

**DESIGNING AND DEVELOPMENT OF A CLIENT INFORMATION  
SYSTEM FOR A VIDEO LIBRARY**

**A CASE STUDY OF K.M MUSIC AND VIDEO LIBRARY**

**BY**

**MUKAMA ISLAIL**

**BIT/41016/91/DU**

**NDAWULA ROBERT**

**BIT/40864/91/DU**

**A RESEARCH PROJECT REPORT SUBMITTED TO COLLEGE  
OF APPLIED SCIENCE AND TECHNOLOGY IN PARTIAL  
FULFILMENT FOR THE**

**A WARD OF THE BACHELORS DEGREE IN INFORMATION  
TECHNOLOGY OF KAMPALA INTERNATIONAL UNIVERSITY**

**SUPERVISOR: MR.GRACE KAMULEGEYA**

**2012-07-08**

**APPROVAL**

This research project was supervised by Mr. Grace Kamulegeya .

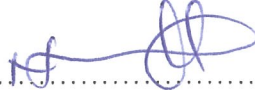
Supervisor's signature... *Grace* .....


Date... *27/07/2012* .....



**DECLARATION**

Mukama Islail and Ndawula Robert here by declare that this research project report is our original work and has never been presented for a degree or diploma a ward in any other institution or university.

Researcher's signature.....  
Date... 27/27/2012 .....

Researcher's signature.....  
Date..... 27/07/2012 .....

## DEDICATION

Mukama Islail i dedicate this research project report to my beloved father Mr. N.kirunda meddy who tirelessly worked hard to ensure that i get some thing i need for success in my studies, to my mum Ms. Kirunda silver N and more so to my sisters Namatovu Joan and Nakanwagi Gloria and not also to forget my beloved brothers Kirunda Ausi, Nkuutu Ibra,Ddakaba Eddy and Alimansi Menya for their unlimited support and advice they gave me towards the accomplishment of my research project. May the almighty God bless them all and may they live long and be rewarded in abundance.

Ndawula Robert i dedicate this research project report to my beloved father Mr. Ddindi Erismas who tirelessly worked hard to ensure that i get some thing i need for success in my studies, to my mum Ms. Najjemba Harriet and more so to my sisters Naluyima majo, Namagambe Ruth,Nabunya Mackie and not also to forget my beloved brothers Sebunya Tonnya, Ddindi Ronald,Bogere Moses and Bukirwa Maggie for their unlimited support and advice they gave me towards the accomplishment of my research project. May the almighty God bless them all and may they live long and be rewarded in abundance

## ACKNOWLEDGEMENT

Let us thank the almighty God for the knowledge, power and life that has enabled us to complete my project.

Next my sincere thanks go to my supervisor Mr. Grace Kamulegeya who gave us all his time whenever we approached him, he was so kind to me, and he gave us what was necessary for a good research project report. May the almighty God bless him abundantly.

Last but not least let us also take this vital opportunity to thank our family members, friends, and all our course mates for their genuine support, strength and motivation they showed me during the accomplishment of our research project.

## LIST OF ABBREVIATIONS

1. MP3-Multimedia Player Version 3
2. DVD-Digital Video Disk
3. SVCD-Super Video Compact Disk
4. VCD-Video Compact Disk
5. WWW-World Wide Web
6. HTTP-Hyper Text Transfer Protocol
7. GB-Gigabyte
8. USB-Universal Serial Bus
9. RAM-Random Access Memory
10. HDD-Hard Disk Drive
11. Lib-Library
12. Mg't-Management
13. ROM-Read Only Memory
14. ERD-Entity Relationship Diagram



## TABLE OF CONTENTS

APPROVAL .....	i
DECLARATION .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENT .....	iv
ABSTRACT .....	v
LIST OF ABBREVIATIONS .....	vi
TABLE OF CONTENTS .....	viii
CHAPTER ONE .....	1
1.0 Background to the Study .....	1
1.1 Introduction .....	1
1.2 Problem statement .....	2
1.3 Objective of the study .....	2
1.4 Specific objectives of the study .....	2
1.5 Scope of the study .....	2
1.6 Significance of the study .....	3
1.6.1 Anticipated short comings.....	4
CHAPTER TWO.....	4
LITERATURE REVIEW.....	4
2.1 An Information System .....	4
2.2 Database .....	5
2.3 Database Management System (DBMS).....	5
2.4 Internet database review.....	5
2.5 Database Management System Components .....	7
CHAPTER THREE.....	7
METHODOLGY.....	7
3.1 Interviewing .....	7
3.2 Observation .....	7
3.3 Reading around documents .....	8
CHAPTER FOUR.....	8
SYSTEM DESIGN .....	8
4.1 System Flow Chart .....	10
4.2 Video Library Application Design Tools.....	10
4.3 Hardware Specification .....	10
4.4 Software Specification .....	12
4.6 Data Dictionary .....	12
Table 4.6.1: Customer details table .....	13
Table 4.6.2: Borrowers table .....	13
Table 4.7 Returns table.....	14
Table 4.7.1: Employees table .....	14
Table 4.7.2: Movies table .....	15
Table 4.7.3: Music table .....	15



Table 4.8: Video library management table .....	15
4.8.1 Input Design/User Interface Design .....	16
Figure 4.8.3: Login Screen .....	16
Figure 4.9: Main Menu Form .....	17
5.0 Database tables .....	18
5.3.1 Customer details database table .....	18
5.3.2 Returns database table .....	18
Figure 4.9.2: Customer Report .....	19
Figure 4.9.2: Music Report .....	20
CHAPTER FIVE .....	21
Conclusion and Recommendation .....	21
5.1 Conclusion .....	21
5.2 Recommendation .....	21
REFERENCES .....	22
REFERENCES .....	22
6. Appendices .....	23
6.1 Appendix i: Interview Schedule .....	23
6.2 Appendix ii: Interview with the manager .....	23

## CHAPTER ONE

### 1.0 Background to the Study

K.M music and video library is located along Entebbe-Kampala highway at Abaita Ababiri. K.M music and video library is privately owned and it puts into a high state of class for customers who utilize its facilities that is to say, in terms of video compact discs, digital video discs, to mention among other sorts of all audio and video Medias in place.

K.M music and video library was started in the year 2006. At its start, the video library had registered a few customers by then, not until from its year of starting to date when it is experiencing a boom in the number of customers. Thus, due to its quality services it offers to its customers, it has tremendously grown large in size, there by providing a variety of digital video discs, video compact discs, and more so other sorts of digital video and audio services being offered to its esteemed customers. However, due to the ever increasing customers, matters pertaining handling information has become a problem especially due to the fact that the library is a manual system of recording customers' information concerning the video library.

### 1.1 Introduction

The idea of developing a client information system for K.M music and video library was to enable the video library capture and maintain relevant data or information of customers who access the video library in question in order to facilitate easy planning and management of the customers for K.M music and video library.

### 1.2 Problem statement

Though K.M music and video library is working successfully, it has always faced the following problem; Poor handling of customer related information. That's to say, the details pertaining the customers for K.M music and video library were mostly dealt with the manual system. Therefore, due to the use of manual system, it was at times prone to errors. removing out papers containing important information pertaining different customers who have access to the library is some how difficult to handle and taking effective management manually.

### **1.3 Objective of the study**

The main objective of the project was to design and develop a customer handling information system to enable K.M music and video library to effectively manage the handling of customer information. This will promote faster retrieval and updating of customer related information.

### **1.4 Specific objectives of the study**

- To collect and analyze requirements for user friendly application that has promoted or facilitated prompt customer information handling, capture, store, retrieval, update and analysis for report generation.
- To design a database that has enabled to record and store all information pertaining the customers of K.M music and video library.
- To implement a system that will ensure security of client related information for K.M music and video library, and this has been possible by the use of a password (database password).

### **1.5 Scope of the study**

The study was restricted to the client information for K.M music and video library. However, the study was carried out at K.M music and video library. Further still, the study has focused closely on how data processing regarding customers who access the video library is executed. That is to say, regarding the membership of the library, matters concern DVDs, VCDs, MP3s and more so other related information regarding the customers.

### **1.6 Significance of the study**

K.M music and video library has benefited from the information system by using it for quick decision making and more or less improving on the level of customer information handling.

The study is vital because the video library was be able to over come the problems affiliated to the use of manual system in handling effectively as well as efficiently information related to customers. Thus, this implies that the video library has benefited from the information system in terms of timely management since information can be easily accessed and updated at different time intervals.

The removal of paper documents that contain important information from the folder files was solved by the development of a computerized information system for K.M music and video library.

The employees of the video library have benefited from the development of a computerized information system, because it has helped them to solve the problem of errors that would have been generated when the manual system is to be used. For example, poor recording of data in folder files, to mention among others.

#### **1.6.1 Anticipated short comings**

- a) Database management systems are complex, extensive planning and a substantial amount of technical expertise are needed to implement and maintain the system.
- b) The cost associated with the development and operation of a corporate wide memorial database management system can be substantial in terms of software and hardware acquisition, technical support personnel and operational personnel.
- c) Regular power failure hindered the study, making it difficult to come up with the report project with in the scheduled time frame.

## CHAPTER TWO

### LITERATURE REVIEW

Literature review involved reading text books, journals, the use of the internet, and any other relevant materials that were written by other researchers that provided information that supported the topic of study in question.

#### 2.1 An Information System

According to Timothy J.O'Leary and Linda I.O'Leary (2004) defined an information system as a collection of people, procedures, software, hardware, and data that work together to provide information which is essential for the smooth running of an organization.

However, according to Michael V.Mannino (2004) defined an information system as a set of interacting elements that accept data from a given environment, processes data, and produces output data for decision making.

#### 2.2 Database

According to Timothy.J.O'Leary and Linda I.O'Leary (2004) defined a database as a collection of related information.

Furthermore, the earliest known use of databases was in June 1963, when the system development corporation sponsored a symposium under the title development and management of a computer centered database. Database as a single word became common in Europe in the early 1970's and by the end of the decade; it was being used in major American news papers (Databank, Washington. post newspapers as early as 1966).

According to Glenn (2003) defined a database as a collection of data that is multidimensional in that it contains internal links between it's entries so that it's information is accessible from a variety of perspectives.

A database is an involvement in specifying the data types, structures and constraints for data to be stored. Ramez and Etal further explained that a database may be generated and maintained manually or it may be computerized (Ramez, 2003).

### **2.3 Database Management System (DBMS)**

According to Stephen Haag Maeve Cummings, Alan I.Rea,Jr(2004) defined a database management system as application software that allows you to arrange, modify and extract information from a database.

According to Michael V.Mannino (2004) defined a database management system as a collection of software that support the creation, use and maintenance of a database. Initially, database management systems (DBMSs) provided efficient storage and retrieval of data. Due to market place demands and product innovation, database management systems have evolved to provide a broad range of features for data acquisition, storage, dissemination, maintenance, retrieval and formatting.

### **2.4 Internet database review**

The internet at [http://www.en.wikipedia.org/wiki/DBmanagement systems](http://www.en.wikipedia.org/wiki/DBmanagement_systems), defined a database management system as a computer program defined to manage a database, a large set of structured data and run operations on data request by numerous users. Typical example of database management system used include; accounting for video library records, originally found only in large companies with computer hardware having the need to support large data sets. Database management systems have more recently emerged as a fairly standard part of any organization.

### **2.5 Database Management System Components**

Greg Riccardi, 2003, gives the following basic components of a database management system (DBMS).

- The physical database: Collections of files containing the data content require use of one to one interviews with senior managers.

- The schema: A specification of the physical database's information content and logical structure.
- The database engine: Software that lets people access and modify the database content.
- The data definition and manipulation languages, such as Java or Structured Query Language (SQL) that let software developers define the schema and access the database.

## **CHAPTER THREE**

### **METHODOLOGY**

This is an important area where the researcher revised the existing system first, then after the researcher went a head to choose out some of the data collection methods or techniques that were used. They include; interviewing, sampling, observation, among other types of data collection methodologies. The researcher used interviewing and observation after he was been granted permission from the concerned people of K.M music and video library, thus after the authorization, the researcher went a head on with the intended topic of study as proposed.

#### **3.1 Interviewing**

This involved direct conversation between the analyst and the user of the system in order to obtain answers, comments about the current state of design. This method helped the researcher in digging up more information and encouraging user participation in a way and at the same time reduced users resistance to change that was brought about by the proposed modified database system for the video library.

#### **3.2 Observation**

This is a technique of fact finding where the analyst observed people at their place of work. This method also involved watching in order to understand how a particular database system works. The researcher therefore used this to observe quantitative issues and non quantitative issues.

#### **3.3 Reading around documents**

This method involved reading the documents about the existing system. This method was used by the researcher to find out information from the written documents through reading documents like library charts because they contained information about the existing system.



## 4.2 Video Library Application Design Tools

### 4.3 Hardware Specification

we used a Toshiba lap-top Intel Pentium Dual Core with Windows Vista operating system, hard disk 120 Gigabytes, RAM of 2 Gigabytes with a working DVD-Rewritable ROM and USB ports.

### 4.4 Software Specification

We used Microsoft Access 2003, because it was user friendly, easy to use, understandable and we were able to allow addition, printing, saving, finding and deleting of records as well.

### 4.5 User requirement

These are the things we used to design this system access, computer ,visual basic

### 4.6 functional requirements

These are specified thing which must be in the system that is t say save delete, printing,preview,close and recording.

#### Figure 4.7: Entity Relationship Diagram (ERD)

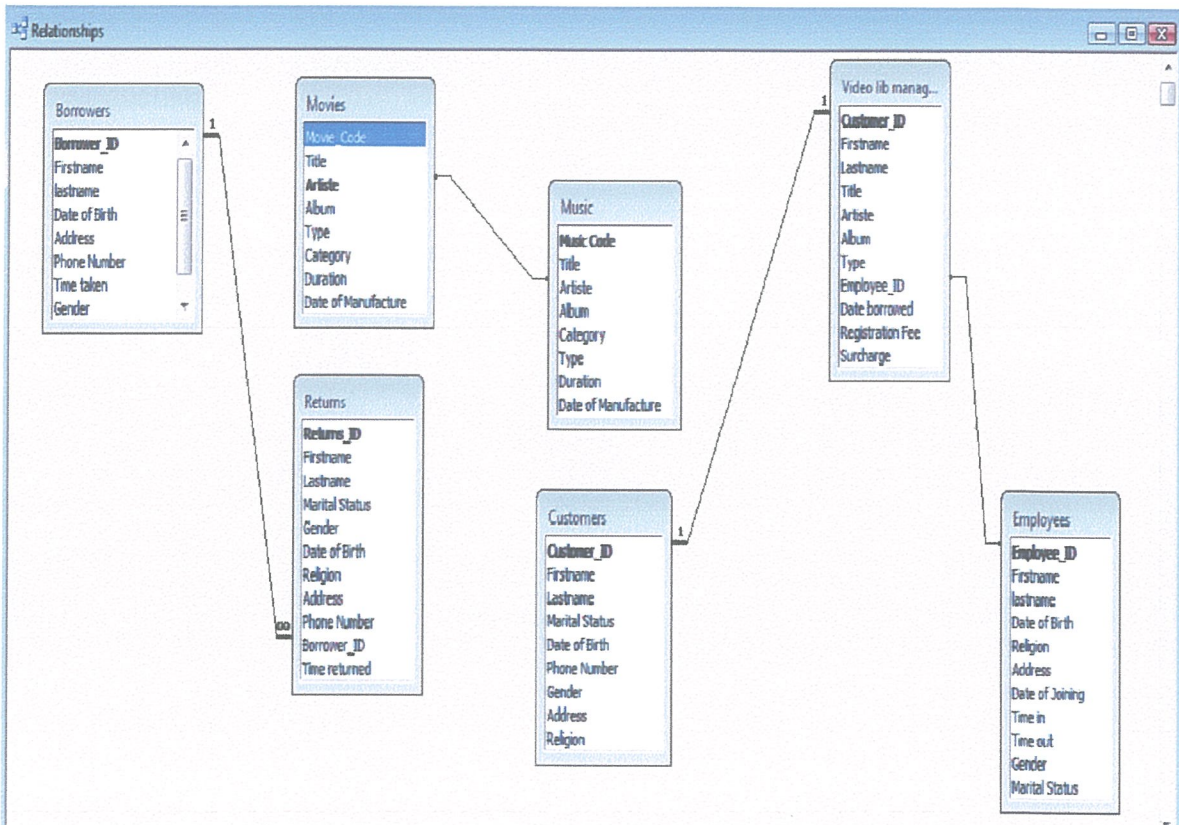
Data modeling is a technique for organizing and documenting a system's data. Data modeling is some times called database modeling because a data model is eventually implemented as a database.

An entity relationship diagram depicts data inform of their entities and relationships described by the data. An entity is some thing a bout which a business needs to store data for. This may be in terms of persons, places, objects, events or concepts about which need to capture and store data. I needed to store data about customers, employees, borrowers, returns, music, movies and as well as data pertaining video library management.

The value of customer\_ID uniquely identified one and only one customer. For a customer, we needed to know the customer identity number, first name, last name, address, gender, and marital status, date of birth, phone number and religion as well. For employees, we needed to know employee\_ID (identity number), first name, last name, address, marital

status, date of birth, religion, time in and time out. For borrowers we needed to know borrower's identity number, first name, last name, address, time taken. For returns, we needed to know customer first name, customer last name, customer address, time returned.

For music/movie, I needed to know music title, movie title, music artiste, movie duration, type and category.



## 4.6 Data Dictionary

Data undergoes many stages for it to be called meaningful data. For example, from tables, forms, queries and finally reports where it can be printed. Below un fold the table designs that we used.

**Table 4.6.1: Customer details table**

This table stores customer details data. That is to say details regarding the customers who access the video library are stored.

Field Name	Data Type	Key Type	Field Description
Customer_ID	Text(35)	Primary key(PE)	Customer's identity number
First name	Text(25)		Customer's first name
Last name	Text(28)		Customer's last name
Marital status	Text(7)		Customer's marital status
Date of birth	Date/Time		Customer's date of birth
Phone number	Text(19)		Customer's phone number
Gender	Text(7)		Customer's gender
Address	Text(43)		Customer's address
Religion	Text(36)		Customer's religion

**Table 4.6.2: Borrowers table**

This table manages data about borrowers. That is to say, it is used for storing data about customers who borrow movies and music from the video library.

Field Name	Data Type	Key Type	Field Description
Borrower_ID	Text(9)	Primary key(PE)	Borrower's identity
First name	Text(27)		Borrower's first name
Last name	Text(29)		Borrower's last name
Date of birth	Date/Time		Borrower's date of birth
Address	Text(40)		Borrower's address
Phone number	Text(19)		Borrower's phone number
Time taken	Date/Time		Time of borrowing
Gender	Text(7)		Borrower's gender
Religion	Text(36)		Borrower's religion

**Table 4.7 Returns table**

Under this table, it manages data about returns. That is to say, movies and music that have been returned by customers who had previously borrowed

Field Name	Data Type	Key Type	Field Description
Returns_ID	Text(9)	Primary key(PK)	Returns identity number
First name	Text(28)		Customer's first name
Last name	Text(27)		Customer's last name
Date of birth	Date/Time		Customer's date of birth
Religion	Text(19)		Customer's religion
Address	Text(48)		Customer's address
Phone number	Text(17)		Customer's phone number
Borrower_ID	Text(10)	Foreign key(FK)	Customer's identity number
Time returned	Date/Time		Time of return
Gender	Text(7)		Customer's gender

**Table 4.7.1: Employees table**

This table is used to store employees' relevant information. That is to say all the data pertaining the employees of the video library are stored.

Field Name	Data Type	Key Type	Field Description
Employee_ID	Text(9)	Primary Key(PK)	Employee's identity number
First name	Text(27)		Employee's first name
Last name	Text(29)		Employee's last name
Date of birth	Date/Time		Employee's date of birth
Religion	Text(19)		Employee's religion
Address	Text(40)		Employee's address
Date of joining	Date/Time		Employee's date of joining
Time in	Date/Time		Employee's time in
Time out	Date/Time		Employee's time out
Gender	Text(7)		Employee's gender
Marital status	Text(19)		Employee's marital status

**Table 4.7.2: Movies table**

This table stores information about movies that the video has for its customers.

Field Name	Data Type	Key Type	Field Description
Movie code	Text(11)		Movie identification code
Title	Text(25)		Movie title
Artiste	Text(20)	Primary Key(PK)	Movie artiste
Album	Text(17)		Movie album
Type	Text(26)		Movie type
Duration	Date/Time		Movie duration
Category	Text(40)		Movie category

**Table 4.7.3: Music table**

This table stores music data according to the title,artiste,album,category,type,duration and more so the date of manufacture as selected by the user of the system.

Field Name	Data Type	Key Type	Field Description
Music_code	Text(11)	Primary Key(PK)	Music identity code
Title	Text(20)		Music title
Artiste	Text(41)	Foreign Key(FK)	Music artiste
Album	Text(20)		Music album
Category	Text(40)		Music category
Type	Text(15)		Music type
Duration	Text(17)		Music duration
Manufacturing date	Date/Time		Date of manufacture

**Table 4.8: Video library management table**

This table stores relevant information for the video library concerning customers who utilize it's facilities

Field Name	Data Type	Key Type	Field Description
Customer_ID	Text(10)	Primary Key(PK)	Customer identification
First name	Text(26)		Customer's first name
Last name	Text(26)		Customer's last name
Title	Text(24)		Title of music/movie
Artiste	Text(28)		Artiste
Album	Text(26)		Music/movie album
Type	Text(39)		Music/movie type
Employee_ID	Text(9)	Foreign Key(FK)	Employee identification
Date borrowed	Date/Time		Date of borrowing
Registration fee	Currency		Registration fee
Surcharge	Currency		Surcharge

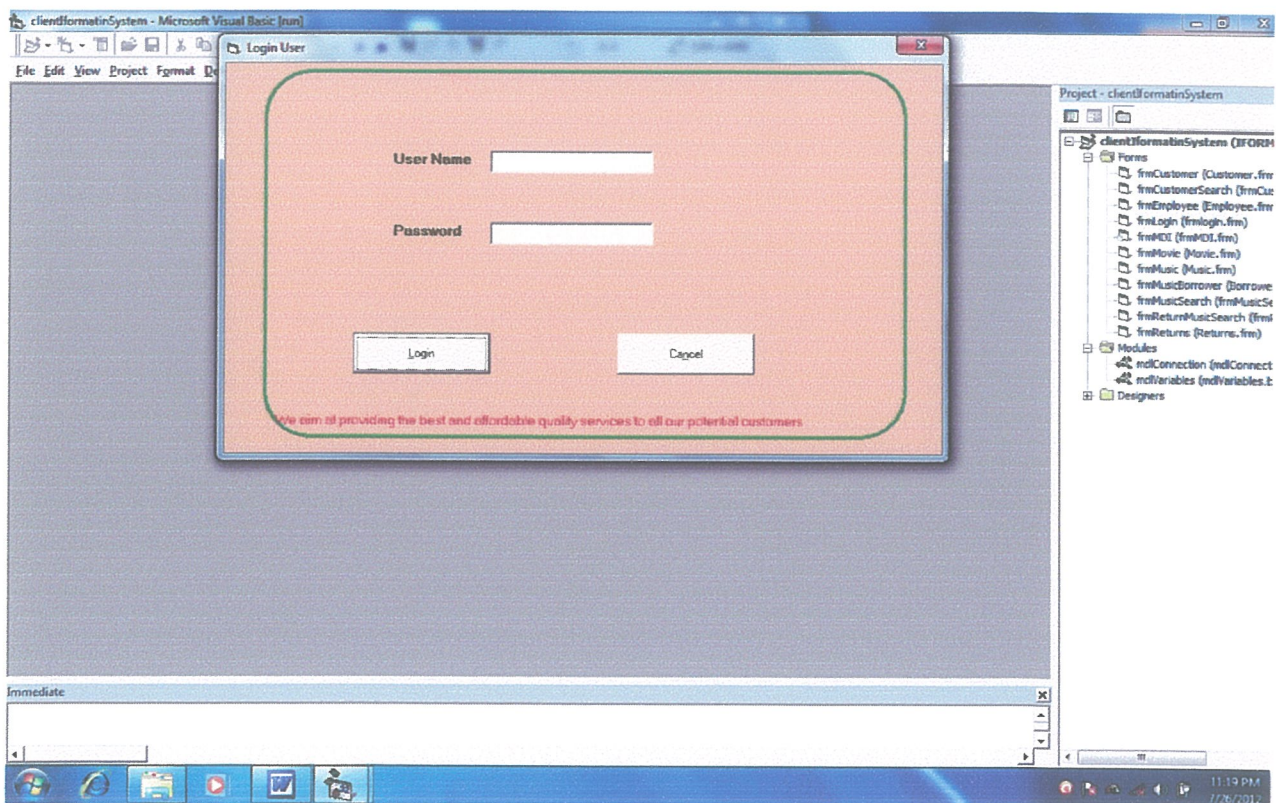


### 4.8.1 Input Design/User Interface Design

In the input design/user interface design illustrates designed specific forms that were being used to link up the entire customer handling information system for K.M music and video library, and these are as below:

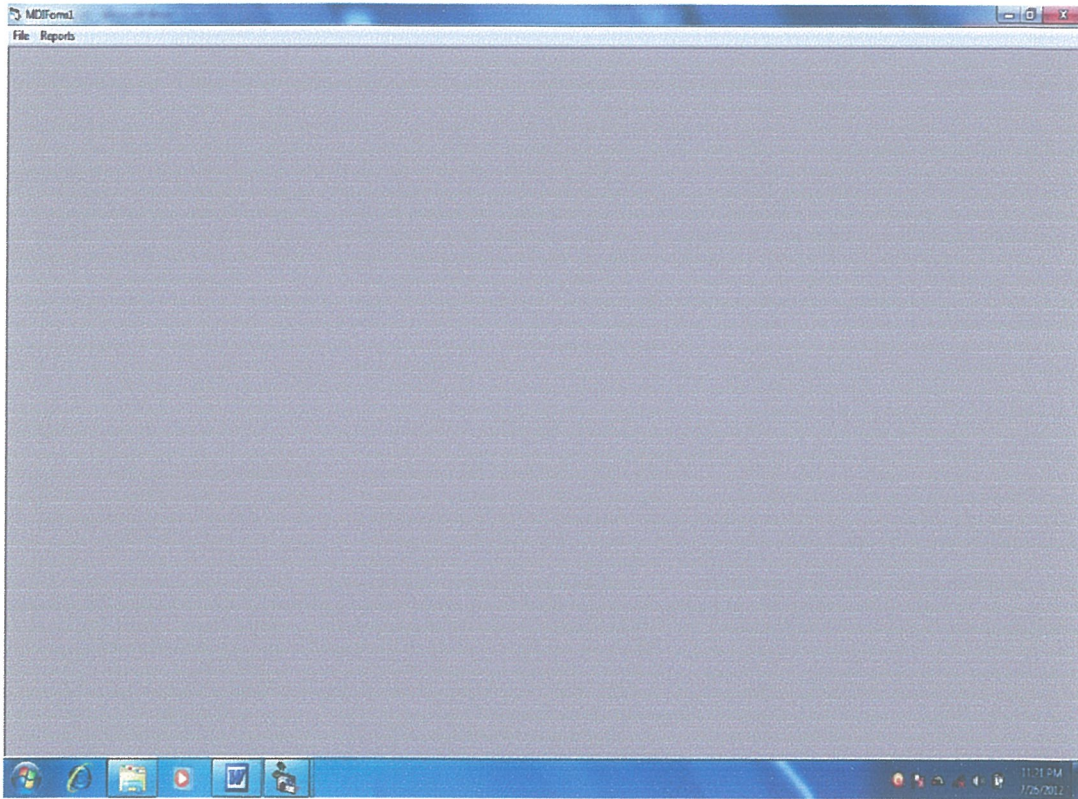
**Figure 4.8.3: Login Screen**

This is the first conspicuous form that welcomes users to the information system and it allows them to have access to the main menu of the system.



### Figure 4.9: Main Menu Form

This form displays the main menu options for the users of the system to choose from. That is to say, it has the view form menu, report menu and query menu. Thus, still on the main menu it has the exit command button that quits the entire information system.





### 0 Database tables

bles were created and their fields bound to the corresponding text boxes on the corresponding forms. When data is entered in the forms it's saved in the corresponding table in the database. Below are some of the tables.

### 3.1 Customer details database table

This table contains all Customers' details.

CustomerID	FirstName	LastName	MaritalStatus	DateOfBirth	PhoneNumber	Gender
CUST0001	Dennis	Omondi	Single	7/25/1989	0789656764	Male
CUST0002	Israel	Mukama	Married	7/25/1989	0789656764	Male
CUST0003	Jackson	Kema	Single	7/25/1987	0786653432	Male
CUST0004	Robert	Ndawula	Married	7/25/1967	0774896743	male

Figure 5.1 Customer details database table

### 3.2 Returns database table

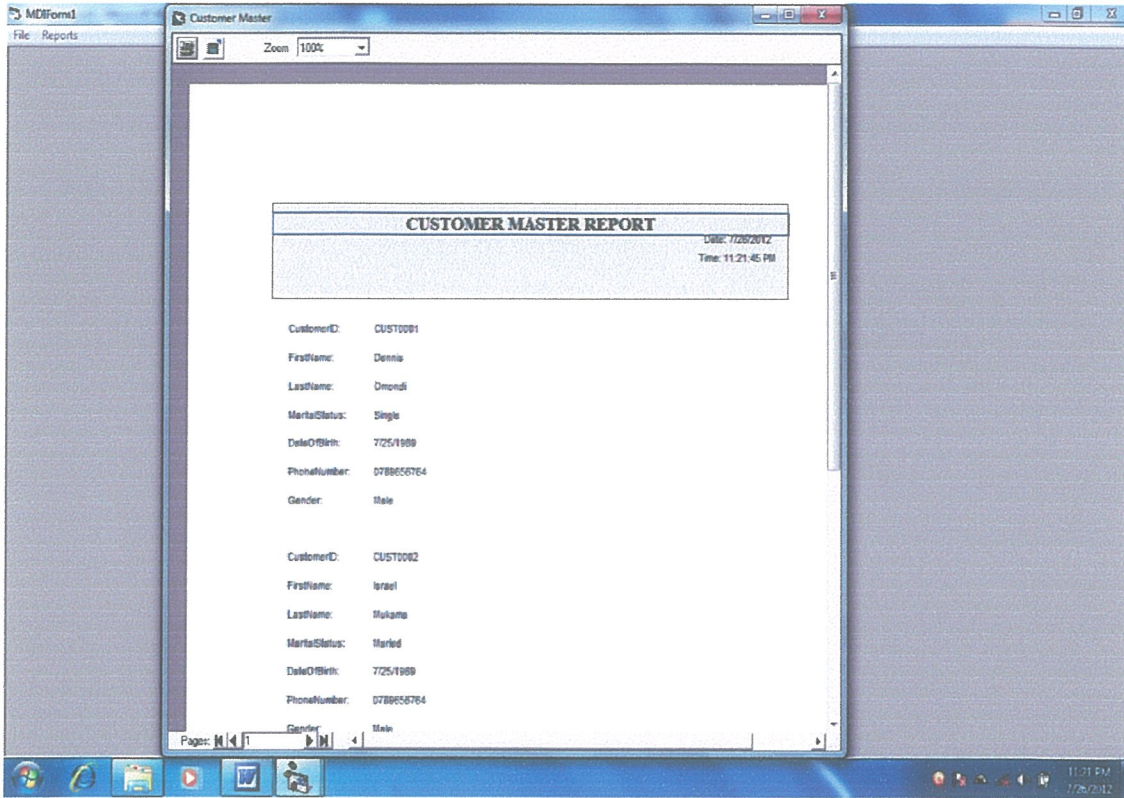
This table contains Returns' details.

ReturnID	FirstName	LastName	ReturnDate	ReturnTime	MusicCode	Album	Count
ID0002	Robert	Ndawula	7/25/2012	12:00 AM	CODE0001	Mapenzi	1
ID0003	Davies	Omara	7/25/2012	12:00 AM	Id0001	Kipepeo	4
ID0004	Robert	Ndawula	7/25/2012	12:00 AM	CODE0001	Mapenzi	1

Figure 5.2 Returns database table

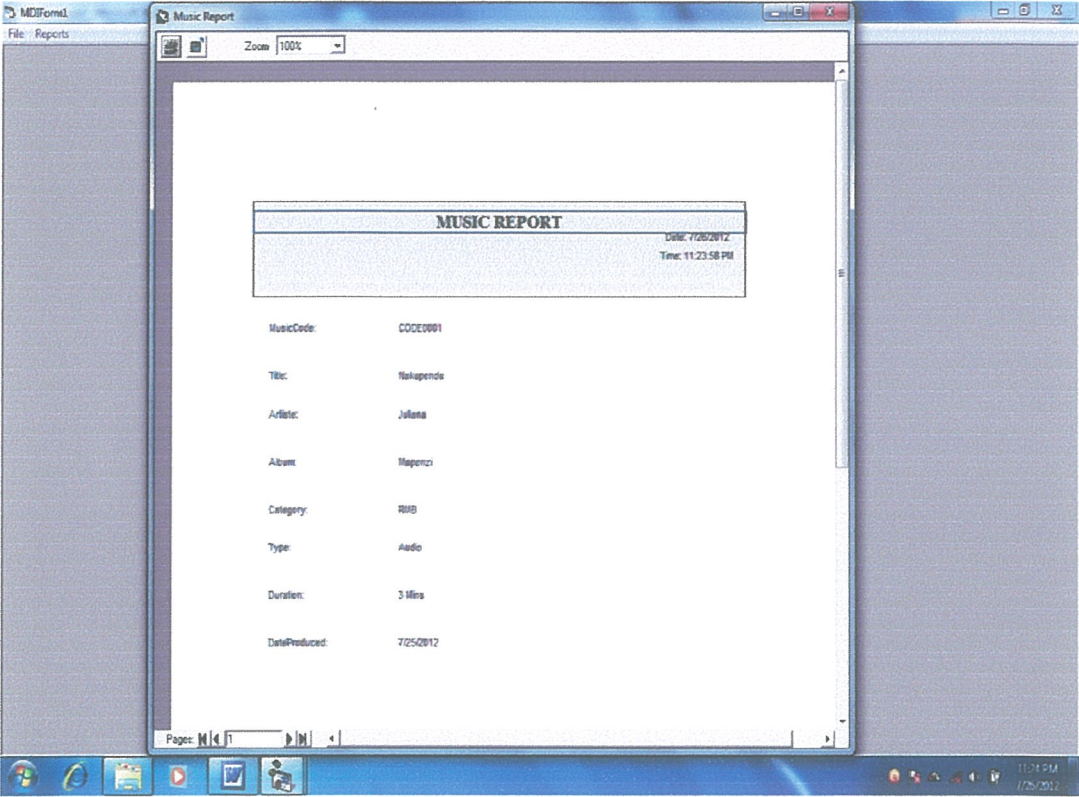
## Figure 4.9.2: Customer Report

This menu shows the customer master report



**Figure 4.9.2: Music Report**

This menu shows the music report



## CHAPTER FIVE

### Conclusion and Recommendation

#### 5.1 Conclusion

The designed software will be of great use for K.M music and video library concerning the problem of poor handling of customer related information. That is to say, originally the video library was using a manual system of recording information concerning it's esteemed customers but due to the development of a customer handling information system, the video library will be in position to keep track of customer related information.

#### 5.2 Recommendation

- Future programmers can improve on the software by designing back up systems. Back up systems can help a lot with data recovery in case the necessary information is lost.
- Future programmers can also think of linking up the developed information system to the World Wide Web, thus this can enable customers to connect to the video library online.
- The information system developed in future can be up graded to a higher version of application that can create multi-processing quickly than Microsoft Access.

## REFERENCES

- a) Timothy J.O'Leary and Linda I. O'Leary (2004) Computing Today, Introductory Edition, McGraw-Hill companies, Inc.
- b) Stephen Haag Maeve Cummings, Alan I.Rea, Jr(2004) Computing Concepts, 2<sup>nd</sup> Edition, McGraw-Hill/Irwin.
- c) J.Glenn Brookshear(2003) Computer science An Overview,7<sup>th</sup> Edition, Wesley
- d) Greg Riccardi(2003) Database Management with Website Development Application,Weseley.
- e) Michael V.Mannino(2004) Database Design Application Development and Administration, McGraw-Hill/Irwin.
- f) Ramez A.Elmasr, Shamkant Navathe(2003) Fundamentals Database Systems,3<sup>rd</sup> Edition, Pearson Education Limited.
- g) Internet at [http://www.en.wikipedia.org/wiki/DBmanagement systems](http://www.en.wikipedia.org/wiki/DBmanagement_systems).
- h) James O'Brien(2004) Management Information Systems,6<sup>th</sup> Edition . McGraw-Hill/Irwin.

## **6. Appendices**

### **6.1 Appendix i: Interview Schedule**

The purpose of carrying out this interview was to collect information that was used in the development of a customer handling information system for K.M music and video library. The interview basically analyzed the current system in terms of effectiveness and efficiency.

### **6.2 Appendix ii: Interview with the manager**

1. When did the library start?
2. What are the objectives of the video library?
3. Who is responsible for inquires?
4. Mention the services offered by the video library
5. What is the medium of keeping records?
6. What are the problems associated with record keeping?
7. What measures have been put in place to overcome the problem above?
8. Would you like to adopt a computerized database if need be?