

CERTIFICATION OF APPROVAL

E-Procurement System

By

Thilagam Maruthamuthu

A project dissertation submitted to the
Information Technology Programme
University Teknologi PETRONAS
In partial fulfillment of the requirement for the
BACHELOR OF TECHNOLOGY (Hons)
(INFORMATION COMMUNICATION TECHNOLOGY)

Approved by,

(Pn Aliza Sarlan)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK
DECEMBER 2005

CERTIFICATION OF ORIGINALITY

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



(THILAGAM MARUTHAMUTHU)

ABSTRACT

This dissertation is done to fulfill the requirements for the degree of Bachelor of Technology (Hons), Information Technology department. The research of this project is done to study the processes involved in procurement. The objective of the project is to come up with an automated procurement system which will conduct all required processes through the internet. The design methodology used in this project is the waterfall model where in the design phase of the model, the project has been divided into three modules which are the user interface, the backend and the graph representation. In order to have full understanding of e-procurement, two main areas need to be covered first, electronic business and procurement processes. This is necessary in order to develop a good e-procurement system. This research will result in creating an e-procurement system which will be more enhanced such as representing the bidding results by graph. This research will result in producing an e-procurement system which will handle procurement activities in an electronic environment where it enables better management of the information and knowledge exchanged with suppliers and customers. As a conclusion, the automation of procurement is to enhance the conventional method of procurement processes.

ACKNOWLEDGEMENT

I would like to express my deepest gratitude to my Final Year Project Supervisor, Pn Aliza Sarlan who has guided me well throughout the course of completion of this project, and also to Mr. Mohammad Noor Ibrahim and Mr Faizal Ahmad Fadzil, lecturers of University Teknologi Petronas (UTP) who were willing to provide me with the assistance required to complete the project.

I would also like to thank Mr. Nordin, Executive in procurement department and Mr Ahmad Nizam, Executive (programmer) in IT department of PSC Naval Dockyard Sdn Bhd, Lumut Perak for providing me with the important data regarding procurement processes.

I would also like to express my appreciation to my friends for providing me their insights regarding the topic.

My greatest appreciation also goes to my parents for their support and encouragements shown to me for the completion of this project.

TABLE OF CONTENTS

CERTIFICATIONS	i
ABSTRACT	iii
ACKNOWLEDGEMENT	iv
CHAPTER 1: INTRODUCTION	1
1. Overview	1
1.1 Background of study	1
1.2 Problem Statement	2
1.2.1 Problem Identification	2
1.2.2 Significant of the Project	2
1.3 Objectives and Scope of Study	3
1.3.1 Objectives	3
1.3.2 Scopes of Study	3
1.4 Relevancy of the Project	4
1.5 Feasibility of the Project	4
CHAPTER 2: LITERATURE REVIEW / THEORY	5
2. Introduction	5
2.1 Electronic Business	5
2.2 Procurement	6
2.2.1 Reverse auction	7
2.2.2 Electronic Tendering	7
CHAPTER 3: METHODOLOGY / PROJECT WORK	9
3. Introduction	9
3.1 Research Methodology	9
3.2 Design Methodology	10
3.2.1 Waterfall Life Cycle Model	10

CHAPTER 4:	RESULTS AND DISCUSSIONS	13
4.	Introduction	13
4.1	E-Procurement System Functionality	13
4.2	E-Procurement Prototype	38
4.3	E-Procurement System	27
4.4	Confidentiality	39
CHAPTER 5:	CONCLUSION AND RECOMMENDATION	40
5.	Overview	40
5.1	Conclusion	40
5.2	Recommendation	41
REFERENCES		42
APPENDIX		43

LIST OF FIGURES

Figure 3.2.1: Waterfall Life Cycle Model

Figure 4.1 (a): Process Flow Diagram

Figure 4.1 (b): Web Flow Diagram

Figures 4.2 Storyboard

Figures 4.2(a): Index Page

Figures 4.2(b): Registration and Login Button Page

Figures 4.2(c): Vendor Registration Page

Figures 4.2(d): Login Pages

Figures 4.2(e): Users Logged in Page

Figures 4.2(f): User Information Page

Figures 4.2(g): Account Edit Page

Figures 4.2(h): Prepare Quotation Page

Figures 4.2(i): List of E-catalogues Page

Figures 4.2(j): E-Catalogue Page

Figures 4.2(k): Bid Form Page

Figures 4.2(l): Bid Results Menu Page

Figures 4.2(m): Bid Results Page

Figures 4.3 System Interfaces

Figures 4.3(a): Index Page

Figures 4.3(b): Registration and Login Button Page

Figures 4.3(c): Vendor Registration Page

Figures 4.3(d): Vendor Login Pages

Figures 4.3(e): Admin Login Pages

Figures 4.3(f): Main Page for Admin

Figures 4.3(g): Main Page for Vendors

Figures 4.3(h): User Account Page

Figures 4.3(i): Edit Account Page
Figures 4.3(j): Admin Center Page
Figures 4.3(k): Preparing Quotation Page
Figures 4.3(l): E-Catalogues Page
Figures 4.3(m): Bid Submission Form
Figures 4.3(n): Bid Results Menu Page
Figures 4.3(o): Bid Results Page

CHAPTER 1

INTRODUCTION

1. OVERVIEW

In those days, a business process is a normal activity which involves buying and selling where the buyer will approach the seller to purchase goods. But today, the trend has changed where the buyer verify the needed goods and the seller will approach the buyer with their goods. This trend is known as procurement or reverse auction in today's business.

1.1 Background of Study

Procurement includes all activities involved in obtaining material, transporting it and moving it towards the production process. Procurement is a process which is positioned between companies which needs material to fulfill their tasks, and external suppliers who provide goods and services. Electronic procurement, or electronic tendering of goods and services, is typically practiced by large companies or public authorities, which are seeking additional suppliers and trying to reduce the cost of procurement.

Companies today need to cut expenses wherever possible and that includes the purchasing of goods and services needed to keep their businesses running smoothly and efficiently. In the old days, the process of finding vendors was extremely limited and was very time-consuming. Many businesses simply found it easier to pick one company and continue doing business with them instead of hunting around for the best provider for each new project. Today, technology has changed where in e-procurement system online bidding is available where the bidder is the seller not the

buyer. The bid reflects how much the buyer is being asked to pay, not how much the good or services is being sold for thus it is known as reverse auction.

1.2 Problem Statement

1.2.1 Problem Identification

The problem of a manual procurement activity is the manual data entry which leads to more working load and working hours to the staffs. Also when the customer purchases their product manually, there could be some mistakes done by the staffs who are taking orders where it increases amount of unreliable information. It also could be a problem when salespeople arrive at a wrong time to take down orders such as during breakfast rushes or during an important meeting.

Now, since the world is moving towards paperless environment, there would be mountains of papers to handle manual activities. Looking into the existing e-procurement system, it provides information about the goods or products needed looking for vendors. The bidding process by vendors is done manually which can lead to leak of information when papers are used. When the processes are done manually, it increases the transaction costs such as phone calls or fax.

1.2.2 Significant of the Project

The significant of the project is that the e-procurement system can be used to handle procurement activities in an electronic environment where it can cut unnecessary costs for contacting vendors and extra hours working salary for staffs for performing manually. Manual data entry is reduced resulting in reduction of mountains of papers and reduction in purchasing time.

In the final outcome of the product, the system will provide an online catalogue with list of equipments and requisition containing list of equipments to be bid by the suppliers. Then the result of the bid will be represented using a graph. This graph

representation will make the process of choosing the suppliers with lower price easier.

1.3 Objectives and Scope of Study

1.3.1 Objectives

Since this is a two semester project, the objective for project part A was basically about the research and studies done on e-procurement system. The objective was to show the importance of conducting this project. For this semester which is project part B, the objectives will be based on the development of the product. The objectives that have been outlined before starting with the development are:

- ❖ To automate the process of procurement activities which was handled manually
- ❖ To design an e-catalogue with listings of equipments and integrate it in the procurement system.
- ❖ To provide a more efficient method in representing the bidding results.

1.3.2 Scope of study

The scope of study for this project is an e-procurement system which will provide an e-catalogue listing the products needed by a company/firm to be bid by vendors where the vendors need to register themselves and offer their quotation online. The bidding price of the vendors will be represented by graph. The graph will be produced using the data from the database. By looking into the graph, the procurement staff will choose the vendor with the lowest price and notify them by mail. The bidding activity will be done electronically thus reducing the cost and time spent by the company.

1.4 Relevancy Of The Project

Basically the project is conducted to enhance the current e-procurement system which lacks the online bidding process where the buyers will be able to select vendors which offers the lowest price. This will provide benefit to both parties, the buyer and supplier where the buyer can manage cost effectively and the suppliers can expand their business without the need to travel around looking for buyers.

1.5 Feasibility of the Project within the Scope and Time Frame

The initial proposal for the project scope was very broad. After discussion with supervisor, the scope has been limited. With shrunken scope, the project seemed feasible at the moment. However, with time progression, the development part which includes coding and testing consumes a lot of time.

Due to time constraint, the project will focus on the company offering product/equipment to the procurement department to be bid online by the vendors and the graph representation of the bidding price offered by the vendors.

CHAPTER 2

LITERATURE REVIEW / THEORY

According to Bichler procurement includes all activities involved in obtaining material, transporting it and moving it towards the production process. Positioned between a company's internal customers who need material to fulfill their tasks, and external suppliers, who provide goods and services, the procurement process has to meet multiple objectives simultaneously. Electronic procurement, or electronic tendering of goods and services, is typically practiced by large companies or public authorities, which are seeking additional suppliers and trying to reduce the cost of procurement.

2. OVERVIEW

Basically, e-procurement involves two general areas which are electronic business and procurement processes. At the end of the project these two areas will be combined as one which is e-procurement system. To better understand the process of e-procurement, the two parts were included in the research.

2.1 ELECTRONIC BUSINESS

Electronic business is the process which uses Internet technology to simplify certain company processes, improve productivity and increase efficiency. It allows companies to easily communicate with their suppliers, buyers and customers, to integrate "back-office" systems with those used for transactions, to accurately transmit information and to carry out data analysis in order to increase their competitiveness. [Muffato & Payaro (2003).]

E-procurement system is a system where the procurement activities usually done manually are automated. It could also be considered as an electronic business because it can be browsed over the internet.

The latest developments in electronic procurement technology show an increasing number of systems trying to support all phases of a market transaction. Vendors like Actra, CommerceOne, Elcom or Pandesic build systems which support the whole spectrum of tasks from searching and ordering to shipment and payment. Nearly all of them use well established techniques like the World Wide Web, Electronic catalogues or e-mail to conduct the purchase. [Bichler]

According to the statement given by Martin, electronic business activities involve electronic catalogue and electronic mail service. Electronic catalogue contains information about equipments such as name and specifications. Electronic mail or e-mail can be considered a very important technique where it is used to receive or send information in business dealings.

This project is done to gather information and implement them to automate the process of procurement and increase efficiency. The advantages of carrying out electronic business are cost reduction, improved productivity and customer service. To understand what procurement system is, it has been divided into two parts which is procurement and reverse auction. Later this two elements will be combined, which will produce e-procurement.

2.2 Procurement

According to Muffato & Payaro (2003), procurement includes all of the activities involved in acquiring goods or services and managing their flow from the supplier within the company which is purchasing the goods or services to the semi-finished products and support materials, such as computers and office supply products, which the company uses.

Procurement is one of the most important business functions. These definitions of procurement are not only that but it can also be expanded to the search of potential suppliers.

2.2.1 Reverse Auction

Procurement process can also be explained as reverse auction. Reverse auction is a specialized auction format that allows individuals/organizations to procure goods and services at the lowest possible price. Instead of having buyers bid for the higher price, reverse auction allow buyers to specify their needs. A bidder is anonymous to other bidders and each bidder is ignorant of other bids. This format allows potential suppliers to submit a bid and the supplier with the lowest price will win. The consumer decides the exact specifications of each item, instead of the specifications being dictated by the seller.

After the supplier placing their items for auction, the next thing that they should do is simply wait for the auction period to end. Once an auction ends, the procurement department will notify the supplier and the buyer through e-mail and will be given sufficient information for contacting each other.

2.2.2 Electronic tendering

Preparing tendering documentation and conducting tender obtaining processes requires much labor. Similarly, obtaining and submitting tenders are also costly for suppliers. The Electronic Tender Obtaining and Submitting System simplify the original administration procedures to accelerate the procurement process, reduce administration cost, and incorporate the use of the Internet. An electronic system is introduced to obtain, submit, and open tenders. Notably, the system promotes government procurement efficiency as well as prevents bid collusion. (Liao, Wang & Tserng).

Through the electronic tendering, vendors can download tender documents via the Internet and hence eliminate the paperwork and inconvenience of manual procurement processes. Furthermore, administration costs can be reduced when less labor and resources are required into tender preparation.

CHAPTER 3

METHODOLOGY / PROJECT WORK

3. INTRODUCTION

In project part A, methodology was divided into two main sections, where the first section is **Research Methodology** and the second section is **Design Methodology**. The Research Methodology part is about the research done to understand the business process involved in e-procurement and to analyze the existing reverse auction on the internet. Next, the Design Methodology is to come up with a system life cycle model to plan the process of the project and procurement flow diagram to show the process flow.

For project part B, the task flow of the project will be explained according to the life cycle model used.

3.1 Research Methodology

For this research methodology, organization implementing e-procurement system was visited to understand in detail the business process involved in e-procurement and how the system works. Besides, a few web sites were analyzed to observe the existing reverse auction methods and how the bidding results are represented.

Research area also involves the representation of bidding results in a graph. The research is on what software can be used to represent the data from database into a graph.

3.2 Design Methodology

3.2.1 Waterfall Life Cycle Model

The design methodology used for this project was waterfall model. In this model, the sequence is from one phase to another phase. When the work for one phase is done the phase completes and it moves to the other phase and so on. The reason for using this model is because it identifies system requirements at the beginning in the planning and analysis phase long before the programming begin. So as the project proceeds, it minimizes changes to the requirements.

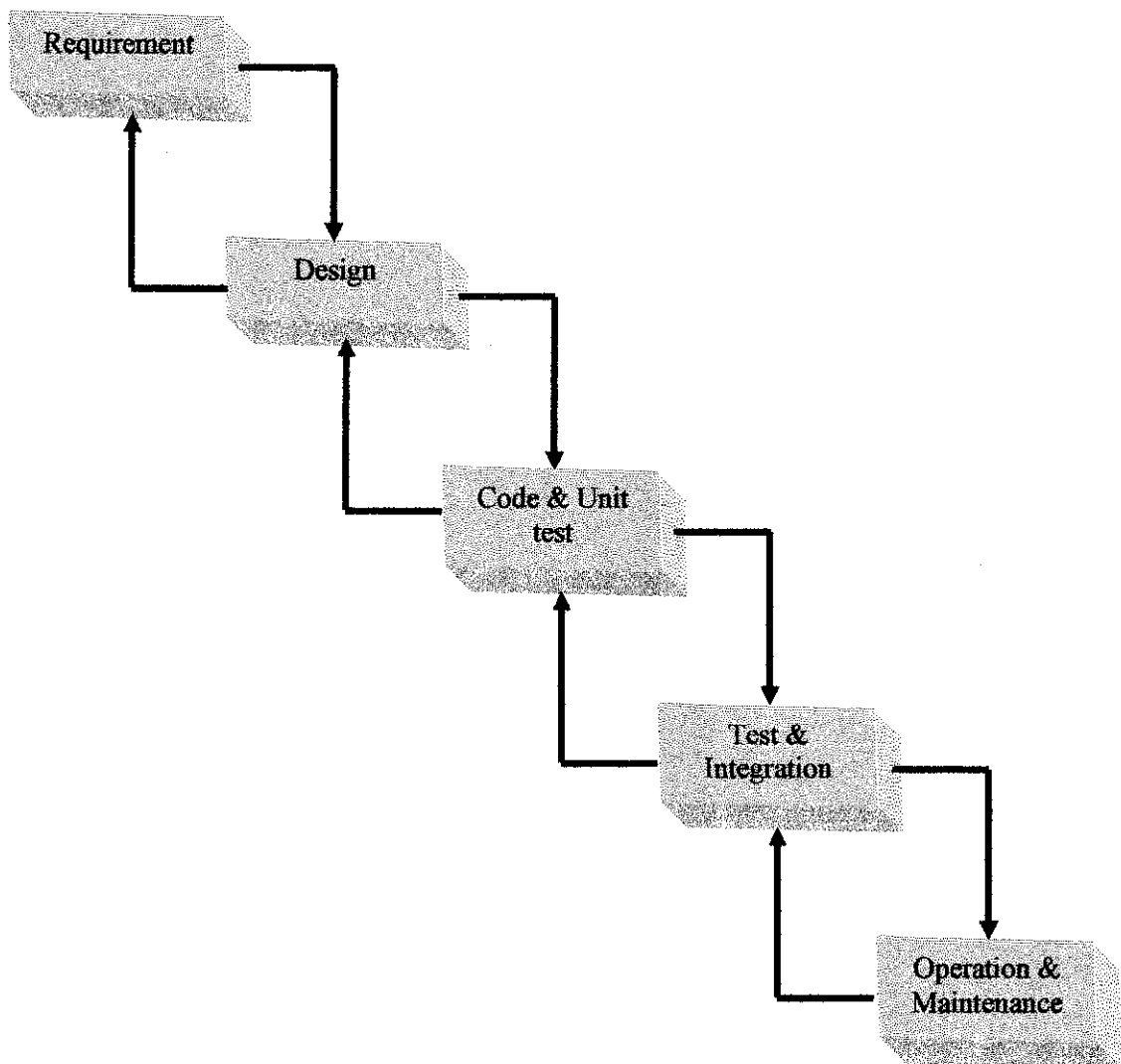


Figure 3.2.1: Waterfall Life Cycle Model

3.2.1.1 Requirement Phase

In the requirement phase, the problem is identified along with the desired objectives or goals to be achieved and also the constraints involved in doing this project are identified. From the requirement, the system specification can be produced. The system specifications will be used for the design phase.

3.2.1.2 Design Phase

In the system design phase, the system specifications are translated into a software representation. At this stage, the system structure and interface representation will be designed. The details from this phase will be used in the coding and unit testing phase as well as simplifying the coding effort.

The tools required for the system is also determined at this phase. The hardware and software needed to create the system will be as follows:

Hardware

- Processor 800 MHz or higher
- RAM 256 MB or higher

Software

- Windows XP
- Internet browser (to view the web pages)
- Apache 1.3.29 (Server hosting)
- PHP 4.3.2
- MySQL 4.0.13
- phpMyAdmin-2.5.3 (to manage MySQL server)
- Macromedia Dreamweaver (to create interface)
- Adobe Photoshop (to edit background and pictures)

3.2.1.3 Code and Unit Testing phase

The information from the design phase is transformed into coding. The user interface is created and then the coding part is done to receive input from the user and send to the database.

Unit tests act on a specific component of the system to identify any errors on the component. If errors occur, it has to be in the coding part. The code was analyzed properly to check for errors.

3.2.1.4 Test and Integration phase

In this phase, the entire product was tested to check whether it is functioning correctly without any error. In case of any error during the system test, the process was returned to unit test and back to design specification.

In this phase, the system was ensured that it satisfies the requirements. The testing focuses on making sure whether the product is actually solving the needs addressed and gathered during the requirements phase.

Basically after this test, the product can be delivered to the customer.

3.2.1.5 Operation and Maintenance phase

This phase is usually the longest phase of the software. In this phase, the software will be updated to meet the changing requirements of the customers' need, to correct errors and oversights previously undetected in the testing phase and also to enhance the efficiency of the software.

CHAPTER 4

RESULTS AND DISCUSSIONS

4. INTRODUCTION

Initially, the buyers who required material has to send out project description to look for potential suppliers. Each supplier will provide a request for purchase (RFP) and the buyer will need to go through each RFP to select the best deal. This involves costs and time.

After switching to e-procurement, invitations to join the bid are sent to potential vendors to place their bid and briefly describe the details of their offer such as product specifications, delivery term, delivery period, payment method and payment term.

When all of the bids are lined up in a graph, the comparison will be simpler. Moreover, certain bids can be eliminated based on the price and deadlines, making the final selection even easier.

At the early stage of the research process, the phases involved according to the waterfall model were the requirement and design phases. The required data were gathered to produce the design of the system.

After the design phase, the coding and unit testing phase was performed to develop the system.

4.1 E-Procurement System Functionality

As for this project, it will be divided into three modules which are the user interface, the backend which is the database and the graph representation. The methodology for the system is represented by a process flow diagram to show the elements and activities involved in the system (**Figure 4.1(a)**).

The process flow diagram explains how the procurement process will work in the system. The system basically involves three elements/users such as the ordering organization, the procurement and the vendors/suppliers. The procurement will be the centralized element which will conduct the purchasing and supplying activities.

After designing the process flow diagram, a web flow diagram was designed to determine the flow of the pages in the system (**Figure 4.1(b)**). The web flow diagram consists of the main page, vendor registration, vendor login, admin login, e-catalogue, bid results and other links.

Clients/users of this system will need to have an internet browser such as Internet Explorer, Opera or Netscape. The current version is important because it supports many plug-ins for future use.

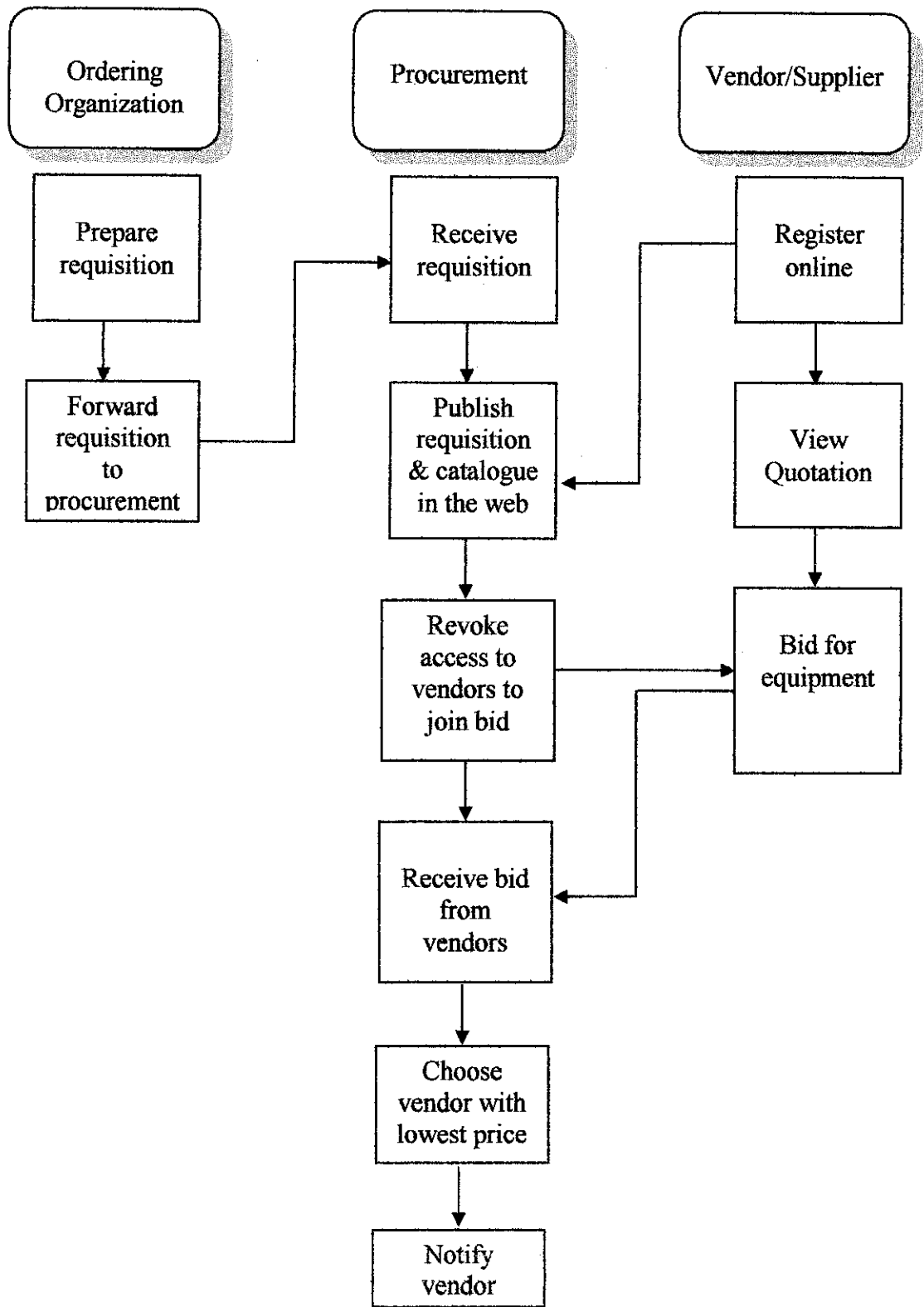
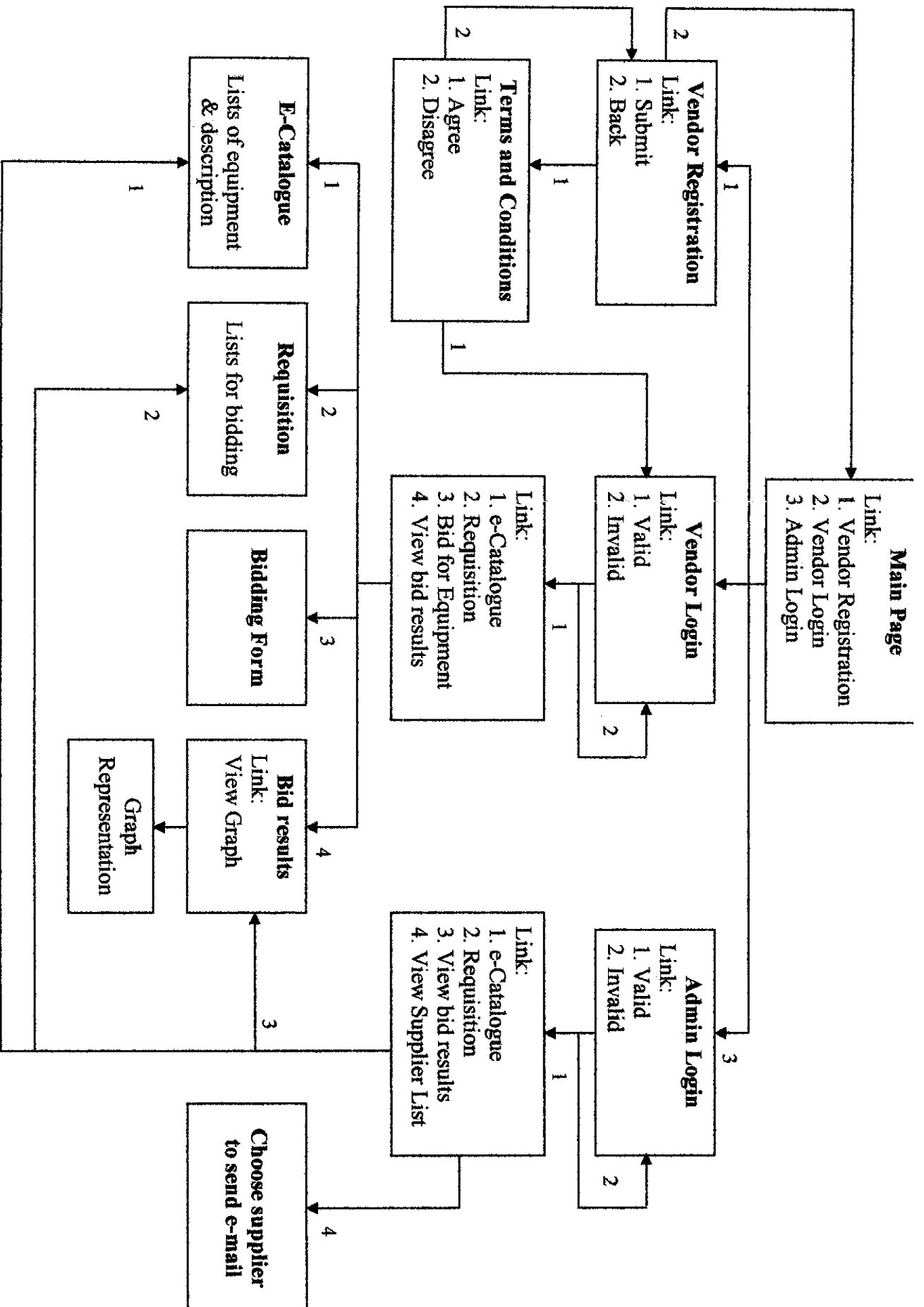


Figure 4.1(a) : Process Flow Diagram



4.2 E-Procurement Prototype

It has been stated that the project consists of three parts and also the tools required in creating the project. The user interface for the system will be created using Macromedia Dreamweaver. The coding will be done using PHP and html languages. Apache server will be installed to upload web pages to the internet and also to support databases which will be created using MySQL. For the graph representation part, different software will be integrated with PHP where data from database will be retrieved to plot the graph.

Also, as a guideline for development, a storyboard has been created to represent the system (**Figure 4.2(a) to Figure 4.2(m)**).

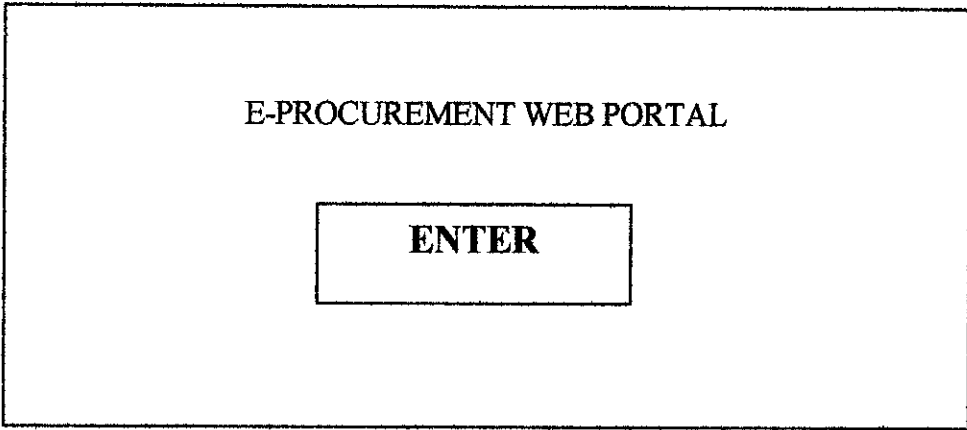


Figure 4.2(a): Index page

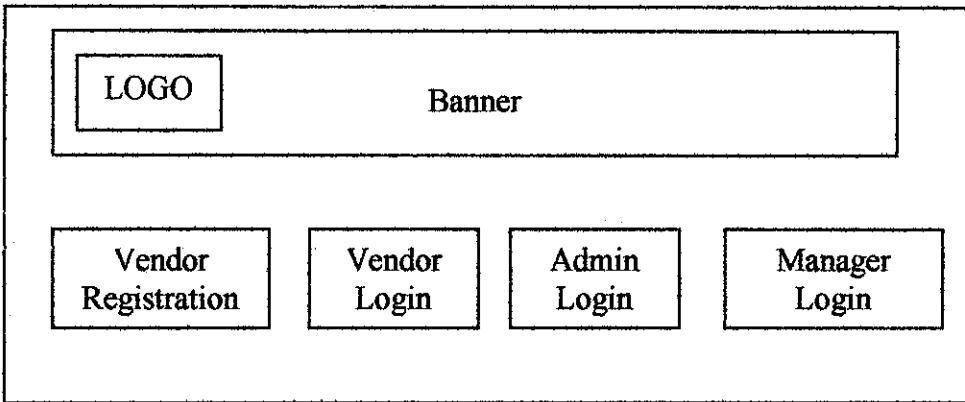


Figure 4.2(b): Registration and Login Button Page

LOGO		Banner	
Title			
text			
text			
text			
text			
text			
text			
text			
text			
text			
			Button
	Link		

Figure 4.2(c): Vendor Registration Page

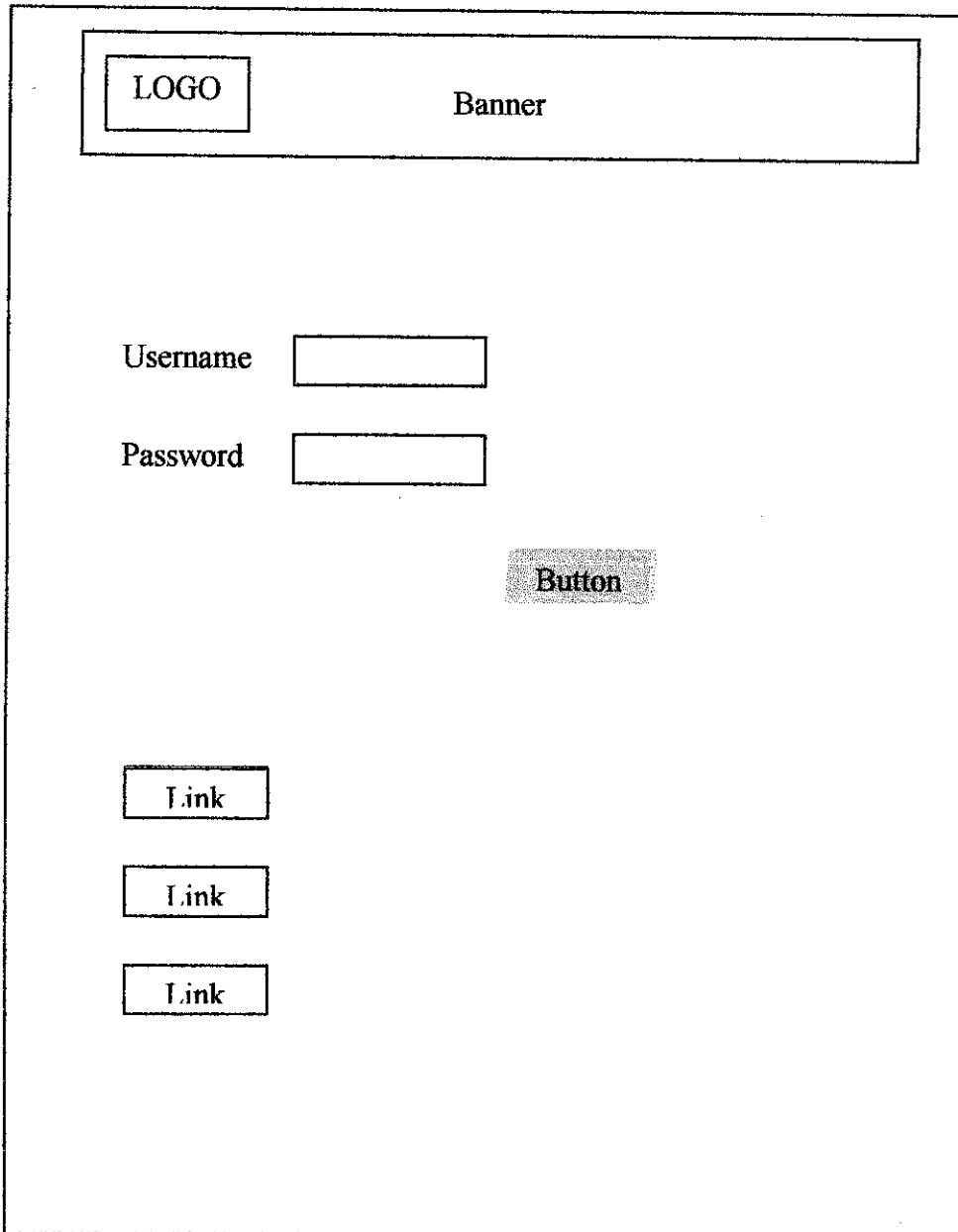


Figure 4.2(d): Login Pages

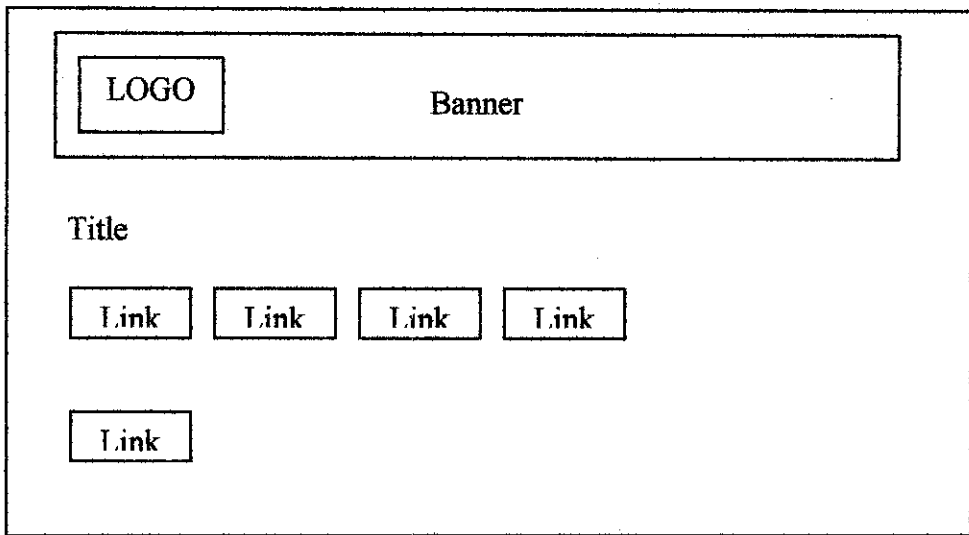


Figure 4.2(e): Users Logged In Page

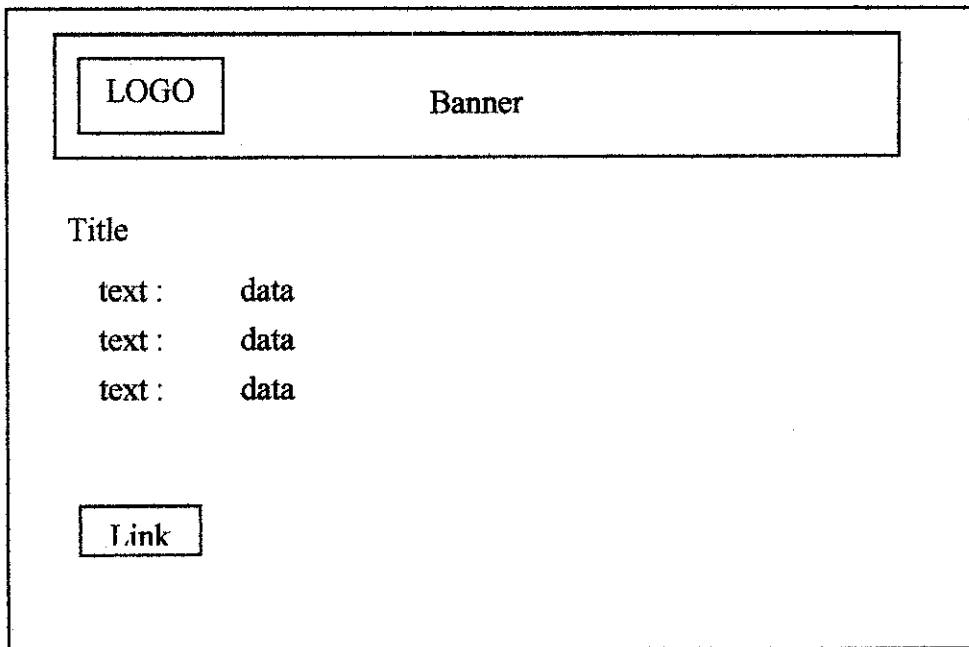
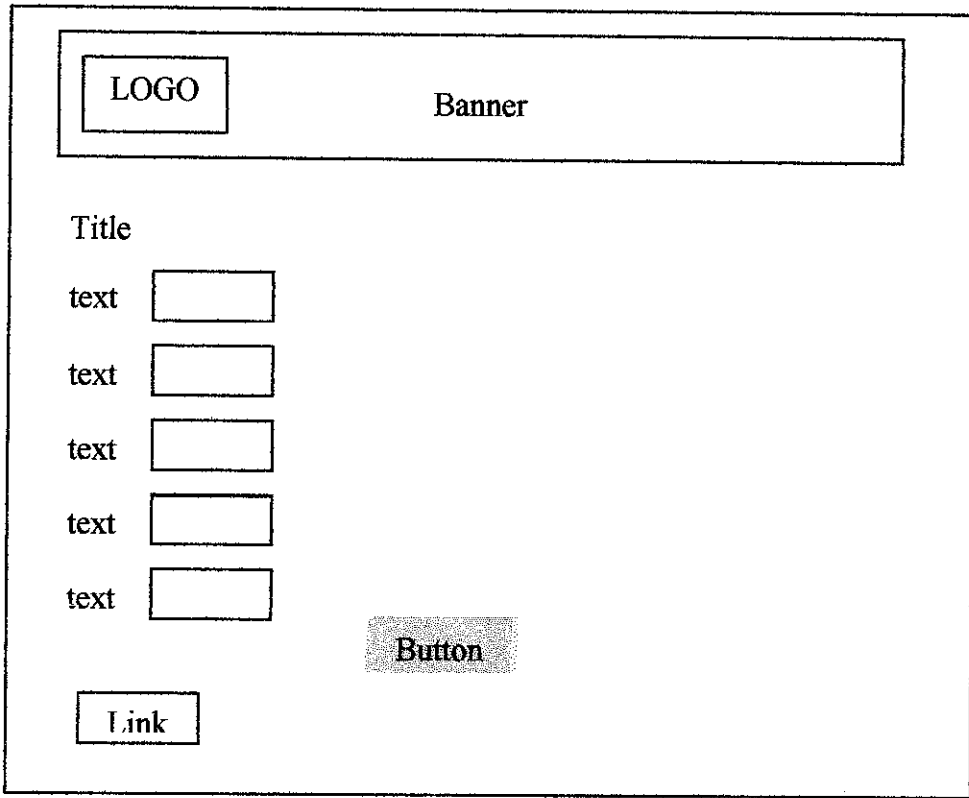


Figure 4.2(f): User Information Page



The diagram illustrates the layout of an account edit page. At the top, there is a horizontal banner area containing a 'LOGO' box on the left and the word 'Banner' on the right. Below the banner, the word 'Title' is positioned above a vertical stack of five text input fields, each preceded by the label 'text'. To the right of these input fields is a shaded 'Button'. At the bottom left of the page is a 'Link' box.

Figure 4.2(g): Account Edit Page

LOGO		Banner	
Title		text	<input type="text"/>
		text	<input type="text"/>
text	<input type="text"/>		
text	<input type="text"/>		
text	<input type="text"/>		
text	<input type="text"/>		
text	<input type="text"/>		
text	<input type="text"/>		
text	<input type="text"/>		
text	<input type="text"/>		
text	<input type="text"/>		

Figure 4.2(h): Prepare Quotation Page

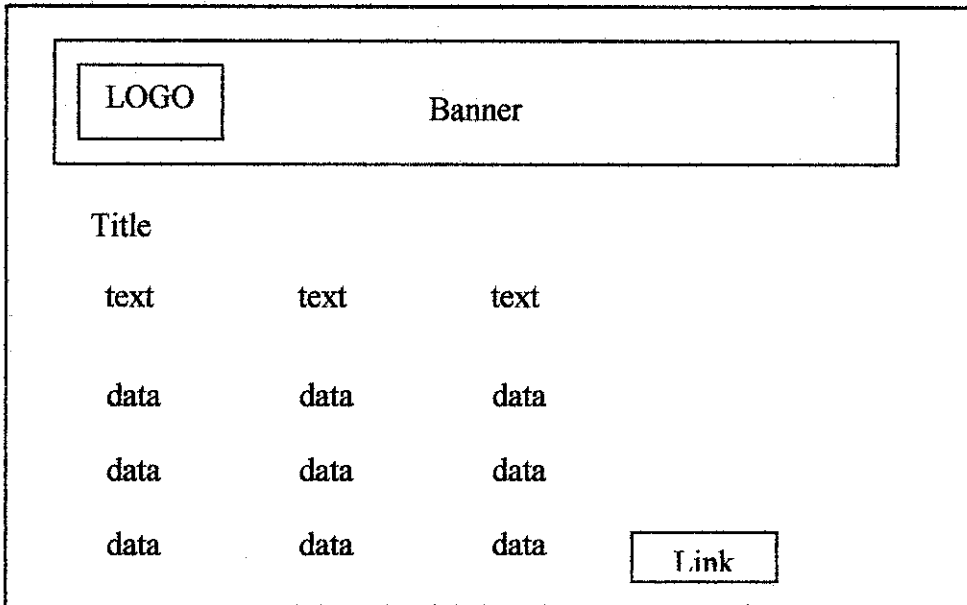


Figure 4.2(i): List of E-Catalogues Page

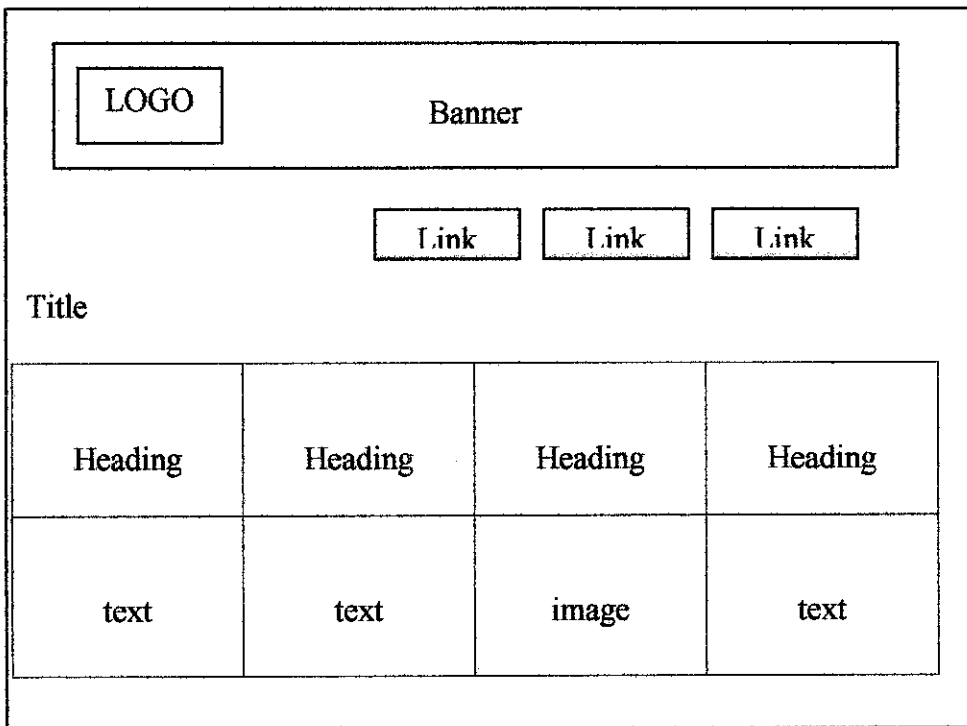


Figure 4.2(j): E-Catalogue Page

LOGO		Banner	
Title			
text			
text			
text			
text			
text			
text			
text			
text			
text			
Button			

Figure 4.2(k): Bid Form Page

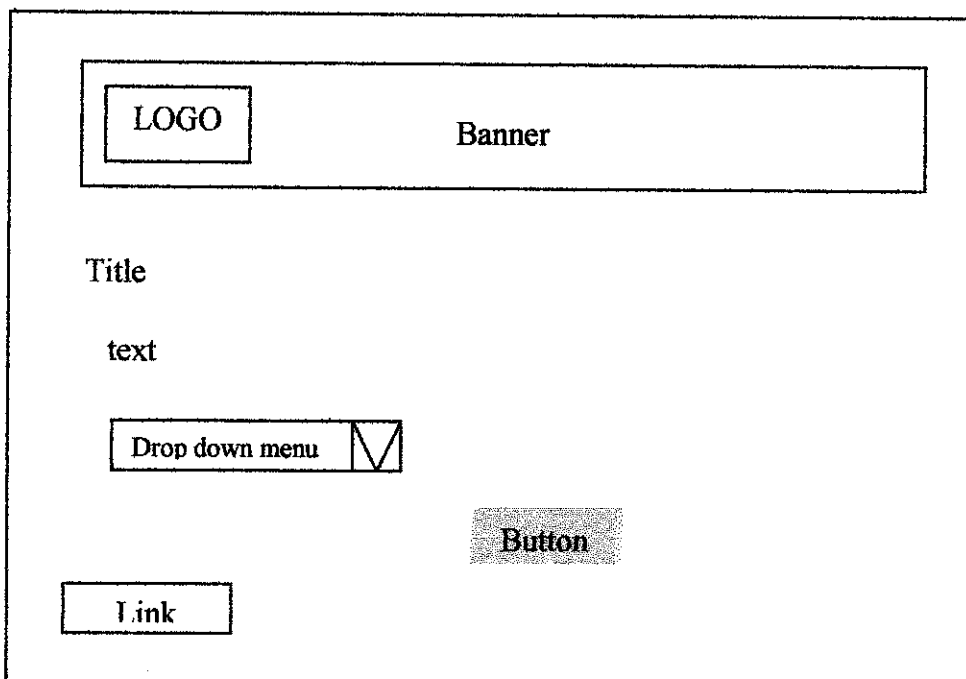


Figure 4.2(l): Bid Results Menu Page

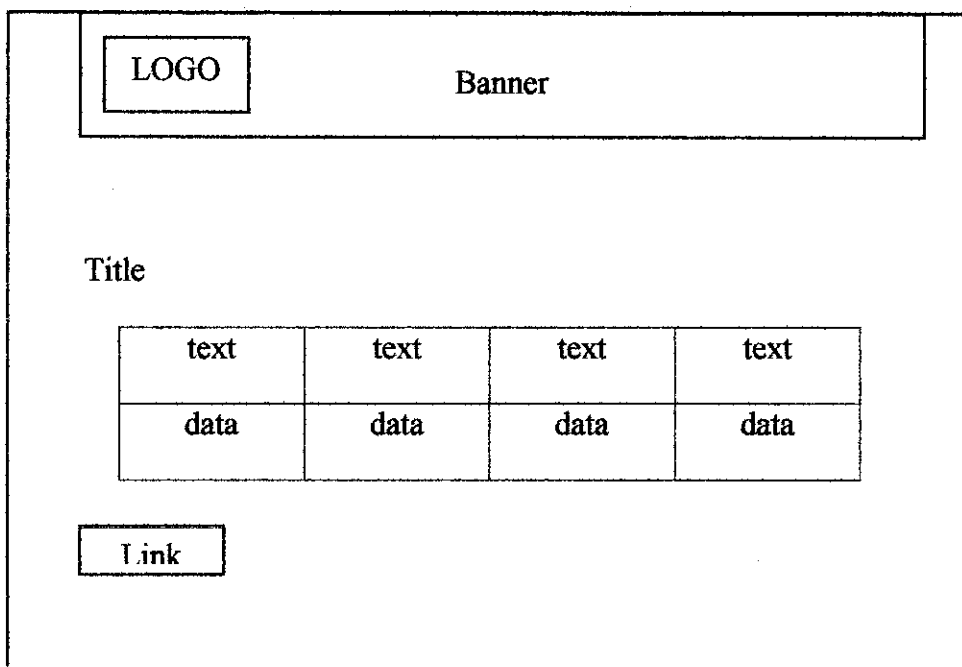


Figure 4.2(m): Bid Results Page

4.3 E-Procurement System

In the coding and unit testing phase, user interfaces has been created. The user interfaces are programmed to receive input from the users and store them in the database tables. The forms created for this system are the vendor registration form, manager, admin and vendor login form, request for quotation form, bid submission form and user account edit form.

Other interfaces includes admin center for the admin to view registered vendors, revoke access to potential vendors to join bid and send mail to vendors as well as view quotations and bid results. The system also offers e-catalogue providing image of product or equipment together with its specification. Figures 4.3(a) to 4.3(o) shows the interfaces of the system.

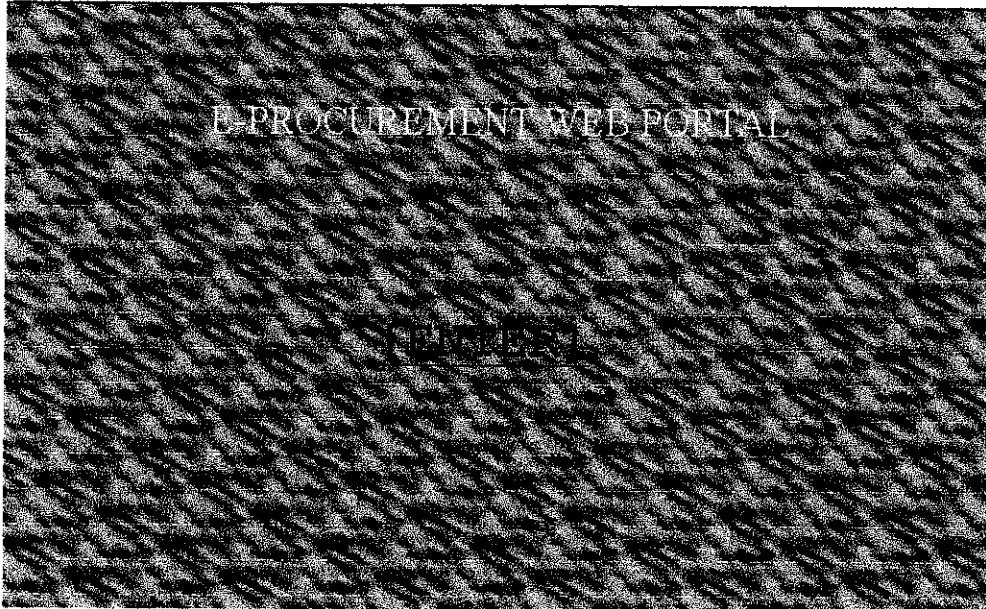


Figure 4.3 (a): Index Page

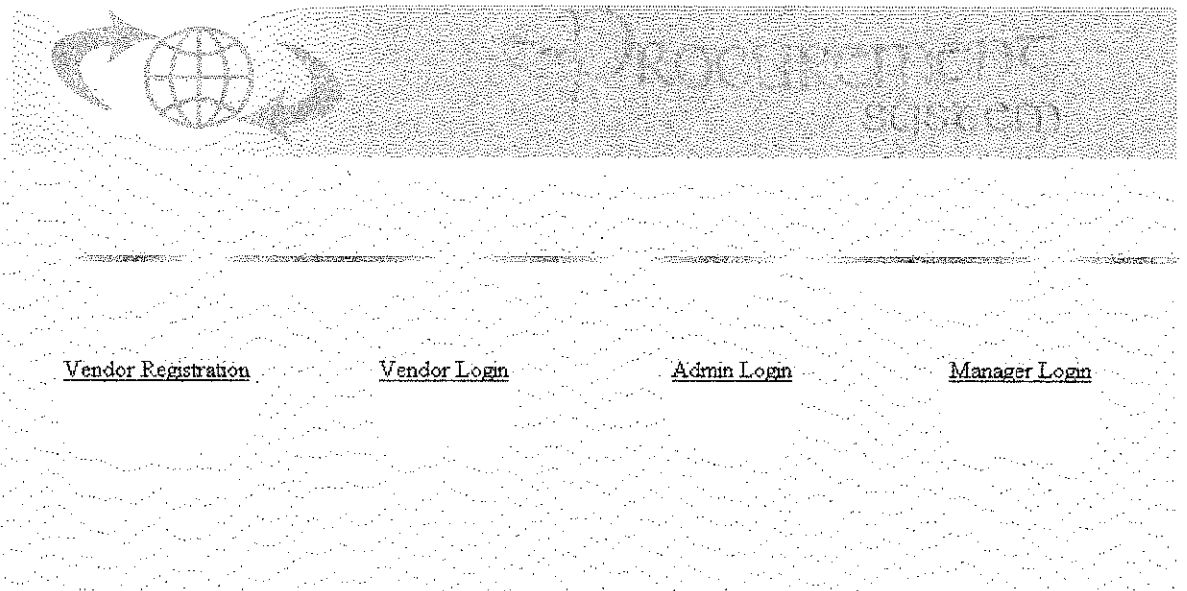
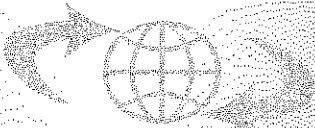


Figure 4.3 (b): Registration and Login Button Page



Vendor Registration Form

Contact Person:

Company name:

Company Address:

Types of supply:

Username:

Password:

Email:

Phone:

Fax:

(Optional)

[Back to Main](#)

Figure 4.3 (c): Vendor Registration Page

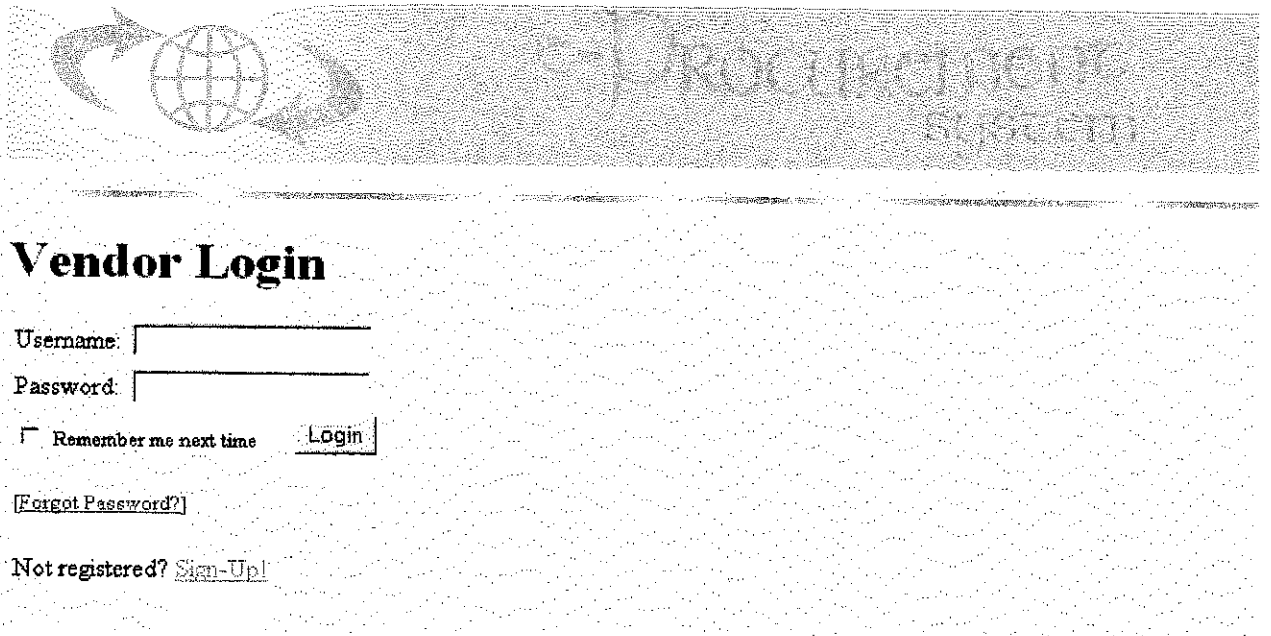


Figure 4.3 (d): Vendor Login Page

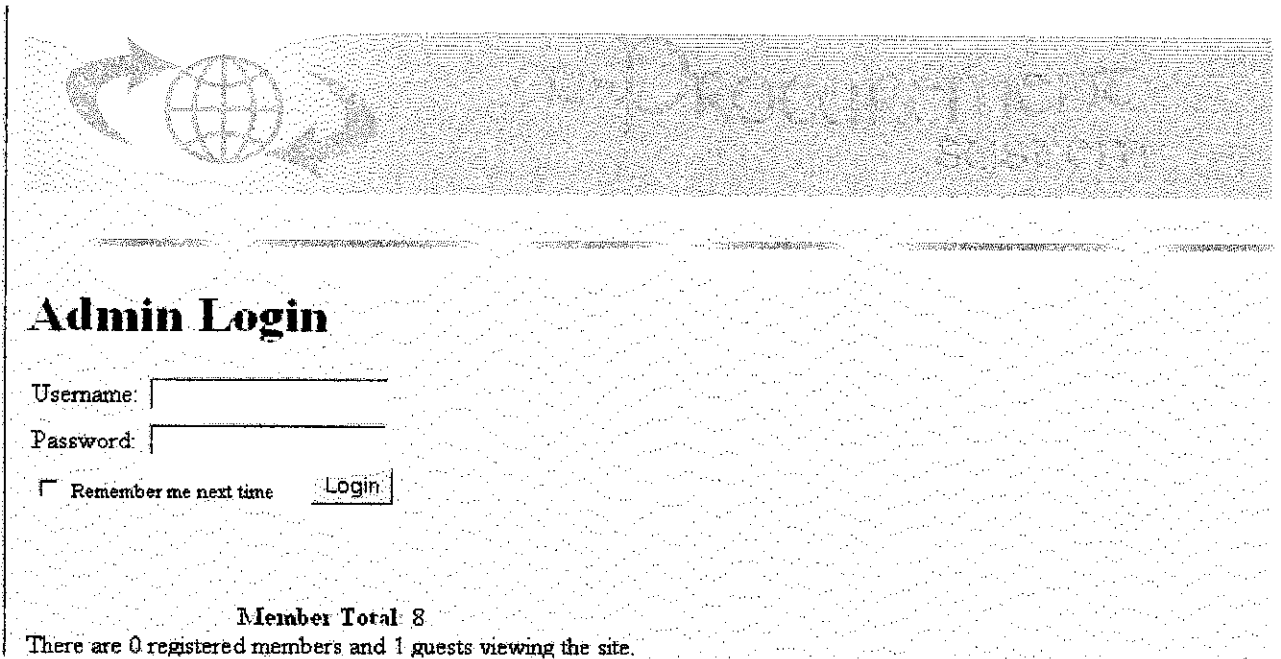


Figure 4.3 (e): Admin Login Page



Logged In

Welcome admin, you are logged in.

[My Account](#) | [Edit Account](#) | [Admin Center](#) | [Links](#) | [New Quotations](#) | [Logout](#)

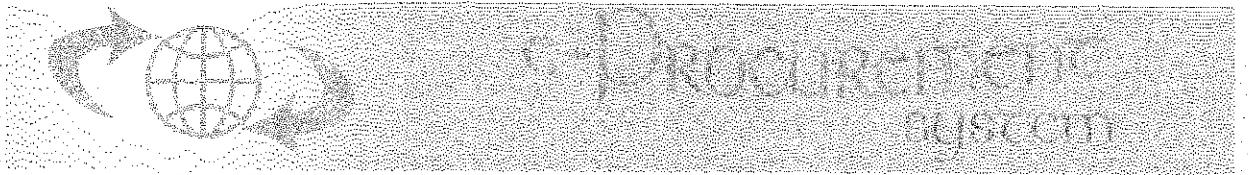
Member Total: 8

There are 1 registered members and 0 guests viewing the site.

[admin /](#)

[Back](#)

Figure 4.3 (f): Main Page for Admin



Logged In

Welcome user1, you are logged in.

[\[My Account\]](#) [\[Edit Account\]](#)

You have been given authorization to join the bid. Click the links to join the bid.

[\[Links\]](#) [\[New Quotations\]](#) [\[Logout\]](#)

Member Total: 8

There are 1 registered members and 0 guests viewing the site.

[user1 /](#)

[Back](#)

Figure 4.3 (g): Main Page for Vendors

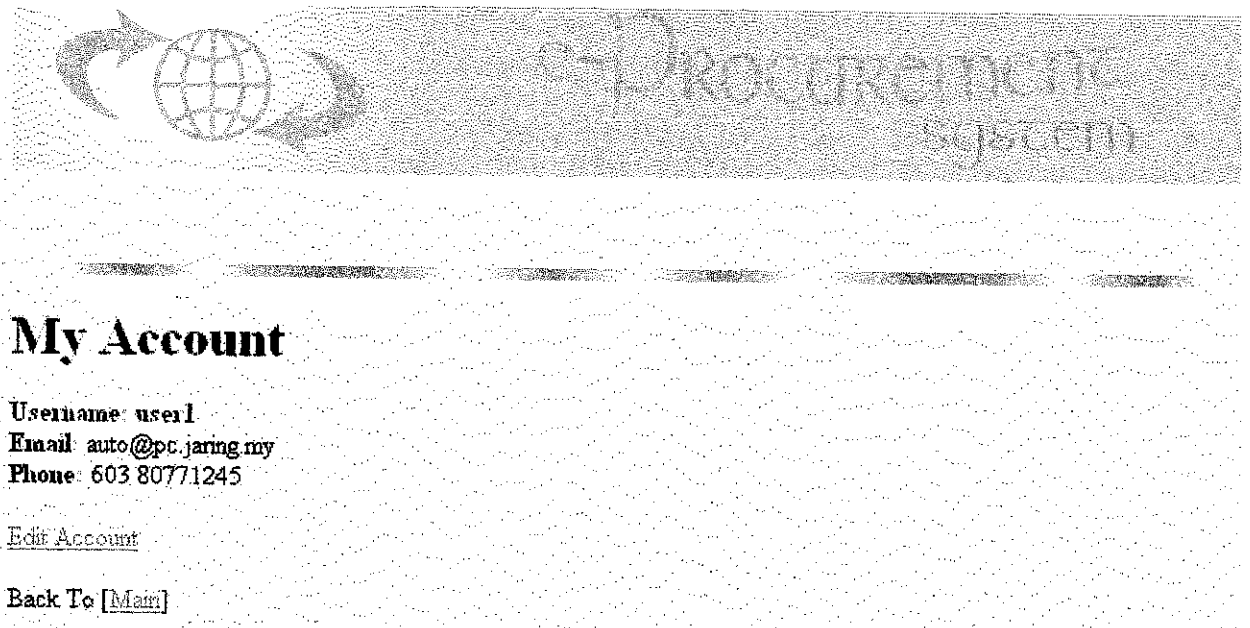


Figure 4.3 (h): User Account Page

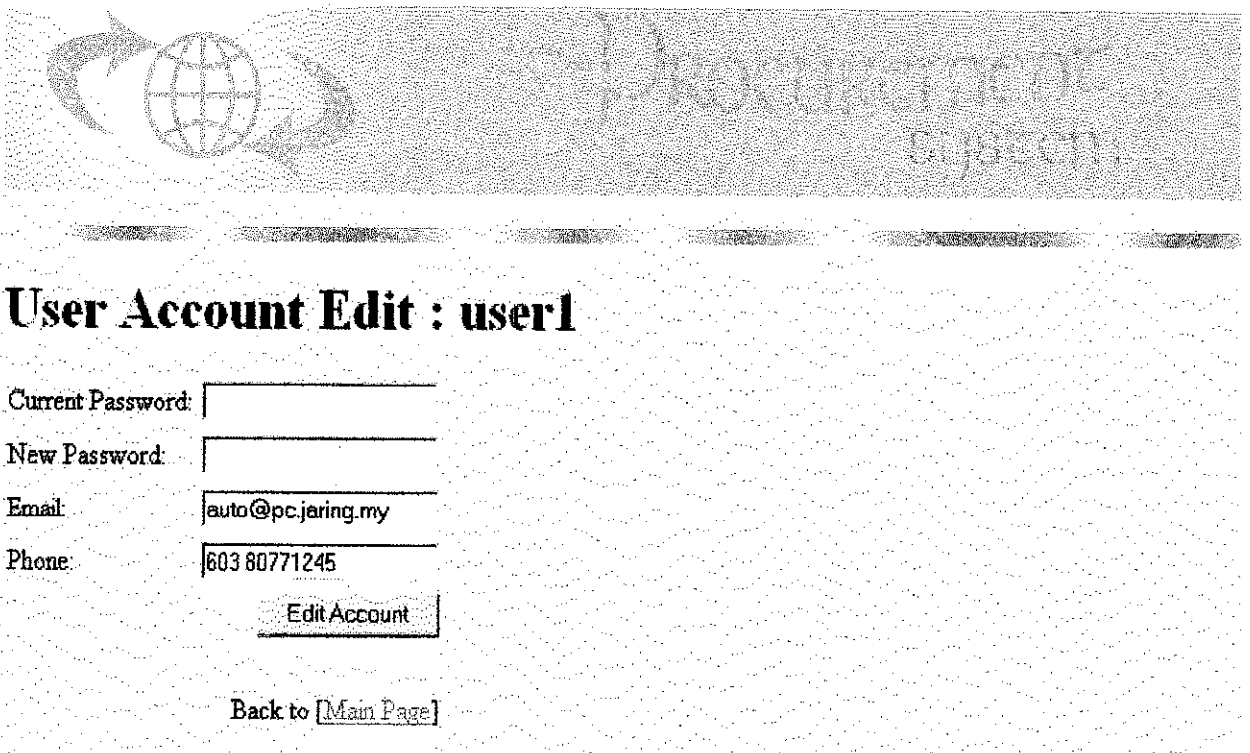
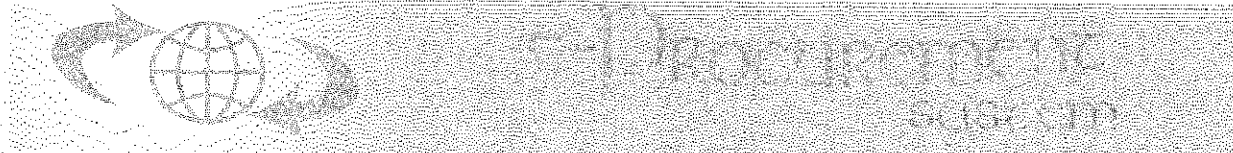


Figure 4.3 (i): Edit Account Page



Admin Center

Logged in as **admin**

[\[Send Mail\]](#)

Back to [\[Main Page\]](#)

Users Table Contents:

Username	Level	Company	Types of supply	Email	Last Active
user1	2	Auto Engineering Sdn Bhd	Machinery Equipment, Engineering Tools	auto@pc.jaring.my	1130061398
user2	2	Arena Mahkota Sdn Bhd	Industrial Power Transmission Belts for machines	liana@arena.com.my	1129871352
user3	2	AMREC SIRIM Bhd	Electrical equipments for constructions	hass@amrec.com.my	1130060046
user4	1	Virtual Softnet Solution Sdn B	Computer hardwares and softwares	zaleha@pc.jaring.my	1129792522
user5	1	Iham Jurutera Sdn Bhd	Automobile equipments, Mechanical equipments	emily@autoeng.com.my	1129260352
user6	2	Steel Works Bhd	Stainless steel equipments, custom made	lim_ss@gmail.com	1129215832

Update User Level

Username: Level:

Delete User

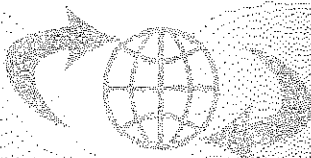
Username:

Figure 4.3 (j): Admin Center Page

REQUEST FOR QUOTATION

Ref No:	<input type="text"/>
Date (yyyy-mm-dd):	<input type="text"/>
Product ID:	<input type="text"/>
Product:	<input type="text"/>
Specification:	<input type="text"/>
Closing Date(yyyy-mm-dd):	<input type="text"/>
Quotation Validity:	<input type="text"/>
Delivery Time:	<input type="text"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

Figure 4.3 (k): Preparing quotation page



PROCUREMENT SUBJECT

E-Catalogue Lists

Requisition

Bid results

ELECTRICAL RESTAURANT EQUIPMENT

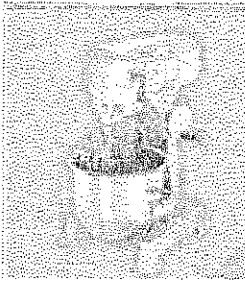
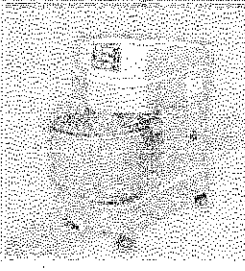
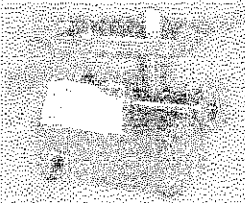
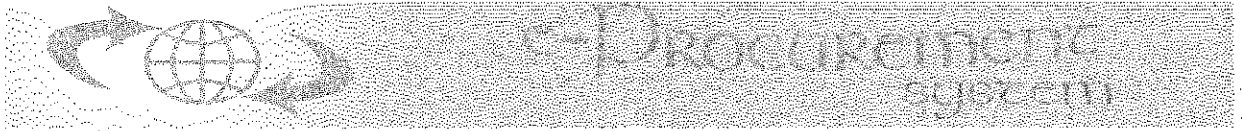
S/N	NAME	IMAGE	SPECIFICATION
EE 001	Food Mixer		<ul style="list-style-type: none">• Bowl size 20/30/50 cm• Unattached
EE 002	Spiral Mixer		<ul style="list-style-type: none">• Bowl size 20/ 40/50 cm• Unattached
EE 003	Meat Mincer		<ul style="list-style-type: none">• Tray size 200 x 400 mm• Tray unattached

Figure 4.3 (I): E-Catalogues Page



Bid Submission Form

Date (yyyy-mm-dd):

Quotation Ref Number:

Username:

Company:

Specification:
(Enter the specifications of your supply product)

Bidding Value:

Payment Method:

Delivery Term:

Mode of Delivery:

Delivery Period:

[Back](#)

Figure 4.3 (m): Bid Submission Form

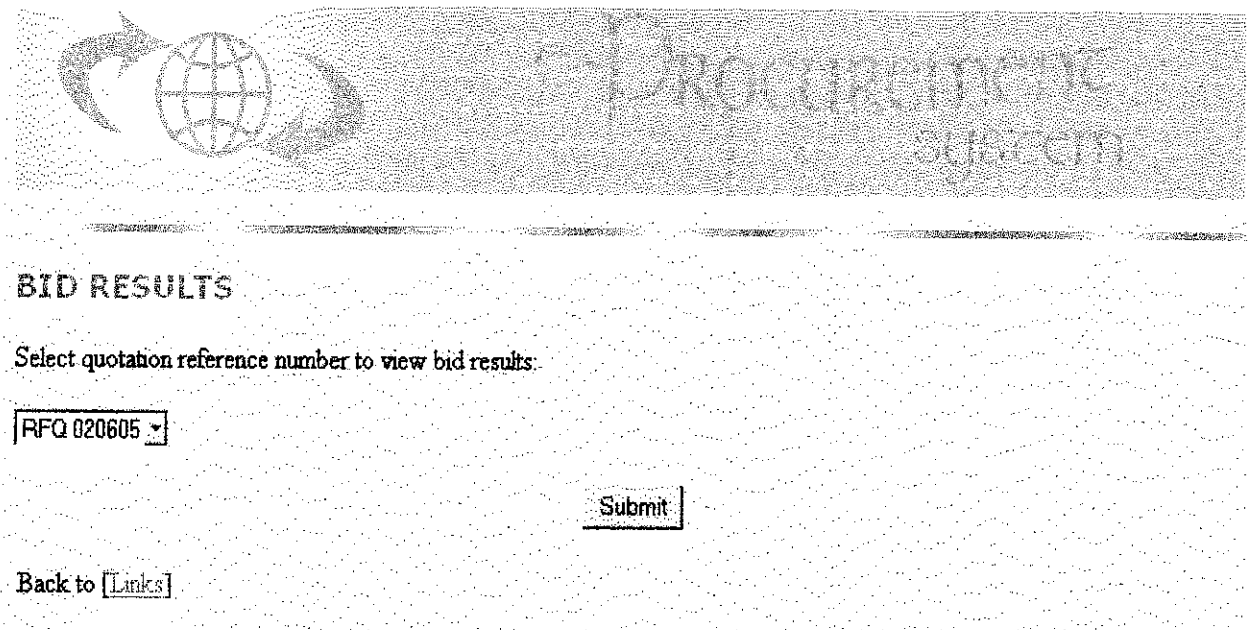


Figure 4.3 (n): Bid Results Menu Page

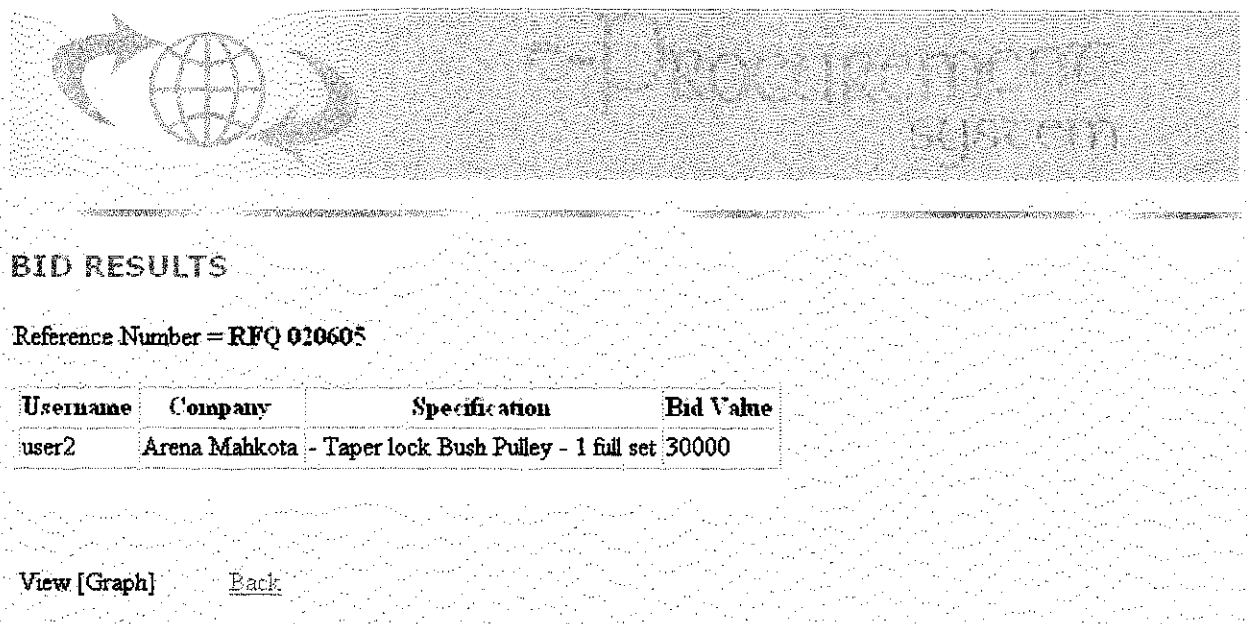


Figure 4.3 (o): Bid Results Page

4.4 Confidentiality

Bidding process done manually involves using papers for offering tender and receiving bids. This could lead to leak of information. Automating the bidding process can solve this problem.

Basically, when bidding process is involved, confidentiality is important. So when the graph is represented, the suppliers will not be able to view the personal information of the other bidders except for their own information such as name and company. The graph will only display the amount bid by other suppliers. The personal data such as name and company can only be viewed by authorized person such as the procurement staffs.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5. OVERVIEW

The conclusion part summarizes the project according to the objectives outlined at the beginning of the project, as well stating its advantages and the recommendation part explains on how to enhance the system in terms of security and confidentiality.

5.1 Conclusion

As a conclusion, this project is to handle procurement activities in an electronic environment where it enables better management of the information and knowledge exchanged with suppliers and customers. A prototype for an e-procurement system has successfully been developed to handle procurement activities in electronic environment. An e-catalogue with listings of equipments has been designed and integrated with the system. Those who make the switch to e-procurement often find that they smooth out relationship glitches with preferred suppliers, often establishing a relationship which is a better long-term pricing.

In the objective and scope, it has been stated that this project prototype consists of graph representation. But due to some programming error and lack of time, the graph could not be produced.

5.2 Recommendation

Anonymity is the most prominent feature of electronic tenders. Conventionally, vendors had to obtain tender documents in person, which may result in bid collusion. Alternately, via the electronic process, vendors can execute all required processes through the Internet. Anonymity is secured and hence reduces the possibility of bid collusion, which is notably the primary purpose of this system.

However, due to the openness of the internet, documents transferred on this system can be retrieved by hackers. So it is recommended that in future this system will be upgraded where the documents transferred are coded. Additionally, as electronic signatures aid in source verification and determine document reliability, each tender document must bear the private key of the managing organization.

REFERENCES

- [1] Muffato, Moreno & Payaro, Andrea. (2003) Implementation of e-procurement and e-fulfillment processes: A comparison of cases in the motorcycle industry. *International Journal of Production Economics*. 89(3), 339-351.

- [2] Liao, T.S, Wang, M.T & Tserng, H.P. (2002). A Framework of electronic government procurement: A lesson learned in Taiwan. *Automation in Construction Journal*. 11(6), 731-742.

- [3] Bichler, Martin. Advanced Brokerage using Auctions in E-Procurement. Retrieved Feb. 27, 2005, from the World Wide Web
<http://faculty.haas.berkeley.edu>

- [4] Lassenius, Casper. Introduction to Software Engineering. Software Life-Cycle Models. Retrieved April. 6, 2005, from the World Wide Web
<http://www.soberit.hut.fi/T-76.601>

- [5] Wagner, Laura. Java Programming. Retrieved April. 6, 2005, from the World Wide Web <http://midcc.com/Portfolio/Java.pdf>

- [6] Converse, T., Park, J. and Morgan, C. PHP5 and MySQL Bible. Wiley Publishing, 2004.

- [7] Lash, A.D. The Web Wizard's Guide to PHP. New York: Pearson Education, Inc, 2003.

APPENDIX

SOURCE CODE

Index

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html><head><title>e-Procurement</title></head>
<body background="blackspot.jpg" text="#FFCCFF" link="#0000FF" vlink="#0000FF"
alink="#CC33CC">
<table width="100%" border="0"> <tr>
  <td width="23%">&nbsp;</td>
  <td width="62%"><font color="#FF97FF" size="5">E-PROCUREMENT WEB
PORTAL</font></td>
  <td width="15%">&nbsp;</td></tr></table>
<p><font color="#00FFFF"> </font></p>
<table width="100%" border="0">
  <tr> <td width="37%">&nbsp;</td>
  <td width="56%"><font color="#F19ADC" size="7"><strong><kbd><a
href="login.php">[ENTER]</a></kbd></strong></font></td>
  <td width="7%">&nbsp;</td> </tr></table>
```

Select Login

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html><head><title>e-Procurement</title></head>
<body background="pink_fab.jpg" link="#0000FF" vlink="#0000FF" alink="#CC33CC">
<p></p>
<p> </p>
<p>&nbsp;</p><table width="100%" border="0">
  <tr> <td width="25%"><div align="center"><a href="register.php">Vendor
Registration</a></div></td>
  <td width="25%"><div align="center"><a href="main.php">Vendor Login</a></div></td>
  <td width="25%"><div align="center"><a href="admin_main.php">Admin Login</a></div></td>
  <td width="25%"><div align="center"><a href="man_main.php">Manager
Login</a></div></td></tr></table>
</body></html>
```

Vendor Login

```
<?
include("session.php");
?>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html><head><title>e-Procurement</title><body background="pink_fab.jpg">
<p></p>
<p></p><table><tr><td>
<?
if($session->logged_in){
  echo "<h1>Logged In</h1>";
  echo "<font size=\"3\" color=\"#cc3300\"";
```



```

echo "</td></tr><tr><td align=\"center\"><br><br>";
echo "<b>Member Total:</b> " . $database->getNumMembers(). "<br>";
echo "There are $database->num_active_users registered members and ";
echo "$database->num_active_guests guests viewing the site.<br><br>";
include("view_active.php");
?>
<tr><td colspan="2" align="left"><p>&nbsp;</p>
<p><a href="index.html">Back to Main</a></p></td></tr></table></body></html>

```

User Info

```

<?
include("session.php");
?>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html><head><title>e-Procurement</title>
<body background="pink_fab.jpg"><p></p>
<p>&nbsp;</p><p></p>
<?

/* Requested Username error checking */
$req_user = trim($_GET['user']);
if(!$req_user || strlen($req_user) == 0 ||
!ereg("^[0-9a-z]+$", $req_user) ||
!$database->usernameTaken($req_user)){
    die("Username not registered");
}

/* Logged in user viewing own account */
if(strcmp($session->username,$req_user) == 0){
    echo "<h1>My Account</h1>";
}
/* Visitor not viewing own account */
else{
    echo "<h1>User Info</h1>";
}

/* Display requested user information */
$req_user_info = $database->getUserInfo($req_user);
/* Username */
echo "<b>Username: " . $req_user_info['username'] . "</b><br>";
/* Email */
echo "<b>Email:</b> " . $req_user_info['email'] . "<br>";
/*Phone */
echo "<b>Phone:</b> " . $req_user_info['phone'] . "<br>";

/* If logged in user viewing own account, give link to edit */
if(strcmp($session->username,$req_user) == 0){
    echo "<br><a href=\"useredit.php\">Edit Account</a><br>";
}

/* Link back to main */
echo "<br>Back To [<a href=\"main.php\">Main</a>]<br>";
?>
<p>&nbsp;</p></body></html>

```

User Edit Info

```
<?
include("session.php");
?>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html><head><title>e-Procurement</title></head><body background="pink_fab.jpg">
<p> </p>
<p></p>
<?
if(isset($_SESSION['useredit'])){
    unset($_SESSION['useredit']);
    echo "<h1>User Account Edit Success!</h1>";
    echo "<p><b>$_SESSION->username</b>, your account has been successfully updated. "
        . "<a href='\"main.php\">Main</a>.</p>";
}
else{
?>
<?
if($_SESSION->logged_in){
?>
<h1>User Account Edit : <? echo $_SESSION->username; ?></h1>
<?
if($_form->num_errors > 0){
    echo "<td><font size='\"2\"' color='\"#ff0000\">".$_form->num_errors." error(s) found</font></td>";
}
?>
<form action="process.php" method="POST">
    <table align="left" border="0" cellspacing="0" cellpadding="3">
        <tr> <td>Current Password:</td>
            <td><input type="password" name="curpass" maxlength="30" value="
<? echo $_form->value("curpass"); ?>"></td>
            <td><? echo $_form->error("curpass"); ?></td></tr>
        <tr> <td>New Password:</td>
            <td><input type="password" name="newpass" maxlength="30" value="
<? echo $_form->value("newpass"); ?>"></td>
            <td><? echo $_form->error("newpass"); ?></td></tr>
        <tr> <td>Email:</td>
            <td><input type="text" name="email" maxlength="50" value="
<?
if($_form->value("email") == ""){
    echo $_SESSION->userinfo['email'];
}else{
    echo $_form->value("email");
}
?>"> </td>
            <td><? echo $_form->error("email"); ?></td></tr>
        <tr><td>Phone:</td>
            <td><input type="text" name="phone" maxlength="50" value="
<?
if($_form->value("phone") == ""){
    echo $_SESSION->userinfo['phone'];
}else{
    echo $_form->value("phone");
}
?>"> </td>
            <td><? echo $_form->error("phone"); ?></td> </tr>
        <tr><td colspan="2" align="right"> <input type="hidden" name="subedit" value="1">
            <input type="submit" value="Edit Account"></td> </tr>
    </table>
</form>
</pre>
```



```

<tr> <td colspan="2" align="left"></td></tr>
<tr> <td colspan="2" align="right">&nbsp;
  <tr><td colspan="2" align="right"> Back to [

```

List of Quotations

```

<html><head><title>e-Procurement</title>
<body background="pink_fab.jpg" link="#0000FF" vlink="#0000FF" alink="#CC33CC">
<p></p><p>&nbsp;</p>
<p></p>
<p><strong><font color="#AE0057" size="4">LISTS OF QUOTATIONS </font></strong></p>

<table width="100%" border="0">
  <tr><td width="12%" height="34"><div align="center"><strong>1</strong></div></td>
  <td width="88%"><strong>RFQ 010605</strong></td> </tr>
  <tr> <td height="34"><div align="center"><strong>2</strong></div></td>
  <td><strong>RFQ 020605</strong></td> </tr>
  <tr> <td height="34"><div align="center"><strong>3</strong></div></td>
  <td><strong>RFQ 010705</strong></td> </tr>
  <tr> <td height="34"><div align="center"><strong>4</strong></div></td>
  <td><strong>RFQ 010805</strong></td></tr>
  <tr><td height="34"><div align="center"><strong>5</strong></div></td>
  <td><strong><a href="rfq5.html">RFQ 011005</a></strong></td> </tr>
  <tr><td height="34"><div align="center"></div></td><td>&nbsp;</td> </tr>
  <tr><td height="34"><div align="center"></div></td><td>&nbsp;</td> </tr>
  <tr><td height="34"><div align="center"></div></td><td><table width="100%" border="0">
  <tr><td width="33%">&nbsp;</td> <td width="38%">&nbsp;</td>
    <td width="29%"><strong>View quotation in [

```

Quotations

```

<html><head><title>e-Procurement</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1"></head>
<body background="pink_fab.jpg">
<p></p>
<br><br><font size="4" color="#AE0057">
<strong><center>REQUEST FOR QUOTATION</center></strong>
</font><br><p>&nbsp;</p>
<p><font color="#400080" size="3"><strong>We wish to invite you to quote for the item

```

with the best price and delivery time</p><p>The description of the item is as follows:</p><p> </p>

```
<table width="100%" border="0"><tr>
  <td width="59%">&nbsp;</td>
  <td width="24%"><strong>Ref No: </strong></td>
  <td width="17%">RFQ 011005</td></tr>
<tr> <td><strong>Date (yyyy-mm-dd):</strong></td>
  <td>2005-10-10 </td></tr></table>
```

```
<table width="100%" border="0">
  <tr>
    <td width="28%"><strong>Product ID:</strong></td>
    <td width="72%">AP 010</td> </tr>
<tr> <td><strong>Product:</strong></td>
  <td>Round Belts</td> </tr>
<tr> <td><strong>Specification:</strong></td>
  <td height="20%">-Round Endless type machinery belts
  -Made of Polyurethane
  Minimum length 120 cm</td> </tr>
<tr> <td><strong>Quantity: </strong></td>
  <td>120</td> </tr>
<tr> <td><strong>Closing Date(yyyy-mm-dd): </strong></td>
  <td>2005-11-10</td></tr>
<tr><td><strong>Quotation Validity:</strong></td>
  <td>1 mth</td></tr>
<tr> <td><strong>Delivery Time: </strong></td>
  <td>20 days</td> </tr></table>
```

<p> </p><p> </p><p>* THIS QUERY IMPLIES NO OBLIGATION ON THE PART OF THE BUYER.</p><p>* WE RESERVED THE RIGHT TO REJECT ANY OR ALL BIDS AND/OR TO ACCEPT THE MOST ATTRACTIVE OFFER</p></body></html>

Display Quotation in Table

```
<?php
session_start();
?>
<html><head><title>e-Procurement</title>
<body background="pink_fab.jpg" link="#0000FF" vlink="#0000FF" alink="#CC33CC">
<p></p>
<p> </p>
<p><font color="#AE0057"><strong>QUOTATION LISTS</strong></font></p><p>
<?php
$host = '127.0.0.1';
$dbname = 'mydb';
$username = '';
$password = '';
$connect = mysql_connect($host,$username,$password);
?>
<?php
mysql_select_db($dbname);
$table_name = 'rfq';
$query1 = "SELECT ref_no FROM $table_name WHERE ref_no=011005";
$query2 = "SELECT date FROM $table_name WHERE ref_no=011005";
$query3 = "SELECT product_id FROM $table_name WHERE ref_no=011005";
```

```

$query4 = "SELECT product FROM $table_name WHERE ref_no=011005";
$query5 = "SELECT specification FROM $table_name WHERE ref_no=011005";
$query6 = "SELECT quantity FROM $table_name WHERE ref_no=011005";
$query7 = "SELECT close_date FROM $table_name WHERE ref_no=011005";

$results_id1 = mysql_query($query1, $connect);
$results_id2 = mysql_query($query2, $connect);
$results_id3 = mysql_query($query3, $connect);
$results_id4 = mysql_query($query4, $connect);
$results_id5 = mysql_query($query5, $connect);
$results_id6 = mysql_query($query6, $connect);
$results_id7 = mysql_query($query7, $connect);

if($results_id1)
{
    print '<table border=1>';
    print '<th>Ref No</th><th>Date</th><th>Product
ID</th><th>Product</th><th>Specifications</th><th>Quantity</th><th>Closing Date';
    while ($row = mysql_fetch_row($results_id1))
    {
        foreach ($row as $field)
        {
            $ref_no[] = $field;
        }
    }

    while ($row = mysql_fetch_row($results_id2))
    {
        foreach ($row as $field)
        {
            $date[] = $field;
        }
    }

    while ($row = mysql_fetch_row($results_id3))
    {
        foreach ($row as $field)
        {
            $prod_id[] = $field;
        }
    }
    while ($row = mysql_fetch_row($results_id4))
    {
        foreach ($row as $field)
        {
            $prod[] = $field;
        }
    }
    while ($row = mysql_fetch_row($results_id5))
    {
        foreach ($row as $field)
        {
            $spec[] = $field;
        }
    }
    while ($row = mysql_fetch_row($results_id6))
    {
        foreach ($row as $field)
        {
            $q_tity[] = $field;
        }
    }
}

```

```

    }
}
while ($row = mysql_fetch_row($results_id7))
{
    foreach ($row as $field)
    {
        $c_date[] = $field;
    }
}

for ($i = 0; $i < count ($ref_no); $i++)
{
    print "<tr>";
    print "<td>$ref_no[$i]</td>";
    print "<td width=80>$date[$i]</td>";
    print "<td>$prod_id[$i]</td>";
    print "<td>$prod[$i]</td>";
    print "<td>$spec[$i] </td>";
    print "<td>$q_tity[$i]</td>";
    print "<td>$c_date[$i]</td>";
    print "</tr>";
}
} else
{
    die("Query = $query failed");
}
mysql_close($connect);
?>
</table><p>Back to [Lists</a>]</p>
</td> <p><strong> </strong><br><br> </p></body></html>

```

Links

```

<?
include("session.php");
?><html><head><title>e-Procurement</title>
<body background="pink_fab.jpg" link="#0000FF" vlink="#0000FF" alink="#CC33CC">
<p></p>
<p> </p><div align="center"> </div></body></html>
<?

if($session->logged_in){
    echo "<h1>Logged In</h1>";
    echo "Welcome <b>$session->username</b>, you are logged in. <br><br>";
    if($session->isAdmin()){
        echo "[<a href=\"rfq.html\">Prepare Quotation</a>] &nbsp;&nbsp;&nbsp;";
        echo "[<a href=\"rfq_list.html\">Quotations</a>]&nbsp;&nbsp;&nbsp;";
        echo "[<a href=\"ecat_list.html\">E-Catalogue</a>]&nbsp;&nbsp;&nbsp;";
        echo "[<a href=\"bidRegister.php\">Bid</a>] &nbsp;&nbsp;&nbsp;";
        echo "[<a href=\"bidResult_menu.php\">Bid Results</a>] &nbsp;&nbsp;&nbsp;";
    }

    if($session->isMan()){
        echo "[<a href=\"rfq_list.html\">Quotations</a>]&nbsp;&nbsp;&nbsp;";
        echo "[<a href=\"ecat_list.html\">E-Catalogue</a>]&nbsp;&nbsp;&nbsp;";
        echo "[<a href=\"bidRegister.php\">Bid</a>] &nbsp;&nbsp;&nbsp;";
        echo "[<a href=\"bidResult_list.html\">Bid Results</a>] &nbsp;&nbsp;&nbsp;";
    }
}

```

```

if($session->isReg()){
    echo "[<a href=\"ecat_list.html\">E-Catalogue</a>]&nbsp;&nbsp;&nbsp;";
    echo "[<a href=\"bidRegister.php\">Bid</a>] &nbsp;&nbsp;&nbsp;";
}
echo "[<a href=\"process.php\">Logout</a>]<br>";
}
echo "<br>Back To [<a href=\"main.php\">Main</a>]<br><br>";
?>

```

List of E-Catalogues

```

<html><head><title>e-Procurement</title>
<body background="pink_fab.jpg" link="#0000FF" vlink="#0000FF" alink="#CC33CC">
<p></p><p>&nbsp;</p>
<p> </p>

<p><font color="#AE0057"><strong><font size="4">LIST OF E-
CATALOGUES</font></strong></font></p>
<table width="100%" border="0">
<tr> <td height="34"><div align="center"><strong>NO</strong></div></td>
<td align="center"><strong>PRODUCT ID</strong></td>
<td align="left"><strong>CATEGORY</strong></td> </tr>

<tr> <td width="4%" height="34"><div align="center"><strong><font color="#8000FF"
size="3">1</font></strong></div></td>
<td width="32%"><div align="center"><strong><font
color="#8000FF">AP</font></strong></div></td>
<td width="64%"><strong><font size="3"><a href="ecat_AP.html">Auto
Parts</a></strong></td></tr>

<tr> <td height="34"><div align="center"><strong><font color="#8000FF"
size="3">2</font></strong></div></td>
<td align="center"><strong><font color="#8000FF">EE</font></strong></div></td>
<td align="left"><strong><font size="3"><a href="ecat_EE.html"> Electrical Restaurant
Equipment</a></strong></td> </tr>
<tr><td height="34"><div align="center"><strong><font color="#8000FF"
size="3">3</font></strong></div></td>
<td align="center"><strong><font color="#8000FF">SS</font></strong></div></td>
<td align="left"><strong><font size="3"><a href="ecat_SS.html">Stainless Steel Restaurant
Equipment</a></strong></td></tr>

<tr><td height="34"><div align="center"><strong><font color="#000000"
size="3">4</font></strong></div></td>
<td align="center"><strong><font color="#000000">CE</font></strong></div></td>
<td align="left"><strong><font size="3">Construction Equipments</strong></td></tr>

<tr><td height="34"><div align="right"></div></td>
<td align="center"></td>
<td align="right"></td></tr></table>

<table width="100%" border="0">
<tr> <td width="77%">&nbsp;</td>
<td width="17%"><font size="4">Back to [<a href="links.php">Links</a>]</font></td>
<td width="6%">&nbsp;</td> </tr></table></body></html>

```

E-catalogue

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html><head><title>e-Procurement</title>
</head><body background="pink_fab.jpg">
<p></p><div align="right">

<table width="75%" height="46" border="1">
  <tr><td width="25%"><div align="center"><font size="4"><a href="ecat_list.html">E-Catalogue
    Lists</a></font></div></td>
    <td width="25%"><div align="center"><font size="4"><a
href="req_list.html">Requisition</a></font></div></td>
    <td width="25%"><div align="center"><font size="4">Bid results</font></div></td></tr>
</table></div>
<p> </p>
<p><font color="#AE0057"><strong><font size="4">AUTO PARTS FOR
MACHINERY</font></strong></font></p>

<table width="100%" border="2">
  <tr><td width="18%" height="26"><div align="center"><strong><font
color="#D7006B">S/N</font></strong></div></td>
    <td width="25%"><div align="center"><strong><font
color="#D7006B">NAME</font></strong></div></td>
    <td width="25%"><div align="center"><strong><font
color="#D7006B">IMAGE</font></strong></div></td>
    <td width="32%"><blockquote> <div align="left"><strong>
<font color="#D7006B">SPECIFICATION</font></strong></div></blockquote></td></tr>
  <tr><td height="179"><div align="left"><strong>AP 001</strong></div></td>
    <td><div align="left"><strong>Bando Synchronous Belts</strong></div></td>
    <td><div align="left"><strong></strong></div></td>
    <td><ul>
      <li><strong align="left">Super Torque </strong><strong>Synchronous Belts</strong></li>
      <li><strong align="left">Made of rubber</strong></li>
      <li><strong>Minimum length 130 cm</strong></li></ul> <div align="left">
<blockquote></blockquote></div></td></tr>
  <tr> <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><blockquote> </blockquote>
      <div align="left"></div></td></tr>
  <tr> <td height="118"><div align="center"><strong>AP 002</strong></div></td>
    <td><div align="center">
      <p><strong>Bando Polyurethane</strong></p>
      <p><strong>Synchronous Belts</strong></p></div></td>
    <td><div align="center"><strong></strong></div></td>
    <td><ul> <li><strong>Synchronous Belts</strong></li>
      <li><strong align="left">Made of </strong><strong>Polyurethane</strong></li>
      <li><strong>Minimum length 130 cm</strong> </li> </ul> <blockquote>
<div align="left"> <blockquote></blockquote></div>
</blockquote></td></tr>
  <tr> <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><blockquote> </blockquote>
      <div align="left"></div></td></tr>
  <tr> <td><div align="center"><strong>AP 003</strong></div></td>
    <td><div align="center"></div></td>
```

```

    <p><strong>V Belts</strong></p></div></td>
    <td><div align="center"><strong></strong></div></td>
    <td><ul>
        <li><strong>Multiple V Belts</strong> </li>
        <li><strong align="left">Made of rubber</strong></li>
        <li><strong>Minimum length 100 cm</strong></li> </ul></td> </tr>
    <tr> <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><blockquote></blockquote>
    <div align="left"></div></td></tr>
    <tr><td><div align="center"><strong>AP 004</strong></div></td>
    <td><div align="center"><strong>V Belts</strong></div></td>
    <td> <div align="center"><strong></strong></div></td>
    <td> <ul> <li><strong align="left">Narrow V Belts</strong></li>
        <li><strong align="left">Made of rubber</strong></li>
        <li><strong>Minimum length 100 cm</strong></li></ul>
        <blockquote> <p align="left">&nbsp;</p> </blockquote></td> </tr>
    <tr> <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><blockquote> </blockquote>
    <div align="left"></div></td> </tr>
    <tr> <td height="138"><div align="center"><strong>AP 005</strong></div></td>
    <td><div align="center"><strong>Bando Double-V</strong></div></td>
    <td> <div align="center"><strong></strong></div></td> <td> <ul>
        <li><strong align="left">Narrow V Belts</strong></li>
        <li><strong align="left">Made of rubber</strong> </li>
        <li><strong>Minimum length 120 cm</strong></li></ul> <blockquote> </blockquote></td>
    </tr>
    <tr> <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><blockquote></blockquote>
    <div align="left"></div></td></tr>
    <tr><td height="117"><div align="center"><strong>AP 006</strong></div></td>
    <td><div align="center"><strong>Variable Speed Belts</strong></div></td>
    <td><div align="center"><strong></strong></div></td>
    <td> <ul> <li><strong align="left">Speed V Belts</strong></li>
        <li><strong align="left">Made of rubber</strong> </li>
        <li><strong>Minimum length 100 cm</strong></li> </ul>
        <blockquote> <p align="left">&nbsp;</p></blockquote></td></tr>
    <tr><td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><div align="center"></div></td>
    <td><blockquote></blockquote>
    <div align="left"></div></td> </tr>
    <tr> <td><div align="center"><strong>AP 007</strong></div></td>
    <td><div align="center"><strong align="left">V Belts</strong></div></td>
    <td><div align="center"><strong></strong></div></td>
    <td> <ul> <li><strong>Banflex</strong><strong align="left"> V Belts</strong> </li>
        <li><strong align="left">Made of</strong><strong>Polyurethane</strong></li>
        <li><strong>Minimum length 80 cm</strong></li></ul><blockquote> <p
align="left">&nbsp;</p>
    </blockquote></td> </tr>

```

```

<tr> <td><div align="center"></div></td>
<td><div align="center"></div></td>
<td><div align="center"></div></td><td><blockquote> </blockquote>
<div align="left"></div></td> </tr>
<tr> <td><div align="center"><strong>AP 008</strong></div></td>
<td><div align="center"><strong>Banded Banflex<br>
( Banflex Scrum)</strong></div></td>
<td><div align="center"><strong></strong></div></td>
<td><ul>
<li><strong align="left">Banded Belts</strong></li>
<li><strong align="left">Made of </strong><strong>Polyurethane</strong></li>
<li><strong>Minimum length 100 cm</strong></li></ul> <blockquote> <p
align="left">&nbsp;</p>
</blockquote></td></tr>
<tr><td><div align="center"></div></td>
<td><div align="center"></div></td>
<td><div align="center"></div></td>
<td><blockquote> </blockquote>
<div align="left"></div></td> </tr>
<tr> <td height="125"><div align="center"><strong>AP 009</strong></div></td>
<td><div align="center"><p><strong>V Belts</strong></p>
</div></td><td><div align="center"><strong></strong></div></td> <td> <ul>
<li><strong align="left">V Ribbed Belts</strong></li>
<li><strong align="left">Made of </strong><strong>Polyurethane</strong></li>
<li><strong>Minimum length 100 cm</strong></li> </ul> <blockquote>
<p align="left">&nbsp;</p> </blockquote></td> </tr>
<tr> <td><div align="center"></div></td>
<td><div align="center"></div></td>
<td><div align="center"></div></td>
<td><blockquote></blockquote>
<div align="left"></div></td></tr>
<tr> <td height="121"><div align="center"><strong>AP 010</strong></div></td>
<td><div align="center">
<p><strong> Round Belts</strong></p>
<p><strong>(endless)</strong></p></div></td>
<td><div align="center"><strong></strong></div></td>
<td> <ul> <li><strong align="left">Round Belts</strong></li>
<li><strong>Endless type</strong></li>
<li><strong align="left">Made of </strong><strong>Polyurethane</strong></li>
<li><strong>Minimum length 120 cm</strong></li></ul><blockquote>
<p align="left">&nbsp;</p></blockquote></td></tr>
<tr><td><div align="center"></div></td>
<td><div align="center"></div></td>
<td><div align="center"></div></td>
<td><blockquote></blockquote>
<div align="left"></div></td> </tr>
<tr> <td><div align="center"><strong>AP 011</strong></div></td>
<td><div align="center"><strong>Sprocket Gear</strong></div></td>
<td><div align="center"><strong></strong></div></td>
<td><ul> <li><strong> Made of Steel</strong></li>
<li><strong>1 full set</strong></li></ul><p>&nbsp;</p></td> </tr>
<tr> <td><div align="center"></div></td>
<td><div align="center"></div></td>
<td><div align="center"></div></td>
<td><blockquote></blockquote>
<div align="left"></div></td></tr>

```



```

<tr><td><div align="center"><strong>AP 012</strong></div></td>
  <td><div align="center"><strong>Roller Chain</strong></div></td>
  <td><div align="center"><strong></strong></div></td>
  <td><ul> <li><div align="left"><strong>Stainless Steel </strong></div></li>
    <li><strong>Chain Type A or B</strong></li></ul>
  <blockquote><div align="left"></div> </blockquote></td> </tr>
<tr> <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><blockquote></blockquote> <div align="left"></div></td> </tr>
<tr> <td><div align="center"><strong>AP 013</strong></div></td>
  <td><div align="center"><strong>Pulley</strong></div></td>
  <td><div align="center"><strong></strong></div></td>
  <td> <ul> <li><div align="left"><strong>Vee Pulley</strong></div></li>
    <li><strong>1 full set</strong></li></ul><blockquote> <div align="left"></div>
  </blockquote></td></tr>
<tr> <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><blockquote> </blockquote>
  <div align="left"></div></td> </tr>
<tr> <td><div align="center"><strong>AP 014</strong></div></td>
  <td><div align="center"><strong>Pulley</strong></div></td>
  <td><div align="center"><strong></strong></div></td><td><ul> <li>
  <div align="left"><strong>Taper lock Bush Pulley</strong></div></li>
  <li><strong>1 full set</strong></li></ul><blockquote>
  <div align="left"></div></blockquote></td> </tr>
<tr> <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><blockquote> </blockquote><div align="left"></div></td> </tr>
<tr> <td><div align="center"><strong>AP 015</strong></div></td>
  <td><div align="center"><strong>Power Lock</strong></div></td>
  <td><div align="center"><strong></strong></div></td><td><ul>
  <li><div align="left"><strong>Power Lock-A type</strong></div></li>
  <li><strong>Diameter 100 in and 50 in</strong></li></ul>
  <blockquote><div align="left"> </div> </blockquote></td> </tr>
<tr> <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><blockquote> </blockquote> <div align="left"></div></td> </tr>
<tr> <td><div align="center"><strong>AP 016</strong></div></td>
  <td><div align="center"><strong>Power Lock System</strong></div></td>
  <td><div align="center"><strong></strong></div></td> <td><ul> <li>
  <div align="left"><strong>Power Lock System</strong></div> </li>
  <li><strong>Full set</strong></li></ul> <blockquote>
  <div align="left"> </div></blockquote></td> </tr>
<tr> <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><div align="center"></div></td>
  <td><blockquote></blockquote>
  <div align="left"></div></td></tr>
</table></body></html>

```

Bid Register Form

```
<?
include("bidSession.php");
?>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html><head><title>e-Procurement</title></head>
<body background="pink_fab.jpg" link="#0000FF" vlink="#0000FF" alink="#CC33CC">
<p></p>
<p> </p>
<?
if(isset($_SESSION['regsucccess'])){
    /* Registration was successful */
    if($_SESSION['regsucccess']){
        echo "<h1>Registered!</h1>";
        echo "<p>Thank you <b>".$_SESSION['reguname']."</b>, your submission was
successful<br><br><br>";
        echo"<a href='\"links.php\">Back</a>.</p>";
    }
    /* Registration failed */
    else{
        echo "<h1>Registration Failed</h1>";
        echo "<p>We're sorry, but an error has occurred and your registration for the username
<b>".$_SESSION['regbid']."</b>, "
        ."could not be completed.<br>Please try again at a later time.</p>";
    }
    unset($_SESSION['regsucccess']);
    unset($_SESSION['regbid']);
}
else{
?>
<h1><strong><font color="#AE0057" size="5">Bid Submission Form</font></strong></h1>
<?
if($bidForm->num_errors > 0){
    echo "<td><font size='2' color='\"#ff0000\">".$bidForm->num_errors." error(s)
found</font></td>";
}
?>
<form action="bidProcess.php" method="POST">
<table align="left" border="0" cellspacing="0" cellpadding="3">
<tr><td>Date (yyyy-mm-dd):</td><td><input type="text" name="date" maxlength="10" size="10"
value="<? echo $bidForm->value("date"); ?>"</td><td><? echo $bidForm->error("date");
?></td></tr>
<tr><td>Quotation Ref Number:</td><td><input type="text" name="ref" maxlength="10" size="10"
value="<? echo $bidForm->value("ref"); ?>"</td><td><? echo $bidForm->error("ref");
?></td></tr>
<tr><td>Username:</td><td><input type="text" name="user" maxlength="35" size="35" value="<?
echo $bidForm->value("user"); ?>"</td><td><? echo $bidForm->error("user"); ?></td></tr>
<tr><td>Company:</td><td><input type="text" name="co" maxlength="50" size="50" value="<?
echo $bidForm->value("co"); ?>"</td><td><? echo $bidForm->error("co"); ?></td></tr>
<tr><td>Specification: <br> (Enter the specifications of your supply product)</td><td><textarea
rows="5" cols="30" name="spec" value="<? echo $bidForm->value("spec");
?>"</td><td><? echo $bidForm->error("spec"); ?></td></tr>
<tr><td>Bidding Value:</td><td><input type="text" name="bidValue" maxlength="10" size="10"
value="<? echo $bidForm->value("bidValue"); ?>"</td><td><? echo $bidForm->error("bidValue");
?></td></tr>
?>
```

```

<tr><td>Payment Method:</td><td><input type="text" name="PM" maxlength="35" size="35"
value="<? echo $bidForm->value("PM"); ?>"</td><td><? echo $bidForm->error("PM");
?></td></tr>
<tr><td>Delivery Term:</td><td><input type="text" name="DT" maxlength="50" size="50"
value="<? echo $bidForm->value("DT"); ?>"</td><td><? echo $bidForm->error("DT");
?></td></tr>
<tr><td>Mode of Delivery:</td><td><input type="text" name="MOD" maxlength="15" size="15"
value="<? echo $bidForm->value("MOD"); ?>"</td><td><? echo $bidForm->error("MOD");
?></td></tr>

<tr><td>Delivery Period:</td><td><input type="text" name="DP" maxlength="20" size="20"
value="<? echo $bidForm->value("DP"); ?>"</td><td><? echo $bidForm->error("DP");
?></td></tr>
<tr><td colspan="2" align="right">
<input type="hidden" name="subbid" value="1">
<input type="submit" value="Submit"></td></tr>
<tr><td colspan="2" align="left"><a href="links.php">Back </a></td></tr>
</table></form>
<?
}
?>
</body></html>

```

Admin Center

```

<?
include("session.php");
/** displayUsers - Displays the users database table in a nicely formatted html table.*/
function displayUsers(){
    global $database;
    $q = "SELECT username,userlevel,company,supply,email,timestamp "
        ."FROM ".TBL_USERS." WHERE (userlevel != '9' && userlevel != '5)";
        //ORDER BY userlevel DESC,username";
    $result = $database->query($q);
    /* Error occurred, return given name by default */
    $num_rows = mysql_numrows($result);
    if(!$result || ($num_rows < 0)){
        echo "Error displaying info";
        return;
    }
    if($num_rows == 0){
        echo "Database table empty";
        return; }

    /* Display table contents */
    echo "<table align=\"left\" border=\"1\" cellspacing=\"0\" cellpadding=\"3\">\n";
    echo
    "<tr><td><b>Username</b></td><td><b>Level</b></td><td><b>Company</b></td><td><b>Type
of supply</b></td><td><b>Email</b></td><td><b>Last Active</b></td></tr>\n";
    for($i=0; $i<$num_rows; $i++){
        $uname = mysql_result($result,$i,"username");
        $ulevel = mysql_result($result,$i,"userlevel");
        $company = mysql_result($result,$i,"company");
        $supply = mysql_result($result,$i,"supply");
        $email = mysql_result($result,$i,"email");
        $time = mysql_result($result,$i,"timestamp");

```

```

    echo
"<tr><td>$uname</td><td>$ulevel</td><td>$company</td><td>$supply</td><td>$email</td><td>
$time</td></tr>\n";
}
    echo "</table><br>\n";
}

/** * displayBannedUsers */
function displayBannedUsers(){
    global $database;
    $q = "SELECT username,timestamp "
        "FROM ".TBL_BANNED_USERS." ORDER BY username";
    $result = $database->query($q);
    /* Error occurred, return given name by default */
    $num_rows = mysql_numrows($result);
    if(!$result || ($num_rows < 0)){
        echo "Error displaying info";
        return;
    }
    if($num_rows == 0){
        echo "Database table empty";
        return;
    }

    /* Display table contents */
    echo "<table align=\"left\" border=\"1\" cellspacing=\"0\" cellpadding=\"3\">\n";
    echo "<tr><td><b>Username</b></td><td><b>Time Banned</b></td></tr>\n";
    for($i=0; $i<$num_rows; $i++){
        $uname = mysql_result($result,$i,"username");
        $time = mysql_result($result,$i,"timestamp");
        echo "<tr><td>$uname</td><td>$time</td></tr>\n"; }
    echo "</table><br>\n"; }

/** * User not an administrator, redirect to main page automatically. */
if(!$session->isAdmin()){
    header("Location: ../index.html"); }
else{
    /** * Administrator is viewing page, so display all forms. */
    ?>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html><head><title>e-Procurement</title></head>
<body background="pink_fab.jpg" link="#0000FF" vlink="#0000FF" alink="#CC33CC">
<p></p>
<h1>Admin Center</h1>
<p><font size="5" color="#ff0000"> <b>.....</b></font>
<font size="4">Logged in as <b><? echo $session->username; ?></b></font><br>
<br><a href="../mailVendor.php">Send Mail</a> </p>
<p>Back to <a href="../main.php">Main Page</a><br><br>
<?
if($form->num_errors > 0){
    echo "<font size=\"4\" color=\"#ff0000\">"
        "!!** Error with request, please fix</font><br><br>";
}
?>
</p><table align="left" border="0" cellspacing="5" cellpadding="5"><tr><td>
<?

/** * Display Users Table */
?>
<h3>Users Table Contents:</h3>

```

```

<?
displayUsers();
?>
</td></tr><tr><td><br>
<?

/** * Update User Level */
?>
<h3>Update User Level</h3>
<? echo $form->error("upduser"); ?>
<table><form action="adminprocess.php" method="POST"><tr><td>Username:<br>
<input type="text" name="upduser" maxlength="30" value="<? echo $form->value("upduser");
?>"></td>
<td>Level:<br>
<select name="updlevel">
<option value="1">1
<option value="2">2
<option value="9">9
</select></td>
<td><br>
<input type="hidden" name="subupdlevel" value="1">
<input type="submit" value="Update Level">
</td></tr></form></table></td></tr>
<tr><td><hr></td></tr>
<tr><td>
<?

/** * Delete User */
?>
<h3>Delete User</h3>
<? echo $form->error("deluser"); ?>
<form action="adminprocess.php" method="POST">
Username:<br>
<input type="text" name="deluser" maxlength="30" value="<? echo $form->value("deluser"); ?>">
<input type="hidden" name="subdeluser" value="1">
<input type="submit" value="Delete User"></form></td></tr>
<tr><td><hr></td></tr>
<tr><td>
<?

/** * Delete Inactive Users */
?>
<h3>Delete Inactive Users</h3>
This will delete all users (not administrators), who have not logged in to the site<br>
within a certain time period. Specify the time period spent inactive.<br><br>
<table><form action="adminprocess.php" method="POST"><tr><td>Period:<br>
<select name="inactdays">
<option value="90">3 mths
<option value="180">6 mths
<option value="365">1 yr
<option value="730">2 yrs
<option value="1095">3 yrs
</select></td><td><br>
<input type="hidden" name="subdelinact" value="1">
<input type="submit" value="Delete All Inactive"></td></form></table></td></tr>
<tr><td><hr></td></tr><tr><td>
<?

/** * Ban User */
?>
<h3>Ban User</h3>

```

```

<? echo $form->error("banuser"); ?>
<form action="adminprocess.php" method="POST">
Username:<br>
<input type="text" name="banuser" maxlength="30" value="<? echo $form->value("banuser"); ?>">
<input type="hidden" name="subbanuser" value="1">
<input type="submit" value="Ban User"></form></td></tr>
<tr><td><hr></td></tr><tr><td>
<?

/** * Display Banned Users Table */
?>
<h3>Banned Users Table Contents:</h3>
<?
displayBannedUsers();
?>
</td></tr>
<tr><td><hr></td></tr><tr><td>
<?

/** * Delete Banned User */
?>
<h3>Delete Banned User</h3>
<? echo $form->error("delbanuser"); ?>
<form action="adminprocess.php" method="POST">
Username:<br>
<input type="text" name="delbanuser" maxlength="30" value="<? echo $form->value("delbanuser");
?>">
<input type="hidden" name="subdelbanned" value="1">
<input type="submit" value="Delete Banned User"></form></td></tr></table>
</body></html>
<?
}
?>

```

Admin Send Mail

```

<?php
session_start();
?>
<html><head><title>Vendor Registration</title></head>
<body background="pink_fab.jpg">

<p></p>
<p><font color="#AE0057" size="4"><strong>List of vendors with level 2</strong></font>
<form action="mailSubmit.php" method="post"></p>
<?php
$host = '127.0.0.1';
$databse = 'mydb';
$username = "";
$password = "";
$connect = mysql_connect($host,$username,$password);
?>
<?php
mysql_select_db($databse);
$table_name = 'users';
$queryuname = "SELECT username FROM $table_name WHERE (userlevel = '2')";
$queryname = "SELECT name FROM $table_name WHERE (userlevel = '2')";
$querycompany = "SELECT company FROM $table_name WHERE (userlevel = '2')";
$queryemail = "SELECT email FROM $table_name WHERE (userlevel = '2')";

```

```

$results_id1 = mysql_query($queryuname, $connect);
$results_id2 = mysql_query($queryname, $connect);
$results_id3 = mysql_query($querycompany, $connect);
$results_id4 = mysql_query($queryemail, $connect);
if($results_id1)
{
    print '<table border=1>';
    print '<th>Choose<th>Username<th>Name<th>Company<th>Email';
    while ($row = mysql_fetch_row($results_id1))
    {
        foreach ($row as $field)
        {
            $username[] = $field;
        }
    }
    while ($row = mysql_fetch_row($results_id2))
    {
        foreach ($row as $field)
        {
            $name[] = $field;
        }
    }

    while ($row = mysql_fetch_row($results_id3))
    {
        foreach ($row as $field)
        {
            $company[] = $field;
        }
    }
    while ($row = mysql_fetch_row($results_id4))
    {
        foreach ($row as $field)
        {
            $email[] = $field;
        }
    }
    for ($i = 0; $i < count ($name); $i++)
    {
        print "<tr>";
        print "<td><input type='checkbox' name='vendorselection[]' value=$i>";
        print "<td>";
        print "<td>$username[$i]</td>"; print "<td>$name[$i]</td>";
        print "<td>$company[$i]</td>"; print "<td>$email[$i]</td>";
        print "</tr>";
    }
} else
{
    die("Query = $query failed");
}
mysql_close($connect);
?>
<table width="100%" border="0">
<tr><p><strong>Enter your message here: </strong></p></td> </tr>
<tr><td><strong><textarea rows="5" cols="40" name="Msg"></textarea></strong></td></tr>
<tr><td><input name="submit" type="submit" value="Submit"></td></tr>
<tr><td><p>Back to [<a href="..admin.php">Admin Center</a>]</p></td></tr></table>
<p><strong> </strong><br><br></p></form></body></html>

```

Bid Results Menu

```
<html><head><title>e-Procurement</title></head>
<body background="pink_fab.jpg">
<p></p>
<p></p>
<p><font color="#AE0057" size="4" face="Verdana, Arial, Helvetica, sans-serif"><Strong>BID
RESULTS </Strong></font></p>
<p><form action="bidResults.php" method="post"></p>

<?php
function display_menu_table($result)
{
while($row = mysql_fetch_row($results))
{
foreach ($row as $field)
{
print "<option>$field</option>"; } }
?>
<?php
    $server = '127.0.0.1';
    $mydb = 'mydb';
    $user = "";
    $pass = "";
    $table_name = 'bid';
    $connect = mysql_connect($server, $user, $pass);

?>
<?php
    $query = "SELECT ref_no FROM $table_name";
    print "Select quotation reference number to view bid results:<br><br>";
    mysql_select_db($mydb);
    $results_id = mysql_query($query, $connect);
    if ($results_id)
    {
    print '<select name = "bid" size="1">';
    while($row = mysql_fetch_row($results_id))
    {   foreach ($row as $field)
        {
        print "<option> $field </option>";   }
        }
    print "</select>"; }
    else {
    die("Query = $query failed"); }
    mysql_close($connect);

?>
<p align="center">
<input name="submit" type="submit" value="Submit"></p></form>
<table width="100%" border="0">
<tr><td>Back to [Links]</td></tr></table>
</body></html>
```

Bid Results

```
<?php
session_start();
?>
<html><head><title>e-Procurement</title></head>
<body background="pink_fab.jpg">
```



```

<p></p>
<p></p>
<p><font color="#AE0057" size="4" face="Verdana, Arial, Helvetica, sans-serif"><Strong>BID
RESULTS </Strong></font><font color="#3366CC" size="5" face="Verdana, Arial, Helvetica,
sans-serif"></font></p>
<table width="100%" border="0"><tr><td>
<?php
$host = 'localhost';
$dbase = 'mydb';
$username = "";
$password = "";
$conn = mysql_connect($host,$username,$password);
?>
<?php
$value = $_POST['bid'];
$_SESSION['bid'] = $value;
print "Reference Number = <b>".$_POST['bid']." </b><br/><br/>";
$table_name = "bid";
mysql_select_db($dbase);

$query1 = "SELECT username FROM $table_name WHERE (ref_no = '$value')";
$query2 = "SELECT company FROM $table_name WHERE (ref_no = '$value')";
$query3 = "SELECT spec FROM $table_name WHERE (ref_no = '$value')";
$query4 = "SELECT bidValue FROM $table_name WHERE (ref_no = '$value')";
$results_id1 = mysql_query($query1, $conn);
$results_id2 = mysql_query($query2, $conn);
$results_id3 = mysql_query($query3, $conn);
$results_id4 = mysql_query($query4, $conn);

if($results_id1)
{
    print '<table border=1>';
    print '<th>Username<th>Company<th>Specification<th>Bid Value';

    while ($row = mysql_fetch_row($results_id1))
    {
        foreach ($row as $field)
        {
            $username[] = $field;
        }
    }
    while ($row = mysql_fetch_row($results_id2))
    {
        foreach ($row as $field)
        {
            $company[] = $field;
        }
    }
    while ($row = mysql_fetch_row($results_id3))
    {
        foreach ($row as $field)
        {
            $spec[] = $field;
        }
    }
    while ($row = mysql_fetch_row($results_id4))
    {
        foreach ($row as $field)
        {
            $bidValue[] = $field;
        }
    }
    for ($i = 0; $i < count ($username); $i++)
    {

```