User , and admin want to register in the asset management system
Normal Flow:	1. User and admin open browser and search Asset Management System 2. User and admin enter user registration page 3. User and admin insert required data or information 4. Input remaining information for User and admin use. 5. The system then generate ID number 6. The ID number is then give to the User and admin for their identity
Sub-Flows:	None
Alternate Flow/ Exceptions:	1. Registration fail if there is low connection of network access

|	3. Registration session went down and User and admin need to manual input teacher personal information
Post-Condition:	User and admin as been successful registered into the system and can access the system
Non-Behavioral Requirements:	Availability and reliability of software
Open Issues:	None
Source:	Requirement collection
Author:	Noor Hartini Binti Shamsudin
Revision & Date	30 December 2011

3.3.2.1.3   Staff management module
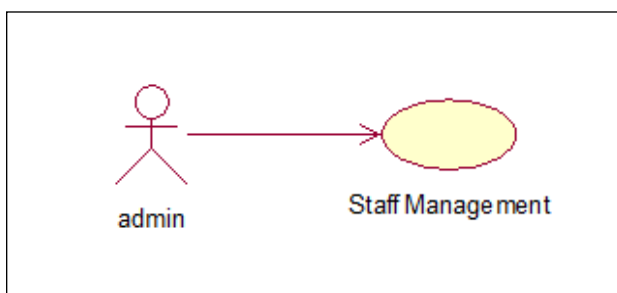
Figure 3.6 : Staff Management use case diagram

This module allow user and senior admin to request asset. They can make request asset through that site. User can filled up an information require and submit .

Use Case:	Asset Application
ID:	SAMS-AA-03-V2
Scope:	Request asset in system
Priority:	Request asset available in system
Summary:	User and senior admin able to request the asset available item in the list of reservation.
Primary Actor:	User
Supporting Actors:	None
Stakeholders:	Admin and supplier
Generalization:	None
Include:	None
Extend:	None

Precondition:	User member to the system
Trigger:	User want to apply
Normal Flow:	1. User and admin create session into system 2. User enter request asset page application 3. User can view list of asset 4. User select interest and available asset 5.System will validate whether the request asset valid or not 6. Selected asset form for fulfill the an information required and will be save into database 7. Amount of reserved asset is updated in database
Sub-Flows:	None
Alternate Flow/ Exceptions:	1.If date chosen and item selection is not available will have to choose again
Post-Condition:	The application asset is success
Non-Behavioral Requirements:	Availability and reliability of software
Open Issues:	None
Source:	Requirement collection
Author:	Noor Hartini Binti Shamsudin
Revision & Date	29 December 2011

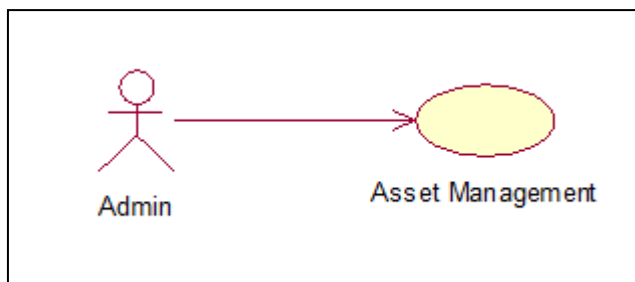### 3.3.2.1.4   Asset Management module

Figure 3.7 : Asset Management use case diagram

In this module, admin is allow to manage asset whether want to print , searching,view, add in information, delete or update the data. This module is control by admin.

Use Case:	Asset Management
ID:	SAMS-AM-04-V1
Scope:	Manage asset information
Priority:	Manage the asset make changes
Summary:	Admin can manage the asset to update latest information by add, delete, edit or update data.
Primary Actor:	Admin
Supporting Actors:	None
Stakeholders:	Admin
Generalization:	None
Include:	None
Extend:	None
Precondition:	Admin are already be system members
Trigger:	Admin want to manage the asset management
Normal Flow:	1. Admin browse the system 2. Admin enter asset management page and manage it 3. Admin edit and update data,add,search item 4. System will validate if it is valid to update 5. Updated information is save in database
Sub-Flows:	None
Alternate Flow/ Exceptions:	If changes invalid, user need to re-enter change attribute
Post-Condition:	Change have been successful done
Non-Behavioral Requirements:	Availability and reliability of software
Open Issues:	None
Source:	Requirement collection
Author:	Noor Hartini Binti Shamsudin
Revision & Date	25 December 2011

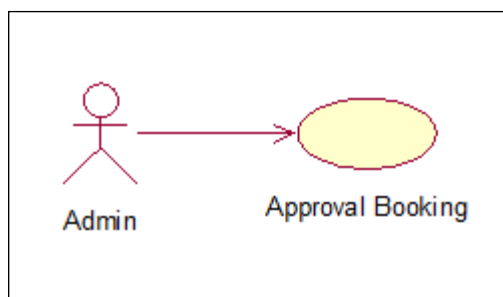### 3.3.2.1.5   Approval booking item module

Figure 3.8 : Approved Booking   use case diagram

This module need admin role where they need to approve the application from staff.Admin can approve or not for the application.Atfer this admin will send result to staff for staff collect the item at counter.

Use Case:	Approval of booking asset item
ID:	SAMS-AB-05-V1
Scope:	Admin approval asset booking
Priority:	Approval booking asset into school asset management system
Summary:	Admin able to approval or not asset into system
Primary Actor:	Admin
Supporting Actors:	None
Stakeholders:	Staff and senior admin
Generalization:	None
Include:	None
Extend:	None
Precondition:	None
Trigger:	Admin want to approve into asset system
Normal Flow:	1. Admin open browser and search School Asset Management System 2. Admin check and approve the application booking from staff. 3. Admin insert required data or information 4. Admin can send the result after approval to staff status booking.
Sub-Flows:	None
Alternate Flow/ Exceptions:	1. Approval bookingfail if there is low connection of network access 2. Approval booking session went down and admin need to manual input asset registration information
Post-Condition:	Admin has been successful approved of booking applicantion into the system and can access the system
Non-Behavioral Requirements:	Availability and reliability of software
Open Issues:	None
Source:	Requirement collection
Author:	Noor Hartini Binti Shamsudin
Revision & Date	26 Disember 2011

3.3.2.2 Propose System (Design of School Asset Management System)

To develop the system, it is the design system of School Asset Management System as well as the structure. Folowing are the specification and design for SAMS development.
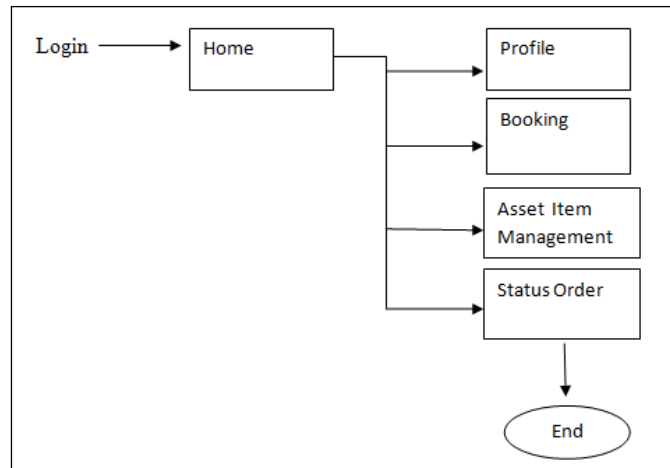

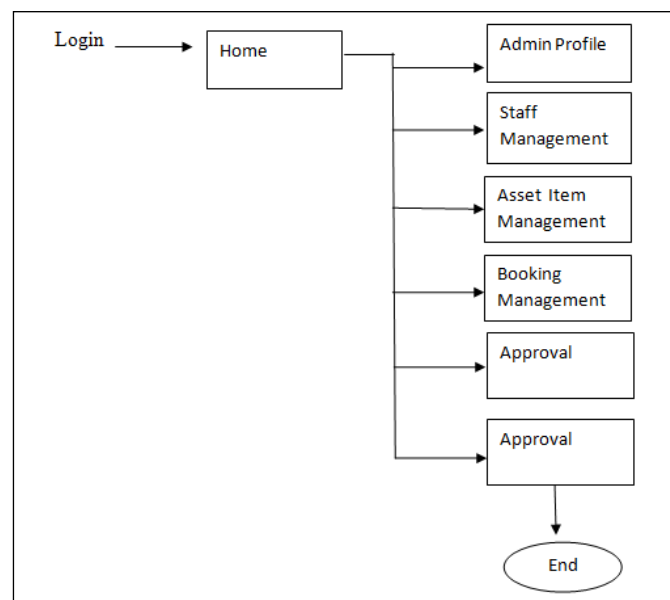**Figure 3.9 :Design of School Asset Management System (Staff)**

Figure 3.10 : Design of School Asset Management System (Admin)

3.3.3 Construction

In this stage, it is where the construction of the physical application system is completed, builds the conversion system, and develops user support and implementation works plans. Technically, the application is developed, tested, requirements refined, and developed again, until the application is completed. The prototype is presented to user to gain feedback in order to ensure that it satisfies the user. The feedback will then be used to decide either to make iteration. During the final iteration of development, the user documentation is updated.

The construction phase focuses on the program and application development task such as complete a detail design of system and create the coding for system execution.Construction phase also known as development phase that begin with make interface coding or engine in each module by using suitable language and tools.The system is implemented on Microsoft Windows operating systems. The software required for the system to operate is Macromedia Dreamweaver or Adobe Dreamweaver CS4 as the web application framework. While, the web browser used to access the system is the Internet Explorer and Mozilla Firefox.

Using Adobe Dreamweaver (formerly Macromedia Dreamweaver) is a professional HTML editor for designing, coding, and developing websites, web pages, and web applications. Macromedia is stand alone application that enabling amateur user to create visually appealing, standard based sites and application. Dreamweaver provides the tools need in an integrated of their choice to build powerful Internet application that connects users to database, web services and legacy systems.

Meanwhile, Dreamweaver can use third-party "Extensions" to extend core functionality of the application, which any web developer can write (largely in HTML and JavaScript).Dreamweaver is supported by a large community of extension developers who make extensions available (both commercial and free) for most web development tasks from simple rollover effects to full-featured shopping carts.The database management system used in this system is MySQL phpMyAdmin, MySQL is a relational database management system (RDBMS) based on SQL (Structured Query Language) that flows as a server providing

multi-user access to a number of databases. The database system that involve is used on the web. MySQL is allows to create a relational database structure on a web-server somewhere in order to store data or automate procedures. Free-software projects that require q full-featured database management system often use MySQL.Next, MySQL is also an adequate security mechanism by default.

3.3.4 Cutover

In the Cutover phase known as deployment phase where the system is ready to be release and use by the end user.In this phase , the production system is installed, initial user training is completed, user documentation is delivered, and the post implementation review meeting is held. When this phase is completed, the application is in steady-state production. Once the system is in steady-state production, it is reviewed to ensure that we met all of the goals in the project plan for a satisfactory result. The implementation phase takes the requirements and design phase products and implements them using appropriate technologies. In the case of validation testing, it is during this phase that test cases are completed and automated in preparation for validation testing.

Typically, a lot of testing on the early system versions is also performed during this phase, not only to validate the system, but to validate that there are no problems with the test cases themselves. A software developer may begin the initial phase of the new software life cycle even before the release of the current version of software becomes commercially available. As computer systems and the needs of end users of computer programs continue to change, software developers follow a never-ending cycle of development for their most popular products.

3.4 Development Tools

To develop the system, it is crucial to choose appropriate software as well as the hardware. Following are the software and hardware requirement for SAMS development.

3.4.1 Software Tools

Software tools are needed in developing and documenting this project. It will be used along the system development.

Software	Purpose
Window 7 Professional	Operating system that will be used for system development
Antivirus Software Kaspersky Antivirus Internet Security 2012	To protect and remove virus
Adode Dreamweaver CS4	Interface design and coding
XAMPP version 2.5 released by Apache Friends	It makes a combined Apache, mySQL , PHP
MySQL	Focuses Create database

Microsoft Office
   a) Microsoft Office Word 2007
   b) Microsoft Office Project 2007
   c) Microsoft Office Visio 2007
   d) Microsoft Office Power Point 2007
	Documentation and report
	Schedule and planning process
	Designing system design
	Adobe picture ,make story bord and presentation.

Rational Roses 2002	Modeling and Designing

Table 3.1: Software Requirements

3.4.2 Hardware Tools

Hardware tools are devices or peropherals taht are neede in the development of this School Asset Management System for SK USJ20 Subang Jaya Selangor.

Item	Quantity	Minimum Requirements	Purpose
Laptop	1	Compaq Presario CQ 60 Intel Dual Core 2 Duo with 2GB RAM	For research and development,document ation of the project.
Thumb drive	2	PenDrive 4GB,1 Kingston 4GB	For backup data
Printer	1	PIXMA iP2770	Print the proposal and report of project
Exernal Hard Disk	1	Buffalo 500GB external hard disk	For backup file Exchange data

Table 3.2 : Hardware Requirements

3.5   Conclusion

For the conclusion , thus chapter is discussing about methodology that use in the project. It is also describe the reason of using the methodology that use. The author use RAD methodology in this project. RAD methodology is suitable to use in management system likes this project. This chapter describes the development tools that is software and hardware tool that use in developing this system.Beside this chapter shows the use case and data flow diagram that is essential to clear up system development methodology process.

CHAPTER 4

IMPLEMENTATION

4.1 Introduction

The purpose of this chapter is to discuss the development process of the system. All the main function's coding used in the system to achive the system objective will be explained. There are 6 modules which are Staff Management, Asset Management, Bookings ,Login, Generate report of asset record and Approval (*see Tabe 4.1*)

Modules	Details
Staff Management	This feature is used by the administrator to manage staff (users of the system). The administrator can register new staff, edit staff details, and remove staff from the database.
Asset Management	This feature is used by the administrator to manage stationeries. The administrator can add new item, restock items, change item details, and remove items from the database
Bookings	This feature is used by the staff to select the items that they want to take

	later at the counter. Staff can also take items from the counter without making bookings for items.
Login	This features is used by the user before enter the system.User must to have id and password first.
Report	This features is used by the admin for record all asset item out and in
Approval	This features is used by the admin for approve the abooking application from staff.

Table 4.1 : Explaination of the System Modules

4.2 System Interface

Figure 4.1 depicts the SAMS interface to be used by the administrator of the system. It involves all the menus to every module available dor administrator of the system.

Figure 4.1 : Interface of the System (Admin)

Figure 4.2 depicts the SAMS interface to be used staff. It involves all the menus to every module available for the staff.
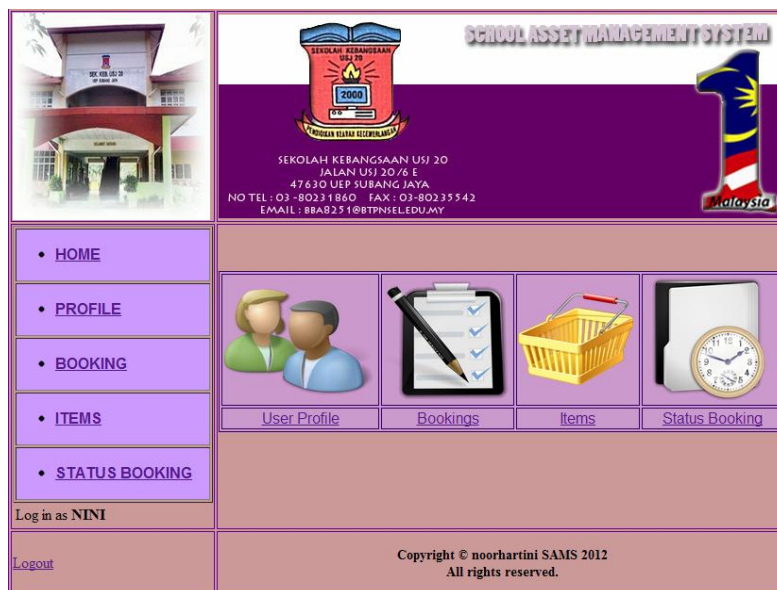
Figure 4.2 : Interface of the system (Staff)

4.3 Scripting Techniques

The base scripting languange used the development of the project is PHP. For database queries , SQL is used.

4.3.1 Declaration of Variable in PHP

```php
<?php
if(isset($_POST['btnSubmit'])){
        $id = addslashes($_POST["txtId"]);
        $pass = addslashes($_POST["txtPassword"]);
        $level = addslashes($_POST['selLevel']);
?>
```

Figure 4.3: Declaration of login system

In Figure 4.3, it shows the declaration of variable in PHP. The addslashes function is used to escape special characters when using it in SQL functions.

4.3.2 SQL Statements

```
$sql_stmnt = "INSERT INTO ITEMS ( item_name , item_desc, item_type, item_quantity,
item_update)
                        VALUES ('$iname', '$idesc', '$itype', '$iqty', CURDATE())";
```

Figure 4.4 : INSERT SQL Statement

Figure 4.4 shows the SQL statement for insert into the Item table in database. The data will be inserted to the table named "ITEM ".

```
$sql_stmnt = "DELETE FROM ITEMS WHERE ITEM_NAME = '$item_name'";
```

Figure 4.5 : DELETE SQL Statement

Figure 4.5 shows the SQL satement for delete the Item asset data in the database. The data will deleted based on the ITEM_NAME as a primary key.

```
if($level == "Admin"){
                include("db_connection.php");
                $result=mysql_query("SELECT * FROM ADMIN WHERE ID ='$id'
AND PASSWORD='$pass'");
                $rowCheck = mysql_num_rows($result);
                if($rowCheck > 0){
                        $row = mysql_fetch_array($result);
                        $name = $row['name'];
```

Figure 4.6 : SELECT SQL Statement

Figure 4.6 shows the SQL statement for retrieve the data to be shown on the system. The data retrieve from the database and shown to the interface of the system.

```
mysql_query("UPDATE items SET  item_desc='$desc', status='$Status',
item_quantity='$Quantity' WHERE item_name = '$ref'");
```

Figure 4.7 : UPDATE SQL Statement

Figure 4.7 shows the SQL statement for updating data. This example is where a particular asset item edited. These 4 basic functions are used in several modules SAMS. It also plays a main role in the system as a management system that deals with variety of data where the user can insert, delete and even update their data.

CHAPTER 5

RESULT AND DISCUSSION

5.1   Introduction

SAMS is developed using software Adobe Dreamweaver CS3 and Xampp Server, PHP My Admin as its database. The system was fully implemented in php scripting with SQL codes to manipulate the database. SAMS has been successfully developed and tested in the single client server environment. The system is capable of :

   i.   Register asset Item

  ii.   Updated Asset Item

 iii.   Register New Staff

 iv.   Delete Staff

  v.   Edit Staff

 vi.   Bookings

5.2 Result Analysis

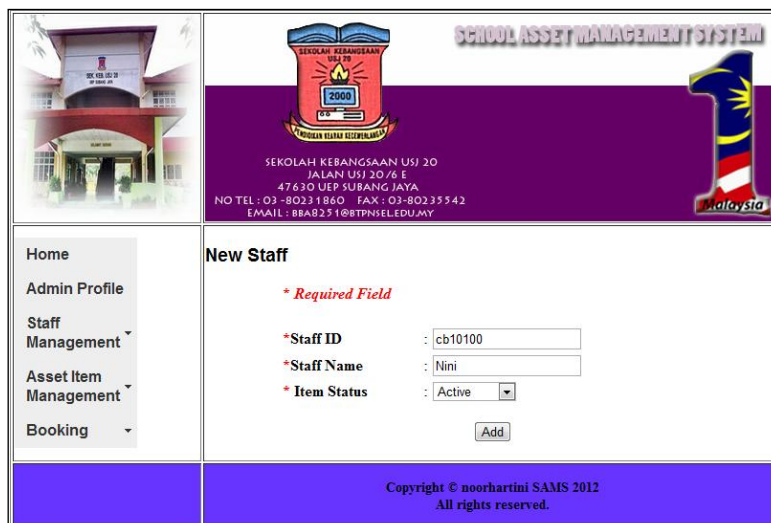The development of SAMS for SK USJ20 has met all the objectives of this project , which are :

a. To develop based system computerized School Asset Management System for SK USJ20.

b. To produce Software Development Planning, Software Requiremen Specification and Software Design Documentation

5.3 Output and Result

5.3.1 User Acceptance Testing

School Asset Management System (SAMS) was tested in user environment which in SK USJ20. SAMS was tested among the primary user admin of school . SAMS was approved by these two categories of users where it meets the user requirements. The official feedback or approval letter from the user was attached as a testing proof.

5.3.2 Expected Result

SAMS is expected to execute well with proper error handling. All modules should be error-free and perform their functions accordingly. Project objectives should also be achieved. Table 5.1 shows each module, functions and rules. Tests are done based on these rules

Module	Function	Rules
Staff Management	New Staff	Registered staff should appear in the database.There should be proper error handling when user key in data incorrectly or registering a staff with existing ID.
	Edit Staff	Edited staff details should be updated in the database.There should be proper error handling when user key in data incorrectly.
	Delete Staff	Deleted staff should be deleted from the Staff table in the database.System should prompt user to confirm deleting staff.
Item Management	New Item	New item should appear in the database.There should be proper error handling when user key in data incorrectly or adding a new item with existing Item Name.
	Change Item Details	Edited item details should be updated in the database.There should be proper error handling when user key in data incorrectly.
	Restock Items	Restocked items' quantity and last restocked date should be updated in the database.
	Delete Items	Deleted items should be deleted from the Item table in the database.System should prompt user to confirm deleting item.
Bookings	Save	User should be able to update quantity of booked items.Updated quantity should be updated in the Bookings table in the database.
	Delete	User should be able to remove bookings made.Removed bookings should be deleted from

		the Bookings table in the database.

Table 5.1 : Expected Results by Each Module

5.3 Result Analysis

The developed system, SAMS has met all the objectives of this project, which are:

a. To develop based system computerized School Asset Management System for SK USJ20

b. To produce Software Development Planning, Software Requirement Specification and Software Design Documentation

The interfaces for each type of user are depicted in Figure 4.1 and Figure 4.2.Figure 5.1 depicts the SAMS interface of the staff management module which consists of other sub-modules. It also includes a function to search for desired staff.

Figure 5.1 : Interface of Staff Management Module

Figure 5.2 depicts the SAMS interface of registering new staff to the system. When successful and back to menu of staff management.
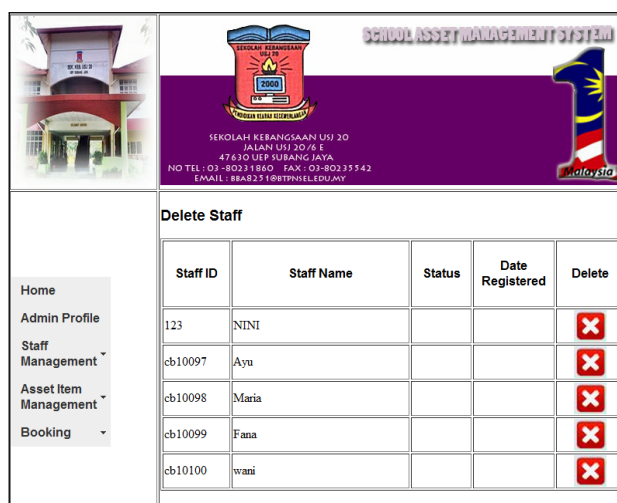
Figure 5.2 : Interface of Register New Staff

Figure 5.3 depicts the SAMS interface of deleting staff from the database.

Figure 5.3 : Interface of Deleting Staff

Figure 5.4 depicts the SAMS interface of the item management module which consists of other sub-modules. It also includes a function to search for desired item.
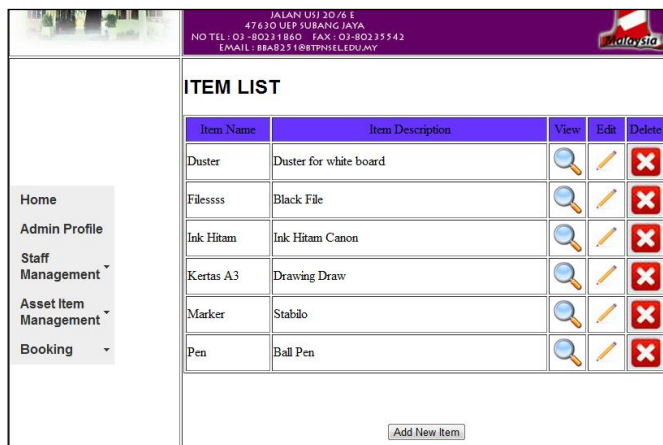
Figure 5.4 : Interface of Item Management

Figure 5.5 depicts the SAMS interface of adding new item to the system. Notification with details of newly added item is then shown when the process is successful.
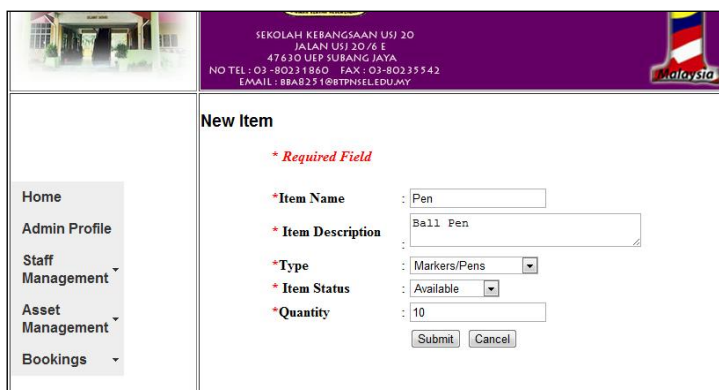
Figure 5.5 : Interface of Add New Item

Figure 5.6 depicts the SAMS interface of restocking items. Button enter and will appear of list as alphabet enter once the restock process is successful

Figure 5.6 : Interface Restock Item

Figure 5.7 depicts the SAMS interface of view items. View all the item admin need before finished the updated. Will appear of view of items was process is successful

Figure 5.7 : Interface for View Details

Figure 5.8 depicts the SAMS interface of edit item once finished the edit. The new updated item will save into system. Newly added item is then shown when the process is successful.

Figure 5.8 : Interface of Edit Item

Figure 5.9 depicts the SAMS delete of item. See the delete icon for delete of item. It is used by the administrator when staff is checking delete items which not have from the office either via booking or directly.

Figure 5.9 : Interface of Delete Items

Figure 5.10 depicts the SAMS interface of staff user profile. Staff can change their password here.
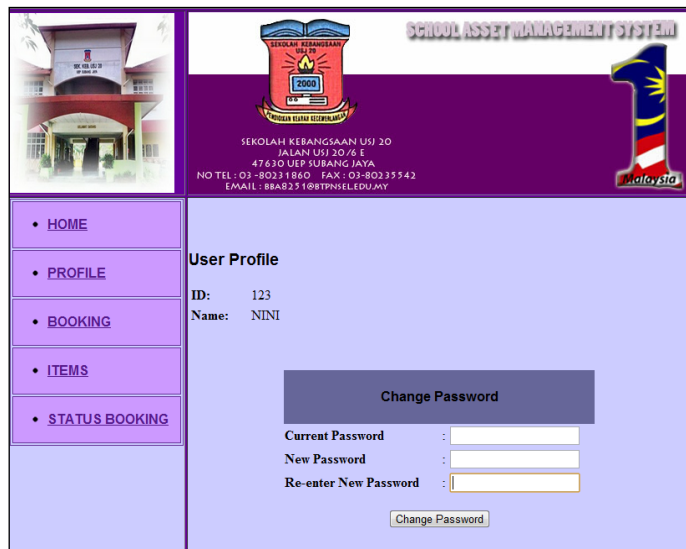
Figure 5.10 : Interface of Staff User Profile

Figure 5.11 depicts the SAMS interface of items for staff. This page is used for staff to select items to be booked.
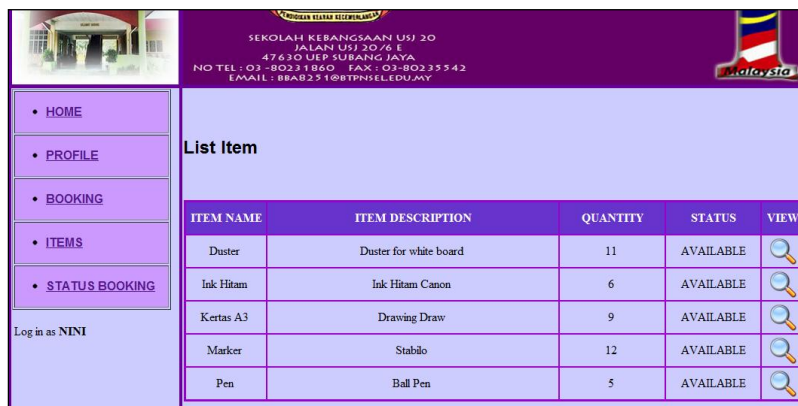

Figure 5.11 : Interface of Items (Staff)

Figure 5.12 depicts the SAMS interface of bookings for staff. This page is used for staff to enter the quantity needs their bookings values and after this send for submission.

Figure 5.12 : Interface of Bookings (Staff)

Figure 5.13 depicts the SAMS interface of item details for staff. This page is used for staff to view the details item before send the application , bookings values and after this send for submission.

Figure 5.13: Item Details (Staff)

Figure 5.14 depicts the SAMS interface of status booking item details for staff. This page is used for staff to view the status booking details.
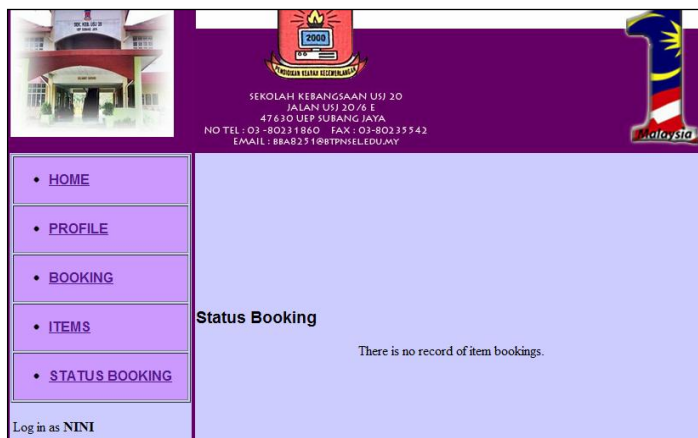
Figure 5.14 : Interface of Status Booking (Staff)

5.4   System Constraints

Constraints for this project are categorized into two parts :

a. Development constraints

The constraint during developing SAMS is making the user understand about the system work flow and what they want from this system.

b. System constraints

Constraints for system is when need to understand about the methodology before implement in developing the system. Other than that, it have difficulaties to find the error in sources code make the system is out of error then can run correctly. Then , the design may look different in certain browser. Sometimes the design not functions in certain browser.

5.5   Suggestion and project enhancement

There are several enhancements that can be carried out for future improvement of SAMS.

a. The system need to have the systematic and interactive design to make user enjoy it and easy the use system.

b. The database of the system always need maintenance and upgrades time by time to make the data in the system secure.

    c. The system need more information to make the system easy to use with many facilities.

    d. Should be a mobile version of the site so that mobile device owners can make booking easier.

5.6 Conclusion

For the conclusion, this chapter describes the result analysis, output and systems constrains. It is also contains suggestion and future enhancement, so that the development of this system will continue until meet user requirement.

CHAPTER 6

CONCLUSION

This chapter briefly discusses the conclusion on the proposed project. There are six (5) chapters all together in the thesis. The chapters are Introduction, Literature Review, Methodology, Implementation, Results and Discussion and finally Conclusion of the entire system. Each chapter describes the system development progress and the development process of the School Asset Management System (SAMS)

The Methodology that has been used in developing this system is Rapid Application Development (RAD). This methodology is chosen because it is efficient in developing small system in a very short amount of time rapidly.

As a conclusion, the system naming School Asset Management System (SAMS) will be develop to improved the function of the current system. SAMS has successfully met their objectives and give experience in developing system.

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APPENDIX A

GANTT CHART

APPENDIX B

USER MANUAL