ONLINE STATIONERY ORDERING SYSTEM

by

Hii Lu Soon

Dissertation Submitted In partial fulfillment

of the requirement for the

Bachelor of Technology (Hons)

(Business Information System)

JULY 2006

UNIVERSITI TEKNOLOGI PETRONAS
BANDAR SERI ISKANDAR
31750 TRONOH
PERAK DARUL RIDZUAN

CERTIFICATION OF APPROVAL

ONLINE STATIONERY ORDERING SYSTEM

by

Hii Lu Soon

A PROJECT Dissertation submitted to the

Business Information System program

Universiti Teknologi PETRONAS

In partial fulfillment of the requirement for the

BACHELOR OF TECHNOLOGY (Hons)
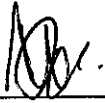
(Business Information System)

Approved by,

_____

(Norshuhani Bt Zamin)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

JULY 2006

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 references and acknowledgements, and that the original work contained here have no been undertake or done by specified sources or persons.

(Hii Lu Soon)

ACKNOWLEDGEMENT

First and foremost, I would like to recite greatest gratitude to the GOD for giving me the opportunity in completing this project on time and without much hassle or problem. Without His observance in giving me the chance in finishing this project, there might be a major problem which can result in delay of turning in the report on time.

In completing this project, there are some people that had been the strongest backbone of all activities done. I would no have been able to finish up without their assistance, encouragement, and support either in terms of material, or spiritual. With this I would like to put some credit to them who has helped me through all this time duration. They are listed as beneath:

I. Ms.Norshuhani Binti Zamin - My supervisor, who had gave me all the guidelines and support in producing a good project.

II. Universiti Teknologi PETRONAS – All UTP lecturer, for all the full cooperation and providing me useful suggestions and ideas in my system development.

III. Mr Azahari – Staff at UTP's Stationery Unit, who had gave me all the problems faced by current manual ordering system.

IV. Parents and families – For all the moral support given as to encourage me in completing this project successfully.

V. Friends – As they had been there with me during good and bad times, and offering all the unconditional help.

And to all whose name I had no mentioned, but had have relation with my project, either directly or indirectly. All your help and kindness will never be forgotten.

ABSTRACT

This paper contributes a research on rule based online stationery ordering system in UTP. The system is rule based system because the lecturers must obtain approval from 2 layers of top management before passing the application to stationery unit for further processing. The objective of the system development is trying to automate the ordering.

The innovation started when the current manual system is giving lot of weakness to the users in UTP. It is time consuming for user especially the lecturers to request for stationery . Sometime they may have to wait almost nine month to get the stationery. This cause some lecturer prefer purchase themselves at supermarket rather than go through such complicated procedures.

The system is running on intranet and only accessible within network UTP. The system will connect all client pc from lecture, Program Head and Head HRM to the server which install at stationery unit. The stationery unit also works as administrator to control and maintain the system.

The system will apply the use of Rapid Application Development (RAD) as the methodology to the system development. The RAD been chosen since it easy to apply and produce low failure to the system compare to other model.

Research has done to the some ordering system in website which applied the use of rule bases system as well. An online survey has been done to the UTP lecturers and the staff in Stationery Unit to get their suggestion on the idea of the Online Stationery Ordering System (OSOS). The development of the current OSOS is base to the lecturers' requirement.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 Background

Online Stationery Ordering System (OSOS) is a rule-based system to assist Program Head, Human Resource Management (HRM) and Stationery Unit of UTP to process stationery requests by the UTP lecturers.

OSOS is an intranet based system. Intranet application is applicable to support ordering activities, which combines web technology and database. The system will be installed in admin or stationery unit PC and accessible by all lecturers, Program Head and Head HRM through intranet network. After the lecturer complete the form fill and upload the ordering form in database, then the program head of the department will download it to view before approve it. After the Program Head approved the request by the lecturer, the approval will be passed to the Head HRM for further approval. The Head HRM will go through the same procedure like the Program Head before he or she approve it and upload to database again. At last, the staff in stationery unit or system administrator will view through all ordering form which approved by the Program Head and Head HRM before make acknowledgement to the lecture that time is ready for them to make collection.

OSOS has great potential to be commercially implemented with the growth of internet usage nowadays as ordering play vital rule in college, university, corporate and even in government sector.

1

1.2Problem Statement

1.2.1 Problem Identification

In manual system, lecturers are required to apply stationeries manually. They need to fill up a form and submit it to their respective head program for approval.

The problem which identified by lecturers - the time waiting for them to get the request ordered. Mostly the approval process would take one week up to one month before the lecture managed to get their ordered stationery.

The problem faced by program head and Head HRM- to track lecture ordered history before giving any approval to them. This may cause extra budget to UTP if administrator didn't set limit budget for each lecture in one semester. The lecture may take this advantage for their own benefit and no for academic purpose.

1.2.2 Significant of the Project

The Program Head and Head HRM need past historical information in order to make a decision whether to approve or no the stationery request by a lecture. They don't have the reference since it kept by stationery unit. This may take long time for them to refer back the lecture ordered history one by one at stationery unit.

Artificial Intelligence (AI) providing easy access to the information. Program Head from each department only track stationery request from lecturer at which academic that he or she attach to. While Head HRM will track all stationery request from all lecturer after Program Head at each academic department make approval. The system couldn't auto process lecturer request base to limitation in one semester. So all the approval steps very depend on Program Head and Head HRM judgment by referring to how often the lecturer make stationery request in one particular semester.

1.3 Objective and Scope of Study

1.3.1 Objectives

- To reduce time taken for stationery ordering.
- To assist Program Head, Head HRM to make approval in easy way.
- To improve the stock controlling in stationery unit by administrator there.
- To control the stationery budget by setting the limit ordered by each lecturer in one semester.

1.3.2 Relevancy of the Project

Staff in UTP should be exposed of using web application so that we are no left behind compare to other institute like MMU. UTP should implement and expand the use of internet, as today's community is eager of getting more services from internet.

Stationery Unit is one of the main departments in UTP. Task of ordering process and stock order keep on increasing. But currently this entire job is done by single person. It may give burden to the staff by handling it in manual way. Therefore, there is a need to come out with computer system like rule-based online stationery ordering system to improve and productivity and quality. Rule-based online stationery ordering system has been applied at many institute and company in many countries and they gain benefit from it. UTP should take a step forward to implement this method to assist the staffs to do faster job.

1.3.3 Scope of study

Since the ordering process only happen within the UTP campus, so user suggest to use intranet rater than extranet. The system only require one server as center processing. The server will be installed at stationery unit. The stationery unit will work as administrator. It has right to do controlling, maintenance, and editing, deleting, and

set limit request policy all the time. The server will connect all UTP lecturer, program head of each department and head of HRM client pc. User required to use their own User ID and create own password to log in to their personal account. Each account will have different functionality, base to their designation. In this scenario, where lecturer account will no has the right to view and edit the part forward to program head and head of HRM. This is the function of rule-based system to show why the lecturers have no right to do so once they register as lecturer.

CHAPTER 2

LITERATURE REVIEW AND THEORY

2.1 Introduction

As we begin the 21st century, we observe major changes in how human use computerized support in making product order. As mostly the UTP staffs include lecturers are computer and web literate, rule-based system evolving from its beginning as primarily a personal support tool, and is quickly becoming a shared commodity across the organization. Users like program head and HRM can make better decision of approval because they have more accurate information at their fingertips. Below are few case studies which could be good reference for my project development:

2.2 Control Substance Ordering System

This system actually designed by Drug Enforcement Administrator Office of Diversion Control (OD) under US Department of Justice to avoid the diversion of legitimate pharmaceutical drugs into illegal channel. According to Ledgard [1], the system designed to replace the current DEA 222 form which requires 1 to 3 days from time submitted until it delivered. The DEA 222 form cause more problem to corporate user when they tried to change name, address , or key in wrong number of line item, and forgot to sign the form.

The benefit that the department get from the new online system, include:

- The error rate of ordering would be less.
- With faster ordering mean there would be less reason to stockpile product and less waiting for an order form.

- Fewer products could be kept in shelf and smaller orders could be placed more easily by pharmacists.

The journal didn't provide detail description of any methodology implied in the system.

The system only allow those corporate which authorized by Drug Enforcement Administration to access the system. Normally the authorized user will be given password to access the system. Each corporate are given quotas for purchase certain amount of drug. In way to avoid any system failure or illegal trade between internal staff who maintain the system with external corporate user, the system has require the distributor drivers like FedEx , DHL and UPS to double key in the total quantity of stock ordered by the corporate before send to destination. The transportation can be done only after the second key in data match with previous data which done by the corporate itself. The stocks will be blocked by FBI if both the data no match. Further investigation will be launched before the stock can be delivered.

The system has given me some idea on how to track lecture ordering in my project. In this concept, only the authorized lecture who given password by administrator can access and make order through the system. Since hacking problem come serious especially through internet, a proper system which requires double identifying of system user is required. From here, the system will make sure only those legal user who granted by UTP administrator to do the assessment.

2.3 Jo'mama Café System

According to Micallef [2], Jomama is a client server web ordering system. The system developed with 2 purposes: to allow primary customer to receive internet order and keeps its customer updated on the status of their order while making food order available to secondary customer .The system allows the café employee to view and process these orders and remove them from order queue when they have been

6

completed. Then the employee can notify to the secondary customer that their order is ready for pickup.

The system applies use of Java applet and can be accessed through online. Through this system, the consumer would receive order confirmation and order ready notification. The consumer will receive a response informing them on what type food is available, total price and estimated ready time. Also, the consumer can specify the instruction for food preparation and location for food delivery.

The system applies use of Rapid Application Development (RAD) approach to develop the system. According to the system architect, Cathrine Zanbaka, she mentioned that the system concept still new to Jo'mama project team. By applying the RAD model, it may help to reduce the risk of failure to the all system. So far, the team manages to get 2 time correction or edit to the system after getting some feedback from the café consumers and the café owner itself, Billy Turchin .

The user interface of Jamama Café System is simple and intuitive and to make it user friendly to users. The system requires 14.4bps or faster modem connection for user to download the applet. The system server will handle up to 20 concurrent client connections without a perceivable reduction in performance. After an order is submitted, the connection will be closed. Then a new connection will be opened for new order verification. The users can use Java 1.1 compatible browser on any platform. However, the system will require client machine to have such Netscape Navigator 4.0 or higher, Microsoft Internet Explorer 4.0 or higher, and Sun's HotJava browser v1.1 or higher .

The system gives me the idea to close any online form which was approved by the program head and head of HRM. This mean whatever form that send and queue in program head and Head of HRM account will be closed for its connection with them but still keep save in database. The list of queue form in the account will be easier to be

tracked by program head and head of HRM without any confusing in way to recheck back the ordered form.

2.4 The Doctor / Nurse Ordering System

According to Folsom[3], the system developed by HSI to overcome the problem of doctors / Nurses who require paper work, automate the ordering process, and create a more efficient of orders delivered throughout the hospital[3].

After the launched of the system, a doctor will directly input his order to the system. This creates efficiency by bypassing a clerk or nurse that is now necessary to input order that is written by hand. The system also allows the nurse to input order that given authorized by their doctor .

The system applies use of RAD-based methodology. Since it is a big and quite complicated system and involved up to 5 programmers to code and monitors the all system progress. The menus involve in system are various, from bloodwork, CAT scan up to consultation. So, carefully adjusting the System Development Life Cycle (SDLC) is needed to avoid any mistake especially when relate to patient life.

The method used in the system development includes Object Oriented Analysis and Design, Process Oriented Analysis and Design and Data Oriented Analysis and Design. The programming involved is Pascal, and C. Other tools such as Oracle DBMS and PowerBuilder Desktop will provide wider base for the health care system development . The system design base to characteristic of user, including their behavior, attitudes, and abilities. The team project found that mostly the doctor and nurse is not reluctant to change their operating procedure. Once they familiar with current homepage, they want continues it without any changes.

The systems which apply use of rule-based system actually give me the idea on how to make my system more perfect. The system above make sure the nurse only can do any key in data to the patient after authorized by doctor to who she attached to. She only can give certain amount of dose to the patient as described by the doctor requirement stated inside the system . In my project, I can make sure that the lecture that make stationery ordered will only get acknowledgement by stationery unit for stationery collection after the ordered has been approved by the department program head and head of HRM. The stationery unit wills no issue any stationery to that particular lecture without any approval from program head and head of HRM. The process will no go forward if one of them either program head of head of HRM no approves the request by the lecture.

2.5 Conclusion

The rule-based system which applied in web application actually giving lot of benefit to users in world wide. Every authorized user can do data sharing by following some policy introduced by each institution. The system provides secure way to user by no harm the purpose of institution in introducing the system use. The rule-based system help to solve any unauthorized user access to that particular system in getting some secret document which suppose be viewed and edited by certain people only.

CHAPTER 3

METHODOLOGY

3.0 Procedure Identification

The system will be developed using Rapid Application Development (RAD) methodology that follows a prototyping development process. The prototyping is useful in developing web systems via Web programming tools.

Prototyping involves performing the analysis, design, and implementation phases concurrently and repeatedly (Figure 2). System prototypes are quickly developed and demonstrated to users, whose input is used to refine them.

The main advantage is that systems are quickly provided the users even if not yet ready for institutional use. Feedback is obtained, and the system can be modified on moving to the next prototype. Further analysis may be needed as well.

3.1 System Process Model
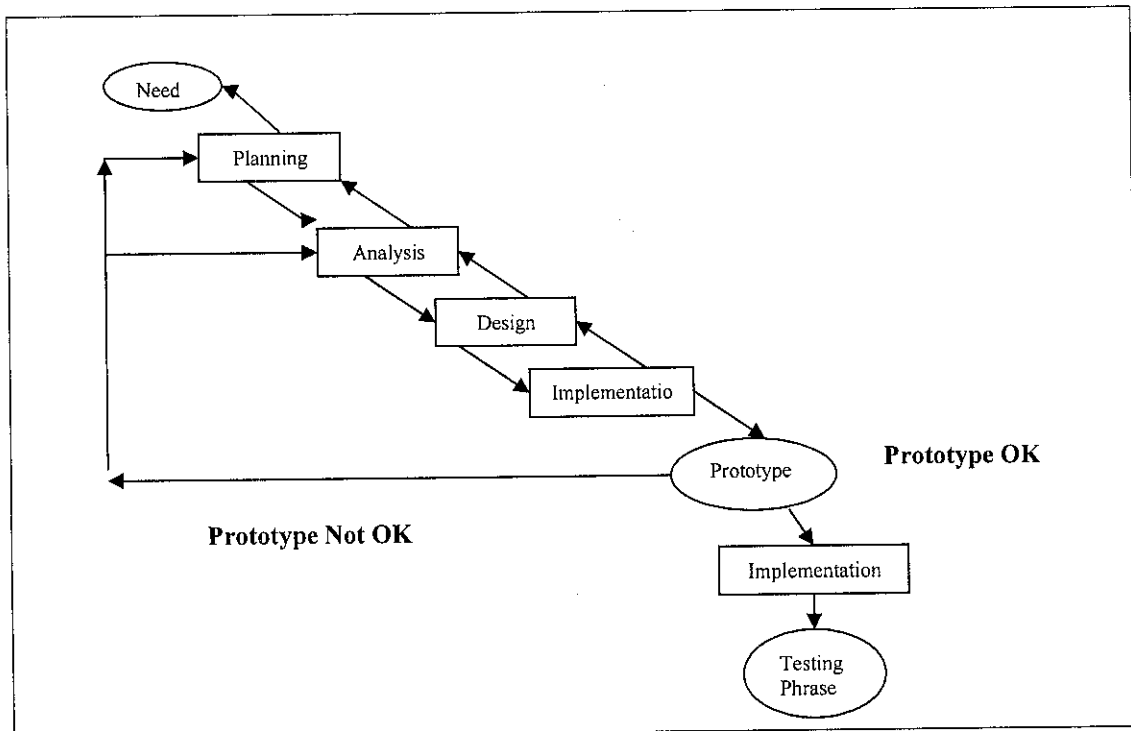
Figure3.1: prototype Development Process. A Rapid Application Development (RAD) Method.

- Plan the hardware or software required for the project.
- Analyze and get Product Requirement
- Design the process of implementing the system
- Implement the project by using intranet connection.
- Test the product to ensure the product successfully completed and fulfill the objectives.

The four phases of RAD method are:

3.1.1 Planning

The planning phase is the initial step in producing this **"Online Stationery Ordering System"** project. First and foremost, it will be comprised a selection of project title and followed by proposal submission, where in this phase, project scope,

11

objective(s) as well as problem statement(s) are well defined. Then this project will come out with preliminary research, progress report and produce the final draft before submitting the final dissertation report. At this stage, the main task to be considered is the hardware and software requirement needed to undergo for this project. The title has been analyzed and it requires using the web technology which allowed the uses of ASP and JavaScript. Therefore, it is important to know better how the ASP and its technology work. In addition, the stationery ordering base rule-based system is a new concept and further understand needed on how its work, the preliminary study should be done as well the guidance from the expertise should helped more.

3.1.2 Analysis

The second phase will come to the analyzing of literature reviews relate to the proposed topic, research and study on what the software will be used, then produce a progress report. The major part for this phase is to analyze and get the product required for later system development. Here, this step will continue with development of UML diagram to further understand the flow of the project and system. Analysis part on server, database and user interface should be done in this phase before continuing to the next phase. The analysis also includes the data collection through interview. It asks and answers such important question as who the users will be, what the system will accomplish, and where and when it will run. This phases starts with the development of an analysis strategy or plan to guide the project. If there is an existing system, it is analyzed, along with ways of moving to the new system. This leads to further information gathering, leading up to the development of a process model and a data model.

Screen shot for SQL server 2000 developer edition:
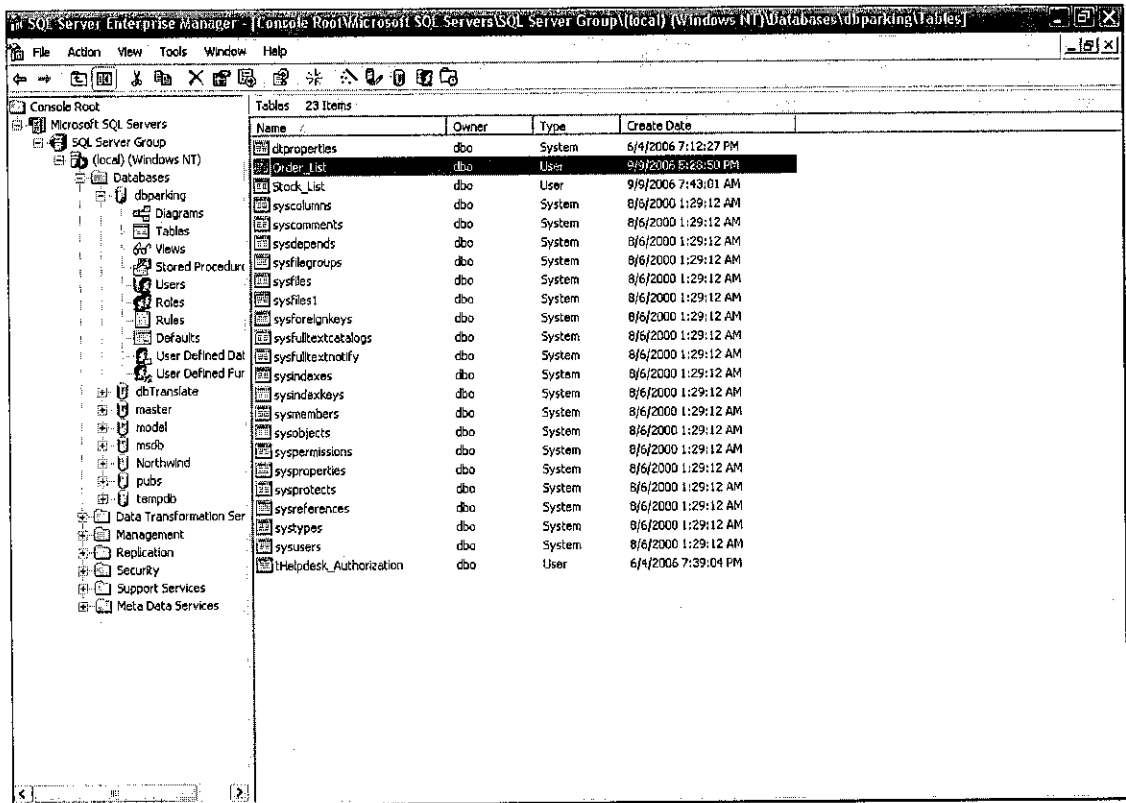
Figure 3.2: Enterprise Manager – console to manage overall database server.

Before going to further analysis and design steps, we can start to install the SQL Server 2000 Developer edition. The server later will be controlled by the stationery unit or admin. The admin can do the task of create, delete, insert and update the table.

SQL Query Analyzer
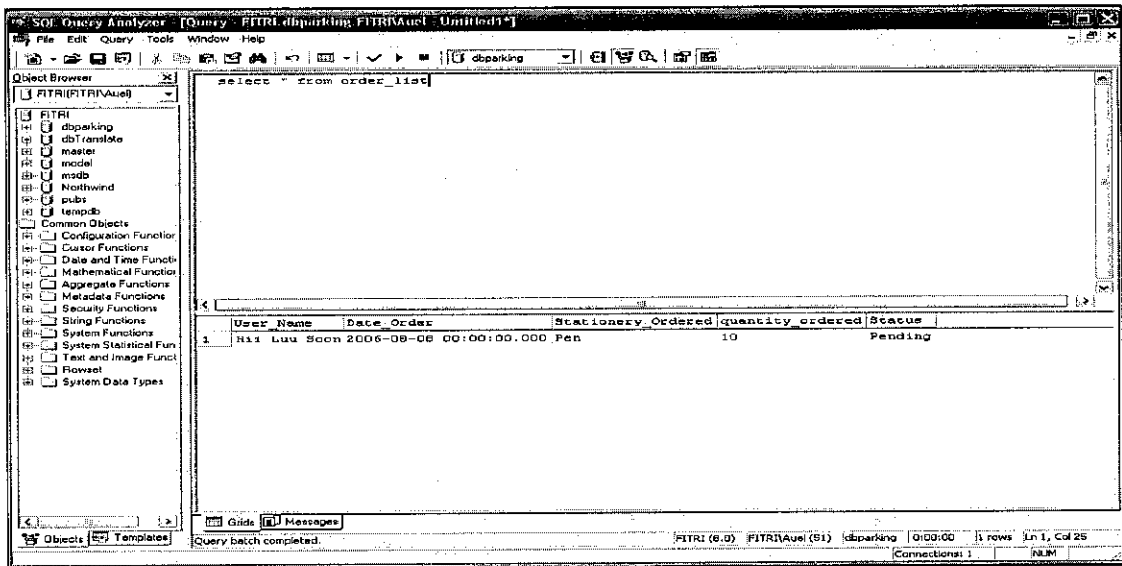
Figure 3.3: Test SQL statement / SQL query before executing it at the web page.
Display output on based on query given.

SQL Profiler
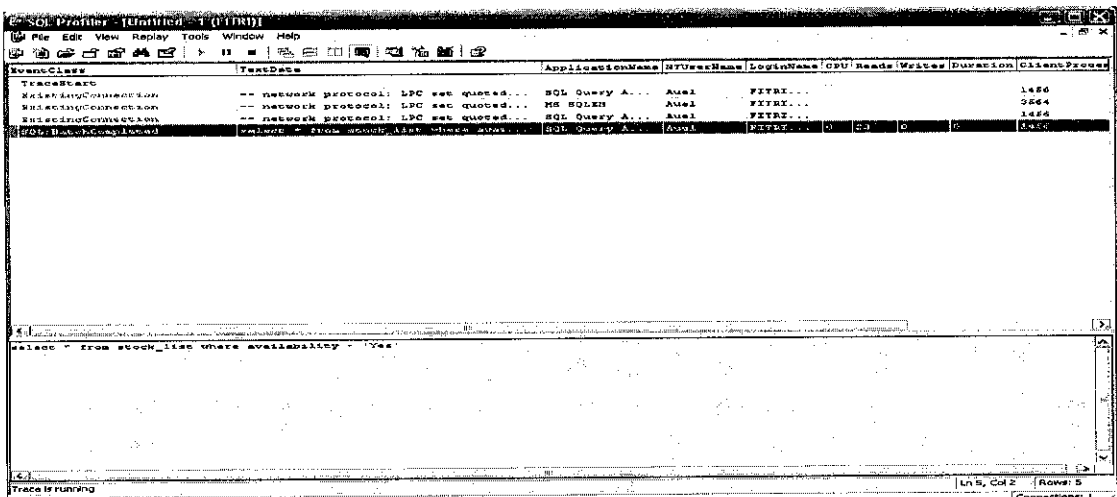
Figure 3.4: To perform trace on every SQL statement executed at the server and the
Web← system. To do faster and more detailed debugging.
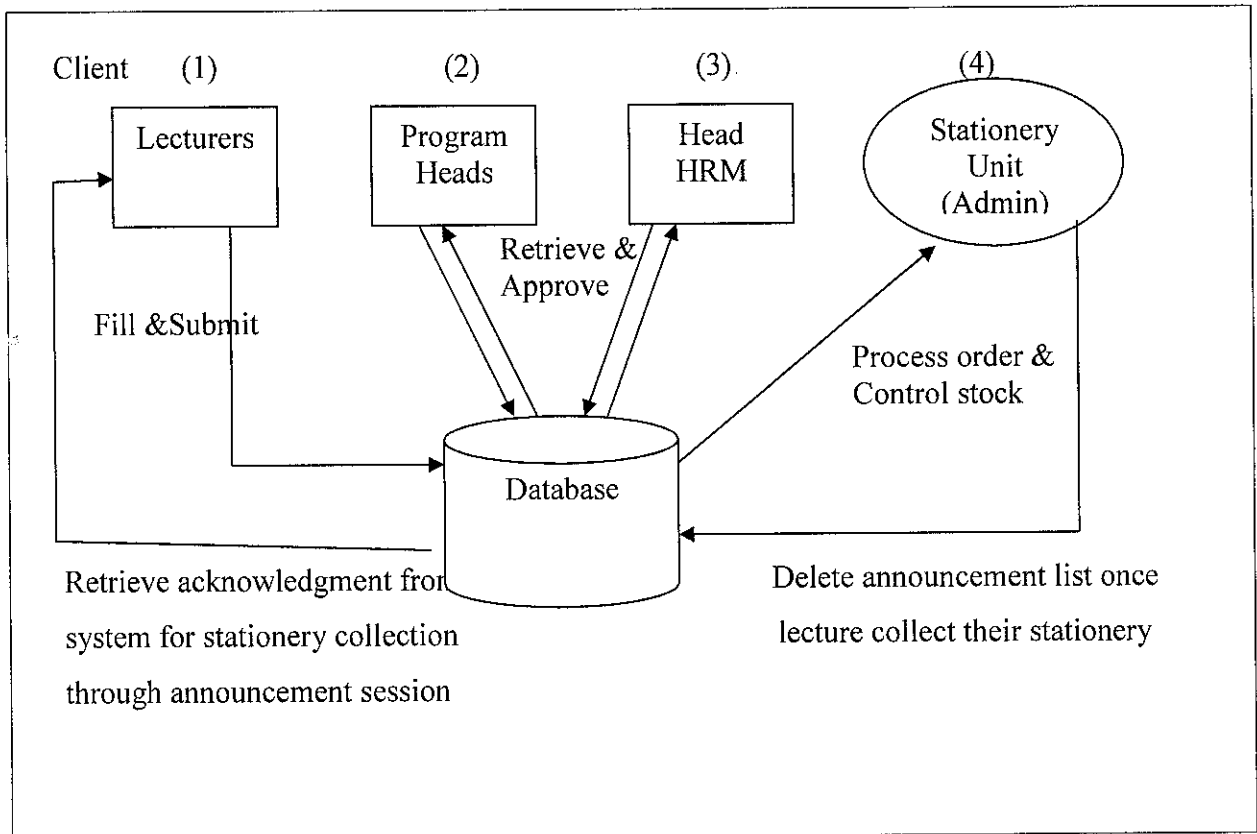
Figure 3.5: OSOS system architecture

Explanation:

(1) Lecturers from academic department fill the online ordering form in the system and click 'submit' button. The completed fill form would be saved in the database.

(2) The Program Head of the academic department will retrieve the original filled ordered form from the database. He or she will click the button of approve and update it in the database.

(3) Head in Human Resource Department (HRM) will do same task as Program Head by going through the step in (2) before he or she submit to the database.

(4) Stationery unit / Administer responsible to process the online ordered form which approved by Program Head and Head HRM. He or she also can set the rule which minimize total order by a lecturer in one semester. After confirmed the approval, the lecturer will get his or her approval through announcement via approved order menu. The admin will mark the list of requestor once they have collected the stationery.
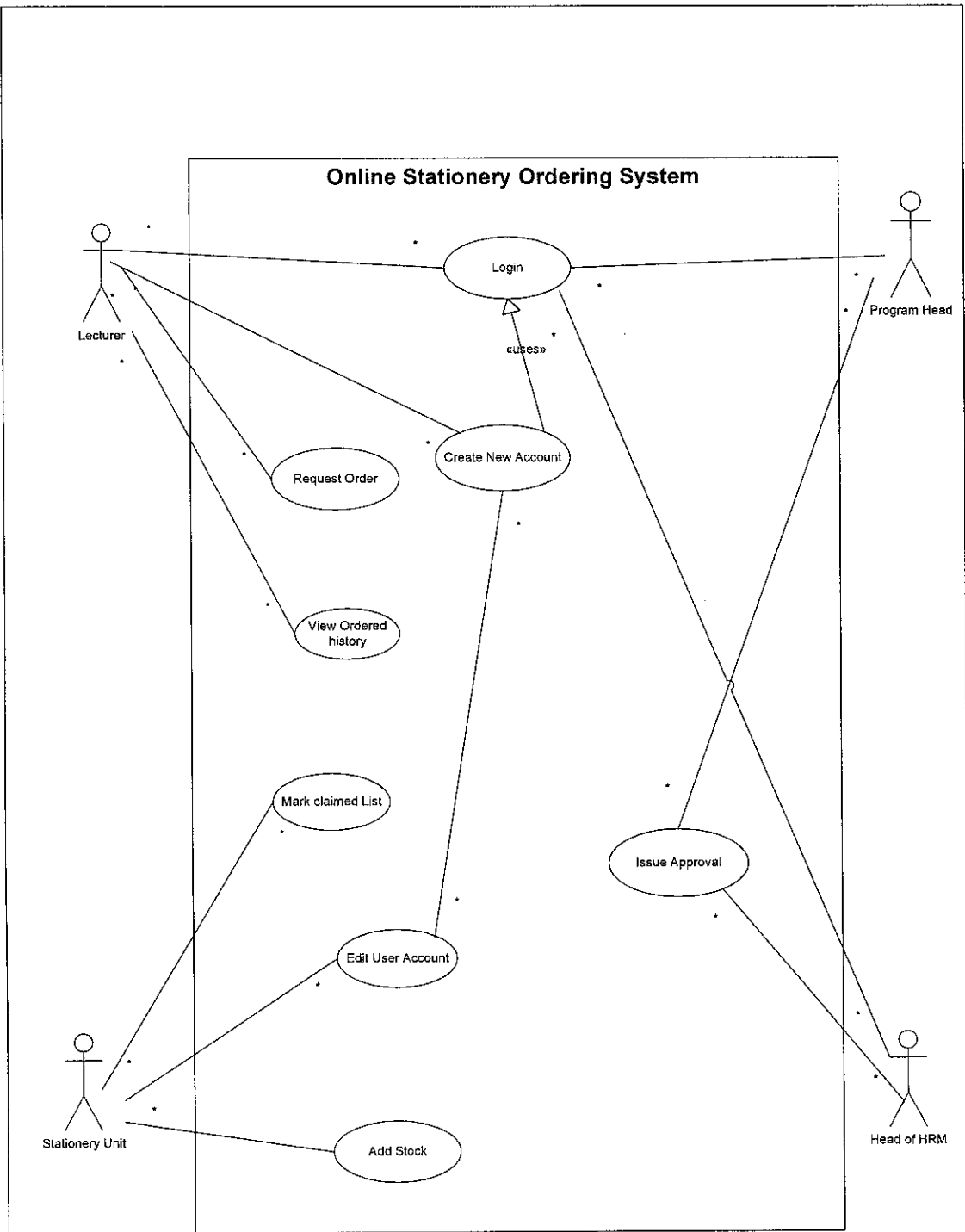
Figure 3.6: Use Case Diagram of the OSOS system

Order_List
-User_Name
-Description _Code (FK)
-Remark
+DayOfWeek()
+Month()
+UpLock()
+dte.getHours()
+dte.getMinutes()
+dte.getSecond()
+dte.getDate()
+dte.getFullYear()

Contain

Make

Item_List
-Item_ID (PK)
-Item_Name
-Quantity
+Window.Confirm()
+DatePart()

Lecturer

Program Head

Head HRM

Admin

Add

User
-User_ID
-User_Name (PK)
-Password
-Department_Code (FK)
-Authorize_Level
-Level_Description
-Extension
+MM_ReloadPage()
+GetToDate()
+MaximizeWin()
+ShowError()
+Init()
+Server.CreateObject()
+Validate()
+Session()
+Request.Form()
+Request()
+ObjectRecordSet()
+Menu()
+Convert()
+DataConn.Execute()

Figure 3.7: Class Diagram of OSOS system

User_ID User_Name Password Department_Code Authorize_Level Level_Description Extension

Item_ID Item_Name Quantity

Item_List

User

0..1

0..1

Order_List

0..1

User_Name Department_Code Remark

Lecturer Program Head Head HRM Admin
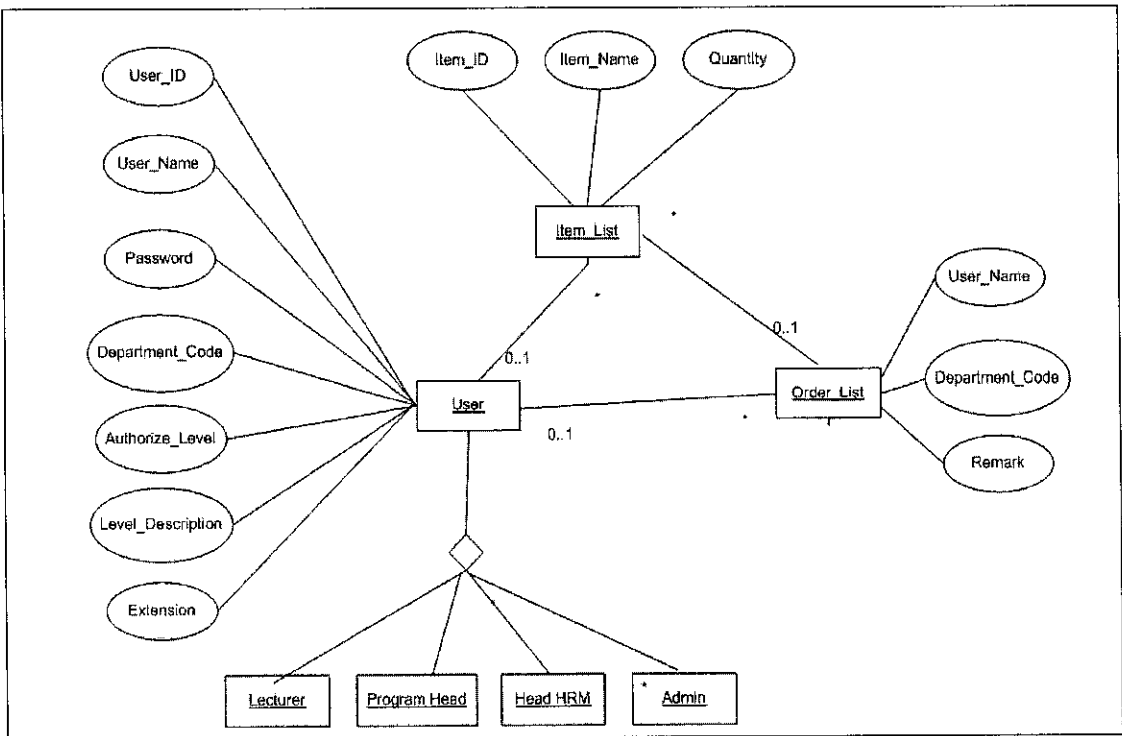
Figure 3.8: Entity Relationship Diagram of OSOS System

17
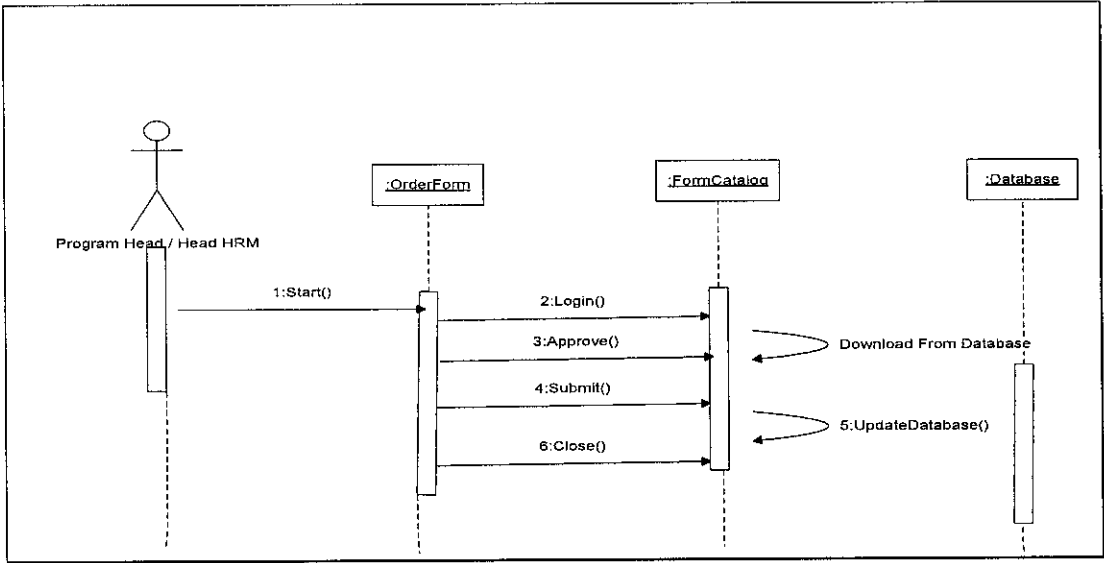
Figure 3.9: Sequence Diagram for Program Head and Head HRM
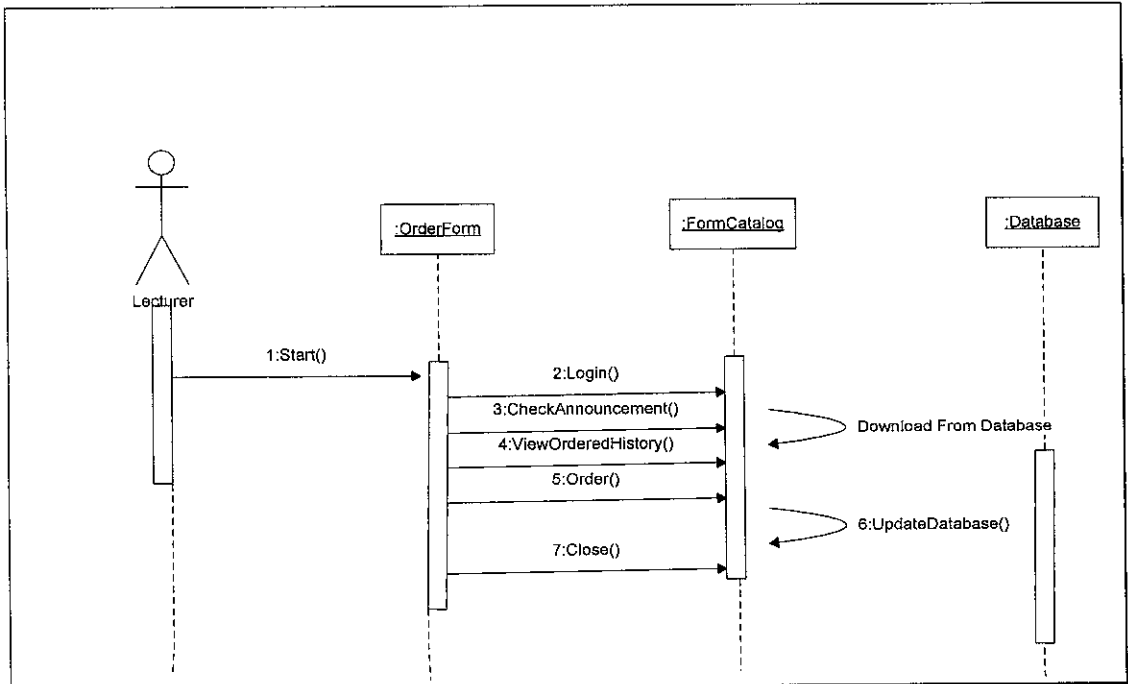
Figure 3.10: Sequence Diagram for Lecturer

18
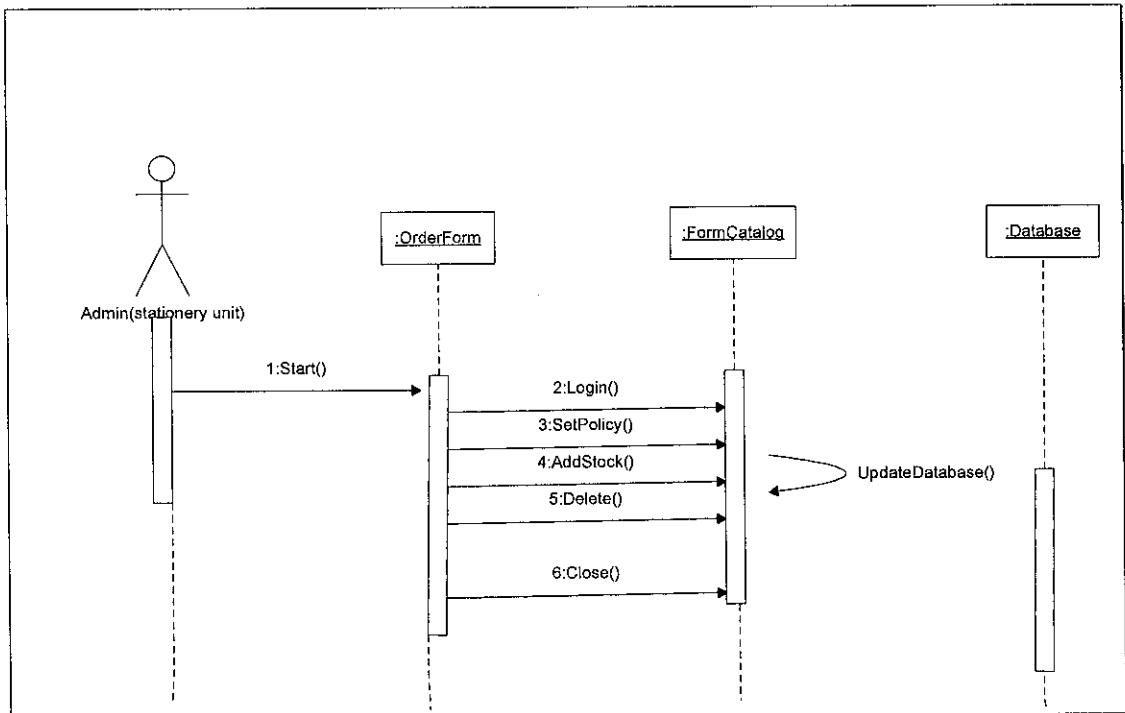
Figure 3.11: Sequence Diagram for Admin (stationery Unit)

3.1.3 Interface

The design indicates how the system will work, considering all the details of the hardware, software, network infrastructure, user interface, and so on. In this phase, user interface, forms, displays, reports and programs, database, and file are specified. This leads to the architecture design, which leads to the database and file design, which in turns leads to the program design. Collectively, these are systems specifications.

3.1.4 Implementation

The implementation phase is the next phase after design. This phase will come out with the well structure server, client, and user interface design. After that, finalizing all requirements will be done. During this stage, the thorough understanding of ASP language should be adapted tremendously. This is the hardest part in completing

19

the final year project, and need more time to finish it. However, due to the time constraints, the product of the system has been built as simplest as it can long as it meets the objectives of the project. The result of the implementation will be discussed later in the results and discussion session in next chapter.

3.1.5 Testing Phase

For the last phase in this project, all the programming and system testing must be conducted in order to make sure that this project will meet all the objectives and requirements as stated in the report as well as can settle the problem statement that have been defined. This involve the evaluation and discussion by the lecturers and supervisor.

3.2 Tools Required

3.2.1 Software

- Macromedia Dreamweaver 2004 – ASP and Javascript
- Microsoft SQL Server 2000 Developer Edition

3.2.2 Hardware

- Intel Pentium IV processor (or equivalent 600 + MHz processor)
- Microsoft Window XP Profession Edition
- 512 RAM

CHAPTER 4

RESULT AND DISCUSSION

4. RESULTS AND DESCUSSION

This chapter shows the finding or outcome of the project. Based on the methodology stated in Chapter 3, the outcome and result will be presented in this chapter.

4.1 Findings

Implementation of Online Stationery Ordering System (OSOS) using rule-based system was a challenging and time consuming task. During time period given, this project successfully produced and can smoothly run of platform that meet requirement of end user like lecturers and admin unit through their idea suggestion during the data collection process. The important point here is that all the functionality in the system can be implemented and can make the stationery order process became easier and faster compared to current manual paper based ordering system.

4.1.1 How the OSOS System Work Generally

In order to implement the rule-based system in OSOS system, new user basically needs to create a new account for themself. The system requires the user to complete the user registration form. The form require user to key in their User ID, User Name, Password, Department, Authorize Level, Level Description and .Once the data is successfully stored in dataset, the user can login and perform based on their designation. The user is given privilege to do certain process since the system sets the user level for each user. In this system, the lecturer's user level set to '10', Program Head's user level set to '70', Head HRM's user level set to '89' and administrator user lever set to '99'. In this system also, only 5 accounts of program

head and one account for head HRM exist in database. If someone tries to imitate this account, the system will stop their registration process.

If the designation is lecturer, so he or she only can do the task of viewing order history, make stationery order and view announcement to make sure their request have been approved by both program head and head HRM. They can then go to collect the request stationery at stationery unit. To view order history, the user need to select the date of order and click 'GO' button. Then, a short description of user name, date ordered and stationery ordered list will appear. User need to click their user name to show the ordered history detail (refer to **Figure 4.6**).To make order, user need to key in the date of order, then key in the quantity that they prefer into the particular text field and click 'Submit'. After submitting the form, the lecture need to check from time to time at announcement part to make sure their request have been approved by their Program Head, Head HRM and last by admin before they can go to collect their request.

While the Program Head and Head of HRM login to their account based on user level '70' and '89', both of them can view the date and type stationery that requested by each lecturer before give approval to them. The approval for Program Head comes first before go to second approval by Head HRM. The Head HRM will do same task like program head. Because the system has no the functionality to set the limitation for each lecturer, so Program Head and Head HRM need to go through each type quantity that requested by each lecturer before make any approval. The lecturer no given such privilege to do approval task.

The admin or stationery unit login his account base to user level of '99'. The admin given the privilege to control the items in stationery unit, and do marking to lecturer who has claimed the stationery after request. He can edit user account by deleting it if the user resign from UTP or deleting if he found the user duplicate their account. He also given privilege to create new account to new user if he or she having problem to register it.

User Level	Designation	Menu Allowed		
10	Lecturer	Stationery	View History	Approval Status
70	Program Head	Approve Order		
89	Head HRM	Approve Order		
99	Admin	Stock Management	User account	Approve Order

Figure 4.1: Table to show the user level, designation and menu allowed for each user.

Figure 4.2: URL: http://localhost/stationery

Remark: login page / index / landing page

Figure 4.3: New user required to fill up this form before they can login to the OSOS System.
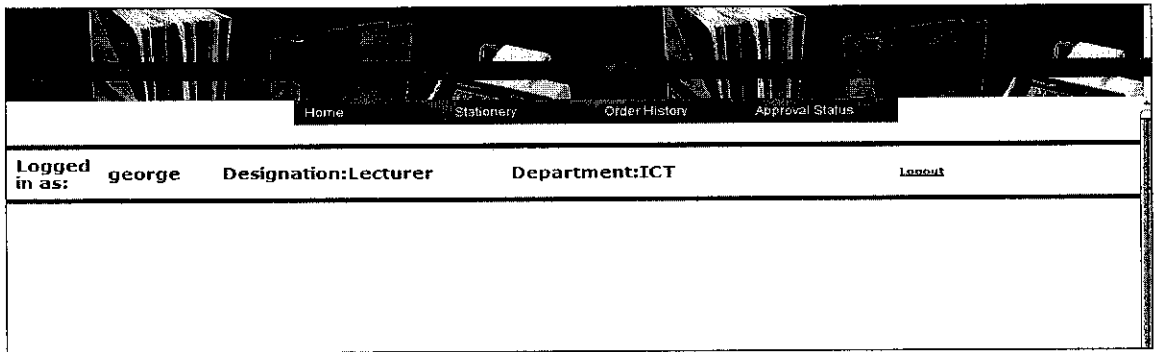
Figure 4.3: 1st page after lecturer login to his or her account. The privilege given as Shown in **Table 4.1**
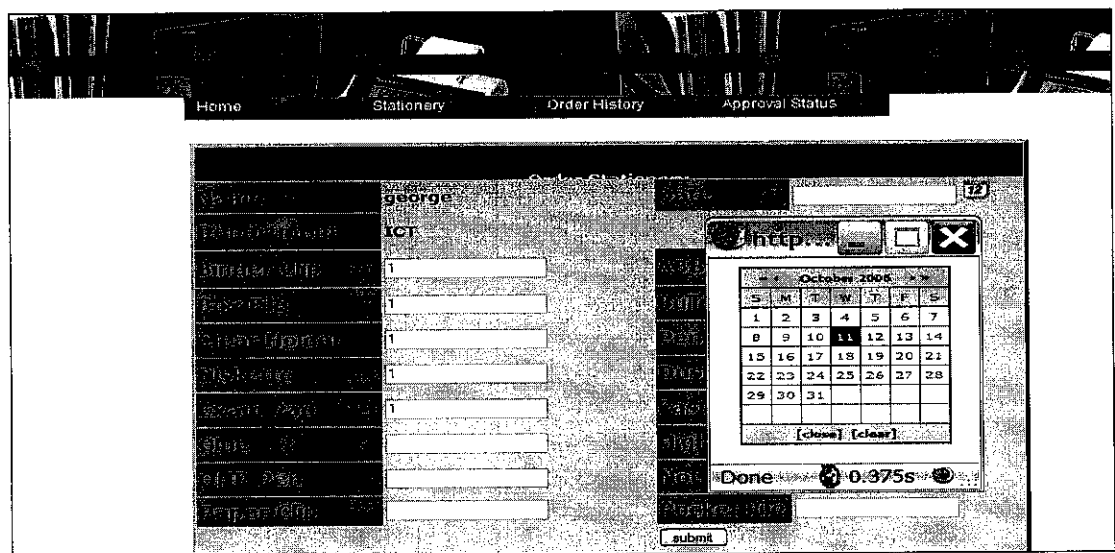
Figure 4.4: Page to place order for stationery by lecturer.
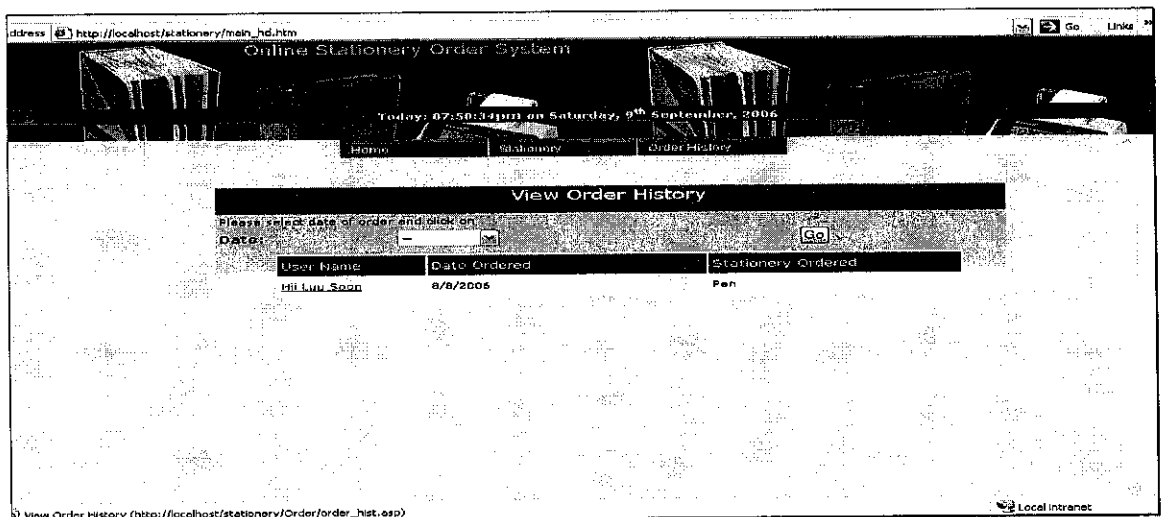
Figure 4.5: Page to view order history. To view details, click on User Name – link to view order history details.
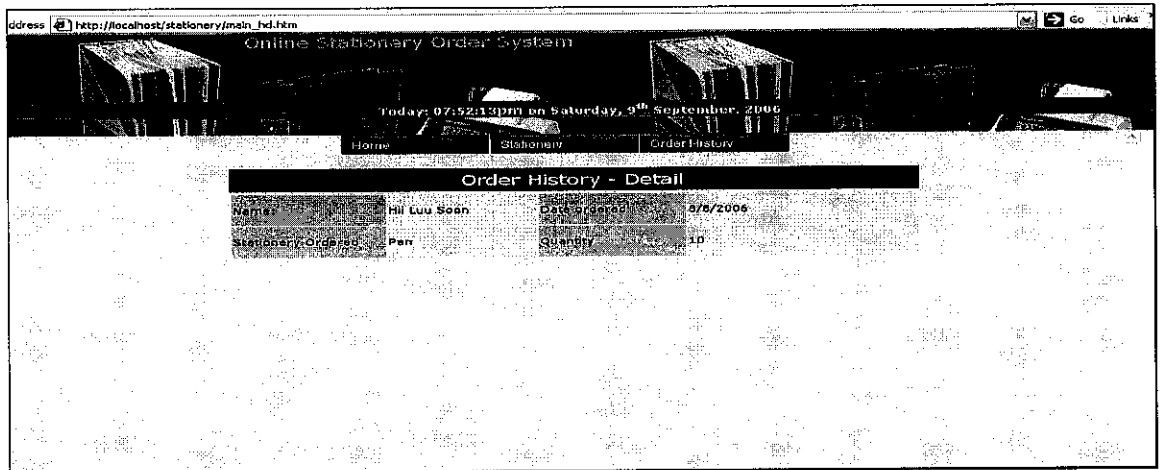
Figure 4.6: Page to view order history details by lecturer.
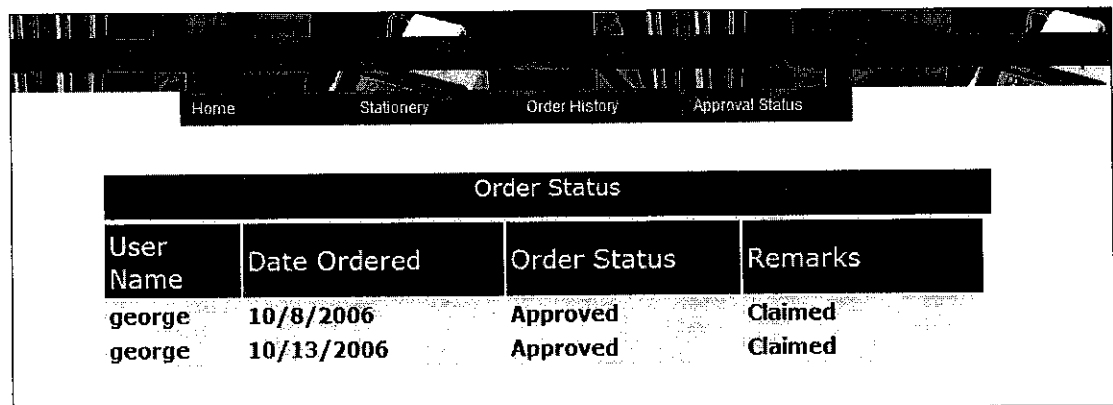
Figure 4.7: Page for lecturer to view the announcement. The announcement only can viewed once admin approve it and mark 'please come to collect the stock'. Once the lecturer claimed their request at stationery unit, then the admin will change the mark to 'Claimed' as shown above.
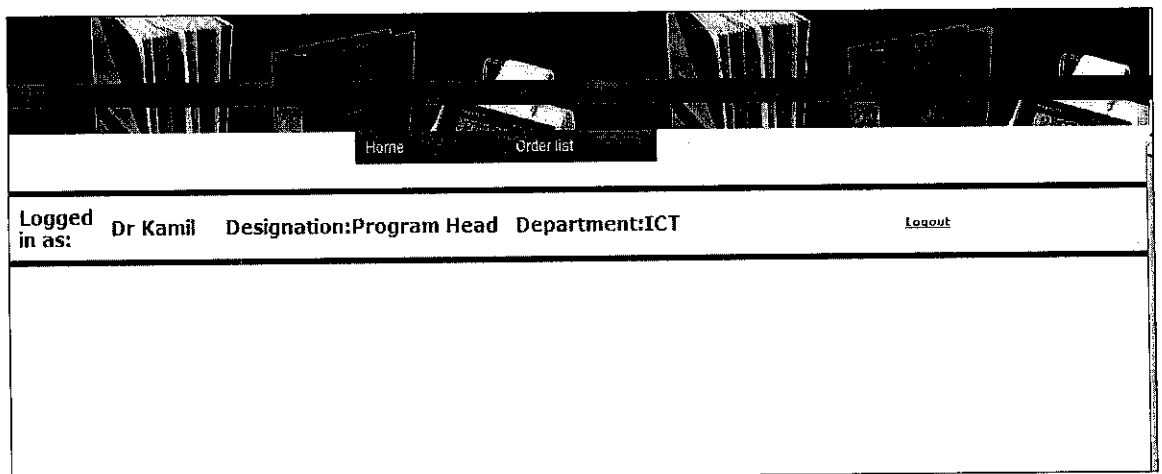
Figure 4.8 1st page after Program Head login in. The privilege given as shown in
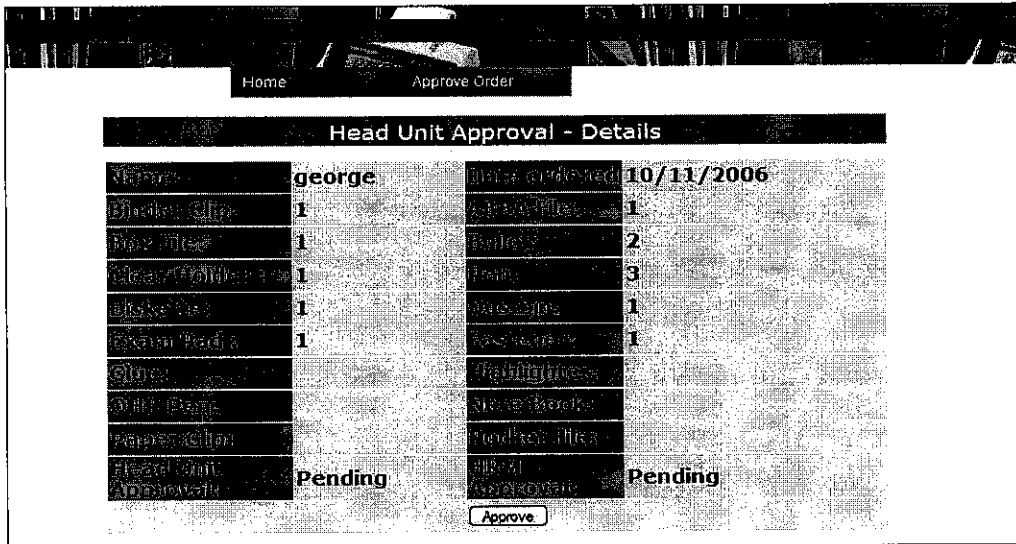
Table 4.1

Figure 4.9: Program Head and Head HRM make approval by click the 'approve' button. The 'Pending' will change to 'approve' once the Program Head and Head HRM approve the lecturer request.

Figure 4.10:1st page after admin login. The privilege given as shown in **Table 4.1**

Figure 4.11: Admin given privilege to check the account that created by user.

Figure 4.9: Program Head and Head HRM make approval by click the 'approve' button. The 'Pending' will change to 'approve' once the Program Head and Head HRM approve the lecturer request.
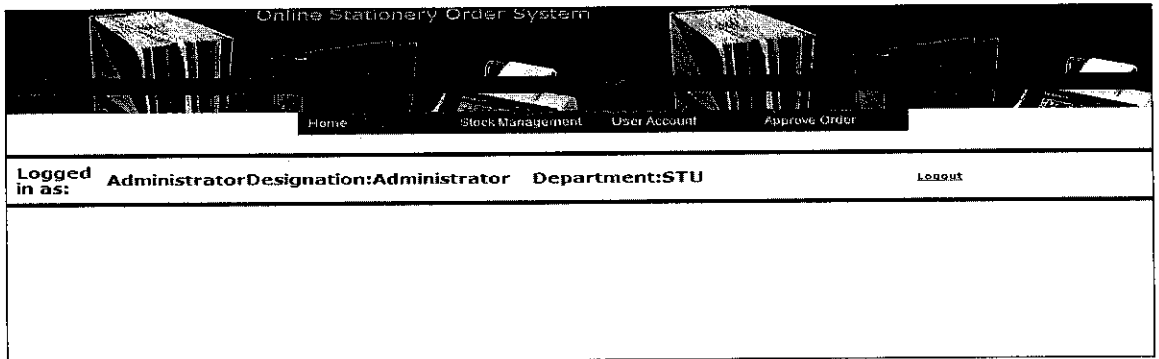
Figure 4.10:1st page after admin login. The privilege given as shown in **Table 4.1**
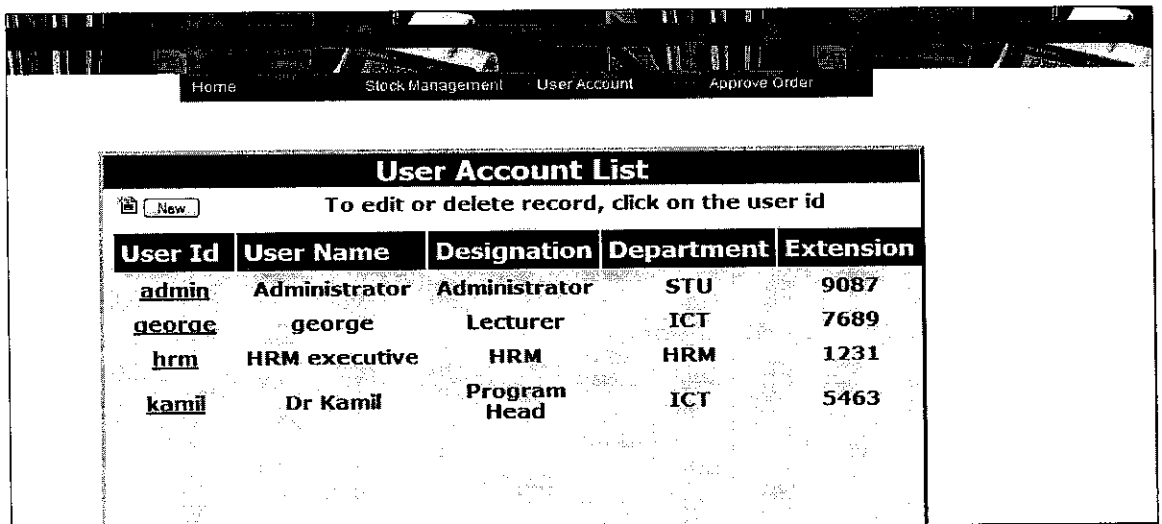
Figure 4.11: Admin given privilege to check the account that created by user.
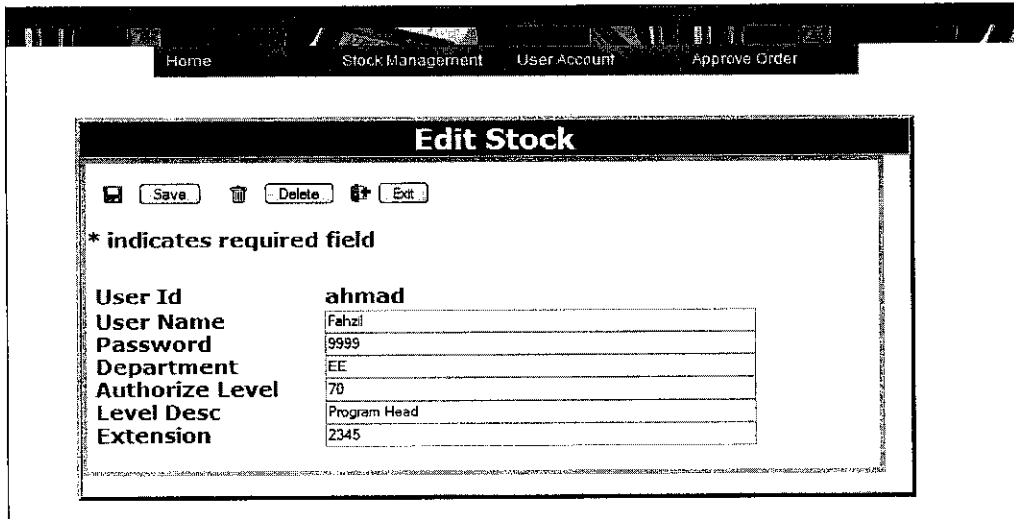
Figure 4.12: Admin given privilege to edit user account or delete user account in case the user resign from UTP.
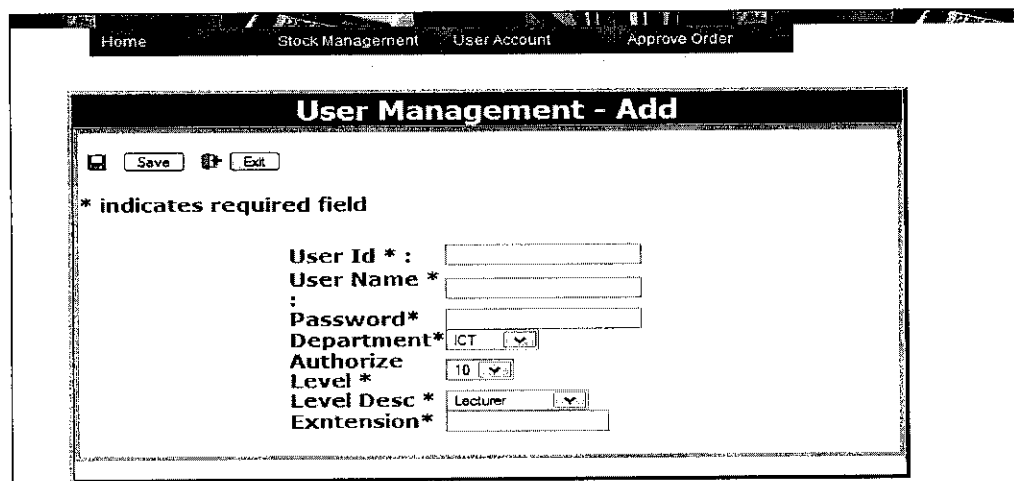
Figure 4.13: Admin given privilege to create a new account for user if the user having problem to create their own account.
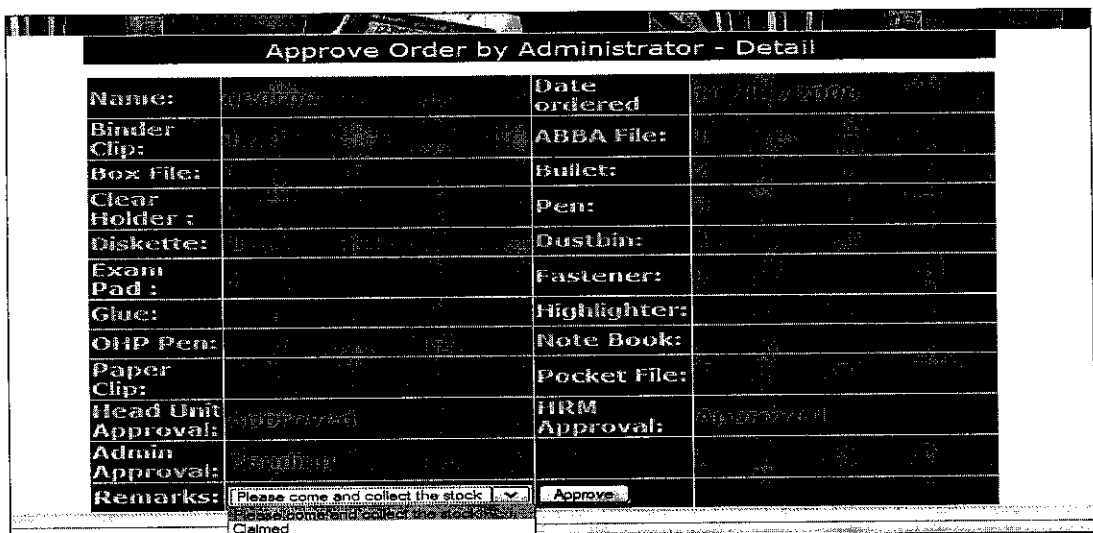
Figure 4.14: Admin do approval by select 'Please come and collect the stock' and the announcement will be viewed by lecturer. After the lecturer claimed the stationery, admin will change it to 'Claimed' and showed that the lecturer has claimed their stationery request.

4.1.2 The Flow of Online Stationery Ordering System
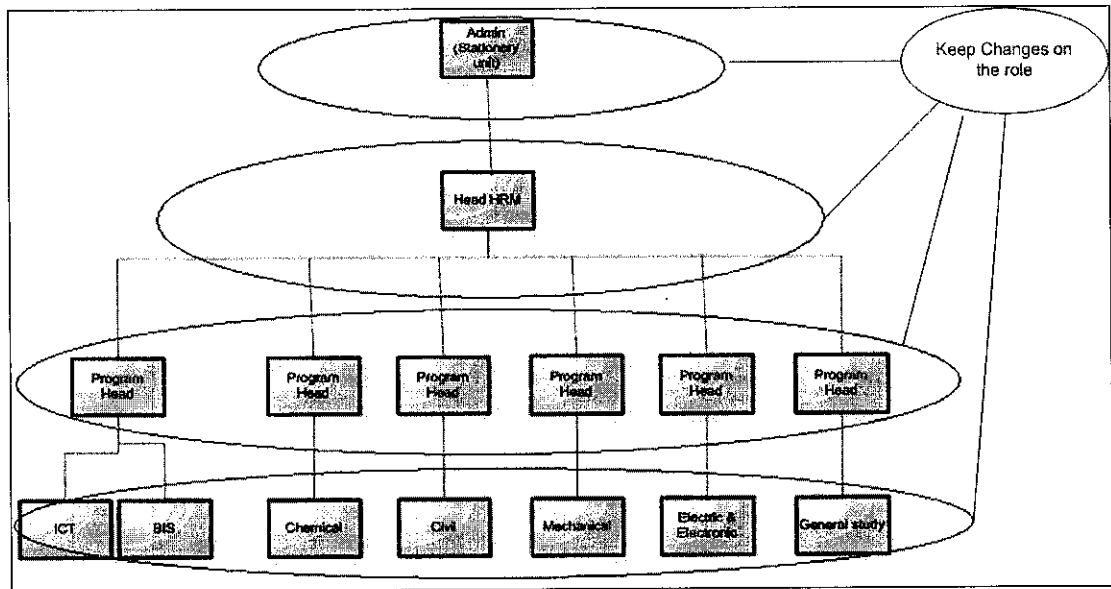
Figure 4.15: The diagram show the flow of the OSOS System.

The role of each user level could be changes, depend on client requirement. The changes of role make the system valuable in commercial side of view since each organization and institution besides UTP may play difference role such as one level approval compare to current OSOS system. The value of the system very depend on how easy it change the role structure to fit commercial demand. As overall, the structure of the OSOS System could be changed in future, depend on UTP management itself. The role will be discuss more detail in future suggestion.

4.1.3 Result Comparison

As we can see in the **Figure 4.4** about the Use Case Diagram of OSOS system, show that user to do stationery ordering through via online. Compared to current manual order form, the Online Stationery Ordering System (OSOS) actually can solve the problems that are faced by current manual ordering form. Once the system getting run smoothly, it meets the objectives of developing this system. The system let the users of lecturer, Program Head, Head HRM and admin do faster and more easily in their job. These users just need to sit in front their computer, open the internet explorer and key in the system IP address, and login to their personal account. Then, they can do the task base to the privilege that given to each account. All the job can be done in few minutes if compare to manual form where the lecturer need hand the form to program head office table by themselves. The online ordering will store lecturer order request in database and track by approver (Program Head and Head HRM) once they login to their account. Normally, the process of online ordering, and online approval can be done within one day in case all approvers available at that time. While according to current lecture comment through online survey since last semester, showed that the manual ordering form would take minimum one week up to one month to get approval from both the Program Head and Head HRM. It time consuming for the lecturer waiting to get their request stationery. In some case, the manual form getting lost on way pass to Program Head and Head HRM to do process approval. So, the lecturer required to refill one more the exact ordering form. But this would no happen to online ordering. The data keep in database will no getting lost if the admin no delete it or database corrupted. Database is the best way to keep ordering information compare to manual form. The database manage to keep the data in more systematic way and easier to track back the data if needed. It consumes less space to keep the data compare to the manual ordering form. While the manual ordering form consume more space and hard to refer back if no keep in systematic way. The manual ordering form having risk getting broken by and small animals like mice, termites and also the case of fire. The manual ordering form consumes admin more time to process compare to online ordering. The online ordering system makes it easier for UTP management to control the budget of stationery given to each lecture by setting limitation for every order. On the other hand, manual ordering form is unable to do this. The online ordering

system is controlled by new admin once he or she is familiar with computer. But the manual ordering form must be handled by experienced staff who work long time in the stationery department before he or she manage can control the all processes in the stationery unit.

4.2 Discussion

From all the collected information about Online Stationery Ordering System through online survey to all UTP lecturers, here are the results of the online survey:

4.2.1 The satisfaction level of current stationery ordering system in UTP

62.8% out of 42 response showed that they no satisfied with UTP current Stationery Ordering System in manual form. While 37.2% replied was average. From here, we know that the reason mostly caused by the complicated procedure in getting stationery request. By referring to survey question 9, the lecturer has explained that there was too much endorsement and too many steps to get approval from program head and head of HRM.

4.2.2 Stationery request behavior among lecturer

The survey showed that mostly lecturer do stationery request once in one semester. The percentage of those did 2 or more than 2 time request in one semester was 28%. 14% replied that they never did any stationery request from UTP. The reason for this is that complicated procedure made them loss interest in ordering.

4.2.3 Type of stationery ordered by lecturer

For question 6, the survey showed that the stationeries like file, pen, whiteboard maker and transparency which mostly requested by lecture. This shows that the lecturer put their hard work in preparing academic material for their student.

Lecturers usually convey their idea to student through transparency for example a concept for a case study.

4.2.4 The duration of ordered stationery ready for collection

Normally the process for requesting would take more than one week. Sometimes, the lecturer has to wait up to one month before the stationery unit acknowledged their order. This is the reason why some lecturer prefers to purchase stationery at supermarket rather to request from UTP Stationery Unit.

4.2.5 The idea of Online Stationery Ordering System

There were some good suggestions from the lecture that made response to the survey. The lists below are their suggestion:

- Online order and door delivered - This idea is good since some lecture who may not have free time go to collect their requested stationery.

- The ordering can be online form, but for audit purpose, the receiver must sign a hard copy of the form – The lecturer who suggests this idea may think that hard copy could be used in back up in case of the system is out of service.

- I'd suggest a workflow system. The system needs to be transparent. In this case, we would know the status of our claim – The lecturer who suggested this idea actually urge UTP to give same status to each lecturer. Each lecturer will be given same quantity of stationery in one semester. Assume UTP management set the limitation of 10 sheets of transparency for each lecture in one semester, this means that the lecture who had already requested 10 sheets can longer make request for that semester.

Mr Azahari who is in charge at Stationery unit also recommended that the online stationery ordering system should be applied in UTP since earlier time. He will benefit the most from the system compared to other users. The system can reduce his work time in processing stationery request by lecturer and do stock

controlling, at the same time increase his working capabilities. Also, he will have a more systematic way in storing request history for stationery order since all documents are kept in database and consumes less space compared to manual form.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

This chapter discuss about the relevancy to the 4 main objective of this project. Later in this section will also include the suggestion future work for continuation.

5.1 CONCLUSION

'Online Stationery Ordering System' is a rule-based system using Web technology promote faster ordering and approval process for user in UTP. 'Online Stationery Ordering System' increase efficiency by reducing time and effort to approve and process ordering made by lecturer. Hence by integrating web-based model it can enhance and improve the internet application between staffs in UTP. This system utilizes rule-based to meet its objective. As whole, although there are some barrier and limitation involved, improvement and enhancement could be made to promote 'Online Stationery Ordering System' as alternative way of stationery ordering process.

As a conclusion, I can say developing the Online Stationery Ordering System (OSOS) using rule-based system was a challenging task for me since difference users given difference privilege to do the task which set by system. Without much resource to refer, I think it is difficult for me manage to complete this project successfully. I really need to put my consideration of the design and implementation phrases. Both phrases really force me to put much effort hardly especially the database design and user login process. However, this project gave me many experience about rule-based system as well as ASP.

This project goals are to create a user friendly Online Stationery Ordering System. The research on this project has been done, but sincerely I still need some information from other resources. Many aspects still can be improved in

order to complete the project goals and objectives. By the end of this project, the system should be able to:

- Produce a user friendly Online Stationery Ordering System which can solve the problems of current manual ordering form.
- Proper control of stock in stationery unit.
- Help UTP save money in printing so many manual ordering forms.
- Train all UTP lecturers to be more familiar with ICT.

5.2 RECOMMENDATION (Suggestion for future works)

This Online Stationery Ordering System using rule-based system is a new idea for me and also new to University Technology of Petronas's lecturers and Stationery Unit. This system can be enhanced better as well as I have more detail research work on the rule-based system together with its application. Here are some potential further works for future expansion:

- System Recommendation
  - SAP and VB.Net
- Security Recommendation
  - Integrated with Secure Socket Layer (https:) to get trust on users.
  - Encrypted password using MD5 hash functions
- Other Recommendation
  - Functionality of limitation order by each lecturer. This mean each lecturer only can make certain order in one semester and this limitation can be changes from time to time by admin who control the system. The limitation could easier Program Head and Head HRM job since system ready to process lecturer request and them just click approve button.
  - Improve design skill and application. The system architecture could be improve to make it more user friendly. Application such provide admin analysis chart on what type stationery mostly by lecturer in one time and which lecturer do most order request.
  - Statistic analysis by admin to meet commercial purpose. This could be refer to **Figure 4.15** where changes on role on each user level

make the system usable in other organization besides stationery unit at UTP.

- The system able provide alert to person in charge to do approval in case the people assigned to do the job no around. The system itself will calculate the duration of time waiting for approval before passing to other person to do so.

REFERENCES

[1] N. Ledgard, 1998 , Controlled Sustance Ordering, Office of Diversion Control.

[2] R. Micallef, C. Zanbaka, and L. Greene,1999, Jo'mama System, Jo' Mama Requirement Document.

[3] M. B. Folsom, M.G. Moody and S. Stinson, 2001, Health System, Inc Design Group (HIS).

[4] B. Hoover, 5/2/98, The Corellian Spice Smugglers' Requirement.

[5] WARWICKPRINT , online stationery ordering, http://WarwirckPrint-online.htm, 27/02/06

[6] HOWARD PRESS-Extranet services: Streaming our work together, http://HowardPress-onlinestationery.htm, 27/02/06

[7]The College of New Jersey-stationery ordering system, http://TCNJonlinestationer.htm, 03/03/06

[8]The university of Kansas Business Card and Stationery Ordering System, http://theuniversityofkansas/stationery-ordering.htm, 05/03/06

[9]Rule-Based system and Identification System, htt://ai-depot.com/tutorial/rulebased.html, 05/03/06

[10]Method of rule-based system, htt://ai-depot.com/tutorial/rulebased.html, 05/03/06

[11] A.Dennis, B. H.Wixom , D. Tegarden,2005,System Analysis and Design with UML version 2.0

APPENDICES

GANTT CHART FOR SECOND SEMESTER FINAL YEAR PROJECT

No	Detail / Week	1	2	3	4	5	6	7	8	9	10	11	12
1	Project Work Continue • Continues from FYP (Part A)	▓											
2	Submit of Progress Report		▓	▓									
3	Project Work Continue			●									
4	Submission of Dissertation Final draft • For supervisor view				▓	▓	▓						
5	Project work Continue							●					
6	Oral Presentation										●		
7	Submission of Project Dissertation												●

h Systems, Inc. Design Group:

tthew Brent Folsom
rk G. Moody
ven Stinson

# of Contents

view: The Doctor/Nurse Ordering System

There exists the need for a user-friendly, efficient ordering interface system to be used by doctors and at will reduce paper work, automate the ordering process, and create an overall more efficient means of rders delivered throughout the hospital.

1 objective of HSI is to create an interface that will encourage doctors to directly input their orders to th This will create efficiency by bypassing a clerk or nurse that is now necessary to decipher and input ord written by hand. The system should also allow nurses to input orders that are verbally given to them by Less paperwork and the opportunity to reduce ordering errors are more than ample means to create y in health care, an industry that is in desperate need of improvement.

Member Experience

gn group from HSI combines experience from two disciplines to provide the health care industry with a health system knowledge. Our expertise rises from the fields of Computer Science and Industrial and Engineering. Team members employ the experience from both areas to design and implement complet ire systems that revolutionize the health care industry by providing superior alternatives to current healt ration methods.

ie field of Computer Science our group brings experience in various methods of information system an gn as well as the technical abilities of system implementation. The science of information system desig y young science consisting of a variety of differing methods. Various design and analysis theories have he field, but none are fully accepted or practiced regularly in commercial business. HSI maintains a lib ledge from many of the most effective and powerful current techniques. This knowledge enables us to he appropriate method of systems design to insure the optimum performance of our systems.

he MIS methods used by our team are Object Oriented Analysis and Design, Process Oriented Analysis
md Data Oriented Analysis and Design. These methods vary in their representation methods and are sui
ing types of information systems.

ce in technical implementation comes from our collective knowledge of system programming techniqu
ning languages such as Pascal and C aid in determining the optimal programming environment for syst
)ther tools such as Oracle DBMS and PowerBuilder Desktop provide an even wider base for developin£
re systems.

ie field of Industrial and Systems Engineering, our group possesses experience in the area of health syst
s experience in the design of integrated systems. That knowledge of system integration allows our grou]
'stems that will correctly interface with existing systems in a manner that provides a smooth end-user
)n.

; Analysis

iing a human computer interface, we will be focusing on the health care industry. In recent years the
of managing heath care has been revolutionized by the introduction of information systems. This indus
vasts amounts of information and transaction management. This type of data collection and processing
:lf well to being controlled and maintained by a computer information system. The fact that this type of
encompasses such a vast expanse of information has allowed us to concentrate on one specific process.
nalyzing and designing a health care system that will focus on the ordering procedures of a hospital.

ring system is the means by which a medical doctor or registered nurse requests services from various
ints within a hospital. Some of these services include bloodwork, MRIs, CAT scans, and consultations.
stems now exist to accomplish these tasks and vary widely among hospital organizations. Our motivati(
g a new method is to provide a less complicated and more efficient means of receiving and processing
ven from medical doctors. By doing so, we will improve the health services provided to the population
nprove the work environment of many health institutions.

or's orders system will address many areas of the entire process. The request of orders affects numerou:
hospital administration. To completely satisfy the requirements for a new system, many factors must cc
nsideration. Our system will focus on three areas that are closely related to the doctor ordering procedu
eas include the submission of orders, the maintenance of patient order data, and the collection and stora
rogress data. We note that not all organizations carry out the necessary ordering procedures in the same
therefore, we will use an example of one method that we have investigated to provide a foundation fror
e may progress.

·ch for the design, we have worked with employees from Crawford Long Hospital, which is located in t
ι Atlanta area. This is a private hospital which provides all of the health care facilities of a large metrop
organization. We have gained an understanding of the current methods of ordering in order to provide ε
1at will support all areas of this procedure. In discussion of the current methods used, a summary of the
res will be provided.

tor's orders procedure begins when a medical doctor identifies a need for a certain process or device tha
e diagnosis or treatment of a hospital patient. A chart or file is maintained for each patient and within tl
: doctor's orders forms. When the doctor wishes to request a service for a particular patient, he must firs
ιe patient's chart. He then must write on the order form the services or devices for the patient. After doii
place the chart in the ordering chart holder so that the unit clerk will have knowledge of his request. Or
available for each unit in the hospital and performs clerical duties for the entire unit. As orders are requ
octors, the unit clerk must retrieve the charts and enter the requests into the hospital's computer system.
he request to be received at the proper location within the hospital. After the orders are entered into the
the unit clerk must then transcribe each order onto another file system known as the KARDX. The KAI
:r filing system which maintains a record of each of the orders placed for a particular patient.

.RDX is used by doctors and nurses as a quick reference to a patient's order history. After these procedu

leted, the unit clerk returns the patient chart to its appropriate location within the filing system. In addit
rogress reports are generated by the medical doctor and are used to describe the current status of a parti
'rogress reports are maintained within the patient chart and are usually written as the medical doctor
orders.

iod for placing orders is a cumbersome and repetitive process. It requires that duplicate data be maintai
cribed, often by clerks that do not have extensive medical training. The possibility for error increases as
ent information is transcribed by these clerks. Because this data is not maintained within a computer sy:
; are wasted by the use of files and papers. The goal of designing a new automated system specifically
wards doctors is to reduce the efforts involved in the process and to expedite the transmission of valuat
iformation.

n a system that will meet the needs of all of the end-users, a simple and straightforward approach needs
 In considering the characteristics of each potential user, it has been determined that a system that great
; efficiency without placing extra demands on the process will be most suited to modifying the current
 The system must provide both doctors and nurses the ability to enter orders as well as perform quick
of a patient's order history. There must also be a means of allowing doctors to enter any progress notes
e patients. There is also an issue of security regarding access to the patient's ordering system. Only doct
tered nurses will be allowed to enter the system to place orders prescribed. Orders may only be issued b
doctor, but the system must allow the nurses to place orders that have been requested by a medical doct
ins that security measures must be taken to ensure that only valid and authorized orders are entered into

em must also provide the doctors with the option of recording progress reports. Entering progress repor
ndatory procedure, but there must be a method by which a doctor may record the progress of a patient a
iscretion.

t the tracking of orders, the system must provide a quick reference option which allows authorized users
ie history of a patient's orders. The process of entering orders allows a data storage of ordering informa
intained. This data will facilitate a quick reference process that will replace current methods of paper.
g and meet the necessary requirements of a history filing system.

rface design of the system will play a crucial role in the acceptance of the overall system. The interface
in attractive design that demonstrates a natural mapping to the current manual methods for ordering,
;, and reviewing. Along with providing an interface that will be aesthetically pleasing to the user, the sy
vide an efficient interface to existing systems. Patient demographics will be needed for the operation of
nd this data must be easily retrieved from any existing system.

Analysis

sification of our user group involves a somewhat narrow range of individuals, but a wide spectrum of
may exist among this group. The user group involves medical doctors, both professional and in training
 registered nurses. Among these two groups are individuals with differing backgrounds, experience, and
e system will be designed with a major focus on the needs of doctors Thus the population of users will
ors themselves. It will be necessary, at times, for nurses to use the system. Therefore, their personal nee
 play a factor in the design of the system.

e doctors will comprise the majority of the user population, the characteristics of each doctor will becor
the final design of the ordering system. We know that the education of each individual is extensive and
it not all, have some familiarity with computer systems, as well as basic typing skills. Time managemer
cial to the performance of medical doctors. Understanding this, it is imperative that our system fully m
ls of each user without placing unnecessary learning demands on them. The ages of the users may range
s twenty-six years old to as high as sixty-five or seventy years old. The wide discrepancy in the compul
ng skills of each individual necessitates a very simple interface design that keeps this problem to a
m. We also understand that most medical doctors are reluctant to change their procedures, so our desigr
an overwhelmingly efficient, time saving method.

ering system must also provide access to the nursing staff. These users will have at least a bachelor's of

egree in nursing and some will have experience with using other types of health systems. The ages of th
ill range from twenty to sixty-five years old. We have also learned that the nursing staff is not as relucta
n operating procedure as long as new methods show a marked improvement over the current method.

ing abilities of prospective users should not inhibit the design of an interface that will be usable and vas
cient. None of the users possess physical inabilities that may hinder their successful use of all of the
lities of the system. Varying attitudes toward change will not delay acceptance of an efficient, time sav
lucing interface system.

Analysis

: three main tasks that the doctor's orders system will provide to its users. The first and most important t
lat of entering and requesting orders. The second will be that of entering and storing patient progress no
he system will allow users to review a history of all orders that have been made regarding a particular
:ach of these three tasks may be broken down further into subtasks which provide the means for comple
r level tasks.

s Orders

ess of requesting orders involves a medical doctor who determines the order content and a receiving
:nt that will accommodate the issuance of the prescribed order. Hence, the users will be able to enter a
·equest and determine the appropriate department to which the order is to be sent. To facilitate this proc
m will allow the users to enter the order and choose the appropriate department to receive the order. Th
: the system will allow instantaneous feedback to the user so that errors in orders may be detected befor
processed. After the order is entered, the system will allow the user to choose the department from a list
:sible locations within the organization. Appropriate error checking measures will be available to ensure
decision errors are detected and corrected. To maintain the integrity of the ordering system, measures w
to determine the access rights of each individual user.

: restrictions that govern the process of placing doctor's orders that will be handled by the system. Medi
nd registered nurses are the only users who are allowed to place any type of order. All orders originate
ir and most are placed by the doctors themselves. In some instances it is necessary for a nurse to place a
:scribed by a doctor. These cases involve situations in which the doctor is not physically available to pla
·. It is for this reason that nurses will also have access to the ordering system. In these instances, the sysi
:k the authorization of the user as well as authorization from a medical doctor to ensure that only orders
y medical doctors are requested from the system.

:s requested must be provided by a department associated with the hospital organization. There are vary
orders, but all have a particular department from which the service is provided. Listed below are all of t
:nts to which orders are placed along with a description of their functionality.

Bank - This department houses the blood supplies for the hospital. Any request for blood or blood relai
s are directed to the blood bank.

gineering - This department maintains mechanical supplies which are reused by different patients. Som
:plies include oxygen tanks, IV pumps, tube feeding pumps, and respiratory devices. This type of matei
maintained by cleaning and sterilization procedures so that they may be reused in the treatment of many

al Services - This department provides an inventory of disposable materials used in patient care. These
s include bed sheets, water pitchers, and emesis basins. Supplies of this nature become the property of t
nd are not reused within the hospital organization.

:y - This department provides patients with the nutritional supplements needed while they are resident v
itai. Requests for special diets are developed and administered to patients upon the request of a medical

This department performs medical analysis of specimens taken from patients. Some of the tests perforn

consists of blood tests, urinalysis, and tissue analysis.

MRI is an acronym for Magnetic Resonance Imaging. This department performs technical analysis of nages which are collected by imaging procedures performed by MRI equipment. Other imaging techniq lve CAT scans which vary somewhat from MRIs but are closely related.

)nal Services - This department provides nutritional consultation services to patients regarding their diet)nsultations may be prescribed by doctors who assess that patients will require education in the area of

cy - This department houses the inventory of prescription drugs that may be administered to patients. L request, a prescription for a medication is filled for a particular patient by the pharmacy.

il/Occupational Therapy - This department maintains a staff of physical and occupational therapists whi ts in their recovery. Appointments are requested by medical doctors if there is a need for such therapy.

logy - This department provides such services as X-rays and radiation procedures as prescribed for the cr treatment of a patient.

- This department provides dialysis services for patients who, upon doctor's orders, must be treated lood purification techniques.

ratory Therapy - This department provides patients with respiratory treatment.

sing orders entered by the users, the system will provide a means for selecting the appropriate departme bed by the order. Most orders are handled directly by the receiving departments, but there are some in which a registered nurse will directly process an order. Such a case would be that of a request for k. If a patient has a central line, then the registered nurse must draw the blood sample and have it delive . Otherwise, a phlebotemist from the lab will come to draw the blood sample. A central line consists of nich taps into a patient's central artery. In this case, the phlebotemist is not qualified to retrieve the bloo he medical doctor will be aware of the patient's status and will take appropriate measures to ensure that roperly performed. In the case that services are requested that involve direct nurse interaction, the syste v the user to make an additional copy of the order so that it may be given to a registered nurse who will the task.

's chart will consist of the history of the patient throughout his stay at the hospital. Doctor's orders are a ed information. To accommodate this need, the system will allow a printout of all orders to be made at : ie throughout the patient's stay. In most cases, this operation will be performed at the end of the patient': lat the orders may become a part of the patient's chart.

s Orders Review

)cess of treating patients, it becomes necessary that a doctor or nurse review previous orders that have t a particular patient. In order to allow this type of data search, the system will maintain a listing associa l patient that will contain a history of all of their ordering information. Access to this information will t iilable to the users by patient name and room number. The system will also provide users with the abilit ntouts of the orders for purposes of review. Security will not become an issue in the matter of reviewinį)ecause no patient information may be altered by this process, but serves only as a means to reference orders.

ss Reports

inusual that medical doctors will note a patients current condition and progress as he places orders. For ie system will allow the doctor to write and edit reports pertaining to the developing conditions of patiei irmation constitutes a valuable part of the patient's chart; hence, the system will provide a means to proc : of the patient progress reports so that they may at some time become part of the patient's record. This of reporting will only be available to the medical doctors because they are the only users who are autho official reports regarding patient progress.

ional and Non-Functional Analysis

ining the functional and non-functional requirements of the doctor's orders system, the HSI design team
n constraints that bind the functional operation of the system. These constraints place upper and lower
1 the design characteristics of the system. Constraints placed on the functional requirements include
g with existing systems, accessibility, user characteristics, data integrity and security, and organization
is. The non-functional requirements were bounded by different types of design constraints. Non-functio
ints analysis revealed that factors such as timing, coordination, and data availability played a role in the
the system.

or's orders system requires that personal patient information be made available for the proper operation
n. The ordering system will become an integrated part of an existing system, but without a redesign of a
oftware. This means that an efficient interfacing mechanism must allow data to be retrieved and shared
irious systems. The necessity of patient information constrains the ordering system to rely upon this
on to be supplied from an existing source without a redundancy in data entry.

le a system that will comply with any current methods of operation, the system must provide a means o
ity that will not change the format of the procedure. To replace a manual method for ordering, the syste
ccessed in a way that will be convenient to all users and provide a greater level of efficiency.

; population of users will obtain access to the system. The characteristics of each user, including their
i, attitudes, and abilities will force the design to accommodate each individual need. Accommodation of
ds will place high emphasis on the physical design of the system. Incorporating designs in a system that
v a vast variety of users to utilize all functionalities places priority on the complexity of the system.

mation maintained by the system involves private patient data as well as confidential medical doctor or
users are allowed to review and update a varying degree of information. The system must provide a
or ensuring that only authorized users obtain access to critical areas of information. These authorization
imand on the functional requirements of the system by forcing the system to perform validation procedi
of its users. Along with security measures, the system must provide many levels of error checking
is. Improperly assigned orders can have life threatening effects on patients. Because of this, the system
1 recheck any given requests so that the possibility of accidental errors is reduced to zero.

iss of requesting medical orders is restricted by organizational regulations to medical doctors only. Son
require that orders be requested by a registered nurse through the authorization of a medical doctor. Th
orders system must allow access for both doctors and nurses, but it must also be able to distinguish betw
invalid orders. This requirement constrains the access privileges to the ordering function of the system
1 nurses enter orders, the system is forced to validate authorization from both the nurse and the medical
order enforce the regulations of the hospital organization.

tional requirements of the ordering system involve such areas as timing, coordination, and data availab
of orders is maintained as a high priority procedure in which failure to receive proper orders at the
1 time may endanger the well-being of the patient. This requirement constrains the system to performing
k within a prescribed time span to ensure that adequate time is available for the preparation of the order

lividuals and departments are involved in the process of delivering the orders requested for patients. Th
iust provide a method that allows consistent user interaction so that the coordination between these
ils and departments is maintained. For an order to be carried out successfully, each step along the chain
ixecuted sequentially to allow proper tracking of the order. By these requirements, the system must be
to allow the necessary individuals to maintain their proper place within the ordering process.

ordering information is collected and processed, the data must be readily available at any time after its e
pdating of patient ordering data is necessary to provide all users with a constant flow of current informa
ig procedures must provide users with the ability to instantaneously retrieve the latest ordering data so
in in the process may be properly informed at all times.

ility Analysis

ining the usability of the doctor's orders system, the characteristics of the individual users will play a vi
ig with the users, many aspects of the user work environment will affect the efficiency and operability c
n Designing a system that will meet the needs of all users without infringing on their current working
vill be the key to the success of the system.

ng the design for its usability, the critical characteristics of the system must be tailored so that there wil
appings from the real-world environment to the actual implementation of an automated process. One ar
isideration is the issue of data integrity and security. When dealing with information that is vital to the v
iatient care, it is important that the information be error-free and valid. Proper error checking procedure
ire that the orders requested by the medical doctor are the exact same orders that are provided to the pat
iutting out repetitive transcription activities, the system will reduce the possibly links at which errors m
ese error checking methods will provide the means by which data integrity will be maintained. Orderinç
ion will also be an important area that will affect the proper execution of the system. Providing a methc
the validity of an order may be checked is a crucial area in determining the success of the system.

n to data integrity and security, the area of accessibility also maintains a high priority in developing a
ioctors must be able to easily access the instruments that will allow them to execute the ordering proced
y and efficient manner. The design must provide a method that is comparable if not more efficient to th
eihods available. For the design of the system to be readily accepted, its mode of accessibility must surj
nt method without becoming a cumbersome task.

that many differing types of users will employ the capabilities of the system affects how the visual
should be designed. Users possess varying degrees of abilities and aptitudes; therefore, the interface mu
/ comprehensible by all users. A design that will be both aesthetically pleasing and uncluttered will leac
ecoming a more readily accepted procedure. The process of ordering and reviewing is not a complicatec
:, so the interface design should reflect this simplicity to allow even the novice user to feel comfortable
se. Not only will the visual interface be important, but also the interface between the ordering system ar
ng system. The ordering system will require that patient demographic information and room number be
railable. This data is crucial to maintaining the integrity of the ordering data.

1ale

hing and analyzing the need for a doctor's orders health system, the HSI design group employed variou
ior accessing the requirements of such a system. The design of any system that will effectively meet the
ts end-users requires that a significant amount of input be derived from interactions with the users. It is
it enough to design a system around ideas about the functionality of an organization without exploring t
ids of individual users.

e methods that HSI used in gathering requirements information was that of obtaining official document
sed in various aspects of the hospital organization. These documents provided a better understanding ol
invironment that surrounds many of the hospital procedures. The content of each document was analyz(
iged on the basis of its relativity to the proposed ordering system design. The documents also provided
iding of the type and amount of data that is recorded and stored. Knowledge of this information allows 1
to propose a system that is well suited to the needs of the users and maintains the appropriate amount c
formation. The prospective users of the system are familiar with the methods that are currently used to
heir everyday health care tasks. By referencing the documents that are involved in these processes, a de
iplemented that will naturally map existing techniques to techniques used in the doctor's orders system.
the transition from any of the current methods to a new system would not require the learning of
ly new formats, but only the learning of new procedures. This natural mapping places less effort on the
: to a new method.

in to retrieving documented data to use as a basis for the requirements analysis, the design team also
l with the prospective users to gain an understanding of the user and the work environment. By focusinç
in the user, the team was able to learn valuable information about the user population. A study of the us
:signing a system that can accommodate any discrepancies in user abilities. To gather this personal
on, the team conducted an interview with an employee from a major metropolitan hospital. The intervi(
he team to interact with a potential user and discover what would be required to implement a system th:
: suited for use by the hospital organization. Domain knowledge was obtained which allowed the design

and the operations of the hospital. This information will aid in molding a system that encompasses all c
onalities required to complete the necessary tasks. A generalized overview of the demographics of the u
n provided the team with the information necessary to design an interface that will appeal to the majorit
. Continued interactions with the interviewee will allow the team to reinforce new ideas and clarify any
standings about the hospital procedures.

Jo' Mama Requirements Document

Winter Quarter 1999

Document Author:

Ryan Micallef
Catherine Zanbaka
Liz Greene

Project Sponsors:
Cruspus: the UTC Cafe

Jo' Mama Team:

Billy Turchin (Manager)
Catherine Zanbaka (Architect)
Mike Smith (Programmer)
Ryan Micallef (Technical Writer)
Elizabeth Greene (Quality Analysis)

r Mama

---

rements Document Index

---

ption of Target System:

ine Multiplatform Accessible Menu Agent

ι is a client-server web ordering system. The JOMAMA system has a dual purpose; it will allow our ιstomer, Cruspus, to receive internet orders and keep its customers updated on the status of their order :ing food items available to our secondary customer, the public. Our system distinguishes itself in that i upport for configuration of items, a feature not included in other online ordering packages. As internet ιaining popularity and good repute as a convenient, secure means by which to order goods, the web in is becoming more available for public use. Our product utilizes standardized web technologies to bring ners together. The secondary customer can place orders via the web and have them sent to a server n at the primary customer's facility, specifying online payment options at the time of the order. To prev· customers from ordering food without intention of picking it up, an electronic form of payment will be The facility's employees can view and process these orders and remove them from the order queue whe: ōeen completed, thereby notifying the secondary customers that their order is ready for pickup. This n will not be limited to any particular type of food industry. Projected cross applications would include ce areas like cafeterias, coffee shops, restaurants, or delivery/take-out establishments.

rio Descriptions:

nario 1: Our customer's facility happens to have a small dining and waiting area. Often, during busy tii :e isn't enough room to accomodate all the waiting customers. Frustrated customers standing in line wai

eir food to be ready interfere with those who are waiting to place their orders and others who are eating
people spill out into surrounding areas and cause congestion there. After installing the JOMAMA
ing system, customers order in advance and have their food waiting for them instead of the other way
d. The lines become shorter as the customers need only to pick up the order after being notified that it's
, leaving space for diners without restricting customers options in terms of specially prepared food.
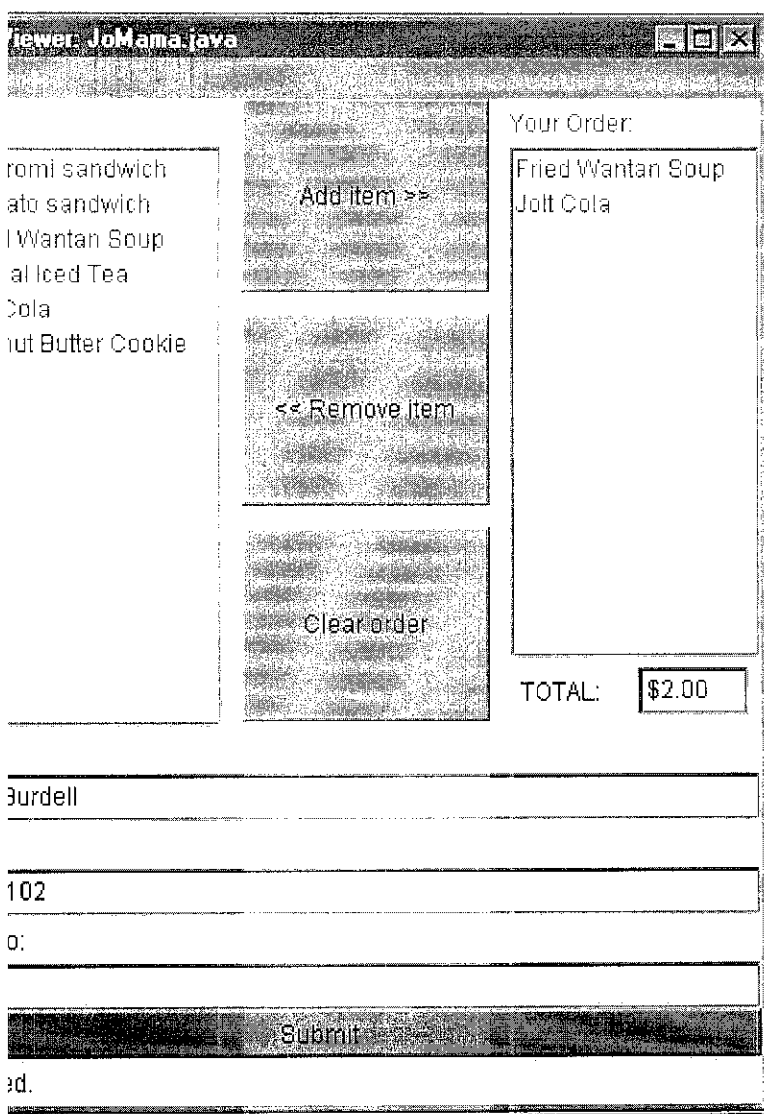
ιrio 2: Mario is a hungry programmer working on homework in the College of Computing's States
uter cluster. Since he has class in 20 minutes, he's not going to get any food before the lecture. He
nbers an advertisement for the new JOMAMA ordering system in place at the cafe on the corner.
)ut moving from his seat, he opens a browser window, places an order and goes back to work, finishing
ιde. Minutes before class, he rushes over to the cafe, grabs his already waiting order and finishes it on tl
o class with time to spare.

ιrio 3: Laura is in her dorm studying for the 4 midterms she has tomorrow. She is starving and has no
nor the time to cook it. Her roommate Cathy has been on the phone arguing and crying with her
iend for the past 2 hours. Laura realizes that Cathy is never going to get off the phone, when she
nbers that she can order crepes from Cruspus on the web using the JOMAMA ordering system. She get
r computer and places an order. Laura is notified when her food is ready and grabs it without wasting aı
ble cram time waiting in a line.

)arding:
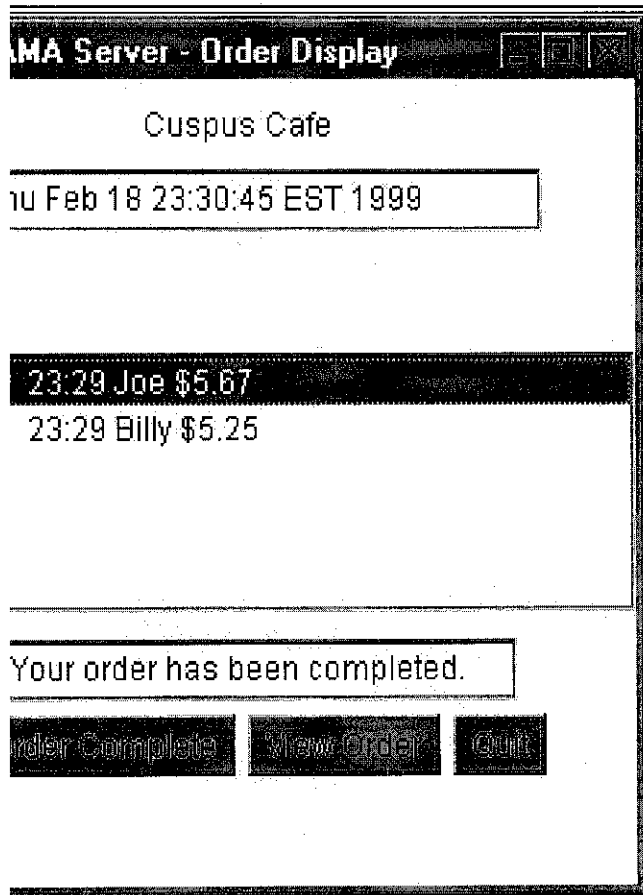
This is an example of what the server side interface might look like to the person preparing the orders. It provides a description of the items in the order, as well as a way for the user to respond to the order.

romi sandwich
ato sandwich
l Wantan Soup
al Iced Tea
Cola
ut Butter Cookie

Add Item >>

<< Remove Item

Clear order

Your Order:

Fried Wantan Soup
Jolt Cola

TOTAL: $2.00

The client side interface should provide a menu of items for the user to select. It should allow an intuitive way to quickly ad and remove items to the order. Before submitting the order, the user should be abl to enter their name, delivery instructions, and payment information. When the order submitted, a mechanism will be provided t allow the user to wait for an order confirmation.

Burdell

102

0:

Submit

ed.

nal Requirements:

ing requirement items are organized by importance to overall functionality of the product. They will be d from the top down to insure a successful working product.

nal Necessities

ay available items to end consumers: the system must provide consumers with information and ability on items available for consumer purchase. This includes price and options for preparation.
v consumers to place orders for items: a consumer should be able to communicate with the food der, describing an order to be filled. Information detailing type, quantity, and preparation of food items ayment information will be indicated.
v food provider to monitor orders placed by consumers: a food provider will be informed of incomi ·s. New orders can be viewed as a full list of incomplete orders or one at a time, with details on each fo to be prepared. As they are completed, orders can be marked complete.

ant Features

sumers should receive order confirmation and order ready notifications: Upon submission of an ·, a consumer will receive a response informing them of item availability, total price, and an estimated / time. This involves sending information at the time a food provider completes the order.
sumers should be able to specify custom instructions for food preparation: The system will enforce oleteness of data on items requiring additional information. Examples of such information are attributes size, doneness, or condiments to be included.
sumers should be able to specify their location for delivery: In addition to the food ordered, the

ner will be able to specify a location for delivery as needed.

es

e payment options will be required of consumers: Consumers, though allowed to pay in cash at the
f pickup, will be required to provide some means of electronic payment in case of failure to pick food
edit and debit cards are the only acceptable forms of electonic payment. This will discourage consumer
poofing the system.
e help documentation will be available to consumers: Consumers will be able to access a document
ning information pertaining to the use and operation of the JOMAMA ordering system.

nctional Requirements:

)MAMA user interface must be simple and intuitive; it must be clean and uncluttered by superfluous
iation. Untrained users should be able to operate the software within a few minutes of exposure to the
ice. Our simple applet interface combined with an online help document should facilitate this quick
ig curve.
)MAMA client applet will be small enough to allow users to download the applet over a modem
ction within several minutes (depending on modem speed). A 14.4kbps or faster modem connection wi
hly recommended.
)MAMA system will be modular to allow an expansion to provide secure transmission of credit card
bit card data with data encryption. This will be a safe mechanism for transmitting a customer's sensitiv

)MAMA server will be able to handle up to 20 concurrent client connections without a perceivable
ion in performance. A connection is an active socket sending or receiving data. After an order is
tted, the connection will be closed. Upon order verification and completion, new connections will be
d and closed. A perceivable reduction in performance means visible lagging of the applet or server
ation due to overloading. Slow network connections do not constitute reductions in performance.
int limitations.

ment and Target Platforms:

1A ordering system will be portable to allow to a wide range of hardware types. Client users will be ab
i 1.1 compatible browser on any platform. Server users will be able to run the JOMAMA server on any
a Java 1.1 virtual machine. A web server will be required on the server for systems that wish to allow
iss to the JOMAMA system.

chine will require a Java 1.1 Virtual Machine to run the server software. Since the JVM for nearly any
i be found at Sun Microsystems' web site, availability of an appropriate JVM will be almost certain.
will be simple since any machine with web access will be able to receive those files. The server machii
a web server capable of distributing Java applets and network access to the client machines. In a local
< where clients can directly access files on the server without a web server, no web server will be
the server. To enable access to the JOMAMA system on the Internet, a web server will be required. Fo
y, the web server must run on the machine at the server user's location. Compatible web servers include

ie Group's HTTP Server
isoft Internet Information Server

ines must have network access to the server machine. Additionally, client machines will require Java 1
i browsers such as:

ape Navigator 4.0 or higher
isoft Internet Explorer 4.0 or higher
HotJava browser v1.1 or higher

ment systems will be WindowsNT and Windows95 machines using Sun's JDK v.1.1.6. All the above
ll be tested on the development systems.

alysis:

age Related:
Compatibility: Java's intent is to minimize compatibility issues, but it is still possible to encounter this
type of problem. As it would be a serious problem, support for the particular platform configuration
would be retracted and further testing would be done to isolate other similar configurations.
Language limits: it is possible to overstep the bounds of Java security with our intentions in
programming. In this case, the problem will be isolated. In a simple problem, a workaround will be
determined. In a more complex situation, requirements must be revised.

stimation: To avoid overestimation of our progress leading to time deficits, our team has prioritized the
onal requirements keeping our expected requirements to a minimum. In the event that we are still over
itted, the requirements can be compromised.

nel problems
Learning Java: Not all the members of the team are entirely familiar with Java. The programer and
manager can give the rest of the team a quick tutorial or shift responsibilities for code generation.
Loss of a member: If a member cannot complete his/her work on the project due to extended illness,
dropping the class, or some similar condition, we will split up the responsibilities among the remainin
members.

nent Revision History

2/5/99

Name(s): Billy Turchin
Description of revision:

Added actual time spent for week2 and week3
Update Meetings, Documentation, Requirements, HL Design and Detailed Design sections to include
more specific descriptions of these stages. This should make it easier to plan time and identify activitie
and make more accurate time predicitions.

Controlled Substance Ordering System - Overview

lled Substances Ordering System

ie authority of the Controlled Substances Act of 1970, the Drug Enforcement Administration (I
' Diversion Control (OD) regulates the manufacture and distribution of controlled substances
States. This regulatory control is designed to prevent the diversion of legitimate pharmace
to illegal channels and to ensure that there is a sufficient supply for legitimate medical uses
egulations currently allow for the electronic transmission of controlled substance orde
e II substances as long as the supporting DEA 222 Form follows the electronic order. The D
to modify its regulations to allow for a secure electronic transmission of controlled subs
without the supporting 222 Form. The Controlled Substances Ordering System (CSOS) is exp
numerous benefits to the manufacturing, distribution, and pharmacy community. These be

e number of ordering errors would be less.

e customer could include more line items on a single order.

**th faster ordering there would be less consolidating of orders by pharmacists, and ord
uld be placed more frequently for fewer items.**

**th faster ordering there would be less reason to stockpile product and less waiting to fi
order form.**

ss product could be kept on the shelf and smaller orders could be placed more frequer

saction volume from pharmacies to distributors is estimated at over 800,000 per year. By indu
ounts, incorporating an electronic ordering system would result in a substantial cost savings.

Previous Page | Next Page

Table of Contents

Registration Support
Toll Free Number: 1-800-882-9539
S | Career Opportunities | Chemical Program | Controlled Substance Schedules | Drugs and Chemicals of Conce
ectronic Commerce Initiatives | | Federal Register Notices | Import Export | Links | Meetings and Events | NFLIS
& Directories | On-Line Forms & Applications | Program Description | Publications | Questions & Answers | Que
Reports Required by 21 CFR | Title 21 Regulations & Codified CSA
Contact Us | Home | Hot Items | Site Map | Search | What's New

The Corellian Spice Smugglers' Requirements Document (Version 2.0)

Spring Quarter 1998
5/2/98

Document Author:

Brad Hoover

Project Sponsors:

Ramsay Tantawi, UTC General Manager

Project Team:

Spencer Ho (Manager)
Neel Shah (Architect)
Scott McFarland (Programmer)
Brad Hoover (Technical Writer)

---

ject Description of Target System

: Couch (UTC) is an on-campus cafe where students can come from 8pm to 12am and buy a variety of l ɑrinks. For our project, we have decided to build an online ordering system for the UTC cafe so that :an go to a designated URL, place an order, and then either have the food delivered to them or pick up t 1selves. This JAVA based ordering system will have a listing of all the food offered by the UTC cafe ar ɪ the customer to choose the food he wants, enter his name and telephone number, and pay with either ł . or cash. If the student chooses the buzz card option, he will enter his buzz number and his student tion number to properly process the order. Once the information is submitted, it will communicate with 'er, which will in turn send back a confirmation that it has accepted the order.

ɛm has many advantages for both the customer and the UTC cafe itself. For the customer, the online system will be more efficient than a "call-ahead order" because one will not have to waste valuable timɛ e employees take orders from other people. Also, for customers who choose the pick-up option, the per .ave to waste valuable time waiting for the cafe employees to cook his food. Currently, if one were to gɛ place an order, one would have to wait an additional 15 minutes after ordering before the staff is done ɪnd preparing the food. Our online ordering system will alleviate any such waiting problems by making lable for the customer when he arrives, thus abolishing any long, arduous waits. Another reason that wɛ ɪ beneficial to the customers is that being Georgia Tech students, many people wish to interact with as f .sʲpossible. For this reason, our system will appease this strain by allowing the customers to minimize tʰ ː dealing with any rude employees. Likewise, for the UTC cafe employees, this online ordering system cial and better than "call-ahead orders" because they will not have to waste time picking up the phones

ith incoherent customers. By minimizing the time having to deal with these people, more time can be s̡ g̣the place more efficient and providing faster service.

ᵹnario descriptions

day after the big Homecoming football game, and after a long night of cheering her team on, Lucy the ᵗech cheerleader has lost her voice! "Like, oh my gosh...I can't let anyone hear me like this. I'm just not ᵹo out for a few days," ponders Lucy as her stomach starts to grumble. She is starving but is scared to le and definitely wants to avoid conversing at all costs. Feelings of desperation and hopelessness start to s ᵹhe remembers that Under the Couch has an online ordering system that allows her to order whatever hᵉ ach can handle and to have it delivered without any unnecessary human interaction. "I'm saved!" she s she hops into the seat at her desk, accesses Under the Couch on her favorite web browser, and es with her order. "Thank goodness this menu is so user friendly, I don't know anything about computeᵣ like...so easy!" She chooses to go with the french fries, enters her name, phone number, dorm, and rooᵣ ᵫnd then receives a message that says her food will be delivered in 30 minutes. "Give me a U, give me a ᵹ," she squeaks, then runs to powder her nose for the delivery boy.

PM and poor, poor Doogie is frantically working in the Rich building on a computer program that is du He is hungry but has no time to break away from the computer to pick up some food. Being the resilieᵣ science major that he is, Doogie remembers that he can order food online from Under the Couch and hᵢ ᵗd. No problem, he zips over to the UTC web page then accesses the menu. Doogie is really craving a ᵣr with BBQ sauce on it, but BBQ sauce is not listed as one of the hamburger options. However, Doogiᵉ text box in the options window for special instructions and lets out a sigh of relief. He simply specifies ᵗ sauce' in the box, changes the quantity to 3 because he is hungry, and then finishes submitting his ordeᵣ ᵎ money on him but does have his Buzz Card. By simply putting in his Buzz Card number and SSN for ᵑ the Customer Information window, Doogie is able to pay for his meal without having to bother with he bank and, most importantly, leaving his computer. Thanks to the convenience offered by the online ᵹystem, Doogie was able to finish his program by the 12:00 deadline.

whose roommate has been on the phone for an hour now with his girlfriend, is in desperate need of sonᵣ is extremely busy and would go across the street to Under the Couch, but he doesn't have the time to wᵣ rₑl 5 minutes while they cook his food. So Jason decides to order takeout from UTC via the web so that having to steal the phone from his roommate and can work on his project while his food is being prepᵃ ᵹes the menu and selects 5 baskets of hot wings. However, beginning to doubt his ability to consume suᵣ ᵫnts of food, Jason wants to change his number of orders to three. All that is required is a change in the ᵎox on the 'Your Order' side of the menu and the update to his order is processed. Of course, he is sure t ᵎs phone number in the Customer Information window so that they can call him when his food is ready. ᶠ UTC's online ordering system, Jason was able to avoid a confrontation with his roommate, make head ᵎject, and receive his food without any delay. The day is saved once again!

ᵎoryboarding

ᵎ menu lists all available items and their prices as well as the current status of the order. Selecting an iteᵣ the customer to the options window where he or she can specify what is to be put on the item. The 'Yoᵤ ᵎe of the menu allows the user to interactively change the quantity ordered and changes the total price ᵹᵎy. When the order is finished the user will select the 'Continue' button which will send them to the ᵎ Information window.

nder the Couch Cafe

ENU		YOUR ORDER

ENU

amburger $.99
   with ketchup, mustard, pickles,
   lettuce, tomato, or onions

lot Wings $2.99
   with Bleu Cheese, BBQ sauce,
   or mustard

Mozarella Sticks $2.99

rilled Cheese $.99

rench Fries $.99
   spicy or regular

offee $.69

oda $.99
   Coke, Sprite, Diet Coke, or
   Root Beer

YOUR ORDER

Total $4.24

- [2] Hamburger
  ketchup, pickles, lettuce
- [1] French Fries
  spicy
- [1] Soda
  Coke

[Continue]

tions window the customer can select what is to be put on the item, add any special instructions, and sp
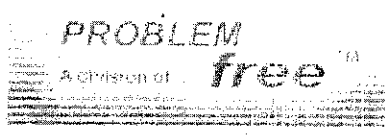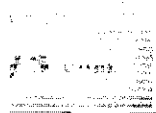ity desired. Selecting 'OK' will send the user back to the menu.

mburger Options

ketchup   ☐ mustard

pickles   ☐ tomato

lettuce   ☐ onions

recial Instructions:

Quantity [2]

[OK]   [Cancel]

omer information window accepts the customer's name, phone number, method of payment, and addres
is to be delivered. Buzz Card number and SSN are only necessary if the customer is paying with his o
rd. If the customer decides to change the order, simply clicking on the 'Change Order' button will send
he menu.

ys | F.A.Q | UPGRADE | Contact Us

for: UTP Stationery Ordering System

load the results as a spreadsheet
e contains all of the data we have collected on your behalf)

individual responses
ll allow you to view each participants set of answers)

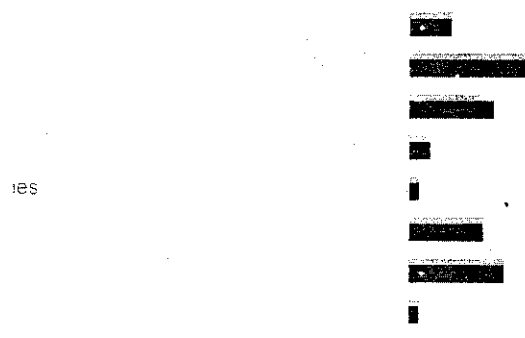r filter to these result
ample: *"Show only the results for people who chose 'YES' to Question 4."*

Want to track who has or hasn't
taken your survey? - click here for
information

ecify your department   Chart Wizard

	Percentage	Responses
	9.3	4
	25.6	11
	18.6	8
	4.7	2
ies	2.3	1
	16.3	7
	20.9	9
	2.3	1
Total responses:		**43**

Chart Wizard

	Percentage	Responses
	64.3	27
	35.7	15
Total responses:		**42**

Chart Wizard

Percentage	Responses
38.1	16
35.7	15
19.0	8
7.1	3
Total responses:	42

I do you satisfy with current manual stationery ordering system in UTP? Chart

isatisfy

tisfy

Percentage	Responses
62.8	27
37.2	16
0.0	0
Total responses:	43

nany time do you order stationeries in one semester? Chart Wizard

two

Percentage	Responses
14.0	6
58.1	25
20.9	9
7.0	3
Total responses:	43

ype of stationeries that you frequently ordered? Chart Wizard

d marker

d eraser

icy

Percentage	Responses
24.1	34
17.0	24
23.4	33
4.3	6
20.6	29
3.5	5
7.1	10

ing do you have to wait for the stationery to be ready for collection?

Chart Wizard

	Percentage	Responses
than one week	19.0	8
ly one week	11.9	5
than one week, please specify	35.7	15
	33.3	14
Total responses:		42

all OTHER text responses

you happy with the level of endorsement in the current manual system before you got quest approved?

hart Wizard

	Percentage	Responses
	14.6	6
	85.4	35
Total responses:		41

comment to Question 8? (optional if Yes)

is five responses are given)

nany endorsement-PH,Admin

ler to buy what i need rather than follow the uncovenient procedure at UTP.

nany step to get approval.

t know who endorse the form and the status of the endorsement.

appy and no unhappy

to expand all responses in THIS page

you heard of any online ordering system?   Chart Wizard

	Percentage	Responses
	47.6	20
	52.4	22
Total responses:		42

es can you give example?(optional to Question 10)

ie last five responses are given)

-lelong, eBay

ve heard but i can't remember

ook Ordering System.

)ay.com

commerce type of online ordering system like Amazon.

Click to expand all responses in THIS page

u think that it is time for UTP to have an online stationery ordering system?

Chart Wizard

	Percentage	Responses
	95.3	41
	4.7	2
Total responses:		43

)tional only for Question 12)
please suggest your idea for online stationery ordering system.

ast five responses are given)

in for every staff, online endorsement, notification of completed request.

system shuld be s,imple and straight forward just like LPS system.

:ring online and delivering via internal mail.

ild be able to orders on the spot with less bureacracy. Should highlight the limit of ordering. Should be able to
ve previous ordering history.

in refer to status of teh orders.
'-friendly.
d pop-uop when the order is ready.

Click to expand all responses in THIS page

| urveys | | F.A.Q | | UPGRADE | | Contact Us |

:e list of all responses given to this question

for every staff, online endorsement, notification of completed request.

/stem shuld be s,imple and straight forward just like LPS system.

ing online and delivering via internal mail.

d be able to orders on the spot with less bureacracy. Should highlight the limit
ring. Should be able to retrieve previous ordering history.

 refer to status of teh orders.
riendly.
pop-uop when the order is ready.

 order and door delivered! That would be great!

dering can be online form, but for audit purpose, the receiver must sign a hard
the form.

ilication should be given limit to order per semester. Endorsement by
ime head only is necessary. Monitoring of the allocation should be be AA of the
ime.

: direct to store-incharge person.

igest a workflow system. The system needs to be transparent. In this case, we
now the status of our claim.

ppliers should follow what has been approved.

please suggest your idea for online stationery ordering system.
way with the procedure of taking leave: Apply and send to the Program Head
ng approval. Approved or not, the Program Head will send the application to
icant and the man/woman in charge in this business

TP internal email network. Do something like our online-leave processing
Then deliver the ordered stationery directly to the requester @ his/her room

ier form on-line. Budget each staff according to job specification. Do away with
ment requirement. Staff can request up to his/her budgeted allocation.

administrative from each department is the key person to handle the
on, next an email to approve the requisition is send to appropiate approving
y, item will be receive in 2 days. the online ordering should also display
: stock so that applicant cant know the availibility of item immidiately. Item
ollected at a centralised storage area

nline, check the approval online, and be informed online when the stationery
to be collected

ests are made online and automatically processed and approvals and collections
be notified.

iust like the Leave Processing System. There are record on waht we have
J, the status of the application, and the online approval. And also, there should
rered to the person who requested as well.

us to order thru notes mail and then the approver party will received it before
tify us to collect!

iline stationery ordering system should also have online endorsement to
the ordering time.

to ordering without waiting for long time to get approval etc

lar format that you have used can help in ordering system.

,thru e-mail.

ordering...and delivery of stationaries. I don't want to have the hassle to
The venue is far and it is difficult to find parking. If there is worry on potential
hen implement the quota system.

hing very similar to UTP's Leave Processing System.

irder on line (can use the petronas workspace, same as the Leave Processing
, get Head's endorse on line. Order is sent to the Hr officer which approves the
ent to store. Store responds when items are ready for collection

| PESANAN ALAT TULIS |
STATIONERY FORM

UNIVERSITI
TEKNOLOGI
PETRONAS

PERHATIAN

[Permohonan hendaklah dimajukan 3 hari sebelum tarikh diperlukan]
[Please submit this form 3 days before the stationery is required]

3.00 petang - 4.00 petang
3 .00 pm - 4.00 pm

Waktu Kutipan
Time to Collection
| 3.00 petang - 4.00 petang
| 3.00 pm - 4.00 pm

Hari | Khamis
Day | Monday

IGAN : [Items]	UNIT [Quantity]	BARANGAN : [Items]	UNIT [Quantity]
		POCKET FILE	
		POST IT NOTE	
		PROTECT ALL CBE	
ET / L-SHEET)		PUNCHER 2 HOLE	
		RING FILE	
		RULER 12"	
		SOFT ERASER	
E CLIP)		STAPLER	
		TRANSPARENCY	
		TRAY IN / OUT	
		WHITE BOARD ERASER	
/ NON PERMANENT)		WHITE BOARD MARKER	
		DUSTBIN	

OLEH : [Request By]	PENERIMA : [Received By]	
	NAMA [Name]	
	JABATAN [Department]	
	T/TANGAN [Signature]	
	TARIKH [Date]	

EH JABATAN : [Endorsed By]	PESANAN DILULUSKAN OLEH : [Approved By]	
	NAMA [Name]	
	JABATAN [Department]	
	T/TANGAN [Signature]	
	TARIKH [Date]	