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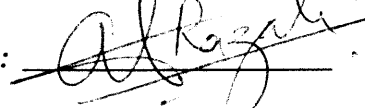
INVENTORY MANAGEMENT SYSTEM (IMS) FOR

SMALL BUSINESS ENTERPRISE

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ABSTRACT

The purpose of this project is to generate a Web-based database system model for small business enterprise to improve the efficiency and effectiveness of the organization's functions. Prototype systems named Inventory Management System (IMS) develop as one of the system solution on managing organization's inventory. The MySQL Database, PHP Server-Side scripting language and Apache Web Server are used to develop the system. It was free web development software, which licenses under General Public License (GPL). The system model is defined to acts as a reference model of the organization's inventory management. The system was developed and run successfully. A supplementary function and mode were added to strengthen the system powered with fast SQL data transaction. There are some problems and limitations that were discovered during the development of project that will be discusses later. Finally, the system hopefully brings a very good advantage for the organization to reinforce their inventory management system.

ACKNOWLEDGEMENTS

Firstly, thanks grateful to **God** for giving me a chance to complete this project. From the beginning to the end you always stay close to me. Secondly, I particularly wish to express my appreciation to Assoc. Prof. Dr. Abdul Razak Yaakub who was my supervisor for this project and become the man who contribute the idea of developing this system.

To my parents Mr. and Mrs. Juis Epil also my brothers, Mrs. Felorins Masikong and family; thanks for all your support and the hope that you give to me. Special thanks to Mr. Tham Chee Chung owner of UE Stationary, Mrs. Julia Epil (Keningau Stationary Enterprise) and Puan Nursakinah Abdulah (BluePaint Sdn. Bhd) who provides the required information for the system development.

Also thanks to Pn. Azizah Ahmed, all members and staff of Sekolah Teknologi Maklumat, Graduate School, and my fellow friends. Thank you very much for all you support and cooperation in the journey of this project.

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CHAPTER 1

INTRODUCTION

This project is initiated and the fulfillment of course Project (TZ6996) as one of the graduation requirements for Master of Science in Information Technology “MSc.(IT)” in University Utara Malaysia. The purpose of this project is to generate a model of a Web-Based Database System for medium-size organizations where this projects focus on Small Business Enterprise Wholesales. The planned system used Object Modeling Technique (OMT) in order to construct a system prototype system named Inventory Management System (IMS). The model is defined to acts as a reference model of the organization's IMS.

This chapter gives an overview of the small business enterprise, brief explanation about the system structure and database, system model and web database application, discussion the problem statement, objectives, project scope, hardware and software requirements of the project.

1.1 Literature Review

The World Wide Web (WWW) and the Internet have drawn the general populace into the world of computing. Nowadays people like to do all the regular things in Internet. They

read latest news from the web, get medical advices, purchasing book, booking flight ticket or hotel and they do just about anything and everything in the virtual world of the Web. Arguably as Pressman (Pressman, 2001) says, the web and the Internet that empowers it are the most important developments in the history of computing. These computing technologies have drawn us all with billions more who will eventually follow into the information age. They have become integral to daily life in the first years of the twenty-first century.

Attributes of Web-based Applications

Powell summarized the primary differences when he states that the web-based systems “involve a mixture between print publishing and software development, between marketing and computing, between internal communications and external relations, and between art and technology” (Powell, 1998). The following attributes are encountered in the vast majority of WebApp (Web Application) [Pressman, 2001].

a. Network Intensive

By its nature, WebApp is networking intensive. It resides on a network and must serve the needs of a diverse community of clients. A WebApp may reside on the Internet (thereby enabling open worldwide communication). Alternatively, an application may be placed on an Intranet (implementation communication across an organization) or an Extranet (internetwork communication).

b. Content Driven

In many cases, the primary function of a WebApp is to use hypermedia to present text, graphics, audio and video content to the end-user.

c. Continues Evolution

Unlike conventional application software that involves over a series of planned, chronologically spaced releases, Web application evolves continuously. It is not unusual for some WebApps to be updated on an hourly schedule.

1.2 Small Business Enterprise Overview

Small business enterprise is including a small business store, retail shop, medium business Services Company and an organization which is dealing a medium business transaction on their operation. The similarity on every entity in these organizations is on their daily operation especially in managing their inventory and services management. Majority of the organizations deal a large inventory and service transaction. Most of the organizations that have an average of 10 staff were still using paper-based system to manage their inventory management for user's request. The operations consume a time and currency. Most of the company found that the computer and Internet are just tools that can fasten their works. Currently, every company in Malaysia especially, not fully utilized the computer and current Internet Technologies. They still pointed to the traditional work system where by all the works done manually.

In the past half-decade, many firms have invested large sums of money in deploying computers to every desktop with the installed management system, which can increase company productivity. But the investment has not necessarily shown a significant return in employees' productivity, efficiency, and quality of work product. It is maybe because of the information systems are modeled on discrete problems. They may fail to plug into the information flows of the organization and sometimes are not user-friendly to the new user. In short, the systems are not modeled on the information needs for the firm. As a result, the average employee with an average level of expertise often underutilizes the computer systems, becomes frustrated with them, and the firms' expenditures fail to show adequate return.

1.3 The Requirements

The requirement here is to build up a prototype system, which can fulfill with a maximum basic need for the organization to run their business operation. Hopefully, IMS system could improve the efficiency and effectiveness on the organization's function and operations. This system is able to record and deliver right and precise information at the right time to the right person anytime from anywhere. It will provide more efficient support service to the administration and all the staff within the organization. This also will reduce the paper-based workload that is more time-consuming and inefficient. The records will be in digitalizing saved in the IMS database, and it could be accessed via the web browser (Internet). The records are secure, well organized and easier to manage in on-line database function.

These requirements are needed by the user in order to manage their inventory management for the company. This study has identified the basic functions of any organization as outline below:

- a. Create and maintain user personal profiles of the user
- b. Create a system request by the user
- c. Create a request by the user
- d. Create and maintain inventory for system request
- e. Create and maintain inventory for user request
- f. Create and maintain inventory record
- g. Create and maintain supplier records
- h. Create and maintain transaction records
- i. Produce individual details of user
- j. Produce individual details of each inventory
- k. Produce individual details of each supplier
- l. Produce different list of product according to the search made.
- m. Produce all product lists of a supplier
- n. Produce individual product's details

1.4 Database, Model and Web Database Application

There are several reasons an organization may want to use a database in their Web applications.

- a. To manage a better serving of a large document-based information repositories to the internal and external users.

- b. To increase leverage and use legacy database systems, information, and existing applications.
- c. To unlock the potential of unused data held in organizational databases. Data from databases within various parts of an organization (finance, human resources, project management, etc.) can be consolidated using web-based applications and served to user as through it from a single source.
- d. To extend the functionality of the web server so that information can be maintains perfectly by the general public and internal user - a task currently being undertaken by many organizations and government agencies whose primary product is information.
- e. To extend the functionality of the web server so that a new and expanded services can be provided to the visitors.

The prototyped system studied by using MySQL relational database management system to implement the web-based database model for an organization. MySQL is a very fast, multi-threaded, multi-user, and robust Structured Query Language (SQL) database server. It supports interactive and non-interactive use. Besides that MySQL is a free Open Source software and functions as a client/server system that supports different back ends, several different client programs and libraries, administrative tools, and a programming interface (MySQL Reference Manual for version 3.23.38)

A web-based database application is one of the hottest and most lucrative web development areas recently (Antelman, 1999). It is an integration of Web Server,

Database and Web Application Server. There are several popular server-side scripting languages available today. An increasingly popular solution is the Open Source PHP. PHP is a server-side, cross-platform scripting language similar to ASP that interfaces with the free MySQL database, as well as others. Like ASP, it is designed for developers with programming experience but has the advantage of being free and platform independent (Antelman, 1999). PHP allows for rapid development of dynamic, database-driven applications. One of PHP's major strengths is its ability to connect with many different databases, including Sybase, PostgreSQL, Oracle, MsSQL or MySQL (Sterling, 2001).

The logic of a good database design, and then the application server's linking of its various components for display, will pull the site together and add to its overall coherence and ease of use. A dynamic site is tighter, more accurate and timely, and far easier to manage (Antelman, 1999). Typically, design representations are maintained as relational or object oriented schemas, to exploit the capabilities of database management systems, or as semi structured objects, to cope with information having partial or missing schemas (Florescu, 1998).

The UA is a methodology for software development that is proposed by the author Ali Bahrami (1999). The UA, based on methodologies by Booch, Rumbaugh, and Jacobson, tries to combine the best practices, processes, and guidelines along with the Object Management Group's unified modeling language. The UML is a set of notations and conventions used to describe and model an application. However, the UML does not specify a methodology or what steps to follow to develop an application; that would be the

task of the UA. The heart of the UA is Jacobson's use case. The use case represents a typical interaction between a user and a computer system to capture the users' goals and needs. In its simplest usage, you capture a use case by talking to typical users and discussing the various ways they might want to use the system. The use cases are entered into all other activities of the UA.

1.5 Problem Statement

Most of the medium sized organization still uses manual/paper based system for maintenance, system request, assignment of the system to user and user details management. Otherwise some of them have a standalone database with little function. They use the database to store details, but for maintenance, assignment of the system to user is still manual system in use. Therefore they need to have a system that can eliminate their current inefficient and imperfection. This study contends that the usage of a web based database model for organization will help to solve the problems and issues mentioned above.

1.6 Objectives

The objectives of this project are:

- a. To fulfill the requirement for the organization/company entity business need.
- b. Develop an inventory management that can super visioning the company effectiveness and efficiencies.
- c. To fasten the decision making for every transaction on the company operation.
- d. To implement or utilize the IT Technology in business feature e.g. e-Commerce.

- e. Speed up the business process and transaction for the business mounting and expend.

1.7 Project Scope

The project will scope on the stock and inventory of the company and figuring the effective system for the inventory management. The system will be on web-based format and running under client-server script.

1.8 Software

The system development will use several kind of software that is:

1.8.1 Microsoft Windows 98 Second Edition or Windows Millennium.

Use for designing and coding the project system e.g. the web page and *.php files.

1.8.2 RedHat Linux 7.2

Run the Apache Server and MySQL Database Administration also perform as a computer server for the project.

1.8.3 PHP programming Language

It is a programming language, which use to program and coding the project system.

1.8.4 MySQL Database

MySQL is a Database Administration that will store the project system information and data.

1.8.5 Apache Server

It is software that will run the application server to support the project system.

1.8.6 Macromedia Dreamweaver

Instead of using Microsoft FrontPage as web design software, Dreamweaver is the most compatible software that can support the Netscape Navigator browser.

1.9 Hardware

During the system development process the minimum requirement need to the implementation required as listed below;

1.9.1 One Desktop Personal Computer

This pc will use as a maneuver computer where all the designing and programming work be done on this computer. The minimum computer configuration system can be as listed below.

Table 1: Minimum Requirement for Client Computer

	Minimum Requirement
Computer Unit	
Processor	Pentium® II 250MHz
Memory Capacity (RAM)	64 Mbytes SDRAM
Hard Disk Space	2.1 Gigabyte
Graphic Card	4 Mbytes Graphic Card
Sound Card	Compatible Sound Card

1.9.2 One Computer Server

The server which run under Redhat Linux 7.2 operating system will be used to run the web system platform e.g. apache server. The server also will store the web system database by using MySQL Database Administration.

Table 2: Minimum Requirement for Computer Server

	Minimum Requirement
Computer Unit	
Processor	Pentium® 200MHz
Memory Capacity (RAM)	32 Mbytes SDRAM
Hard Disk Space	2.1 Gigabyte
Graphic Card	3 Mbytes Graphic Card
Sound Card	Compatible Sound Card

1.9.3 Printer

Use to print the project documentation and reports.

1.9.4 Network Installation and Configurations.

For the development process small configuration and setting only will be used to connect with the two computers. For this purpose, the connection will be in 'Star Topology' (Cisco, 2000) by using the 4 ports hub. Internet will be connected by dial-up connection. Later in implementing the web system, the configuration and installment for every computer in each shop is a bit different.

1.10 Summary

Hopefully by integrating the web technology for the company, the company can gain high benefits or turnover from their business transaction. It is also an opportunity for the company by having an integrated web based application, which they can publish and advertise their company and services through the IT medium.

Using the web technology give an essentially transparent network access to the user, handled entirely by the web browser and the web server. This built-in support for networking greatly simplifies database access, eliminating the need for expensive networking software and the complexity of getting different platforms to talk to one another. That will reduce the cost for building the network structure and save the company budget.

Another thing is the cross-platform support that allow user on most type of computer to access a database from anywhere in the world. In this way, information can be disseminated with a minimum of time and effort, without having to resolve the incompatibility problems for different hardware, operating system and software.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter briefly compares the advantages of using the database approach over the traditional method for software development and a review of some developed system by writer including the solutions used from actual companies.

2.1 Database approach

In traditional software development utilizing file processing, every user group maintains its own files for handling its data-processing applications (Elmasri and Navathe, 2000). For example, two groups of users in a university database system might be the course registration personnel and the accounting office personnel. In the traditional approach, each group independently keeps files on students. The registration office keeps track of student courses and grades while the accounting office also keeps data on registration and related billing information. Much of the data is stored twice: once in the files of each user group. Additional user groups may further duplicate some or all of the same data in their own files. The redundancy of storing the same data multiple times leads to several problems. The first problem is duplication efforts where the same data is recorded twice or multiple times to different user group files. The second problem is wastage of storage space. Due to storing the same data repeatedly this problem becomes much serious if it involves large databases. The third problem is inconsistency of data. This may happen

following an update of data applied by one user group to its own files where files belonging to the other user groups are not similarly updated.

In a database approach, the views of different user groups are integrated during the database design. A logical data item shall be stored in one place in the database for consistency. However, in some cases, controlled redundancy may be useful for improving the performance of queries.

When multiple users share a database, it is likely that some of the users are not authorized to access all information in the database. For example, financial data is often considered confidential, and hence only authorized personnel are allowed to access such data. In addition, some users may be permitted to retrieve data, whereas others are allowed both to retrieve and update the data. Hence, the type of operation, retrieval and update must also be controlled. A DBMS should provide a security and authorization mechanism to specify account restrictions. Besides that a DBMS must also have the capability to represent a variety of complex relationships among the data as well as to retrieve and update related data easily and efficiently. A DBMS shall also provide capabilities for defining and enforcing integrity constraints. A DBMS must also provide facilities for recovering from hardware or software failures. The backup and recovery subsystem is responsible for recovery.

In addition, there are other advantages of using the database approach that can benefit most organizations. First, the database approach has the potential for enforcing standards.

It permits the Database Administrator (DBA) to define and enforce standards among database users in large organizations. This facilitates communication and cooperation among various departments and users within the organization. Standards can be defined for names and format of data elements, display format, report structures, terminology and so on. The DBA can enforce standards in a centralized database environment more easily than in an environment where each user group has control over its own files and data. The second advantage of using the database approach is reducing application development time. Development time using a DBMS is estimated to be one-sixth to one-fourth of that for a traditional file system (Elmasri and Navathe, 2000). Other advantages are flexibility, availability of up-to-date information and economies of scale.

A lot of efforts have been taken by companies to develop a system that fulfills their customer requirements and to develop an enterprise model that fulfills their industry's business requirements. The following is a discussion of the systems developed by some software developers and reference data models that have been developed in different industries.

2.2 Inventory Management System (IMS)

The IMS is an easy-to-use system especially for a user, which lacks computer knowledge. The system is also very powerful in data processing where the transaction from client server to the database runs at a high rate speed depending on the networked access. It can help create an active archival system for storing and retrieving information

related to user need. IMS allows for the quick retrieval of individual information or a list of product.

IMS is highly flexible and provides for searching and tracking by using a single search criterion or any combination of search criteria. Features include multiple databases for comprehensive descriptive information, add and withdrawal transaction history, supplier and user information, and multiple product viewing capability. Search engine for IMS is searchable either by keyword, multi-keyword, and ID or cross-reference searches.

Features for Inventory Management System (IMS)

a. Inventory Option

- Product listed by supplier and category.
- Maintain and Add new category and product information.
- Allow transaction made for each product
- Support product image which allow user to view

b. Search and Viewing Inventory Option

- Keyword, multiple keyword, ID and cross-reference search capabilities
- Any combination of search criteria can be used
- Text retrieval engine for fast text searches

c. Add and Withdrawal Transaction History

- Keep history on all add and withdrawal transaction activity.

- Store an unlimited number of transaction records per product
- View custom transaction reports

d. Supplier and User Options

- Maintain and add new user or supplier
- Ability to edit and delete using search option
- Viewing option also available in each option.

2.3 Asset Expert System (Applied Innovation Management)

Since 1992, Applied Innovation Management, Inc. (AIM) has been developing Enterprise Management Software solutions. AIM has harnessed the power of the web to provide customizable Customer Relations Management (CRM) and IT tracking software solutions. Over one million users in more than 50 countries are using AIM software worldwide. Their enterprise management software has been successfully deployed in many Fortune 500 and high tech companies.

Asset tracking software is a completely web-based asset management system, allowing company to manage its assets and keep the staff informed from anywhere, 24 hours a day. The Combination of a HTML user interface with a sophisticated relational database back-end, allows information to be shared across multiple corporate locations regardless of operating system or platform. An optional Barcode plug-in permits barcode labels to be attached to physical assets and scanned for quick, accurate data gathering and entry.

Features of the Asset Expert System

a. Web Based and Platform Independent

Using web technologies, it works like any web page. It doesn't use cookies or any technology that locks you to your desktop. You can access the system from any computer with a browser, independent of operating system or location and simply login and go ahead with your business.

b. No Learning Curve

Anyone who can use a browser will easily master the system. This means no time-consuming or expensive training.

c. E-mail, Paging Notification

It makes sure no asset information goes unnoticed. Staff members can be paged and/or e-mailed to ensure asset problems are taken care of up-front.

d. Charts & Reports

It generates accurate, powerful charts and reports on the number, type, status and value of your assets.

e. Discovery Modules (Barcode Option)

Asset Expert™ Barcode Reader Option allows assets to be accurately recorded and tracked with vinyl-destructible barcode labels and a scanner. This significantly minimizes time spent cataloguing assets.

f. Track Contracts and Support Agreements

Tracks all of your asset vendors' contracts and support agreements for compliance and updates.

g. Scalability

Web-based technology allows all locations of your company to be able to fully access your company's asset resources. Unnecessary and expensive purchasing can be eliminated if you know what you have. Trends in product reliability can save your company from making a purchasing mistake.

h. Flexible Workflow

It uses a flexible scheme to accommodate medium to large organizations Workflow.

2.4 Equipment Maintenance System (Holmes Industries)

Holmes Industries Software Development is a Custom Software Development company specializing in broadcast equipment maintenance tracking software solutions. In 1994, they designed and developed an Equipment Maintenance Tracking System computer program for the Broadcast Industry.

The critical issues discovered by Holmes industries are:

- a. Users sometimes simply complained that equipment does not work, and wonder why someone does not do something about it.

- b. Sometimes the user actually writes a trouble report describing the problem that they are having with a piece of equipment and leave the report in the engineering shop. And it gets lost or thrown away; (Nothing is done about it).
- c. Some users like to simply tell a Service Technician about a problem, and simply refuse to make a written report (Nothing is done about it). These users can be later heard saying, "I told, so and so, about it and nothing was done.

Holmes Industries, wanted to make sure the correct people, Technicians, Users, and Managers, know about their facilities equipment problems. The answers to the above problems are:

- a. You need to have a common reservoir for equipment problem reporting.
- b. All problems must be written to a common, shared database, which can be seen by all via the Broadcast Equipment, Maintenance Tracking System Workstation. Following these procedures, reported equipment problems cannot be ignored, lost, or forgotten.

The Equipment Maintenance System (EMS) consists of several "Real Time" computer workstations, placed in strategic locations, around your broadcast facility, where users can go, to write up or report equipment problems. Workstations write all problem reports to a common, shared, database located on a File Server, on the company's local area network (LAN). The "Real-Time" Equipment Maintenance Tracking System guarantees that Within 30 seconds of reporting any problem, Everyone, from the Stations General Manager, News Director, Chief Engineer, Maintenance engineers, and other users, that

have access to an Equipment Maintenance Tracking System Computer Workstation, will know that there is a problem with a particular piece of equipment in a particular location and exactly what the reported problem is.

Benefits realized by using The Equipment Maintenance System are

- a. Provides instantaneous and accurate knowledge of your equipment's maintenance status in "Real Time", all the time.
- b. Assures that problems will be reported fully and accurately. User-friendly entry, with "pointing, flashing finger" to show users step by step guide on how to report problems, assures that problems will be reported fully and accurately.
- c. Provides knowledge of current usage and operating location of all broadcast equipment. Assures knowledge of spare equipment availability. The System shows the equipments available to be used as spares when a piece of equipment has to be removed from service for repair.
- d. Allow you to track new vehicles for maintenance history or to view and share "Site Survey logs". Tracks SNG truck and ENG van's daily safety and operations check.
- e. Prevents your having to use multiple applications to get your work done. Parts suppliers and other vendors are an integral part of the Equipment Maintenance Tracking System database and them all share data with appropriate data sources and form fields.
- f. Alerts you of rising parts cost. The parts database automatically inserts prices in the service records and shows the last price paid for a part when a new parts

request is generated. The parts database is fully searchable and includes a small sampling of parts photos.

- g. Your less experienced technicians will be able to make Expert maintenance decisions due to systems "Mega Technician-", which automatically suggest parts to replace based on hour meter times when these times are entered in the service report during servicing.
- h. Allow less experienced technicians to repair problems, by searching accumulated knowledge base for key words used to describe similar problems and their solutions, in the database.
- i. Provides tracking of the repair history of individual equipment by: model, serial number, parts used, date of repair, date of failure, reported by, repaired by, project interruption, description of problem, nature of work performed, or equipment location with a simple click of the mouse.
- j. Facilitates assigning, managing, and tracking task of service technicians.
- k. Provides facilities schedules for the latest information on equipment status.
- l. Increases equipment up time by prioritizing work orders.
- m. Facilitates tracking and reporting lost or stolen equipment.

2.5 Lawry's Restaurants, Inc.

Lawry's Restaurants, Inc. is one of the premier fine dining establishments in the United States. Lawry's is most famous for their mouth watering prime rib and excellent service. Most of their reporting was done manually with Excel spreadsheets. Whenever they

needed a new report they would take the numbers from other spreadsheets and reek the information into a new spreadsheet. The critical business issue is to:

- a. Eliminate duplicate data entry, especially when creating new reports.
- b. Track meal turn around times especially in their busier restaurants.
- c. Control their food costs, especially prime rib costs.
- d. Leverage the information generated by their point of sale system (POS).
- e. Help the Corporate office become a "service bureau" for the restaurants.

The solutions are:

- a. Perform a need analysis to determine the critical issues facing Lawry's.
- b. Install Local Area Networks at all of the restaurants to allow the restaurants to work more efficiently.
- c. Install ISDN lines to connect the restaurants to the corporate office.
- d. Develop a Financial Analysis system to balance their daily sales, import labor information and upload the data to corporate office.
- e. Install Microsoft SQL Server at their Corporate Office to provide data warehousing of the sales and labor information.
- f. Run the Management Reports from the data warehouse at the Corporate office

By leveraging the information already generated by their POS and labor tracking system, Lawry's can concentrate on the analysis of the numbers, rather than the generation of those numbers. They are able to generate and analyze reports that were difficult, that are

otherwise impossible to generate from the manual system. They have plans to open additional restaurants in the future (ADS Consulting Group LLC, 2000).

2.6 Summary

As a conclusion, each company has selected a different system approach to smoothen their company's routine and performance with examples of the usage of the data model in several industries. But still some weaknesses have in their system, which the system was created to fulfill on only their company need. This system model is suitable enough in order to save the time, funds, energy and resources in maintaining and creating user report for every company or medium size organization included in small business enterprise size.

CHAPTER 3

PROJECT MODELING AND METHOD

This chapter briefly discusses the approach used in developing IMS system for medium sized organizations. It covers the Object Modeling Technique (OMT) methodology and a brief description of OMT.

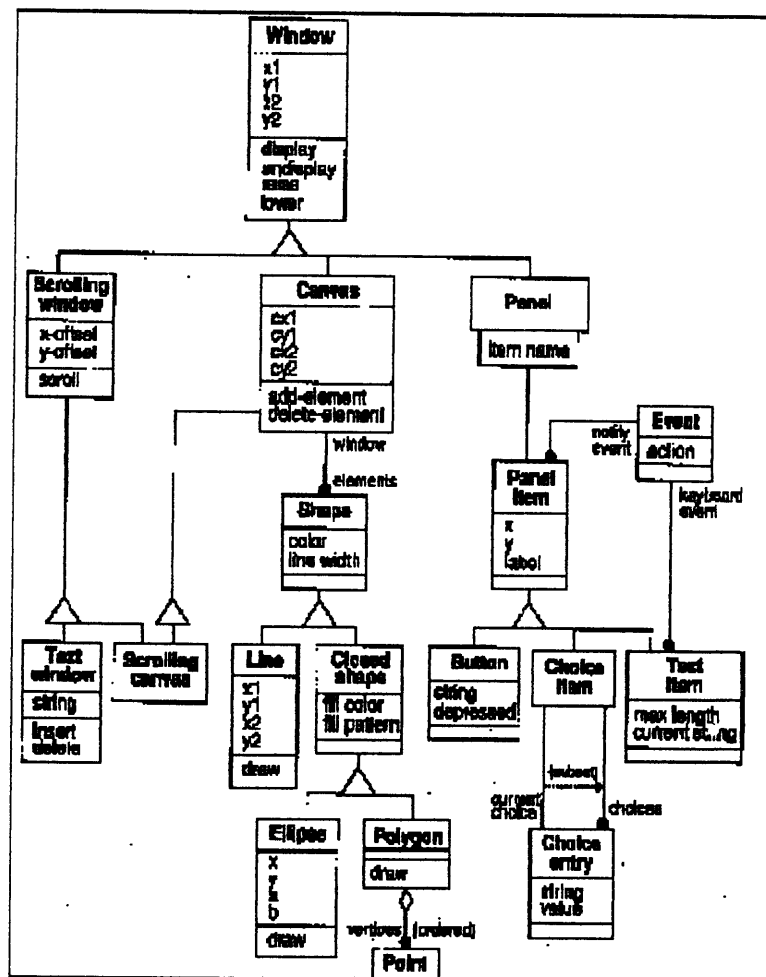
3.1 Project Modeling

For the project methodology, the Object Modeling Technique (OMT) Methodologies (Rumbaugh, 1991) are used to design the IMS system. The Object Modeling Technique provides three sets of concepts, which provide three different views of the system. There is a method that leads to three models of the system corresponding to these views. The models are initially defined, then refined as the phases of the method progress. The three models are:

3.1.1 The Object Model

OMT's object model is used to show the static structure of a system by showing the objects in the system, along with their relationships, attributes and operations. The object model could be considered a "map" representing a superset of all legal configurations of a system. OMT emphasizes the object model as the most important of its three models. Thinking first about the objects in a system leads

naturally to thinking about their behavior and function, while thinking first about behavior or function may not lead naturally to the "global" considerations. Therefore, it is important to consider the "map" (object model) first. The main concepts are Class, Attribute, Operation, Inheritance, Association (i.e. relationship) and Aggregation.

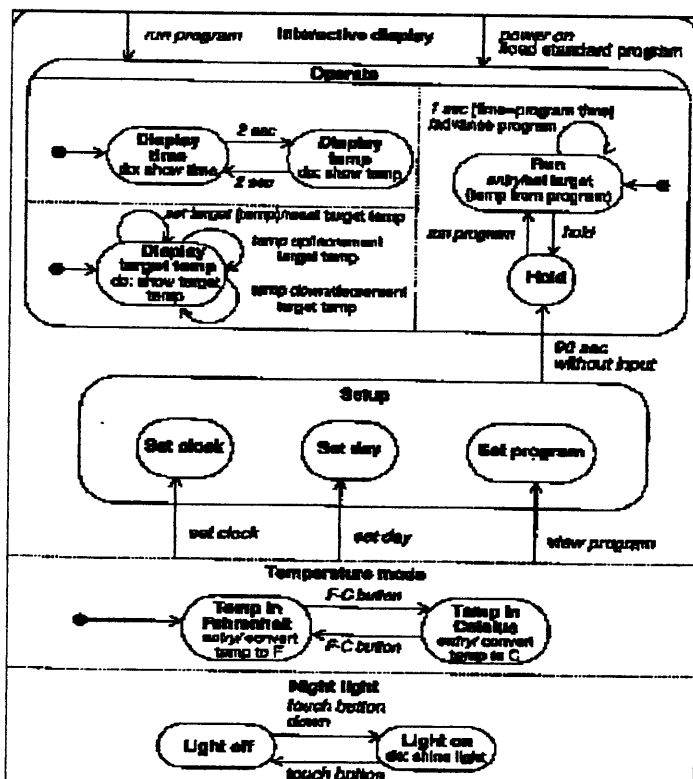


Source: (Rumbaugh, 1991)

Figure 1: One of the way in viewing the object Model in OMT

3.1.2 The Dynamic Model

OMT's dynamic model is used to show the changes to the objects and their relationships over time. The major dynamic modeling concepts are: Events, which represent external stimuli, and States, which represent values of objects. A state diagram is a graphical representation, a network of states and events. A dynamic model is a collection of state diagrams that interact with each other via shared events. The dynamic model is insignificant for a purely static data repository, such as a database, but very important for interactive systems. The main concepts are State, Sub/super state, Event, Action and Activity.

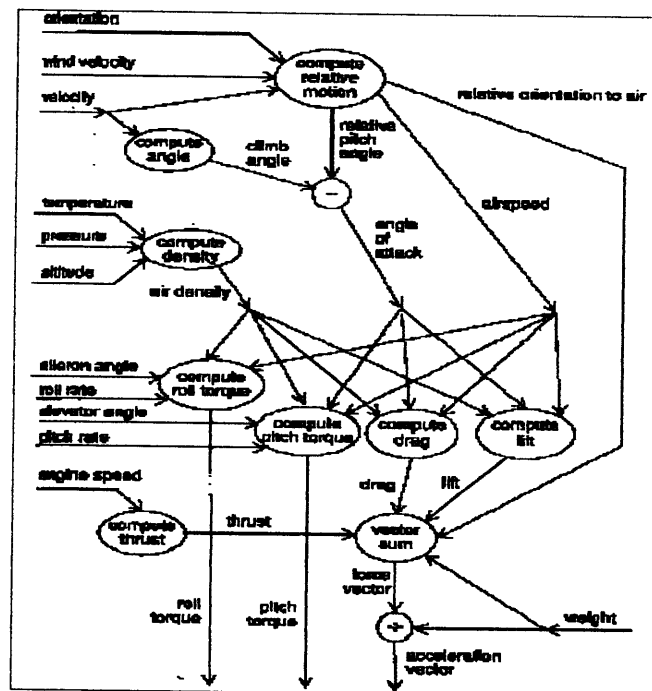


Source: (Rumbaugh, 1991)

Figure 2: A sample of Modeling Object for OMT.

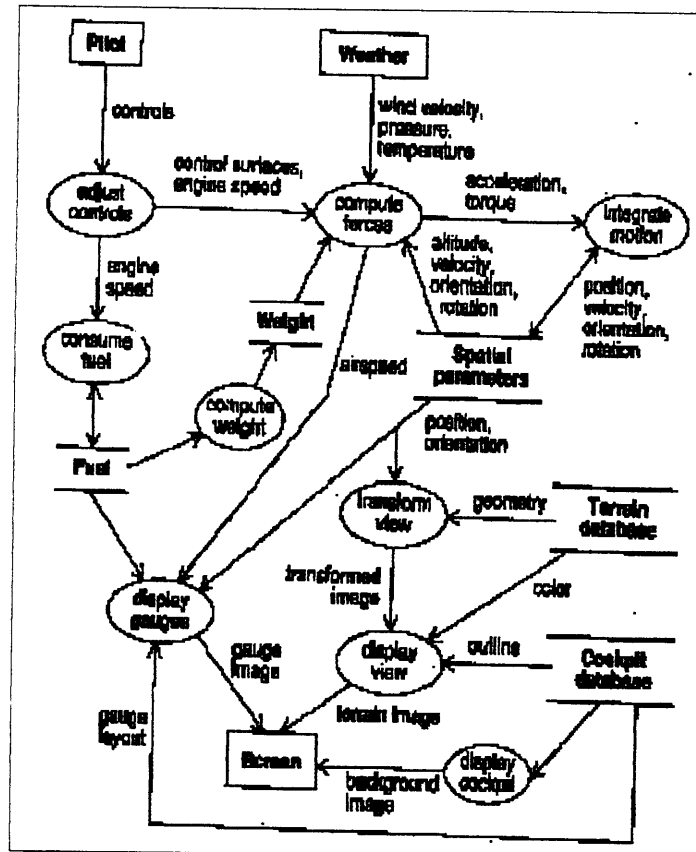
3.1.3 The Functional Model.

OMT's functional model shows how output values in a computation are derived from input values, without regard of the order in which the values are computed. The functional model consists of multiple data flow diagrams (DFDs) which show the flow of values from external inputs, through operations and internal data stores, to external outputs. The functional model specifies the results of a computation without specifying how or when they are computed.



Source: (Rumbaugh, 1991)

Figure 3: A sample of Functional Model for OMT.



Source: (Rumbaugh, 1991)

Figure 4: a second sample of Functional Model for OMT.

a. Data Flow Diagrams

A DFD is a graph showing the flow of data values from their sources in objects through processes that transform them to their destinations in other objects. In an O-O perspective a Data store is a passive object that respond to requests to store and access Data. In an O-O perspective, the terminators are "actors" or active objects that drive the data flow by producing or consuming values (Rumbaugh et al.). Both sources/sinks and data stores are objects.

b. Process Specification

The purpose of the specification is to indicate what an operation must do logically, not how it must be implemented. Processes in the DFD are operations on objects. Types of operations:

- i. **Access Operations:** Operations that read or write attributes or links of an object
- ii. **Queries:** operations that have no side effect on the externally visible state of any object. Queries are derived from the paths in the object model.
- iii. **Action:** a transformation that has side effects on the target object or other objects in the system reachable from the target object. All actions are defined in terms of updates to base attributes and links. Actions are usually derived from processes in the functional model
- iv. **Activity:** an operation to or by an object that has duration in time. Actors produce activities. The details of an activity are specified by the dynamic model. An activity usually corresponds to a state diagram in the dynamic model.

The main concepts are Process, Data store, Data flow, Control flow and Actor (source/sink).

3.2 Project Schedule

The method is divided into five phases, which are stages of the development process:

3.2.1 Analysis

The analysis project system is the building of the project model of the real world situation based on a statement of the problem or user requirements. The deliverables of the analysis stage are:

- a. Problem Statement
- b. Object Model = Object Model Diagram + data dictionary
- c. Dynamic Model = State Diagrams + Global Event Flow Diagram
- d. Functional Model = Data Flow Diagram + constraints

3.2.2 System design

The system design is the partitioning of the target system into subsystems, based on a combination of knowledge of the problem domain and the proposed architecture of the target system (solution domain). This includes the database design and the interface for the web page. The safeness and robust system also concerned as one aspect for the system design.

3.2.3 Object design

Construction of a design, based on the analysis model enriched with implementation detail, including the computer domain infrastructure classes. The deliverables of the object design stage are:

- a. Detailed Object Model

- b. Detailed Dynamic Model
- c. Detailed Functional Model

3.2.4 Implementation

The implementation phase is a translation process of the design into a particular language or hardware instantiation, with particular emphasis on tractability and retaining flexibility and extensibility.

3.2.5 Testing

This is the phase where the system being tested to test the flexibility and accurateness of the system in order to fulfill the project objective. This phase also will correct the error and fix the problems that turn up during the testing procedure. Below is the project methodology viewed in chart diagram.

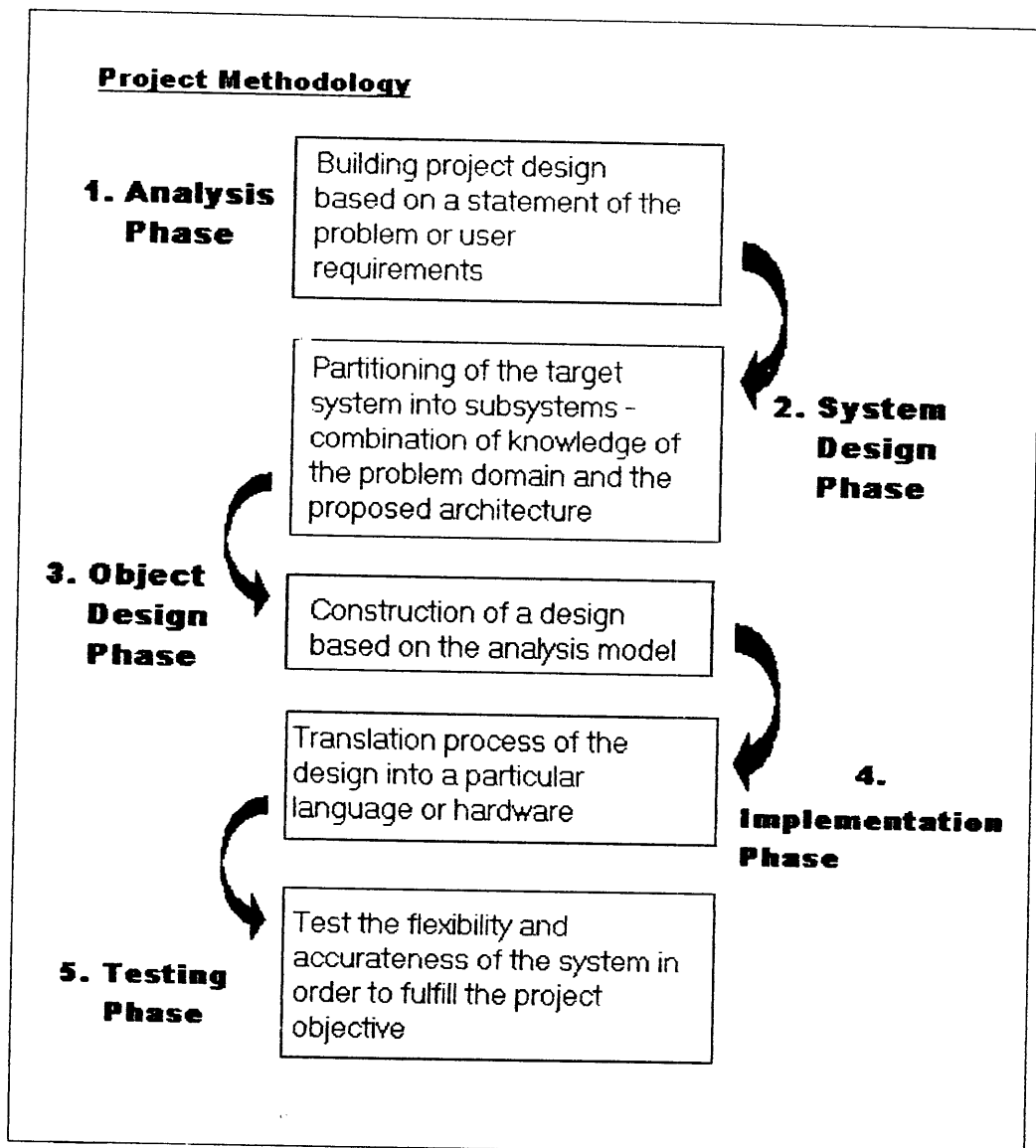


Figure 5: Project Methodology in Chart Sequence

The main diagram used for describing the structure of a system is the object model, which gives a model of the class structure specified in the object oriented design. These are the symbols that are used:

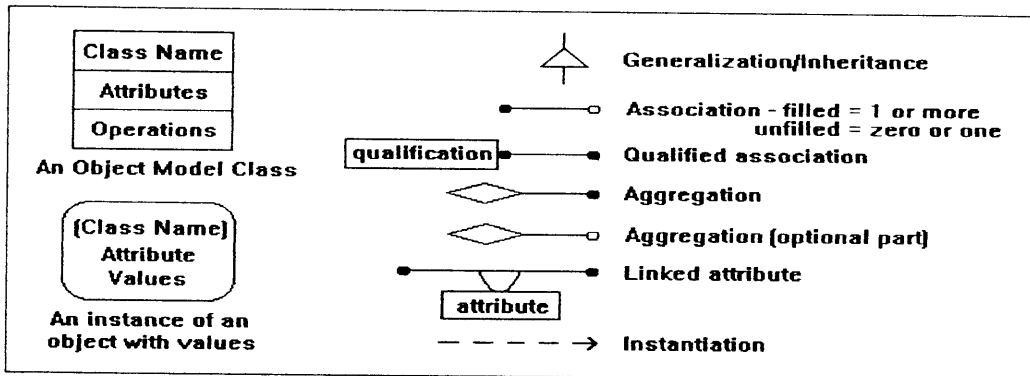


Figure 6: A Key to the OMT notation.

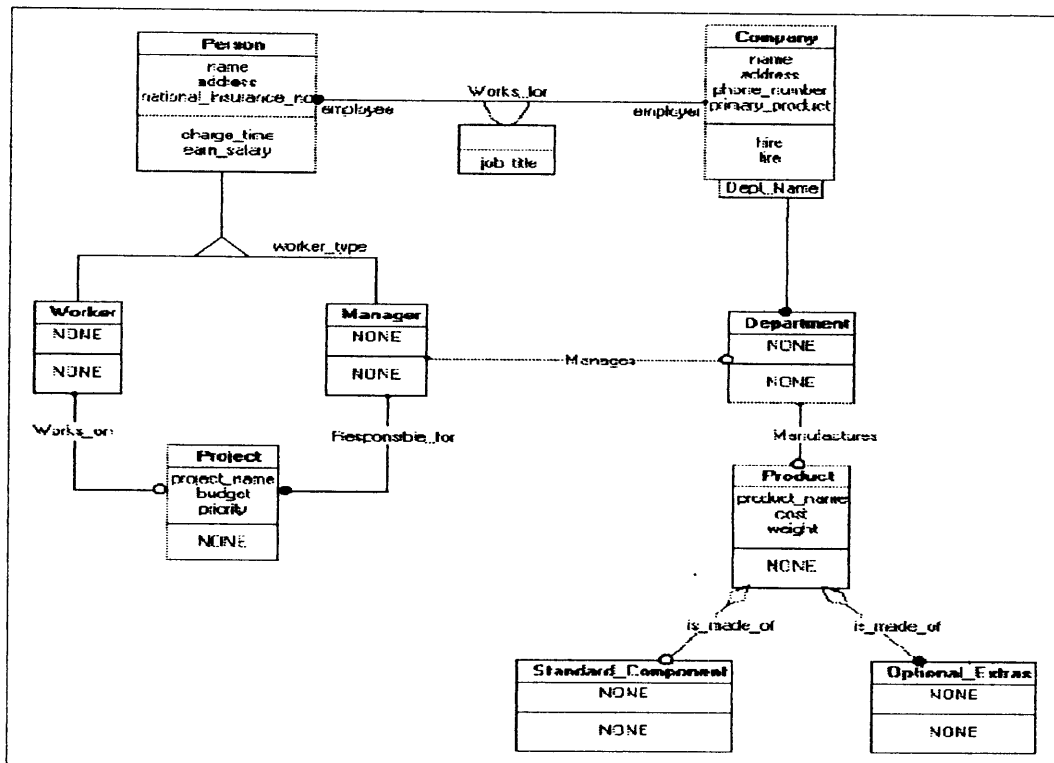


Figure 7: Example of Object Model of a Company.

The OMT is perhaps one of the most developed of the object-oriented design methods, both in terms of the notation that it uses, and the processes, which are recommended for developing an object, oriented system. In describing the technique, Rumbaugh (Rumbaugh, 1991) claim that the method attempts to show how to use object-oriented concepts throughout the whole of the software development lifecycle. The inclusions of sections discuss about analysis, design, and implementation in both object-oriented and non-object-oriented languages help to validate this claim.

The concept of using three views to represent a system presented in the OMT is potentially very powerful, but can also be considered to be very complex. It is unclear whether the views are to be developed independently of each other, or whether knowledge of one model should be used to influence construction of another. It would seem logical to ensure that the concepts in the different views are properly defined and interrelated, or much confusion could occur at the design stage of the development where the models are to be integrated.

3.3 Summary

The project methodology and schedule is a guideline for a developer to construct the inventory system. The methodology used is also pretend as a backbone for the system development. The system frame and structure will base on study and analysis from the methodology use. Project methodology perhaps can direct the development process from beginning to the end.

CHAPTER 4

OBJECT MODELLING TECHNIQUE FOR IMS

This chapter shows the step-by-step process of Design of IMS System by using Object Modelling Technique (OMT). The design begins with Object Modelling, Dynamic Model and end with Functional Model.

4.1 Object Model

Object model is used to show the static structure of IMS system by showing the objects in the system, along with their relationships, attributes and operations.

4.1.1 Business process model for IMS system.

The business process model of IMS system is shown in Appendix A.

4.1.2 Definition of Actor in IMS system.

There are five actor plays in IMS system structure that is user, supplier, product, category and transaction.

- a. User – describe as a single user.
- b. Supplier – describe as an entity that responsible on supplying a product stock.

- c. Product – A product itself.
- d. Category – A product category to differentiate a product group.
- e. Transaction – A transaction made on the inventory add or withdrawal stock.

The connection on those actors can be explained clearly in Appendix A. more elaboration about those actors individually shows on table below.

Table 3: Elaboration between the actor and its connection

Actor	Connection	Clarification
User	Supplier	More user will interact with one or more supplier
Supplier	User	More supplier will interact with one or more user
Supplier	Category	One supplier has one or more product category
Category	Supplier	One or more product category have one supplier
Category	Product	One product category has one or more product
Product	Category	One or more product has one product category
Product	Transaction	One product has one or more transaction made in the product.
Transaction	Product	One or more transaction would be made on product inventory.

4.1.3 Actors Attributes

The following table is the actor's attribute for IMS system:

Table 4: IMS system actor attributes

Actor	Attributes
User	user_no, user_id, name, password, ic, title, contact, email, address, postcode, city, date
Supplier	Supplier_id, supplier, manager, suppliercode, address, phone, fax, city, postcode
Product	Product_id, category_id, supplier_id, product, supplier, description, price, retail, stock, image_src
Category	Category_id, supplier_id, category, supplier, description
Transaction	Transaction_id, product_id, transaction, admin, stockprice, stockout, stockbalance, date.

4.1.4 Actors Operation tasks.

The operation task for the four actors listed as below;

a. User

The main tasks performed by user in the system are:

- Personal details entry
- Edit personal details
- View personal details
- System Request Entry
- Edit the system request details

- View system request details
- Maintenance request entry
- Edit their maintenance request details
- View their maintenance request details

b. Supplier

The main tasks performed by Managerial staff in the system are:

- Add new supplier
- Update supplier information.
- Delete supplier information
- View supplier information
- Search supplier information.

c. Product

The main tasks performed by product in the system are:

- Add new product
- Update product information.
- Delete product information
- View product information
- Search product information.
- Calculate product stock.

d. Category

The main tasks performed by category in the system are:

- Add new category
- Update category information.
- Delete category information
- View category information
- Search category information.

4.2 Dynamic Model for IMS system.

For this report purpose, there are about 6 main dynamic models show main role for the IMS system function. The models clarify a process by a flow event, which represent external stimuli, and states.

4.2.1 Dynamic Model for Main Menu

The model shown below is a dynamic model for main menu where the login function is first user interacts to the system. The model shows an interaction from user when they're entering an id and password in login menu. The access to IMS system begins only when the user entered a valid user id and password. A main menu have five option that user can select to operate the system.

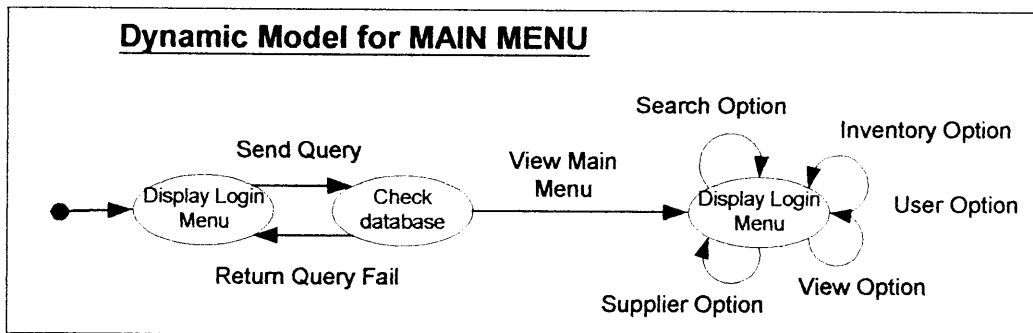


Figure 8: Dynamic Model for Main Menu

4.2.2 Dynamic Model for Inventory Option.

A main process model for IMS system in dynamic model Inventory Option shown as figure below, the model start after the successful login by user - begin by sending a supplier list query to database. The method will create a list of available supplier and return an error message or loop when accessing this option. This method it goes to the category list and product list. The last process for this model will be the transaction mode is also known as inventory calculator.

a. Supplier event

Most of the supplier event was done in supplier option mode. Here, supplier event will only retrieve some of the important data from supplier table and create a list of it to comfort user for selecting appropriate supplier record.

b. Category event

Category event mode has an extra event where its can add new category, update and delete existing category. To add a new category, user only has to

add category and fill a new category name. There will be a confirmation log to confirm the entering.

Updating the existing category, user can edit directly from the display list and save the update information. Delete category will delete current category profile. Delete event will log for deleting category sub-entity that is product and product transaction. Confirming erasing its sub-entity only would allow user to permanently erase appropriate category from system database.

c. Product event

Same to category event, it also has adding new product, update and delete event. The only difference from category event is the delete event; delete event in product event only will determine its single sub-entity transaction. Confirming to delete its transaction record will eternally delete product record from system database.

d. Transaction event

This transaction event can be assumed as a calculator and a process of computing the available inventory in the system. The calculation process will be made by user and recorded for every single transaction, which is made. Its only record will be deleted when its parent entity 'product' is erased.

Dynamic Model for INVENTORY OPTION

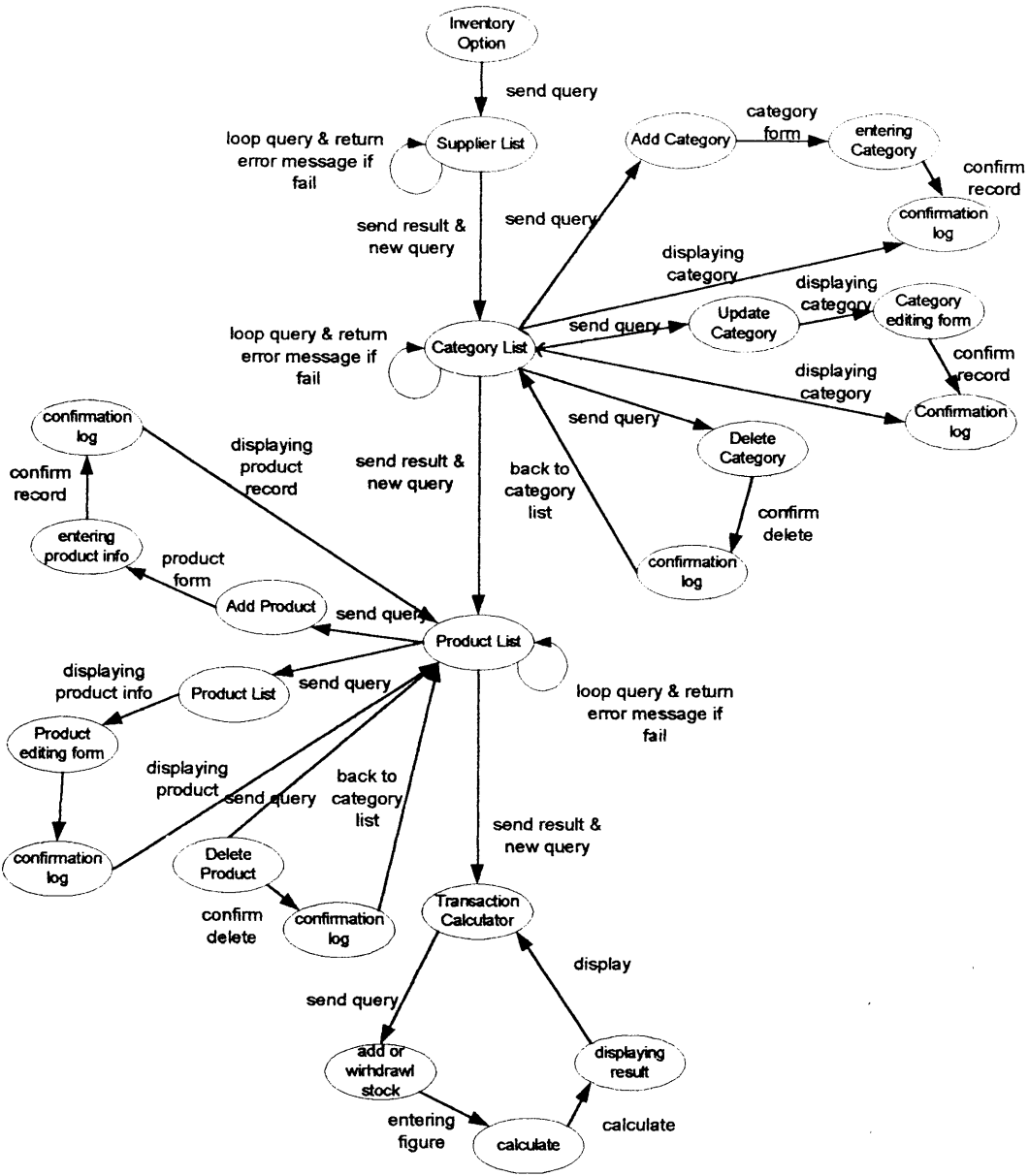


Figure 9: 4.2.2 Dynamic Model for Inventory Option

4.2.3 Dynamic Model for User Option

The user option model shown as figure 10 is an elaboration for user management database. The showing events start when users select a mode. There are four mode available registering user, update user information, deleting user profile and viewing user list according to user need.

a. Registering new user mode.

When users access this mode, a form will display for user to fill in. Sending the form to database will prompt the user confirmation log to substantiate the new user registration. Confirmed registration will be saved into database.

b. Updating user information.

Updating user information begins with searching the dedicated user profile. There are two-search option search user by id and search user by name. A list of user will show if the query is success otherwise an error message or fail query appear. User information data will be viewed after admin user selects a user in the created user list. Editing can be do so and saving the update information will log you to confirmation log. Confirming the confirm log will save the edited user information to system database.

c. Deleting User profile

User profile can be deleted from the system database. The command starts by accessing the delete user mode with searching appropriate user in search user option. Deleting the user profile also prompt you a delete confirmation log.

Ascertain the user deleting process will permanently erase user data from system database.

d. Viewing user list.

User can be listed in three conditions, the first condition is listing user by city where listing a user according to the place they stay. Second, listing user by name will sort all available users in alphabetical order. Third condition is listing user by title query user according to the post in their job.

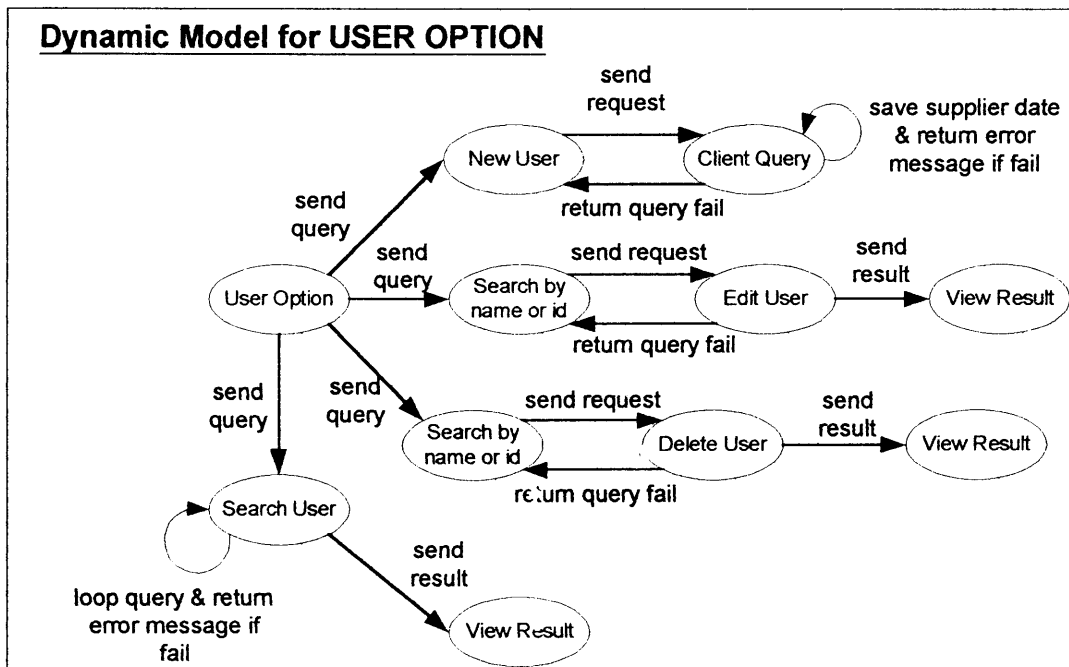


Figure 10: Dynamic Model for User Option

4.2.4 Dynamic Model for Supplier Option

The dynamic model for supplier option it goes with the user option. Its also has registering supplier mode, update supplier information, deleting supplier profile and viewing supplier list according to user need.

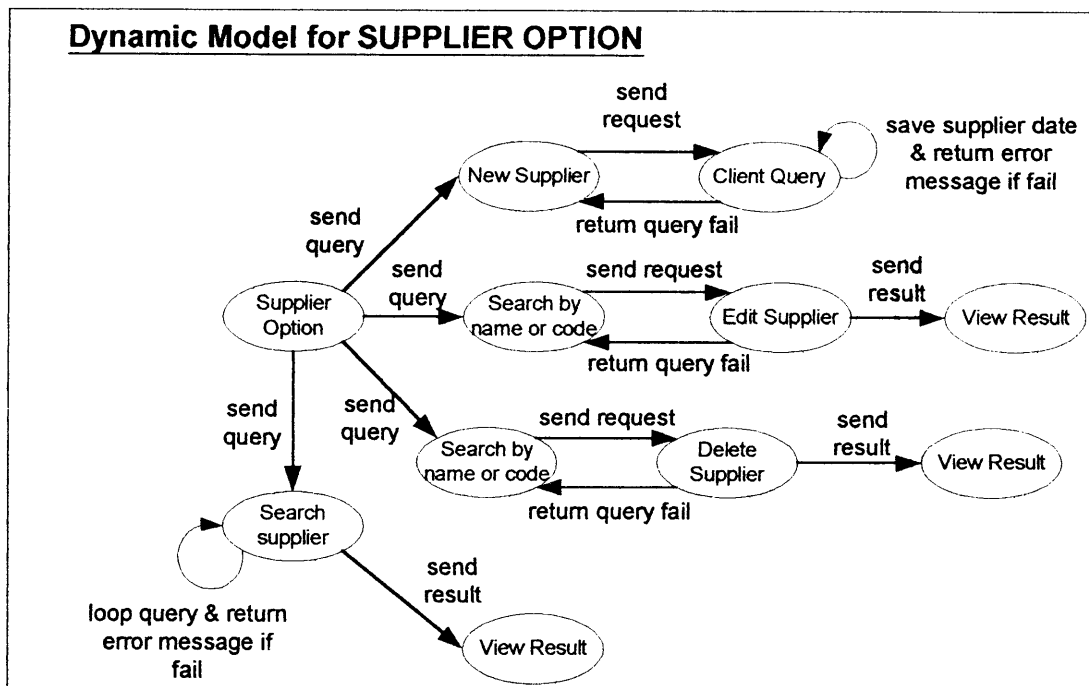


Figure 11: Dynamic Model for Supplier Option

a. Registering new supplier mode.

When users access this mode, a form will display for user to fill in. Sending the form to database will prompt the supplier confirmation log to substantiate the new supplier registration. Confirmed registration will saved into database.

b. Updating supplier information.

Updating supplier information begins with searching dedicated supplier profile. There is two-search option search user by code and search supplier by company name. A list of supplier will show if the query is success otherwise an error message or fail query appear. Supplier information data will be viewed after admin user selects a supplier in the created supplier list. Editing can be performing and saving the update information will log you to confirmation log. Confirming the confirmation log will save the edited supplier information to system database.

c. Deleting supplier profile

Supplier profile can be deleted from the system database. The command starts by accessing the delete supplier mode with searching appropriate supplier in search supplier option. Deleting the supplier profile also prompt you a delete confirmation log message. Ascertain the supplier deleting process will permanently erase supplier information from system database.

d. Viewing Supplier list.

Supplier can be listed in two conditions, the first condition is listing supplier by city where listing a supplier according to the place they operate. Second, listing supplier by company name will sort all available suppliers in alphabetical order.

4.2.5 Dynamic Model for View Option

View option is a query for a product which out of stock, product in big amount, product by category, and query based on supplier.

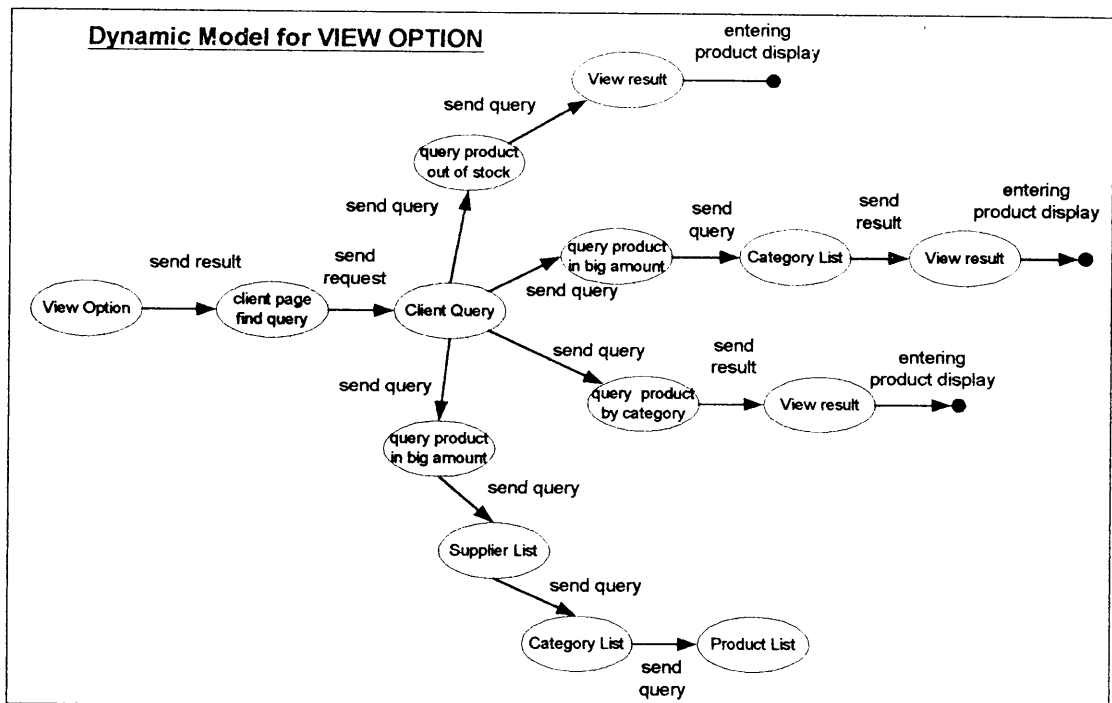


Figure 12: Dynamic Model for View Option

4.2.6 Dynamic Model for Search Option

The dynamic model for search option will query on product, user and supplier. The option will ensure the existing data and viewed to the system panel.

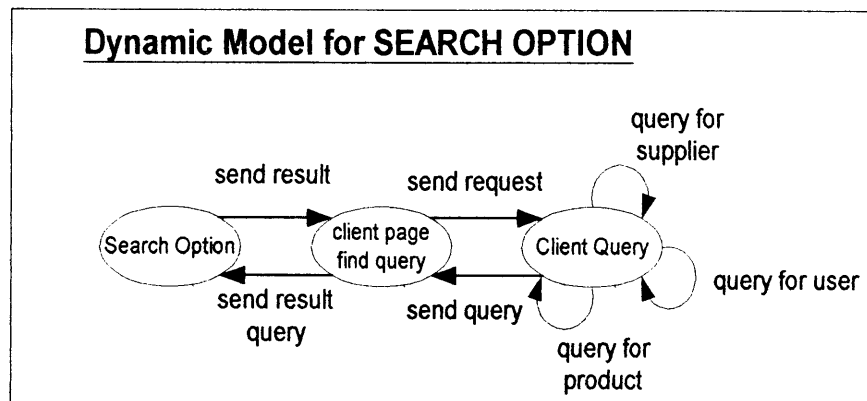


Figure 13: Dynamic Model for Search Option

4.3 Functional Model for IMS system.

IMS system design six functional model which will shows how output values in a computation are derived form input values, without regard of the order in which the values are computed. The IMS functional model will specifies the results of a computation without specifying how or when they are computed shown in following index.

4.3.1 Functional Model for Main Menu

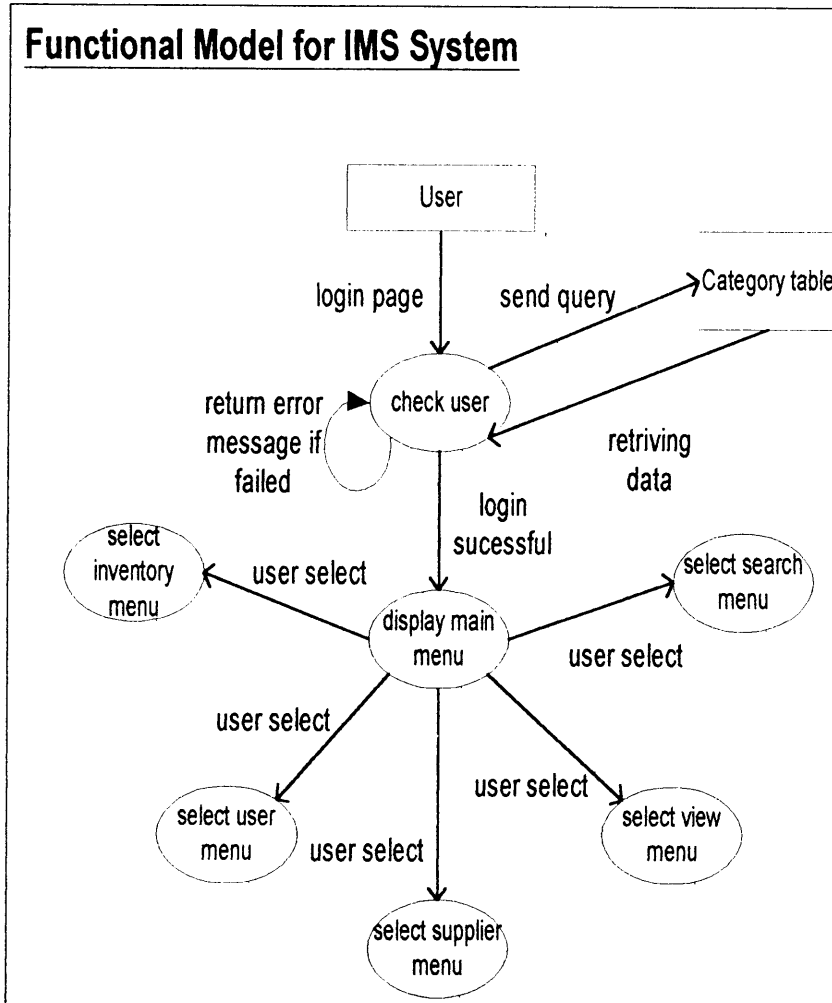


Figure 14: Functional Model for Main Menu

4.3.2 Functional Model for Inventory Option

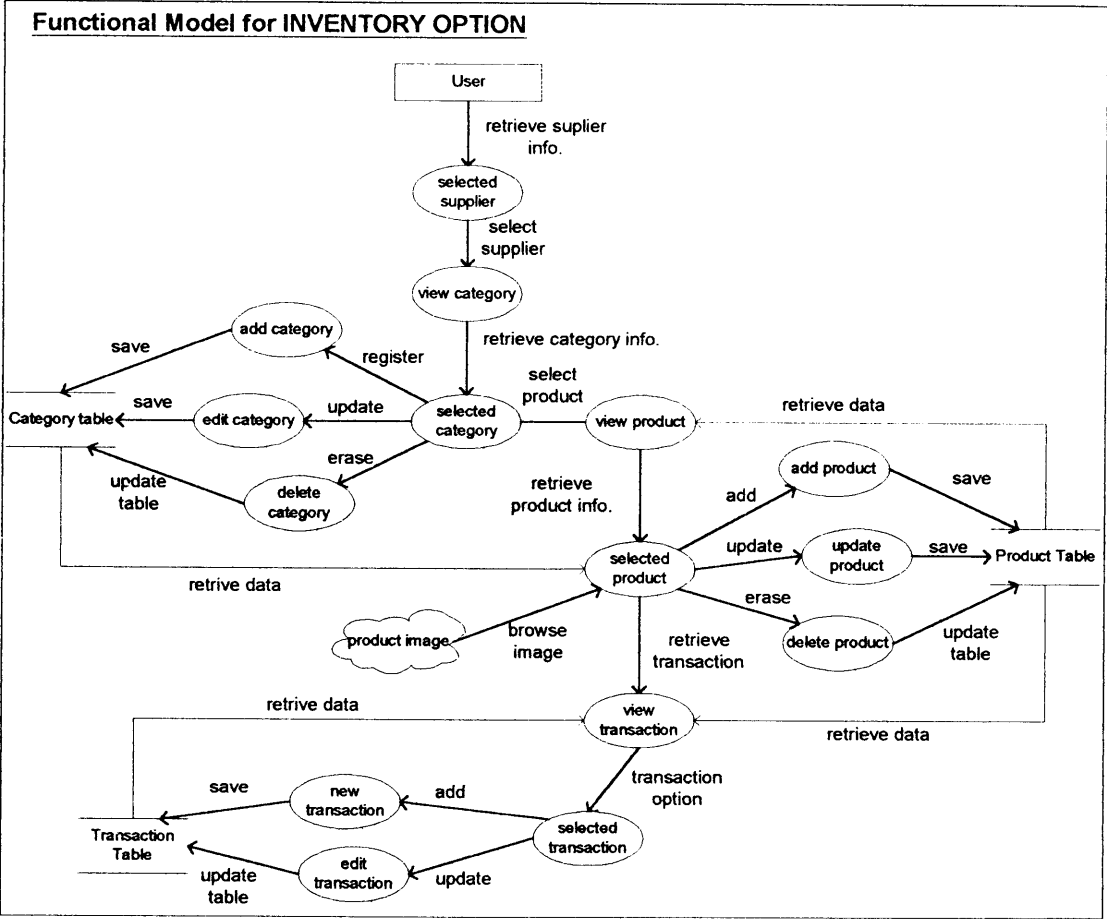


Figure 15: Functional Model for Inventory Option

4.3.3 Functional Model for User Option

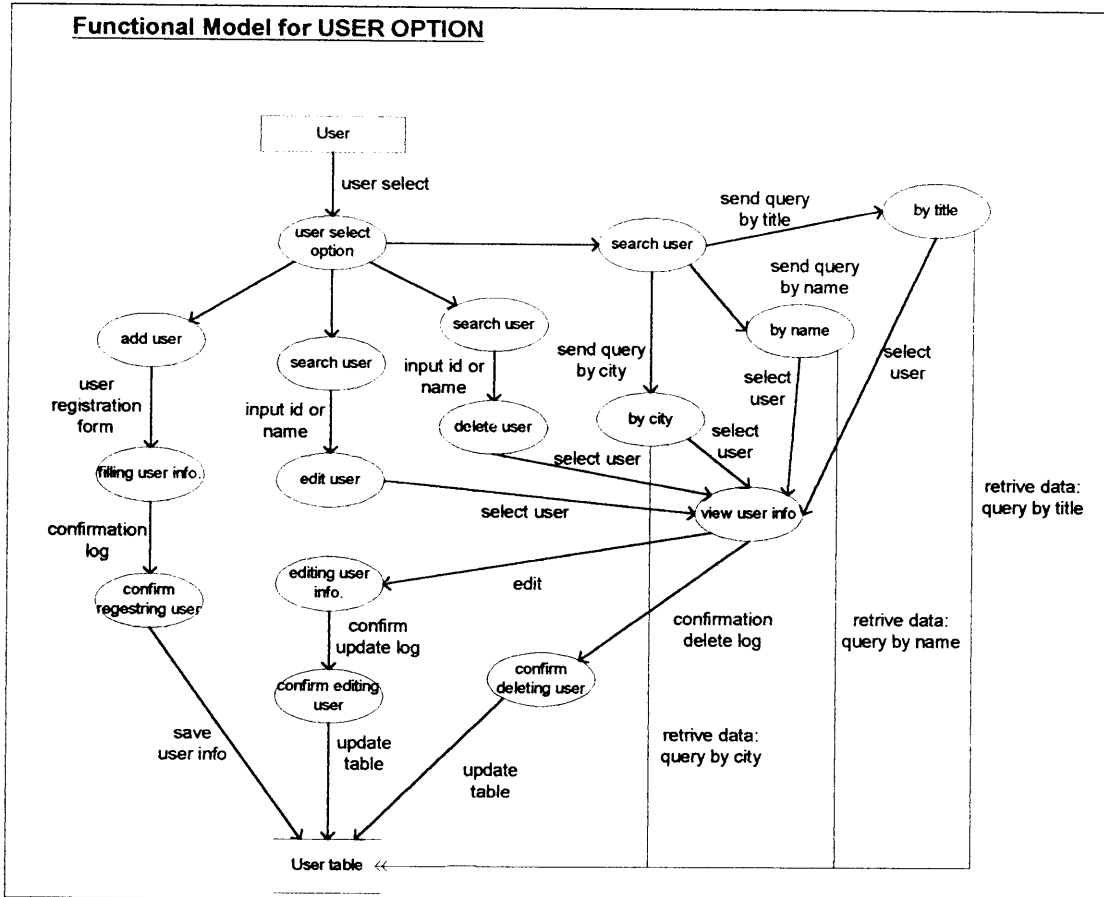


Figure 16: Functional Model for User Option

4.3.4 Functional Model for Supplier Option

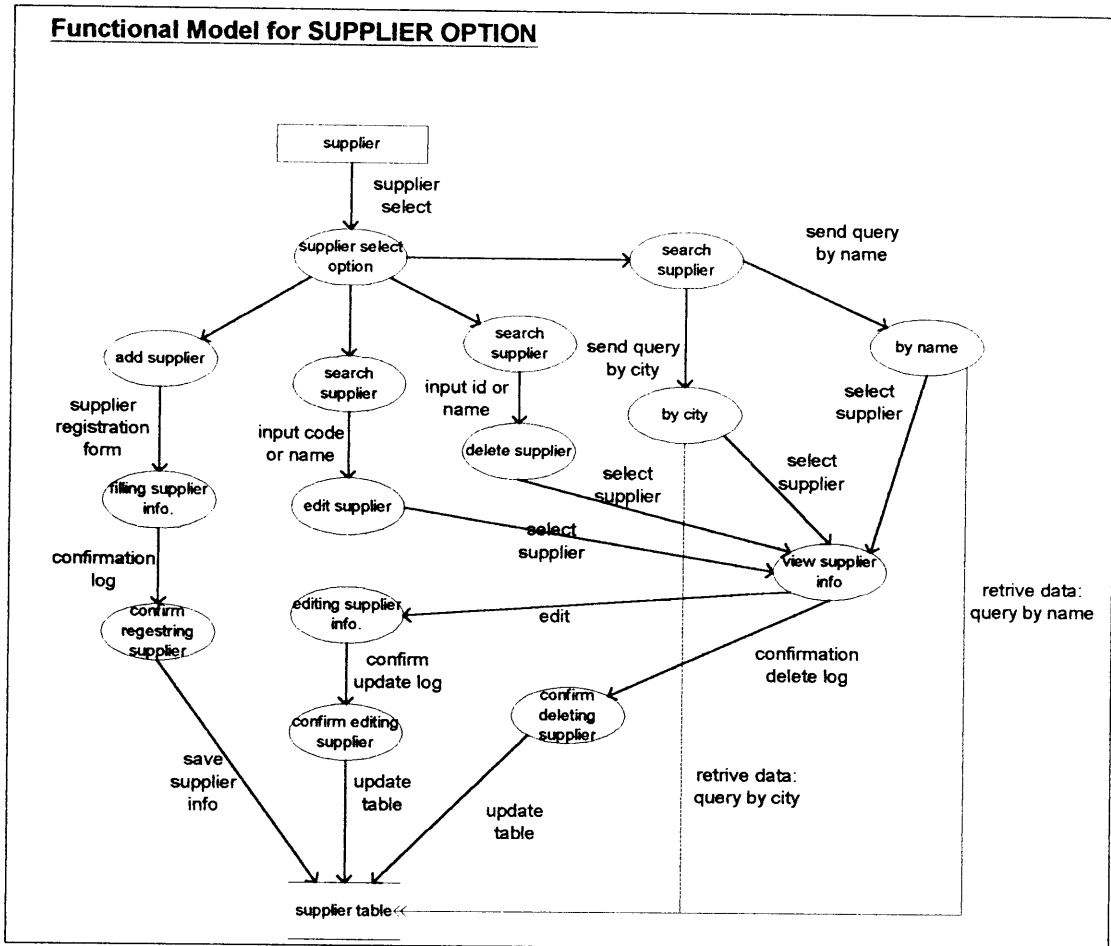


Figure 17: Functional Model for Supplier Option

4.3.5 Functional Model for View Option

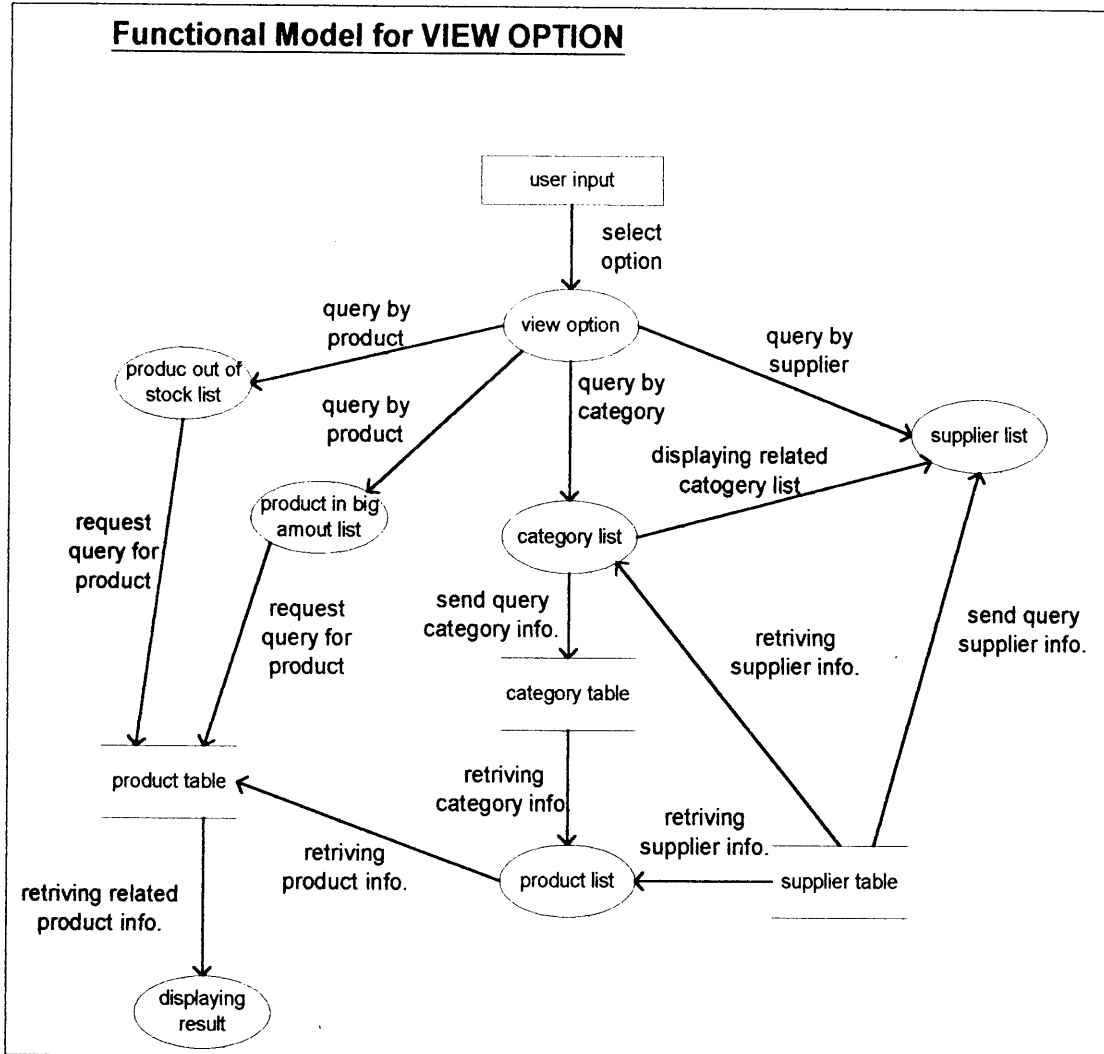


Figure 18: Functional Model for View Option

4.3.6 Functional Model for Search Option

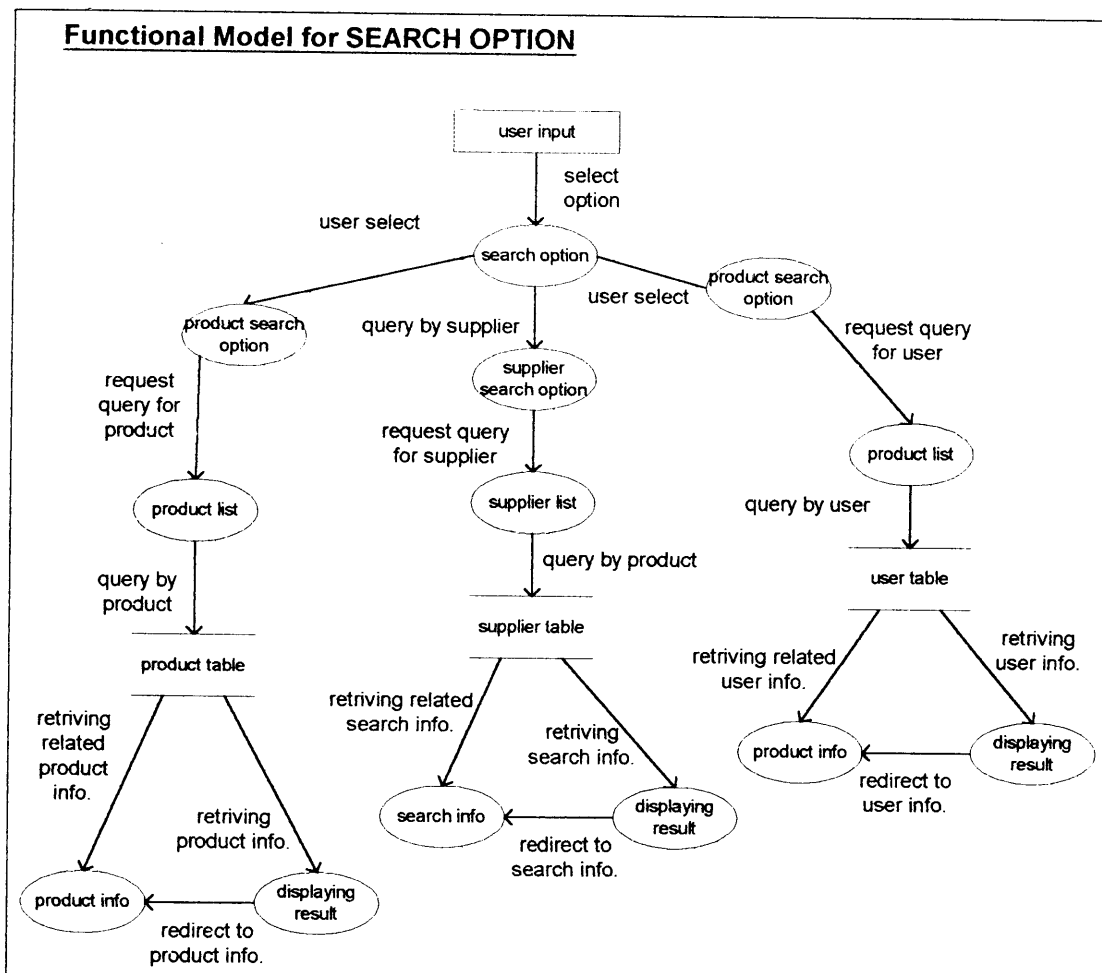


Figure 19: Functional Model for Search Option

4.4 Summary

The step by steps design of IMS System has been discussed. Beginning with Object Oriented Analysis using the OMT notation: Business Activity Diagram, Use Case, Sequence Diagrams, Collaboration Diagrams and followed by Class Diagram were already explained and illustrated.

CHAPTER 5

DEVELOPMENT PHASE OF IMS

This chapter will discuss the design and implementation of the prototype IMS system. It will give an overview of the architecture of the web application and design frame for every option menu. Later, this chapter will describe the prototype system architecture and samples of the modeling extension for the web-based graphical user interface design of the prototype system.

5.1 Architecture of the Web Application

According to Conallen (1999) the architecture for a web site is rather straightforward. It contains three principal components that consist of a web server, a network connection and one or more client browsers. The web server distributes pages of formatted information to clients that request it. The request is made over a network connection and uses the HTTP protocol. Figure 5.1 shows the architecture of web application. Some web sites require clients to logon, and some allow anonymous access.

The information made available by a web site is typically stored, already formatted, in files. Clients request files by name, and when necessary, provide specific path information with the request. These files are termed pages, and represent the content of a web site.

In some situations the content of a page is not necessarily stored inside the file. It can be assembled at runtime from information stored in a database (or other information repository) and formatting instructions in a file. Alternatively, it can come from the output of a load-able module (CGI or ISAPI). The web server uses a page filter to interpret and execute the scripts in the page. Web sites employing this strategy are called dynamic sites.

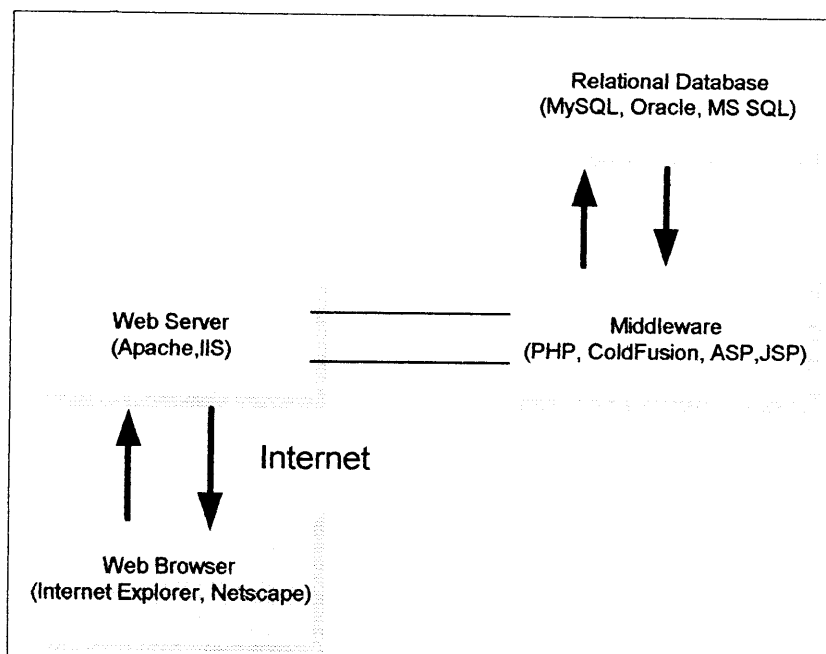


Figure 20: Architecture of Web Application

Dynamic web sites offer certain advantages to web site designers. They make it easy to keep the content fresh and synchronized with data in a database. The overall look and feel of the web site is defined by a set of pages that contain code executed by the web server during a request for this page. In this context the file can either be a plain text file with scripts interpreted by the web server, or a compiled binary file that is executed by the web server.

A user interacts with a web site via a browser. A browser is an application that runs on a client machine, which connects to a server on a network and requests a page of information. Once the page request has been fulfilled the connection terminates. The browser knows how to communicate (via HTTP) to a web server, and how to render formatted information returned by the web server. Most pages of information contain *links* to other pages (possibly on other servers), which the browser user may easily request. Users navigate the web by clicking on links and requesting pages from web servers.

5.2 The Prototype System Architecture

The IMS model proposed in this study can be implemented on several other platforms. However for the purpose of this study, the prototype was developed using the relational database in the web environment.

This study chooses Apache as the web server. Apache web server is one of the two-web servers that dominate the market. The other is Microsoft's Internet Information Server (IIS). Apache server is an open source, where anyone with the skill can code the program that extends the functionality of Apache (Greenspan & Bulger, 2000).

This project study chooses PHP programming language as a middleware to the front system. PHP will most often run as an Apache extension, known as the Apache module. PHP belongs to a class of languages known as middleware. These languages work closely with the web server to interpret the requests made from the World Wide Web, process these requests, interact with other programs on the server to fulfill the request, and then indicate to the web server exactly what to serve to the client's browser. PHP is a cross-

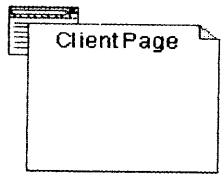
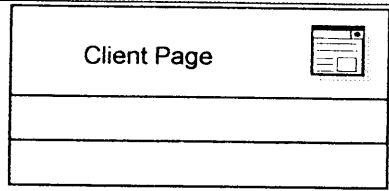
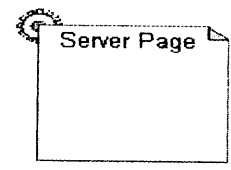
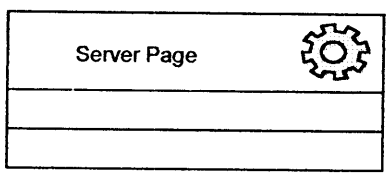
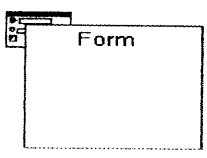
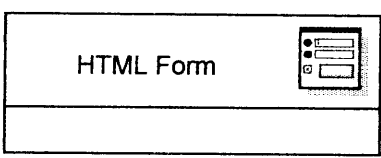
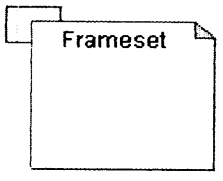
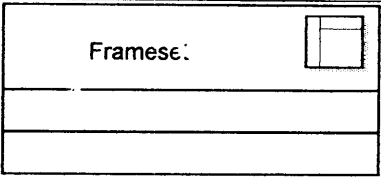
platform and it will run on Windows 2000/NT and UNIX and with both IIS and Apache. PHP also works on Netscape, Roxen and other wide variety of systems. For the database, MySQL is chosen because it is free. MySQL will be extremely fast for small- to-medium-sized databases.

The user actor is the most convenience actor to describe as a admin or user for the system. This actor will show the relation of user and five menu option in order to access the function. The system architecture contains five main subsystems and one relational database. The four main subsystems are the Inventory Menu Option, User Menu Option, Supplier Menu Option, View Menu Option and Search Menu Option. The relational database, which is used to store the information, is MySQL namely 'inventory'. The subsystems will interact with the relational database when storing or retrieving data. The actors will also interact with the systems and its architecture during the transaction or process.

5.3 Modeling Extension for the Web-Based Graphical User Interface Design

A list of prototype icons for the most common class stereotypes and the icon used in this implementation is shown in figure 5 below:

Table 5: Prototype icons for the class stereotypes

Class Stereotype	Common Icon	Icon used
Client page		
Server page		
Form		
Frameset		

5.4 Modeling Extension For The IMS System

The modeling extension used in the IMS system is shown below.

5.4.1 Web Graphical User Interface for Main Menu

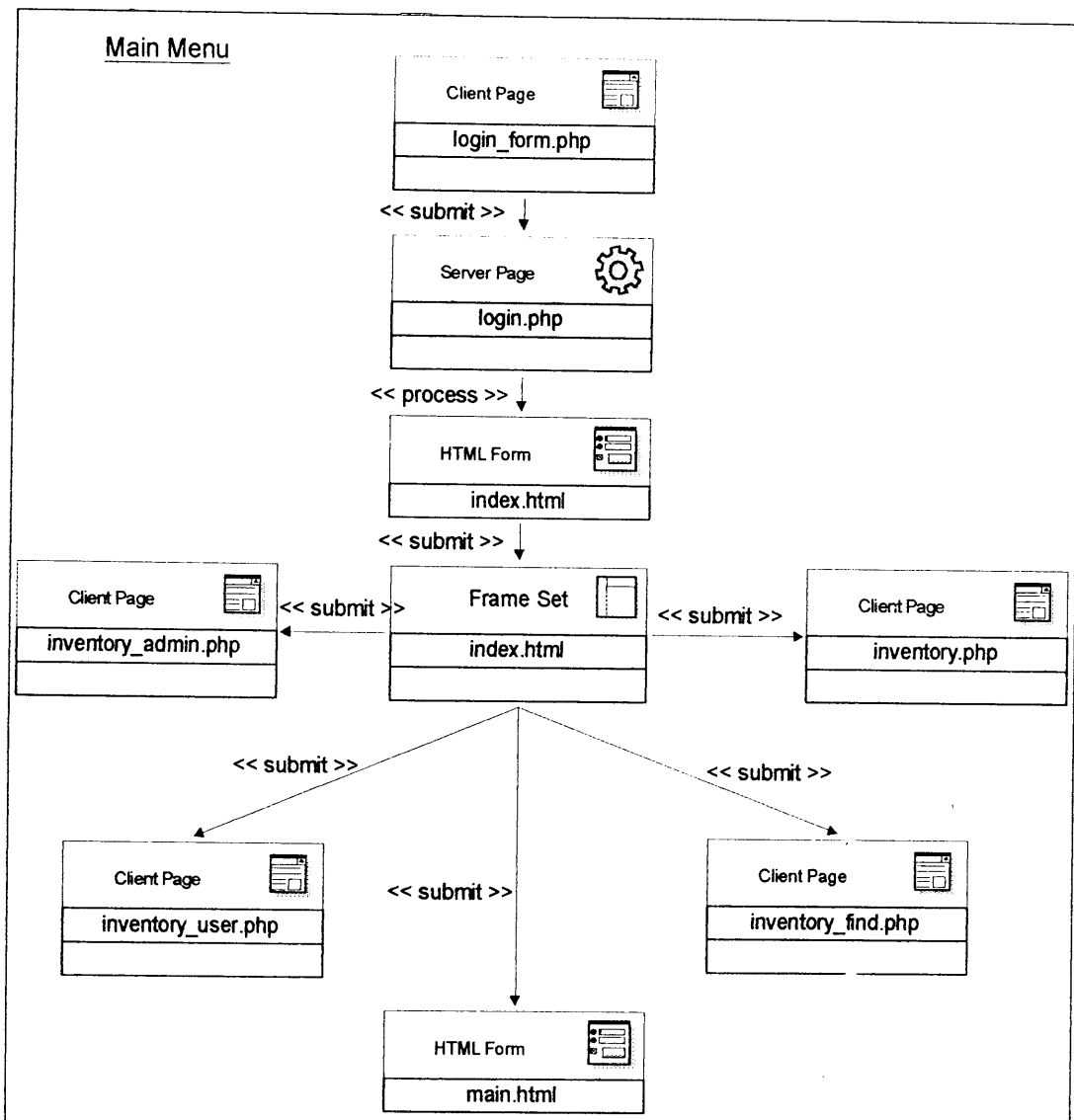


Figure 21: The Inventory Management System's Main Menu

5.4.2 Web Graphical User Interface for Inventory Option Menu

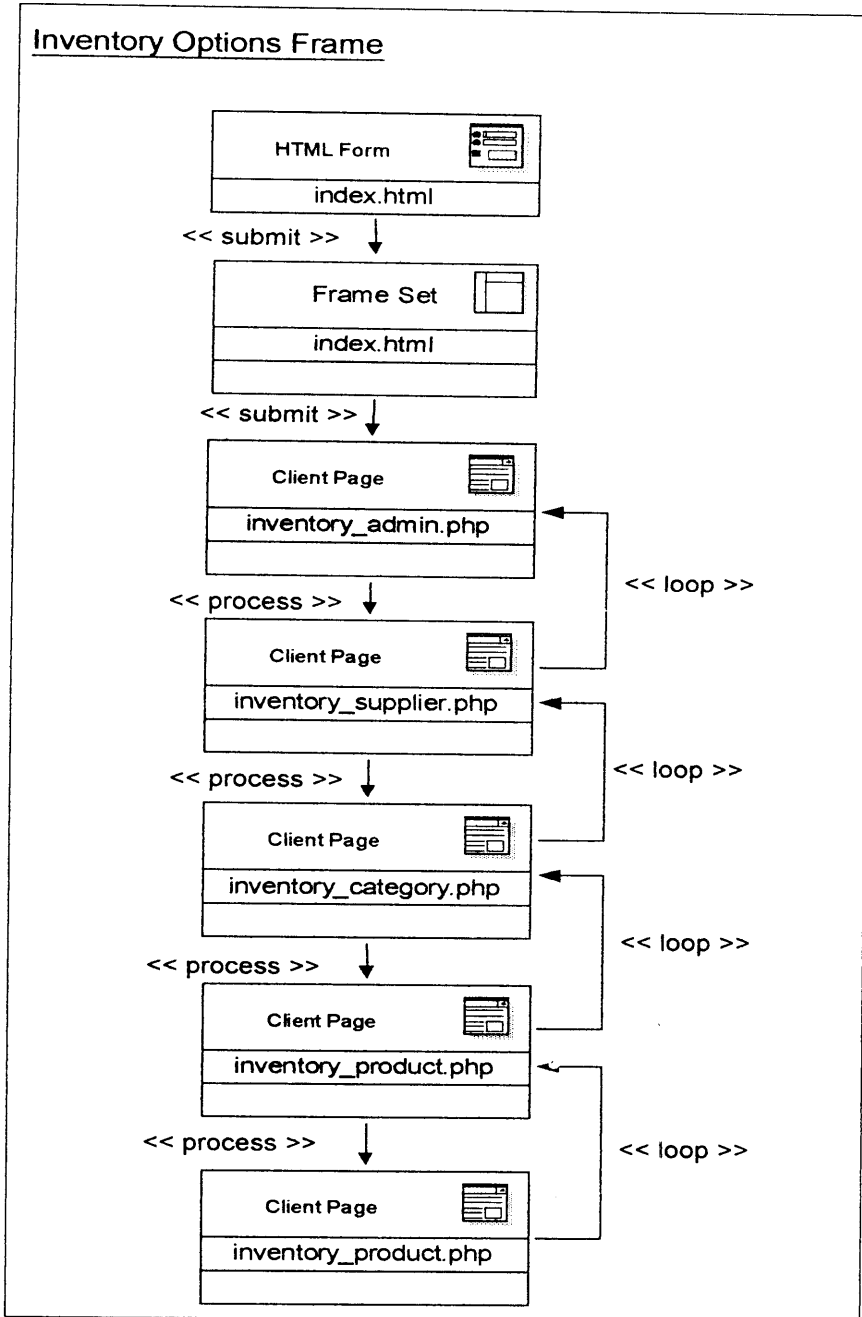


Figure 22: Web GUI for Inventory Option.

5.4.3 Web Graphical User Interface for User Option Menu

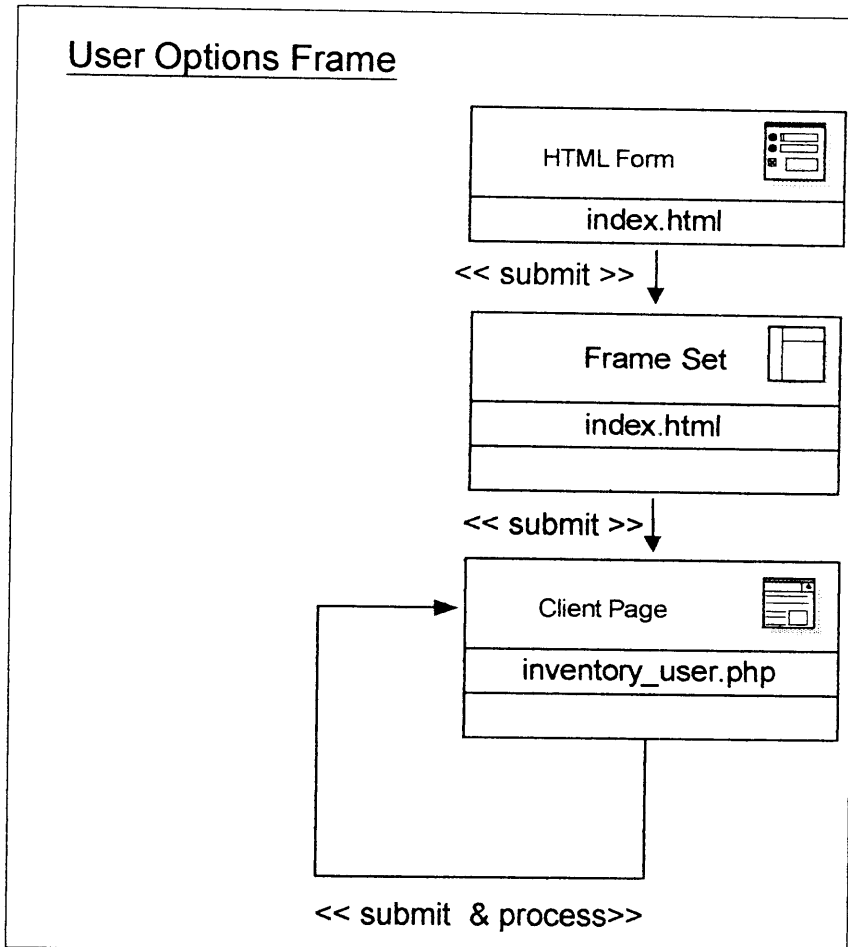


Figure 23: Web GUI for User Option

5.4.4 Web Graphical User Interface for Supplier Option Menu

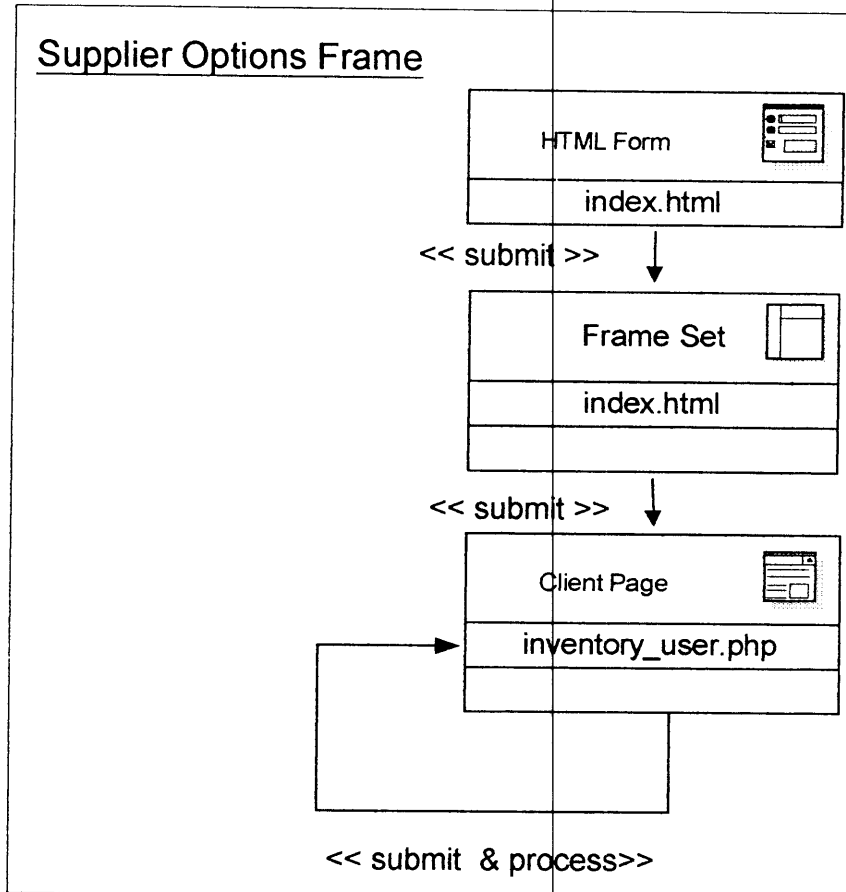


Figure 24: Web GUI for Supplier Option

5.4.5 Web Graphical User Interface for View Option Menu

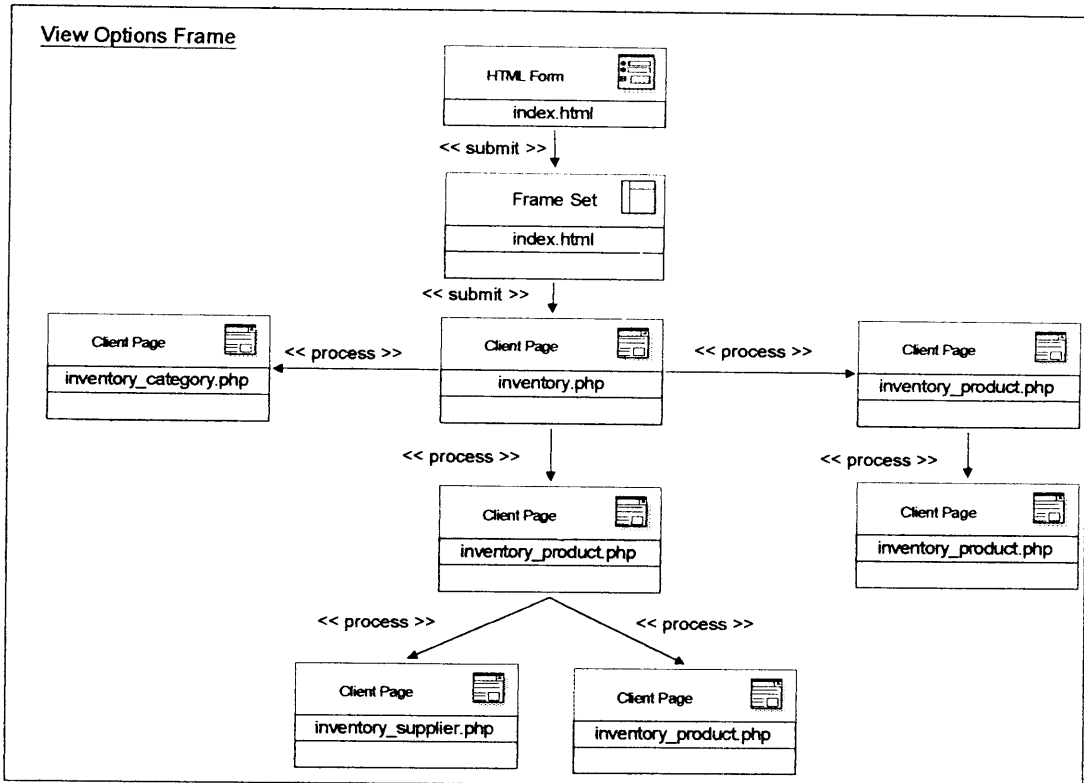


Figure 25: Web GUI for View Option Menu

5.4.6 Web Graphical User Interface for Assigning the System

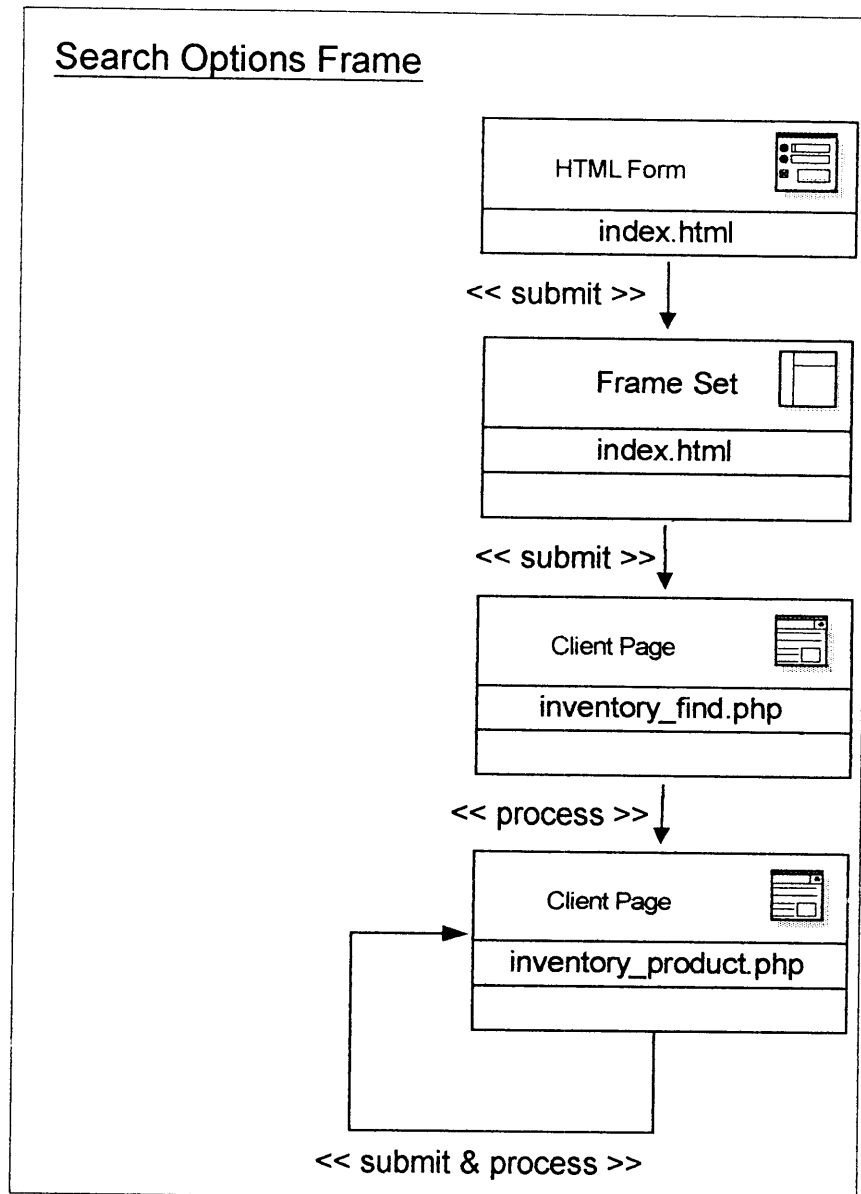


Figure 26: Web GUI for assigning the system

5.5 Programming Structure development

This use PHP programming language to code. The code can be coded and edited by PHPCoder software or other text editor e.g. Notepad or EditPlus.

Please refer Appendix B to view the example of PHP programming code.

5.6 User Manual

Refer to Appendix C for the User Manual.

5.7 Summary

Overall the web system design was done in minimum page needed. With a single separated page divided into three; main frame, top frame and right frame, the web system works excellent on one web page. These will simplicity and luxury to access page function where users reduce the time and mouse movement into one page. The build-in functions in every page also reduce the page needed for web page design. The page will only loop to itself to process or retrieve data from database. Coding and designing time can be reduce and simplify the page flow architecture. Reducing the page needed will reduce cost, time, and energy and physically increase the processing time.

CHAPTER 6

EVALUATION

This chapter will discuss on the evaluation of the prototype system that has been developed. The aim of this evaluation is to see the level of functionality and operability of the system. The prototype system will be evaluated for accuracy, correctness, illustration, security and portability.

6.1 System Testing and Results

Running it into two different platforms tested the system. The first experiment was regularly done on Windows operating system. During the development and implementation phase, the system was fully done in Windows based means that the system was automatically tested on Windows platform. For Windows platform, testing was browsed using Microsoft Internet Explorer 5.0 running on Windows 98 Second Edition operating system. It used Apache Server 1.3.20 for Windows and linked by Star Topology network. Navigation testing only tested within the network and there is no testing from outside. The computer configuration for the network shows as in Table 6;

Table 6: Windows Testing Network Configuration

Hardware	Quantity	Description
Client	3	Processor: Pentium® III 800MHz

Hardware	Quantity	Description
Computer		Memory Capacity (RAM): 64 Mbytes SDRAM Hard Disk Space: 10 Gigabyte Graphic Card: 3 Mbytes Graphic Card Sound Card: Compatible Sound Card
Computer Server	1	Processor: Pentium® III 450MHz Memory Capacity (RAM): 256 Mbytes SDRAM Hard Disk Space: 10 Gigabyte Graphic Card: 3 Mbytes Graphic Card Sound Card: Compatible Sound Card
Hub	1	GENIUS GH4080SE, 8P (8 + 1) 10M Ethernet Hub 240V
Cabling	4	D-LINK UTP cable & RG45

The testing was run perfectly with small network problems and errors. The result for the rest experiment shown in Table 7 below;

Table 7: Actual System Performance under Windows Platform

Requirement	Test Description	Actual System Performance
Accessibility	The system shall be access through the web.	The system can be access through the web.
Functionality	User able to access all system	O.K, but system not responding

Requirement	Test Description	Actual System Performance
	function	for few times.
Stability	Determine the system stability running in Windows platform	O.K
Processing Speed	Determine the system processing speed	There is no actual time rate taken determine the processing speed. It assumed as a normal speed.
User Interface Presentation	Determine the system interface using Microsoft Internet Explorer browser.	Run perfectly, product image can be displayed and

For second testing phase, the system was run on UNIX platform. UNIX platform used Red Hat Linux 7.0 operating system with a default Apache Server 1.3.20 and a Netscape Navigator 4.0 Internet browser. The system was also connected with the configured network and construct with same Star Topology. The only different form the first network configuration was the computer server as shown in Table 8 below;

Table 8: UNIX Testing Network Configuration

Hardware	Quantity	Description
Client Computer	3	Processor: Pentium® III 800MHz Memory Capacity (RAM): 64 Mbytes SDRAM

Hardware	Quantity	Description
		Hard Disk Space: 10 Gigabyte Graphic Card: 3 Mbytes Graphic Card Sound Card: Compatible Sound Card
Computer Server	1	Processor: Pentium® II 266 MHz Memory Capacity (RAM): 128 Mbytes SDRAM Hard Disk Space: 2.1 Gigabyte Graphic Card: 2 Mbytes Graphic Card Sound Card: Compatible Sound Card
Hub	1	GENIUS GH4080SE, 8P (8 + 1) 10M Ethernet Hub 240V
Cabling	4	D-LINK UTP cable & RG45

The testing was also run perfectly with small network problems and errors and the result is shown as in table below;

Table 9: Actual System Performance under UNIX Platform.

Requirement	Test Description	Actual System Performance
Accessibility	The system shall be access through the web.	The system can be access through the web.
Functionality	User able to access all system function	O.K

Requirement	Test Description	Actual System Performance
Stability	Determine the system stability running in UNIX platform	O.K
Processing Speed	Determine the system processing speed.	There is no actual time rate taken determine the processing speed. It assumed as in advance speed where the processing speeds better than windows.
User Interface Presentation	Determine the system interface using Netscape Navigator browser.	Some of the icons and structure was not in proper order, but product image can be displayed clearly.

6.2 Evaluation

After all the testing and experiment done, the writer noticed that both testing in different platform have it strengthen and weakness. The writer found that the system a more stable running on UNIX platform with Red Hat Linux 7.0 operation system. Event though that in User Interface presentation, Windows shows better performance browsed by Microsoft Internet Explorer 5.0 but its still weak in data processing and transaction process. Maybe the application itself was build-up for UNIX application but still in consideration that Windows also can run it well by preparing a better configuration and upgraded software version.

6.3 Summary

For the conclusion, all of these requirements impose constraints on the experiment used to confirm the level of functionality and performance of the system. More reliable evaluation methodology may be used in order to validate the functionality of the developed system. The experiment was also beneficial for the future user for organization to decide which server platform they plan to use for running the IMS system. The testing phase will be repeated once a new upgraded version of IMS system created soon for future implementation.

CHAPTER 7

CONCLUSION

This chapter reviews the overall progress of this project. It includes problems and limitations encountered during the development of this project. Recommendation for future enhancements will also be discuss.

7.1 Problems Occur

This project focuses on producing a web database system model for the small business organizations. The system model will act as a reference model for organization's inventory information system. A prototype of the system was successfully developed using the generated data model. As a General Public License (GPL) software version Apache Server, MySQL database and PHP programming language are quite stable that recommended for a medium size system. However there are still some minor problems and limitations discovered such as below:

7.1.1 System Function.

Even though, the overall system function was running smoothly, but there is still a problem for user to get a printed copy form generated system result. Currently, the

systems don't have any document printing option that allow user to print system result query. The printing option was in process of encoding integrated with Microsoft Word for the coming version.

7.1.2 Internet Browser

The prototype system was developed and implement by using windows platform. By running the Apache server under windows the default browser was Microsoft Internet Explorer 5.0 (IE 5). Running the system in IE 5 wouldn't cause any displaying error. The problems only occur when browsing the system other than IE 5 especially Netscape Navigator 4.0. The entire ordered display sorted in diverse way and some of the graphical image and icon was not function properly. The overall display was put improper order from the original setting.

7.1.3 Project Methodology

Tested methodology to validate the system model is limited for accuracy and correctness. The methodology is only as a guide to develop the IMS system and not cover all the constraint and problem occur during the development process.

7.1.4 Operating System

Apache server was a UNIX based application server which running along with the MySQL as a database application and powered by using PHP programming language. All that software was actually build up for Linux OS where its can run with better performance under Linux environment compare to Windows. By

saying so, the system was actually will run with the best performance by using Linux. It is recommended running the IMS system under Red Hat Linux 7.0 or greater. The greater versions of Linux 7.0 fully support all the application with less setting and command.

7.1.5 System requirement

In order to fulfill the maximum requirement for all dedicated organization to prepare the prototype IMS system, a lot of user requirement must be added and eliminate. The problem here is, there is too much requirement from user and organization to fill in system function. Lots of constraint and conflict function, which is not suitable for most of the organization. To solve the problems, some analysis has been done to gain the minimum requirements function that can suitable for all the user and organization need.

7.2 Limitation in developing IMS system.

There is some limitation occur in developing IMS system as a prototype for web-based inventory management. All the limitation was actually come from the writer as a developer for the IMS system. The writer was a final year student, doing the project is as a part of academic requirement. The major limitation that the writer faced was a limitation on knowledge, time and men power.

7.2.1 Knowledge

As a new participant in this Linux web-based development, the writer has a problem in gaining knowledge especially in PHP programming language and SQL syntax. Even though there is a website that will teach and show how to code and write syntax in PHP command, but with a little knowledge, the process to learn a function was too slow. Some of the coding and articles produced by the expert in the web were too advanced and difficult to understand for the beginners like the writer. The field also still lacks expertise that really experts in this application software. To handle all this, a lot of reading and studies have been taken. Some of the IMS system functions are still in exploration where the writer tries to get the best function code before adding into the IMS system function i.e. the image display for product function mode.

7.2.2 Time limit

Developing a system always has its time constraint. In four months, the writer must be able to come up with a running web-based system. Within four months time given the prototyped inventory system was successfully done, but there is still an option that has to be upgraded that must take some moment which is not enough within the time. Even though the deadline was due to date, the system development will be carried on and there is always an upgraded version for IMS for future need.

7.2.3 Men power

As stated early, the writer was the developer in this project. The writer works as a single programmer and designer from the root to the end. Ideas and concept are only based on user or organization perception and requirement for the system, some advice from writers' supervisor or nearest friend, and from a survey or study with the existing system. As a single developer all the force regarding to the project development was dumb to the writer individually.

7.3 Recommendations for Future Enhancement

In order to overcome the problems and limitations mentioned above, several suggestions and recommendation given as listed below:

- a. Developing a system consist a lot of ideas generation. Single developer won't be effective if not supported from all the entity related to the system. The concept, ideas, flow, design etc. must be relevant to their need and requirement to produce a good system for them. Try to get more support from anyone related in order to gain all the knowledge or information needed.
- b. Overcome the problem occur with another way of solution or alternative to the related software e.g. browser problem.

- c. Extend or upgrade available function in the system for better supporting system for user requirement and need e.g. adding accounting function mode related to the inventory system.
- d. More reliable testing methodologies should be created in order to validate the accuracy and correctness of the developed prototype system.
- e. A critical survey evaluation might be very useful to get better recommendations to improve the system.

7.4 Summary

This project has achieved the target, which is to produce a web-base inventory system model for medium size organizations in other words small business enterprise. Several suggestions for the enhancement of this system have also been recommended for the future development of this project. Hopefully, this system model can bring up a convenience for the user or organization in managing their inventory or stock. Perhaps, the model also can reduce energy, time and money needed forward to increase company or organization profits.

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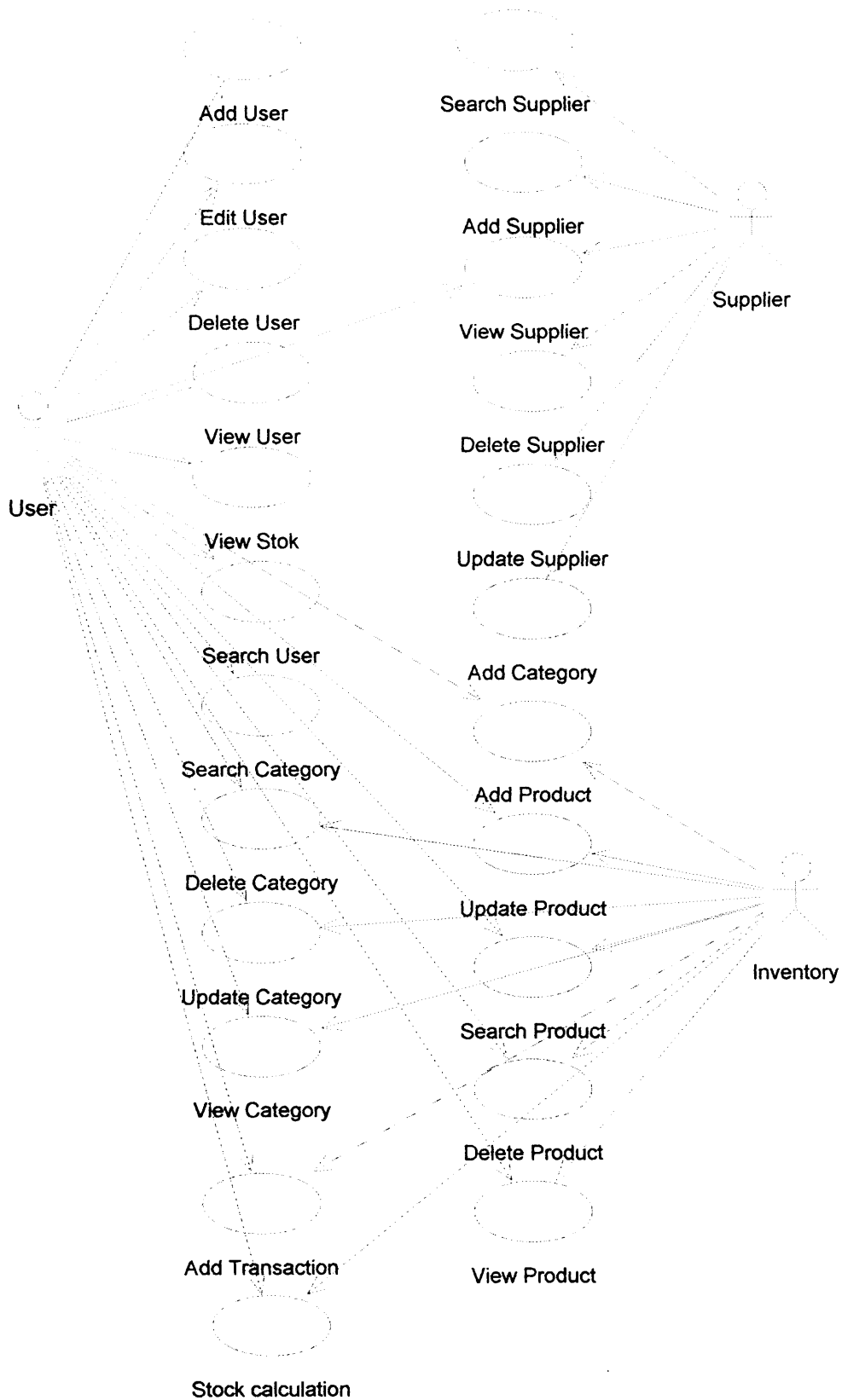
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Appendix A

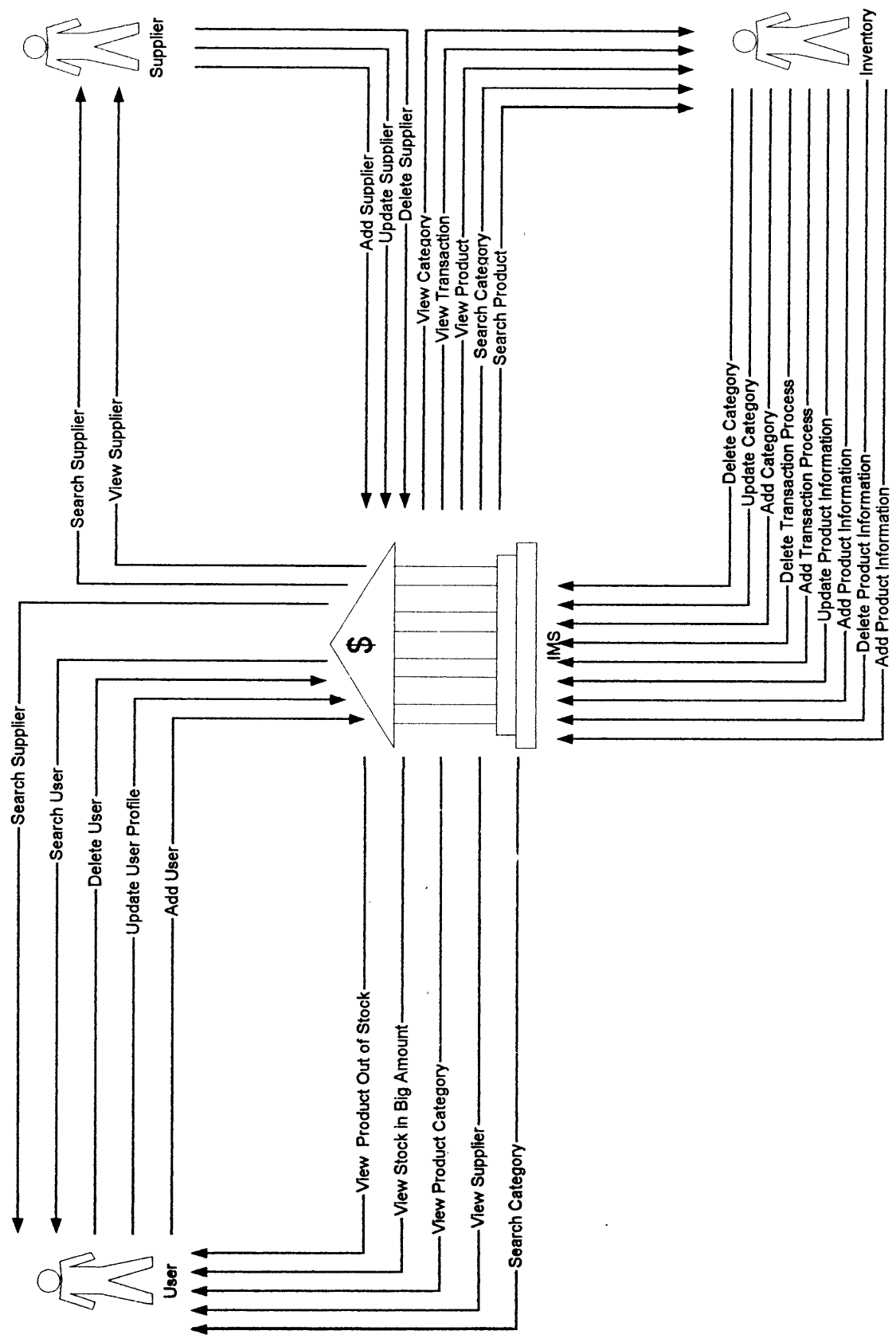
IMS Business Process Model

Inventory Management System (IMS) USE CASE Diagram

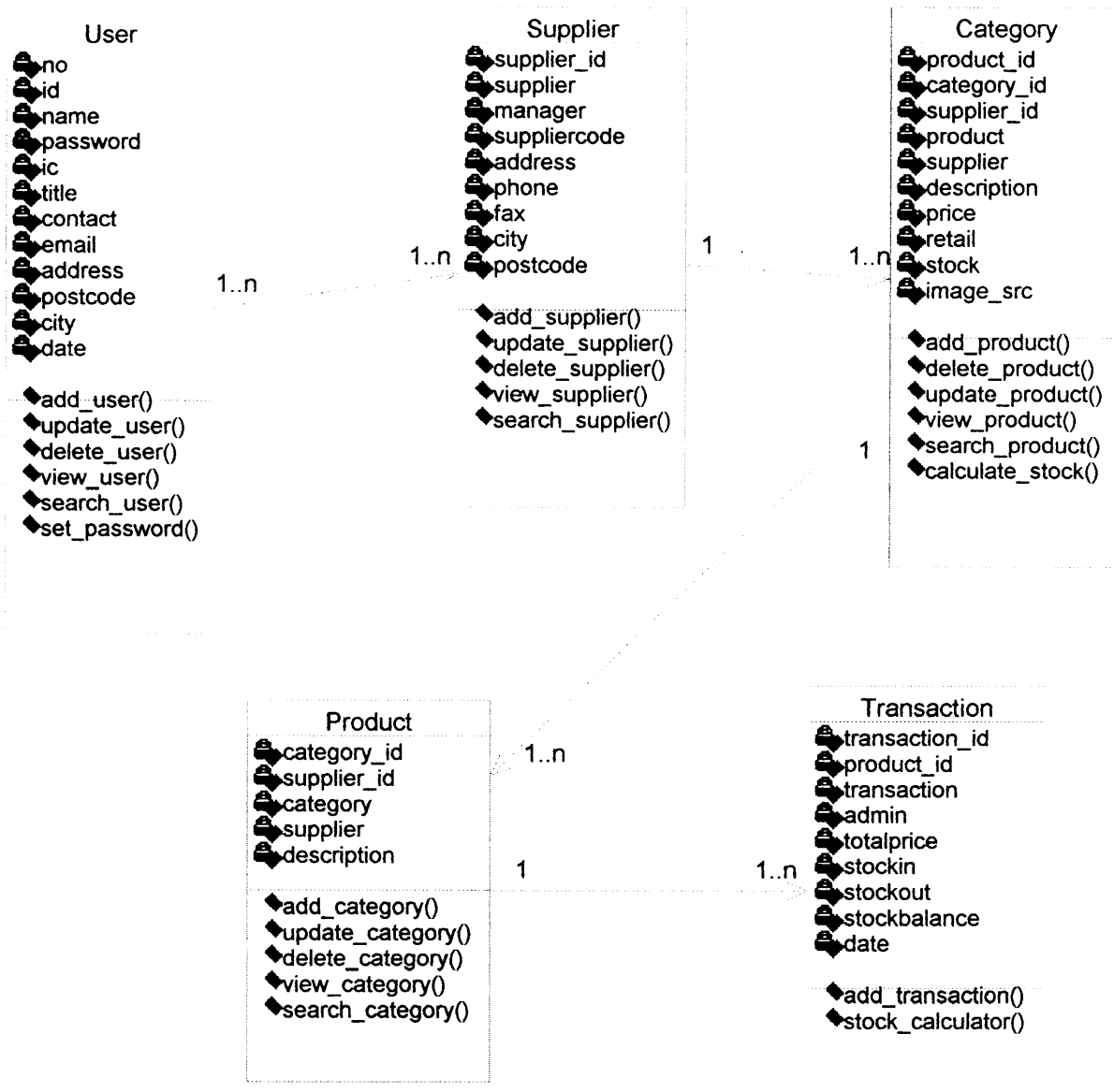


Inventory Management System (IMS)

Context Diagram



Inventory Management System (IMS) Class Diagram



Appendix B

Example of PHP Programming

```

<?php
.....
... This page is for Inventory Management. It is for all the ...
... of Inventory. It is for all the ...
...
... You are free to remove the materials in this ...
... manner in any manner you see fit. Please do ...
... not allow any other person to provide ...
...
.....

include "inventory.php";

$style = mysql_fetch_object($sql);

include "inventory.php";

print "There are a few styles that are available for you to view."
print paragraph
    anchor_tag "inventory.php?submit=1" "View Inventory"
    anchor_tag "inventory.php?submit=2" "View Inventory"
    anchor_tag "inventory.php?submit=3" "Print By Category"
    anchor_tag "inventory.php?submit=4" "Print By Quantity"

if $submit == 1

print subtitle "View Inventory - The primary view of all styles"
$sql = safe_query "select * from styles where stock is not null";

print start_table array("width" => "100%", "border" => "1")
print table_row
    table_cell "No.", array("width" => "10%")
    table_cell "Product", array("width" => "20%")
    table_cell "Image", array("width" => "10%")
    table_cell "Description", array("width" => "40%")
    array("border" => "1")
$sn = 1;
while ($row = mysql_fetch_object($sql))
    if !empty($row->image_src)
        $image_cell = image_tag "images/product_image_{$row->style_id}"
            array("align" => "left", "width" => 70);
    else
        $image_cell = image_tag "images/product_image"
            array("align" => "left", "width" => 70);

    print table_row
        table_cell "No."
        table_cell anchor_tag "inventory.php?style_id={$row->style_id}"
$sn => style
        table_cell $image_cell
        table_cell $row->description;
        $sn = $sn;
}

```

```

elseif ($id == 2)

print subtitle "View Product According to Category"
print hr

$res1 = safe_query ("select * from products order by category id")

print start_table array ("width" => "100%", "border" => "1")
print table_row
table_cell "Image" array ("width" => "100px", "height" => "70px")
table_cell "Product Name" array ("width" => "100px", "height" => "70px")
table_cell "Product Price" array ("width" => "100px", "height" => "70px")
table_cell "Product Description" array ("width" => "100px", "height" => "70px")
array ("width" => "100%", "border" => "1")
$col = 1
while ($row = mysql_fetch_object ($res1))

if (!empty ($row->image_src)

$image_cell = image_tag "image/product_image_".$row->product_id"
array ("width" => "100px", "height" => "70px")

else

$image_cell = image_tag "image/blank_image"
array ("width" => "100px", "height" => "70px")

print table_row
table_cell "Cat."
table_cell anchor_tag "inventory/product.php?category_id=".$row->category_id"
$row->style
table_cell $image_cell
table_cell $row->description
$col = $col + $row

elseif ($id == 3)

print subtitle "View Product According to Category"
print hr

$res1 = safe_query ("select * from products order by product id")
while ($row = mysql_fetch_object ($res1))

$col = anchor_tag "inventory/product.php?product_id=".$row->product_id"

print ul_list $col

elseif ($id == 4)

print subtitle "View Product According to Supplier"
print hr

$res1 = safe_query ("select * from categories order by category id")
while ($row = mysql_fetch_object ($result))

$values = anchor_tag "inventory/display.php?category_id=".$row->category_id"
$row->category

print ul_list $values

```

```
print paragraph
  anchor_tag "1"
  anchor_tag "2"
```

```
else
```

```
include "main.php"
?>
```

```
<?php
//
//-----
/** This script is an Inventory Management System (IMS)  **
**      By Jonathan Little  **
**
** You are free to reuse the material in this  **
** script in any manner you see fit. There is  **
** no need to ask for permission or provide  **
** credit.  **
//-----
//
include "inventory_header.php"

$page_title = "Front side#1 color=#800080> IMS: Inventory
Administration/IMS";
include "start_page.php";

print subtitle("Supplier");

$result = safe_query("select category_id,category_name categories order by
category");
while list($category_id, $category) = mysql_fetch_array($result)
{
    $values[] = anchor_tag("inventory_supplier.php?category_id=$category_id"
        , $category);
}

print paragraph(ul_list($values));

print paragraph
    anchor_tag "inventory_find.php"
        , "Search Option Page"
    , " <br />"
    , anchor_tag "inventory.php", "Inventory Main Page";
//
include "end_page.php";

?>
```

Appendix C
User Manual

Volume

UNIVERSITI UTARA MALAYSIA

Sekolah Teknologi Maklumat

IMS System User Manual

SEKOLAH TEKNOLOGI MAKLUMAT

Inventory Management System (IMS)

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Briefing with Inventory Management System (IMS)

1.1 Introducing IMS system

This project is initiated and the fulfillment of course Project (TZ6996) as one of the graduation requirements for Master of Science in Information Technology “MSc.(IT)” in University Utara Malaysia. The purpose of this project is to generate a model of a Web-Based Database System for medium-size organizations where this projects focus on Small Business Enterprise Wholesales. The planned system used Object Modeling Technique (OMT) in order to construct a system prototype system named Inventory Management System (IMS).

1.1.1 IMS Objective

The objectives of this system are:

- To fulfill the requirement for the organization/company entity business need.
- Develop an inventory management that can super visioning the company effectiveness and efficiencies.
- To fasten the decision making for every transaction on the company operation.
- To implement or utilize the IT Technology in business feature e.g. e-Commerce.

1.1.2 IMS System Scope

The project will scope on the stock and inventory of the company and figuring the effective system for the inventory management. The system will be on web-based format and running under client-server script.

1.1.3 Versions

The current version for this IMS is IMS 1.07 that is including the image browser function. The IMS version 2.0 will soon out with the integrated Account Package and other extra function, which strengthen more on the user interface.

1.2 System Requirement

To use IMS system, your computer must have one of the following Windows or Linux operating systems:

- Windows 95, 98, 98SE
- Windows Me
- Windows 2000 Professional Workstation
- Windows XP Professional or Windows XP Home Edition
- Red Hat Linux 7.2

Your computer must also meet the following minimum requirements.

1.2.1 Windows 95 / 98 / ME

- Intel Pentium processor at 150 MHz
- 32 MB of RAM
- 20 MB of available hard disk space

- Internet Explorer 4.01 Service Pack 1 or higher
- CD-ROM or DVD-ROM drive
- Microsoft Windows Internet support

1.2.2 Windows 2000 Professional Workstation

- Intel Pentium processor at 150 MHz
- 48 MB of RAM
- 20 MB of available hard disk space
- Internet Explorer 4.01 Service Pack 1 or higher
- CD-ROM or DVD-ROM drive
- Microsoft Windows Internet support

1.2.3 Windows XP Home Edition / Professional

- Intel Pentium processor at 300 MHz or higher
- 64 MB of RAM
- 20 MB of available hard disk space
- Internet Explorer 4.01 Service Pack 1 or higher
- CD-ROM or DVD-ROM drive

1.2.4 Red Hat Linux 7.0 or Higher

- Processor at 100 MHz or higher
- 16 MB of RAM
- 3 MB of available hard disk space
- Internet Explorer 4.01 Service Pack 1 or higher
- CD-ROM or DVD-ROM drive.

Installing IMS System

2.1 Installation

This instruction manual is only for windows installation and won't work with other operating system installation

2.1.1 Consideration

If you have a Personal Web Server or any other Server programs running on your computer, you must uninstall them before installing this version of IMS. This IMS system will use an Apache server as a default server. It will conflict with other server and won't function correctly if there is other server running on the same time.

To uninstall other server programs, see the user documentation that came with the program. You must also quit all other Windows programs before installing IMS System.

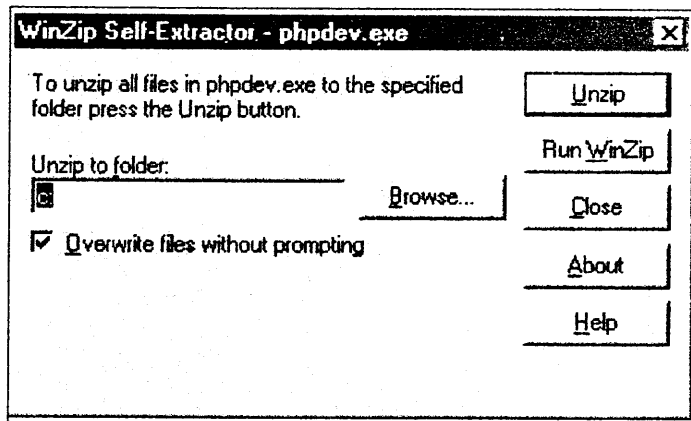
2.1.2 Begin the installation

- i. Insert the IMS CD into the CD-ROM drive.
- ii. In the IMS CD window, click **Phpdev.exe** file.

- iii. A Phpdev.exe file was a WinZip Self-Extractor program. The first installation window reminds you to unzip the file in C drive.

The **phpdev** folder must store in C drive as a stand folder.

- iv. In the WinZip Self-Extractor window, uncheck **Overwrite files without prompting**

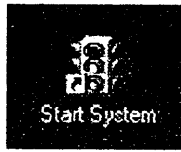


If you decline, you will overwrite the previous **phpdev** files in your C drive during the installation.

- v. Click **OK**.
- vi. When it's done, click **OK**.
- vii. Click **Close** to exit the installation.

2.2 After Installation

After installation your pc no need to reboot or restart. You can start directly your IMS System application. First of all, you need to copy some file from your **phpdev** folder to store on your desktop. Copy the **Start System** and **Shut Down** icon from your **phpdev** folder and paste to your desktop windows.



Note: If you use Windows 98 or greater you can just drag and drop the icon from your windows explorer.

2.3 Uninstall IIS System

If you need to remove IMS System from your computer, you only need to delete the whole **phpdev** folder from your driver. The deletion won't harm your windows system or registry.

Getting Started With IMS

IMS is not automatically starts when you open your computer. You have to open the program to be running.

Getting Started With IMS

3.1 Starting IMS System

Click the **Start System** icon as below to start the system.



The following activities will be running:

- Windows **Apache** server will be appearing.

A screenshot of a Windows command prompt window titled "APACHE". The window has a standard Windows interface with a title bar, a menu bar (File, Edit, Format, View, Help), and a toolbar. The command prompt shows the following text:

```
C:\phpdev>start c:\phpdev\mysql\bin\mysqld -oqt.exe
C:\phpdev>start c:\phpdev\www\apache.html
C:\phpdev>cd c:\phpdev\apache
C:\phpdev\apache>apache.exe -k start
Apache/1.3.20 (Win32) PHP/4.0.6 running...
```

- **Mysqld-opt** will be appearing for a moment.
- **Yaks.html** also will be appearing with default windows Internet explorer.



Note: If you didn't change any Internet explorer setting, the Windows Internet Explorer will use to emerge the **yaks.html** files.

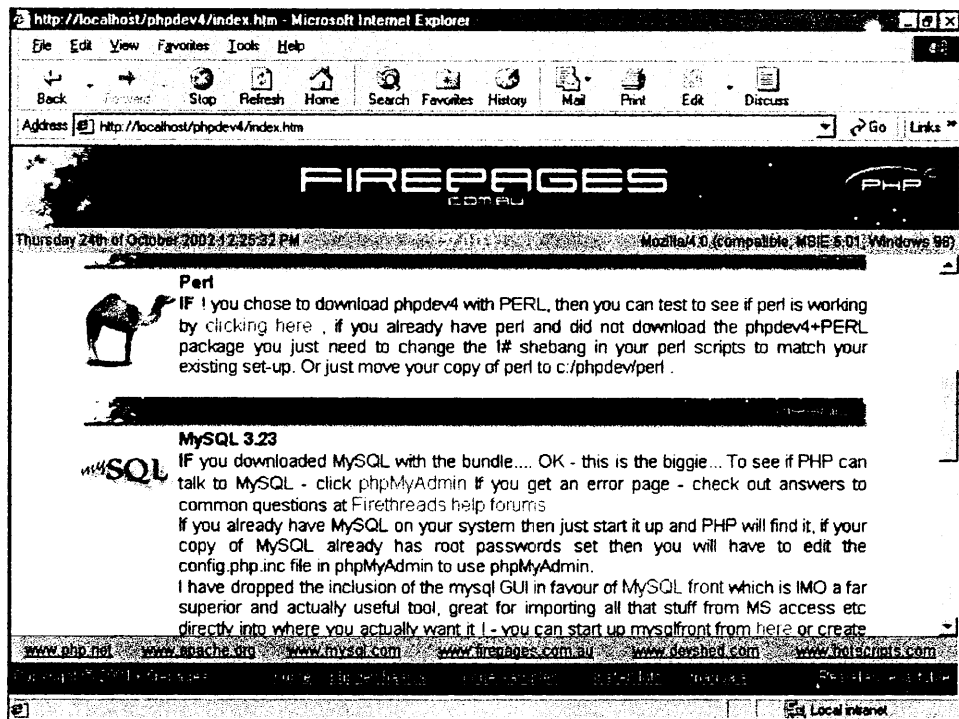
Understanding IMS System

The first windows you would see are **yaks.html** file. Its will give you an option to choose whether to enter the IMS system or the PHP Developer page.

PHP Developer Page

The PHP Developer page contains a list of software and programs that use to develop the IMS system. It was provided by **Firepages.au.com**, which contain a word from the entire software program and the linkage to its' homepage or support website. Below is the list of program and software, which was listed in the **yaks.html**.

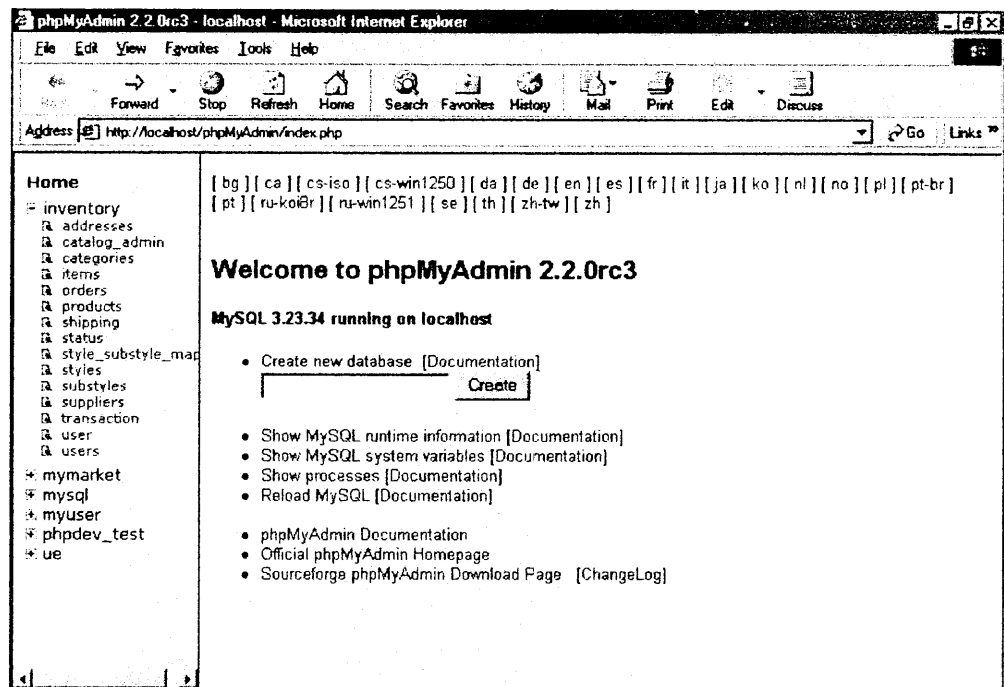
- Apache 1.3.20
- PHP4
- Perl
- MySQL 3.23



Above is the interface for the PHP Developer Page provided by Firepages.

3.3 PHP Admin Page

This interface that will access you to view, update and add a data manually to the IMS database. Assessing it directly won't be recommended unless you are familiar with the function.



3.4 IMS System

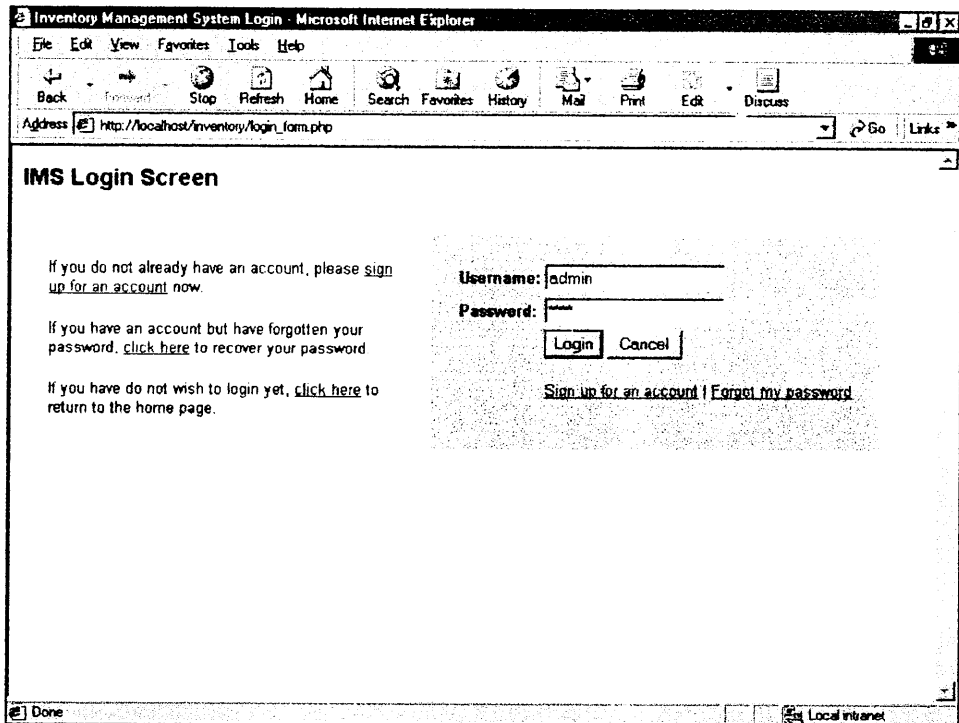
Before you can enter the IMS system interface, you have to login to check the unauthorized user accessing your system. You wouldn't have an id and password to login for the first time, but we give a default id and password for the first entrance to the system as below.

ID : admin

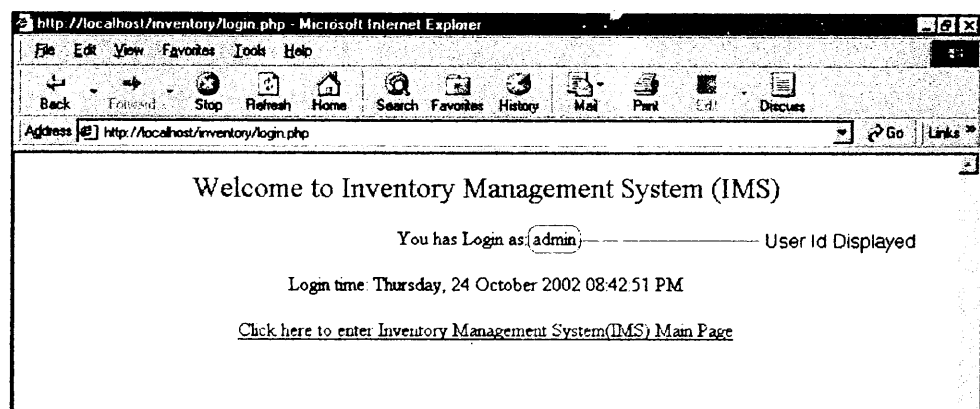
Password : 1234

Note: Change the password after entering the system to avoid unauthorized access.

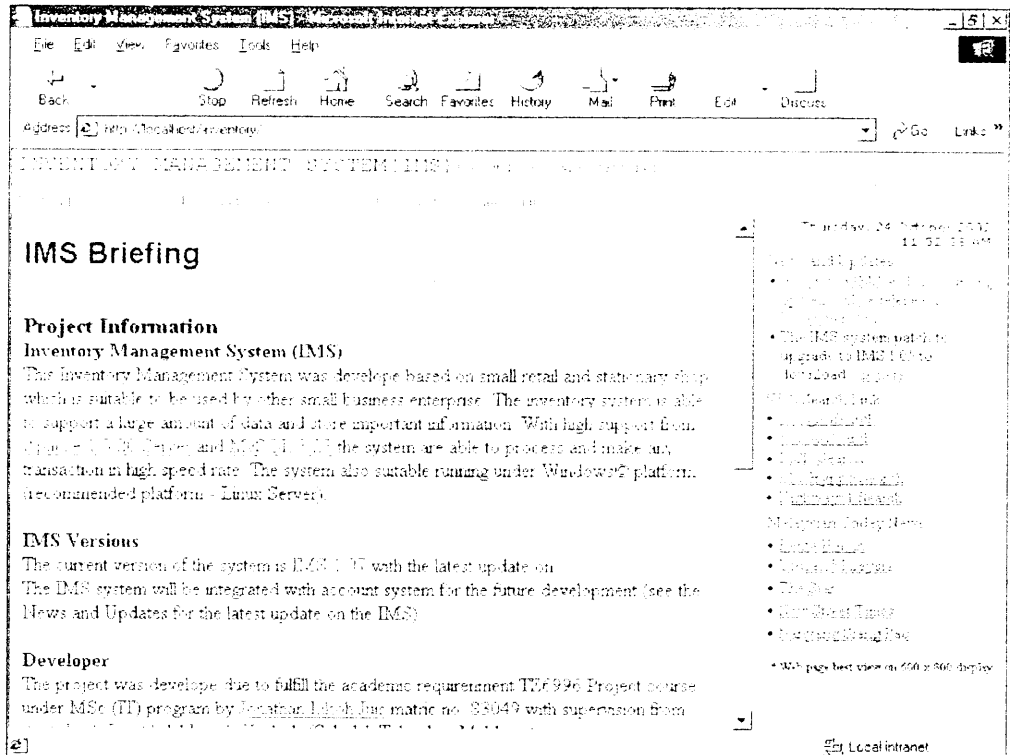
Enter the Id and password to id box field and password.



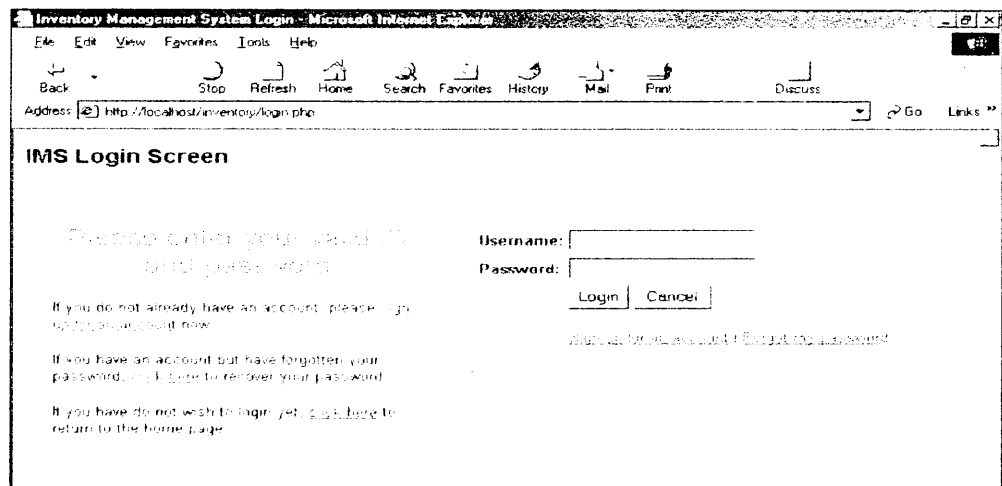
You would get this window if you enter the right id and password. Where you id name will show along with your date and time login information. Click the linking sentence to enter the IMS System.



Below is the interface for the IMS System where user can access the function from the menu.



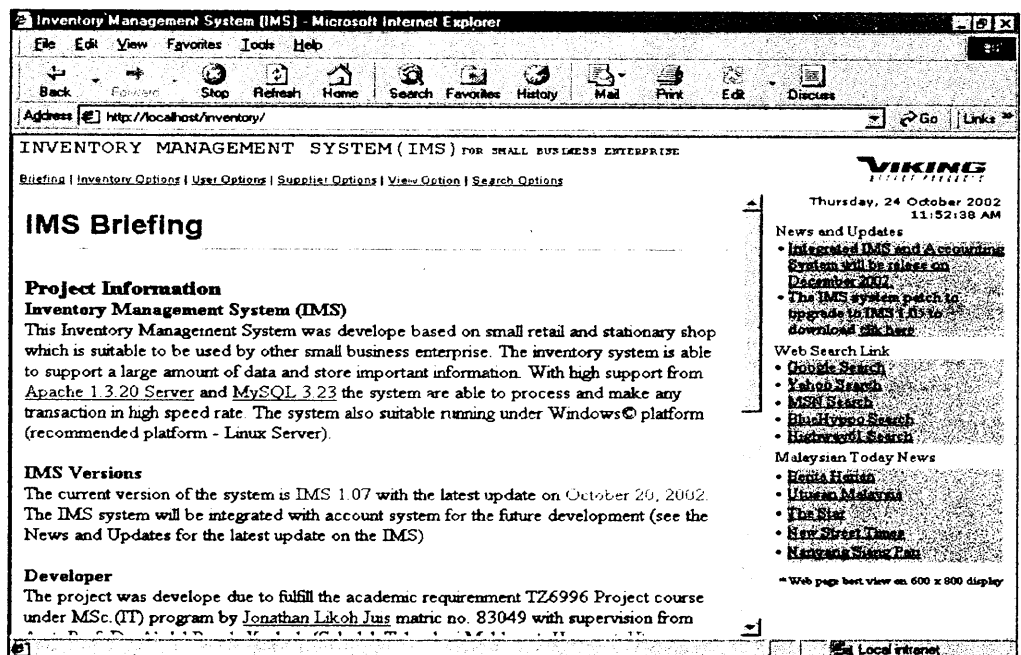
And if you failed to login there will be an error message appeared ask you to login again with correct id and password. Enter the right login and password to gain the access.



Using Menu Option

There are 6 options that user can access through the menu.

- **Briefing**
- **Inventory Options**
- **User Options**
- **Supplier Options**
- **View Options**
- **Search Options**



The main interface divided into three frames where the top frame attach by the system menu and linked to the dedicated page. The page which was linked from the top frame menu will show in main frame and the right frame was a link to other search engine and Malaysian Online news website also will viewed into main frame.

4.1 Briefing

This page is a default page to the system interface. The page basically tells you the information about the system and a brief of developer information. There is nothing much to be access and user can read trough it directly.

4.2 Inventory Options

This is the most important option and as a central function to the IMS System. The inventory will be record in this page and all the transaction also handle inside. The main flow to the page begins with selecting the supplier from the supplier list. The page will display the entire available supplier registered from the system database.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE


[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: Inventory Administration

Supplier

- [BluePaint Sdn. Bhd](#)
- [FancyPaper Ent](#)
- [Juharis Enterprise](#)
- [Keningau Stationary Enterprise](#)
- [Sabah Paper Sdn. Bhd. \(Keningau Branch\)](#)

[Search Option Page](#) | [Inventory Main Page](#)



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- [Integrated IMS and Accounting System will be release on December 2002](#)
- [The IMS system patch to upgrade to IMS 1.03 to download click here](#)

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- [Utusan Malaysia](#)
- [The Star](#)
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- [Nanyang Siang Pau](#)

* Web page best view on 600 x 800 display

After selecting a supplier, system will display a new page, which contains information about the existing company and a product category that the company

provides. As the image display in the next page, the page display the name of the supply company – **BluePaint Sdn. Bhd.** and its' address - **P.O.Box 525 Kobusak, 89500 Penampang, Kota Kinabalu.** Along with it, there is a category list present the category of product supplied by them.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: Inventory Administration

BluePaint Sdn. Bhd.
P.O.Box 525 Kobusak, 89500 Penampang, Kota Kinabalu

Category

- [Water Color](#)
- [Pen](#)
- [Scissors](#)
- [Add New Product Category](#)

[Administration Page](#)

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To add a new category for the company supply can be perform by clicking the **Add New Product Category** link menu. By doing it so, the new blank category box and description will ready to fill-in. User can fill-in the category and the description about the category entered. **Click the Save Changes** button to save the new category.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: Inventory Administration

BluePaint Sdn. Bhd.
P.O.Box 525 Kobusak, 89500 Penampang, Kota Kinabalu

Category

Description

[Supplier Page](#) | [Administration Page](#)

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* Web page best view on 600 x 800 display

When the new category saved, you can enter a product according to the category supplied by the company. The example below shows the **Water Color** category already listed one product under it. User also can update and delete the category according to their need. There is a button function update and delete button to enable user continue the process.


To update the category information, user only need to overwrite the data in the box then save the to update the information directly. If user refused to continue, then the **Reset Form** button will replace the category information.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE		VIKING <small>ENTERPRISE</small>
Briefing Inventory Options User Options Supplier Options View Option Search Options		Thursday, 24 October 2002 11:52:38 AM
Please confirm your delete request- The product Scissors (13) still contains styles.		News and Updates
<input type="button" value="Delete Category"/>		<ul style="list-style-type: none"> • Integrated IMS and Accounting System will be release on December 2002. • The IMS system patch to upgrade to IMS 1.05 to download click here
IMS: Inventory Administration		Web Search Link
BluePaint Sdn. Bhd. P.O.Box 525 Kobusak, 89500 Penampang, Kota Kinabalu		<ul style="list-style-type: none"> • Google Search • Yahoo Search • MSN Search • BlueHippo Search • Highway61 Search
Category	Scissors	Malaysian Today News
Description	Test by John	<ul style="list-style-type: none"> • Berita Harian • Utusan Malaysia • The Star • New Street Times • Nanyang Siang Pau
<input type="button" value="Save Changes"/> <input type="button" value="Delete Category"/> <input type="button" value="Reset Form"/>		* Web page best view on 600 x 800 display
Product <ul style="list-style-type: none"> • Rx • Add New Product 		
Supplier Page Administration Page		

To delete the category, user can carry out by clicking the **Delete Category** button. There will be a prompt button appeared in the top of the page to confirm the deleting process.

Within the page, user also can add new product by clicking the **Add New Product** menu.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE	
Home Inventory Options User Options Supplier Options View Option Search Options	
<p>IMS: Inventory Administration</p> <p>BluePaint Sdn. Bhd. P.O.Box 525 Kobusak, 89500 Penampang, Kota Kinahalu</p>	
Category	Water Color
Description	Color Paint
Save Changes	Delete Category Reset Form
<p>Product</p> <ul style="list-style-type: none"> • Staedler • Add New Product 	
Supplier Page Administration Page	


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* Web page best view on 600 x 800 display


Adding a new product will be the same with filling new category where user needs to fill the information need to the product i.e. product name, description, cost price, retail price and uploading an image. The example below is a product **Staedler** information displayed with its image and transaction record.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

Business | Inventory Options | User Options | Supplier Options | View Option | Search Options

DMS: Inventory Administration

BluePaint Sdn. Bhd.
P.O.Box 525 Kobusak, 89500 Penampang, Kota Kinabalu

Category: Water Color
 Product: Stoedler
 Description: Water Color
 Cost Price (RM): 1.80
 Retail Price (RM): 2.90
 Available Stock: 420 Unit
 Image:  Upload new file

Transaction List

No.	Time / Date	Admin	Transaction	In	Out	Balance
1	01:19am, 02 Sep 2002		test	400	0	400
2	01:22am, 02 Sep 2002		Sent to Tambunan Branch	20	0	420

• [New Transaction](#)

[Back to Category](#) | [Back to Supplier](#) | [Administration Page](#)

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- [Nanyang Siang Pau](#)


• Web page best view on 600 x 800 display

User also can update and delete the product information. To update the product information, user directly changes the data from the textbox and then **Click** the **Save Changes** button to update the product information.

To upload a new image for the product, user need to **click** the **Browse...** button beside **Upload new file** box. A **Choose File Windows** will appear, which user can select the file from the directory. Click the **Open** button after selecting the related file and **Save** the change to update the product information.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)


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BMS: Inventory Administration

BluePaint Sdn. Bhd.
P.O.Box 525 Kobusak, 89500 Penampang, Kota Kinabalu

Category: Scissors
 Product: Rex Scissors
 Description: 4" scissors cutter

Cost Price (RM): 0.85
 Retail Price (RM): 2.20
 Available Stock: Warning this product is out of Stock.

Image

Upload new file: C:\img\scissors\18366_0 Browse...

[Back to Category](#) | [Back to Supplier](#) | [Administration Page](#)

Choose file

Look in: \scissors

18366_Q10-9450-LH	814_37049696
18366_Q11-100005	814_94169696
370_738401	814_94589696
370_ACM41513	814_FSK98827797
370_FSK2107	
814_34529696	

File name: 18366_Q11-100005


Files of type: Pictures (*.gif, *.jpg)

* Web page best view on 600 x 800 display

To delete the product information, user Click the delete button and the system will prompt confirmation button to proceed deleting process. Clicking the Delete Product button will permanently delete the product information including its transactions record.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)


 Thursday, 24 October 2002 11:52:38 AM

BMS: Inventory Administration

BluePaint Sdn. Bhd.
P.O.Box 525 Kobusak, 89500 Penampang, Kota Kinabalu

Please confirm your delete request- The product of Rex Scissors (83).

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 • [Google Search](#)

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 • [Integrated IMS and Accounting System will be release on December 2002.](#)
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Adding and withdrawal product stock can be done in transaction page. By type in the amount of addition or withdrawal stock and the transaction description in the appropriate box, transactions will successfully recorded after clicking the **Submit Transaction** button.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: Inventory Administration

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Transaction Calculator

Available Stock 420

Add Stock

Withdrawal Stock

Transaction Description

Date: 12:09pm, 24 Oct 2002

Admin User:

Description

[Product Main Page](#) | [Admin Page](#)

- The successful transaction will prompt the message as the image below.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

Inventory Administration System: Transaction

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Transaction Test by John by on 12:10pm, 24 Oct 2002 has been Successfully Recorded

[Back to Product Menu](#) | [Admin Page](#)

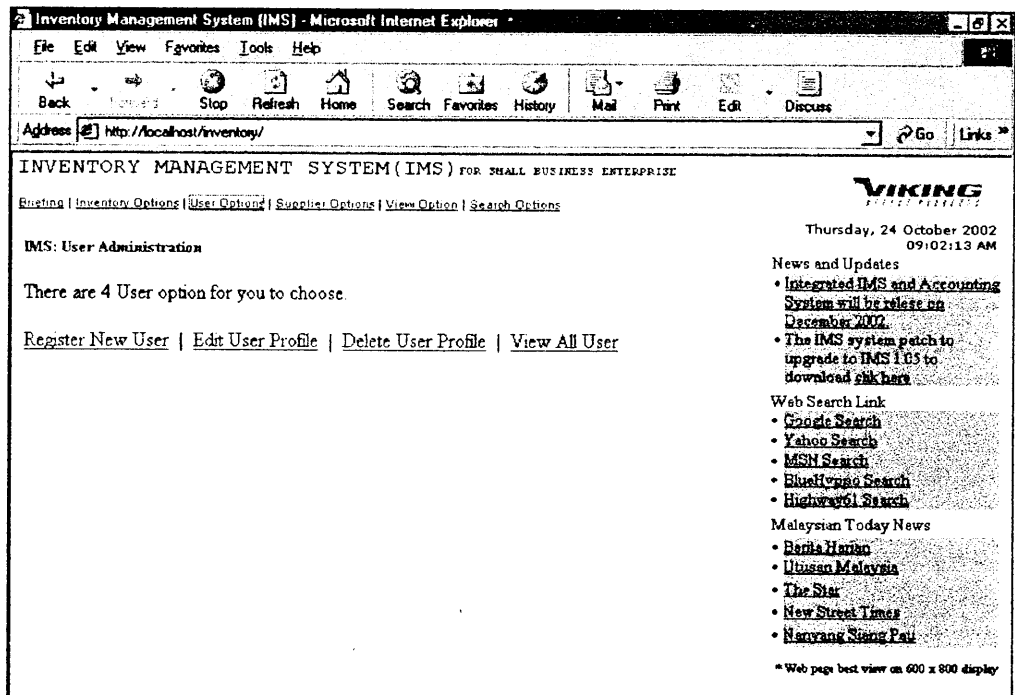
That would end the inventory menu option. User can go through or repeat the same step to access the other product information.

4.3 User Options

User Options provides 4 menus to access the user functions;

- User Registration
- User Update
- User Delete, and
- User View

Below is the interface for User Options, its list out 4 menus above with a **Register New User, Edit User Profile, Delete User Profile and View All User.**



Here is a short briefing regarding to the 4 user functions:

Register New User	- Add-in new user record into the system's database.
Edit User Profile	- Update the user data from the system's database.
Delete User Profile	- Remove existing user record permanently from system.
View All User	- Retrieve and view all the available user in the system.

4.3.1 User Registration


If users click the **Register New User**, a new blank **User Registration Form** will be displayed. Filling all the information is not necessary, but it is recommended to do so. There is a minimum requirement to fill the user data, user need to key in at least the **User ID, User Name and Contact No.** record to obtain the user registration.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE		VIKING SOFTWARE	
Home Inventory Options User Options Supplier Options View Option Search Options		Thursday, 24 October 2002 09:02:13 AM	
IMS: User Administration		News and Updates • Integrated IMS and Accounting System will be release on December 2002 • The IMS system patch to upgrade to IMS 1.05 to download click here	
There are 4 User option for you to choose.		Web Search Link • Google Search • Yahoo Search • MSN Search • BlueHippo Search • Highway61 Search	
Register New User Edit User Profile Delete User Profile View All User		Malaysian Today News • Berita Harian • Utusan Malaysia • The Star • New Street Times • Nanyang Siang Pau	
User Registration Form			
User ID*	<input type="text"/>	* Web page best view on 600 x 800 display	
User Name*	<input type="text"/>		
LC No.	<input type="text"/>		
Job Title	<input type="text" value="Manager"/>		
Contact No.*	<input type="text"/>		
e-mail Address	<input type="text"/>		
Mail Address	<input type="text"/>		
City	<input type="text"/>		
Postcode	<input type="text"/>		
* Required to fill the form			

Below is the example of new user registration record to the IMS system database.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE		VIKING SOFTWARE	
Home Inventory Options User Options Supplier Options View Option Search Options		Thursday, 24 October 2002 09:02:13 AM	
IMS: User Administration		News and Updates • Integrated IMS and Accounting System will be release on December 2002 • The IMS system patch to upgrade to IMS 1.05 to download click here	
There are 4 User option for you to choose.		Web Search Link • Google Search • Yahoo Search • MSN Search • BlueHippo Search • Highway61 Search	
Register New User Edit User Profile Delete User Profile View All User		Malaysian Today News • Berita Harian • Utusan Malaysia • The Star • New Street Times • Nanyang Siang Pau	
User Registration Form			
User ID*	<input type="text" value="omartin"/>	* Web page best view on 600 x 800 display	
User Name*	<input type="text" value="Oliver Martin"/>		
LC No.	<input type="text" value="123456-00-0000"/>		
Job Title	<input type="text" value="Workers"/>		
Contact No.*	<input type="text" value="000-0000000"/>		
e-mail Address	<input type="text" value="omartin@yahoo.com"/>		
Mail Address	<input type="text" value="No. 3, Jalan 13 Tam Ungku, 89008 Keningau, Sabah"/>		
City	<input type="text" value="Keningau"/>		
Postcode	<input type="text" value="89008"/>		
* Required to fill the form			


If you have entered the required information and save to the system, the message below will prompt you the successful registration.

<p>INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE</p> <p>Home Inventory Options User Options Supplier Options View Option Search Options</p>		
<p>IMS: User Administration</p> <p>There are 4 User option for you to choose.</p> <p>Register New User Edit User Profile Delete User Profile View All User</p> <p>User registration of user name: Oliver Martin IC No: 123456-00-0000 has been successfully registered!</p>		<p>Thursday, 24 October 2002 09:02:13 AM</p> <p>News and Updates</p> <ul style="list-style-type: none"> • Integrated IMS and Accounting System will be release on December 2002. • The IMS system patch to upgrade to IMS 1.05 to download click here <p>Web Search Link</p> <ul style="list-style-type: none"> • Google Search • Yahoo Search • MSN Search • BlueHippo Search • Highway01 Search <p>Malaysian Today News</p> <ul style="list-style-type: none"> • Berita Harian • Utusan Malaysia • The Star • New Street Times • Nanyang Siang Pau <p>* Web page best view on 600 x 800 display</p>

4.3.2 User Update

To Update the existing user information, click the **Edit User Profile**.

The system will show you two menus search option that is **Search User by ID** and **Search User by Name**. You can select either one of it to search the user profile you want to edit.

<p>INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE</p> <p>Home Inventory Options User Options Supplier Options View Option Search Options</p>		
<p>IMS: User Administration</p> <p>There are 4 User option for you to choose.</p> <p>Register New User Edit User Profile Delete User Profile View All User</p> <ul style="list-style-type: none"> • Search User by ID • Search User by Name 		<p>Thursday, 24 October 2002 09:02:13 AM</p> <p>News and Updates</p> <ul style="list-style-type: none"> • Integrated IMS and Accounting System will be release on December 2002. • The IMS system patch to upgrade to IMS 1.05 to download click here <p>Web Search Link</p> <ul style="list-style-type: none"> • Google Search • Yahoo Search • MSN Search • BlueHippo Search • Highway01 Search <p>Malaysian Today News</p> <ul style="list-style-type: none"> • Berita Harian • Utusan Malaysia • The Star • New Street Times • Nanyang Siang Pau <p>* Web page best view on 600 x 800 display</p>

- Type the **User ID** in the user id box.
- Click the **Find User by ID** button to begin the search.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

Please enter User ID!

User ID

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If you choose to search by using User Name:

- Enter the name of user to the user name box and,
- Click **Find User by Name** button to start the searching.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

Please enter User Name!

User Name

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You can enter a minimum key as a single character like 'a' to begin the search, the system will search any of the record containing the character of 'a' and display the list of appropriate user.

The search of Oliver Martin using **ID key 'omartin'** will list information of **User ID, Name, Job Title and Contact Number**. Click the linked **User ID** to view the editing form.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

Business | Inventory Options | User Options | Supplier Options | View Option | Search Options



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IMS: User Administration

There are 4 User option for you to choose

Register New User | Edit User Profile | Delete User Profile | View All User


Search User ID Key: **omartin**

No.	User ID	Name	Job Title	Contact
1.	omartin	Oliver Martin	Workers	000-0000000

- Edit the data needed through **Edit User Profile Form** and Click the **Update User Profile** button to save the changes.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

Business | Inventory Options | User Options | Supplier Options | View Option | Search Options



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IMS: User Administration

There are 4 User option for you to choose

Register New User | Edit User Profile | Delete User Profile | View All User

Edit User Profile Form

User ID:

User Name:

I.C No.:

Job Title:

Contact No.:

e-mail Address:

Mail Address:

City:

Postcode:

The successful message will show if the update successfully done.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

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Malaysian Today News

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IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

User Profile of user name: Oliver Martin IC No: 123456-00-0000 has been successfully Update!

4.3.3 User Delete

To delete the user existing user profile permanently from the database,

- Click the **Delete User Profile** link button.
- The page will show you the search option and select either one to search user.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

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IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

- [Search User by ID](#)
- [Search User by Name](#)

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- Type the keyword to the search box and **click** the Find button to begin the search.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

Please enter User ID!

User ID

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- The system will display you the result in the user list and click the appropriate user to view its information.
- Press the **Delete User** button and **Click** the **Confirm Delete User Profile** button to confirm the deleting process in the **Confirmation Page**.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

Are you sure to delete User Profile ID: omartin Name: Oliver Martin?

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- The successful message will be display if system has removed the record permanently.

4.3.4 User Viewing

There are three views option that you can select in the User Viewing Option.

- [View User by Title](#)
- [View User by City](#)
- [View User by Name](#)

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

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IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

- [View User by Title](#)
- [View User by City](#)
- [View User by Name](#)

- To **View User by Title**, click the linked sentence.
- There is a drop down menu display **User Title**, choose title you want to display, and
- **Click View User** button.

INVENTORY MANAGEMENT SYSTEM(IMS) FOR SMALL BUSINESS ENTERPRISE

[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

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IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

Please Select User Title!

User Title:

- Manager
- Local User**
- Workers
- Supplier
- Customer
- Technician
- Secretary
- Programmer
- Administration
- Web Designer

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The result will show you the list of user, which holds the title as below,

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IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

View User By Title: Workers

No.	User ID	Name	Job Title	Contact
1.	omartin	Oliver Martin	Workers	000-0000000

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To **View User by City**, click the linked sentence. System will automatically generate a list of user according to their city address. The viewing user 'View User by Name' would be similar where system generates a list of user sorted by their name.

INVENTORY MANAGEMENT SYSTEM(IMS) FOR SMALL BUSINESS ENTERPRISE

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IMS: User Administration

There are 4 User option for you to choose.

[Register New User](#) | [Edit User Profile](#) | [Delete User Profile](#) | [View All User](#)

View User Orderd By Name

No.	User ID	Name	Job Title	Contact
1.	flo5594	Florence Masikong	Manager	019-8012534
2.	johnkoh	Jonathan Lakoh	Administration	019-4271015
3.	jus	Juis Epi	Customer	019-8823610
4.	kambrin	Kambrin Kambang	Local User	019-8862112
5.	omartin	Oliver Martin	Workers	000-0000000

4.4 Supplier Options

The **Supplier Options** was actually a duplicate function for **User Options**, all the step and function are similar. The different only is the table referred and information need in for the options. So you can understand the step and function unconsciously after read trough the User Options Manual.

There are four supplier option that user can choose;

- Register New Supplier
- Edit Supplier Profile
- Delete Supplier Profile, and
- View All Supplier

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Business](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

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IMS: Supplier Administration

There are 4 supplier option for you to choose

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

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Each option performs the specific task as below;

Register New Supplier	- Add new supplier into the system.
Edit Supplier Profile	- Update supplier information.
Delete Supplier Profile	- Remove permanently from the system database.
View All Supplier	- List the entire supplier available from the system's database.

4.4.1 Register New Supplier

To register the new supplier;

- Click the **Register New Supplier** link. The new supplier registration form will be display
- Enter the information needed, at least fill the required information to the field given.
- Then **Click the Register Supplier** button.

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IMS: Supplier Administration

There are 4 supplier option for you to choose.

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

Supplier Registration Form

Supplier Code:

Supplier Name:

Manager:

Phone No.:

Fax No.:

Mail Address:

City:

Postcode:

* Required to fill the form

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- The registration will be successful if the message appears after you submit the registration form.

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IMS: Supplier Administration

There are 4 supplier option for you to choose.

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

Supplier registration of Supplier name: Masro Jaya Sdn. Bhd. has been successfully registered!

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4.4.2 Edit Supplier Profile

To edit the supplier profile;

- Click the [Edit Supplier Profile](#) link.
- Page will display two search options and select one to search either by **Search Supplier by Code** or **Search Supplier by Name**.

INVENTORY MANAGEMENT SYSTEM(IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: **Supplier Administration**

There are 4 supplier option for you to choose.

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

Please enter Supplier Code!

Supplier Code

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- Click the **Find Supplier** button after key in the search supplier in the **Supplier Code** search box.
- System will list out the search result according to the typed keyword.

INVENTORY MANAGEMENT SYSTEM(IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: **Supplier Administration**

There are 4 supplier option for you to choose.

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

Search Supplier ID Key: masrojaya

No.	Supplier Code	Supplier Name	Manager	Phone
1.	masrojaya	Masro Jaya Sdn. Bhd.	Masikong Mahuk	019-785885

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- Click the linked **Supplier Code** to view the entire supplier information.

- Edit the supplier information and Click the **Update Supplier Profile** button to update the supplier information.

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IMS: Supplier Administration

There are 4 supplier option for you to choose.

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

Edit Supplier Profile Form

Supplier Code

Supplier Name

Manager

Phone No.

Fax No.

Mail Address

City

Postcode

News and Updates

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- The success message will be display if the updating process goes smoothly.

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IMS: Supplier Administration

There are 4 supplier option for you to choose.

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

supplier Profile of supplier name: Masro Jaya Sdn. Bhd. has been successfully Update!

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You can edit others supplier profile by repeating the same step from beginning.

4.4.3 Delete Supplier

To remove user profile permanently from the system database;

- Click the **Delete Supplier Profile** link, and then choose the search options to search the proper supplier information.
- The search step is same with the edit supplier option. Key in the keywords, click the Search button then the system will produce a list of supplier according to keywords search.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

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IMS: Supplier Administration

There are 4 supplier option for you to choose.

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

Search supplier ID Key:

No.	Supplier Code	Supplier Name	Manager	Phone
1.	masrojaya	Masro Jaya Sdn. Bhd.	Masikong Maluk	019-785885

- Click the linked **Supplier Code** to view the supplier profile and press the Delete button to perform the deleting process.
- A confirmation message will appear and click the Confirm Delete Supplier Profile if you are sure to erase the supplier information from database.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

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IMS: Supplier Administration

There are 4 supplier option for you to choose.

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

Are you sure to delete Supplier Profile ID: 9 Name: Masro Jaya Sdn. Bhd.?

As usually, system will display a successful message if the deleting process o.k.

4.4.4 View All Supplier

Two viewing option available in View All Supplier;


- View Supplier by City, and
- View Supplier by Name.

Both viewing will produce same result but **View Supplier by City** will sort the list ordered by city origin to the supplier address and **View Supplier by Name** will sort the result ordered by supplier name.

Below is the example of the result list of **Supplier Ordered by City**.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

Briefing | Inventory Options | User Options | Supplier Options | View Option | Search Options



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IMS: Supplier Administration

There are 4 supplier option for you to choose.

[Register New Supplier](#) | [Edit Supplier Profile](#) | [Delete Supplier Profile](#) | [View All Supplier](#)

View Supplier Orderd By City

No.	Supplier Code	Supplier Name	Manager	City
1.	sabahpaper	Sabah Paper Sdn. Bhd. (Keningau Branch)	Jonathan	Keningau
2.	juhanisent	Juhanis Enterprise	Juhanis Empilis	Keningau
3.	ksenterpnse	Keningau Stationary Enterprise	Osman Jinur	Keningau
4.	fancypaper	FancyPaper Ent	Chua Meng Tai	Keningau
5.	bluepaint	BluePaint Sdn. Bhd.	Chia Choo Fung	Penampang
6.	masrojaya	Masro Jaya Sdn. Bhd.	Masikong Mahuk	Penampang

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4.5 View Options

There are four option that user can choose in View Options;

- Product Out of Stock
- Product In Big Amount
- Product by Category
- Product by Supplier

INVENTORY MANAGEMENT SYSTEM(IMS) FOR SMALL BUSINESS ENTERPRISE

Home | Inventory Options | User Options | Supplier Options | View Option | Search Options



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IMS: View Options

There are 4 view option that you can select to view the product.

[Product Out of Stock](#) |
 [Product In Big Amount](#) |
 [Product By Category](#) |
 [Product By Supplier](#)

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The description for the four view options above typed as listed below;


Product Out of Stock	- View of product if the product stock was empty or zero (0).
Product In Big Amount	- Show the most highest inventory store in the system.
Product by Category	- Show the product list according to the product category.
Product by Supplier	- Show the product list according to its supplier.

4.5.1 View Product Out of Stock

To view product, which is out of stock, you only **click** the **Product Out of Stock** linked page and the system will generate a list of product from the system that is out of stock.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)






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IMS: View Options

There are 4 view option that you can select to view the product.

[Product Out of Stock](#) | [Product In Big Amount](#) | [Product By Category](#) | [Product By Supplier](#)

View product which is Out Of stock

No.	Product	Image	Description
1.	B5 Board		B5 size - 182.0 x 257.0 mm.
2.	Papermate		Papermate Brand - Good performance and high quality.
3.	Staedtler Pen		All type equal to same pricing cost.

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Clicking the connected product name will link you to the product information menu in Inventory Options.

4.2.2 View Product in Big Amount

Same as viewing the Product Out of Stock, System will generate a list of product information automatically.

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[Home](#) | [Product Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)



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





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[Product Out of Stock](#) | [Product In Big Amount](#) | [Product By Category](#) | [Product By Supplier](#)

View Product which holding big Amount Of Stock

No.	Product	Image	Description
1	A4 Size		Paper Size 840.0 x 1188.0mm. Available in blue, red, white, green and yellow. Call for other colors
2	Blue Glossy Paper		Size in A4 270.0 x 297.0mm
3	Inoya		SSS
4	Kilometrico Pen		All type of bullet pen counted to same price cost. Promotion Buy 36 box kilometrico pen FREE one box
5	Manoro Pen		Japan's new technology
6	Stardler		Water Color

Pressing the connected name will show full information about the product.

4.5.3 View Product by Category

This page will view the product according to its category. System will list you a category obtainable from the system database. The result will show as an image below.

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IMS: View Options

There are 4 view option that you can select to view the product

[Product Out of Stock](#) | [Product In Big Amount](#) | [Product By Category](#) | [Product By Supplier](#)

View Product According to Category List

- [A4 Paper](#)
- [Cheap Board](#)
- [Pen & Pencil](#)
- [Liquid Paper](#)
- [Water Color](#)
- [Manila Card](#)
- [Funding Tape](#)
- [Glossy Paper](#)
- [Pen](#)
- [Scissors](#)

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Having one of available category will list you the product fall under it as image below.

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

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[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

Inventory Management System: View Product

Product Category: Pen & Pencil
Description: Sell all category of pen
Supplier: [Juharis Enterprise](#)

No.	Product	Description	Image	Retail	Stock
1	Kilometric Pen	All type of bullet pen counted to same price cost. Promotion Buy 36 box kilometric pen FREE one box.		0.70	77
2	Staedtler Pen	All type equal to same pricing cost		0.70	No Stock

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The page also shows the product category name, its category description and supplier. This viewing also enable user to see the product image in the list.

4.5.4 View Product by Supplier

The view product by supplier page will create a supplier list similar to the **Inventory Options** supplier list in its first page. The example image has shown as below.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: View Options

There are 4 view option that you can select to view the product

[Product Out of Stock](#) | [Product In Eq. Amount](#) | [Product By Category](#) | [Product By Supplier](#)

View Product According to Supplier List

- [Sabah Paper Sdn. Bhd. \(Keningau Branch\)](#)
- [Juhanis Enterprise](#)
- [Keningau Stationary Enterprise](#)
- [BluePaint Sdn. Bhd.](#)
- [FancyPaper Ent.](#)

[Search Option Page](#) | [Administration Page](#)

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A list of category listed in every supplier page accessible from the system database.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: View Options

Juhanis Enterprise

No. 8 Kg. Keningau, 89007 Keningau, Sabah

Category List	Description
Pen & Pencil	Sell all category of pen
Liquid Paper	All brand available

Thursday, 24 October 2002 10:57:03 AM

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This link forward you to the product list according to the category as an image in **View by Product**.

4.6 Search Options

Three search options provides by this page.

- Search Product
- Search Supplier
- Search User

The **Search Supplier** and **Search User** are similar with the complete search in each **User** and **Supplier Options**. So you will noticed the function will be the same and also the flow of page command.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

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[Briefing](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: Search System

There are 3 search option for you to choose

[Search Product](#) | [Search Supplier](#) | [Search User](#)

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The explanation of each menu explained in the table below.

Search Product	- Find existing product information in system's database.
Search Supplier	- Find existing supplier information in system's database.
Search User	- Find existing user profile in system's database.

4.6.1 Search Product

The Search Product function provides you two-search option.

- Search Product by ID, and
- Search Product by Name.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: Search System

There are 3 search option for you to choose.

[Search Product](#) | [Search Supplier](#) | [Search User](#)

- [Search Product by ID](#)
- [Search Product by Name](#)

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To Search Product by Name is alike with Search Product by ID, example below show you to search product by name;

- Click the Search Product by Name link menu.
- Enter the product keyword in the Product Name search box.
- Click the Find Product by Key button to begin the search.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: Search System

There are 3 search option for you to choose.

[Search Product](#) | [Search Supplier](#) | [Search User](#)

Please enter your Product Keywords!

Product Name

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You will find a list of product according to the keyword you entered as an image below. The same step goes with the **Search Product by ID**.

INVENTORY MANAGEMENT SYSTEM(IMS) FOR SMALL BUSINESS ENTERPRISE

Briefing | Inventory Options | User Options | Supplier Options | View Option | Search Options

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IMS: Search System

There are 3 search option for you to choose

[Search Product](#) | [Search Supplier](#) | [Search User](#)

Search Product Keyword: pen

No.	Product	Description	Cost (RM)	Supplier	Stock
1.	Kilometric Pen	All type of bullet pen counted to same price cost. Promotion Buy 36 box kilometric pen FREE one box.	0.56	Juharis Enterprise	77
2.	Staedler Pen	All type equal to same pricing cost.	0.59	Juharis Enterprise	No Stock
3.	Mamoro Pen	Japan's new technology	4.90	BluePaint Sdn Bhd	1000

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4.6.2 Search Supplier

Search Supplier gives you also two-search menu.

- Search Supplier by ID, and
- Search Supplier by Name

INVENTORY MANAGEMENT SYSTEM(IMS) FOR SMALL BUSINESS ENTERPRISE

Briefing | Inventory Options | User Options | Supplier Options | View Option | Search Options

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IMS: Search System

There are 3 search option for you to choose.

[Search Product](#) | [Search Supplier](#) | [Search User](#)

- [Search Supplier by ID](#)
- [Search Supplier by Name](#)

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Alike the Search Product function;

- Click either **Search Supplier by ID** or **Search Supplier by Name**.
- **Enter** the supplier keywords in the search box given and click the **Find** button to begin the searching.
- The system will produce a result list of supplier as below; **Click** the linked **Supplier Code** to view its information.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

IMS: Search System

There are 3 search option for you to choose

[Search Product](#) | [Search Supplier](#) | [Search User](#)

Search Supplier Code: bluepaint

No.	Code	Name	Description	Phone
1.	<u>bluepaint</u>	BluePaint Sdn Bhd.	P. O.Box 525 Kobusak, 89500 Penampang, Kota Kinabalu	088- 958773

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4.6.3 Search User

This third search option **Search User** also present two-search function, similar to search function in User Options present;

- Search User by Id, and
- Search User by Name.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

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IMS: Search System

There are 3 search option for you to choose

[Search Product](#) | [Search Supplier](#) | [Search User](#)

- [Search User by ID](#)
- [Search User by Name](#)

To begin search,

- Either **Search User by ID** or **Search User by Name** chooses your option.
- **Enter** your user key words in text field given.
- Press **Find User by Name** button to start searching.

INVENTORY MANAGEMENT SYSTEM (IMS) FOR SMALL BUSINESS ENTERPRISE

[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

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IMS: Search System

There are 3 search option for you to choose

[Search Product](#) | [Search Supplier](#) | [Search User](#)

Please enter your User Name!

User Name

- System will produce you a list of user as the keywords given. The result example show as below.

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[Home](#) | [Inventory Options](#) | [User Options](#) | [Supplier Options](#) | [View Option](#) | [Search Options](#)

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IMS: Search System

There are 3 search option for you to choose

[Search Product](#) | [Search Supplier](#) | [Search User](#)

Search User ID Key:

No.	User ID	Name	Job Title	Contact
1.	juis	Juis Epil	Customer	019-8823610
2.	johnlikoh	Jonathan Likoh	Administration	019-4271015

- Repeat the step from beginning to search for another user profile.

Services and Support Solution

Currently Service and Support Information is not available from the system itself. But instead of that, we give an optional support to the system via Technical and, personal support for installation and maintaining the system.

5.1 Technical Support

The system offers several email address to give you a support services. For any further information or inquiries you can email to this address as the system developer and person responsible to IMS system at;

Jonathan Likoh – johnlikoh@yahoo.com

Or by postal mail at

Jonathan Likoh Juis

P.O.Box 1091, 89008 Keningau,

Sabah.

Phone: 087-391461

Hand Phone: 013-8734423 / 019-4271015

We will soon publish a WebPages to carry the solution of any IMS System problems and error. Thanks for choosing the IMS System as your inventory management application.