DESIGN AND IMPLEMENTATION OF AN AUTOMATED REGISTRATION MANAGEMENT SYSTEM

CASE STUDY: OUR LADY SEAT OF WISDOM SECONDARY SCHOOL

BY

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A Research Project submitted to the School of Computer Studies in Partial Fulfillment for the Award of Degree of Bachelor of Information Technology at Kampala International University

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DECLARATION

I **Ojambo Albert,** do here by declare that the content of this project is my original work and has never been to any other institution of learning for any academic award. The literature and citation from other work has been duly referenced and Acknowledge in the text, footnotes and bibliography.

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SUPERVISOR APPROVAL

The Research project entitled "**Design and implementation of an Automated Registration Management System**" *was written and conducted under my supervision.*

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DEDICATION

I dedicate this piece of work to: Mummy Robina Mbeiza, Ted, Monica, Susan, Ajambo (Senga), Daddy Sylvester Mangeni brothers and sisters, Charity Katari, Bwire Franco and Mangeni Bosco. I can't forget to extend my thanks to my favorite one Alison Linfield for her support in my education and MS Onkangi (Supervisor) for her struggle in spending her time to guide me and those not mentioned, you have been very instrumental in my academic life, may the Almighty God bless you.

ACKNOWLEDGEMENT

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATON

DBMS   Data Management System

LAN   Local Area network

OLSW   Our Lady Seat of Wisdom

KIU   Kampala International University

TPS   Transaction Processing System

UMPIRE   Umbiety Monitoring Platform and Infrastructure

VB   Visual Basic

SQL   Structure Query Language

SDLC   System Development Life Cycle

ERM   Entity Relationship Model

ABSTRACT

Registration management system has great impact on the day to day activities in most organization they among others they provide improved data accessibility, data integrity, security of information and so on.

To day, the trend in most organization has shifted from the traditional and manual way of storing data to a modern and organized way. Because of the, *Our lady seat of Wisdom* (OLSW) could not be left behind and it fully shares the advantages of database systems.

Development methodology and tools have also been discussed in details in chapter three this includes knowledge acquisition and analysis, data collection techniques, development tools and system validation.

This system has enabled OLSW to keep track of student's records, permits fast access to the student's information, easy back up of data and alt of space has been saved. It has further improved on the security of the school' data as to access data from a given department one must be authenticated by use of a unique password.

CHAPTER ONE

INTRODUCTION

1.0 General Introduction

Registration Systems refer to the software that handles all access to the database. It allows organization to store the information in the database via a given interface.

The user enters information concerning clients into the database using some particular database language .The data entries and request for information are controlled by the engine that is referred to as Database Management System. It is this same program that executes the necessary operation on the stored database.

Registration System is one of the most important branches of Information Technology that allow better tracking of information. When used together with programming, the two allow programmers to develop applications for various organizations and schools. This has got benefits like improved data integrity, reduced cost of operation, and improved security. The current system of record keeping at Our Lady Seat of Wisdom is still manual-based and hence submissive to a number of problems. Such problems included data redundancy, high cost of operation and data insecurity. This prompted the researcher to come up with the computerized system that could eliminate current problems.

1.1 Back ground of the Study

Our Lady Seat of Wisdom is a school that started its operation in 1999, with a population of 200 students. It is located in Makindye Sub County, Kansanga Parish Nabutiti Village. Our Lady Seat of Wisdom operated manually in registering and keeping student's data. Data was stored manually and this made it hard for management to access and use this data when required. Staff members kept student's information by writing into a huge black book which was then kept in a cupboard. These cabins, consumed a lot of space in office. The fact that information was stored in cupboards, it was vulnerable to all sorts of insecurity. It was because of the stated problems that the researcher designed Computerized System that has reduced and eliminated the problem completely.

1

1.2 Statement of the Problem

In Our Lady Seat of Wisdom, data was stored manually, there was a lot of data redundancy, lack of data integrity, high cost of data maintenance, and higher rate of data dependency, reduced data quality and deteriorating data management capability. This affected the well functioning of the school, which made the current study a necessity.

The researcher therefore aimed at designing and implementing an Automated Registration System that allowed easy entry of student's information, improved access to student's data and easy printing of registration reports.

1.3 Objectives of the Study

1.3.1 Main Objective
The main objective of the study was to design an Automated Registration System that has enable data accessibility and sharing of resources in order to reduce the cost of operation.

1.3.2 Specific Objectives
1. To investigate the problems that arises from the current system.
2. To design an Automated Registration System.
3. To test and implement the Automated Registration System.

1.4 Research Questions
1. What were the inefficiencies in the current system that was used at Our Lady of Wisdom?
2. Does the design and implementation of an Automated Registration System solve the loop holes in the current system?
3. What advantages the new system would offer to our lady seat of wisdom?

1.5 Scope of the Study

The Study was concerned on how to develop and implement an Automated Registration System for Our Lady Seat of Wisdom. The study further covered the technology required to design a Registration System. The Study further aimed at establishing procedures that were to be followed to register students using a Computerized System.

1.6 Significance of the Study

After the design of the system, students were served more efficiently, because the data was accessed efficiently. The management benefited from the system in away that the cost of operation was reduced.

The work of the school bursar was made easier because it was easy to sort records, retrieve records, save data, and use it, than it was to carry out the operations on data stored on papers.

1.7 Purpose of the Study

This Study project addressed problems like; redundancy, insecurity, high cost of operation and a lot of time was saved. The Study created a basis for evaluating the forms of Registration and thereafter enabled the researcher to draw a conclusion based on the cost benefit of the techniques.

1.8 Conceptual Frame work.

Local Area Network   **System User**

Database
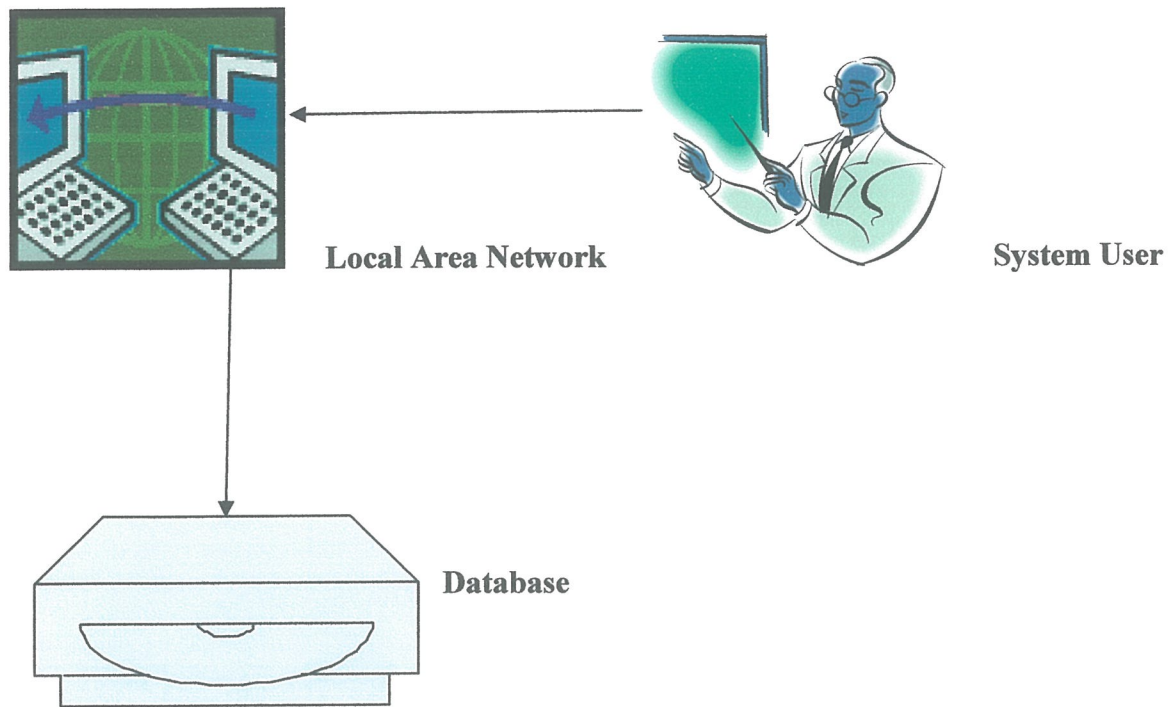
Figure 1: Conceptual Framework of the new designed System.

The System User stipulated different naïve users who are using the System in registering the students in Admission Department.

The Local Area Connection (LAN) stipulated the network connection within Our Lady Seat of Wisdom Secondary School. There are computers connected to share information. The Registration System also shared but to only users with access privileges.

The Database designed with line connecting the Local Area Network meant was part of the file shared within Local Area Network.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The aim of this chapter was to study how Computerized Registration Systems was to be put in place. Related information was mainly extracted from published database system books, internet and previously published journals and dissertations. In addition electronic journals from KIU library.

2.1 Scope of the Literature Review

The literature about the information system that was developed dwelled so much on information systems that make use of databases Long, (1989, p.249) network technology was also been covered especially for small peer to peer networks since this system might at one time be implemented via a network. It finds out how databases can be designed, how an interface can be created, and how such system can be put into use and maintained; it further covers problems anticipated and how they can be troubleshot. It looks at how the peer to peer network can be set up and the technology that can be used to share the different resources. It also covers the kind of computers and other devices that can be reliably used in setting up a network that will enable sharing of the database.

2.2 Database System

Database Systems refer to 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. According to Long, (1989) a database is the resource for all computer based information systems. By definition, a database is a collection of files that are in some way logically related so that data redundancy is minimized.

2.2.1 Approach to Database Systems

According to Long (2002), there are three fundamental approaches to design database system namely; Hierarchical approach, Network DBMS approach and the relational DBMS approach.

2.2.1.1 Hierarchical DBMS approach

Although network and relational DBMS technologies are considered superior to the hierarchical DBMS technology, the hierarchical approach remains the most commonly used.

This is more as a result of momentum than choice. Information management system a hierarchical product was by 1968 the game on shelves and this made it become more popular. It can be run on today's hardware.

It does not have the scope of features of more sophisticated network and relational DBMS'. Never the less, all new developments in the area of database management system use network or relational technologies.

Hierarchical DBMS is based on three data structures, actually an uprooted tree turned upside down. They are easy to understand and conceptualize.

2.2.1.2 Network or CODASYL DBMS

This approach to data management carries the hierarchical approach to the next level of sophistication by permitting children to have more that one parent. This approach minimizes redundancy and therefore allows for more queries to be made.

2.2.1.3 Relational DBMS

The relational approach to database management systems has been gaining momentum through the 1980's. In contrast, to the network DBMS, here data are accessed by content rather than by address. This approach uses the computer to search the database for the desired data rather than accessing data through a series of indices and physical addresses, as with both hierarchical and network DBMS.

Here the data structures are defined in logical rather than physical attempts .Until recently; relational DBMS have been slow to be effective in the real world, especially in transaction oriented environments.

However, for applications where the transaction value is low and the need for flexibility is high, relational DBMS out perform network DBMS.

2.3 Advantages of Computerized Registration Systems

According to long, (2002), there are many advantages that can be achieved when a computerized system is used and these include;

i. Reduced data redundancy: In file management systems, some of the same data files are repeated in different files in databases, by contrast the information appears just once.

ii. Time sharing: different users will have access to the system at the same point of time in different computers as long there are locally connected

iii. Centralization for multi-user system: centralized control enables sharing of data and tight security.

iv. More programs independent: with a database, the program and file formats are the same, so that one programmer or even several of them can spent less time maintaining files.

v. Increased user productivity: Database management systems are fairly easy to use, so that users can get their requests for information answered without having to resort to technical manipulations.

vi. Increased security: Although various departments may share data in common, access to specific data information can be limited to selected users. Thus, through the use of passwords, a student's financial, medical, and grade information in a school is made available only to those who have a legitimate need to know.

7

Although there are clear advantages of databases, there are still some short comings and these are; however, good advance in technology, there number of disadvantages which include.

i. Higher impact of failure, electronic information (soft copy) has higher risk of less than information written on physical paper, and stored in physical file (hard copy).

ii. The Computerized System, becomes computerized when it involves database with several provision of functionality. This requires the database administrator and users to understand the functionality to take advantages of it. This may involve training of staff to use the training system.

iii. The initial cost of Computerized System are high the hardware and software, installation and maintaining of database are expensive.

iv. Data vulnerability issues: although a database can be restricted access, it's always possible unauthorized users most especially the hackers to have access to the system.

2.4 Area of Application

According to Post and Anderson, (2000), Registration Systems are used mainly in institutions of learning like universities, financial institution and even can as well be used in secondary schools.

2.5 Registration System

According to Williams Hutchinson, (2000), Registration System is Computerized based information system that, records data by TPS (Transaction Processing System) as input into program that produces routine report as output. TPS is recorded event having to do with routine activities of business activities within the organization.

Registration System collects store, analyzing, and manipulating, sorting, calculating, summarizing and process data to provide useful accurate and timely information typically with in the context of an organization.

Hutchinson(2000), Although Registration System does not necessary have to be computerized, today most Registration System rely on computers and communication network to store, process and transmit information with for efficiency than would be possible with manual system. Registration System can be used by workers and managers at all levels in the organization.

2.5.1 Registration System in School

According to invest solution limited, (2002-2008), the Dubiety monitoring platform and infrastructure with RFID Extension (UMPIRE) is suite of hardware product and computer software application designed to enhance safety in school environment and reduce staff administration time. The system locates pupils during school day automatically "taking the registers attendance date are stored in secure databases used to generate summary.

According to Astronomo (1998) Students Registration System streamline the application Registration and monitoring of students in School or training institution.

According to Enterprise team product, they developed website and online admission system for leading play group Karachi "Sheba's play place " there are now looking at other schools to adopt the same system with required customization. The software system helps school streamline their admission process from registering a child.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter is aimed at suggesting the methodology that were used in building the proposed system. It covered the following areas of project development organization unit that was studied, study population, sample size, research instruments, data collection and presentation, data analysis and analysis of user requirements, development of the system, design techniques and tools for the system, development tools for the system, information systems plan, and limitations of the study and contingency measures that can be used. The suggested methodology with an extra knowledge of creativity will yield the suggested system.

3.1 Organization units of the Study

The organization that was studied was Our Lady Seat of Wisdom, a secondary school found in Kampala District, Makindye Sub County. This school was chosen because it had fallen circumstances of the disadvantages that came with file based system that was used That is why the researcher came up with the proposed system. The system store, manipulated information, and provided means for retrieval. It further printed registration reports, and any other student information as required. The areas that were studied included , the administration, accounts, academic affairs, and students' welfare.

3.2 Target Population

The population that was studied included; Administration, the Director of the Studies Headmaster, Assistant Deputy, staff, and a total of four people were to be studied. Information required included; the growth rate, future plans about the school and other expectations.

More information was further collected from the Accounts Department; the school bursar and other members from the various departments.

The information that was needed was the fees structure, number of installments in which students could pay, and the means of payment whether in the bank or direct to the cashier and any other valuable data.

3.3 Sample Selection

The researcher used systematic methods to select respondents who were able to give reliable and accurate information by virtual of the positions they held in the target organization.

In each of the departments, a total of at least ten members including the Department Heads were interviewed with the purpose of getting information that was important in the respective departments.

At least ten students from each class were given questionnaires to know the kind of information that was usually acquired from them. The techniques that were used were as follows; in a group of five students, the group members chose one representative to represent them.

And finally, the rest of the staff members, a total of fifteen randomly selected were both interviewed and questioned using closed ended questionnaires.

The cashier went further on suggesting how the information can be kept free from hackers and also provided the necessary financial documents to be analyzed.

3.4 Research Procedure of the Study

The requisite was that every researcher could carry out Study of this kind, a letter from the Head Department to introduce the researcher to the school was given. The researcher used utmost wisdom to become familiar with the day to day activities of the school. This enabled the researcher decide which data collection methods work best in the different departments. Different techniques were chosen and applied to get the information required.

Finally after data was collected, depending on the format of the data analysis, techniques were applied to analyze the data

3.5 Data Collection

The technique used for data collection depended on the information acquired from the respondents. The major techniques were interview, questionnaire, document analysis and observation.

3.5.1 Interview

In this data collection technique, the researcher interviewed and met those in responsibility personally, such as, Director of studies, the secretary and office messengers were interviewed in order to determine the flow of information among the different department in the organization.

3.5.2 Questionnaire

In this data collection technique, the researcher used closed ended questionnaires to question the respondents. Questionnaires were given out to 50 students in different classes in order to meet the researcher's objectives. Out of 50 questionnaires, 45 questionnaires were returned.

3.5.3 Observation

In the area of observation, the researcher used all activities to get information. By observing different departments in the Our Lady Seat of Wisdom. Different departments such as DOS, admission, Bursar and other staff members were observed.

3.6 Tools used in Data Collection

The tools that were used included; interviews, questionnaires, document analysis, and observation. In situations where a questionnaire were used, questions were prepared before time, edited and pre-tested to ensure that they meet the researcher's objectives. They were supplied to respondents to complete. Afterwards, they were collected for analysis.

Observation was used in all activities to get information. Document analysis was used on all documents collected from all the different departments and copies of the document such as reports was made.

The fact that the sample size was not large, interview and questionnaires techniques were used interchangeably for administrators from all the departments.

3.7 Development Methodology.

In Preliminary investigation, the researcher conducted preliminary analysis, proposed alternative solutions, and described the costs and benefits of each solution. Submitted a preliminary plan with recommendations. The researcher did a system analysis, and design, it was safe, even preferable to assume that researcher knew nothing about the problem at hand. In the first phase, the researcher's job was mainly asking questions, did research and tried to come up with a preliminary plan.

Systems analysis, in this area the researcher gathered and analyzed the data using written documents such as interviews, questionnaire, observations, and sampling. Analyzed the data using CASE tools, data flow diagrams, systems flow charts, connectivity diagrams, grid charts, and decision tables and wrote a report.

Systems design, the researcher came up with a preliminary design, and   then a detailed design. Using CASE tools, prototyping tools and project management software among others. Defined requirements for output, input, storage, and processing system controls and backup.

In Systems development, the researcher acquired the hardware and software and tested the system. Researcher decided whether to create a program in house, or buy it simply meaning purchase a system software package. The researcher decided to create a new program.
 Systems implementation, the researcher converted the hardware, software, and files to the new system and trained the users. The researcher converted using parallel conversion then compiled the final documentation and trained the naïve users.

Systems maintenance was the area of maintainability, activities was designed to keep programs in working condition, error free, up dated, adjustment, replacement, repair, measurement, test, edit and evaluate the system periodically.

3.8 Development Tools

In this area the researcher looked at the requirements both hardware and software that the system needed in order to carry out the function requirement to fulfill the goals of Our Lady Seat of Wisdom. MySQL was used for creating the Database and the forms were created using Visual Basic 6.0. Visual basic was used to design the human computer interface with the electronic forms that were linked to the tables in the database.

3.9 Data analysis

The data gathered was arranged and prioritize. Excel software was used in presenting the data both through pie chart and graph chart. Information that was presented in charts were the number of respondents, gender balances.

3.10 System Testing

Testing aimed at finding out weather the system fully meets its requirement. In this project, testing was divided into two namely, unit and system testing. Under unit testing, emphasis was put on individual tables in the database, individual GUIS to test user friendliness, and the network. After this was passed, researcher integrated the system and tested it as a whole to see that the system work well all together. Simulated data was used to test the working of the system

CHAPTER FOUR

DATA PRESENTATION

4.0 Introduction

This chapter presents the out comes from the study that researcher carried out. In the study, the researcher used questionnaires as the major techniques. After the data was collected, it was analyzed.

4.1 Data presentation of the Respondents.

4.1.1 The age distribution of respondents.

The findings on the age distribution are presented in the table below.

Age distribution of respondents

Age	Frequency	Percentage %
<20	7	46.6%
20<30	6	40%
30<50	2	13.3%
50 above	0	0%
Total	15	100%

Table 1: Showing age distribution of respondents

The age distribution of respondents
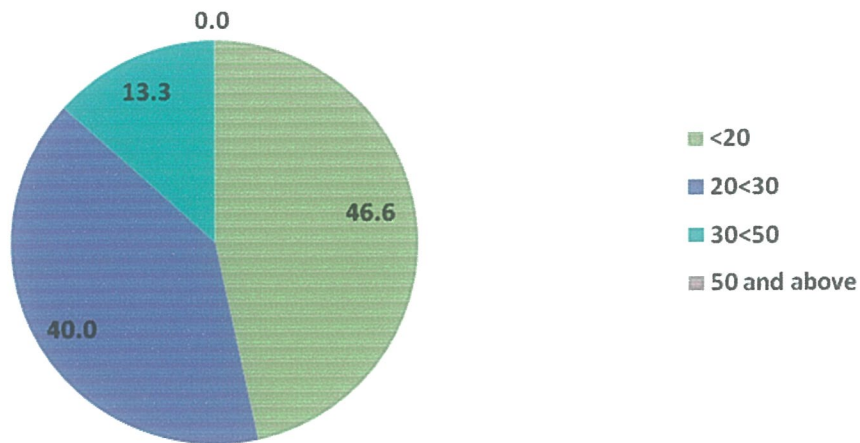
Figure 2: showing age distribution of the respondent

From the above graph, seen that majority of the respondents were below 20 years of age with a number of seven followed by those in the range 21-30 with a frequency of six and two were in the range between 31- 55 where as none of the respondents was above 50 years of age.

4.1.2 Gender distribution

Gender	Frequency	Percentage%
Male	10	66.7%
Female	5	33.3%
Total	15	100%

Table 2: showing gender of respondents
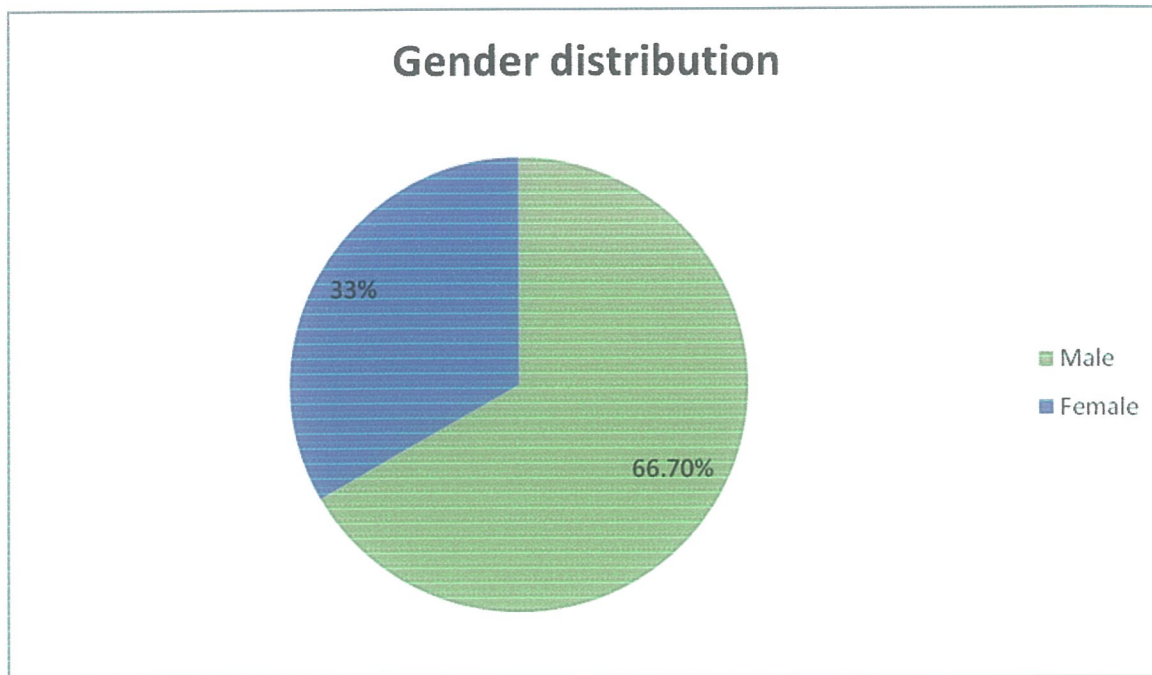
Figure 3: chart showing gender distribution

The majority of the respondents were male, with percentages of 66.7%. The female had 33.3%

4.1.3 Education level of the respondents

Qualification	Frequency	Percentage%
Degree	1	6.66%
Diploma	4	26.67%
S.6 leavers	2	13.3%
Below S.6	8	53.3%
Total	15	100%

Table 3: showing Education level of respondents

Education level of the respondents

- Degree
- Diploma
- s.6 leavers
- Below s6

6.66%

26.67%

13.30%

53.30%
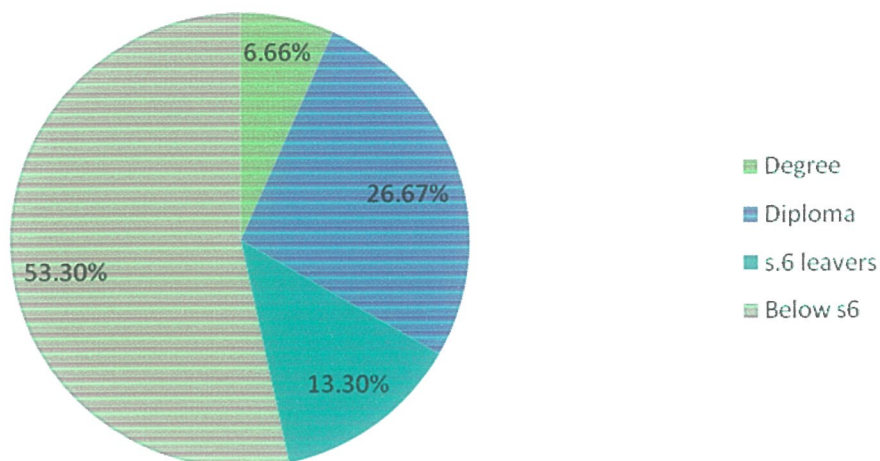
Figure 4: chart showing education level of respondents

The majority of respondents were below S.6.This was because the main focus was put on students respondents whose academic standard was below S.6 dominated.

6.665% had degrees, 26.67% had diplomas, 13.3% were s.6 leavers but acting as assistant teachers.

4.1.4 Respondents' view about the growth of the school.

Rating	Frequency
By 2000-jan	200
By 2003-jan	260
By 2005-jan	300
By 2007-jan	350
By 2009-jan	420

Table 4: showing the growth rate of the school

Respondents' view about the growth of the school.
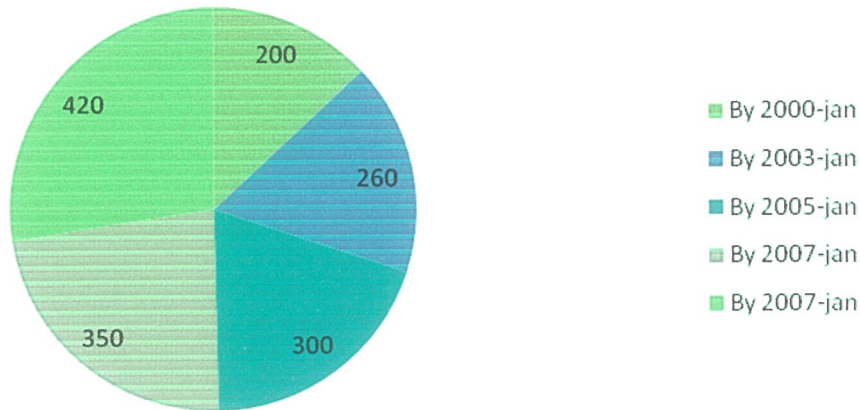
Figure 5: Chart showing rate of growth of the school

From the above graph, the numbers of students are growing steadily. This was an indication that in time to come, the current manual system will not only be inefficient but also unable. Hence making further of the new current system to a necessity

4.1.5 Respondent's view about the efficiency of the new system

Rating	Frequency	Percentage%
Excellent	1	6.6%
Good	4	26.6%
Fair	4	26.6%
Poor	1	6.6%
Don't know	5	33.3%
Total	15	100%

Table 5: showing the efficiency of the new system

Respondent's view about the efficiency of the new system

Excellent 6.6%
Good 26.6%
Poor 26.6%
Don't know 33.3%
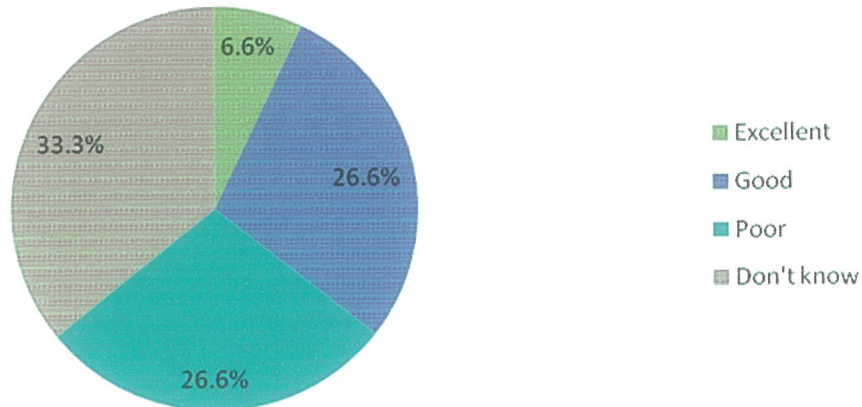
Figure 6: chart showing respondent view on efficiency expected from the new **system.** Graphically, majority 33.3% of the respondents did not know any thing about the system; this was so probably because of the low literacy level in peoples understanding of information systems. 26.6% tied, suggested the current system was expected to be fair and good where as, 6.6% also tied, the system was expected to excellent and poor. From observation of the findings, current system was average and therefore there was need to design a system whose majority efficiency rating would be from good to excellent .

4.1.6 Respondents view about the school ability to fund the project

Rating	Frequency	Percentage%
Agree	9	60%
Fair	1	6.6%
Disagree	0	0%
Not decided	5	33.4%
Total	15	100%

Table 6: showing people's view about the school ability to fund the project
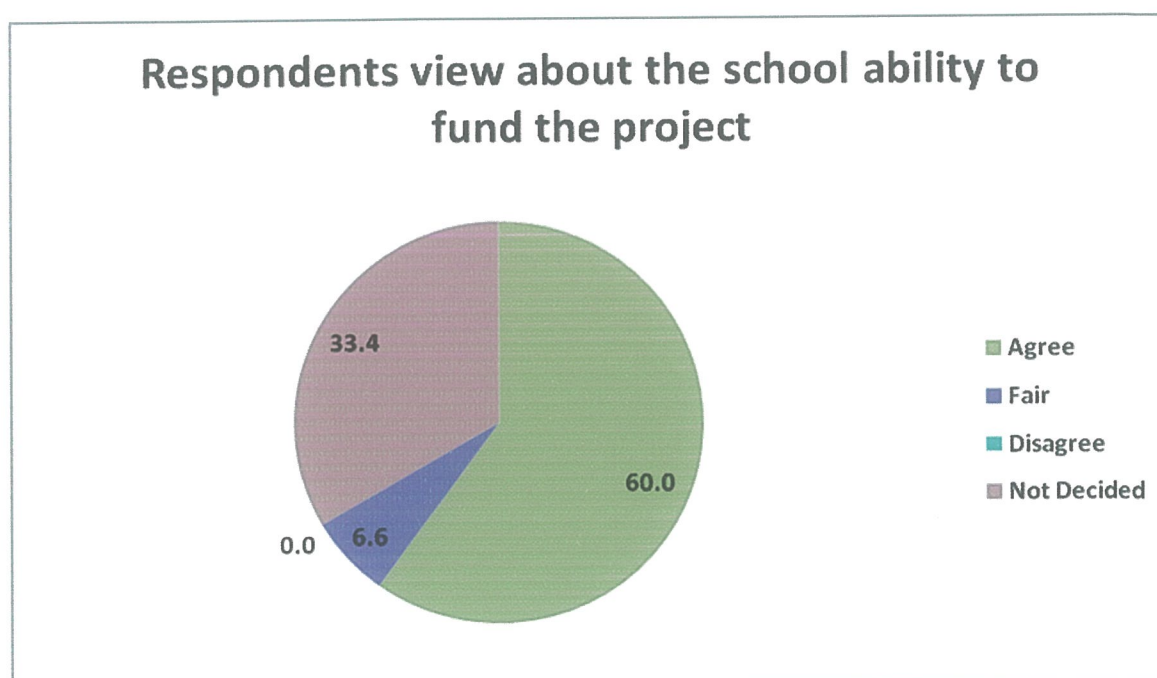
Figure 7: chart showing school's ability to fund the school

60% of the respondents agreed that the school can fund the project. They give reasons like the school had computer lab with five computers operating . However, 33.4% had not decided because the respondents did not understand the requirement of the proposed system

4.1.7 Respondents view on the level of computer literacy in the school.

Responses	Frequency	Percentage%
Excellent	0	0%
Good	1	6.6%
Average	12	80%
Poor	2	13.4%
Total	15	100%

Table 7: showing respondents view on the level of computer literacy in the school
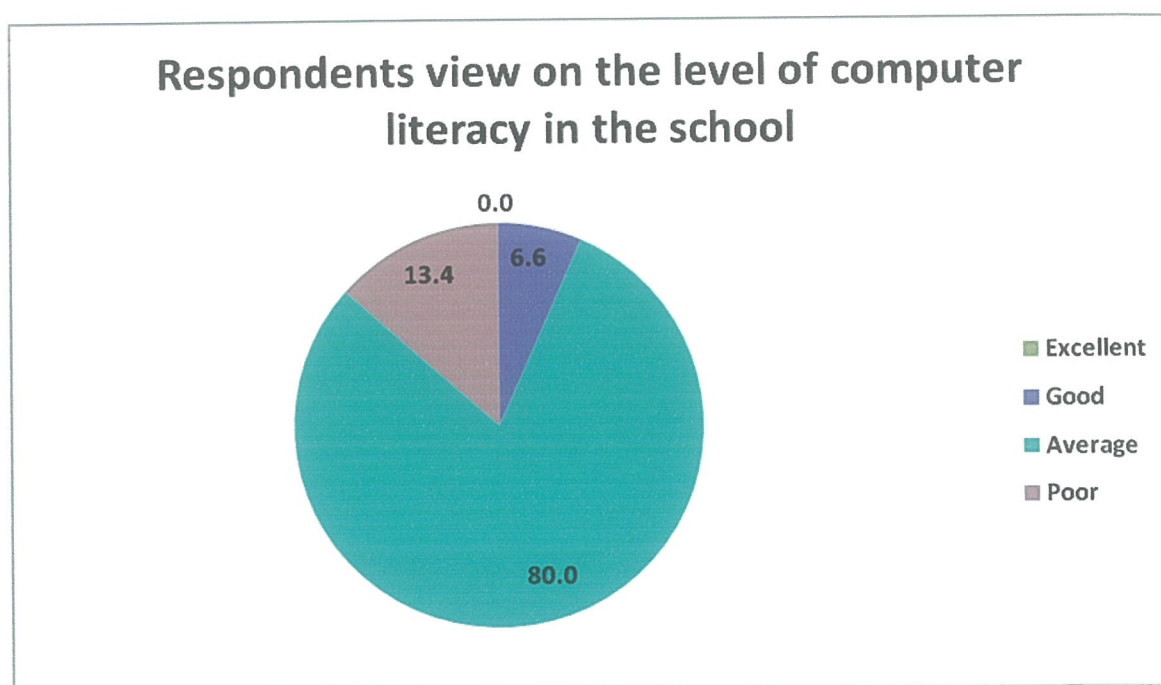
Figure 8: chart showing computer literacy level of school Our Lady Seat of Wisdom

Majority with 80% responded that the computer literacy was only average. Many respondents could use computers but actually could not understand the way computers

works, no respondents believed that the level of computer literacy was excellent, only 6.6% believed that the level of computer was good where as 13.4% said that the level was poor. Giving a reason that never even seen what a computer was. This could be because of the small computer lab owned by the school was only restricted for use by staff members and administrators

4.1.8 list of respondents

Name	Duty held at school	Gender	Age	Duration spent at the school
Kugonza Sam	Student	M	16	2
Kato Badru	Bursar	M	47	10
Kiiza Moses	Teacher	M	39	3
Kusiima Godfrey	Teacher	M	25	4
Wamani Bosco	Student	M	17	1
Nantume Beatrice	Student	F	16	2
Kahwa Bendict	Teacher	M	24	4
Ainomugishae Christine	Teacher	F	25	3
Kyasiimire Preem	Student	F	17	3
Ssebowa David	Head teacher	M	27	6
Twesigonwe Benard	Student	M	16	2
Ssekandi Joseph	Student	M	17	3
Katusiime Juliet	Student	F	15	2
Namata Mary	Student	F	16	1

Table 8: showing list of respondents

4.2 Problems. arising from the current system

Therefore, from the above data analysis and the data collected using the various techniques was identify with the following problems in the current system;

1 Delay in accessing data

2 Lack of enough security and confidentiality

3   Data redundancy which also leads to wastage of resources among others.

4.3 Performance of the new system

Having identified the above problems with the old system, the new system must targeted finding away of solving them. Therefore it should do the following;

1. Ensure data security.

2. Ensure easy data accessibility

3. Reduced data redundancy and improve data integrity,

4. Allow printing of the data reports and save space and thereafter reduce on the cost of operation

4.4 Description of the system

The system was developed on Pentium III computer with speed of 933MHZ , 512 of RAM and 40 GB of hard disk space running window XP service park 2 and Microsoft office 2003. The database was created using MYSOL. PHP all wampserver 2.10.1 version software. Interface to the database tables were created using visual basic 6.0.connectivity between human computer interface forms with the database tables was connected using MYSOL connector software version.

The system provides functional and non function requirements

4.4.1 Functional requirements of the new system

1. It should be able to accept input from the user.

2. The system must allow the administration to access information entered by other users

2. It must provide away for the user to select and print out reports.

5. It must allow the user to easily backup data

4.4.2. Non functional requirement of the new system

2. The system must be able to install with ease.

2. The system must not occupy more than 500MB of disk space

3. It must be easy to learn and use.

4. The system must be easy to load

5. The system must be platform independent

4.5 Study limitation

In the study the following were limitation;

1. There was lack of fund this was evident when it came to printing questionnaires. Instead of the previously suggested 50 copies only 25 were printed.

2. The response was poor, this can be seen from the fact that out of the 25 questionnaires that were distributed, only 12 were returned and out of the ten respondent scheduled for interviews only five intended.

3. Ambiguity in requirements. Most of the respondents were totally green about what a Computer was.

4. Transport means were not good because researcher had to walk in case of rain because of flooding in the community where the school is located.

5. The schedule was not followed collectly. This was because of the result of holidays in which the researcher were forced to stay apart

6. Language barriers was another problem in way that most of the interviews were carried in the local language (Luganda) which the researcher could not understand.

CHAPTER FIVE

SYSTEM DESIGN AND IMPLEMENTATION.

5.0 Introduction

This was a phase that demonstrated how the end users and the system input/output process. Having clearly understood the problems, collected and analyzed data and identified the System requirements, the next important phase was system design and implementation. In this phase, all the key issues identified previously were carefully considered. This was very important because most of the errors originated from this area. More than 60% of the total time was spent on system design. Tools used in this phase included:

5.1 Conceptual Design

5.1.1. Entity

In the this project, the identified entities were;

1. Student

2. Accounts

3. Staff

4. Department

5. Results

5.1.2 Attributes

5.1.2.1 Students

Attributes of the Students were, First name, Second name, Other name, Date of Birth, Class, Term. Contact

5.1.2.2 Staff

First name, Last name, department, Date of birth, Gender, Qualification, Salary, marital Status.

5.1.2.3 Department

Department ID, Department name , head department

5.1.2.4 Account

Students RegNo, First name, Last name, class, term, Amount paid, Balance

5.1.3 Relationship

It represented the relationships between entities or elements in the system. Also it reflected on a static view of the relationship between different entities .a staff member belonged to one or more departments. A department have one or more staff members. A student belonged to one or more departments. A department have one or more students. One or more students have one accounts in the accounts section. One or more students own results.
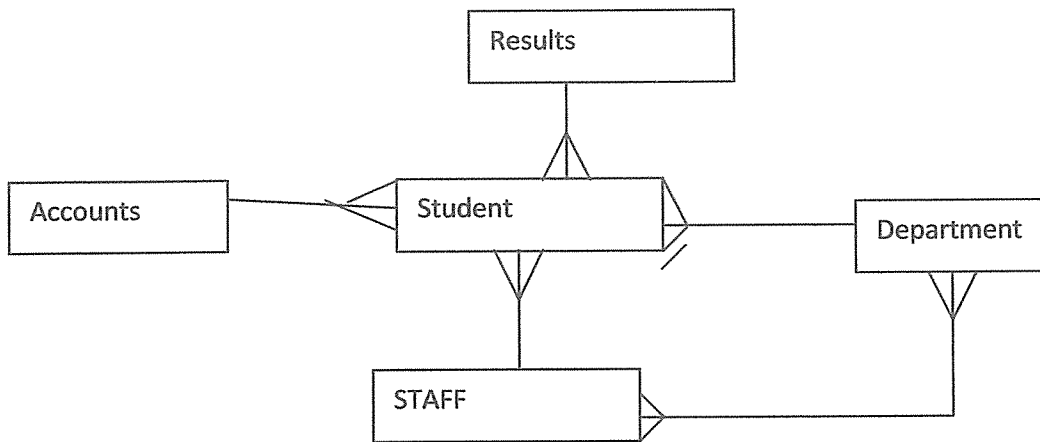
Figure 10: Entity Relationship Model

5.1.4 Relational schema

RESULTS
Student regno (FK)
FNAME
LNAME
ADDRESS
AMOUNT
SECURITY
DATE

ACCOUNTS
Student regno (FK)
FNAME
LNAME
Year
Class
Term

STUDENT
Student regno(PRI)
Surname
Other name
Gender
Date of birth
Class
Next of kin

STAFF
Staff id
FNAME
LNAME
Gender
Date of birth
Position
Salary

DEPARTMENT
Department id
Dept name
Department head
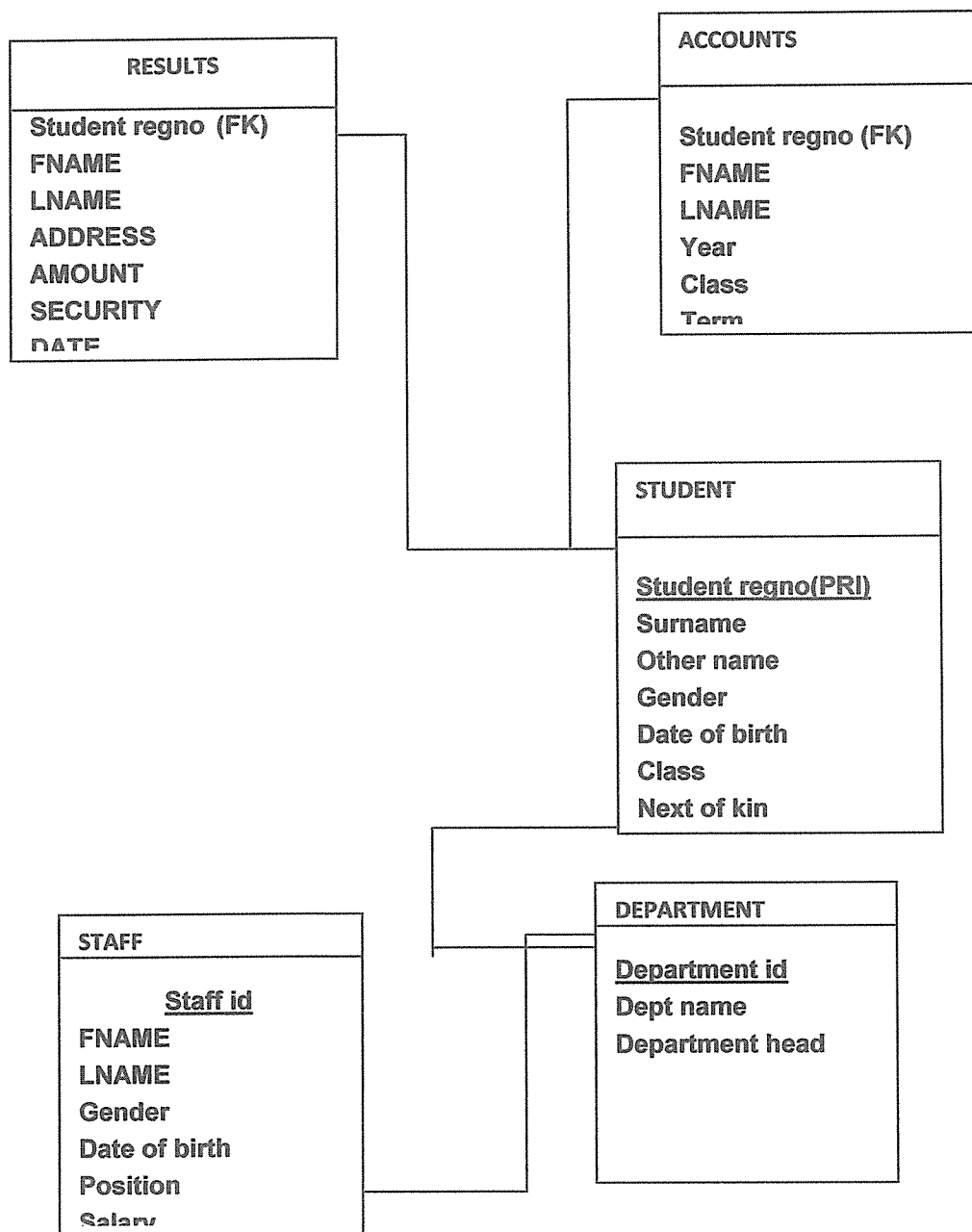
Figure   10:   showing   the   relationship   between   entities

28

5.1.5 Table Structure

5.1.5.1 Students table

FIELD NAME	DATA TYPE	DATA SIZE	KEY	Null
Student Regno	varchar	10	PRI	no
Surname	varchar	15		yes
Other name	varchar	12		yes
Gender	varchar	15		yes
Date of birth	dater	20		yes
Class	varchar	20		yes
Next of kin	varchar	20		yes
Contacts	varchar	20		Yes
Department ID	Varchar	10	FK	yes

Table 9: Showing students details on how records are stored in database

```
c:\wamp\bin\mysql\mysql5.0.51b\bin\mysql.exe

+-----------------------+
| Tables_in_ourladyseat |
+-----------------------+
| account               |
| olevelresults         |
| staff                 |
| students              |
+-----------------------+
4 rows in set (0.00 sec)

mysql> desc students;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| regnor    | varchar(12) | NO   | PRI | NULL    |       |
| surname   | varchar(9)  | YES  |     | NULL    |       |
| othername | varchar(9)  | YES  |     | NULL    |       |
| Gender    | varchar(9)  | YES  |     | NULL    |       |
| class     | varchar(9)  | YES  |     | NULL    |       |
| contact   | varchar(9)  | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)

mysql> select * from students;
+--------+---------+-----------+--------+-------+-----------+
| regnor | surname | othername | Gender | class | contact   |
+--------+---------+-----------+--------+-------+-----------+
| s110   | nabirye | monika    | female | s6    | 07828934  |
| s111   | kesima  | masa      | male   | s6    | 078008793 |
| s122   | janet   | kassi     | female | s1    | 078000793 |
| s133   | lwanda  | saku      | male   | s3    | 078099793 |
+--------+---------+-----------+--------+-------+-----------+
4 rows in set (0.03 sec)

mysql>
```

Figure 11: shows the sample on how the students table in the database

30

5.1.4.2 Staff table

FIELD NAME	DATA TYPE	DATA SIZE	KEY	Null
Staff id	Varchar	10	PRI	No
Fname	Varchar	15		No
Lname	Varchar	15		No
Gender	Varchar	10		No
Date of birth	Date			Yes
Position	Varchar	20		Yes
Salary	Double			Yes
Qualification	Varchar	30		Yes
Department ID	Varchar	10	FK	Yes

Table 10: Showing the details of staff table in the database

```
c:\wamp\bin\mysql\mysql5.0.51b\bin\mysql.exe                           - □ ×

4 rows in set (0.03 sec)

mysql> desc staff;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| staffnor      | varchar(12) | NO   | PRI | NULL    |       |
| fname         | varchar(9)  | YES  |     | NULL    |       |
| lname         | varchar(9)  | YES  |     | NULL    |       |
| gender        | varchar(9)  | YES  |     | NULL    |       |
| position      | varchar(9)  | YES  |     | NULL    |       |
| qualification | varchar(9)  | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
6 rows in set (0.06 sec)

mysql> select * from the staff;
ERROR 1146 (42S02): Table 'ourladyseat.the' doesn't exist
mysql> select * from staff;
+----------+-------+--------+--------+----------+---------------+
| staffnor | fname | lname  | gender | position | qualification |
+----------+-------+--------+--------+----------+---------------+
| s112     | aron  | kai    | female | secre    | degree        |
| s232     | fiona | jia    | female | secre    | deproma       |
| s3129    | josey | susat  | male   | recep    | certif        |
| s345     | ajok  | hassan | male   | manager  | deproma       |
+----------+-------+--------+--------+----------+---------------+
4 rows in set (0.00 sec)

mysql> _
```

Figure 12: the sample of staff details stored in the database

5.1.4.3 Accounts table

FIELD NAME	DATA TYPE	DATA SIZE	KEY	Null
Student regno	varchar	10	PR	No
Fname	varchar	15		yes
Lname	varchar	15		yes
Year	integer			yes
Class	Integer			yes
Term	integer			yes
Amount paid	double			yes
Balance	double			yes

Table 11: Showing the details account table in the data base

```
c:\wamp\bin\mysql\mysql5.0.51b\bin\mysql.exe

| students                         |
+----------------------------------+
4 rows in set (0.00 sec)

mysql> desc account;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| accountnor  | varchar(12) | NO   | PRI | NULL    |       |
| fname       | varchar(9)  | YES  |     | NULL    |       |
| lname       | varchar(9)  | YES  |     | NULL    |       |
| year        | varchar(9)  | YES  |     | NULL    |       |
| class       | varchar(9)  | YES  |     | NULL    |       |
| term        | varchar(9)  | YES  |     | NULL    |       |
| amountpaid  | varchar(9)  | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
7 rows in set (0.00 sec)

mysql> select * from account;
Empty set (0.00 sec)

mysql> _
```

Figure 13: showing the sample and structure of account table in the database

5.1.4.4 Departments table

FIELD NAME	DATA TYPE	DATA SIZE	KEY	Null
Department ID	Varchar	10	PRI	No
Dept name	Varchar	10		yes
Department head	Varchar	15		yes

Table 12: Showing the details of department table in the database

5.1.4.5 Results O level table

FIELD NAME	DATA TYPE	DATA SIZE	KEY	NULL
Student regno	Varchar	10	FK	No
Fname	Varchar	15		Yes
Lname	Varchar	15		Yes
Class	Integer			Yes
term	Integer			Yes
Math	Integer			Yes
English	integer			Yes
Physics	Integer			Yes
Chemistry	Integer			Yes
Biology	Integer			Yes
Agriculture	Integer			Yes
Geography	Integer			Yes
History	Integer			Yes
CRE	integer			Yes
Exam No	Varchar		PR	No

Table 13 : Showing the details of O level in Our Lady Seat of Wisdom

```
c:\wamp\bin\mysql\mysql5.0.51b\bin\mysql.exe                     _ ð ×

mysql> select * from account;
Empty set (0.00 sec)

mysql> desc olevelresults;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| studentregnor | varchar(12) | NO   | PRI | NULL    |       |
| fname         | varchar(9)  | YES  |     | NULL    |       |
| lname         | varchar(9)  | YES  |     | NULL    |       |
| class         | varchar(9)  | YES  |     | NULL    |       |
| term          | varchar(9)  | YES  |     | NULL    |       |
| math          | varchar(9)  | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
6 rows in set (0.01 sec)

mysql> _
```

Figure 14:Showing the sample structure on how details of O level results in a table stored in the database

5.1.4.6 Results A level Sciences

FIELD NAME	DATA TYPE	DATA SIZE	KEY	NULL
Student regno	varchar	10	FK	No
FNAME	Varchar	15		Yes
LNAME	Varchar	15		Yes
Class	integer			Yes
Term	integer			Yes
Physics	integer			Yes
Chemistry	integer			Yes
Biology	integer			Yes
Math	integer			Yes
General Paper	integer			Yes
Exam No	varchar		PR	No

Table 14; showing the details of A level sciences in Our Lady Seat of Wisdom

5.1.4.7 A level results arts

FIELD NAME	DATA TYPE	DATA SIZE	KEY	NULL
Student regno	varchar	10	FK	No
FNAME	Varchar	15		Yes
LNAME	Varchar	15		Yes
Class	integer			Yes
Term	integer			Yes
History	integer			Yes
Geography	integer			Yes
Economics	integer			Yes
Divinity	integer			Yes
Luganda	integer			Yes
Exam No	varchar		PR	No
Fine art	integer			Yes
General Paper	integer			Yes

Table 15 : Showing the A level results in arts in Our Lady Seat of Wisdom

5.2 Context Design
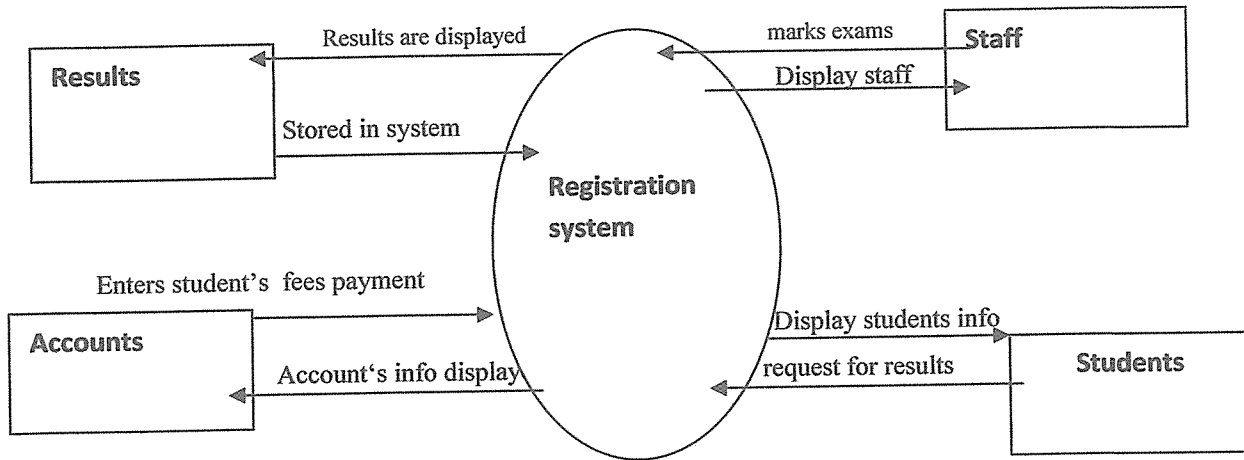
Figure 15: Showing the context Diagram

KEY

Logical flow

Entities

Registration system
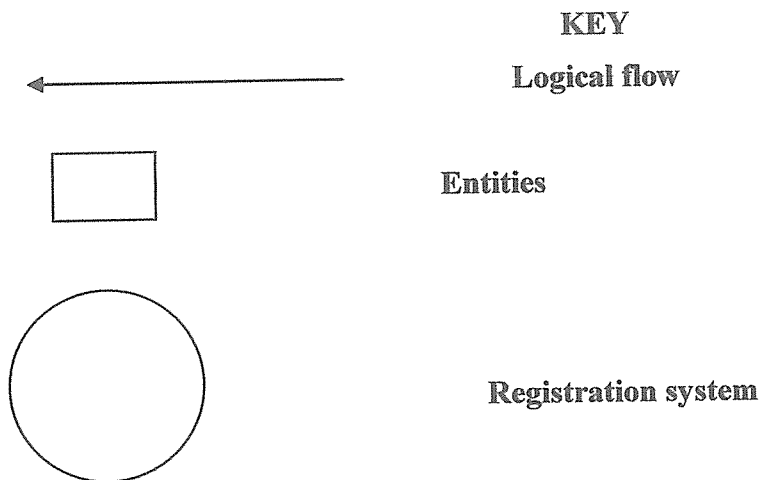
The above diagram shows the flow of information between different entities. Where by students requests exam mark from the registration system and requests are granted by the system. Registration system stores details of the staff members, account office and students account enters student's fee payment to the system and then the system displays the details

5.2.1 DFD for the new System
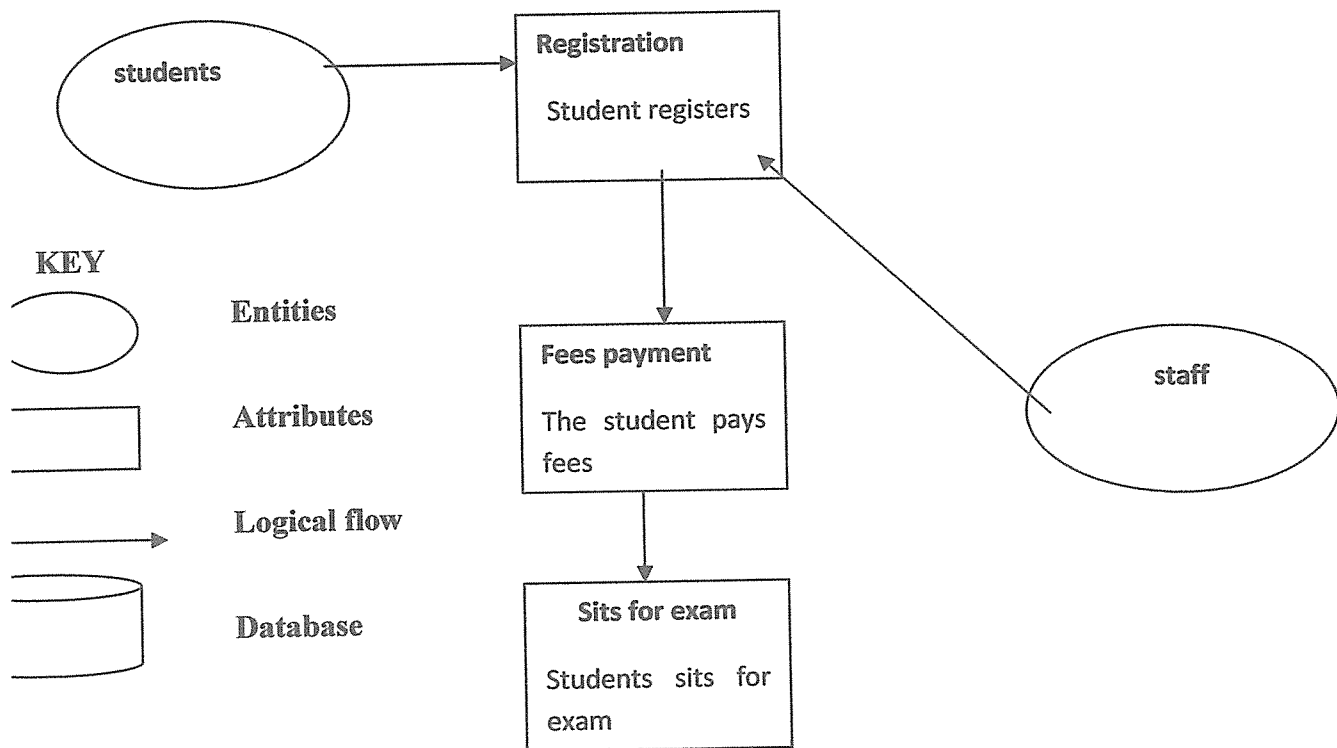
Figure 16: DFD showing information flows through the registration system

The DFD above shows the flow of information. The student registers in the admission office, pays the fees in the account office after all that has been done the staff evaluates exams for student and all information are stored in the database.

5.3 System interfaces.

5.3.1 splash screen

OLSW

OUR LADY SEAT OF WISDOM

OUR LADY

XP

Version 1.0.0

this project is copyrighted no changes should be made without permision from Alberts @ aral it solution 2009.In case of any problems contact 078205238 for technical support. Read the instructions careful be fore using the system.

@ALBERT 2009
ARAL IT SOLUTIONS

STRIKE ANY KEY TO LOG IN..................
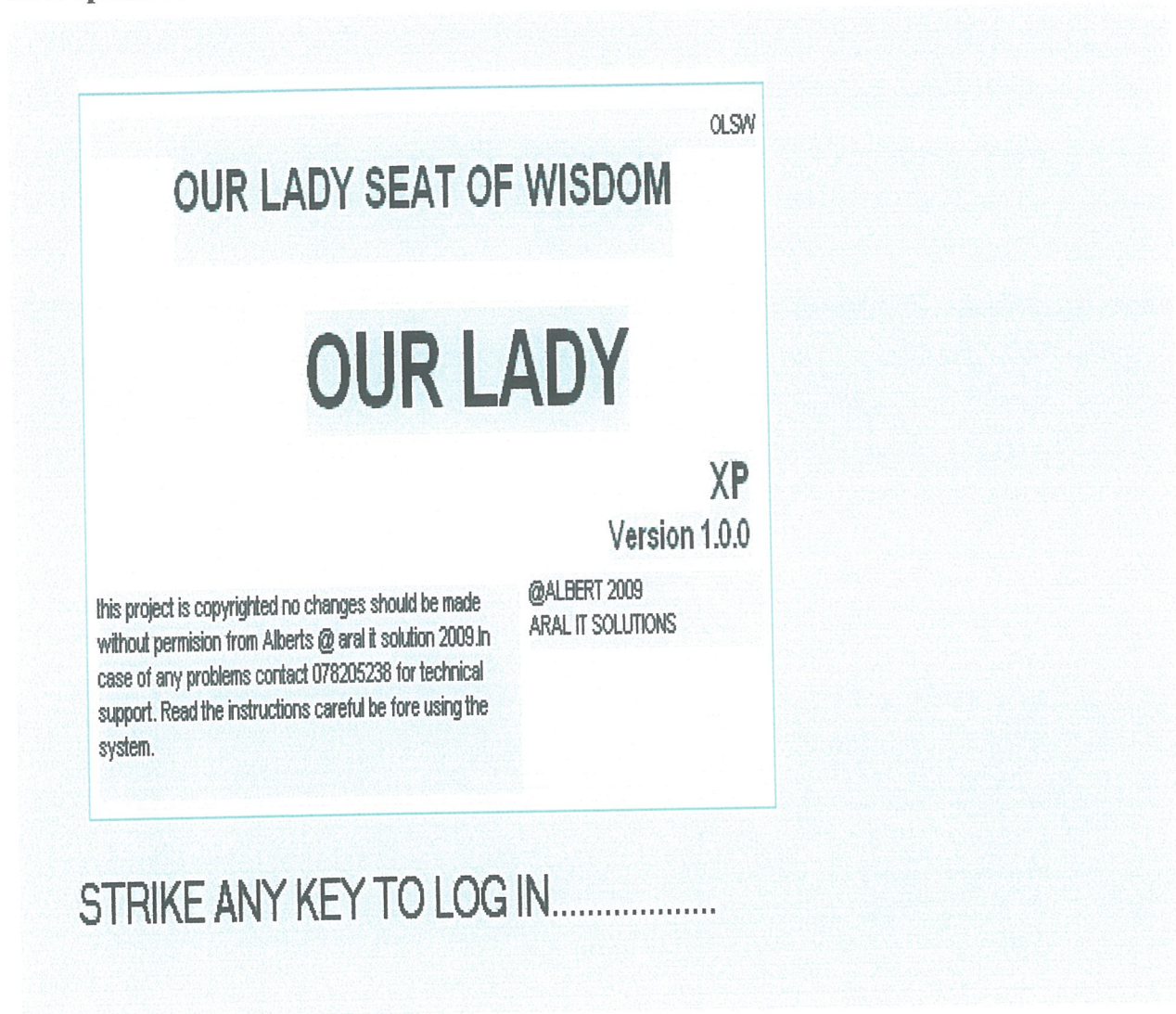
Figure 17: A sample of splash screen

A splash form that displays when the system is loading settings. Its recommended that the user of the system must be patient as the system loads it takes 2-3 minutes depending on the performance of naïve user machine
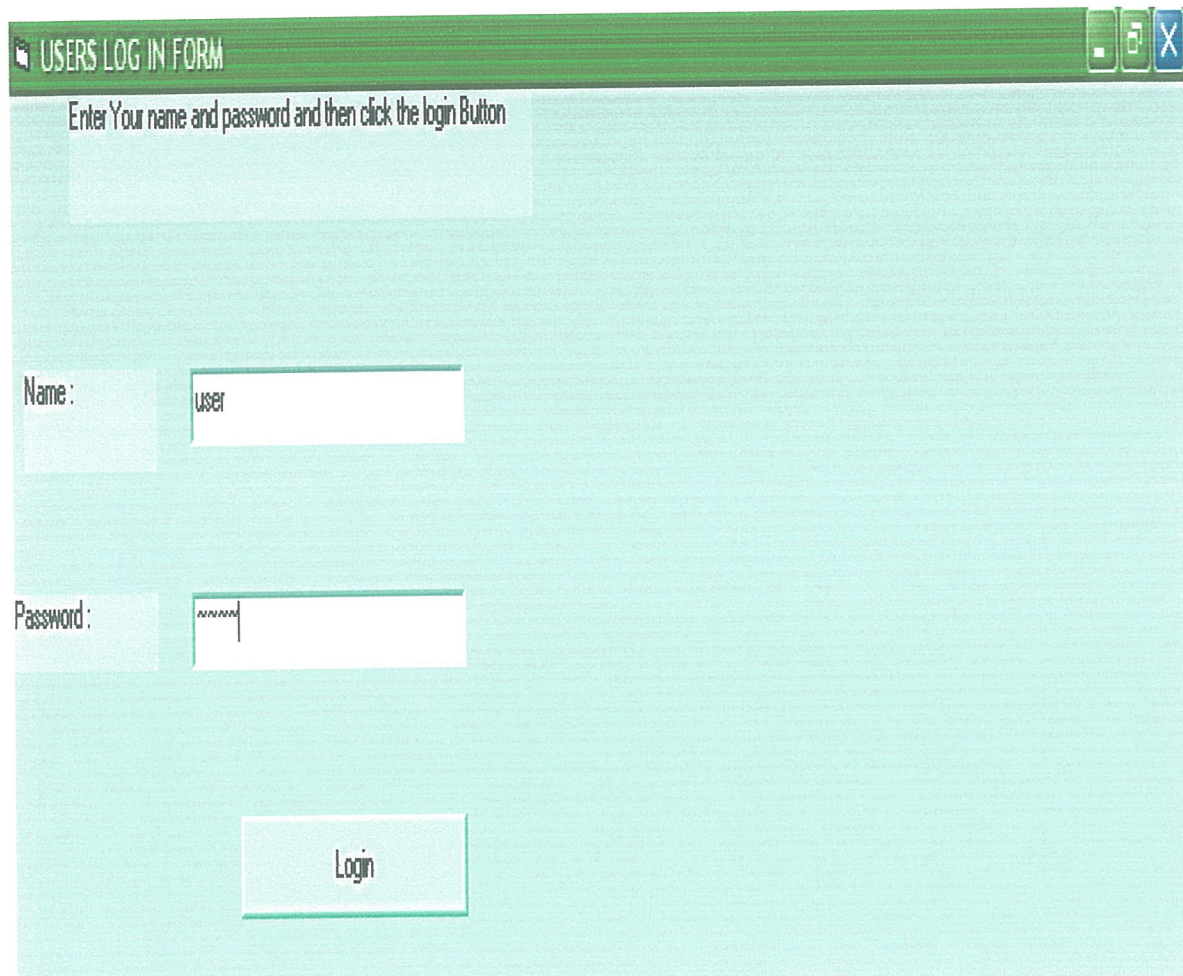
5.3.2 Welcome form

Figure 18: showing the welcoming form

The splash form invokes a welcome form which provides three options; to register anew user, login to the system and to cancel the operation. it also invokes either the registration form or a login form.

5.3.3 login form

Figure 19: showing the login form in the system

This is a login form where the user enters the username and password to access the database.

5.3.4 Main form
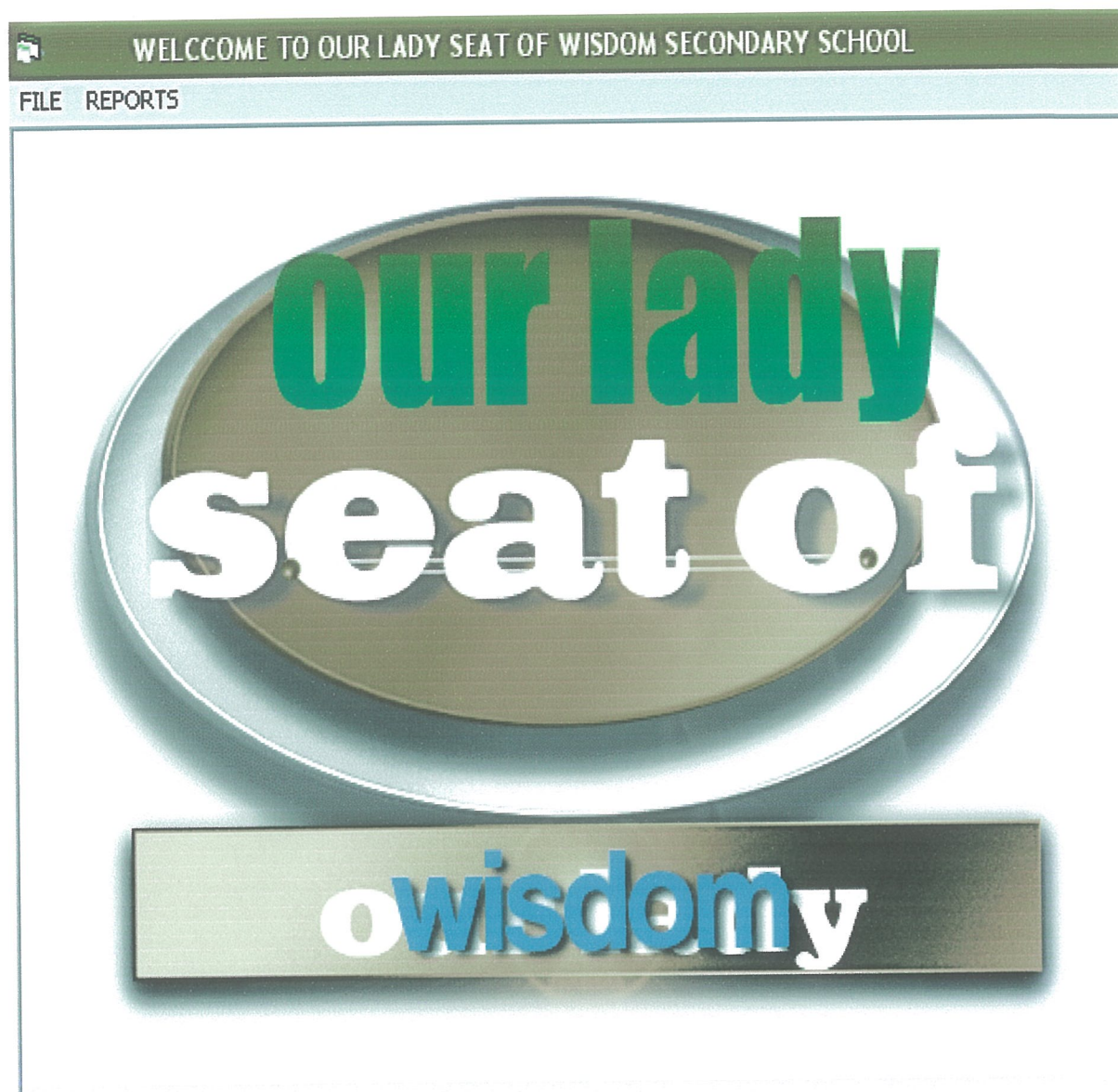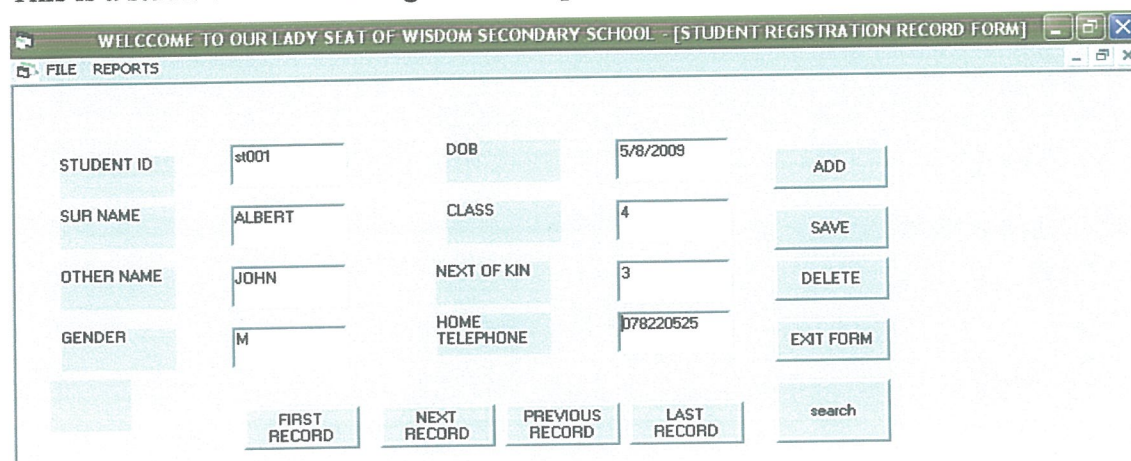
Figure 20: showing main form that contain all other files in the system

Main form contains reports that system generates, if user press the cursor on the menu bar, will have access to preferred document.

5.3.5 students form

This is a student's data tracking form. It captures the data and send sit to the database.
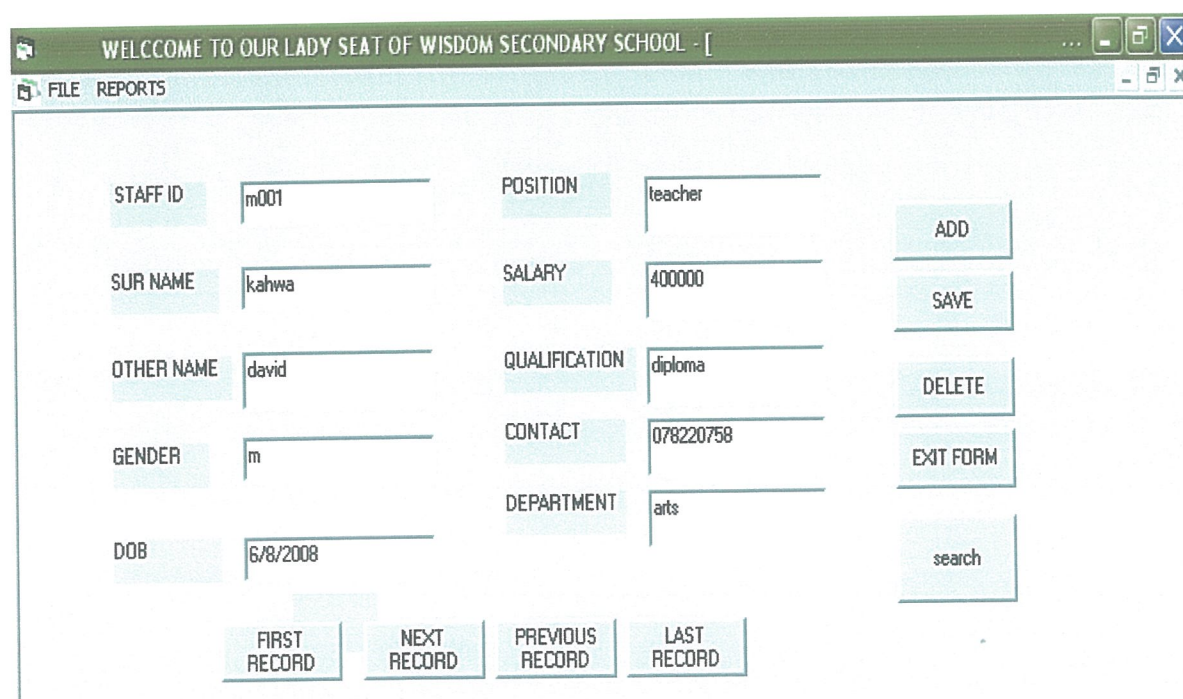
Figure 21: showing the students data tracking form .

This is a student's data tracking form. It captures the data from the user and sends it to the database tables .

5.3.6 staff form

Figure 22: showing the staff members

This form is used to track staff member's data and sends it to the database

5.3.7 Account form

Figure 23: showing account form

Above is an accounts data tracking form that captures information from the user and stores in the database

.

5.3.8 Results (A level)

Figure 24: showing A level results

Above is a form that is used for tracking results for A level students in arts department.

5.3.9 Department form

Figure 25 showing the data of department captured in form

47

Above is a form that is used for tracking department's data. Information is captured from the user and stored in the department table in the database

5.3.10 Results (O level)

Figure 26: showing how data is captured and tracked in the O level students

Above is a form that is used for tracking results for O level students.

5.4 Reports generated by the system

5.4.1 Accounts report.
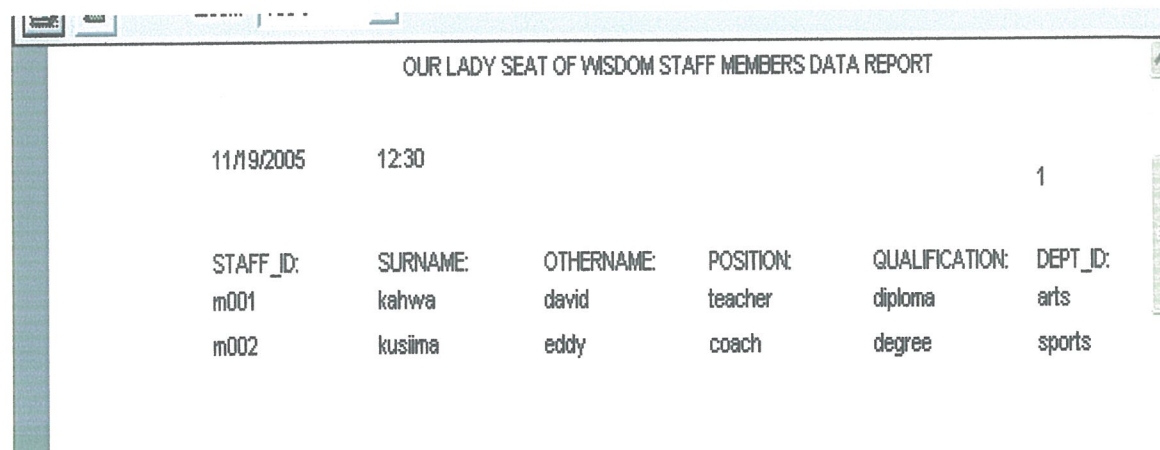
OUR LADY SEAT OF WISDOM STUDENTS DATA
REPORT

11/19/2005   12:30

1

STUDENT_ID:	SURNAME:	OTHERNAME:	GENDER:	DOB:	CLASS:
st001	ALBERT	JOHN	M	5/8/2009	4
ST002	ALIKIRA	RICHARD	M	4/6/2008	6
ST003	BANURA	MERCY	F	3/5/2008	2

Pages: |◀ ◀ 1 ▶ ▶| ◀ ▶

Figure 27: report generated by the system in account records
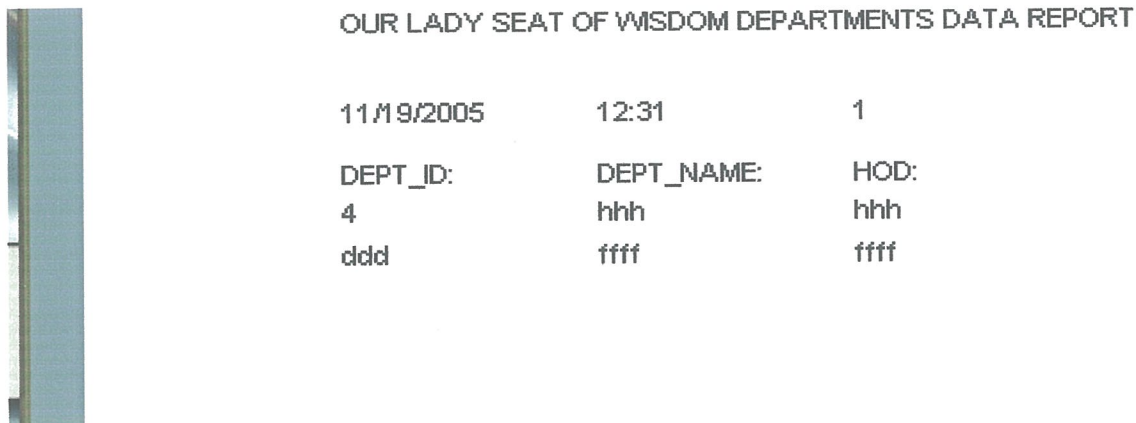
5.4.2 Staff members report

OUR LADY SEAT OF WISDOM STAFF MEMBERS DATA REPORT

11/19/2005   12:30

1

STAFF_ID:	SURNAME:	OTHERNAME:	POSITION:	QUALIFICATION:	DEPT_ID:
m001	kahwa	david	teacher	diploma	arts
m002	kusiima	eddy	coach	degree	sports

Figure 28: Showing the report generated by the system in staff record
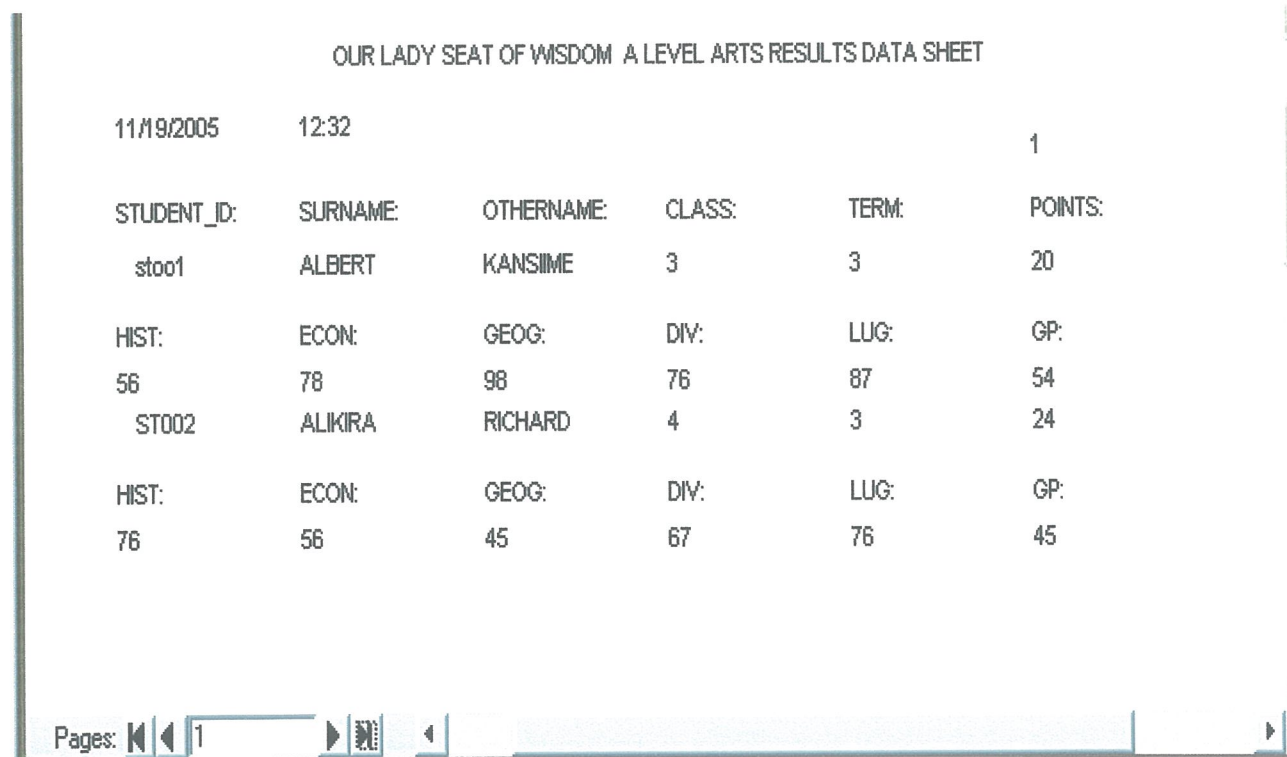
5.4.3 Departments report.

OUR LADY SEAT OF WISDOM DEPARTMENTS DATA REPORT

11/19/2005	12:31	1
DEPT_ID:	DEPT_NAME:	HOD:
4	hhh	hhh
ddd	ffff	ffff

Figure 29: Showing report generated by the system in department record

5.4.4 Result report (A level Arts)

OUR LADY SEAT OF WISDOM A LEVEL ARTS RESULTS DATA SHEET

11/19/2005   12:32   1

STUDENT_ID:	SURNAME:	OTHERNAME:	CLASS:	TERM:	POINTS:
stoo1	ALBERT	KANSIIME	3	3	20

HIST:	ECON:	GEOG:	DIV:	LUG:	GP:
56	78	98	76	87	54
ST002	ALIKIRA	RICHARD	4	3	24

HIST:	ECON:	GEOG:	DIV:	LUG:	GP:
76	56	45	67	76	45

Pages: |◄ ◄ 1   ► ►| ◄

Figure 30: report generated by the system in arts students in A level

5.4.5 Results report (A level science)

```
┌─────────────────────────────────────────────────────────────────────┐
│ ▨                        SCIENCE RESULTS                      [.][▢][X]│
├─────────────────────────────────────────────────────────────────────┤
│ ▦ ▢    Zoom  100%   ▼                                                  │
├─────────────────────────────────────────────────────────────────────┤
│              OUR LADY SEAT OF WISDOM SCIENCES RESULTS DATA SHEET    ▲  │
│                                                                       │
│  11/19/2005       12:33                                               │
│                                                              1        │
│                                                                       │
│  STUDENT_ID:    SURNAME:    OTHERNAME:    CLASS:    TERM:    POINTS:   │
│  ST001          ALBERT      KANSIIME      3         2        12        │
│                                                                       │
│  PHY:           CHEM:       BIOLOGY:      MATH:     GP:                │
│                 56          68            87        65                 │
│  ST002          ALIKIRA     RICHARD       3         3        13        │
│                                                                       │
│  PHY:           CHEM:       BIOLOGY:      MATH:     GP:                │
│                 33          67            89        64                 │
│                                                                   ▼   │
│ Pages: |◀ ◀ [1      ] ▶ ▶|   ◀                                    ▶   │
└─────────────────────────────────────────────────────────────────────┘
```
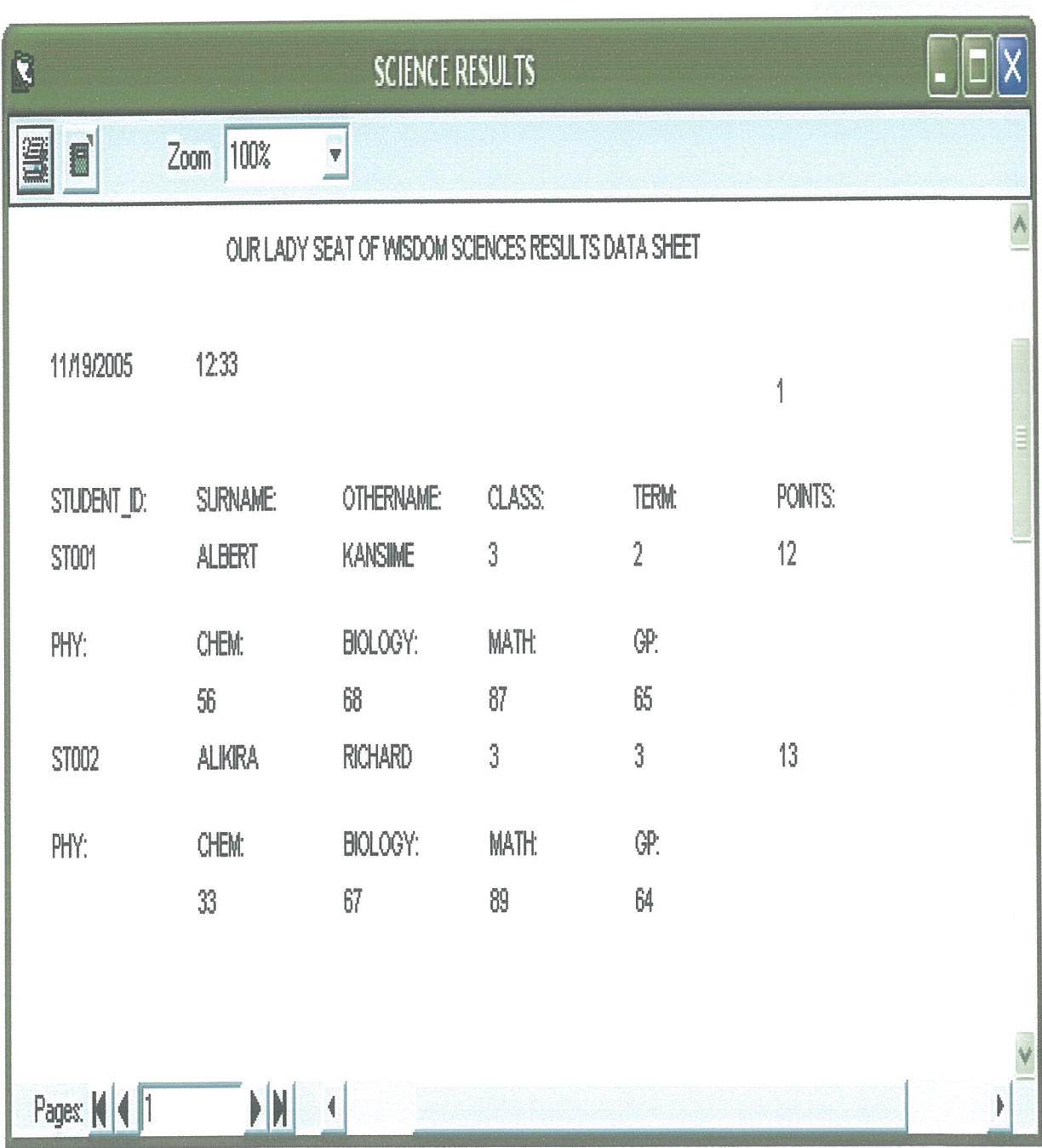
Figure 31: report generated by the system in sciences in A level .

51

5.4.6 Results (O level)

O LEVEL RESULTS DATA REPORT

STUDENT_ID:	SURNAME:	OTHERNAME:	CLASS:	TERM:
st001	Albert	kansiime	1	1

STUDENT_ID:	MATH:	ENG:	PHY:	CHEM:	BIO:
st001	68	87	67	87	97

STUDENT_ID:	AGRIC:	GEOG:	HIST:	RELIGION:
st001	75	90	89	76
st002	alikira	rich	2	2

STUDENT_ID:	MATH:	ENG:	PHY:	CHEM:	BIO:
st002	55	88	65	65	45
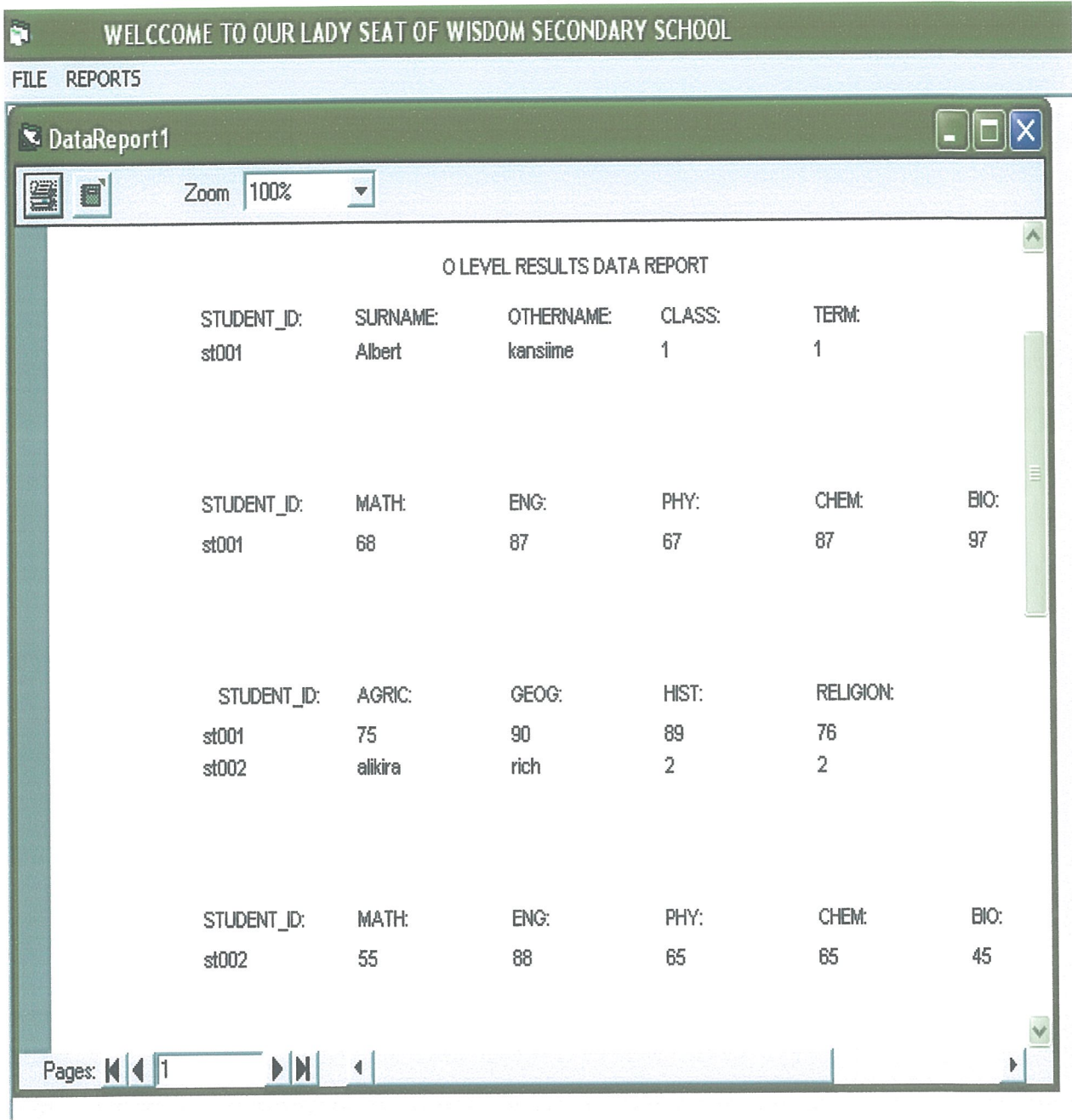
Figure 32: report generated by the system in O level results

5.5 System specification

These are statement of services that must be provided by the system in order for the user to achieve the objectives. These further extends to the condition that are necessary for the system to perform efficiently. These can be grouped into two namely functional and non functional requirement. Functional requirement vary from system to system however non functional requirement tends to be almost uniform for system of all type example of such requirement include: efficient utilization of system resources, time to load, RAM requirement, disk space occupied, usability, maintainability.

5.5.1 Specification

Here the researcher looked on how the system worked in other words the functionality of the system.
1.It should be able to accept input from the user through the forms.
2.it must provide way of keeping the system secure by use of password.
3.The system must allow the administration to access information entered by other users
4.It must provide away for the user to select and print out reports.
5.It must allow the user to easily backup data.

5.5.2 Minimum requirement of client

With minimum requirement, at least the client must have an computer not less that 300MGHz, minimum RAM of 128MB and at least I GB of free disk space. An eight port switch, printer, 150 meters of cable network, four network cards and four un interruptible suppliers .

5.5.3 Recommended requirement of the system.

The system to work efficiently, it was designed to operate under specific recommended requirements in order to run the system. The computer to run this system must have speed of 500MHz , RAM of 512MB, and 80GB of free disk space. Since the system is working in the local area network, eight switch port must be provided, printer , 150 meters of network cables, four network cards.

5.5.4 System Conversion

The fact that the relationship between paper work and computer system was little, the researcher recommended parallel conversion strategy. This was conversion strategy where both system are running for some a certain period of time until the new system endorsed as a perfect system. This had advantages that in case the new system contains some un identified error, the old system can always be resorted too. This strategy had also been recommended because from the research the researcher carried out and found that most of the likely users of this system didn't understand it hence the need for the user to first get experienced and thereafter the user could do way with old system

CHAPTER SIX

DISCUSSION, RECOMMENDATION AND CONCLUSION

6.0 Introduction

This happens to be the last of this report. It summarized the whole report by briefly discussing the new system in relation to the old, identified problems encountered, gives recommendations about the system and finally concludes the dissertation.

6.1 Discussion

In terms of security, the system ensured that no un authorized users could access the school's database. For the user to get access to the data, was required to enter the username and password that was given by the system administrator. The system has further eased the user to access data by means of such method.

From the fact that even the slowest computer is faster than the fastest human mind, the new system was very fast. Think of the time required to access a particular record in the database, one only needs to open php myadmin to access the record instantly unlike the old system where you would have to first look for the key to the store, open the store the file cabin, locate the file number and so on.

In terms of usability and automation, the system is good as to add a property in a given entity was just a few scratches of the head and the column could be added to the table.

Storage capacity; the system was enormous depending on the amount data to be stored. 1GB of disk space could accommodate data that was stored on a heap of 100 books of 1000 pages each.

6.2 Recommendation

The researcher recommend that the new system be used in a cool environment with temperature not above 40 degrees to enable computers to function properly.
The database should be backed often to avoid loss of data in the event of system failure. May be an external hard disk can be used because it is portable.

In the event of system crash, the designer of the system or any other expert in this or related field must be contacted fast for technical support.

As part of recommendation for future work is the improvement of the whole system as the school expands. System change is important because with the current sudden change of technology, there is a need to change with time. Where applicable, the new system shall need to be upgraded for increased efficiency and reliability.

6.3 Conclusion

The study was under taken after problems had been identified with the old system. Truly the system addressed most of the problems; it provided good storage, allowed backup, easy access to data, security has been improved better reports has been generated among. The researcher used variety of data collection techniques ; interview, questionnaire, observations. Data analysis. Data collected was analyzed using pie chart. 26.6% of the respondents said that the efficiency of the new system was fair while as 33.3% thy didn't know anything concerning with usage of computer.

For those that have not been solved, the users will review the new system and probably the identified problems will be addressed in the next version of this system.

.

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8. Silberschatz, (2002), *Database System,* Fourth Edition, McGraw Hill pg 217-219

APPENDICES

APPENDIX A: INTERVIEW GUIDE

Introduction:

Introduce yourself to the interviewee and tell him /the purpose for having interview with him/her.

Question 1

How old are you?

☐ (17 to 20) years   ☐ (21 to 30)   ☐ 22 above

Question 2

What position do you hold in this school?

....
....

Question 3

    a)   When did the school start?

....
....

    b)   With how many students did it start with?

....
....

    c)   What is the current number of students in this school?

....
....

    d)   At which rate is the school growing?

☐ Poor   ☐ average   ☐ high   ☐ Excellent

Question 4

How big is the Land on which the school is located?

....
....

Question 5

a) How is the students data collected and stored

....
....

b) How efficient is the system?

....
....

c) A database is computer data management system for tracking stored data

What is your opinion towards replacing the current system with a database system?

....
....
....

d) Do you think the school has the capacity to support 3.7m project

....
....

e) What are the sources of income that you think can enable the school to support this 3.7m project

....
....

Question 6

a) What is the total numbers of teachers at the school?

....
....

b)   Are they all permanent

☐ Yes   ☐ No

c)   If no, in a (b) above how many are permanent and how many are not?

....
....
....
....

d)   Does the school has computers

☐ Yes   ☐ No

c) What is the computer literacy level in the school

☐ Poor   ☐ Average   ☐ Good   ☐ Excellent

Question 7

a)   What do you think will be the impact of building and implementing of database registration management system?

....
....
....

b)   What do you think will be the effect of the system specified in 8(a) above o the cost of operation

☐ Good ☐ Bad

c)   Explain your answer in 8(b) above?

....

....

....

Question 8

What is your comment about this time we have had with the researcher

....

....

APPENDIX B: QUESTIONNAIRE

DESIGN AND IMPLEMENTATION OF AUTOMATED REGISTRATION MANAGEMENT SYSTEM

Preamble

The purpose of this questionnaire is to find out information regarding the Automated Registration System. The finding of this research will be primarily used for academic purposes. Please you are requested to fill in the questionnaire and all information provided in here will be treated with confidentiality.

Tick (√) the check box preceding your preferred answer

Question 1

Age

10—20   ☐

20—30   ☐

30—above   ☐

Question 2

Gender

Male ▭

Female ▭

Question 3

How long have you been in this School?

1 Term to 2 Terms ▭

2 to 4 years ▭

5 years above ▭

Question 4

Which responsibility do you hold in the school?

Teacher ☐

Student ☐

Non teaching staff ☐

Administrator ☐

Question 5

How do you rate the academic standard of this school?

Poor ☐

Average ☐

Good ☐

Very good ☐

Question 6

What is the total number of students in your school?

100 to 1000   ☐

1000 above   ☐

Question 7

   a) Does the school have computers?

       Yes ☐

       No ☐

   b) If yes, are the computers accessible to all school members?

       Yes ☐   No ☐

Question 8

How would you term the system that is used for storing the school's data?

Computerized ☐

Manually ☐

Question 9:

What challengers do you find in school in using the above system?

....
....
....
....

a) How do you find with the above system of keeping Registration Information?

Very slow ☐

Fast ☐

Very fast ☐

Very fast ☐

b) A database System is collection of logically related data via an interface. Do you think a database system would help solve problem in question 8 (a) above?

Yes   ☐

No   ☐

Question 10

Could you kindly give a word of advice to the researcher?

....
....
....
....
....