

**ELECTRONIC MANAGEMENT OF DOCUMENT AND ASSETS**

**(A Case Study of Goals Integrated Consults Ltd)**

**By**

**OYETOLA 'YEMI ABRAHAM**

**PGD/MCS/2007/1239**

**IN PARTIAL FULFILMENT OF THE AWARD OF THE POST GRADUATE  
DIPLOMA (PGD) IN COMPUTER SCIENCE**

**SUBMITTED TO  
DEPARTMENT OF MATHEMATICS/COMPUTER SCIENCE  
SCHOOL OF SCIENCE AND SCIENCE EDUCATION  
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA  
NIGER STATE**

**APRIL, 2009**

## DECLARATION

I Oyetola 'Yemi Abraham, hereby declare that this project has been composed by me and it's an original record of research work. Reference numbers, marks and sources specifically acknowledged.



Signature

Oyetola 'Yemi Abraham



Date

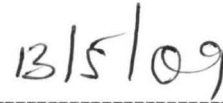
## CERTIFICATION

This is to certify that this project work was carried out by Oyetola 'Yemi Abraham of the department of Mathematics and Computer Science, School of Science and Science Education, Federal University of Technology, Minna.



---

**Mrs. A. T. Cole**  
**Supervisor**



---

**Date**

---

**Dr. N. I. Akinwande**  
**H. O. D.**

---

**Date**

## **DEDICATION**

This work is dedicated to Christ Yesterday, Today and Forever and to every member  
of OYETOLA's FAMILY



## ACKNOWLEDGEMENT

To the Alfa and Omega, my maker and my God, who gave me life to be part of this programme and in HIM I have found favour.

Also, I wish to thank my Supervisor, Mrs. A. T. Cole for her guidance and patience in leading me through this work, The Head of Department Dr. N. I. Akinwande and all the lecturers of Maths/Computer department.

I wish to thank my parents W0II and Mrs V. P. Oyetola, for all your love, advice and support. My Uncle, Sponsor and Guardian Dr. E. B. Oyetola and my nephew Stevie.

Furthermore, I wish to appreciate my wonderful fiancé, Ojo Tolulope, you're just a missing part of me, found and always appreciated.

Not to forget my class family, Omolara Odedele(mother), Dangunduro Sunday(Baba), Ruth Anjo(Suit Heart), Patrick, Sesan, Niyi, we will meet again in life.

Lastly, the best family on earth, Mrs. Bola, Mr & Mrs Sunday Ayoola, Mr & Mrs Omotosho, Mr & Mrs George Oyetola, Mr & Mrs Ayeni, Mr & Mrs Segun Oyetola, Adutu andy, to my nephews and nieces Toyosi, Kemi Emmanuel, Joshua, Shalom, Big Paul, Big Ruth, Paul, SharonRose, Pretty Ruth and David. I LOVE YOU ALL.

## LIST OF TABLES

Table 3.1	Pass Section	24
Table 3.2	Document Upload	24
Table 3.3	Asset Registration	25

## LIST OF FIGURES

Figure 3.1	Pass Screen	19
Figure 3.2	The Main Menu	20
Figure 3.3	the document upload section	21
Figure 3.4	View Document	21
Figure 3.5	Assets registration	22
Figure 3.6	Assets Management	23

## TABLE OF CONTENT

Title page	i
Declaration	ii
Certification	iii
Dedication	iv
Acknowledgement	v
Table of content	vi
List of Tables	viii
List of Figures	ix
Abstract	x

### Chapter one (Aims, limit and importance)

1.0	Introduction	1
1.1	Aims and objectives	2
1.2	Research methodology	3
1.2.1	Java Programming Language	3
1.2.2	Why Java	4
1.2.3	Significant Features of the Language	4
1.3	scope of study	6
1.4	limitations	6
1.5	importance of study	6
1.6	definitions of terms	7

### Chapter two (Literature Review)

2.0	Introduction	9
2.1	Computer Historical Background	9

2.2	Information Communication Technology in Nigeria	12
2.3	Challenges in Computerization	13
2.3.1	Computer Literacy/ Education	13
2.3.2	Poor State of Power Generation	13
2.4	Brief History of the Internet	14
2.5	The Web Browsers	15
2.6	Goals Integrated Consults limited	16

### **Chapter three (System Analysis and Design)**

3.1	Analysis of Existing system	17
3.1.1	Merits of the existing system	17
3.1.2	Demerits of the existing system	17
3.2	The proposed system	18
3.3	System Design	19
3.3.1	Pass Section	19
3.3.2	Main Menu	20
3.3.3	The Document Manager	21
3.3.4	Document View	21
3.3.5	Assets manager Menu	22
3.3.6	The Manage Assets	22
3.3.7	Report Menu	23
3.3.8	The User's Administration Menu	23
3.3.9	Log out	24
3.4	Input design	24
3.5	System Flowchart	25

## **Chapter four (Systems Development and Implementation)**

4.1	System Development	26
4.2	System implementation	27
4.3	System Requirement	27
4.3.1	Hardware Requirement	27
4.3.2	Software requirement	28
4.4	Installing, loading and Running the Software	28
4.5	Users' Manual	29

## **Chapter five (Summary, Recommendation and Conclusion)**

5.1	Summary	30
5.2	Recommendations	30
5.2	conclusions	31

References

Appendix A - code

## **ABSTRACT**

This project work “Electronic Management of Document and Assets” focuses on the improvement of a case study “Goals Integrated Consults Limited” in order to face the challenges of the organization in areas like, efficiency, quality services, speed and accuracy, less time consumption at processing of data and most of all security of data and storage for retrieval of it, all these confront most organization today. This project work proposed the use of electronic way of keeping and sending data via a browser, which encrypts the data at sending and decrypts it at retrieval to improve security, works through the internet. The software was designed using JAVA for the phase design, scientific functions and MySQL server as the database engine and Apache TomCat.

## CHAPTER ONE

### 1.0 INTRODUCTION

Documents are so important to the life of a man or an organization; it could be his source of income, his entire life (certificates of merit) and his assets so dear to him because that is all you call him, he will protect, cherish it and keep it. A man lives accumulating wealth, knowing not what to do with it, is a poor man because he does not have an idea of himself, his worth and a man that does not know himself is half dead.

This project is targeted mainly towards having a record of assets and document of a company, organization or even an individual. Also, to be able to access, view, work on and return back to its initial start point from anywhere in the world. Knowing the asset of a company at any point in time makes the manager, Director or whosoever in charge to be able to defend, or even introduce his company, knowing fully well that he has every instruction of his company at the tip of his fingers.

Records management: Is the practice of identifying, classifying, archiving, preserving, and destroying records The International Standard Organization (ISO)15489: 2001 standard defines it as "The field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposal of records, including the processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records. The general principles of records management apply to records in any format. Digital records (almost always referred to as electronic records) raise specific issues. It is more difficult to ensure that the content, context and structure of records is preserved and protected when the records do not have a physical existence and this record are what are referred to as the company.



The advent of personal computers has transferred the responsibility of document management from central records management sections to individual employees. Computers consist of electronic devices which accept process, stores and retrieves data. A computerized document and asset system is a system in which data are collected, organized, and categorized to facilitate their preservation, retrieval, use, and disposal with the use of a computer. The main reason for computerizing documents records is to provide readily up-to-date information on every transaction between the customers and the establishment and for proper planning on every assets that the company process.

## **1.1 AIMS AND OBJECTIVES**

The primary aim of this project is to create an avenue where office documentation of records, assets management could be done electronically, to improving the speed of execution of jobs and project.

The objectives include;

1. To provide an avenue where work becomes less stressful.
2. Increases speed in execution of jobs.
3. Increasing the general output of the company.
4. Creating an avenue for the directors of the company to freely move away from the office.
5. Increasing ICT in the country and the world
6. Keeping up to the trend of today's living which is the computer world.

## **1.2 RESEARCH METHODOLOGY**

The data used were collected through the following:

1. Published books on several topics related to project topic were consulted, such include database management system, scientific programming.
2. Oral or written interviews were conducted. Several people were consulted including the users of the existing systems in different organizations.
3. Some information were also gotten from the public information media like television.

### **1.2.1 Java Programming Language**

Java programming language, MySQL and Apache Tomcat were used to achieve the desired Software.

Java is a programming language originally developed by Sun Microsystems and released in 1995 as a core component of Sun's Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to byte code which can run on any Java virtual machine (JVM) regardless of computer architecture.

The original and reference implementation Java compilers, virtual machines, and class libraries were developed by Sun from 1995. As of May 2007, in compliance with the specifications of the Java Community Process, Sun made available most of their Java technologies as free software under the GNU General Public License. Others have also developed alternative implementations of these Sun technologies, such as the GNU Compiler for Java and GNU Class path.

## **1.2.2 Java Programming Language**

The choice of the programming language came up from the abilities and function possessed by the language, which are explained below

## **1.2.3 Significant Features of the Language**

### **Platform Independence**

Platform independence, means that programs written in the Java language must run similarly on any supported hardware/operating-system platform. One should be able to write a program once, compile it once, and run it anywhere.

### **Object Orientation**

Java is a pure object-oriented language. This means that everything in a Java program is an object and everything is evolved from a root object class.

### **Rich Standard Library**

One of Java's most attractive features is its standard library. The Java environment includes hundreds of classes and methods in six major functional areas.

1. Language Support classes for advanced language features such as strings, arrays, threads, and exception handling.
2. Utility classes like a random number generator, date and time functions, and container classes.
3. Input/output classes to read and write data of many types to and from a variety of sources.

4. Networking classes to allow inter-computer communications over a local network or the Internet.
5. Abstract Window Toolkit for creating platform-independent GUI applications.
6. Applet is a class that allows you create Java programs that can be downloaded and run on a client browser.

## **Database Integration**

A database that another program links to is called a data source. Many data sources, including products produced by Microsoft and Oracle, already use a standard called Open Database Connectivity (ODBC). Many legacy C and Perl programs use Open Database Connectivity to connect to data sources. Open Database Connectivity consolidated much of the commonality between database management systems. Java Database Connectivity (JDBC) builds on this feature, and increases the level of abstraction. Java Database Connectivity and Open Database Connectivity (JDBC-ODBC) bridges have been created to allow Java programs to connect to Open Database Connectivity-enabled database software

## **Java Database Connectivity**

Java Database Connectivity (JDBC) is a programming framework for Java developers writing programs that access information stored in databases, spreadsheets, and flat files. Java Database Connectivity is commonly used to connect a user program to a "behind the scenes" database, regardless of what database management software is used to control the database. In this way, Java Database Connectivity is cross-platform. This work will provide an introduction and sample code that demonstrates database access from Java programs that use the classes of the Java Database Connectivity API, which is available for free download from Sun's website.

### **1.3 SCOPE OF STUDY**

This write up centres on promoting the speed of delivery of data, proper storage and high security, all within the reach of the client and company itself, also the fastest way of accessing the assets or the worth of a company.

The program will be equipped with features to help achieve the above listed points and also a user friendly environment for the users of the program

The program shall manage the human ware, software and hardware of the company, thereby increasing the ability of the staffs, to produce and ease their duty in a well secure environment.

### **1.4 LIMITATIONS**

In the accumulation of data during the research of this project, few set back were encountered. The first and probably the most crippling limitation was the non-availability of materials to fall back on or a typical example of such a project, so the program was centred on the maximum reach of the author.

### **1.5 IMPORTANCE OF THE STUDY**

1. Increasing the flexibility of the available information - for instance, monitoring equal opportunity issues becomes easier when document and assts can be sorted by a particular field.
2. Speeding up the provision of information
3. Producing cost benefits through administrative savings - staff time can be reduced on routine tasks

4. Legibility of record, handwritten charts are notoriously difficult to read. On-screen or printed text is often far more legible than handwriting.
5. Security of records.
6. Storing of data made easy.

## 1.6 DEFINITION OF TERMS

1. **Electronic Documents:** a subset of electronic records. They are collections of data which may be produced in the following ways: - Original output (typically created as a text document, small database, spreadsheet, or graphics) - A combination of existing data (which may be extracted from databases, text files, e-mail, etc.)
2. **Electronic Information System:** a system that contains and provides access to computerized records and other information.
3. **Electronic Records:** records that are in machine-readable form. Electronic records may be any combination of text, data, graphics, images, video or audio information that is created, maintained, modified or transmitted in digital form by a computer or related system.
4. **Records Security:** refers to protecting records from unauthorized access. Security policies will establish safety for records. A firewall is hardware and software buffers so that there is protection to the computer network from outside the business. Passwords, digital signatures, encryption, and a call-back system are also forms of records security.
5. **Electronic Recordkeeping System:** an electronic system in which records are collected, organized, and categorized to facilitate their preservation, retrieval, use, and disposition.
6. **Recordkeeping Systems:** are distinguished from information systems by links to activities they document and their ability to preserve and provide access to the content, structure, and context of the records. Long term, a period of time greater than ten years.
7. **Non-Record Material:** includes library and museum material made or acquired and preserved solely for reference or exhibition purposes, extra copies of documents preserved only for convenience of reference, and stocks of publications and of processed documents.
8. **Object-oriented language** - This means that everything in a program is an object and everything is descended from a root object class.

9. **Database** – it is the collection of data
10. **SQL** – Structured Query Language
11. **GPL** - General Public License.
12. **JDBC** - Java Database Connectivity is a programming framework for Java developers writing programs that access information stored in database, etc

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

Information is an important basic resource in today's society. It could be seen as data, raw facts or observation that has been put into meaningful and useful context. This gives the information value for specific persons and meets their particular information needs. Thus information is a basic resources that individuals and organizations must have to survive and succeed in today's society (O' Brien, 1990)

The term "document" is a general one, often having the same meaning as files; now has broader implications. Certain documents may contain sorts of files, credentials, proposals, company's profile etc, and assets is what the company has, what really makes the company. A man assets is his worth and this may include computers, lorries, etc. One important thing to note is purpose for which they were established and that their goals be accomplished through the facilities they provide (Shoyemi 1998).

### 2.1 Computer Historical Background in Nigeria

It is on record that the electronic digital computer made its first appearance in Nigeria in 1963, in connection with the analysis of the 1962/63 national census data. In the 10 years between 1963 and 1973, the total computer population in the country stood at 20-25, with 6 or so of these being associated with the multinational companies. By 1977 the total number of installations had grown to around 70. It was by this time that many universities, government departments, and parastatal, organizations, including the West African Examinations Council (WAEC), the Joint Admissions and Matriculation Board (JAMB), the National Electric Power Authority (NEPA), the Nigerian Ports Authority (NPA), and the Federal Office of Statistics, as well as many banks and commercial firms, began to show interest in computers.



Up to 1977 there were only three computer vendors in Nigeria. They were JCL, IBM, and NCR, and all three were the local subsidiaries of overseas computer manufacturers dealing almost entirely with mainframes and minicomputers. In 1977, the government promulgated the indigenization decree, which set apart some categories of industrial activity exclusively for participation by Nigerian nationals, while stipulating a minimum of Nigerian interest in others. One of the three original vendors, IBM, did not want to comply with the decree, choosing instead to pull out of the country.

The decree produced two other important effects. First, there was an influx of indigenous vendors in the computer business. Secondly, the keener competition in the industry led to more aggressive marketing policies. As a result, the number of computer installations in the country rose sharply. Whereas 39 computers were installed in 1975-1977, 1978-1980 witnessed the addition of 197 new installations. There were 149 new installations in 1981-1983, and a further 99 in 1984-1986. Already by the end of 1982, the price of crude oil was beginning to drop sharply in the spot market; and this marked the beginning of the foreign exchange debacle and the attendant import restrictions.

Computerization has been most widespread in the area of financial management, including payroll, accounts, general ledger, sales, and invoicing. In fact the accounting task is frequently the motivation for installing the computer in the first place. More than 80 per cent of computer installations are used in this way. There are also many instances of companies that have not installed computers but have their accounts and payroll batch-processed on a bureau computer owned by a vendor or an agency. A reasonable estimate is that more than 50 per cent of all Nigerian industry is using computers for accounting, either in-house by their own DP staff, or with the help of external computer agencies. The software used for this

purpose is usually a commercial software product. The companies often do not have expert systems analysts; there may be one or two programmers to maintain the software.

Some firms are reluctant to use a computerized invoicing and billing system. The usual reason given for this is the fear of fraud. In this regard, the public perception of the NEPA and NITEL computerized billing systems as being fraught with absurd errors as well as being often hopelessly inaccurate has not helped to win public confidence.

The Federal Office of Statistics (FOS) has conducted periodic but unpublished censuses of computer installations in Nigeria; the latest of these gives the position at the end of 1984. Published computer statistics began to appear in 1983 when the first edition of the Nigerian Computer Users' Directory (NCUD) was published.

The introduction of information technology to developing countries inevitably has major consequences for public administration, yet there has been little research on the issues involved. In the area of personnel management, there is a requirement for computerized personnel information systems which are workflow-based and text-based. Such systems have been developed in a number of African countries and some work has been done on paper-based personnel records.

To date these initiatives have been carried out largely in isolation from one another, and there has been little attempt to link the paper and automated approaches despite the fact that the same resource is being managed. These linkages are fundamental to the effective management of personnel information Piers Cain and Anne Thurston (1997).

During the 1980s and 1990s most of the countries in sub-Saharan Africa have experienced economic hardship and have participated in structural adjustment programmes, often as part of conditionality for loans from the Breton Woods institutions. Structural

adjustment typically includes a civil service reform programme as a key element. Since the 1980s, Countries like Ghana, Uganda and Zimbabwe have all implemented structural adjustment programmes with varying degrees of success, Piers Cain and Anne Thurston (1997).

## **2.2 Information Communication Technology in Nigeria**

Information Communication Technology came into existence in most of the African countries through research institutions, educational institutions, or international organizations like the World Bank, UNDP, USAID, WHO, etc. In 1993 most provinces, Aimaks in Mongolia were provided with personal computers funded by the WHO with the goal to support the health services in the country (Braa et al., 1995).

The first Information Communication Technology initiative in Nigeria started in the 1950s with focus on print and electronic media. No major policy or other outcome was achieved because of strict government control. The full awareness of the importance of ICTs was absent. Only the private sector demonstrated ICT initiatives (Emadoye, 2002). The Obasanjo administration in 2001 established the National Information Technology Development Agency (NITDA) to serve as a bureau for the implementation of National Policy on Information Technology. NITDA is trying to increase the Internet penetration levels in Nigeria but the agency's focus is not on health care delivery systems (Emadoye, 2002).

## **2.3 Challenges in Computerization**

Computerization, especially in the developing countries, is fraught with challenges. This is also the case with Nigerian organizations. Some of these factors include the following:-

### **2.3.1 Computer Literacy / Education**

Many members of the staff of an organization are not computer literate. This is a great setback in computerization. Many of them are reluctant to jettison their old mindset which resists change. Many are conservative and traditional, and suffer computer phobia. Research results show that, although the uses of electronic information increases job satisfaction, confidence, and the effectiveness of employees, librarians for example lack technical expertise and this can be very frustrating (Edward, et al, 1995).

There is also a lack of technical support. Only one member of staff is formally trained to initiate, develop, implement, and maintain computerized applications in the entire human resources department. Those who had been trained gain only limited, or no access, to the packages in which they had been trained this also extends other staff in the organization.

### **2.3.2 Poor State of Power Generation**

Regular power generation remains a problem in Nigeria. Frequent power outages constitute a serious bottleneck to automation. The cost of running generating plants is prohibitive.

## 2.4 A Brief History of the Internet

In the 1950s and early 1960s, prior to the widespread inter-networking that led to the Internet, most communication networks were limited by their nature to only allow communications between the stations on the network. Some networks had gateways or bridges between them, but these bridges were often limited or built specifically for a single use. One prevalent computer networking method was based on the central mainframe method, simply allowing its terminals to be connected via long leased lines. This method was used in the 1950s by researchers such as Herbert Simon, in Pittsburgh, Pennsylvania, when collaborating across the continent with researchers in Sullivan, Illinois, on automated theorem proving and artificial intelligence.

A fundamental pioneer in the call for a global network, J.C.R. Licklider, articulated the ideas in his January 1960 paper, Man-Computer Symbiosis. "A network of such [computers], connected to one another by wide-band communication lines [which provided] the functions of present-day libraries together with anticipated advances in information storage and retrieval and [other] symbiotic functions." In October 1962, Licklider was appointed head of the United States Department of Defense's Advanced Research Projects Agency, now known as DARPA, within the information processing office. There he formed an informal group within DARPA to further computer research. As part of the information processing office's role, three network terminals had been installed: one for System Development Corporation in Santa Monica, one for Project Genie at the University of California, Berkeley and one for the Compatible Time-Sharing System project at the Massachusetts Institute of Technology (MIT). Licklider's identified need for inter-networking would be made obviously evident by the problems this caused. "For each of these three terminals, I had three different sets of user commands. So if I was talking online with

someone at S.D.C. and I wanted to talk to someone I knew at Berkeley or M.I.T. about this, I had to get up from the S.D.C. terminal, go over and log into the other terminal and get in touch with them. I said, it's obvious what to do (But I don't want to do it): If you have these three terminals, there ought to be one terminal that goes anywhere you want to go where you have interactive computing.

## **2.5 The Web Browsers**

A web browser is a software application which enables a user to display and interact with text, images, videos, music and other information typically located on a Web page at a website on the World Wide Web or a local area network. Text and images on a Web page can contain hyperlinks to other Web pages at the same or different website. Web browsers allow a user to quickly and easily access information provided on many Web pages at many websites by traversing these links. Web browsers format Hypertext Mark-up Language (HTML) information for display, so the appearance of a Web page may differ between browsers.

Some of the Web browsers currently available for personal computers include Mozilla Firefox, Safari, Konqueror, Opera, Flock, Internet Explorer, Epiphany and AOL Explorer. Web browsers are the most commonly used type of Hypertext Transfer Protocol (HTTP) user agent. Although browsers are typically used to access the World Wide Web, they can also be used to access information provided by Web servers in private networks or content in file systems.

## **2.6 Goals Integrated Consults Limited**

Goals Integrated Consults, is a multi-project executing company, the company came into existence some few years back, 2002. The head office at Port Harcourt with two sub

offices at Ilorin and Kaduna and an upcoming one in Minna, due to innovation and the kind of projects handled by the company which consists of three (3) Directors and a CEO, who are graduates from different fields, joined together but are at different locations of the globe. The company is into different kind of construction work, computer sales and supplies, quarry business, electrical wiring of domestic and commercial buildings etc

Each of the directors is a signatory to any approved project, being in different place pose the problem of sending proposal and works through DHL and other speed post travellers of which , there could either be delay or before the proposal gets to the destination he may be out to another destination thereby causing loss of vital documents.

Looking into the problem of sending files, proposals through DHL, the new system was developed to meet the urgent need of the company, thereby shunting the long process of work approval by the use of a program that connects all the directors of the company and it is highly secured, as security is the most important of it.

## **CHAPTER THREE**

### **SYSTEM ANALYSIS AND DESIGN**

#### **3.1 Analysis of the Existing System**

According to the directors, secretaries interviewed, the process is being carried out manually on paper and stored in filing cabinets within the company's reach and proposal are being kept till all directors come in town or they are sent through public transport, or through Speed Post or chattered through flight to neighbouring towns, then through public transport to the required destination and comes back the same way to the sender.

##### **3.1.1 Merits of the Existing System**

- It is relatively easy to set up as no technical expertise is required.
- Increases employment

##### **3.1.2 Demerits of the Existing System**

The following under listed points were discovered about the existing system and all these brought about the proposed system;

- Mostly, company's files are not well kept. Storage rooms are often overcrowded and security inadequate.
- Files cannot be retrieved without a major search being launched. This results in large amounts of staff time being wasted.
- Indexing procedures are not always in place and file tracking systems are often lacking.
- There is a tendency for duplicate files.



- Poor report generating techniques, usually occur
- risk of life

### **3.2 The Proposed System**

Upon the examination of the problems of the existing system used by the organization, a system to solve these problems and introduce extra functionality to the company is being introduced into their document and assets management sector. The proposed system has the following characteristics and merits:

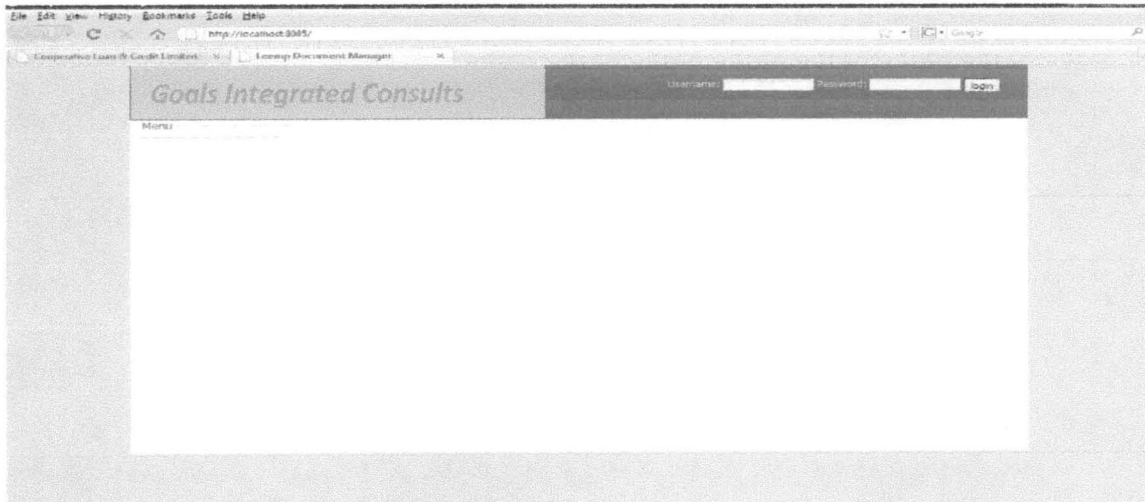
- Will be based on a microcomputer or personal computer
- All relevant information will be stored in a Structured Query Language (SQL) database on the PC
- Will provide an easy to use interface that allows the following operations:
  - Easy storage of new documents and information
  - Easy to update information
  - Easy to retrieve information about from customers and their individual assets by querying the database
- Eliminates the possibility of security breaches by requiring the use of usernames and password before information can be accessible or updated
- Ability to create reports on the company or any customer at any point in time and anywhere in the world.
- Less cost in the process of signing and approving proposals.
- Reduces unwanted staff.

### 3.3 System Design

With the findings from the system analysis, the next step would be the provision of solution to these problems. This stage involves the process or art of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements.

#### 3.3.1 Pass Section

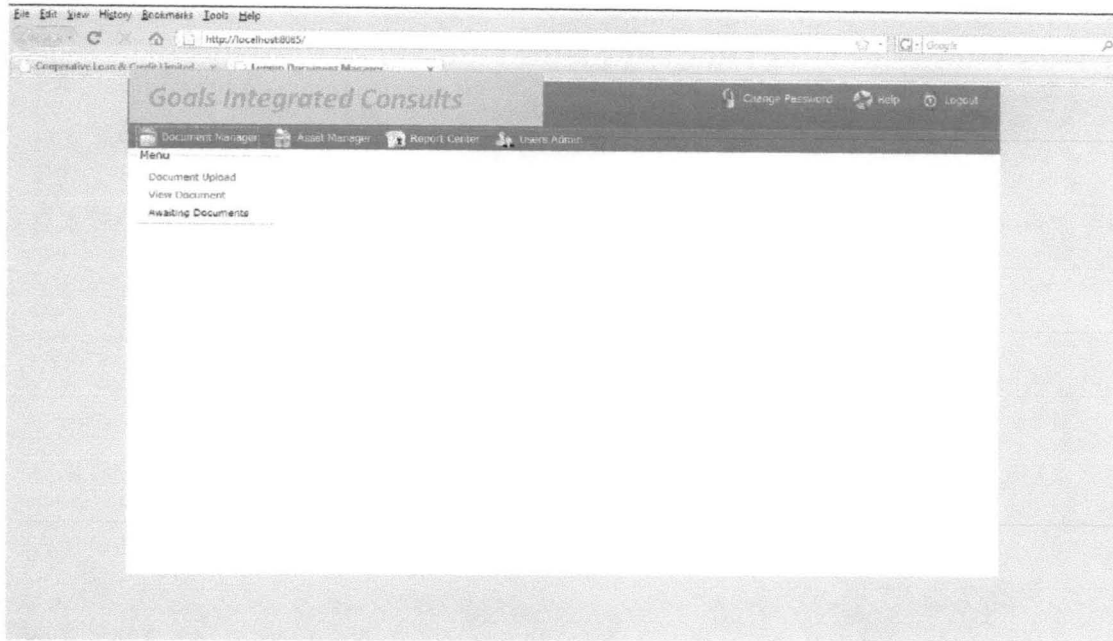
In order to improve the security of the program a password section is being introduced of which the user will have to input a **USER NAME** and a **PASSWORD** before he could gain access to use the program and files on the program.



**Figure 3.1: Pass Screen**

### 3.3.2 Main Menu

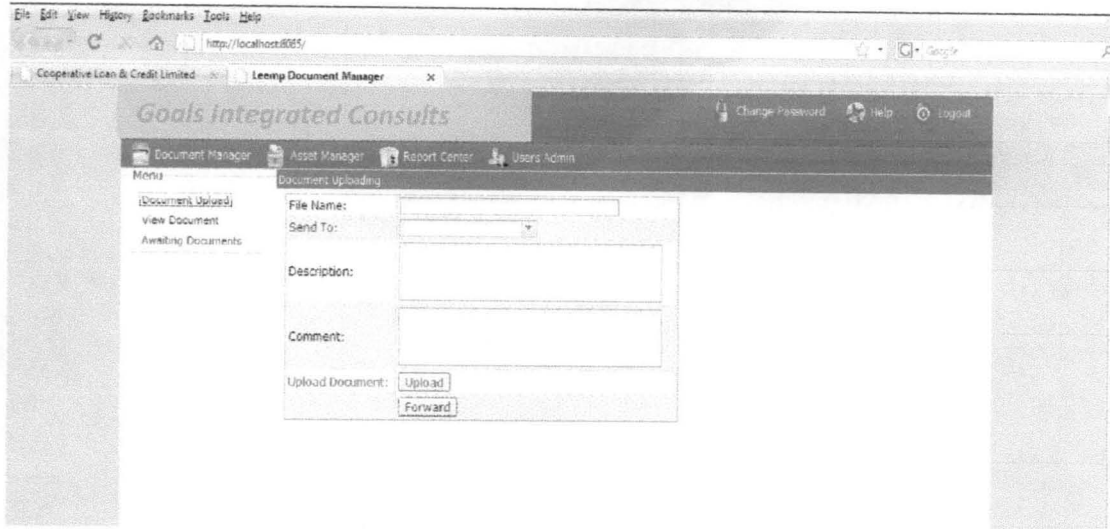
The main menu of this project consists of four basic sections namely: document manager, Assets manager, report center and Users Admin, as shown in figure 3.2 below.



**Figure 3.2: The Main Menu**

### 3.3.3 The Document Manager

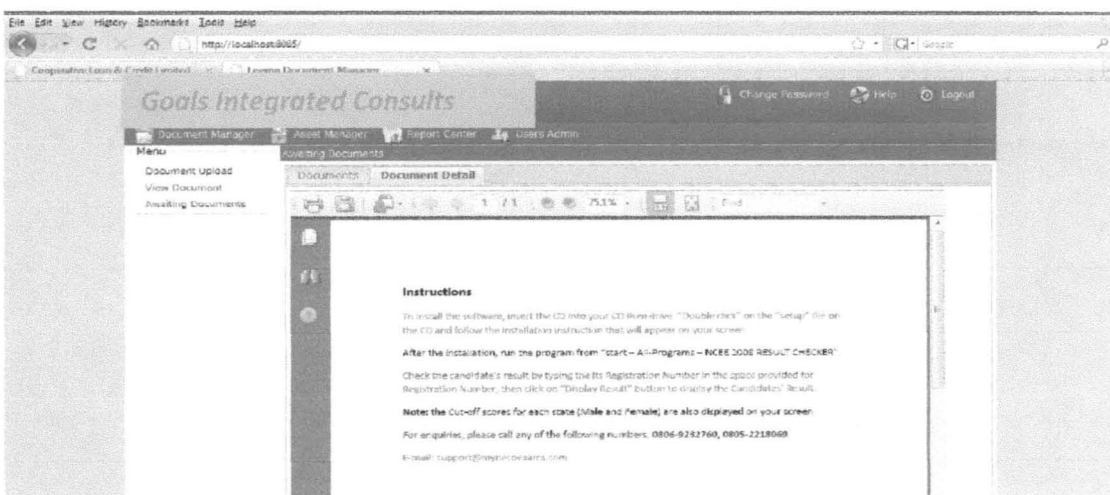
This section consists of three sub menu, Document Upload, View Document and Awaiting document. This section is where files to be sent are being uploaded and also could be view. It also serves as an alert for the recipient user that there are files awaiting him. To upload the file the following must be specified, file name, whom you are sending the document to, description of the document and your comment on that particular document, then the upload button will be clicked and then forwarded. Figure 3.3 below shows



**Figure 3.3: The Document upload section**

### 3.3.4 Document view

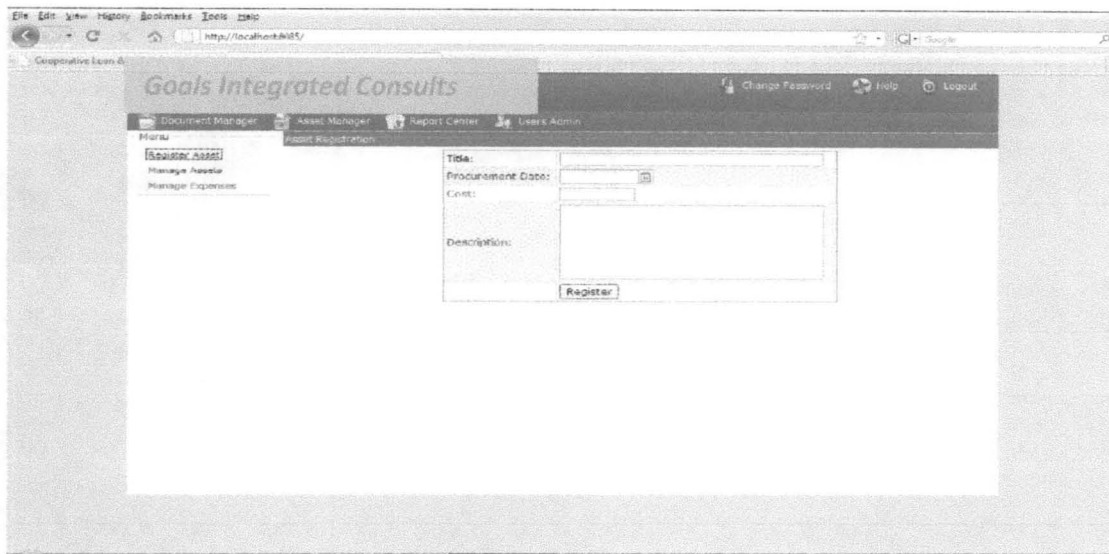
This is another sub menu, as mentioned above, where you can see what has been sent to you from the other end, on the click of the button “view document” it brings out the project, as shown below in figure 3.4.



**Figure 3.4: View Document**

### 3.3.5 The assets manager Menu

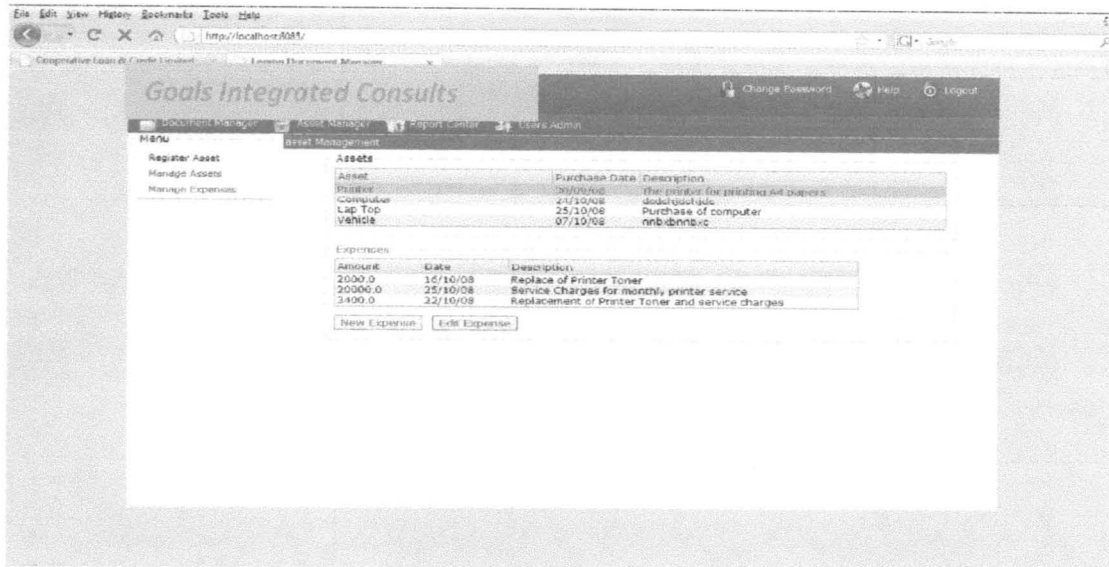
This section has three sub menus, Register Assets, Manage Assets and Manage expenses. The register assets sub menu is where all assets of the company will be registered into the database of the program, for reference, adjustments and reports. To register you specify the following, title, procurement date, cost and description after which the register button is being clicked. Figure 3.5 below.



*Figure 3.5: Assets Registration*

### 3.3.6 The Manage Assets

The manage assets is the second section after you might have registered , you can now work on a particular asset, specifying all expenses that is on it and can even see those that has been on it before and everything saved to the database, basically like a comprehensive short note on that particular asset. Likewise the manage expenses which deals with all that has been spent to keep that assets in shape and functional. The figure 3.6 below shows the assets manager.



**Figure 3.6: Assets management**

### 3.3.7 The Report Menu

This is a very important section where all the work done or the database of a particular section is being viewed as softcopy and also sent to the printer to be printed out as hard copy. This is the comprehensive details of what the program is all about. Output are attached under appendix B.

### 3.3.8 The users administration menu

This is where you specify who the users of the program are suppose to be and a little about them. The extent to which a particular user can get to. Getting into the program doesn't mean one could be able to edit the database of the program, therer are restriction at almost every level to boast the security of the program.

### 3.3.9 Log out

For every user that goes through the pass section, the exit way is to logout by clicking the button on the right top corner of the form, so that unauthorised users will not gain access.

### 3.4 Input Design

The new system is designed to accept input from various input devices like the keyboard, mouse joystick USB flash, scanner, cameras etc and transfer it into the database created for the storing of input and processed data. The Structure Query Language (SQL) is the Database Management System (DBMS) stores documents and assets registered already from the program. The database designs have the following tables below:

**Table 3.1: pass section**

Field Name	Data Type
Password	Alphanumeric

**Table 3.2: Document upload**

Field Name	Data Type
File Name	Alphanumeric
Send to	Alphanumeric
Description	Text
Comment	Text

**Table 3.3: Assets Registration**

<b>Field Name</b>	<b>Data Type</b>
Title	Alphanumeric
Procurement date	Date and Time
Cost	Numeric
Description	Text

### **3.5 System Flowchart**

This is a diagrammatic representation or graphical representation of the program. It shows the basic logic behind the system. This gives the programmer a general idea of what he is aiming at. This shows the overall operation in the proposed system, in a pictorial format.

“The proposed system at a glance”



## CHAPTER FOUR

### SYSTEM DEVELOPMENT AND IMPLEMENTATION

#### 4.0 SYSTEMS DEVELOPMENT

System development is a crucial part of any software development. It is a complicated process, as it requires careful planning and execution to meet the goals. Different phases in this development process include the actual writing of code, preparation of requirement and objectives, the design of what is to be coded and confirmation that what is developed has met objectives. Before system development methods came into existence, the development of new systems or products was often carried out by using the experience and intuition of management and technical personnel. However, the complexity of modern system and computer products long ago made the need clear for some kind of orderly development process. The development processes are:-

- a. Stage I: Feasibility study: It can be defined as a set of given system proposal according to its workability, impact on the organization, ability to meet the user needs and effective users of resources.
- b. Stage II: System Analysis: This is detailed study of the various operations performed by a system and their relationship within and outside the system.
- c. Stage III: System Design: This stage describes a final system and the process by which it is developed. It refers to the specification that will be applied in implementing the new system.
- d. Stage IV: System Development: This next phase involves the purchase of appropriate computer hardware and software as well as the development and testing of new software.

- e. Stage V: System Implementation: This stage is less creative than system design. It is primarily concerned with user training, site preparation and file conversion.
- f. Stage VI: System Evaluation: The system is reviewed to determine whether it is meeting its objectives and is performing the tasks as expected. This is the final phase in the system development life cycle (Process).
- g. Stage VII: System Documentation: this is the last stage and final to the software design, where you will have to make documentation, user guide and manuals for the work.

## **4.2 SYSTEM IMPLEMENTATION**

System implementation is that stage of system development that deals majorly with user training, site preparation and file conversion. This is the stage that actually follows the testing stage, which means the project has been accepted and will be used either in place of the old system or will run concurrently with it

## **4.3 System Requirement**

The system requirements could be divided into two, namely hardware and software requirements.

### **4.3.1 Hardware Requirement**

For effective and efficient utilization of this application the hardware intended for usage should at least have the following configurations:-

- A hard disk with at least 3 Gigabytes of free space
- A monitor
- 256mb of RAM minimum

- Minimum processor speed of 1500MHz
- At least one CD-ROM drive (for installations).
- A mouse and Keyboard.
- A DeskJet printer.
- a UPS or
- a laptop computer (Pentium M, 1G RAM, Dual Core processor, with touch screen)

#### **4.3.2 Software Requirement**

Java programs are platform independence which means that the same version of software can be used on different platforms that supports java. This implies that the software would perform well on both window based operating systems like windows 98 or higher versions as well as operating systems such as Linux and java owned Solaris.

SQL should be installed on the computer system, so that output could be viewed and adjusted easily, as the database of the system depends on it.

#### **4.4 INSTALLING, LOADING AND RUNNING THE SOFTWARE**

Windows, the most widely used operating system is a good platform for the software and also the installation of SQL and Net Bin (Java) must be done. Afterwards, the software will now be loaded either from a CD Rom or any removal disk.

Loading the software, double click the executable file and wait to follow the instructions that will pop up, most of which are straight forward. After the loading is complete, then restart the computer so that all installed files could displayed properly and compactability ensured.

At start-up, the software is on the desktop and also on the start menu, click it to load up the software.

#### **4.5 User's Manual**

Any computer user can use the program to a great extent, because it is user friendly but for advance users a little training may be required. The users manual covers all the about the software from the password section to the logout, thus

At loading of the software, the first window comes up with the;

#### **Security section**

This is a point in the program where the user needs to put in a user name and a password before access could be gained to use the software. Once the password and user name corresponds with that in the database, then the door is opened for usage, then the next window is the;

#### **The Main Menu**

At this menu the user can select options from the following

1. Document Management
2. Assets management
3. User's Admin
4. Reports

Each of which selection could still be made to their sub menus, then logout to exit from the software environment.

# GOALS INTEGRATED CONSULTS LTD

## SYSTEM AUDIT LOG

DATE	USER	ACTIONS
28/08	Goddy	Goddy registered Vehicle
9/09	Aliyu Musa Aliyu	Aliyu Musa Aliyu uploaded and forwarded document chairs to Aliyu Musa Aliyu
9/09	Goddy	Goddy registered fridge
9/09	Goddy	Goddy entered an expense information for Lap Top
9/09	Goddy	Goddy entered an expense information for fridge
10/09	Goddy	Goddy registered 111
10/09	Goddy	Goddy entered an expense information for fridge
10/09	Goddy	Goddy entered an expense information for fridge
10/09	Goddy	Goddy entered an expense information for Printer
10/09	Goddy	Goddy entered an expense information for Printer
30/09	Goddy	Goddy entered an expense information for Computer
30/09	Goddy	Goddy entered an expense information for Computer
30/09	Goddy	Goddy entered an expense information for Computer
30/09	Goddy	Goddy uploaded and forwarded document 1111111 to Aliyu Musa Aliyu
30/09	Goddy	Goddy uploaded and forwarded document wewewe to Aliyu Musa Aliyu
30/09	Aliyu Musa Aliyu	Aliyu Musa Aliyu entered an expense information for Computer
30/09	Aliyu Musa Aliyu	Aliyu Musa Aliyu entered an expense information for Computer
30/09	Aliyu Musa Aliyu	Aliyu Musa Aliyu entered an expense information for Vehicle
30/09	Aliyu Musa Aliyu	Aliyu Musa Aliyu entered an expense information for Vehicle
30/09	Aliyu Musa Aliyu	Aliyu Musa Aliyu entered an expense information for Vehicle
30/09	Aliyu Musa Aliyu	Aliyu Musa Aliyu entered an expense information for Vehicle
30/09	Goddy	Goddy uploaded and forwarded document mimim to Aliyu Musa Aliyu
30/09	Goddy	Goddy uploaded and forwarded document Questionier to Aliyu Musa Aliyu
30/09	Goddy	Goddy uploaded and forwarded document tteyetyee to Aliyu Musa Aliyu

# GOALS INTEGRATED CONSULTS LTD

## EXPENDITURE REPORT

<b>Date</b>	<b>Amount</b>	<b>DESCRIPTION</b>
4/6/09	23000.0	new tyres
4/7/09	5000.0	wheel balancing
4/16/09	45000.0	fueling to kano
4/17/09	33000.0	power steering

# GOALS INTEGRATED CONSULTS LTD

## EXPENDITURE REPORT

Date	Amount	DESCRIPTION
10/10/08	2000.0	Replace of Printer Toner
10/25/08	20000.0	Service Charges for monthly printer service
10/22/08	3400.0	Replacement of Printer Toner and service charges
4/28/09	12000.0	Tonner refill
4/24/09	2200.0	catridges replacement
10/24/08	2000.0	hjdshhdsh
10/24/08	3000.0	cbdsds
3/31/09	4.5454646E7	new board
4/15/09	3400000.0	new processor
4/20/09	1200.0	screen
4/15/09	2300.0	power park
4/29/09	23000.0	power cable
10/25/08	1000.0	purchase of bag
4/7/09	1.2E7	hp laptop
4/6/09	23000.0	new tyres
4/7/09	5000.0	wheel balancing
4/16/09	45000.0	fueling to kano
4/17/09	33000.0	power steering
4/6/09	560000.0	qd iuriuir r
4/9/09	23000.0	new compressor
4/14/09	1200.0	per-

# GOALS INTEGRATED CONSULTS LTD

## DOCUMENT ACTIONS REPORT

	From	To	Comment/Action
8	Aliyu Musa Aliyu	Goddy	testing
8	Goddy	Aliyu Musa Aliyu	take necessary action on this file



## **CHAPTER FIVE**

### **SUMMARY, RECOMMENDATIONS AND CONCLUSIONS**

#### **5.1 Summary**

In chapter one, a general introduction of the design and implementation was made. A discussion on the problems, scope and limitations of the research was also done; so many reasons were also given to justify the work.

In chapter two, a review of related research works done with a manual method of keeping files, document or sending it for approval by speed post etc. The history of Goals Integrated Consults, Port Harcourt was also given.

In chapter three, a good analysis of the existing system was done, starting with the system review, the problems of the existing system. The design of a proposed system with new input/output parameters was proposed, choice of programming language and reasons for picking that choice, the program interfaces were also presented

In chapter four, the implementation and documentation program designed was stressed, and a discussion about the result obtained.

With all features possessed by the developed software, it is obvious to say, a great change will be made, incorporated with speed, ease of work and accuracy as well as creating a heart for our data (storage) and an improvement of the ICT of the entire environ.

#### **5.2 Recommendations**

Following how unquestionable advancement of the introduction of reliability, speed and efficiency into the new system, it is therefore recommended that Goals Integrated

Consults, Port Harcourt management should adopt the use of this system, so as to improve their management , document and assets in this generation of ours.

The company should also make provision for an internet ready environment, to ease the work.

Also, provision of training on computer and related fields should be encourage both on the directors and all other staff, they are all useful and they make up the environment for the use of the system.

### **5.3 Conclusions**

It is important to note that the use of computer base information in any organization, especially in documents is very important for efficient, fast and accurate processing of the necessary data for the overall objective of the organization as a whole. Such importance can only be achieved, if this computer based information system is incorporated into any organization where this information system meets their requirements.

Clear is the short comings of the manual system of the organization, it carries along so many difficulties, misplacement of data, delay in processing, fraud etc, on like the new system which addresses these problems, in a more considerable way.

But sorry to say, with all the campaign of the computer based environment, so to say, many of our organizations are still using the comfortable with the manual system of operation.

## REFERENCES

Ayeni K. James (2001), "An introduction to computer fundamentals", Nathdex Printers, Ilorin

Afolabi, M. (1991). Education and Training Achieves and Records Managers in Africa. *Annual Conference of the Society of Nigeria Archivists*, 17. May. p 61 - 7.

Awagu Emeka Obiorah (2007), "Internet Enabled Student Results Processing and Accessibility", FUT Minna, Minna, Niger State

Braa et al (1995), "The Design and Analysis of Spatial Data Structures", Addison-Wesley Publishing Ltd, USA.

Britannica 2009, encyclopedia

Idowu et al, 2003, "Introduction to system analysis and design", McAuthur Press

Microsoft Student Encarta 2008, USA.

O'Brien, James A.(1990), "Management Information System" IRMIN Homewood, Boston

Piers Cain and Anne Thurston (1997), History of Computer, 3<sup>rd</sup> Edition Kings Press, London

Shafi'i M. A. (2008), Lectures Note on "Database Management System", FUT Minna, Minna, Niger State , Unpublished.

Ubeku A. K. (2002) "Personnel Management in Nigeria", 4<sup>th</sup> Edition Macmillan Ibadan.

# **Appendix A**

## **Program Code**

# **Appendix A**

**Program Code**

\*\*\*\*\*Asset report form\*\*\*\*\*

```
<?xml version="1.0" encoding="UTF-8"?>
<zk xmlns="http://www.zkoss.org/2005/zul">
  <window id="assetUI" apply="org.leemp.ui.AssetUI">
    <panel style="border:0;width:100%;">
      <toolbar style="border:0;background:url(css/icons/headback.png) repeat-x;">
        <label style="width:100%;color:#fff;border:0;font-size:13px;font-
family:Tahoma;height:20px;text-align:center" value="Asset Registration"/>
      </toolbar>
      <panelchildren sclass="contentbody" style="border:0px;">
        <vbox spacing="10px" style="margin:0 auto;padding-top:5px;">
          <grid style="width:450px;margin:0 auto;">
            <rows>
              <row>
                Title:<textbox id="asset" width="300px"/>
              </row>
              <row>
                Procurement Date:<datebox id="procdte"/>
              </row>
              <row>
                Cost:<doublebox id="cost"/>
              </row>
              <row>
                Description:<textbox id="desc" width="300px" multiline="true" rows="6"/>
              </row>
              <row>
                <label/><button id="assetBTN" label="Register"/>
              </row>
            </rows>
          </grid>
        </vbox>
      </panelchildren>
    </panel>
  </window>
</zk>
```

\*\*\*\*\*Asset management form\*\*\*\*\*

```
<?xml version="1.0" encoding="UTF-8"?>
<zk xmlns="http://www.zkoss.org/2005/zul">
  <window id="assetUI" apply="org.leemp.ui.AssetsUI">
    <panel style="border:0;width:100%;">
      <toolbar style="border:0;background:url(css/icons/headback.png) repeat-x;">
        <label style="width:100%;color:#fff;border:0;font-size:13px;font-
family:Tahoma;height:20px;text-align:center" value="asset Management"/>
      </toolbar>
      <panelchildren sclass="contentbody" style="border:0px;">
        <vbox spacing="10px" style="margin:0 auto;padding-top:5px;">
          <groupbox style="border:1px solid #d9f5ff;">
            <caption label="Assets"/>
            <listbox id="assetList" style="width:700px;" mold="paging" pageSize="5">
              <listhead>
                <listheader label="Asset" width="250px"/>
                <listheader label="Purchase Date" width="100px"/>
                <listheader label="Description" width="350px"/>
              </listhead>
            </listbox>
          </groupbox>
        </vbox>
      </panelchildren>
    </panel>
  </window>
</zk>
```

```

<groupbox style="border: 1px solid #d9f5ff;">
  <caption label="Expenses"/>
  <vbox spacing="10px">
    <listbox id="el" style="width:600px;" mold="paging" pageSize="5">
      <listhead>
        <listheader label="Amount" width="100px"/>
        <listheader label="Date" width="100px"/>
        <listheader label="Description" width="400px"/>
      </listhead>
    </listbox>
    <hbox spacing="10px">
      <button label="New Expense" id="expenseBTN"/>
      <button label="Edit Expense" id="expenseEditBTN"/>
    </hbox>
  </vbox>
</groupbox>
</vbox>
</panelchildren>
</panel>
</window>
</zk>

```

\*\*\*\*\*document upload\*\*\*\*\*

```

<?xml version="1.0" encoding="UTF-8"?>

```

```

<zk xmlns="http://www.zkoss.org/2005/zul">
  <window id="docUI" apply="org.leemp.ui.DocumentUploadUI">
    <panel style="border:0;width:100%;">
      <toolbar style="border:0;background:url(css/icons/headback.png) repeat-x;">
        <label style="width:100%;color:#fff;border:0;font-size:13px;font-family:Tahoma;height:20px;text-align:center" value="Document Uploading"/>
      </toolbar>
      <panelchildren sclass="contentbody" style="border:0px;">
        <vbox spacing="10px" style="margin:0 auto;padding-top:5px;">
          <grid width="450px">
            <rows>
              <row>
                File Name:<textbox id="dname" width="250px"/>
              </row>
              <row>
                Send To:<combobox id="sendbox"/>
              </row>
              <row>
                Description:<textbox multiline="true" width="300px" rows="3" id="ddesc"/>
              </row>
              <row>
                Comment:<textbox multiline="true" width="300px" rows="3" id="dcomment"/>
              </row>
              <row>
                Upload Document:<button label="Upload" id="uploadBTN"/>
              </row>
              <row>
                <label/><button label="Forward" id="actionBTN"/>
              </row>
            </rows>
          </grid>
          <iframe style="width:800px;height:400px;" id="docframe"/>
        </vbox>
      </panelchildren>
    </panel>
  </window>
</zk>

```

```
</window>
</zk>
```

\*\*\*\*\*Document report form\*\*\*\*\*

```
<?xml version="1.0" encoding="UTF-8"?>
<zk xmlns="http://www.zkoss.org/2005/zul">
  <window id="reportUI" apply="org.leemp.ui.DocumentReportUI">
    <panel style="border:0;width:100%;">
      <toolbar style="border:0;background:url(css/icons/headback.png) repeat-x;">
        <label style="width:100%;color:#fff;border:0;font-size:13px;font-
family:Tahoma;height:20px;text-align:center" value="Asset Expense Report"/>
      </toolbar>
      <panelchildren sclass="contentbody" style="border:0px;">
        <tabbox>
          <tabs>
            <tab label="Documents"/>
            <tab label="Action Reports" id="rtab"/>
          </tabs>
          <tabpanel>
            <tabpanel style="width:780px;border:0;">
              <vbox spacing="10px">
                <groupbox style="border:1px solid #d9f5ff;width:400px;">
                  <grid>
                    <rows>
                      <row>
                        Status:<combobox id="docStatusBox">
                          <comboitem label="Pending" value="1"/>
                          <comboitem label="Closed" value="2"/>
                        </combobox>
                      </row>
                    </rows>
                  </grid>
                </groupbox>
                <listbox id="documentlist" style="width:600px;margin:0 auto;">
                  <listhead>
                    <listheader label="#" width="40px"/>
                    <listheader label="Document" width="210px"/>
                    <listheader label="Description" width="300px"/>
                  </listhead>
                </listbox>
                <hbox spacing="10px">
                  <button label="View Action Reports" id="reportBTN"/>
                </hbox>
              </vbox>
            </tabpanel>
            <tabpanel style="width:780px;border:0;">
              <iframe style="width:770px;height:500px;margin:0 auto;" id="reportframe"/>
            </tabpanel>
          </tabpanel>
        </tabpanels>
      </tabbox>
    </panelchildren>
  </panel>
</window>
</zk>
```



```

package org.leem.asset;

import java.io.Serializable;
import java.util.ArrayList;
import java.util.Date;
import java.util.List;
import javax.persistence.CascadeType;
import javax.persistence.Entity;
import javax.persistence.FetchType;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.OneToMany;
import javax.persistence.Temporal;

/**
 *
 * @author aliyu
 */
@Entity
public class Asset implements Serializable {
    private static final long serialVersionUID = 1L;
    @Id
    @GeneratedValue(strategy = GenerationType.AUTO)
    private Long id;
    private String name;
    @Temporal(javax.persistence.TemporalType.DATE)
    private Date purchaseDate;
    private double cost;
    private double currentValue;
    private String description;
    @OneToMany(cascade = CascadeType.ALL, fetch = FetchType.EAGER)
    private List<Expense> expenses = new ArrayList();

    public Long getId() {
        return id;
    }

    public void setId(Long id) {
        this.id = id;
    }

    @Override
    public int hashCode() {
        int hash = 0;
        hash += (getId() != null ? getId().hashCode() : 0);
        return hash;
    }

    @Override
    public boolean equals(Object object) {
        // TODO: Warning - this method won't work in the case the id fields are not set
        if (!(object instanceof Asset)) {
            return false;
        }
        Asset other = (Asset) object;
        if ((this.getId() == null && other.getId() != null) || (this.getId() != null &&
!this.id.equals(other.id))) {
            return false;
        }
    }
}

```

```

    }
    return true;
}

@Override
public String toString() {
    return "org.leemp.asset.Asset[id=" + getId() + "]";
}

/**
 * @return the name
 */
public String getName() {
    return name;
}

/**
 * @param name the name to set
 */
public void setName(String name) {
    this.name = name;
}

/**
 * @return the cost
 */
public double getCost() {
    return cost;
}

/**
 * @param cost the cost to set
 */
public void setCost(double cost) {
    this.cost = cost;
}

/**
 * @return the currentValue
 */
public double getCurrentValue() {
    return currentValue;
}

/**
 * @param currentValue the currentValue to set
 */
public void setCurrentValue(double currentValue) {
    this.currentValue = currentValue;
}

/**
 * @return the description
 */
public String getDescription() {
    return description;
}

/**
 * @param description the description to set

```

```

    */
    public void setDescription(String description) {
        this.description = description;
    }

    /**
     * @return the expenses
     */
    public List<Expense> getExpenses() {
        return expenses;
    }

    /**
     * @param expenses the expenses to set
     */
    public void setExpenses(List<Expense> expenses) {
        this.expenses = expenses;
    }

    /**
     * @return the purchaseDate
     */
    public Date getPurchaseDate() {
        return purchaseDate;
    }

    /**
     * @param purchaseDate the purchaseDate to set
     */
    public void setPurchaseDate(Date purchaseDate) {
        this.purchaseDate = purchaseDate;
    }
}

```

\*\*\*\*\*Expense\*\*\*\*\*

```

package org.leem.asset;

import java.io.Serializable;
import java.util.Date;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.Temporal;

/**
 *
 * @author aliyu
 */
@Entity
public class Expense implements Serializable {
    private static final long serialVersionUID = 1L;
    @Id
    @GeneratedValue(strategy = GenerationType.AUTO)
    private Long id;
    private double amount;
    @Temporal(value = javax.persistence.TemporalType.DATE)
    private Date expenseDate;
}

```

```

private String description;

public Long getId() {
    return id;
}

public void setId(Long id) {
    this.id = id;
}

@Override
public int hashCode() {
    int hash = 0;
    hash += (id != null ? id.hashCode() : 0);
    return hash;
}

@Override
public boolean equals(Object object) {
    // TODO: Warning - this method won't work in the case the id fields are not set
    if (!(object instanceof Expense)) {
        return false;
    }
    Expense other = (Expense) object;
    if ((this.id == null && other.id != null) || (this.id != null && !this.id.equals(other.id))) {
        return false;
    }
    return true;
}

@Override
public String toString() {
    return "org.leemp.asset.Expense[id=" + id + "]";
}

/**
 * @return the amount
 */
public double getAmount() {
    return amount;
}

/**
 * @param amount the amount to set
 */
public void setAmount(double amount) {
    this.amount = amount;
}

/**
 * @return the expenseDate
 */
public Date getExpenseDate() {
    return expenseDate;
}

/**
 * @param expenseDate the expenseDate to set
 */
public void setExpenseDate(Date expenseDate) {

```

```

    this.expenseDate = expenseDate;
}

/**
 * @return the description
 */
public String getDescription() {
    return description;
}

/**
 * @param description the description to set
 */
public void setDescription(String description) {
    this.description = description;
}
}

```

\*\*\*\*\*Document \*\*\*\*\*

```

package org.leem.facade;

import java.util.Date;
import java.util.List;
import javax.persistence.EntityManager;
import javax.persistence.Query;
import javax.persistence.TemporalType;
import org.leem.doc.Document;
import org.leem.entity.User;
import org.leem.interfaces.DocumentManager;
import org.leem.util.DocumentStatus;
import org.zkoss.zkplus.jpa.JpaUtil;

/**
 *
 *
 */
public class DocumentBean implements DocumentManager{
    private EntityManager em;

    public DocumentBean() {
        em=JpaUtil.getEntityManager();
    }

    @Override
    public void createDocument(Document doc) {
        if(doc!=null){
            em.persist(doc);
        }
    }

    @Override
    public List<Document> getAwaitingDocument(User toUser, DocumentStatus status) {
        Query q=em.createQuery("select d from Document d where d.status=:ds and d.toUser=:dt order
by d.uploadDate");
        q.setParameter("ds", status);
        q.setParameter("dt",toUser);
    }
}

```

```

    return q.getResultList();
}

@Override
public void updateDocument(Document doc) {
    if(doc!=null){
        em.merge(doc);
    }
}

@Override
public List<Document> getDocuments(DocumentStatus status) {
    Query q=em.createQuery("select d from Document d where d.status=:ds order by d.uploadDate");
    q.setParameter("ds", status);
    return q.getResultList();
}

@Override
public List<Document> getDocuments(DocumentStatus status, Date sd, Date ed) {
    Query q=em.createQuery("select d from Document d where d.status=:ds and d.uploadDate
between :sd and :ed order by d.uploadDate");
    q.setParameter("ds", status);
    q.setParameter("sd",sd,TemporalType.DATE);
    q.setParameter("ed",ed,TemporalType.DATE);
    return q.getResultList();
}

@Override
public List<Document> getDocuments() {
    throw new UnsupportedOperationException("Not supported yet.");
}
}

```

\*\*\*\*\*Login\*\*\*\*\*

```

package org.leem.facade;

import java.util.Date;
import java.util.List;
import javax.persistence.EntityManager;
import javax.persistence.Query;
import javax.persistence.TemporalType;
import org.leem.entity.Audit;
import org.leem.interfaces.AuditManager;
import org.zkoss.zkplus.jpa.JpaUtil;

/**
 *
 * @author aliyu
 */
public class AuditBean implements AuditManager{
    private EntityManager em;

    public AuditBean() {
        em=JpaUtil.getEntityManager();
    }
    @Override

```

```

public void addAudit(Audit audit) {
    em.persist(audit);
}

@Override
public List<Audit> getAudit() {
    Query q=em.createQuery("select a from Audit a order by a.actionDate");
    return q.getResultList();
}

@Override
public List<Audit> getAudit(Date date) {
    Query q=em.createQuery("select a from Audit a where a.actionDate=:adate order by
a.actionDate");
    q.setParameter("adate", date,TemporalType.DATE);
    return q.getResultList();
}

@Override
public List<Audit> getAudit(Long user) {
    Query q=em.createQuery("select a from Audit a where a.user.id=:user order by a.actionDate");
    q.setParameter("user", user);
    return q.getResultList();
}

@Override
public List<Audit> getAudit(Long user, Date sd, Date ed) {
    Query q=em.createQuery("select a from Audit a where a.user.id=:user and a.actionDate between
:sd and :ed order by a.actionDate");
    q.setParameter("sd", sd,TemporalType.DATE);
    q.setParameter("ed", ed,TemporalType.DATE);
    q.setParameter("user", user);
    return q.getResultList();
}
}

```

```

package org.leemp.renderer;

```

```

import org.leem.doc.DocAction;
import org.leem.util.DateUtil;
import org.zkoss.zul.Label;
import org.zkoss.zul.Row;
import org.zkoss.zul.RowRenderer;

```

```

/**
 *
 * @author aliyu
 */

```

```

public class ActionRenderer implements RowRenderer{

```

```

@Override
public void render(Row item, Object data) throws Exception {
    DocAction a=(DocAction) data;
    new Label(DateUtil.formatDate(a.getCommentDate())).setParent(item);
    new Label(a.getFromUser().getName()+" "+a.getFromUser().getPosition()).setParent(item);
    new Label(a.getToUser().getName()+" "+a.getToUser().getPosition()).setParent(item);
    new Label(a.getComment()).setParent(item);
}
}

```

```

    }
}

/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package org.leemp.renderer;

import org.leem.asset.Asset;
import org.leem.util.DateUtil;
import org.zkoss.zul.Listcell;
import org.zkoss.zul.Listitem;
import org.zkoss.zul.ListitemRenderer;

/**
 *
 * @author aliyu
 */
public class AssetRenderer implements ListitemRenderer {

    @Override
    public void render(Listitem item, Object data) throws Exception {
        Asset a=(Asset) data;
        new Listcell(a.getName()).setParent(item);
        new Listcell(DateUtil.formatDate(a.getPurchaseDate())).setParent(item);
        new Listcell(a.getDescription()).setParent(item);
        item.setValue(a);
    }
}

/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package org.leemp.renderer;

import org.leem.asset.Asset;
import org.leem.util.DateUtil;
import org.zkoss.zul.Listcell;
import org.zkoss.zul.Listitem;
import org.zkoss.zul.ListitemRenderer;

/**
 *
 * @author aliyu
 */
public class AssetReportRenderer implements ListitemRenderer {

    @Override
    public void render(Listitem item, Object data) throws Exception {
        Asset a=(Asset) data;
        new Listcell(String.valueOf(item.getIndex())).setParent(item);
        new Listcell(a.getName()).setParent(item);
    }
}

```



```

        new Listcell(a.getDescription()).setParent(item);
        item.setValue(a);
    }
}

/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package org.leemp.renderer;

import org.leem.doc.Document;
import org.zkoss.zul.Listcell;
import org.zkoss.zul.Listitem;
import org.zkoss.zul.ListitemRenderer;

/**
 *
 * @author aliyu
 */
public class DocumentRenderer implements ListitemRenderer{

    @Override
    public void render(Listitem item, Object data) throws Exception {
        Document d=(Document) data;
        new Listcell(String.valueOf(item.getIndex())).setParent(item);
        new Listcell(d.getName()).setParent(item);
        new Listcell(d.getDescription()).setParent(item);
        item.setValue(d);
    }
}

/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package org.leemp.ui;

import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;
import java.util.Map;
import java.util.logging.Level;
import java.util.logging.Logger;
import net.sf.jasperreports.engine.JRException;
import net.sf.jasperreports.engine.JasperCompileManager;
import net.sf.jasperreports.engine.JasperExportManager;
import net.sf.jasperreports.engine.JasperFillManager;
import net.sf.jasperreports.engine.JasperPrint;
import net.sf.jasperreports.engine.JasperReport;
import net.sf.jasperreports.engine.data.JRBeanArrayDataSource;
import org.leem.asset.Asset;
import org.leem.asset.Expense;

```

```

import org.leem.facade.AssetBean;
import org.leem.interfaces.AssetManager;
import org.leem.util.DateUtil;
import org.leem.util.ExpenseDao;
import org.zkoss.util.media.AMedia;
import org.zkoss.zk.ui.event.Event;
import org.zkoss.zk.ui.util.GenericForwardComposer;
import org.zkoss.zul.ComboBox;
import org.zkoss.zul.Comboitem;
import org.zkoss.zul.ComboitemRenderer;
import org.zkoss.zul.Datebox;
import org.zkoss.zul.Iframe;
import org.zkoss.zul.ListModelList;
import org.zkoss.zul.Window;

/**
 *
 * @author aliyu
 */
public class AssetReportUI extends GenericForwardComposer {

    private Window reportUI;
    private List<Expense> expenses = new ArrayList<Expense>();
    private List<ExpenseDao> daos = new ArrayList<ExpenseDao>();
    private List<Asset> assets = new ArrayList<Asset>();
    private Asset asset;

    public void onCreate$reportUI(Event evt) {
        reportUI = (Window) evt.getTarget();
        fillAssets();
    }

    public void onChange$assetbox(Event evt) {
        setAsset();
    }

    public void onClick$reportBTN(Event evt) {
        fillDao();
    }

    private void fillAssets() {
        AssetManager facade = new AssetBean();
        assets = facade.getAssets();
        ComboBox b = (ComboBox) reportUI.getFellow("assetbox");
        b.setModel(new ListModelList(assets));
        b.setItemRenderer(new ComboitemRenderer() {

            @Override
            public void render(Comboitem item, Object data) throws Exception {
                Asset a = (Asset) data;
                item.setValue(a);
                item.setLabel(a.getName());
            }
        });
    }

    private void fillDao() {
        AssetManager facade = new AssetBean();
        Datebox sd = (Datebox) reportUI.getFellow("sd");
    }
}

```

```

Datebox ed = (Datebox) reportUI.getFellow("ed");
expenses = facade.getAssetExpenses(asset.getId(), sd.getValue(), ed.getValue());
ExpenseDao [] ds=new ExpenseDao[expenses.size()];
int i=0;
for (Expense e : expenses) {
    ExpenseDao d = new ExpenseDao(DateUtil.formatDate(e.getExpenseDate()),
String.valueOf(e.getAmount()), e.getDescription());
    ds[i]=d;
    i++;
}
showReport(ds);
}

private void setAsset() {
    Combobox box = (Combobox) reportUI.getFellow("assetbox");
    Comboitem item = box.getSelectedItem();
    if (item != null) {
        asset = (Asset) item.getValue();
    }
}

private void showReport(ExpenseDao [] ds) {
    try {
        String path = reportUI.getDesktop().getWebApp().getRealPath("reports/expenseReport.jrxml");
        JasperReport jr = JasperCompileManager.compileReport(path);
        JRBeanArrayDataSource beans = new JRBeanArrayDataSource(ds);
        Map map = new HashMap();
        JasperPrint jp = JasperFillManager.fillReport(jr, map, beans);
        byte[] content = JasperExportManager.exportReportToPdf(jp);
        AMedia media = new AMedia("report.pdf", "pdf", "application/pdf", content);
        Iframe rp = (Iframe) reportUI.getFellow("reportframe");
        rp.setVisible(true);
        rp.setContent(media);
    } catch (JRException ex) {
        Logger.getLogger(AssetReportUI.class.getName()).log(Level.SEVERE, null, ex);
    }
}
}
}

```

```

/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

```

```
package org.leemp.ui;
```

```
import java.util.Date;
import java.util.logging.Level;
import java.util.logging.Logger;
```

```
import org.leem.asset.Asset;
import org.leem.entity.Audit;
import org.leem.entity.User;
import org.leem.facade.AssetBean;
import org.leem.facade.AuditBean;
import org.leem.interfaces.AssetManager;
import org.leem.interfaces.AuditManager;
import org.zkoss.zk.ui.event.Event;
```

```

import org.zkoss.zk.ui.util.GenericForwardComposer;
import org.zkoss.zul.Datebox;
import org.zkoss.zul.Doublebox;
import org.zkoss.zul.Messagebox;
import org.zkoss.zul.Textbox;
import org.zkoss.zul.Window;

/**
 *
 * @author aliyu
 */
public class AssetUI extends GenericForwardComposer{
    private Window assetUI;
    private Asset asset;
    private User user;

    public void onCreate$assetUI(Event evt){
        assetUI=(Window) evt.getTarget();
        asset=new Asset();
        user=(User) assetUI.getDesktop().getSession().getAttribute("user");
    }
    public void onClick$assetBTN(Event evt){
        registerAsset();
    }

    private void registerAsset() {
        try {
            Textbox name = (Textbox) assetUI.getFellow("asset");
            Textbox desc = (Textbox) assetUI.getFellow("desc");
            Doublebox cost = (Doublebox) assetUI.getFellow("cost");
            Datebox procdte = (Datebox) assetUI.getFellow("procdte");
            asset.setName(name.getValue());
            asset.setCost(cost.getValue());
            asset.setCurrentValue(cost.getValue());
            asset.setDescription(desc.getValue());
            asset.setPurchaseDate(procdte.getValue());
            AssetManager assetBean = new AssetBean();
            assetBean.createAsset(asset);
            Messagebox.show("Asset registered successfully...", "Asset registration",
Messagebox.OK,Messagebox.ERROR);
            Audit au=new Audit();
            au.setActionDate(new Date());
            au.setUser(user);
            au.setEvent(user.getName()+" registered "+asset.getName());
            AuditManager amanager=new AuditBean();
            amanager.addAudit(au);

        } catch (InterruptedException ex) {
            Logger.getLogger(AssetUI.class.getName()).log(Level.SEVERE, null, ex);
        }
    }
}

/**
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */
package org.leemp.ui;

```

```

import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;
import java.util.Map;
import java.util.Set;
import java.util.logging.Level;
import java.util.logging.Logger;
import net.sf.jasperreports.engine.JRException;
import net.sf.jasperreports.engine.JasperCompileManager;
import net.sf.jasperreports.engine.JasperExportManager;
import net.sf.jasperreports.engine.JasperFillManager;
import net.sf.jasperreports.engine.JasperPrint;
import net.sf.jasperreports.engine.JasperReport;
import net.sf.jasperreports.engine.data.JRBeanArrayDataSource;
import org.leem.asset.Asset;
import org.leem.asset.Expense;
import org.leem.facade.AssetBean;
import org.leem.interfaces.AssetManager;
import org.leem.util.DateUtil;
import org.leem.util.ExpenseDao;
import org.leemp.renderer.AssetRenderer;
import org.leemp.renderer.AssetReportRenderer;
import org.zkoss.util.media.AMedia;
import org.zkoss.zk.ui.event.Event;
import org.zkoss.zk.ui.util.GenericForwardComposer;
import org.zkoss.zul.Iframe;
import org.zkoss.zul.ListModelList;
import org.zkoss.zul.Listbox;
import org.zkoss.zul.Listitem;
import org.zkoss.zul.Window;

/**
 *
 * @author aliyu
 */
public class AssetsReportUI extends GenericForwardComposer {

    private List<Asset> assets = new ArrayList<Asset>();
    private Window reportUI;
    private List<ExpenseDao> expenses = new ArrayList<ExpenseDao>();

    public void onCreate$reportUI(Event evt) {
        reportUI = (Window) evt.getTarget();
        fillAssets();
    }

    public void onClick$reportBTN(Event evt) {
        fillDao();
    }

    private void fillAssets() {
        AssetManager facade = new AssetBean();
        assets = facade.getAssets();
        refreshAssetList();
    }

    private void fillDao() {
        Listbox l=(Listbox) reportUI.getFellow("assetlist");
        Set<Listitem> items=l.getSelectedItems();

```

```

    expenses.clear();
    for(Listitem item:items){
        Asset asset=(Asset) item.getValue();
        for(Expense e:asset.getExpenses()){
            ExpenseDao d = new ExpenseDao(DateUtil.formatDate(e.getExpenseDate()),
String.valueOf(e.getAmount()), e.getDescription());
            expenses.add(d);
        }
    }
    ExpenseDao [] ds=new ExpenseDao[expenses.size()];
    int i=0;
    for (ExpenseDao e : expenses) {
        System.out.println(e.getDescription());
        ds[i]=e;
        i++;
    }
    showReport(ds);
}

private void refreshAssetList() {
    Listbox l = (Listbox) reportUI.getFellow("assetlist");
    l.setModel(new ListModelList(assets));
    l.setItemRenderer(new AssetReportRenderer());
}

private void showReport(ExpenseDao[] ds) {
    try {
        String path = reportUI.getDesktop().getWebApp().getRealPath("reports/expensereport.jrxml");
        JasperReport jr = JasperCompileManager.compileReport(path);
        JRBeanArrayDataSource beans = new JRBeanArrayDataSource(ds);
        Map map = new HashMap();
        JasperPrint jp = JasperFillManager.fillReport(jr, map, beans);
        byte[] content = JasperExportManager.exportReportToPdf(jp);
        AMedia media = new AMedia("report.pdf", "pdf", "application/pdf", content);
        IFrame rp = (IFrame) reportUI.getFellow("reportframe");
        rp.setVisible(true);
        rp.setContent(media);
    } catch (JRException ex) {
        Logger.getLogger(AssetReportUI.class.getName()).log(Level.SEVERE, null, ex);
    }
}
}
}
}
}

```

```

/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */
package org.leemp.ui;

import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;
import java.util.Map;
import net.sf.jasperreports.engine.JRException;
import net.sf.jasperreports.engine.JasperCompileManager;
import net.sf.jasperreports.engine.JasperExportManager;
import net.sf.jasperreports.engine.JasperFillManager;
import net.sf.jasperreports.engine.JasperPrint;
import net.sf.jasperreports.engine.JasperReport;

```

```

import net.sf.jasperreports.engine.data.JRBeanArrayDataSource;
import org.leem.doc.DocAction;
import org.leem.doc.Document;
import org.leem.facade.DocumentBean;
import org.leem.interfaces.DocumentManager;
import org.leem.util.ActionDao;
import org.leem.util.DateUtil;
import org.leem.util.DocumentStatus;
import org.leemp.renderer.DocumentRenderer;
import org.zkoss.util.media.AMedia;
import org.zkoss.zk.ui.event.Event;
import org.zkoss.zk.ui.util.GenericForwardComposer;
import org.zkoss.zul.ComboBox;
import org.zkoss.zul.Comboitem;
import org.zkoss.zul.Iframe;
import org.zkoss.zul.ListModelList;
import org.zkoss.zul.ListBox;
import org.zkoss.zul.Listitem;
import org.zkoss.zul.Tab;
import org.zkoss.zul.Window;

/**
 *
 * @author aliyu
 */
public class DocumentReportUI extends GenericForwardComposer {

    private Window reportUI;
    private List<Document> documents = new ArrayList<Document>();
    private Document document;
    private List<DocAction> actions = new ArrayList<DocAction>();
    private DocumentStatus status;

    public void onCreate$reportUI(Event evt) {
        reportUI = (Window) evt.getTarget();
        status=DocumentStatus.pending;
        fillDocuments();
    }

    public void onSelect$documentlist(Event evt) {
        setDocument();
    }

    public void onChange$docStatusBox(Event evt) {
        setStatus();
        fillDocuments();
    }

    public void onClick$reportBTN(Event evt) {
        fillDao();
    }

    private void fillDocuments() {
        DocumentManager facade = new DocumentBean();
        documents = facade.getDocuments(status);
        refreshDocuments();
    }

    private void fillDao() {
        if (document != null) {

```

```

        ActionDao[] ds = new ActionDao[document.getActions().size()];
        int i = 0;
        for (DocAction a : document.getActions()) {
            ActionDao d = new ActionDao(a.getToUser().getName(), a.getFromUser().getName(),
DateUtil.formatDate(a.getCommentDate()), a.getComment());
            ds[i] = d;
            i++;
        }
        showReport(ds);
    }

}

private void refreshDocuments() {
    Listbox l = (Listbox) reportUI.getFellow("documentlist");
    l.setModel(new ListModelList(documents));
    l.setItemRenderer(new DocumentRenderer());
}

private void setDocument() {
    Listbox l = (Listbox) reportUI.getFellow("documentlist");
    Listitem item = l.getSelectedItem();
    if (item != null) {
        document = (Document) item.getValue();
    }
}

private void setStatus() {
    Combobox sb=(Combobox) reportUI.getFellow("docStatusBox");
    Comboitem item=sb.getSelectedItem();
    if(item!=null){
        String val=item.getValue().toString();
        if(val.equalsIgnoreCase("1")){
            status=DocumentStatus.pending;
        }else if(val.equalsIgnoreCase("2")){
            status=DocumentStatus.closed;
        }
    }
}

private void showReport(ActionDao[] ds) {
    try {
        String path = reportUI.getDesktop().getWebApp().getRealPath("reports/actionreport.jrxml");
        JasperReport jr = JasperCompileManager.compileReport(path);
        JRBeanArrayDataSource beans = new JRBeanArrayDataSource(ds);
        Map map = new HashMap();
        JasperPrint jp = JasperFillManager.fillReport(jr, map, beans);
        byte[] content = JasperExportManager.exportReportToPdf(jp);
        AMedia media = new AMedia("actions.pdf", "pdf", "application/pdf", content);
        Iframe rp = (Iframe) reportUI.getFellow("reportframe");
        Tab tab = (Tab) reportUI.getFellow("rtab");
        tab.setSelected(true);
        rp.setVisible(true);
        rp.setContent(media);
    } catch (JRException ex) {
        ex.printStackTrace();
    }
}
}

```



```

/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */
package org.leemp.ui;

import java.io.ByteArrayOutputStream;
import java.io.IOException;
import java.util.ArrayList;
import java.util.Date;
import java.util.List;
import java.util.logging.Level;
import java.util.logging.Logger;
import org.apache.commons.io.IOUtils;
import org.leem.doc.Attachment;
import org.leem.doc.DocAction;
import org.leem.doc.Document;
import org.leem.entity.Audit;
import org.leem.entity.User;
import org.leem.facade.AuditBean;
import org.leem.facade.DocumentBean;
import org.leem.facade.UserBean;
import org.leem.interfaces.AuditManager;
import org.leem.interfaces.DocumentManager;
import org.leem.interfaces.UserManager;
import org.leem.util.DocumentStatus;
import org.leemp.renderer.ForwardRenderer;
import org.zkoss.image.AImage;
import org.zkoss.util.media.AMedia;
import org.zkoss.zk.ui.event.Event;
import org.zkoss.zk.ui.util.GenericForwardComposer;
import org.zkoss.zul.Combobox;
import org.zkoss.zul.Comboitem;
import org.zkoss.zul.Fileupload;
import org.zkoss.zul.Iframe;
import org.zkoss.zul.Image;
import org.zkoss.zul.ListModelList;
import org.zkoss.zul.Messagebox;
import org.zkoss.zul.Textbox;
import org.zkoss.zul.Window;

/**
 *
 * @author aliyu
 */
public class DocumentUploadUI extends GenericForwardComposer {

    private Window docUI;
    private byte[] content;
    private Window imageUI;
    private User user;
    private User toUser;
    private String path;
    String realName;
    private List<User> users = new ArrayList<User>();

    public void onCreate$docUI(Event evt) {
        docUI = (Window) evt.getTarget();
        fillUsers();
    }

```

```

    user = (User) docUI.getDesktop().getSession().getAttribute("user");
}

public void onClick$uploadBTN(Event evt) {
    uploadDocument();
}

private void onChange$sendbox(Event evt) {
    Combobox b = (Combobox) docUI.getFellow("sendbox");
    Comboitem item = b.getSelectedItem();
    if (item != null) {
        toUser = (User) item.getValue();
    }
}

public void onClick$actionBTN(Event evt) {
    forwardUploadedDocument();
}

private void fillUsers() {
    UserManager userBean = new UserBean();
    users = userBean.findUsers();
    Combobox b = (Combobox) docUI.getFellow("sendbox");
    b.setModel(new ListModelList(users));
    b.setItemRenderer(new ForwardRenderer());
}

private void uploadDocument() {
    try {
        path = desktop.getWebApp().getRealPath("/repository");
        Object obj = Fileupload.get();
        if (obj instanceof AImage) {
            AImage media = (AImage) obj;
            ByteArrayOutputStream out = new ByteArrayOutputStream();
            IOUtils.write(media.getBytes(), out);
            content = out.toByteArray();
            imageUI = (Window)
docUI.getDesktop().getExecution().createComponents("/pages/imagedisplay.zul", null, null);
            Image img = (Image) imageUI.getFellow("uploadimage");
            img.setContent(new AImage(media.getName(), content));
            imageUI.doHighlighted();
            return;
        } else {
            AMedia media = (AMedia) obj;
            realName = media.getName();
            ByteArrayOutputStream out = new ByteArrayOutputStream();
            if (media.getContentType().equalsIgnoreCase("text/plain") ||
media.getContentType().equalsIgnoreCase("text/html") ||
media.getContentType().equalsIgnoreCase("text/htm")) {
                IOUtils.write(media.getStringData().getBytes(), out);
                content = out.toByteArray();
            } else {
                IOUtils.copy(media.getStreamData(), out);
                content = out.toByteArray();
            }
            IFrame frame = (IFrame) docUI.getFellow("docframe");
            frame.setContent(new AMedia(media.getName(), media.getFormat(),
media.getContentType(), content));
            // File file = new File(path + "\\" + media.getName());
            // System.out.println(file.getAbsolutePath());

```

```

//      FileUtils.writeByteArrayToFile(file, out.toByteArray());
    }
} catch (IOException ex) {
    Logger.getLogger(DocumentUploadUI.class.getName()).log(Level.SEVERE, null, ex);
} catch (InterruptedException ex) {
    Logger.getLogger(DocumentUploadUI.class.getName()).log(Level.SEVERE, null, ex);
}
}

/**
 * this method is called to save the uploaded document for further actions
 */
private void forwardUploadedDocument() {
    try {
        if (content == null) {
            try {
                MessageBox.show("Please upload a file to forward for action", "error", MessageBox.OK,
                MessageBox.ERROR);
            } catch (InterruptedException ex) {
                Logger.getLogger(DocumentUploadUI.class.getName()).log(Level.SEVERE, null, ex);
            }
            return;
        }
        Combobox b = (Combobox) docUI.getFellow("sendbox");
        Comboitem item = b.getSelectedItem();
        if (item != null) {
            toUser = (User) item.getValue();
        }
        if (toUser == null) {
            try {
                MessageBox.show("Please select a user to forward the uploaded file to for action", "error",
                MessageBox.OK, MessageBox.ERROR);
            } catch (InterruptedException ex) {
                Logger.getLogger(DocumentUploadUI.class.getName()).log(Level.SEVERE, null, ex);
            }
            return;
        }
        Textbox dname = (Textbox) docUI.getFellow("dname");
        Textbox ddesc = (Textbox) docUI.getFellow("ddesc");
        Textbox dcomment = (Textbox) docUI.getFellow("dcomment");
        Document d = new Document();
        d.setDescription(ddesc.getValue());
        d.setName(dname.getValue());
        d.setUploadDate(new Date());
        d.setFromUser(user);
        d.setToUser(toUser);

        Attachment a = new Attachment();
        a.setAttachment(content);
        d.setAttachment(a);
        d.setStatus(DocumentStatus.pending);
        DocAction action = new DocAction();
        action.setCommentDate(new Date());
        action.setComment(dcomment.getValue());
        action.setFromUser(user);
        action.setToUser(toUser);
        d.getActions().add(action);
        d.setRealName(realName);
        DocumentManager docBean = new DocumentBean();
        docBean.createDocument(d);
    }
}

```

```
content = null;
Iframe frame = (Iframe) docUI.getFellow("docframe");
frame.setContent(null);

dname.setValue(null);
ddesc.setValue(null);
dcomment.setValue(null);
MessageBox.show("File forwarded for action", "OK", MessageBox.OK,
MessageBox.INFORMATION);
Audit au = new Audit();
au.setActionDate(new Date());
au.setUser(user);
au.setEvent(user.getName() + " uploaded and forwarded document " + d.getName() + " to " +
toUser.getName());
AuditManager amanager = new AuditBean();
amanager.addAudit(au);
toUser = null;
fillUsers();
} catch (InterruptedException ex) {
    Logger.getLogger(DocumentUploadUI.class.getName()).log(Level.SEVERE, null, ex);
}
}
}
```