

DOCUMENT REPOSITORY AND WORKFLOW SYSTEM  
A CASE STUDY OF PARLIAMENT OF UGANDA

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## DECLARATION

I declare this research report with no any duplication or photocopy of it from any institution of higher learning either for the reward of a certificate, diploma, degree, or beyond in the field of Postgraduate Studies. It is the work achieved from my research and analytical study.

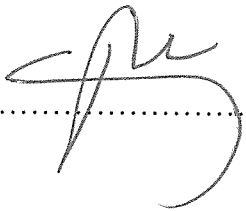
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APPROVAL

This is my research report and is submitted to the School of Postgraduate Studies with the approval of my supervisor.

Names Professor Vicente Gonzalez

Date.....4/10/2010

Signature.....

## DEDICATION

This research report is dedicated to my lovely wife Susan , my children Jesse , Teo and Shirley whose smiles and chimes make me ,

## ACKNOWLEDGMENT

I wish to acknowledge all modes of help I got throughout my report compilation and research, but most importantly my Supervisor, Professor Gonzalez, for all the help he has accorded me, and to my classmates Monica and Rotich for the encouragement and support they have offered over the last year.

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## ABBREVIATIONS

CASE - Computer Aided Software Engineering

DBMS - Database Management System

DFD - Data flow Diagrams

EDM - Electronic Document Management

E – Government – Electronic Government

E - Parliament Electronic Parliament

MP - Member of Parliament

SDLC - System Development Life Cycle

UML – Unified Modeling Language

## ABSTRACT

The project report was undertaken in order to learn and use systems and standards for Parliamentary documents. Systems for managing documentation in digital formats can make Parliamentary operations efficient and help increase the transparency of the institution. These systems are evolving to encompass the entire lifecycle of documents from creation through management, dissemination, and long term preservation. Within these phases documents may be edited and amended by various “authors”; exchanged with different organizations and systems; transformed, for purposes such as searching; validated and certified via digital signatures; rendered in various modes, including printing on paper and online displays; and integrated with other documents.. In particular, it is suggested from the researcher and the main goal is to streamline the flow of information in the Parliament of Uganda through the design and implementation of a Document Repository, a web portal and Workflow system for the Parliament of Uganda.

This report describes the features of a document repository and work flow systems that are used around the world, the technical information relating to the project, the methodology that the developer used, the functional and non functional requirements, the features of the new system, the implementation of the system and finally the testing that was used.

This project was extremely helpful for the programmer because it gave him the opportunity to learn a software development tool and to consider a software product from the legal point of view.



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## **CHAPTER ONE**

### **1.0 Introduction**

Systems for managing documentation in digital formats could make Parliamentary operations efficient and help increase the transparency of the institution. These systems were evolved to encompass the entire lifecycle of documents from creation through management, dissemination, and long term preservation. Within these phases documents might be edited and amended by various “authors”; exchanged with different organizations and systems; transformed, for purposes such as searching; validated and certified via digital signatures; rendered in various modes, including printing on paper and online displays; and integrated with other documents.

### **1.1 Background**

The Parliament of Uganda derives its mandate and functions from the 1995 Constitution, the Laws of Uganda and its own Rules of Procedure.

The Constitution contained articles which provide for the establishment, composition and functions of the Parliament of Uganda and empowers Parliament to make laws on any matter for the peace, order, development and good governance of Uganda and to protect the Constitution and promote democratic governance in Uganda. Article 87A of the constitution establishes a Parliamentary Commission, which is a body corporate. The responsibility for the organisation and strategic guidance of the Parliament of Uganda rests within the Commission. It is chaired by the Speaker of Parliament and has seven other members, namely, the Leader of Government Business, Leader of Opposition, the Minister of Finance, Planning and Economic Development, and four Commissioners elected among the Members of Parliament.

The Administration of Parliament Act, 1997 provides for the organisation and administration of the Parliament of Uganda and for the employment and remuneration of staff of the Parliamentary Service.

#### **1.1.2 Parliamentary Documents**

Parliament by nature is a document-centric organisation. The documents used in the Parliament range include the order paper, the Hansard, motions, bills acts, and questions for oral answer, research reports, committee reports, government policies, policy statements and many other documents. Most of these documents were currently in paper form and this presented a big problem and storage and retrieval.

## **1.2 Statement of the problem**

The lack of a central document depository and the uncoordinated flow of information in the Parliament of Uganda have led to difficulties in controlling the information that was available to members of Parliament, staff and the general public. This has led to poor performance of the Parliament of Uganda, in regard to its constitutional role of oversight, legislation and accountability.

## **1.3 Objectives**

### **1.3.1 General Objectives**

The Objective of this project was to streamline the flow of information in the Parliament of Uganda through the design and implementation of a Document Repository, a web portal and Workflow system for the Parliament of Uganda.

### **1.3.2 Specific Objectives**

- To design and implement a Bill Tracking Workflow to track the legislative drafting process of the Parliament of Uganda
- To design and implement a document repository system to store all Parliamentary documents
- To design a web-portal that would act as an interface for the citizens to participate in the legislative process.

## **1.4 Research Questions**

This work sought to answer the question: “Can there be alignment between a properly functioning document processing information systems and efficiency in Parliament?”

## **1.5 Scope of the study**

The study covered how to design and implement a Bill tracking and document repository work flow system for the Parliament of Uganda. It further covered the technology required to access the system via a local area and wide area network.

The study were carried out in Hansard department with collective information surrounding how Members of Parliament (MP's), the clerk and the general staff preserve written Parliamentary record in digital format which poses its own set of issues especially because of the need for effective policies, sound management practices, and the capacity to accommodate constantly evolving technologies. Generally information from these parties would range from the existing system's overlapping responsibilities for managing, distributing, and preserving its records.

## **1.6 Significance**

This project was of significance to the operations of the Parliament of Uganda in that it would streamline the data and information flow necessary for the proper functioning of Parliament.

## **CHAPTER TWO LITERATURE REVIEW**

### **2.0 Introduction**

The chapter aimed at exploring the in depth of the concept of a bill tacking and document repository work flow system with in an E-Parliament coupled to a web based database system. The purpose was to find out and suggest procedures that were recommended to build and operate such a system. This information was mainly extracted from published document repository and database system books, internet and previously published journals and dissertations.

### **2.1 Scope of the literature review**

The literature about the system to be developed dwelled so much on document management and information systems that make use of databases (Long, 1989,p.249), knowledge from books about how to set and operate networks and in particular Ethernet cabled LANs. The review had put into consideration related systems that have previously been developed. It dug deep into how databases could be designed, how an interface could be created, and how such system could be put into use and maintained.

#### **2.1.1 Document management in relation to e-Government and e-Parliament**

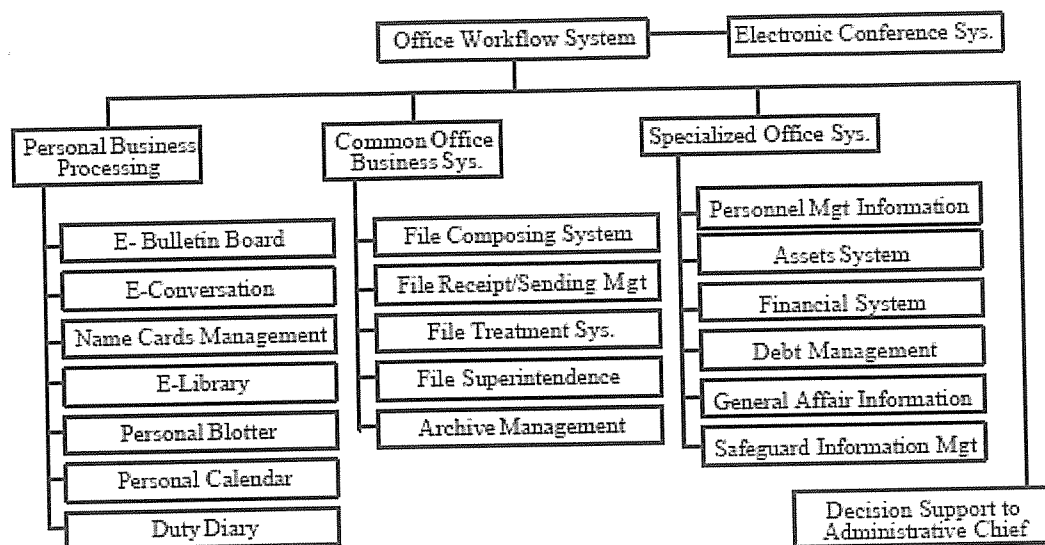
Broadly defined by Gartner (2000): "E-government is the continuous optimisation of service delivery, constituency participation and governance by transforming internal and external relationships through technology, the Internet and new media." This included Government to Citizen, Government to Employee, Government to Business, and Government to Government.

Theresa A. Pardo (2000) outlined e-Government functions as follows: Citizen access to government information. Providing access to government information is the most common digital government initiative facilitating general compliance.

E-government refers to the use of technology to facilitate the process of government, both in terms of delivery of services to the citizen and in improving the internal processes of government.

E-democracy is associated with attempts to increase political participation by exploiting the technology available.

Figure 1 showing the proposed workflow system



The figure above illustrates a Classical Functional decomposition diagram of the requirements of the government office workflow system.

## 2.2 Workflow

Workflow systems coordinate the flow of work based on a prescribed model of the office procedure Kreifelts, T., (1999). It is important to have proper workflows in the Parliamentary information system, in order to ensure that the necessary authorisations are made, for proper tracking of amendments to documents and for proper feedback to the requestors of information.

A document workflow system for Parliament would enhance collaboration which would enhance communication in the Parliamentary service. This would improve workplace efficiency, responsiveness, and professionalism.

## 2.3 Document Management

In common language the word document usually means an information carrier (usually on paper) containing written or drawn information for a particular purpose. Central to the idea of a document is usually that it can be easily transferred, stored and handled as a unit (Löwnertz 1998). Thus a large part of the documents handled in today's business world are stored as individual computer files and are treated as units by the operating and email systems.

The most common method currently in use is to use document management systems, documents are stored centrally on a server and users interact with this central repository through interfaces implemented using standard web browsers.



Electronic document management systems focus on facilitating the management of documents pertinent to particular enterprises, projects and work groups in computer networks. In addition to the basic file management capabilities found in operating systems EDM systems contain enhanced features related to the life-cycle and versioning of particular classes of documents. EDM systems tend to treat the documents they shuffle around as black boxes; just like the post office has little interest in what is inside the envelopes they keep shuffling around, as long as the mail gets to the right recipient in time. From a document management perspective it is important to distinguish between the primary information within a document and secondary information about the document. This secondary information is often referred to as meta-data and it is this which enables humans or document management systems to search for, retrieve and open documents. Meta data was earlier included in the document themselves in the form of cover pages, drawing headers etc. In today's digital environment meta-data is eminently suited for storage in data bases which facilitate searching.

## **2.4 Methodology**

This project built a document repository, workflow and portal system to enable efficient and effective management of documents in Parliament of Uganda and to also enable public participation in the Parliamentary process.

The project uses UML, a graphical language for visualising, specifying, constructing, and documenting the artefacts of a software-intensive system. The UML offers a standard way to write a system's blueprints, including conceptual things such as business processes and system functions as well as concrete things such as programming language statements, database schemas, and reusable software components OMG (1997) for modelling the system.

## **2.5 Document Use Monitoring**

The developed software was installed on the 10 participants' computers that tracked their document management activities over an extended period of time (5days). This recorded all document open and close events, document creation, and deletion, renaming, copying and moving. At the end of the five days, we conducted an interview with the participants to gauge their perception in regard to Document management and workflow processes in relation to ease of finding information, productivity and meeting Parliament's global objectives.

## **2.6 Data management system**

According to Long (1989), Data management, encompasses the storage, retrieval, and manipulation of data. Many existing information systems were designed using traditional

approaches to data management but the trend has shifted to the use of database approach to develop new information systems. The database is the resource for all computer based information systems. A database, “Is a collection of files that are in some way logically related so that data redundancy is minimized” (Long, 1989, p.249).

## **2.7 Data collection techniques**

### **2.7.1 Interview**

“An interview is an oral administration of a questionnaire or an interview schedule”, (Olive and Abel, 1999, p.83). Interviews are face to face encounters. To obtain accurate information through interviews, a researcher needed to obtain maximum cooperation from respondents. Thus, one must establish a friendly relationship prior to conducting an interview. Interviews, offered the following advantages:

- They provided in depth data which is not possible to get using a questionnaire.
- It was possible to obtain data required for specific objectives.
- The researcher could clarify on certain questions and thus they were more flexible compared to other methods.
- Unlike questionnaires, the interviewer could get more complete and honest information.
- High response since the respondents could refuse to answer completely.

However, demerits such as high cost, need for high level of interpersonal skill, bias, small sample size, responses being influenced were always expected.

Like questionnaires, interviews were also of two types that is structured and un structured interviews. Structured questions usually were categories and the interviewer simply checked the respondent’s response while in unstructured questions, the interviewer asked questions or made comments intended to lead the respondent towards giving data to meet the study objectives.

### **2.7.2 Questionnaires**

Questionnaires were commonly used to obtain important information about the population. Each item in the questionnaire was developed to address specific objective. And therefore, a questionnaire must be well thought of so as to avoid cases such as;

- Confusing respondents as to the nature of information required.

- Also a bad questionnaire discourages respondents to the extent of discarding the questionnaire and this may leave out important information required in the study.

Questionnaires could be two types that were; open ended and closed ended questionnaires.

Closed ended questionnaires carried with them the following advantages:

They were easier to analyze since they were in an immediate usable form.

They were easier to administer since each question was followed by possible answers and they were economical in terms of space, time, and money.

However, they were more difficult to construct and normally responses were limited and respondents compelled to answer according to the researcher's choice.

Open ended questionnaires on the other hand gave the respondent complete freedom to answer the way he/she wanted, permitted greater depth of response, and it was easy to formulate compared to closed ended questionnaire, and really gave ones' feelings about a given study.

However, there's a tendency of respondents giving information that didn't answer the questions at hand and responses were difficult to analyze and could be time consuming and expensive compared to closed ended questionnaires.

The fact that I were interested in specific data from respondents, I recommend that closed ended questionnaires be used to make it easy for me to analyze the data.

## **2.8 Analysis and design**

Once data was gathered, the researcher presented it in away that could easily be interpreted. Many analytical tools or modeling tools were available. Modeling tools enabled the analyst to come up with pictorial representation of a system. Examples are CASE tools, dataflow diagrams, flow charts, connectivity diagrams, grid charts, decision tables and many others.

CASE tools: (computer aided software engineering) is software program that automate many activities in the System Development Life Cycle (SDLC) and are also used to analyze various aspects of a system.

Data flow Diagrams (DFD): A data flow diagram also known as process model, graphically shows the flow of data through a system that is, the essential processes of a system along with inputs, outputs, and files. (Hutchinson et al, 2000, chapter.9.12).

System flow charts: Also called the system flow diagram a system flowchart diagrams the major inputs, outputs, and processes of a system. In some cases a systems flow chart can be used in place of DFD; in other cases it is useful to supplement.

Grid charts; this shows the relationship between data on input documents and data on output documents.

Decision tables: This shows the decision rules that apply when certain conditions occur and what actions to take. That is, it provides a model of a simple, structured decision-making process. It shows which conditions must occur in order for particular actions to occur.

### **2.8.1 Document analysis**

The first document the analyst sought out was the organization's organization chart to enable him study and understand the flow of authority and information.

The analyzer further read documents that described the problem at hand. Such documents could include; documentation of the current system, constitution, enrolment records, accounting records, brochures showing fees structures and any other relevant reports. All these could enable the analyst to get a view of the kind of information to be used and reports to be printed and many others, (Whitten, Bentley, and Dittman, 2001).

Given all the above data collection techniques, the researcher must look at the exact problem to be addressed and the prevailing conditions and thereafter choose out which method to use or where possible he could as well chose to integrate all of them.

### **2.10 Development Methodology**

System analysis and design is a six phase problem solving procedure for designing an information system and improving it. The six phases make up what is system development life cycle. The system development life cycle (SDLC) is defined as "The step by step process that many organizations follow during systems analysis and design" (Williams, et al, 1999, p.476).

The number of phases may vary from one company to another, and even the name of the process may differ (application development cycle, structured development life cycle, for instance).The six phases of systems analysis and design may be said to be as follows:

Preliminary investigation: Conduct preliminary analysis, propose alternative solutions, and describe the costs and benefits of each solution. Submit a preliminary plan with

recommendations. If you are doing a systems analysis, and design, it's safe, even preferable to assume that you know nothing about the problem at hand. In the first phase, it's your job to mainly ask questions, do research and try to come up with a preliminary plan.

Systems analysis: Gather data; analyze the data using tools of written documents, interviews, questionnaire, observations, and sampling. Analyze the data using CASE tools, data flow diagrams, systems flow charts, connectivity diagrams, grid charts, and decision tables and write a report.

Systems design: Make a preliminary design and then a detailed design using CASE tools, prototyping tools and project management software among others. Do a detailed design, defining requirements for output, input, storage, and processing and system controls and backup finally write a report?

Systems development: Acquire the hardware and software and test the system. In the make or buy decision, you decide whether you have to create a program or have it custom written or buy it meaning simply purchase a system software package. If you decide to create a new program, then the question is whether to use the organization's own staff programmers or higher outside contract programmers (Outsource it). Whichever way you go, the task could take many months. Having made a decision, the hardware to run it must be acquired or upgraded or buy new hardware.

Systems implementation: Convert the hardware, software, and files to the new system and train the users. Convert using any of the following conversions; parallel, phased or pilot. Compile final documentation and train the users.

Systems maintenance: Audit the system, request feedback from its users, and evaluate it periodically.

## **CHAPTER THREE METHODOLOGY**

### **3.0 Introduction**

This chapter provides the methodology that was used to develop the bill tracking and document repository work flow system. It covers the following key areas of project development organization units that were studied, the population that were used, sample size, research instruments, how data were be collected and analyzed to get the user requirements, development of the system, design techniques and tools that were be used.

### **3.1 Organization units that were studied**

The organization that was studied is Parliament of Uganda which is a document-centric organization ready to run the e-government and e-Parliament system. This institution is chosen because its size has grown very fast and the file based system that was currently used had become inefficient. That was why the researcher chose to come up with a more efficient bill tracking and document repository workflow system. Such a system for managing documentation in digital formats would make Parliamentary operations efficient and help increase the transparency of the institution. It would also allow for purposes such as searching; validated and certified documents via digital signatures; rendered in various modes, including printing on paper and online displays; and integrated with other documents.

### **3.2 The population that was used in the research**

The population that was studied included Members of Parliament (MP's) and the general staff at the Parliament.

### **3.3 Sample selection**

The researcher used random sampling to select respondents from the Parliament clerk and general staff. In the Hansard department, three respondents were interviewed .

### **3.4 Research procedure that were used**

Prior to the study, a letter was submitted to the Clerk to Parliament of Uganda seeking permission to carry out the study. This was done in order to establish a good relationship with the institution in addition to showing the urgency of the study.

### **3.5 How data were collected**

Data was gathered from the sample given above. The major techniques to be used included interviews with limited questionnaires and document analysis. The choice of the method depended on the information needed and the time available for the various respondents.

From the clerk, interviews were used exclusively, from the MP's and the general staff, both interviews and questionnaires were used. Interviews were conducted one on one where as for those that used questionnaires, they were given four days to complete the documents. After that period of time, the researcher collected the documents that were used for analysis.

### **3.6 Tool used in the collection of data**

The tools that were used to collect information were interview guide, questionnaire, document analysis and observation accounting differently within the study.

### **3.7 Development methodology (Systems development life cycle)**

The following steps were used to develop the system under study.

Preliminary investigation: this phase was conducted for the purpose of determining the cost of operation on the old system and the cost expected for the new system. The problems with the old system were identified through interviews and questionnaires.

Systems analysis: the data to be gathered from the above phase were arranged and prioritized. From the findings of the study, a system's specification were made stating what the system should do to meet the supermarket goals.

Systems design: logical design for the system that meets the user requirements were made. This were done by use of a sequence diagram.

### **3.8 Problems encountered in the study**

The area of study was wide since Parliament respondents were be busy most of the times with their roles (regular programs) and scattered yet have to be interviewed. Another problem was limited funds; this would affect the sample size since the researcher was not able to reach interviewees who stay far away. Thus careful purposeful selection had to be made for the qualitative data to ensure that the findings were a representative body of knowledge. However, after designing and implementing the system a special training were required for the users to adopt and be able to use the new system effectively.

### **3.9 Conclusion**

The main objective of the research was to solve the problems of the existing system by developing a system that was reliable and competent. As a way of developing and understanding how the new system works it took serious and critical study of the existing system. This were achieved by the researcher giving clear and precise information about the system to be developed on the conceptual model.



## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

#### 4.0 Introduction

This chapter presents the out come from the study that I carried out. In the study, I used interviews and questionnaires as the major techniques.

#### 4.1 Data presentation

Most data presented and illustrated was analyzed from the 15 respondent questionnaires gathered from the survey at the Parliament of Uganda.

##### 4.1.1 The Occupation of respondents

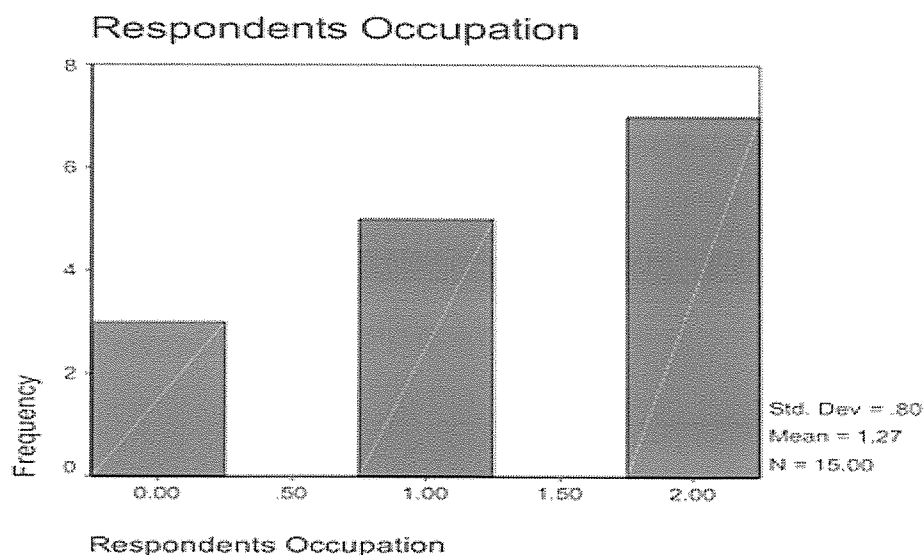
The findings on the occupation are presented in the table below.

**Table: 1 showing occupation of respondents**

Respondents Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MP	3	20.0	20.0	20.0
	Minister	5	33.3	33.3	53.3
	Others	7	46.7	46.7	100.0
	Total	15	100.0	100.0	

**Figure: 1 showing occupation of respondents**



Source: primary data

Majority of respondents' occupation were other staff, followed by ministers and MPs, 46.7, 33.3 and 20.0 valid percentages respectively and is accounted for by the fact that the study was mainly focused on them.

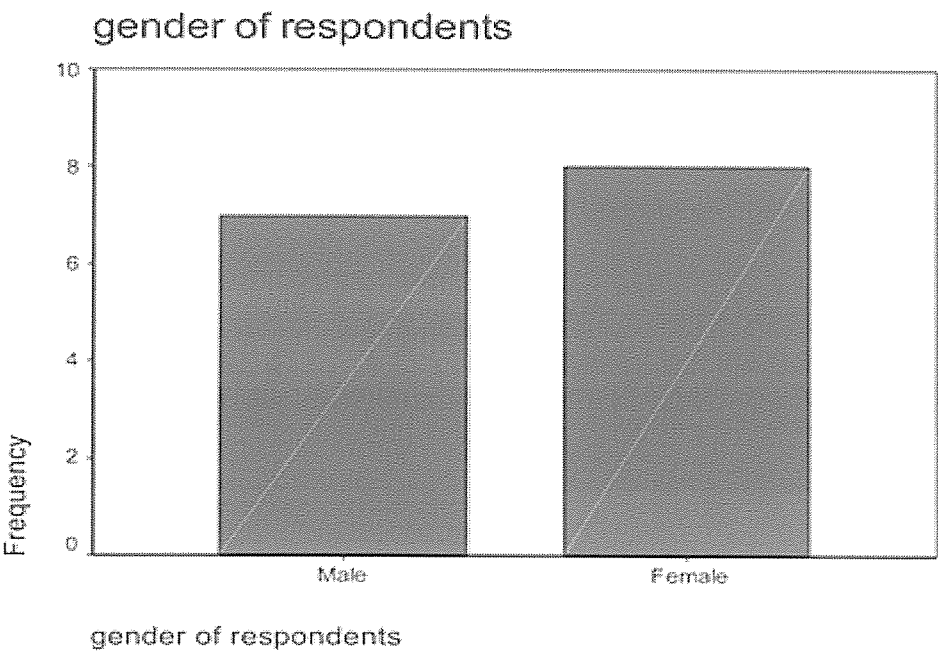
4.1.2 The gender of respondents

Below are the findings on the sex of respondents

Table: 2 showing the gender of respondents

gender of respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	7	46.7	46.7	46.7
	Female	8	53.3	53.3	100.0
	Total	15	100.0	100.0	

Fig: 2 showing the gender of respondents



Source: primary data

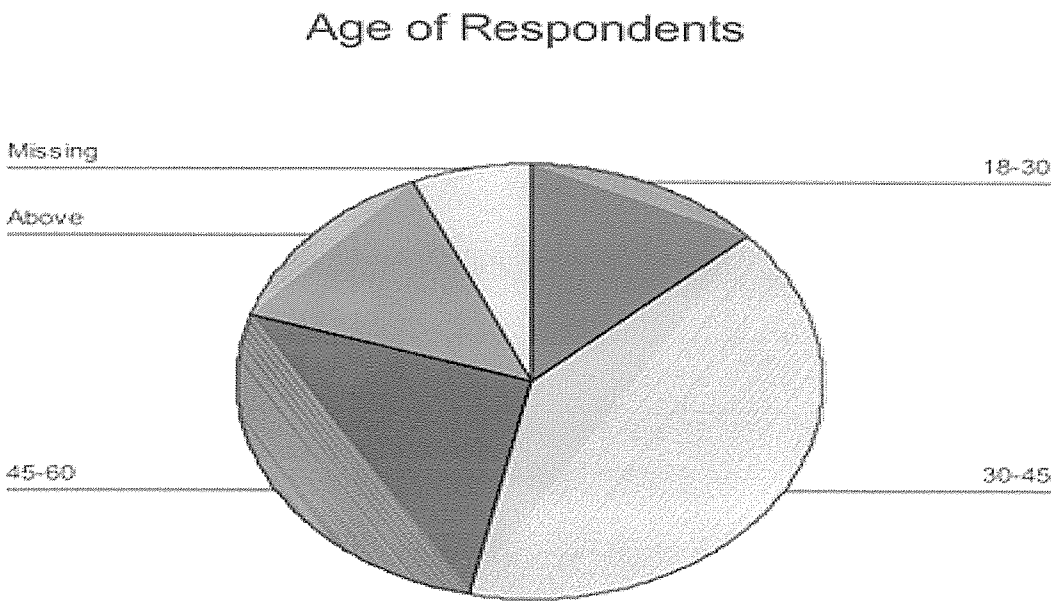
The majority of the respondents were female representing represented by 53.3% though the male percentage was averaging that of female respondents. This implies that both parties are evenly represented in usability of the new system to be put in place.

### 4.1.3 Age of respondents

**Table: 3 showing the age of respondents.**

Age of Respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30	2	13.3	14.3	14.3
	30-45	6	40.0	42.9	57.1
	45-60	4	26.7	28.6	85.7
	Above	2	13.3	14.3	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

**Fig: 3 showing respondents' age**



Source: primary data

Majority of the respondents' age were in the range of 30-45 and 45-20. This was so because the study was aimed at getting ideas of all parliamentary members about the system and the fact that it is a civil and document centric institution, majority were with in the range of 30 to 45.

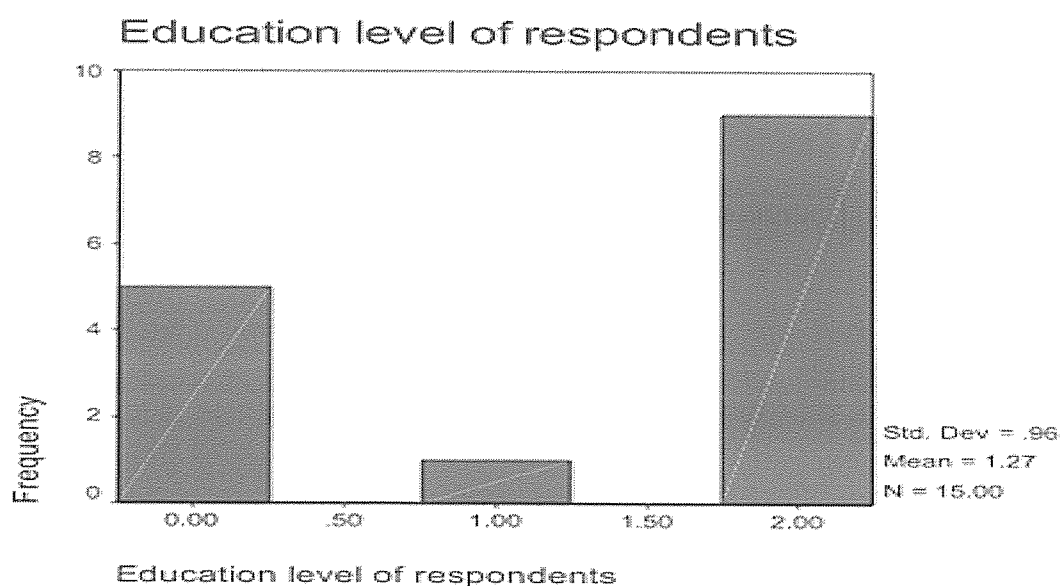
#### 4.1.4 Respondents' education levels

The views showing how respondents are educated are represented in the table and figure below.

**Table: 4 showing the Respondents' education level**

Education level of respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	degree	5	33.3	33.3	33.3
	diploma	1	6.7	6.7	40.0
	other	9	60.0	60.0	100.0
Total		15	100.0	100.0	

**Fig: 4 showing respondents' education level**



Source: Primary data

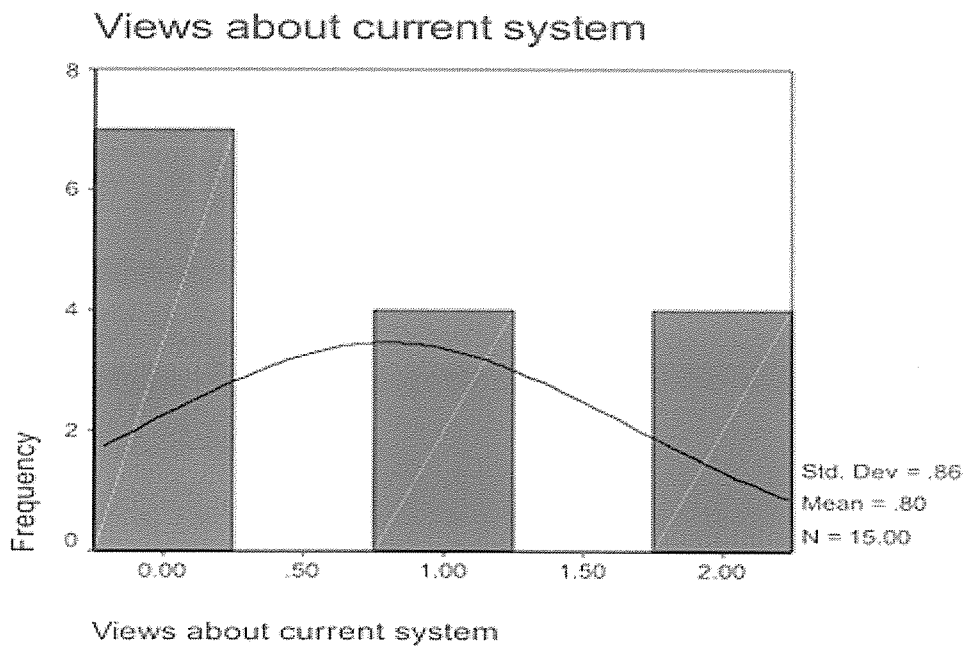
The majority 60.0% of respondents had other educational background followed by those undertaking degree courses. This is because the main focus was put on parliamentary members equipped with various education backgrounds. 33.3% have degrees, 6.7% had diplomas.

#### 4.1.5 Respondent's view about the current document handling system

Table: 5 showing the views about the current system

Views about current system					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	excellent	7	46.7	46.7	46.7
	good	4	26.7	26.7	73.3
	average	4	26.7	26.7	100.0
	Total	15	100.0	100.0	

Figure: 5 showing the views about the current document handling system



Source: Primary data

46.7% of the respondents agreed that parliament's growth rate is good, only 26.7% said that the growth rate is averaged and the others followed.

#### 4.1.6 Respondent's view about the efficiency of the current system

Table7: Table showing statistics for efficiency of the current system

## Statistics

how effiecient is existing system

N	Valid	14
	Missing	1

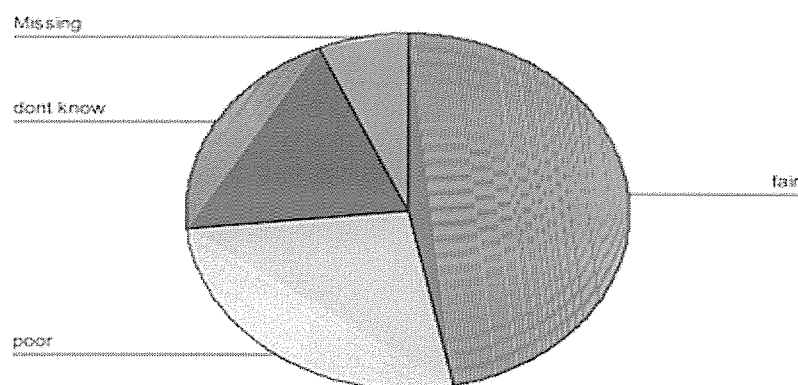
**Table8:** Table showing the efficiency of the current system

how effiecient is existing system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	fair	7	46.7	50.0	50.0
	poor	4	26.7	28.6	78.6
	dont know	3	20.0	21.4	100.0
	Total	14	93.3	100.0	
Missing	System	1	6.7		
Total		15	100.0		

**Figure: 6** displaying respondents view about the efficiency of the current system

how effiecient is existing system



Source: primary data

With a standard deviation of 0.91 and a variance of 0.81, the respondents views about the efficiency of the current system showed that the system was in a fair state (46.7%) followed by poor (26.7%) and the rest follow.

### 4.1.7 Responses on whether Parliament is ready to fund this project

**Table 9: Table showing peoples views about Parliament's readiness to fund the project**

Is project ready to be funded

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid agree	10	66.7	66.7	66.7
fair	5	33.3	33.3	100.0
Total	15	100.0	100.0	

Source: Primary

66.7% of the respondents say that parliament is ready to fund the project.

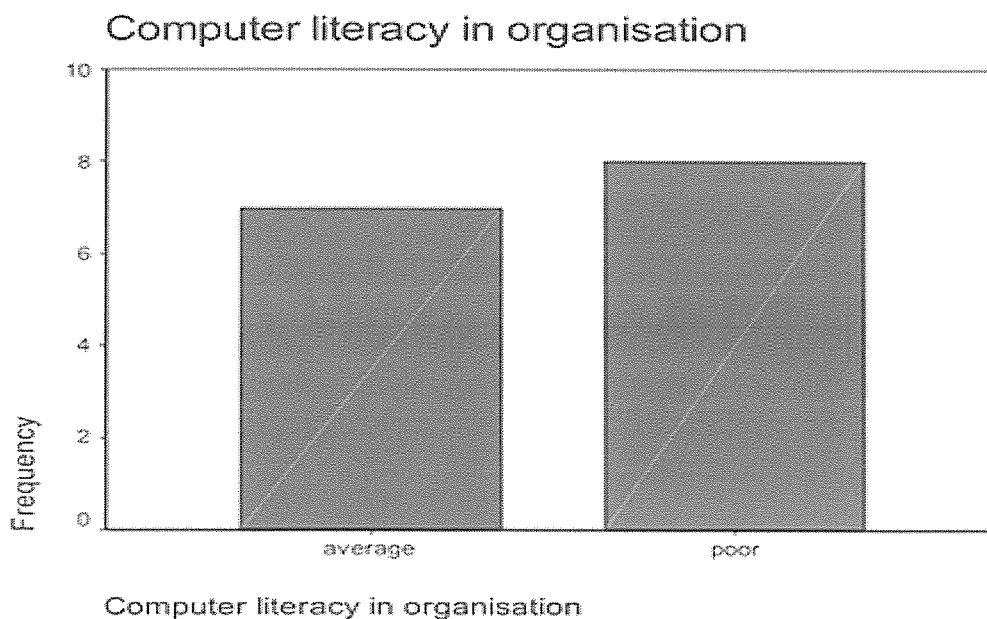
#### 4.1.8 Findings on the level of computer literacy in the Organization

**Table 10: Table showing the level of computer literacy in the Organization**

Computer literacy in organisation

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid average	7	46.7	46.7	46.7
poor	8	53.3	53.3	100.0
Total	15	100.0	100.0	

**Figure: 7 representing the level of computer literacy**



Source: Primary data

Majority with 53.3% chose a poor computer literacy level or state within the parliament followed by 46.7% representing an average computer literacy level. Many gave reasons like they can use computers but they actually don't understand the way computers work, no one believes that the level is excellent. This could be because the parliament of Uganda is just integrating to the electronic world.

#### 4.1.9 Findings on what respondents believe will be the impact of the designed system on the cost of operation (administration)

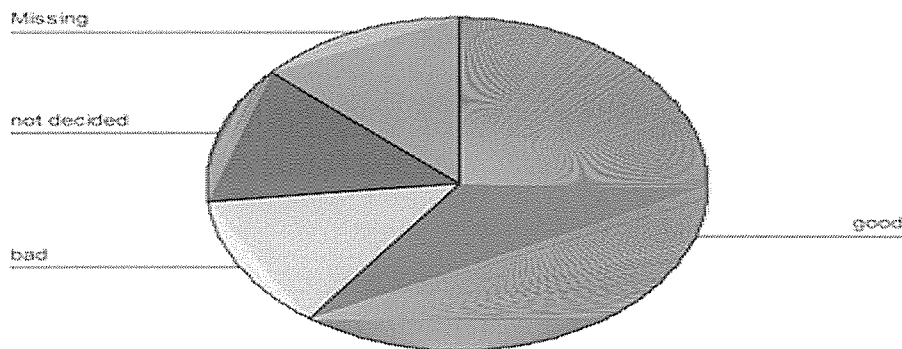
**Table 11: Table showing the effect of the designed system on the cost of operation**

Impact of designed system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	good	9	60.0	69.2	69.2
	bad	2	13.3	15.4	84.6
	not decided	2	13.3	15.4	100.0
	Total	13	86.7	100.0	
Missing	System	2	13.3		
Total		15	100.0		

**Figure: 8 showing the effect of the designed site on the cost of operation**

Impact of designed system



Source: primary data



60.0% believed that the effect would be good. However, they could not justify how good and why. They only look at having computers a good thing. 13.3% were not decided because they don't understand anything to do with computers.

#### **4.2 Conclusion**

Generally in review to the findings analyzed, there is a great pull for a new system to be put in place to accommodate users' expectations.

## **CHAPTER FIVE**

### **SYSTEM ANALYSIS, DESIGN AND IMPLEMENTATION**

#### **5.0 Introduction**

We carried out an extensive study and analysis of the existing system which helped us in identifying the existing system's weaknesses and flaws.

#### **5.1 System study**

##### **5.1.1 Overview of the existing system processes**

The existing system at Parliament of Uganda studied was carried out. The existing system is paper based in such a way that there is no centralized system to be able to make positive contributions that would help the management of Parliamentary body to make necessary improvements on document management performance.

##### **5.1.1.1 Weaknesses of existing system**

From what was gathered, it was made clear that most of the problems with the old system originated from inefficiency in record tracking, storing, retrieval and manipulation of information when required. A lot of time was normally wasted while trying to carry out all these and hence there was need for a new system that would solve problems of data redundancy, time wasting, reduce search time, allow easy data manipulation, with ability to sort information, print out reports among others.

##### **5.1.2 Overview of the new system**

The new system is a Web-Based document Management System for the Parliament of Uganda that facilitates the staff, members of parliament and the administration in the storage , classification and tracking of parliamentary documents, bills and other information.

##### **5.1.2.1 Strength of the new system**

The proposed system is capable of record tracking, storing, retrieval and manipulation of information when required. It is time saving as each user knows his/her role. Data redundancy is eliminated through normalized database entities. Overall the system has clerical and attractive user interfaces that need a click to reach a specific goal.

#### **5.2 Requirements**

In order to document all the end user requirements for the system, data collected was analyzed using structured analysis approach to rigorously specify the processes. This section includes the

requirements of the new system that we categorized into user requirements, functional and non-functional requirements as follows;

### **5.2.1 User requirements**

From the system study, the following system stakeholders were identified; Hansard, Members of Parliament and House with the following user requirements:

- View and validate information about records registered to the system.
- Should register documents and views into the system.
- Systems administrator should be able to manage users into the database.
- System administrators should be able to control data manipulation requests.

### **5.2.2 Functional System Requirements**

- It should be able accept input from the user
- It must provide away of keeping the system secure by use of a password.
- The system must allow the administrator to access information entered by other users of the system.
- The system should enable the user to search the database using a key word. This can be by for example entering a book author, file category or any other data.
- The system must only accept unique records in the database.
- It must provide a way for the user to search documents.

### **5.2.3 Non Functional Requirements**

The system was designed to fulfill the following non-functional requirements:

- The system must verify and validate all user input and users must be notified in case of errors.
- The system only allows authorized users to update records.
- The system administrator is the only one privileged to delete or add users.
- The system must allow for expansion in the future.
- The system must have a high performance level. Its level of reliability must be high.

#### **5.2.4 System Requirements**

In order for the system to perform as expected, the following system specifications for hardware and software, security and operations are required.

##### **5.2.4.1 Cost**

Cost or economic feasibility was put in place to determine whether the management of the Parliament had the ability to fund the project.

##### **5.2.4.2 Technical**

Technical feasibility was aimed at finding out whether the Parliament had technical equipments to house the proposed system in coupled to whether users know how to use and integrate with the system. It was found out that the users need further training and sensitization on how to use the system and further more some of the technical equipments were available for implementation of the new system.

##### **5.2.4.3 Operation**

Operational feasibility was aimed at studying the environment where the current system works. This was important to ensure that the non functional requirements of the system were applicable these included; availability of space, electricity and safety of the system equipments.

##### **5.2.4.4 Security**

In this sub section it was made possible that only those users with legitimate access rights are allowed to use the system. It means that authentication was defined through use of user names and passwords; also addition of more users and elimination of users especially those who left the Parliament were defined to be performed explicitly by the administrator.

#### **5.3 System Design**

In this section we present the system design portion of Document repository concentrating on four areas these is; high level application design, relational database, actual system design and interface design.

##### **5.3.1 High Level Application Design**

This system that is Document repository system is intended to follow the design principles of decision support system (Carter et al 1992). The figure below shows that the Document repository system is made up of five components these are:

- A Database store of all related documents to the algorithms that generate results for user queries

- A User interface comprising all code associated with screen that process user input and display system output
- And a database management system comprising code that allows all of the system components listed previously to share data.

### 5.3.2 Relational Database Design

We have consolidated all system entities and attributes and these may include administration, users, research documents, reports, departments authority. This database we designed it with the use of database management tools such as MySQL in order to come up with a system that stores the recorded information.

### 5.3.3 Actual System Design features and Interface design

The actual system design involves the following features:

- Document search tool - The document search tool allows staff to search and sort documents that can be uploaded by users. The user enters a title and description he will be searching for.
- Document uploader - This feature of the system allows users to upload reports, research and their profiles that users can use for research/consultation purposes. The user can search for these documents.
- Check in/Check out - This feature gives a user an interface to confirm results on the system. The user can use the checkin button to see what has been uploaded. They can also check out a document for editing.

#### Interface design

As is true for most Information systems, the user interfaces are the most visible and most important to the user therefore we identified key interface design principles these were: integration with work flow, ease of use and consistency.

### 5.4 Diagram Designs of the system

The system developed is based materially on what was provided by the users as requirements which means that the diagrams were used as techniques in coming up with the actual

performance flow of the system. The diagrams in this section take forms of Context Diagram (CD), Data Flow Diagrams (DFD), Flow Chart (FC), Relationships and Entity Relationships Diagram (ERD). The diagrams were so useful in describing the system diagrammatically which simplified the coding process after analyzing the performance. The following are the diagrams used:

Workspaces architecture. At the core is the Workspaces engine, which includes an XSL processor for executing locally accessed or remote steps. All documents are stored in the XML spaces repositories. The user interacts with the Workspaces engine directly and via invoked applications

### 5.4.2 Conceptual Designs/Logical Designs

This section defines the various entities, their attributes and data types as well as the relationships among them. Tables or entities that are in the database are;















Odm\_admin, Odm\_category, Odm\_data, Odm\_departments, Odm\_dept\_perm,  
Odm\_dept\_viewer, Odm\_user, Odm\_odmsys, Odm\_rights, Odm\_ufd, Odm\_user\_perms,  
Odm\_log

#### Relationship Diagrams

##### Odm\_admin

Field	Type	Collation	Attributes	Null	Default	Extra
<input checked="" type="checkbox"/> id	int(11)		UNSIGNED	Yes	NULL	
<input checked="" type="checkbox"/> admin	tinyint(4)			Yes	NULL	

##### Odm\_category

Field	Type	Collation	Attributes	Null	Default	Extra	Action
<input checked="" type="checkbox"/> id	int(11)		UNSIGNED	No		auto_increment	      
<input checked="" type="checkbox"/> name	varchar(255)	latin1_swedish_ci		No			      

##### Odm\_data

	Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/>	<u>id</u>	int(11)		UNSIGNED	No		auto_increment
<input type="checkbox"/>	category	int(11)		UNSIGNED	No	0	
<input type="checkbox"/>	owner	int(11)		UNSIGNED	Yes	NULL	
<input type="checkbox"/>	realname	varchar(255)	latin1_swedish_ci		No		
<input type="checkbox"/>	created	datetime			No	0000-00-00 00:00:00	
<input type="checkbox"/>	description	varchar(255)	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/>	comment	varchar(255)	latin1_swedish_ci		No		
<input type="checkbox"/>	status	smallint(6)			Yes	NULL	
<input type="checkbox"/>	department	smallint(6)		UNSIGNED	Yes	NULL	
<input type="checkbox"/>	default_rights	tinyint(4)			Yes	NULL	
<input type="checkbox"/>	publishable	tinyint(4)			Yes	NULL	
<input type="checkbox"/>	reviewer	int(11)		UNSIGNED	Yes	NULL	
<input type="checkbox"/>	reviewer_comments	varchar(255)	latin1_swedish_ci		Yes	NULL	

## Odm\_departments

	Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/>	<u>id</u>	int(11)		UNSIGNED	No		auto_increment
<input type="checkbox"/>	name	varchar(255)	latin1_swedish_ci		No		

## Odm\_dept\_perm

	Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/>	<u>fid</u>	int(11)		UNSIGNED	Yes	NULL	
<input type="checkbox"/>	<u>dept_id</u>	int(11)		UNSIGNED	Yes	NULL	
<input type="checkbox"/>	rights	tinyint(4)			No	0	

## Odm\_dept\_viewer

	Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/>	<u>dept_id</u>	int(11)		UNSIGNED	Yes	NULL	
<input type="checkbox"/>	<u>user_id</u>	int(11)		UNSIGNED	Yes	NULL	

## Odm\_log

Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/> id	int(11)		UNSIGNED	No	0	
<input type="checkbox"/> modified_on	datetime			No	0000-00-00 00:00:00	
<input type="checkbox"/> modified_by	varchar(25)	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/> note	text	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/> revision	varchar(255)	latin1_swedish_ci		Yes	NULL	

#### Odm\_odmsys

Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/> id	int(11)			No		auto_increment
<input type="checkbox"/> sys_name	varchar(16)	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/> sys_value	varchar(255)	latin1_swedish_ci		Yes	NULL	

#### Odm\_rights

Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/> RightId	tinyint(4)			Yes	NULL	
<input type="checkbox"/> Description	varchar(255)	latin1_swedish_ci		Yes	NULL	

#### Odm\_ufd

Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/> id	int(11)			No		auto_increment
<input type="checkbox"/> table_name	varchar(16)	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/> display_name	varchar(16)	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/> field_type	int(11)			Yes	NULL	

#### Odm\_user\_perms

Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/> fid	int(11)		UNSIGNED	Yes	NULL	
<input type="checkbox"/> uid	int(11)		UNSIGNED	No	0	
<input type="checkbox"/> rights	tinyint(4)			No	0	

#### Odm\_user

Field	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/> id	int(11)		UNSIGNED	No		auto_increment
<input type="checkbox"/> username	varchar(25)	latin1_swedish_ci		No		
<input type="checkbox"/> password	varchar(50)	latin1_swedish_ci		No		
<input type="checkbox"/> department	int(11)		UNSIGNED	Yes	NULL	
<input type="checkbox"/> phone	varchar(20)	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/> Email	varchar(50)	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/> last_name	varchar(255)	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/> first_name	varchar(255)	latin1_swedish_ci		Yes	NULL	
<input type="checkbox"/> pw_reset_code	char(32)	latin1_swedish_ci		Yes	NULL	



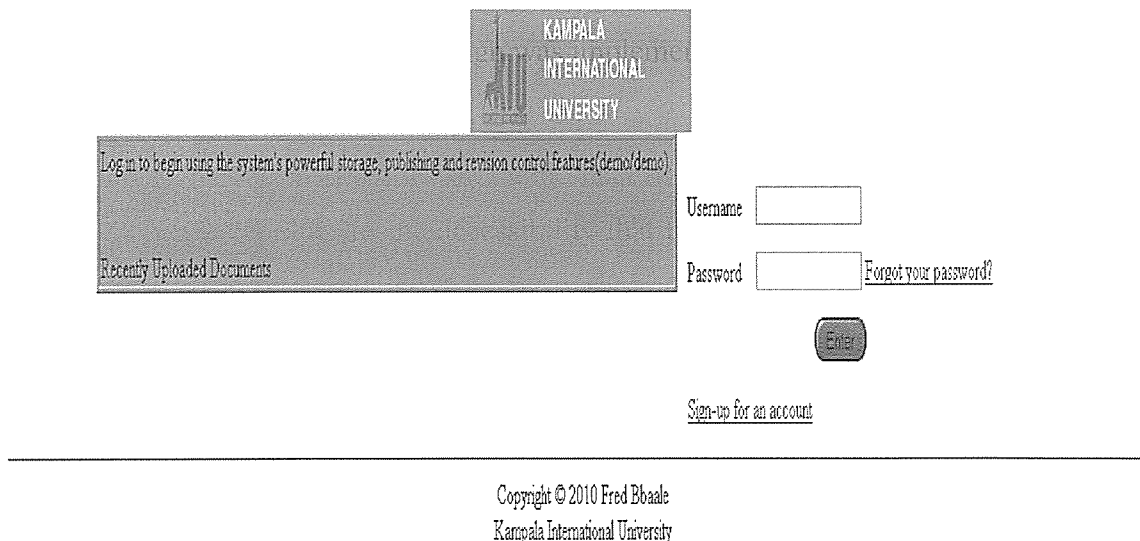
### 5.5 Physical design

This part of the system development life cycle was concerned with the actual construction of the designed system, testing to see whether it fulfilled the objectives, deliver the system into day to operation, user training and finally commissioning of the system into operation.

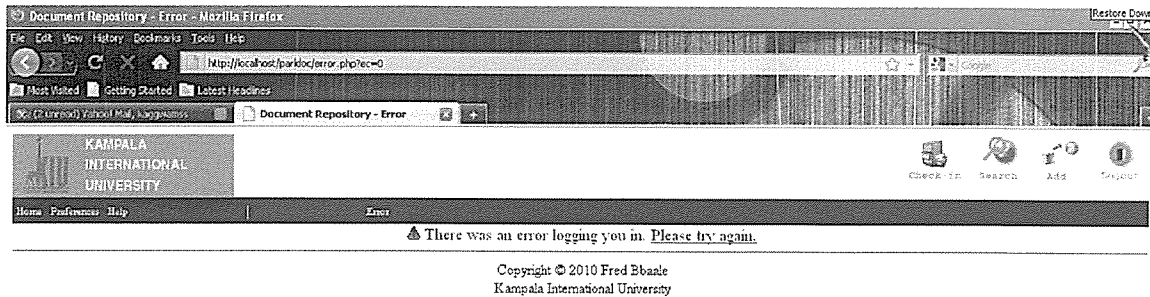
The system was designed in PHP, Java script and XHTML and the ease that it provides in linking with the database. The database design was implemented using MySQL. This was chosen because it is more secure compared to other DBMS.

After the system has loaded, it provides the home page which is the index which has links on which the user selects, according to the accessibility that the user was authenticated. Each user was given different access credentials where by the user first registers with the system then it generates a password which after login using the details he or she registered with. This was manually designed because different users access the system at different intervals hence sessions are provided to a particular user at a particular time

On accessing the system, it loads with the home page which portrayed in the figure below.



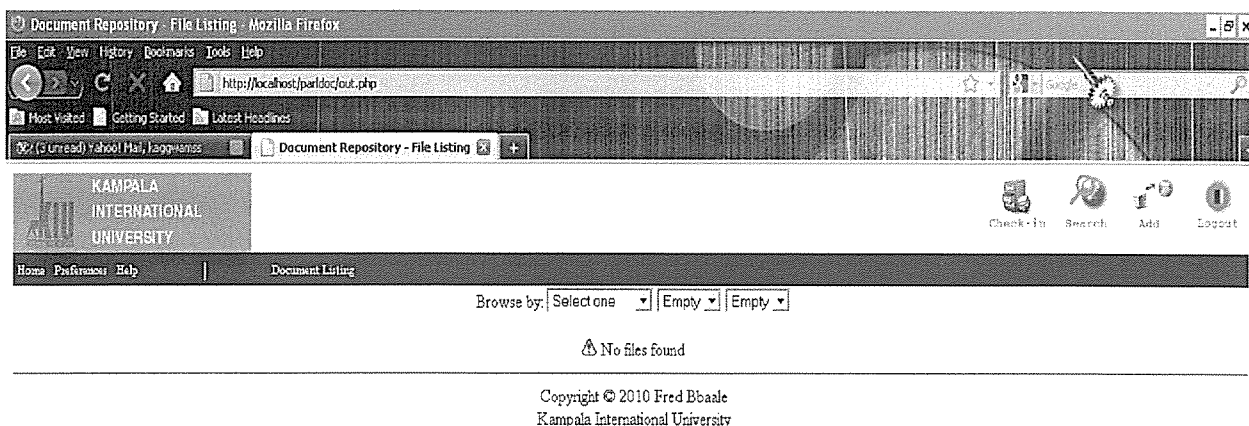
Once you enter with a wrong password, the following message is generated this is done when checking for security.



If you are new to the system, you register as a new user

The user feeds in the first name, Last name, user name, phone number, example, email address and department.

Here is the page that displayed when a user login into the system.



Here comes the different functionalities where by a user will

Search – This is where a user searches for a specified document

Add – This is where a user add a document and gives rights for diffent users. As shown below;

Adding a file: File Location

Adding a file: Category


Adding a file: Department

Adding a file: Authority





Adding a file: Description

Adding a file: Comment

Adding a file: Example



KAMPALA  
INTERNATIONAL  
UNIVERSITY



Check-in   Search   Add   Logout

Home   Preferences   Help   |   Add new document

File Location

Category 

Letter

Department 

Select a Department

Authority 

forbidden ☐ | none ☐ | view ☐ | read ☐ | write ☐ | admin ☐ |

Description

Comment

Specific Permissions Settings

Forbidden	View	Read	Modify	Admin
<div>mozeh kagz User, Admin</div>	<div>mozeh kagz User, Admin</div>	<div>mozeh kagz User, Admin</div>	<div>mozeh kagz User, Admin</div>	<div>mozeh kagz User, Admin</div>

Add Document

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Kampala International University

Add File - File Location

This box allows you to browse your local computer to find a file. Click the "Browse..." button to

bring up a popup prompt. Navigate to your file, then click "Open". Once you have done this, the location of your file should show up in the text box, and you can continue to fill out the rest of the form.

#### Add File - Category

This box allows you to define which category your document corresponds to. Make sure this fits, because many people will search for documents based on this field.

#### Add File - Department

This box allows you to define, for each department, the corresponding access rights you want users to have.

#### Add File - Authority

This box allows you to define a specific type of access for departments, including forbidden, view, read, modify, and admin

#### Add File - Description

This box allows you to attach a short description to the file, which will be used in the file listings, and also during searches. Try to be as precise as possible. Use the Comment section if you need more space

#### Add File - Comment

This box allows you to attach a longer message about the file, maybe explaining instructions on how to open or view the file, etc..

#### Add File - Example

Let's assume you want to set up the following access rights on a file:

- Only you can administer the file
- Only your department can Modify the file
- Only the IS department can Read the file

- Only the Bacti department has View rights
- Anyone else is Forbidden

After you select the file location and category, do the following to set the file permissions to match above example:

1. By default, you are set with admin permissions on your new file. See the "Specific Permissions Settings" section. You should see only your username selected under all but the forbidden column.
2. In the Department drop-down box, select your department from the dropdown.
3. Notice the radio toggle buttons below the Department box. These are used to set up each department with specific "department wide" permissions.
4. In the Authority section, click on the Modify button. Your entire department is now set to be able to modify the file
5. In the department drop-down box, select the IS department
6. In the Authority section, click on Read . The entire IS department is now set to be able to read the file
7. In the department drop-down box, select the Bacti department
8. In the Authority section, click on the View button. The entire Bacti department is now set to be able to view the file
9. In the department drop-down box, select "Default Setting for unset department"
10. In the Authority section, click on the Forbidden . Any department not specifically set is now set to forbidden
11. Now click on the "Add document" button to submit your file

Note: There is also an "All departments" field, which you can use to set all the departments to the same, whether it be admin, read, view, etc..

You may also notice as you are setting permissions that you can go "back" to another department, and the settings are retained.

#### Rights - Admin

This level of access means you can do anything to the file including downloading, updating, deleting, etc.

#### Rights - Modify

This level of access means you can update the file, but not remove it

#### Rights - Read

This level of access means you can

#### Rights - View

#### Rights - Forbidden

This level of access means you may not have any access to the file whatsoever and will not see it in any lists, or searches.

Logout - This is a button where one needs to end his or her session.

Check in – This is a button where a user verifies the documents entered.

### 5.6 Implementation

This constitutes the implementation of the system. In this part we discuss all system features that have been implemented through out the system design.

#### 5.6.1 Sample codes implementation

```
<?php
if( !defined('config') )
{
    define('config', 'true', false);
// Database Settings
$GLOBALS['database'] = 'billtrack'; // Enter the name of the database here
$GLOBALS['user'] = 'billtrack'; // Enter the username for the database
$GLOBALS['pass'] = 'billtrack'; // Enter the password for the username
$GLOBALS['hostname'] = '127.0.0.1'; // Enter the hostname that is serving the database
global $CONFIG;    $CONFIG = array(
'db_prefix' => 'odm_',
'demo' => 'demo',
'authen' => 'mysql',
'base_url' => 'http://localhost/parldoc',
'title' => 'Document Repository',
'dataDir' => 'C:\wamp\www\parldoc\document_repository',
'allow_password_reset' => 'On',
$GLOBALS['connection'] = mysql_connect($GLOBALS['hostname'], $GLOBALS['user'],
$GLOBALS['pass']) or die ("Unable to connect: " . mysql_error());
$db = mysql_select_db($GLOBALS['database'], $GLOBALS['connection']);
```

#### Log out Script

```
<?php
/*logout.php - provides logout functionality*/
include ('config.php');
    // If kerbauth, then display warning about shutting down browser
```

```

    session_start();
    // Unset all of the session variables.
    $_SESSION = array();
    // Finally, destroy the session.
    session_destroy();
    if($GLOBALS["CONFIG"]["authen"] == 'kerbauth')
    {?>
Mysql auth, so just kill session and show login prompt
{
    session_start();
    if(session_unregister('uid'))
    {header('Location:index.php');
    }
}
Adding Document source code
session_start();

if (!isset($_SESSION['uid']))
{
    header('Location:index.php?redirection=' . urlencode($_SERVER['PHP_SELF'] . '?' .
$_SERVER['QUERY_STRING']));
    exit;
}
include('config.php');
include('udf_functions.php');
// connect to DB
if(!isset($_POST['submit'])) //un_submitted form
{
    if (!isset($_REQUEST['last_message']))
    {
        $_REQUEST['last_message']="";
    }
    draw_header('Add New File');
    draw_menu($_SESSION['uid']);
    draw_status_bar('Add new document', $_REQUEST['last_message']);
    echo '<body bgcolor="white">';
    echo '<center>'. "\n". '<table border="0" cellspacing="5" cellpadding="5">'. "\n";
    //Get Current User's department id
    $query = "SELECT department FROM {$GLOBALS['CONFIG']['db_prefix']}user where
id=$_SESSION[uid]";
    $result = mysql_query($query, $GLOBALS['connection']) or die ("Error in query:
$query. " . mysql_error());
    if(mysql_num_rows($result) != 1) //If somehow this user belongs to many
departments, then error out.
    {
        header('Location:error.php?ec=14');
        exit; //non-unique error
    }
}

```

```

list($current_user_dept) = mysql_fetch_row($result);
//Get a list of department names and id to populate javascript obj//
$query = "SELECT name, id FROM {$GLOBALS['CONFIG']['db_prefix']}department
ORDER by name";
$result = mysql_query ($query, $GLOBALS['connection']) or die ("Error in query:
$query. " . mysql_error());
$dept_data = $result;
$index = 0;
////////Define a class that hold Department information (id, name, and rights)////////
//this class will be used to temporarily hold department information client-side wise//
?>

```

The Index page

```

<?php
/*
index.php - main login form
*/

// Report all PHP errors (bitwise 63 may be used in PHP 3)
// includes
session_start();
require ('config.php');
include ('includes/filtreatment_class.php');

if (!isset($_REQUEST['last_message'])) {
    $_REQUEST['last_message'] = "";
}
if (isset($_REQUEST['redirection'])) {
    $filt = new Filtreatment;
    $_REQUEST['redirection'] = $filt->doTreatment($_REQUEST['redirection'], 'XSS');
}

if(isset($_POST['login']))
{
    if(!valid_username($_POST['frmuser']))
    {
        echo "<font color=red>The username or password was invalid. Please try again.</font>";
        exit;
    }

    if(!is_dir($GLOBALS['CONFIG']['dataDir']) ||
    !is_writeable($GLOBALS['CONFIG']['dataDir']))
    {
        echo "<font color=red>There is a problem with your dataDir. Check to make sure it exists
and is writeable</font>";
        exit;
    }
}

```



```

$frmuser = $_POST['frmuser'];
$frmpass = $_POST['frmpass'];

// Check for NIS/YP data
if ( $GLOBALS['CONFIG']['try_nis'] == "On")
{
    $pwent = @split(":",`ypmatch $frmuser passwd`);
    if(isset($pwent))
        $cryptpw = @crypt(stripslashes($frmpass),substr($pwent[1],0,2));
}

// check login and password
// connect and execute query
$query = "SELECT id, username, password FROM
{$GLOBALS['CONFIG']['db_prefix']}user WHERE username = '$frmuser' AND password =
$password('$frmpass')";
$result = mysql_query("$query") or die ("Error in query: $query. " . mysql_error());

// if MySQL login fails, check NIS/YP data
if ( $GLOBALS['CONFIG']['try_nis'] == "On")
{
    if (mysql_num_rows($result) == 0)
    {
        if (isset($pwent) && isset($cryptpw) && strcmp($cryptpw,$pwent[1]) == 0)
        {
            $query = "SELECT id, username, password FROM
{$GLOBALS['CONFIG']['db_prefix']}user WHERE username = '$frmuser'";
            $result = mysql_query("$query") or die ("Error in query: $query. " . mysql_error());
        }
    }
}

// if row exists - login/pass is correct
if (mysql_num_rows($result) == 1)
{
    // register the user's ID
    list($id, $username, $password) = mysql_fetch_row($result);
    // initiate a session
    $_SESSION['uid'] = $id;
    // redirect to main page
    if(isset($_REQUEST['redirection']))
        header('Location:' . $_REQUEST['redirection']);
    else
        header('Location:out.php');
    mysql_free_result ($result);
    // close connection
}
else

```

```

        // login/pass check failed
    {
        mysql_free_result ($result);
        // redirect to error page
        header('Location: error.php?ec=0');
    }

}
elseif($GLOBALS['CONFIG']['authen'] == 'kerbauth')
{

    // check login and password
    // connect and execute query
    if (!isset($_COOKIE['AuthUser']))
    {
        header('Location: https://localhost'.$GLOBALS['CONFIG']['base_url']);
    }
    else
    {
        list ($userid, $id2, $id3) = split ('[-]', $_COOKIE['AuthUser']);
        /// query to get id num from username
        $query = "SELECT id FROM {$GLOBALS['CONFIG']['db_prefix']}user WHERE
username='$userid'";
        $result = mysql_query($query) or die ('Error in query: '.$query . mysql_error());
        // if row exists then the user has an account
        if (mysql_num_rows($result) == 1)
        {
            // initiate a session
            session_start();
            // register the user's ID
            session_register('uid');
            list($id) = mysql_fetch_row($result);
            $_SESSION['uid'] = $id;
            // redirect to main page
            header('Location:out.php');
            mysql_free_result ($result);
            // close connection
        }
        // User passed auth, but does not have an account
        else
        {
            header('Location:error.php?ec=19');
        }
    }
}
elseif(!isset($_POST['login']) && $GLOBALS['CONFIG']['authen'] == 'mysql')
{
    if(is_dir('install'))

```

```
{
  $install_msg = '<span style="color: red;">Security Notice: If you already installed/updated
then you should remove the "install" folder before proceeding</span>';
}
else
{
  $install_msg = ""; }
?>
```

## **5.7 Documentation**

### **5.7.1 Installation**

This system was installed based on a server side application. To install this system, the following steps were followed.

- a) Install Wamp server on the computer where the whole project is stored
- b) After installing wamp server, copy the whole project folder to the www directory found in c:\wamp\www
- c) Start wamp server and locate the localhost which is the local server, the folder is located in the body of the local host page.
- d) Click the folder, the system will be accessed

## **5.8 User training**

The users have not been trained; though this task was supposed to come after testing this was so because the system has not been delivered to its end users.

## **5.9 System conversion**

The fact that the relationship between paper work and computer systems is little, we recommend parallel conversion strategy. This is a conversion strategy where both systems are kept running for some certain period of time until the new system is endorsed as a perfect system. This has an advantage that in case the new system contains some un identified errors; the old system can always be resorted too. This strategy has also been recommended because from the research we carried out, we found out that most of the likely users of this system don't understand it hence the need for them to first get experienced and thereafter they can do away with the old system.

Change over strategy – This will be affected as long as users are comfortable with the new system in place thus a complete resort to the new system.

## **5.10 Testing Plan**

Testing is an important part of the systems design. It involves checking for correctness, which is one of the focuses of the project. The way to test to see if the system is working correctly is to use black box testing (or functional testing). What black box testing does is to feed in inputs and

obtain relevant outputs. These inputs and outputs are then studied and checked to make sure that they are the desired result, in order to make sure that the system is behaving properly.

The testing process in systems like the one that we will attempt to build is not an easy job. We will not build a simple application. We will build a whole Parliamentary system, which consists of sub-systems. We are planning to perform test in parallel with the implementation of the new system and we are going to follow some testing procedures described in the software engineering literature. Parliament

We will first build our database and we will insert sample data in it. Note that even if the data that we will put are sample, they are going to be taken from the real Parliament. Here we have to mention that we will have of course a smaller in physical size database, than in a real environment, but the most important is the quality of the sample data. And this quality will be the quality of a real environment. The functionality of the database will be tested with sample operations, such as queries, updates, insertions and deletions.

Then we will build the Web-Client's application. We will start from the user-interface in order to identify the components and objects that we will need. Then we will define the appropriate classes and methods. We will test with sample data the operation of each method independently, and inside its class. Then, we will test the functionality of each class with our database. The same testing approach we will follow with the Local-Client subsystem.

## **5.11 Testing Schedule**

In this part we are going to analyze the testing schedule and the techniques that we are planning to use.

### **5.11.1 Code Walk-through**

The programmer who developed it inspects the code for each part of the system. This is seen as far better to find a problem at this low level rather than later in the testing cycle where several components have been joined together.

These should be completed as soon as the developer completes the code for a section of the system. Things to look for in the code are: syntax errors, incorrect function / variable names, inefficient data structures. Once the changes are completed a second walk-through should occur to check for any problems created by changes made to the code.

### **5.11.2 Component testing**

This should occur on the development machine, immediately after the code has been given the 'all clear' in the code walk-through. The code for the individual function is compiled and executed to see if it completes the function that it was designed to. If a section of code does not produce the required outcome then the code should be checked against the requirements specification given for that section, and rewritten as required.

### **5.11.3 Bottom-up integration test**

Integration testing is where all the components will be combined together and checked to see if they work correctly. If they don't, then there are problems with the code and unit testing will have to be reviewed again in order to pinpoint the problem and correct it. According to Sommerville (2001), the integration test should ideally be completed on a machine that was not used during production of any individual sections of code.

### **5.11.4 System Test**

Here the objective is to make sure that the system can perform the way the customer has asked it to and that the system design has been implemented correctly. The two major issues that need to be taken into consideration here are:

- Functional testing
- Performance testing

Functional testing checks that once the system has been integrated together, it works as desired, by checking that the functional requirements have been satisfied.

Performance testing checks that the non-functional requirements have been satisfied. This will include security matters, speed, accuracy, and reliability.

## CHAPTER SIX

### RECOMMENDATIONS AND CONCLUSIONS

#### 6.0 Recommendations

A thorough and exhaustive investigation on the constraints should be carried out to determine the appropriate data values for different fields in order to ensure data integrity, though the little sample data that the system was tested on was a success. Due to the sample data collected the following recommendations were administered.

6.1 According to figure 3, of chapter four, it was found out that the majority of the respondents on the sample that was taken according to age were between 30 to 40. This was so because the study was aimed at getting ideas of parliamentarians about the system and the fact that the institution is of high integrity.

According to figure 2, the majority of the respondents were female represented by 53.3% though male respondents were averaging them. This implies that there are more female than there are male in the parliament of Uganda who liked the system to be in place validating the fact that the institution has more male than female.

Basing on the basis of occupation, it was found that majority of respondents' occupation were Other parliamentary members, followed by Ministers and MPs 46.7, 33.3 to 20.0% respectively and is accounted for by the fact that the study was mainly focused on them.

Finally, I recommend the system to be implemented to replace the old system simply because all samples which were taken revealed that new system should replace to old system

#### 6.2 Conclusions

Finally, the study has not been easy at all. The researcher has acquired skills in project management and at least can make claims of having a minimal experience designing database systems. In this system, it was made sure non users are prohibited from accessing it, because those people who use the system have passwords and thus used as required.

## REFERENCES

1. Bardram, J.E. (1997) "Plans As Situated Action: An Activity Approach To Workflow Systems", (red.) Hughes. J. et.al. Proceedings Of The Fifth European Conference On Computer-
2. Bardram, Jakob. "Designing for the Dynamics of cooperative work activities" (red) Poltrock & Grudin. Proceedings of the Conference on computer-supported cooperative work. ACM 1998 ss 89-98.
3. Design Methods 5th Edition, McGraw Hill Irwin Publishers
4. Jeffrey L. Witten, Lonnie D. Bentley 1998. System analysis and design methods 4th edition McGraw Hill Irwin Publishers.
5. Jeffrey A. Hoffer, Joey F. George, Joseph S. Valecich Modern system analysis and design
6. Kreifelts, T., Hinrichs, E., Klein, K.-H., Seuffert, P., and Woetzel, G., Experiences with the DOMINO Office Procedure System, in Proceedings of ECSCW '91, Amsterdam, The Netherlands, Kluwer Academic Publishers, Dordrecht, 1991, pp. 117-130.
7. Löwnertz, K., 1998. Change and Exchange – Electronic Document Management in Building Design, Licentiate Thesis, Dept. of Construction Management and Organisation, Royal Institute of Technology, Stockholm, Sweden.
8. Object Management Group. UML semantics, version 1.1. <ftp://ftp.omg.org/pub/docs/ad/97-08-04.pdf>, September 1997
9. Sharon S. Dawes, Peter A. Bloniarz, Kristine L. Kelly and Patricia D. Fletcher, Some Assembly Required: Building a Digital Government for the 21st Century, Report of a Multidisciplinary Workshop Held in October 1998.
10. Supported Cooperative Work. Kluwer academic publishers. ss.17-32.
11. Theresa A. Pardo "Realizing the Promise of Digital Government: It's More than Building a Web Site", Information Impact, October, 2000.

## INTERNET

1. [http://www.indek.kth.se/bit/doc\\_thesis/kurt\\_lic/abstract.htm](http://www.indek.kth.se/bit/doc_thesis/kurt_lic/abstract.htm)



## APPENDICES

### APPENDIX A

#### Questionnaire used

Dear respondent,

We kindly request you to fill this questionnaire below to facilitate the success to the completion of the research study performed at the Parliament of Uganda.

- PLEASE feel free and give the important information as required to make the project feasible.
- Your information will be treated and kept with a lot of confidentiality, great care and will be highly appreciated.

Much regards:

1) Your occupation

MP

Minister

Other

2) Age bracket

18 – 30      30 – 45      45 – 60      60 and above Gender

Male

Female

3) Your education level

degree

diploma

others

4) What are your views about the current Document Handling System? (please tick where appropriate)

excellent

good

average

poor

5) How efficient is the existing system? (Please tick where appropriate)

good

Fair

Poor

don't know

6) Is the Parliament ready to fund this project? (please tick where appropriate)

agree

Fair

Disagree

not decided

7) What is the level of computer literacy in organisation?

Good

Average

Poor

8) What do you believe will be the impact of the designed system on the cost of operation (administration)? (please tick where appropriate)

Good

Bad


Not decided

Your support is highly appreciated.

Thank you

## APPENDIX B

### SCREENSHOTS OF THE APPLICATION



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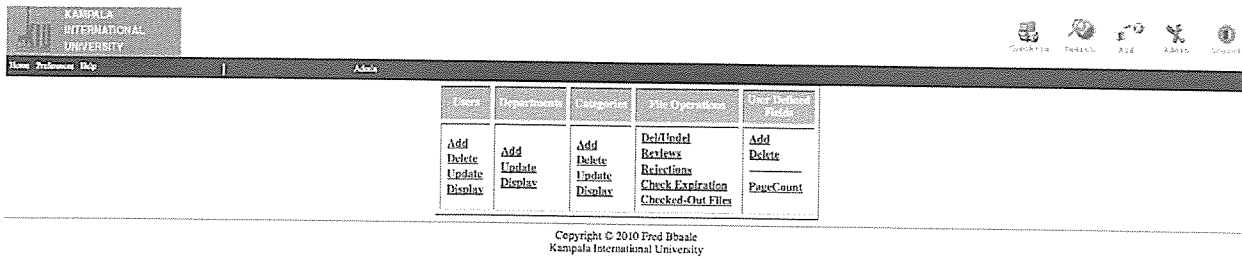
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demo, demo	demo, demo	demo, demo	demo, demo	demo, demo
Fred, Bbaale	Fred, Bbaale	Fred, Bbaale	Fred, Bbaale	Fred, Bbaale
Consultor, Professor	Consultor, Professor	Consultor, Professor	Consultor, Professor	Consultor, Professor
Sur, Bbaale	Sur, Bbaale	Sur, Bbaale	Sur, Bbaale	Sur, Bbaale
User, Admin	User, Admin	User, Admin	User, Admin	User, Admin

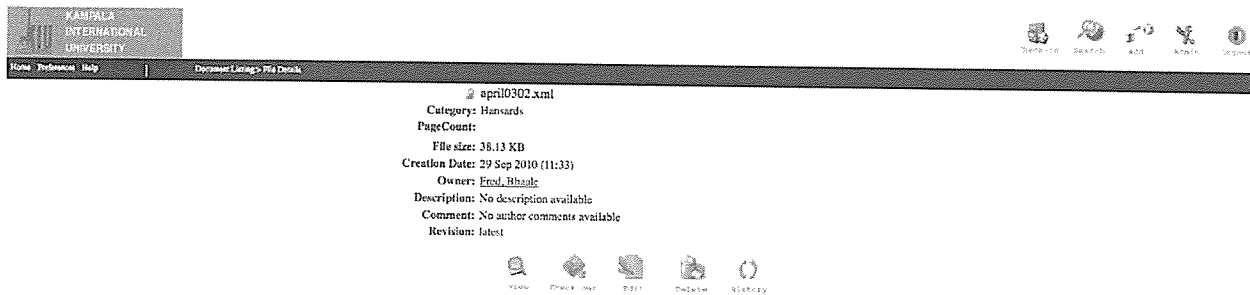
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### Add a file Screen



## The Main administrative Screen



## File Details