ONLINE STATIONERY MANAGEMENT SYSTEM (OSMS)

by

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Dissertation submitted in partial fulfillment of

the requirement for the

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CERTIFICATION OF APPROVAL

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Approved by,

_____

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UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

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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.

RASHRIN HAIDA BT A. RASHID

ABSTRACT

Over the past few years, the Internet has played a very important role be it at home, work or school. Internet applications such as online shopping and online voting has been widely accepted worldwide. This project focuses on the significance of online systems technology for managing stationeries in UTP, to enhance the systems from manual to online and to implement an integrated system. The development methodology of this research is based on the author's own methodology which involves phases such as Analysis, Design and Construction. The project is being developed using server side scripting, PHP and MySQL database. Using the manual system, UTP has to face a few problems such as difficulties on managing staff data, stationery request forms and stationeries as well. By implementing a new web based systems those problems can be minimized as well as saving cost of purchasing papers.

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TABLE OF CONTENTS

LIST OF FIGURES

ABBREVIATIONS AND NOMENCLATURES

1.	OSMS	Online Stationery Management System
2.	WAN	Wide Area Network
3.	PHP	Personal Home Page
4.	HTML	Hypertext Markup Language
5.	ASP	Active Server Page
6.	RDBMS	Relational Database Management System
7.	SQL	Structured Query Language
8.	SDLC	Systems Development Life Cycle
9.	WWW	World Wide Web

CHAPTER 1

INTRODUCTION

1.1 Background of study

The Internet is a worldwide system of computer networks, which is a network of networks in which users at any one computer can, if they have permission, get information from any other computer. Sometimes, it also enables user from one location talk directly to users at other computers in a different location.

Today, the Internet is a public, cooperative and self-sustaining facility accessible to hundreds of millions of people worldwide. This is due to its importance in everyday life. For instance, it allows information transferring, information sharing as well as communication.

Intranet is a subset of the Internet. It may consist of many interlinked local area networks and uses leased lines in the Wide Area Network (WAN). Typically, an intranet includes connections through one or more gateway computers to the outside Internet. The main purpose of an intranet is to share company information and computing resources among employees. An intranet is also used to facilitate working in groups and for teleconferences.

Universiti Teknologi Petronas (UTP) has also been implementing both Internet and intranet in their systems as well as managing and handling. For instance, the official UTP website allows students to check examination results as well as registering and confirming courses. Besides, there is also an e-learning site where students can access lecture notes posted by the lecturers as well as a student web portal via intranet.

It is convinced that the use of Internet technology has been widely spread nowadays. By implementing the Internet technology, it generates a better understanding of each of the elements and the architecture of the Internet.

1.2   Problem Statement

1.2.1   Problem Identification

UTP staff need to make a request for stationery items before collecting them at the store keeper. They can request for any stationery items such as pens, marker pens, white board eraser, binder clips and others. To make a request, each lecturer will have to fill in a special form by specifying the quantity of items requested as well as their name, department, date and signature. This form will then be submitted to their department head to seek for approval. If the request is approved, then only the staff will be able to collect those stationeries from the store keeper on scheduled days and time. The store keeper will also be informed about the approved requests. Rejected request however will be forwarded back to the staff and they are not able to collect the requested stationeries. Figure on next page illustrates the flow of the process.
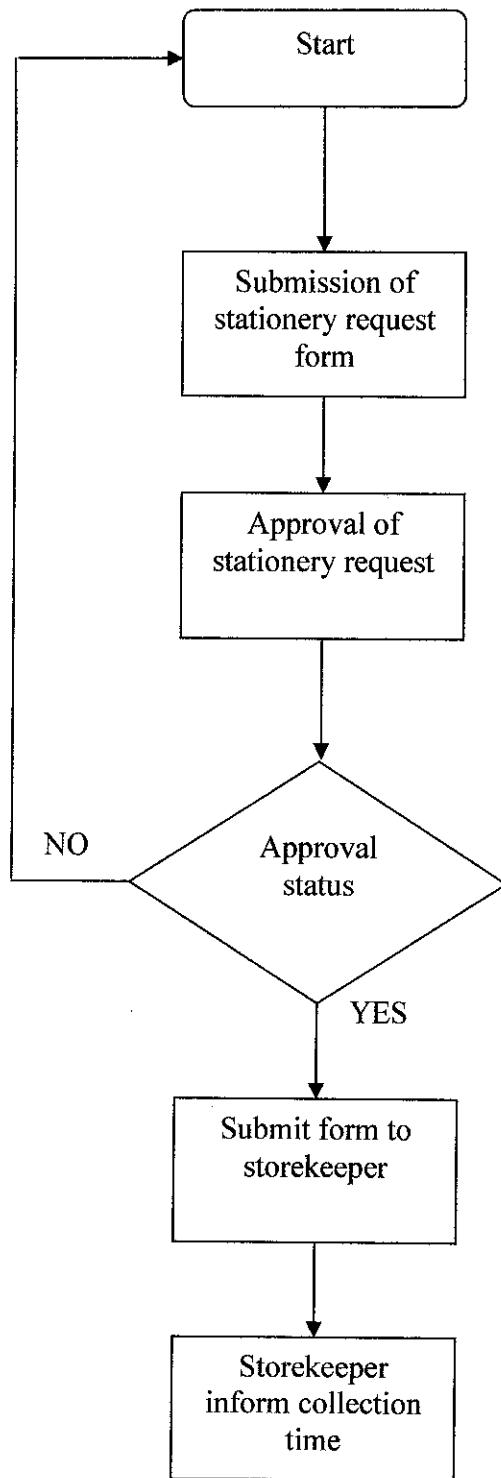
Figure 1: Stationery request process

As the system is conducted manually, it has led to some problems as the following:

a)   Waste of time

It has caused a great waste of time since there are a few procedures that are needed to follow before the requested items were finally received. It will become worse if the department head is out of office as the staff will have to wait for some time before knowing their approval status. It is clear that the current system is very time consuming.

b)   Waste of papers

UTP has also been wasting many papers as all request forms are in hard copies. Without realizing, a large amount of papers have been wasted for the purpose of producing stationery request forms.

c)   Data misplaced

Since the form is just a piece of paper, it might be easily misplaced. Requester will need to make another request if the form is misplaced.

d)   Data not properly managed

The current system also does not allow the store keeper to keep track on how many times UTP staffs have requested for stationeries and how much of those items they have been requesting before. This is due to no proper data management. All data is just written on a piece of form and it is not stored in a database.

1.2.2   Significance Of Project

Problems which is currently faced with the manual systems can be minimized by implementing an online system. Listed below are solutions to the problems mentioned earlier:

a) Solution to first problem

A lot of time can be saved if the system is converted to a web based online system. For instance, staff will be able to make a stationery request at anytime and anywhere and department heads will also be able to access it even when they are out of office. Request will be sent to them in forms of e-mail.

b) Solution to second problem

UTP can save costs by not wasting papers. UTP can save a lot of money by not purchasing extra papers for the purpose of producing stationery request forms.

c) Solution to third problem

Since all requests will be submitted online, all important data regarding requester will be stored in a database. Loss of data can be minimized.

d) Solution to fourth problem

Meanwhile, as all information will be stored in a database, information such as name of UTP staff, quantity of stationeries requested, type of stationeries requested and how many times request are made can be viewed. In this case, the store keeper can keep track on each staff who made the request. The Finance department can also access the database by viewing the stock of each item. This will ease their process of ordering more stationery.

1.3 Objective

The objectives of the project are mainly:

- To study the significance of online systems technology for requesting stationeries in UTP.
- To enhance the systems from manual to online.
- To implement an integrated system.

1.4 Scope of study

The aim of this project is to achieve the following:

- Effectiveness of online requesting system.
- Reliability.

1.4.1 Relevancy of the project

This project is based on Internet technology, which helps bring out such a great deal to UTP staff. The following are some advantages of implementing an Internet technology which is an online based system:

a) Saves time and money

The clerical time required to prepare forms and keying in data can be reduced. It can also help save cost by reducing the usage of papers.

b)   Convenience

Stationery request forms can be accessed ay any time and anywhere by just logging in to the systems. It can also be submitted at any time.

c)   Flexibility

The system is designed to be easily navigated by users. Users will have the flexibility to use the system as it is user friendly and easy to understand.

d)   Improves accuracy

The accuracy can also be greatly improved when converting to the online system. This is due to all information will be stored in a database and will be properly managed.

1.4.2   Feasibility of the project

Solving problems currently faced regarding stationery request will improve the current situation.

a)   Study

Internet technology application has been chosen due to its availability and popularity throughout the entire world.

b)   Time

The project is scheduled to be completed within 14 weeks. A very detailed research was carried out in the earlier stage. To support those information, other data gathering techniques such as observations and interviews were carried out. AS time given to completion is short, the project need to be properly managed and organized.

c)   Economic

In terms of economic, it would not involve much cost since research is based on enhancing the current system. The hardware needed are a web server and windows platform PC while software requirements are Macromedia Dreamweaver MX and MySQL.

d)   Future implementation

In the future, this enhanced system is going to be useful for UTP to further develop it with more extra features.

CHAPTER 2

LITERATURE REVIEW

2.1   Web application

Without being overly concerned about semantics or classification, it is important to establish an objective means of differentiating between a web application and a traditional website. To wit, in contrast to content-based websites, a web application possesses both of the following observable properties:

- One-to-one relationship – Web applications establish a unique session and relationship with each and every visitor. Although this behavior is fundamental to web applications, it is not present in either content-based websites or desktop applications. A web application such as Hotmail knows who we are in a way that Photoshop or Cnet does not.

- Ability to permanently change data – Web applications allow users to create, manipulate and permanently store data. Such data can take form of completed sales transactions, human resources records or email messages to name but a few. This contrasts with web services like Google that allows users to submit information but do not allow them to permanently store or alter information.

Although there two characteristics alone result in a fairly broad definition of web applications, websites that posses both of them necessarily contain a degree of application behavior, logic and state lacking in traditional content-based sites. In addition, they require a significantly more sophisticated level of user interactivity and interaction design that what is associated with content sites.

This distinction between websites and web based applications is most obvious in situations where a given site is almost exclusively composed of either content or functionality. Newsweek.com(a website) and Ofoto (a web application) are two such cases. However, even popular web destinations such as Amazon and myYahoo!, sites that combine both content and functionality, should be considered web applications because they meet these two criteria and therefore exhibit the interactive complexity and behaviors associated with applications.

In the case of Amazon, this takes the obvious form of personalized content and complex transactions, as well as a variety of other functions including the creation and storage of, the uploading and ordering of digital photographs, the editing and tracking of orders, and many others. That's not to say that all online stores qualify as web applications, in fact most do not. But Amazon and other stores of similar sophistication have the same characteristics and design considerations as more traditional applications such email and contact management.

Granted, consumer sites like Amazon and myYahoo! Typically lack the level of complexity found in licensed enterprise applications such as Siebel, PeopleSoft or Documentum, but as a tool for classification, complexity is both inadequate and subjective.

Whether any particular application has sufficient complexity to require a highly skilled interaction designer is a question that can only be answered on a case-by-case basis. The point remains, however that if a web property establishes a one-to-one relationship with its users and allows those users to edit, manipulate and permanently store data, then it posses certain capabilities and complexities that distinguish it from traditional content-centric websites.

2.1.1 Dynamic website

A dynamic database driven website uses a database to gather, manage and display information.

They are integral to websites that change constantly in areas such as product inventory, news or listing information. For instance, an e-commerce website using a database to store customer orders and billing information online. Other than that would be a site that displays current stock market information. It retrieves the information from a database and dynamically displaying it through the website.

This type of system is ideal for website content needing regular updates and additions. A database driven system also allows a website to be interactive and store user information.

One example of a dynamic website is an online real estate listing website. It is a real estate listing manager and it uses PHP to drive a mySQL backend and creates a tool which is fast and flexible. It has come out with great features. For instance, it allows visitors to look through the real estate listings any time they want. It also easily keep the property listings updated since there are no HTML coding required to add, delete or modify the listings. It also came with a built-in image manager where photos can be uploaded via the web browser, either when creating new listings or modifying an existing one. A 'photo not available' image will be automatically displayed for the listing if photos are not uploaded for a property. Another feature is it allows flexible search where visitors can browse properties according to whatever criteria they liked.

2.1.2 Advantages of a dynamic website.

Dynamic websites have significant advantages over static websites:

- The cost of maintaining a dynamic website is generally less than paying for programming every time a website needed changes. Some dynamic website providers, do however increase the cost of hosting in proportion to the number of web pages and images a particular website has-this is not a desirable option and passion computing dim to give customers maximum flexibility by allowing them to add tailoring a web hosting plan that will meet the bandwidth, disk space, mailing list and features that is required.
- Dynamic websites can be updated in real time. The website can be instantly updated from any computer that has internet connection, provided that the login to the administration area with the correct login name and password. Web design companies may take weeks to make small changes to websites.
- Lower risk of error from miscommunication with web design company.
- Passion computing dynamic websites have lower set up costs than static HTML websites.

2.2   Server side scripting

A script is really just another word for a program. It is just a set of instructions that take place automatically when a script is run.

"Server side" just means that the control of the script is handled by the web crossing server rather than running a script on each user's personal computer. Web crossing runs the scripts and sends standard HTML (web pages) to each user's browser. All end user's browser has to worry about is displaying the results and the underlying script used to generate the web pages.

2.2.1   Types of server side scripting

Server side scripting market is flooded with various tools like Active Server PagesTM, Personal Home Pages, etc. A web programmer finds its difficult to choose between them as each of them has their own set of advantages:

- Active Server Page (ASP) – ASP is also an abbreviation for Active Server Page. An application service provider (ASP) is a company that offers individuals or enterprises access over the Internet to applications and related services that would otherwise have to be located in their own personal or enterprise computers. Sometimes referred to as "apps-on-tap," ASP services are expected to become an important alternative, not only for smaller companies with low budgets for information technology, but also for larger companies as form of outsourcing and for many services for individuals as well. Early applications include:

1. Remote access serving for the users of an enterprise.

2. An off-premises local area network to which mobile users can be connected, with a common file server.

3. Specialized applications that would be expensive to install and maintain within a company or a computer.

- Personal Home Page (PHP) – In web programming, PHP is a script language and interpreter that is freely available and used primarily on Linux web servers. PHP, originally derived from Personal Home Page Tools, now stands for PHP: Hypertext Preprocessor, which the PHP FAQ describes as a "recursive acronym".

PHP is an alternative to Microsoft's Active Server Page (ASP) technology. As with ASP, the PHP script is embedded within a web page along with its HTML. Before the page is sent to a user that has requested it, the web server calls PHP to interpret and perform the operations called for in the PHP script.

An HTML page that includes a PHP script is typically given a file name suffix of ".php", ".php3", or ".phtml". Like ASP, PHP can be thought of as a "dynamic HTML pages", since content will vary based on the results of interpreting the Script.

2.2.2   Advantages of PHP

As described before, PHP is a tool that creates dynamic web pages. PHP-enabled web pages are treated just like regular HTML pages and can be created and edited the same way a regular HTML page is being created.

According to www.whatis.com

> Until today, it is estimated that more than 6,624,340 Domains and 979,572 IP Addresses use PHP as a server side scripting language.

There has been a proliferation of alternative server-side scripting languages, which perform many of the tasks previously handled by Perl, but have a shorter learning curve. The most well-known of these are ASP and PHP. ASP works primarily on windows platform in combination with a clutch of proprietary products while PHP has the unique distinction of being an open-source server-side script language. PHP is faster and also powerful for dynamic websites.
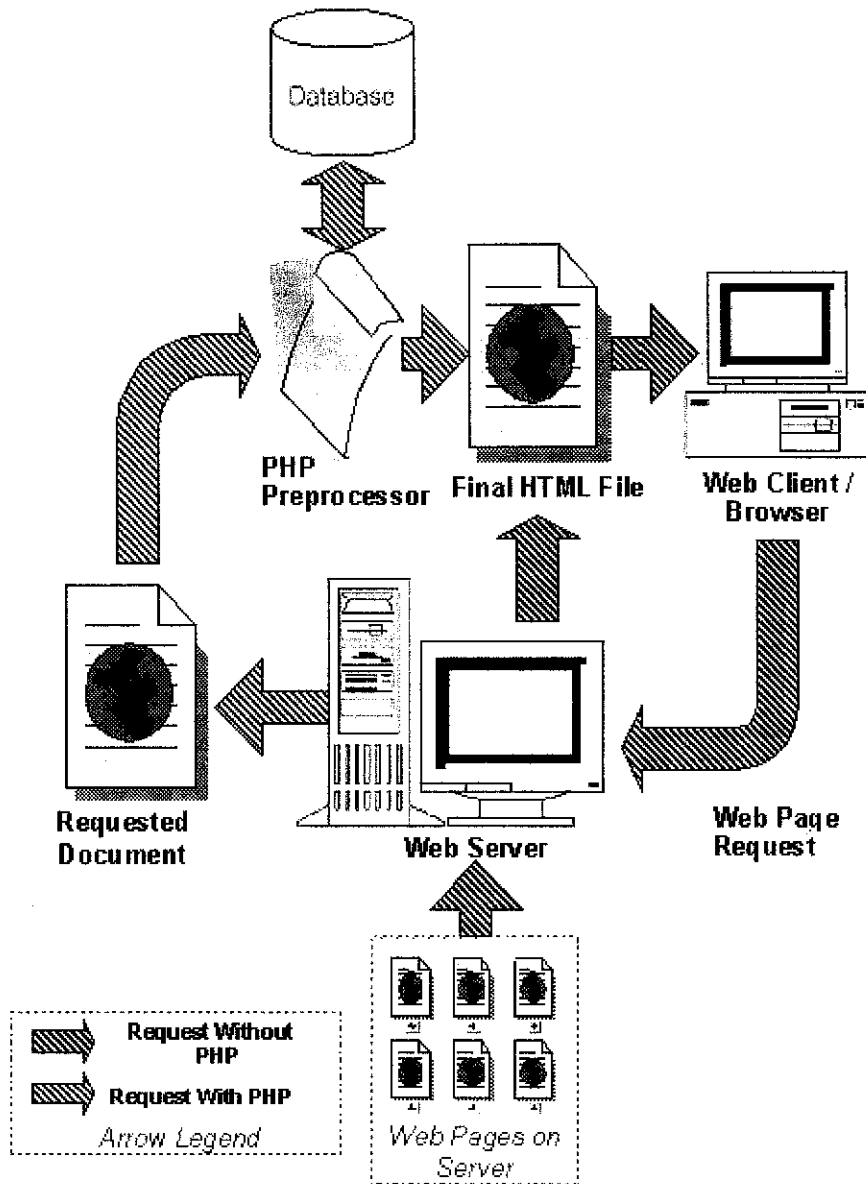
2.3 MySQL

Figure 2: Interrelations between PHP and MySQL

MySQL is an open source relational database management system (RDBMS) that uses Structured Query Language (SQL), the most popular language for adding, accessing and processing data in a database. Because it is open source, anyone can download mySQL and tailor it to their needs in accordance with the general public license. MySQL is noted mainly for its speed, reliability and flexibility. It works best when managing content and not executing transactions.

The mySQL relational database system was first released in Jnauary, 1998. It is fully multi-threaded using kernel threads, provides application program interfaces (APIs) for C, C++, Eiffel, Java, Perl, PHP, Python, and Tcl, allows for many column types, and offers full operator and function support in the SELECT and WHERE parts of queries.

The development team for mySQL has also provided or plans to provide features that include a table definition file format, enhanced replication, more functions for a full-text search, fail-safe replication, aport of mySQL to BeOS, and an option to periodically flush key pages for tables with delayed keys. Over time, MySQL plans to be fully ANSI 92/ANSI 99-compliant.

MySQL currently runs on the Linux, Unix and Windows platforms. Many Internet startups have been especially interested in mySQL as an alternative to the proprietary systems from Oracle, IBM and Informix.

MySQL however brings more advantages if compared over PostgreSQL. MySQL offers the following advantages over PostgreSQL:

- MySQL is generally much faster than PostgreSQL.
- Because MySQL has much larger user base than PostgreSQL the code is more tested and has historically been more stable than PostgreSQL. MySQL is the much more used in production environments than PostgreSQL.
- MySQL works on more platforms than PostgreSQL.
- MySQL works better on Windows, MySQL is running as a native Windows application (a service on NT/ Win 2000/ WinXP), while PostgreSQL is run under the cygwin emulation. It is heard that PostgreSQL is not yet that stable on Windows.
- MySQL has more API to other languages and is supported by more programs than PostgreSQL.

2.4 Paperless systems

Since the onset of the computer age, experts have predicted the arrival of the paperless office. In the office of the future, they said, paper would be obsolete: documents would be stored in electronic directories and transmitted from computer to computer. There would be no file cabinets, reference books or stocks at outgoing mail. There would be also little or no paper waste. Electronic technology was been introduced to reduce excess paper in a variety of ways including:

a) Computerized documents and filing systems

Several companies worldwide have placed phone directories, human resource documents and corporate policy manuals online to avoid constantly updating paper versions. Electronic filing systems are used to reduce the amount of paper copies made in the office.

b) Electronic data interchange (EDI)

EDI is the electronic transfer of business information in a structured format from one computer to another. It is a high-speed method of electronically communicating large volumes of data without the use of paper.

c) CD/ROM and other interactive tools

CD/ROMs have enabled some companies to store vast quantities of information, much more than would fit on an ordinary floppy disk, in an easy-to-use, interactive format.

In addition to reducing paper, these emerging technologies also saves time usually needs to process paper forms. These benefits ultimately mean increased savings for a company's bottom line.

2.4.1 Real life situation example

Paperless system reduces medication errors, saving lives, time and money.

Medication errors can result from dispensing mistakes, illegible handwriting, and a lack of access to complete patient medical and prescription data. Advances in pharmacology have resulted in an ever-increasing variety of medications for physicians to prescribe. However, as more medications become available, doctors may find it difficult to keep up-to-date on all the data surrounding prescribing requirements, possibly sending them diving into their Physicians' Desk Reference to check on drug-drug interactions, dosing regimens, unique contraindications, and other prescribing concerns.

Illegible handwriting garners a lot of attention from the media as a cause of medication errors or ADEs. The Institute for Safe Medication Practices estimates that each year pharmacists make 150 million calls to physicians for clarification on illegible prescriptions. Pharmacy callbacks can be very costly to a physician practice, taking physician and/or staff time away from other duties. In a recent survey of 73 Boston-area physicians, 88% of respondents said they, or their staff, spend almost one third of their time responding to phone calls from pharmacies regarding prescriptions.

In addition, medication errors could also result from a physician's inability to access a patient's prescription history. Increased specialization and the issue of polypharmacy may reduce the sharing of complete medical and prescription histories between clinicians. A lack of a complete prescription history could result in the prescribing of a

medication that a patient formerly had an adverse reaction to, or may interact with a medication or condition he or she currently has.

Point of care (POC) technology is gaining ground with physicians as a viable solution to medication errors, and as a means of increasing practice administrative efficiencies. POC links physicians, pharmacists, and health care providers in a secure information exchange environment. POC technology can support increased physician productivity using wireless or desktop applications to automate the most common physician activities, including prescribing, capturing charges, dictating, ordering labs and viewing results, providing patient education, and recording clinical notes. In addition, POC provides physicians with immediate patient and health plan information to help select the most cost-effective therapy for the patient's condition. In doing so, POC technology can reduce annual per patient health care costs while providing a wide array of services depending on which platform is chosen – including access to a patient's medical history, medical records, physician network, co-pay structure, and other information that can promote and protect the health of patients.

ePrescribing, a specific function of POC technology, is an easy, cost-effective entry point for prescribing medications that also features significant secondary benefits – the potential to save time, save money, and simplify the increasingly complex process of prescription management. ePrescribing technology delivers vital medication information to physicians during the patient visit in an effort to improve patient safety and the quality of care, while also helping to reduce overall health care costs for employer groups and health plan sponsors. Patient-specific information, including formulary, generic alternatives, drug interaction warnings, and other decision support information, can be securely accessed via a desktop computer or handheld device to ensure that physicians have the relevant patient-specific medication information they need to treat patients in a safe and cost-effective manner. With access to e-tools at the point of care, physicians can increase their clinical and administrative efficiencies, positively affect patient and plan costs, and reduce their practice overhead.

Among the benefits of implementing a paperless technology include:

21

a) Clinical efficiency

Patient safety is perhaps the best reason for a physician to consider implementing POC or ePrescribing technology. The ability to view a patient's complete prescription history allows doctors to make the right therapeutic choice for the patient at the right time. Physicians, individually or in a multi-user scenario, have the ability to pick a medication and check to see if it conflicts with other medications the patient is currently taking. Having immediate access to medication information can also improve patient care, allowing physicians to better inform patients about the medication being prescribed. In the study "Clinician Use of a Palmtop Drug Reference Guide," more than 750 physicians said it took from one to five minutes to manually find drug information when using traditional search methods, as opposed to 20 seconds when using the study's ePrescribing software.

In addition to providing a complete medical history, physicians are alerted to drug contraindications. For instance, according to the FDA, a diabetic patient also diagnosed with congestive heart failure should not use the diabetes medicine metformin, as they can have an increased risk of serious side effects, a contraindication recent medical reports indicate many physicians are unaware of. POC technology can alert a physician to similar scenarios at the point at which care is being given, reducing risk for the patient.

POC technology is also helping to reduce medication errors through the use of bar coding. The technology can prevent medical errors by catching them in the medication-ordering phase. One West Virginia hospital chose a POC platform that provides automated decision support with supplemental alerts on maximum dose exceeded, look-alike/sound-alike drugs, and high-risk medications. In the first year after implementation, the hospital saw a 38% reduction in medication errors.

b) Administrative efficiency

ePrescribing also provides significant administrative savings to the practice by improving office efficiencies. Consider the case of a 14-physician primary care clinic in Kokomo, Indiana. The practice saved $4,734 per week per office in physician and nurse time. The practice's daily call handling required 28 hours of phone time for nurses and six hours of physician time. Labor-related time and costs were also being affected by paperwork from pharmacies for processing patient claims regarding drug formularies. However, the practice implemented an ePrescribing platform and decreased its pharmacy callbacks 84% for formulary issues, 28% for prescription clarification, and 44% for renewals/refills.

Beyond pharmacy callbacks, POC arms clinicians with critical health care information in real-time. Physicians using POC technology platforms have the capability to record and access patient progress notes, exam notes, diagnoses, and patient orders, allowing the user to generate records and capture charges. The ability to interface with a health insurance provider allows a physician to make referrals to a specialist within the patient's network and give authorization for needed diagnostic tests or medical procedures. All of these components help reduce staff time, thereby allowing physicians to concentrate more on other aspects of patient care.

In a report by The Boston Consulting Group, 45% of 400 physicians polled said ePrescribing had a "major impact" on their compliance with formularies, proving that, if the process is streamlined, compliance may follow. ePrescribing technology provides physicians with real-time access to patient pharmacy benefit plans, including formularies and co-pays. Writing a prescription that is formulary compliant helps to minimize patient and plan costs, while the contrary can result in additional time required for physicians and/or their staff to address calls regarding an authorization to change the medication. Manually checking a patient's formulary information could also add significant time when writing a prescription.

CHAPTER 3
METHODOLOGY

3. 1   Procedure identification

Previously, the methodology of all researches and system development frameworks for this project is using the Systems Development Life Cycle (SDLC). It is the process of understanding how an information system, can support business needs, designing the system, building it and delivering it to users. The process involved include:

- Planning
- Analysis
- Design
- Implementation

An advantage of this process is it defines activities to be carried out where the SDLC provides a framework to present and to understand the activities involved in the systems development process.

However, it also has a disadvantage which is it takes long-time between analysis and implementation. In other words, it is quite time consuming.

In general, the SDLC is not the actual design process implemented for this project. The project will not be able to proceed if the SDLC is still being carried out.

For this project, there is need to implement different approaches for different parts of development process. The design and implementation need to be redo to implement those requirements which has been changed. Therefore, the author's own methodology has been decided to be the most suitable procedure for this project.

The three four main phases involved in this project are:

- Analyzing
- Designing
- Constructing prototype

The diagram below illustrates the development cycle:

| Analysis | → | Design | → | Construction |
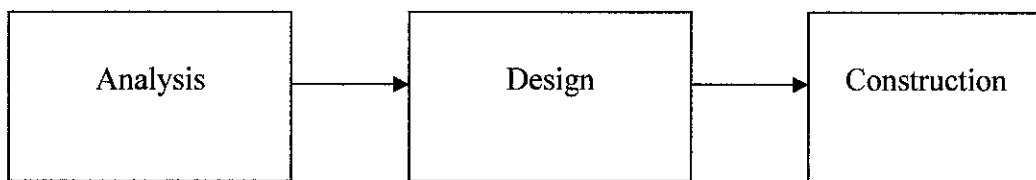
Figure 3: Author's own methodology

3.2 Analysis phase

3.2.1 Research analysis

Listed are among the various data gathering techniques used:

a)   Collecting facts from existing documents

- Books
- Journals
- Internet articles

b)   Observation

Requirements:

Information listed below are considered as parts of the requirements process or specifications. Observations and interviews have somehow gathered some useful information.

a)   Initial strategy

1. Stationery management system via online as an alternative way of making stationery request.
2. How Internet technology can fulfill this.

b)   Feasibility analysis

The analysis was done to ensure that the prototype of the Online Stationery Management System is possible in terms of study, time, economic and future implementation.

c)   Requirements analysis

1. Things required to make this project a success includes:

    - Ability to understand the Internet Technology and online systems architecture.

    - The information should be accessible to all staff in Universiti Teknologi Petronas (UTP) without any interruption.

    - Ability to use the system regardless of location.

2. User requirements are as follows:

    - UTP staff will be able to make stationery request online.

    - Administrator (Human Resource Department staff) will be able to view, edit, or delete data.

    - Finance Department staff will be able to view data.

d)   System analysis

1. The system will be done on an online basis.
2. UTP staff will be able to log in to the web based system in order to fill in the online request form to request for stationeries required.

e)   Specifications

The system will be conducted via online. However, this will be limited to only functions which are applicable to the scope designed behind the research.
It will focus on basically main task such as submit request form, view, edit and delete.

3.2.2 Prototype planning and analysis

The user interface for this project was done using Macromedia Dreamweaver MX as it is the latest version for web page design. The database is developed using MySQL. This is due to its attractive features such as fast, ease of use, free and portable. Apart from that, MySQL is fully networked and the database can be easily accessed anywhere on the Internet.

3.3 Design phase

3.3.1 Research design

After defining the problem, a theoretical framework was illustrated. Then the data gathered via various data gathering techniques was used to bring about the hypothesis.

3.3.2 Prototype design

All information that has been gathered will be converted into a structured systems design which is written in a programming language. It has been decided that PHP has been used as the programming language and MySQL as the database systems used for data.

3.4 Construction phase

3.4.1 Prototype construction

The end product will be a prototype of the Online Stationery Management System. Prototype is a valuable tool where it gives opportunities to evaluate followed by rebuilding it.

This project's prototype however integrates Internet technology with website and database.

3.5   Tools required

There are several tools and technologies used for creating this system. These tools and technology have been chosen:

1. Hardware

    a) Server application
    b) Client application

2. Software

    a) Code development
        - XHTML
        - PHP
        - MySQL

    b) Documentation
        - Microsoft Word 2002

CHAPTER 4

RESULT AND DISCUSSION

4.1   Analysis phase result

a)   Collecting information from existing documents.

There are many advantages of converting a manual systems to a web based systems. For instance, unlike the manual system, online stationery request system will be very convenient as the request forms can be accessed at any time, anywhere just by logging in to the system.

b)   Observation.

Observations have been made on the current UTP stationery request system. The observations include the process of requesting stationeries as well as the process of request form approval and stationery pick up. By looking at the current process which is inconvenient, it has given an idea to enhance the manual system to a much more convenient system in an online basis by implementing the Internet technology. These are a few significance of implementing an online system:

Results:

- Saves time.
- Save cost of purchasing papers.
- Forms can be accessed anywhere at any time.
- Improves accuracy in terms of data management.

Discussion on Observation:

From this, it is shown that Internet (online request form) helps improve the current systems in terms of convenience, cost, time, flexibility as well as accuracy.

4.2   Design phase result

The diagram below represents a UML Collaboration diagram which illustrates the flow between browser to database.
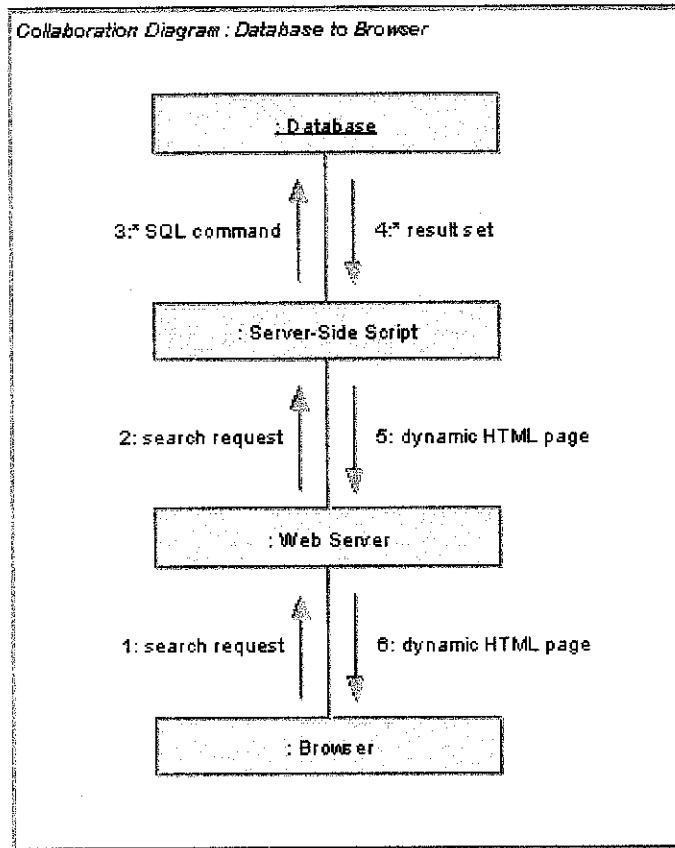

Figure 4 : Collaboration diagram: Browser to database

Firstly, UTP staff will have to log in to the Online Stationery Management System (OSMS) website. They then need to go to the staff section. At the staff section, they will have to go to the 'Request Form' to make any stationery request. The request form will have to be filled in before submitting it.

Once the request form has been submitted, it is first being sent to the staff's department head in e-mail form to seek approval. If it is not approved, it will be forwarded back to the staff. If it is approved, the department head will forward it to the stationery store keeper (Human Resource department staff) and the store keeper will notify the staff that the requested stationeries can be collected. Notification will be done by e-mail.

All approved stationery requests data will be stored in a data server which is MySQL. Only staff of Human Resource department and Finance department will be able to view data stored in the database. However, only Human Resource department staff will be able to edit, add or delete the records.

4.2.1 Process flow

a)   Staff

1. To request for stationery:

User will have to click on 'Request form' and they will be linked straight to the request form. After filling it up, it will be submitted by first going through the department head. Process will proceed only if the request is being approved.

b)   Administrator

The Human Resource department acts as the Administrator.

1. To log in:

User will have to click on login link on user control panel. A login screen will appear and they will have to enter username and password. The results are:

- If a correct username and password has been entered, user will be linked to the page which informs them that they have been logged in and they can click on the hyperlink provided to enter the confidential site which is the database.
- If user did not enter any username and password or the username and password are invalid, they will be linked to a site notifying them, login incorrect and there will be a hyperlink of retry for them to retry the login process.

The administrator also has the authority to view, add and delete stationery and staff list from the database.

4.3 Construction phase result

In this construction phase, user interfaces for Online Stationery Management System (OSMS) website are being developed using HTML and PHP. The database is being created and developed using MySQL instead of other types of database. This is because it is a powerful relational database management system containing modifiable source code. It is the most preferable option due to its robust, swift and reliable structure.

4.3.1 Development / Setup web server

For this project, it is being chosen that the web server for this system is the Apache web server.

CHAPTER 5

CONCLUSION

5.1   Summary

Today, the Internet is a public, corporative and self-sustaining facility accessible to hundreds of millions of people worldwide. Physically, the Internet uses a portion of the total resources of the currently existing public telecommunication networks. The most widely used part of the Internet is the world wide web (www). Using the web, it allows users to access to millions of pages of information, anytime at anywhere.

The Online Stationery Management System (OSMS) on the other hand is an example of an Internet technology which can help simplify stationery request process in UTP. Findings in this research paper perhaps can be used to provide new insight of the proposed systems on future enhancements. With the further research works and development efforts, this system can be improved in the near future.

5.2   Limitations of the developed system

1. Although Internet has been widely used and solved some problems, it does not guarantee that a currently faced problem can be solved one hundred percent.

2. The system will be down if there is a black out.

3. Due to network problem in UTP, some difficulties such as integrating the web server and database has been encountered.

4. This project is just to display the theory on how staff in UTP can make stationery request using online request form.

5.3   Future enhancement

1. A smoother integration between web server and database can be done with a more stable network integration.

2. The user interfaces for the systems could be improved.

3. The needs to further study aspects of systems failure, replications and backups.

4. A fore real prototype can be produced as the prototype is just concentrating more on conceptual theories.

5. The systems can be further enhanced in the future to be more dynamic.

REFERENCES

[1]   Dix A, Finlay, A bowd G & Beale R (1997). Human Computer Interaction. Prentice Hall.

[2]   Jeffrey L. Whitten, Lonnie D. Bently, Kevin C. Dittman (1986). System Analysis and Design Methods. McGraw-Hill.

[3]   Kendal & Kendal (1988). System Analysis and Design. Prentice Hall.

[4]   Roger S. Pressman, Ph.D (2001). Software Engineering, A Practitioner's Approach. McGraw-Hill.

[5]   Wilfred, Gupta, Bhatnagar (2002). PHP Professional Projects. Premier Press.

[6]   Dietel, Dietal, Neito (2002). Internet & World Wide Web How To Program. Prentice Hall.

[7]   Pence, James H. (2001). How To Do Everything With HTML. McGraw-Hill.

APPENDICES

Building a Web-Page to be powered by a database

One suggestion is to proceed in three major steps:

- Create a static HTML version mock-up of the intended page
- Write a PHP script for the dynamic areas, but use dummy data
- Add SQL queries to supply 'real' data in place of dummy data

1. Create a static HTML version mock-up of the intended page

This can be accomplished using your favourite WYSIWYG HHTML editor eg
Dreamweaver. Put in dummy data where database data will be required in the final
version.

<div align="center">

Page Title

</div>

Heading

Author:...

2. Write a PHP script for the dynamic areas, but use dummy data

Replace the section of HTML where the database entries are to go with a PHP script

```php
<?php
    echo "<table>";
    for(...){
        echo "<tr>";
        for(...){
            echo "<td>dummy_data</td>";
        }
        echo "</tr>";
    }
    echo "</table>";
?>
```

3. Add SQL queries to supply 'real' data in place of dummy data

[See above notes "Accessing a database from a PHP script"]. If possible, make an SQL
SELECT query to obtain all the data required into a PHP variable ($result say). It is

possible to obtain a row at a time from $result using `$row=mysql_fetch_array(...)` or `$row=mysql_fetch_row(...)`. Individual values can then be indexed in the style $row[...]. These values finally replace the dummy_data.

This design inevitably produces a mixed language page. It is standard HTML code punctuated by PHP script inserts. Inside the PHP script are found SQL embedded commands. This makes the reading of the page a bit tricky and also the proces of debugging if anything goes wrong. Within the one page there are potentially 3 different sets of rules for quoting of strings, escaping of special characters, style of comments, sensitivity to case, etc. In some cases is possible to minimise the confusion by the judicious use of includes.

html.php	php.inc	sql.inc
```<html> <head> <title>...</title> </head> <body> Page Title <?php include "php.inc"; ?> <hr> <body> </html>```	```<?php include "sql.inc"; echo "<table border=1>"; for($i=0;$i<2;$i++){ echo "<tr>"; $row = mysql_fetch_array($result); for($j=0;$j<2;$j++){ echo "<td>"; echo "$row[$j]"; echo "</td>"; } echo "</tr>"; } echo "</table>"; ?>```	```<?php $connection = @mysql_connect(...); $db = @mysql_select_db(...); $sql = " sql_command parameters ; "; $result = @mysql_query(...); ?>```
This file contains mostly HTML	This file contains mostly PHP code	This file contains mostly SQL related code

Practical details for using mySQL

- Each group will have a database allocated with a name (group_usernamedb)
- Each group will be allocated a username for the mySQL server (similar with your group login id)
- Each group will be allocated a password (similar with your group password)

phpMyAdmin

You can use the locally installed copy of phpMyAdmin to administer your tables. You first have to give your mySQL username & Password.

- Make a Table

- To create a table Click on the name of your database (?db) in the left hand panel. Then move to the right hand panel and fill in the name of the new table, the number of fields and press GO
- You will now have to give a name and a type for each field. Common type options are INT and VARCHAR. With VARCHAR you give a maximum number of characters allowed.
- Populate a table
  - Create a text file with the records you need 1 per line and with fields separated by semicolon (;)
  - Click on the name of your table in the left hand panel and then select "Insert textfiles into table"
  - Browse for the text file and submit.
- Editing Tables - Using phpMyAdmin you can
  - browse the actual data in your table
  - change the name or type of a field
  - change the data in any field of any record
  - empty the table (prior to reload) - NB empty and drop are different - drop is particularly dangerous!

Market Share for Top Servers Across All Domains August 1995 - March 2004
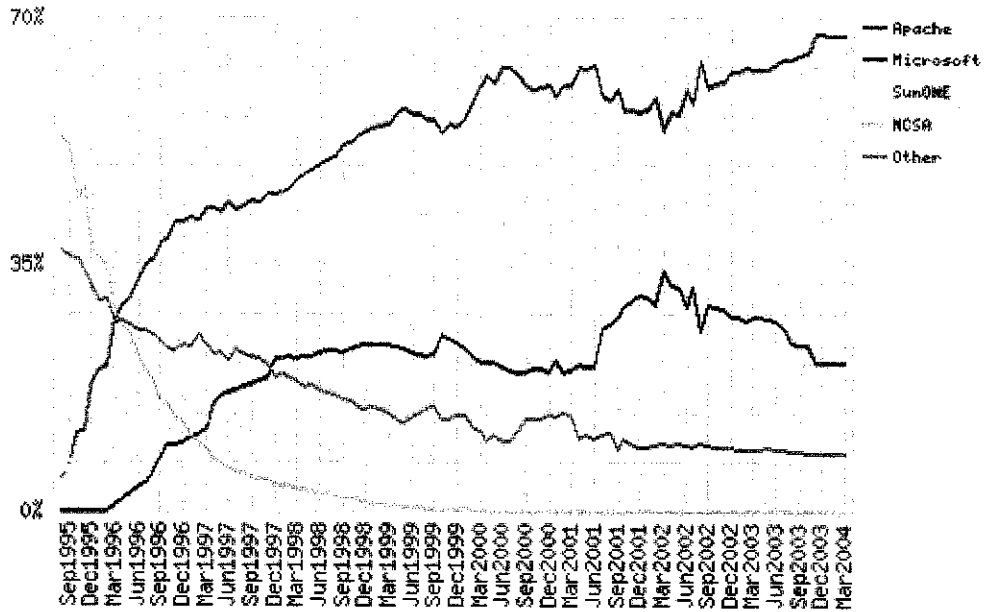
Top Developers

Developer	February 2004	Percent	March 2004	Percent	Change
Apache	31703884	67.21	32280582	67.20	-0.01
Microsoft	9849971	20.88	10099760	21.02	0.14
SunONE	1657295	3.51	1651575	3.44	-0.07
Zeus	755227	1.60	762716	1.59	-0.01

For the third month in a row, despite significant growth in absolute terms, the percentage market share of Apache and Microsoft have change by less than the 0.3% resolution of the graph, so the graphs are flat.

How to install and configure MySQL for Windows

Introduction

The first thing you'll need to do is download MySQL. The version that I used for this article is 3.23.27-beta, and as of today it is in the final stages of being released. The version and filename may be different when you go to download, but the directions should be the same.

Also, you should be prepared to pay the license fee, unless you are using the MySQL server for educational use, or in university or government research settings. In those cases, you can contact the MySQL licensing team and ask them to waive the fee. Remember, though, that this is true only if you want to use the current version of the MySQL server. The client programs are always free. Another option is to download the shareware version of the MySQL server. This is an older version that you can evaluate for 30 days.

Installing MySQL

1. Now that the file is downloaded, you'll have to extract it into a temporary directory. Since the file is in .zip format, you'll have to use a program such as WinZip to do this.

2. From Windows Explorer, double click on Setup.exe. The Setup Wizard will walk you through the installation process. For this article, I chose a 'Typical' installation using the default path of 'C:\mysql'.

[Note: Once the files are installed in the working directory, you are ready to proceed. There are several ways to do this. If you read C:\mysql\Readme, you'll find the directions for using the new winmysqladmin.exe program. Winmysqladmin is a GUI application that helps you configure and monitor the MySQL server, and it will also install MySQL as a service on NT. Personally, I don't like it. The interface is slightly different on NT and Win95, and I find its behavior a little erratic. However, it does what it says it does, so if you're interested in learning how to use it I encourage you to read the directions and try it out. The following directions will just use the command line, since I think it's a more straightforward way to continue the installation.]

3. Now you're ready to start the server. There are several servers to choose from:

mysqld   The standard MySQL server
mysqld-opt A server that's optimized for Pentium processors
mysqld-nt   For Windows NT only. This server may be installed as a service

For all versions, you can start the server with

c:\mysql\bin\mysqld

or

c:\mysql\bin\mysqld-opt

To stop the server use

c:\mysql\bin\mysqladmin shutdown