DESIGN AND IMPLEMENTATION OF A HOTEL

CONTROL INFORMATION SYSTEM

CASE STUDY: SPEKE GROUP HOTELS

BY

KAGWANJA GIDLAF MUCHIRI
(BIT/11272/61/DF)

GRADUATION PROJECT REPORT SUBMITTED TO THE SCHOOL OF

COMPUTER STUDIES IN PARTIAL FULFILMENT OF THE

REQUIREMENTS FOR THE AWARD OF A DEGREE OF

BACHELOR OF INFORMATION TECHNOLOGY

OF

KAMPALA INTERNATIONAL UNIVERSITY

JUNE 2009.

DECLARATION

I GIDLAF MUCHIRI hereby declare to the best of my knowledge that this project report is my original work and that it has never been submitted to any University or any institution of higher learning before for any academic award.

The literature and citation from other people's work have been duly referenced and acknowledged in the text, footnotes and bibliography,
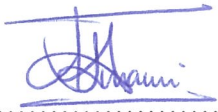
Date...... 16TH June 2009 ....

Signed........................

Kagwanja Gidlaf Muchiri
(BIT/11272/61/DF)

APPROVAL

This project report titled "Hotel control Information System" has been completed under the supervision of the undersigned

Signed………………………………………   Date………16/06/09…………………………

MR. KIMANI JOHN
(Supervisor)

DEDICATION

I dedicate this project work to my dear parents Mr. /Mrs. Kagwanja for their moral and financial support, It would be a crime not to mention my friends, Paul Ishengoma, Tom Hoya, Rogers, Carol, Winnie, Mashiba, Robin, John, Simon for their support and encouragement during my entire study period, and Felister wangui who could gave support in inspiration whenever I was down.

God bless you all.

ACKNOWLEDGEMENT

I thank my Almighty God for taking me through the process of project development. I wish to thank Mr. Abram Mukasa who is the acting manager of Speke Group Hotel, for allowing me to use the organization as my case study. My special regards goes to my supervisor Mr. Kimani for guidance, suggestions and comments which helped a great deal to accomplish this project work.

Table of contents

TABLES OF FIGURES

ABBREVIATIONS

4GL's	-	Fourth generation languages
ACID	-	Atomicity, Consistency, Isolation, Durability
CD	-	Compact Disc
CASE	-	Computer Aided Software Engineering
DBMS	-	Database Management System
DDL	-	Data definition language
DML	-	Data manipulation language
DFD	-	Data flow diagrams
DSS	-	Decision support systems
ERD	-	Entity relation diagram
GHZ	-	Giga Hertz
GUI	-	Graphical user Interface
MIS	-	Management information systems
MDI Form	-	Multiple Documentation Interface
MTBF	-	Mean time between Failures
MySQL	-	My structured Query Language
M.I.S	-	Management Information Systems
RAM	-	Random Access Memory
SDLC	-	System development life cycle
SQL	-	Structured Query Language
PHP	-	Hypertext Pre-processor
POS	-	Point of sale
WIMP	-	Window icon menu pull-down

ABSTRACT

This project aimed at the design and implementation of a hotel control information system; a system to aid in the management and operation of the hotel customer service.

Information systems which are not carefully designed basing on good security practices may lead to data loss, misplacement, inconsistencies and redundancies. Methods that were used to gather information about the current system include; interviews, record review and questionnaire method. It gives detailed review of the selected methods, instruments of data analysis and presentations that were used when analyzing and evaluating the current system.

The methods applied attempted to establish and analyze the status of the problem, appraising it effectiveness where problems existed, to try and find solutions. The study was carried out at Speke Group Hotel as a case study. The system was designed with user friendly interface that would ensure ease of use and avoid errors and other shortfalls that arise with the classic file system.

The literature review elaborates and gives a detailed perspective of management information systems and databases as viewed by different authors and researchers, effects and benefits of databases and data management systems

CHAPTER 1

INTRODUCTION

1.0   General Introduction

Management Information System (MIS) is a subset of the overall internal controls of a business covering the application of people, documents, technologies, and procedures by management to solving business problems such as costing a product, service or a business-wide strategy essential for a running organization. Management Information System is a planned system of collecting, processing, storing and disseminating data in the form of information needed to carry out the functions of management, Kotler, (2006). According to O'Brien (2006), MIS can be used to transform data into information useful for decision making. Computers can provide financial statements and performance reports to assist in the planning, monitoring and implementation of strategy. MIS provide a valuable function in that they can collate into coherent reports unmanageable volumes of data that would otherwise be broadly useless to decision makers. By studying these reports decision-makers can identify patterns and trends that would have remained unseen if the raw data were consulted manually. MIS can also use these raw data to run simulations – hypothetical scenarios that answer a range of 'what if' questions regarding alterations in strategy. Management Information System also provides a valuable time saving benefit to the workforce. Where in the past business information had to be paper based processed for filing and analyzing it can now be entered quickly and easily onto a computer by a data processor, allowing for faster decision making and quicker reflexes for the enterprise as a whole.

1.1 Background of the Study

The Speke Hotels located in Kampala Uganda along Lira road which has four branch within the Uganda, started as a Restaurant in the early 1970's. It has since then developed into a fully-fledged five star hotel offering a wide range of hotel and outside catering services. It policy is to provide quality affordable services to all people regardless of their social backgrounds locally or internationally.

E-commerce and E- business is highly growing globally as exchange of goods and services has widely done all over the world. Speke hotels have since inception expanded due to high demand for catering and traveling services within Uganda and its neighboring countries. The group of hotels has since expanded spreading its wings forming itself into a major player in this field in Kampala.

The group of hotels estimated to enjoy a quite substantial clientele with its customer and suppliers base approximated to two thirds of the market share.

Due to this anticipated growth, the management felt that, there was need to plan ahead by formulating mechanism that would ensure consistent growth. Among the many issues that the organization had to consider in the formulation was information access. This research work touches on enhancing information access.

1.2 Statement of the Problem

Speke Hotels had tried to remain up-to-date with its computer hardware and software capabilities so that it could continue to provide the best possible services. Both paper based and computerized systems have been running on parallel basis. As stipulated in the Hotel's Development Strategic Plan (2008 – 2020), one of the key areas that need to be

addressed was to improve the quality of hospitality by development and use of cost effective technologies and management information systems that were suitable to the hotels' services sector.

To maintain its competitive edge, the hotel has to give priority to customer's satisfaction and suppliers were satisfied with hotel's improved efficiency at the Point-of -Sale terminals, which had been already computerized.

The System was not fully integrated to aid in effective customers and products registration, reporting, decision making, record keeping, retrieval, billing, invoicing, debt recoveries and payments. In view of the above, the following limitations had been identified with hotel's previous information system:

a) The system could not support customer billing i.e. bills are worked out on papers before a final figure was entered to the system.

b) Communication throughout the in customers, out customers and other service units was not supported.

c) The current system had not provision for capturing customers and suppliers details. This activity was done on books that were stored in one of the supervisor's office. This research is an endeavor to fulfill that omission.

d) The system in place was unable to closely monitor hotel's supplies and hence the management was forced to employ many registration clerks to serve at various registration points due to the hotel's scattered facilities.

e) Employees were duplicating, efforts by working out customers' bills manually and temporary clerks often were hired to assist in this activity. Resources were wasted including employee time, equipment usage and supplies.

f) Non-consolidated information lead to non-uniformity of customers records; thus, looking up information about a customers often was confusing.

1.3   Objectives of the Study

1.3.1   General Objective

The general objective of the study was to develop a software application to increase the productivity of the hotel.

1.3.1   Specific Objective

*   To improve and effectively manage the storage of the system files

*   To improve the speed and save time in customers records manipulation.

*   To implement changes from paper based process into automated system.

*   Enhancing communication among and between the hotels' employees and customer

*   To develop computerization of all the Receipts

*   Enhance consistent and integrity in all the record.

1.4   Scope of the Study

To carry out the study, the researcher focused the energy into the activities of the purchasing and supplies department as well as Sales department.

1.5   Significance of the Study

The study was and is still very significant because of the problems identified in the statement of the problem above. If the hotel is to achieve strategic goals, then improving the current Information system in place cannot be ignored.

If a new Management Information System would be implemented, the following would be overcome:

- ❖ So much paper-work and hence huge filling cabinets that occupy so much space.

- ❖ Problem of searching and data retrieval.

- ❖ Magnified computation errors that emanate from minute marginal errors from many daily transactions.

- ❖ Facilitate faster land relatively error free calculation by automating them.

1.6 Limitation of the Study

1) Financial Constraints:

Financing a study of this magnitude in terms of research, software, hardware and other resources was costly. An extensive analysis of current system was hindered due to funds shortage. The research involved visiting the company's premises regularly.

2) Time Constraints

As a student, time was always a limiting factor as there are other academic activities that require attention. Furthermore, deadlines reduced the amount of time one can take to research and perfect the project.

3) Manpower

Due to fund shortage, the researcher had to do all the bulk of the work alone. This reduced the time allocated for each activity since the whole project had to be completed within a defined timescale. This affected the quality of the output.

4) Limited skill/experience

Lack of experience in the particular field was limiting the speed and tact at which the project might have been carried out by fully skilled and experienced person. The researcher being a student had to combine reading to enhance knowledge on software development as well as immediate implementation of the gained knowledge on the case study research work. This further reduced the quality of the output.

1.7 Conclusion

The chapter has considered several key areas beginning with identifying the problems within the hotel and a justification for the study. In the next chapter, the researcher will study other works in the same scope.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

This chapter elaborates on the importance of management information systems and databases as viewed by different authors and researchers, the effects and benefits of databases and database management systems, and the different analysis and design techniques used in analyzing the current system It covers different knowledge from various authors, websites and electronic material about the subject area of study. The terms of reference for the review were:

➢ What is an Information System?

➢ To explain how the computerized system approach differs from paper based file system from systems from other persons.

➢ What are the types of Information Systems available today?

➢ To explain the purpose and factors influencing the idea of hotel control information system.

➢ To set out what some of the implications might be for paper based file system frameworks in the context of delivering the hotel's objectives for sustainable services.

2.2.1   Management Information System

Management Information System (MIS) is a computer system, usually based on a (mainframe) or (minicomputer), and designed to provide management personnel with up-to-date information on an organization's performance, e.g. inventory and sales. These

systems output information is a form that is useable by managers at all levels of the organization: strategic, tactical, and operational Laudon, (2005).

According to O'Brien (2006), Management Information System provides reports with fixed and standard formats, hard-copy and soft-copy reports, uses internal data stored in the computer system, End users can develop custom reports, requires formal requests from users.

MIS systems can be used to transform data into information useful for decision making. IT as well can provide financial statements and performance reports to assist in the planning, monitoring and implementation of strategy. MIS systems provide a valuable function in that they can collate into coherent reports unmanageable volumes of data that would otherwise be broadly useless to decision makers. By studying these reports decision-makers can identify patterns and trends that would have remained unseen if the raw data were consulted manually. MIS systems can also use these raw data to run simulations – hypothetical scenarios that answer a range of 'what if' questions regarding alterations in strategy. Management Information System can be used in data processing by not only allowing the collation of vast amounts of business data, but they also provide a valuable time saving benefit to the workforce.

2.2.2 Type of information systems

According to O'Brien (2006), the management of Information is facilitated by the use of Information Technology and Information Sciences. The popular Information Systems can be listed as follows:

- *Transaction processing systems*; computerized systems that performs and records the daily routine transactions necessary to conduct the business and serve the operational level of the organization.

- *Management information systems*; it collects both internal and external data process it and provide routine and exception information necessary to manage business process.

- *Management reporting systems*; the role is not directly concerned with monitoring day to day activities instead they are concerned with the management of resources involved in planning and supporting company operations.

- *Executive information systems*; the systems that address unstructured decision making through advanced graphics and communications.

- *Decision support systems*; systems that combines data and sophicated analytical models or data analysis tools to supports semi-structured an unstructured decision making.

- *Expert systems*; software programs composed of handful, knowledge base, user interface and inference engine as major components

2.2.3 Activities of Management Information system includes

Planning information about situation and goals, organizing information to help set objectives to attain these goals, Staffing information about human resources, directing information to workers concerning implementation of plans, controlling the feedback to monitor progress. Such activities and business processes involve complex information flows within the organization Chaudahary, (1997).

2.2.4 Characteristics of Management Information System includes

1. Management Information System supports structured decisions at the operational and management control levels. Are designed to report on existing operations and therefore to help provide day to day control of operations.

2. Management Information System generally aid in decision making using past and present data.

3. Management Information System has an internal rather than an external orientation.

4. Management Information System relies on existing corporate data and data flow.

5. Management Information System has little analytical capability Chaudahary, (1997).

2.2.5 Architecture of Management Information System includes

Input: Transaction Processing System, Internal and External data [High volume data].Processing: Management Software/Program bearing simple models Output. Management reports: Scheduled reports, Exception reports, and Demand reports. Feedback: This is the function that makes possible the control over system operation.
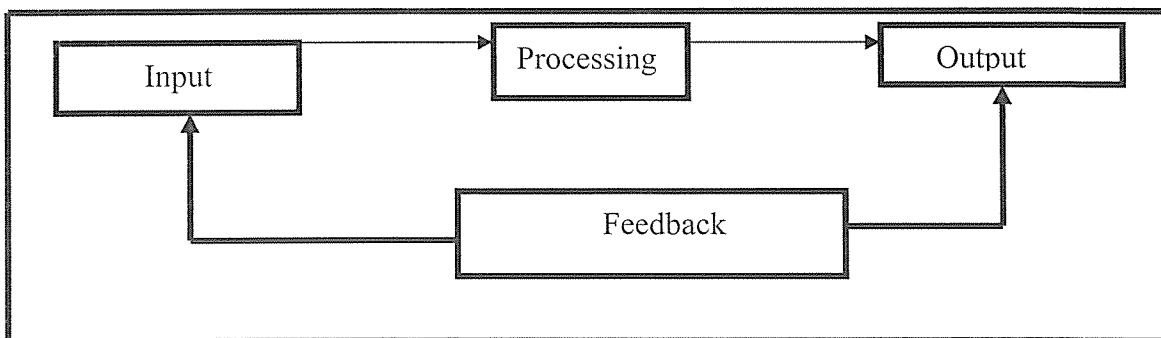
Figure 1.1 management information system architecture
, Chaudahary, (1997)

2.2.6 Components of Management Information System Includes

- Hardware: -   These are Input and output devices that constitute the hardware components of MIS.

- Software: - are programs and applications that convert data into machine-readable language.

- Procedures: - are sets of rules or guidelines, which an organization establishes for the use of a computer-based information system.

- Personnel: - These are the persons who use the Management Information System. They include computer experts, managers, users, analysts, programmers, database managers, and many other computer professionals who utilize the computer-based information systems, Laudon, (2005).

2.2.7 Advantages of Management Information System

1. Provides support to managers as they work to achieve corporate goals, Enables managers to compare results to established company goals and identify problem areas and opportunities for improvement

2. Data may be made available from management information systems on a company's intranet employees can use browsers and their PC to gain access to the data Kiema, (2002).

2.2.8   Disadvantages of Management Information System

1. According to Sawyer et al., (2001), Management Information System computer cannot create business strategies by themselves understanding the effects of their strategies therefore needs help to enable effective decision-making.

2.2.9   Application of Management Information System includes

Strategy Support - assist management in understanding the effects of their strategies, and help enable effective decision making. Data Processing – Provide a valuable time saving benefit to the workforce. Enables Supply chain Management – There is improved reporting that leads to a more streamlined production process. Quick Reflexes – Management Information Systems enable an enterprise to react more quickly to their environment, enabling them to push ahead of the competition and produce a better service Stevenson, (2005).

Management information system is therefore used for computer systems in an organization or an enterprise that provides information about its operations. It also refers to the people who manage these systems. Generally, management information system depends on underlying transactions processing systems for their data requirements. M.I.S is a tool that summarizes and reports the organization's basic operations. The basic data used for operations are processed, compressed and are usually presented in along report that are produced on a regular basis. The underlying function and objectives of M.I.S therefore lies in serving management concerned with weekly, monthly and yearly results, not day to day activities Lucy, (1997).

2.3   Development Technologies

According to O'Brien (2006), Microsoft Visual Basic 6.0 is an object oriented language that is easy to use and more efficient for programming the graphics oriented user interfaces required by many applications. Reusable-programmers can construct a user interface for a new program by assembling standard objects such as windows, bars, boxes, buttons and icons. Microsoft Visual Basic 6.0 provides a graphical user interface that supports a "point and click", "drag and drop" visual assembly.

To rollout the system, the following functionality was being put in place so as to lay foundation for the system using DBMS and Visual Basic. The concept of the system involves two important applications which are including user interfaces allowing the employees to browse the records and details available of the products and accounts holders in the company and a database housing details about the products and accounts featured in the database as well as other crucial information.

a) A user friendly interface allowing the staff to interact freely with the system without many complications to enhance adding, deleting, searching, updating and viewing of the products and accounts records.

b) A database which was carrying details about products and accounts in the company and other relevant information.
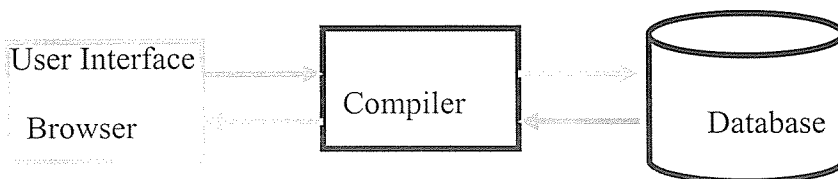
Adapted from Williams et al., (2001)

Figure 2 Architecture model for the System

13

The system user will first interact with the user interface which will provide with means to place a request to the database which may be adding, deleting or viewing employee's record. The request is passed to server which processes it and include a command to link the available database the query is executed by the database through the PHP engine which as a tool to transform the request to a format both the database and the server can understand. The results are passed to the user through the same process.

2.4   Database Management System

It is also referred to a database manager William et al.,(2001) is software that controls the structure of a database and access to the data; allows users to manipulate more than one file at a time (as opposed to file managers). According to Date (2001), a database refers to collection of programs or software that is designed to data stored in a database. Different Authors argues that a Database Management System is special software used to create and maintain a database without having to create separate files or data definitions in the computer programs.

Database systems have been designed to handle large volumes of information. In addition databases have been designed to ensure safety of information stored, despite attempts made by unauthorized system users. A database which contains a collection of data contains information relevant to an organization. One of the pertinent goals of database management systems (DBMS) is to provide a way to store, retrieve, database information that is both convenient and efficient.

According to William et al., (2001), a database management system consists of the following: A modeling language to define the schema of each database hosted in the DBMS, according to the DBMS data model.

a) *Data structures* (fields, records, files and objects) optimized to deal with very large amounts of data stored on a permanent data storage device (which implies relatively slow access compared to volatile main memory.

b) *A database query language and report writer* to allow users to interactively interrogate the database, analyze its data and update it according to the users privileges on data. It also controls the security of the database. Data security prevents unauthorized users from viewing or updating the database.

c) Using passwords, users are allowed access to the entire database or subsets of it called sub schemas.

d) *A transaction mechanism*, that ideally would guarantee the ACID properties, in order to ensure data integrity, despite concurrent user accesses (concurrency control), and faults (fault tolerance). It also maintains the integrity of the data in the database. The BMS can maintain the integrity of the database by not allowing more than one user to update the same record at the same time.

The DBMS can help prevent duplicate records via unique index constraints; for example, no two customers with the same customer numbers (key fields) can be entered into the database.

2.4.1 The Effects of Databases and DBMS

In the 1950s when the commercial use of computers was just begging, magnetic tape was the storage medium and records and files were stored sequentially.

To work with these files, users needed files hence a file management system was introduced Williams et al, (2001).

2.4.2 Advantages of Using Database and DBMS:

Date (2001), outlines the following as the advantages of Using Database and DBMS:

i. *Improved data integrity*: because of reduced redundancy there are increased chances of data integrity-which the data is accurate, consistent and up to date because each updating is only done in one place i.e. cascade update and cascade delete.

ii. *Efficient data access*: a DBMS utilizes a variety of sophisticated tools to store and retrieve data efficiently. These features are important if the data is stored on external storage device.

iii. *Increased user productivity*; database management systems are fairly easy to use, so that users can get their request for information answered without having to result to technical manipulations. In addition, users don't have to wait for a computer professional to provide what they need.

iv. *Reduced data redundancy*; instead of the same fields repeated in different files in a database, the information just appears once. The biggest advantage of the database is that the same information is available to different users. Moreover reduced redundancy lowers expense of storage media and hardware because data can be stored on the media.

v. *Increased security*: although various departments may share data in common, access to specific data can be limited to a specific user thus though the use of

16

usernames and passwords only legitimates or authorized members can access these information.

vi. *More program independence.* With database management systems the program and the file formats are the same, so that one programmer or even several programmers can spend less time maintaining files.

vii. *Isolation:* The results of transaction are invisible to other transaction until transaction is complete.

viii. *Concurrent access and crash recovery:* a DBMS schedules concurrent access to the data in such a manner that the user can think of the data as being accessed by only one user at a time.

2.4.3 Disadvantages of Using Database and DBMS

i.   Initial training required for all programmers and users. Damage to the database affects virtually all application programs. Database systems are complex, difficult and time consuming to design.

ii. Extensive conversion costs in moving from file management system to a database system. Substantial hardware and software start-up cost Date, (2001).

2.4.4 Database Maintenance

Database cannot be created once and for all, but its creation and maintenance is a gradual and continuous procedure. The creation and maintenance of database is under the influence of a suit of system software known as Database Management System.

The users of databases communicate their requirements to the database using the Database Description Language (DDL) and the Data Manipulation Language (DML) via the DBMS. In fact the DBMS provides an interface between the user's program and the base contents of the base, the DDLs and DMLs are used to; Add new files to the base, Incorporate fields on to the existing records in the base, Delete the obsolete records, Carry out adjustments on the existing records i.e. to amend the records, Expand the database capability, for it to cater for growth in data volume for enhanced application requirements, Link up all the data items in the base logically Raghu,(2002).

2.5   Data Flow Diagrams (DFDs)

The formal, structured analysis approach employs the data-flow diagram assist in the functional decomposition process. Data Flow Diagrams depicts the flow of data through a system. A DFD does not relate to the sequence of events but rather to the flow of data between events. It is understood that events may happen in parallel.

DFDs are considered to be a structured methodology tool because they facilitate breaking down processes to their smallest components. The symbols used in a DFD depict the different components of the problem area. Most notably each process can be subdivided into smaller processes that comprise the parent process. This process of decomposition ultimately results in a sub process that cannot be further divided and that process becomes a computer program.

But according to the researcher Chris Gane (1979), the DFD depicts the flow of events and data within a system but omit consideration of the other very important part of the system: the structure of the data. Data cannot magically move from process to process or

18

from process to data store without computer programs understanding the structure of the data. No system design is complete without a data model.

DFD's are comprised of four components:

1) External interactors are represented by a rectangle.

2) Data stores are represented by an open rectangle.

3) Processes are represented by any rounded object. A DFD process may represent system function at one of various levels, atomic through aggregate.

Data flows are represented by arrows, with labels indicating their content.

2.6 System Development Life Cycle [SDLC]

System Development Life Cycle, just as the name implies, is defined as the process of developing system or software to meet certain requirements. It covers many activities, starts from understanding why the system should be built, studying the project feasibility, analyzing problems, choosing the system design and architecture, implementing and testing it, up to delivering the system as product to the user. SDLC is a process of gradual refinement, meaning that it had to be done through several development phases. Each phase continues and refines what's done in the previous phase.

According to Blanchard, B. S., & Fabrycky, W. J. (2006), SDLC tries to achieve high quality system that meets or exceeds the requirements. In general an SDLC methodology follows these steps:

i.   If there is an existing system, its deficiencies are identified. This accomplished by interviewing users and consulting with support personnel.

ii. The new system requirements are defined including addressing any deficiencies in the existing system with specific proposals for improvement.

iii. The proposed system is designed. Plans are created detailing the hardware, operating systems, programming, and security issues.

iv. The new system is developed. The new components and programs must be obtained and installed. Users of the system must be trained in its use, and all aspects of performance must be tested. If necessary, adjustments must be made at this stage.

v. The system is put into use. This can be done in various ways. The new system can phased in, according to application or location, and the old system gradually replaced. In some cases, it may be more cost-effective to shut down the old system and implement the new system all at once.

vi. Once the new system is up and running for a while, it should be exhaustively evaluated. Maintenance must be kept up rigorously at all times. Users of the system should be kept up-to-date concerning the latest modifications and procedures.

Commonly known development phases in SDLC are:

a) **Investigation (Planning).**

It is the process of understanding why the system should be built and defining its requirements. It also includes feasibility study from several different perspectives, technical, economic, and organization feasibility aspects.

An investigation is carried out to establish what the existing system does, what the problem are and led to definition of a set of options from which the users may choose their required system. In carrying out an investigation, information about the current system is collected and by recording the problems and requirements described by the users of the current system, building a picture of the required system.

b) **Analysis.**

This phase includes activities such as problems identifying and analysis, and even predicting potential problems that may arise in the future regarding the system. The deliverables or products of this phase will drive how the system will be built and guide the developers' works. Analysis is carried out to establish the existing system in detail in order to find out:

> The difficulties and problems of the system.

> The user requirements.

> The inputs to the system and the outputs generated.

c) **Design.**

System analysis leads to design decision, which exactly determines how the system operates in terms of process, data, hardware, network infrastructures, user interface, and other important factors in the system environment.

This is where the system analyst defines the structure and contents of the new system and specifies how the system will be implemented.

d) Implementation.

This is probably the most resource, cost, and time consuming phase of all. This is when the system is actually built, tested, and finally installed. It also includes activities such as user training and system maintenance. Some experts like to separate them into different phases Deployment and Maintenance. However the four phases are the most commonly known and accepted steps.

In this case, the researcher came up with the concept of implementing the new system which will increase the hotel's profit by improving the quality of service, utilization of resources (including people), faster access to management's information and reduction of expenditure.

2.8   Conclusion

In this chapter, a comprehensive study of information systems and the types has been done. The researcher pointed out the advantages of embracing Information systems in organizations as well as software development methodology. In the next chapter, strengths and weaknesses of the current system at the case study and the requirements for the new system are considered.

CHAPTER THREE

SYSTEM ANALYSIS

3.1   Introduction

This chapter explains how the researcher collected data, analyzed and used it to verify the viability of the researcher. It is at this stage the choice of the Software Development Methodology is selected. The purpose was to evaluate the current system. It involved describing the current system by the use of extensive diagrams and other descriptive model.

Therefore Analysis aims to provide business areas with methodological standards and expert advice on procedures to minimize error, in order to produce accurate survey estimates and thereby maintain the quality of data output. Also Analysis will be involved in ongoing research to assess and improve methods of data collection, and in developing new ways of collecting data.

3.2   Procedure of the Study

Prior to embarking on the research, permission was sort from the relevant authorities. This was necessary because every organization has preset procedures of operation in their line of command. Later it was visiting the organization as a means to researcher familiarizing with the work environment as well with the organization staff before getting to interview them. This helped to create a friendly environment so that they could also feel at ease when being interviewed. Interviews were later scheduled alongside questionnaires on a timely structure with the respondents so as to avoid inconveniences

on the business. Other methods that followed later were observation and document analysis which mainly aided to counter check the facts gathered by the other research methods. The data was analyzed for documentation after which recommendations were drawn based on the facts gathered.

3.3   Population of the Area of Study

The extent of researcher coverage was from the entry of new and existing members and products into the system, monitoring and control them. It also involves the registration of new and existing members of the hotel facilities.

3.4   Data Collection Methods

In order to properly asses the appropriate requirements for the system information had to be gathered from many sources as possible.

This process involved fact finding or gathering information from the system players about the functionality of system. The user was expected to provide a clear and precise description of the requirements the new system is intended to deliver.

3.4.1   Primary Methods

Interviews

According to Newman and Lamming (1995), interview is a formal instrument that specifies the precise wording and ordering of all the questions to be asked of each respondent. The researcher found useful method to:

- investigate issues in an in depth way
- discover how individuals think and feel about a topic and why they hold certain opinions

- investigate the use, effectiveness and usefulness of particular library collections and services
- inform decision making, strategic planning and resource allocation
- sensitive topics which people may feel uncomfortable discussing in a focus group
- Deepen understanding and explain statistical data.

Advantages

- they are useful to obtain detailed information about personal feelings, perceptions and opinions
- they allow more detailed questions to be asked
- they usually achieve a high response rate
- respondents' own words are recorded
- ambiguities can be clarified and incomplete answers followed up
- precise wording can be tailored to respondent and precise meaning of questions clarified
- interviewees are not influenced by others in the group

Disadvantages

- they can be very time-consuming: setting up, interviewing, transcribing, analyzing, feedback, reporting
- They can be costly.
- Different interviewers may understand and transcribe interviews in different waysThe critical aspects are the choice of the place for the interview and how to conduct it.

A sample of the questions that were used to collect data in the interview is attached in appendix B.

Document analysis is the gathering information used in a formal description of the text and studying and analyzing from the content and then processing and understanding of the contents in the documents so that conclusions may be drawn. The collection and

examination of documents are often an integral part of qualitative research, so the materials employed in document analysis comprise of a number of different types of information, written material such as letters, memorandums, organization records which provide data on absenteeism, profitability, size, budgets, organization newsletters, closing plans, contracts and procedures used to carry out the work Patton, m.q. (1990).

The researcher decided to use document analysis as useful method to investigate:

- decision making and strategic planning
- Resource allocation.
- outcomes alignment and library policy

Advantages of document analysis

The main advantages of document analysis according to Patton, m.q. (1990) are:

- it overcomes the difficulties of encouraging participation by users
- There are few costs involved other than staff time.

Disadvantages of document analysis

The main disadvantages of document analysis according to Patton, m.q. (1990) are:

- it is not suitable to evaluate user opinions, needs or satisfaction with services
- Some documents may be sensitive and not publicly available.

3.4.2   Secondary Method

Questionnaires This involves giving the employees simple questions to identify job duties, responsibilities, equipments, used work relationship and working environment. Researcher Questionnaires are a useful method to investigate:

26

- patterns, frequency, ease and success of use
- user needs, expectations, perspectives, priorities and preferences
- user satisfaction with collections and services
- shifts in user attitudes and opinions
- relevance of collections and services to user needs
- trends (by repetition over time)

The main advantages of questionnaires according to Patton, M. Q. (1990) are:

- they are relatively easy to analyze
- they are familiar to hotel staff and managers
- a large sample of the given population can be contacted at relatively low cost;
- they are simple to administer;
- information is collected in a standardized way
- they are usually straightforward to analyze
- they can be used for sensitive topics which users may feel uncomfortable speaking to an interviewer about
- Respondents have time to think about their answers; they are not usually required to reply immediately.

The main disadvantages of questionnaires according to Patton, M. Q. (1990) are:

- if you forget to ask a question, you cannot usually go back to respondents, especially if they are anonymous
- it is sometimes difficult to obtain a sufficient number of responses, especially from postal questionnaires
- questions may be incorrectly completed
- they are not suitable to investigate long, complex issues
- respondents may misunderstand questions because of poor design and ambiguous language
- there is the danger of questionnaire fatigue if surveys are carried out too frequently
- They may require follow up research to investigate issues in greater depth and identify ways to solve problems highlighted.

Observation This is a method of data collection where by the researcher observes activities as they progress and he records the problems he notes in the system. According to Newman and Lamming, (1995) who explained observation data collection technique as an only technique that allows a system analyst to obtain information that he cannot obtain from other techniques. The researcher on several occasions, randomly observed work flows at the case study. The observations were recorded as a data that would further be used to enhance the accuracy of the data collected using other means.

Advantages

➢ It gives first hand and accurate information.

➢ Interruptions are best observed than hearing about them.

➢ Usage of file documents. Processes that interrupt the flow of these documents can be easily observed.

Disadvantages

➢ It is a time consuming activity because you have to watch and see before you understand.

➢ It is well known that people do not like to be observed and will work hard when they know they are being observed, that is why is recommended that observation should be done separately so that those observed would not need to know that they are being observe.

3.5 **Analysis of the Current System**

3.5.1 <u>Strengths of the current system</u>

a) The paper based support references which better informs of security.

b) The filling system is less cost in terms of maintains database in automated system.

c) Personalized – There is a lot of interaction between the customers and the hotel staff whether on the available products, registration or even being made aware of new books available.

3.5.2 <u>Weaknesses of the current system</u>

a) The system could not automatically compute customer bills that are, are calculated manually before a final figure was entered to the system.

b) Disorganization – Finding the files of members, or details of the books available was proving to be a daunting task.

c) The system was unable to closely monitor hotel's supplies. Need to employ many registration clerks to serve at various registration points due to the hotel's scattered facilities.

d) Employees were duplicating, efforts by working out customers' bills paper based and temporary clerks often were hired to assist in this activity. Resources were wasted including employee time, equipment usage and supplies.

e) Non-consolidated information lead to non-uniformity of customers records; thus, looking up information about a customers often was confusing.

3.6   System Specifications

Here the requirements for the development of the system were analyzed and are defined

consequently in the sub sections below

3.6.1   System Requirements

Personnel requirement;

- Database and information administrator,

- Data entry clerks,

Software requirements;

- Operating system Windows NT and higher platforms,

- Ms office 2003 or 2007,

- Ms Visual Studio 6.0 design Tool interface and Form design.

- Oracle Database 10g Express Edition.

Hardware requirement;

- Fully multimedia work stations (3),

- 256 MB RAM minimum, 512 MB recommended,

- 2.0 GHZ processor Speed, 3.0 GHZ recommended,

- Intel Pentium III and higher, Amthlon (AMD) processor,

- 40 GB hard disk space minimum,

- Printer,

- UPS (uninterrupted power supply),

- Telecommunication technology for the intranet and internet.

3.6.2 User Requirements of the New System

They were specified in document known as user requirements document (URD) as used in software engineering that specifies the requirements the user expects from software to be constructed in a software project.

- Creating bills of all transactions involved.

- Registering customers.

- Producing reports of all functions within the systems

- Automate calculations where mathematical calculations are needed.

- Storing, manipulating, retrieval and deleting records through database management systems

- A user friendly interface, interface enhancements that will increase the usability of the product for the staff.

- A secured system with user having different rights

- Creating accounts for registered customers

3.6.3 Security Requirements of the New System

The system was providing;

- ➢ The hotel shall be under direct eye of the security guards.

- ➢ Use off passwords and user names shall be implemented to verify and assign appropriate persons to the DBMS and Access of the system information,

- ➢ The hotel work stations shall have up to date antivirus software for virus prevention,

31

3.6.4   <u>Non-Functional Requirements</u>

In software system engineering, a software requirement that describes not what the software will do, but how the software will do it, as software performance requirements, software external interface requirements, software design constraints, and software quality attributes. Non-functional requirements were difficult to test; therefore, they were usually evaluated subjectively.

The non-functional requirements were:

- System was easy to use and Windows based since most people were used to it as it is use Graphical User Interface [GUI].

- Documentation of the new system was available according to the specifications of the new system. Those documentations includes: user manuals of the system and was well commented soft copy of the source code for easy readability.

- Platform compatibility to which kind of the users need to use [Portability].

- Reliability (e.g. Mean Time Between Failures - MTBF),

- Usability by target user community (ease-of-use, learnability, memorability, efficiency, etc.)

- Efficiency (resource consumption for given load).

- Effectiveness (resulting performance in relation to effort),

- Extensibility (adding features, and carry-forward of customizations at next major version upgrade).

- Safety properties (so-called because they "prevent bad things from happening"), such as security and fault tolerance are available.

- Operational scalability including support for additional users or sites, or higher transaction volumes.

- Quality of service requirements such as performance (throughput, response time, transit delay, latency).

3.6.5 Functional Requirements

A system requirement specified a function that the system component was capable of performing. These were software requirements that define behavior of the system, which was the fundamental process or transformation that software and hardware components of the system perform on inputs to produce outputs.

Some of the functional requirements of the new system were:

- Display customers total charges.

- Allow access of personal details by authorized persons only.

- Search for customer by name.

- Calculate the amount due from customer, if registered from accounts.

- Generate daily accounts, stock status, bills, loosen commodities and work order reports.

- Execute account details, balance, transactions and manipulating.

- It should be able to confirm reservation and show projected occupancy.

- Enable users to change password from administrator.

- Provide help facility to enable people to learn how to use the software on their own i.e. without being trained.

- Retrieve customer's histories, information on accounts that reveals geographic origin, telephone information and organizational affiliations.

33

- Navigate through the records.

- Add, delete and edit records.

- Creating bills and management

3.7 Conclusion

With all these findings were put into consideration, it necessitated a new system that was being more efficient and implemented using a reliable database management system implemented in the client's premises. Therefore system was developed using powerful DBMS as will be seen in the next chapter.

CHAPTER FOUR

SYSTEM DESIGN

4.1   Introduction

This chapter deals with the physical or implementation of dependent aspects of system (the technical specification). Having clearly understood the problem, collected and analyzed data and hence identified the system requirements, the next important phase is system design. In this phase, all the key issues identified previously are carefully considered. This is very important because most of the errors originate from this area. More than 60% of the total time is spent at this stage. This includes the Conceptual, Logical and Physical modeling of the database.

4.2   Context Model Diagram

Figure 3 Context model Diagram (level 0)

Context Diagram

SUPPLIER

Supplier prod
details

Enquire

Customer   Cust details

HCIS

Order

Delivery note

Account details

Reservation card

Reservation

Membership card   Member
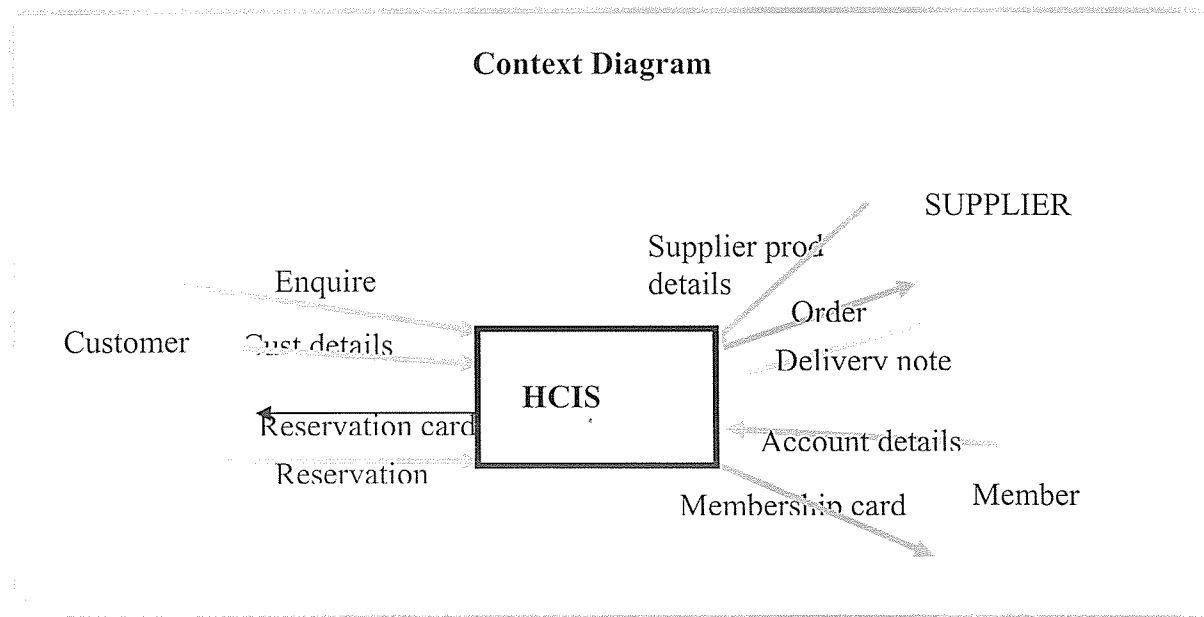
4.3 Entity Relationship Diagram

Entity Relationship Diagrams (ERDs) illustrate the logical structure of databases; it represents the network of relationships between classes of things which need to have data recorded about them in the system. ERDs has three major abstractions

1. **Entity** something about which we want to store data; persons, places, objects, events.

2. **Attributes descriptive** property or characteristics of an entity.

3. **relationships** they ate interactions or associations between the entities shown as lines linking the entities

Figure 4 Entity relation Diagram (ERD)

36

4.4   Activity Diagram

Figure 5 Activity Diagram

4.5 Data Flow Diagram (DFD)

Level 1 DFD (Data Flow Diagram) Its tool that depicts the flow of data through the system and work of processing performed by those system DFD components
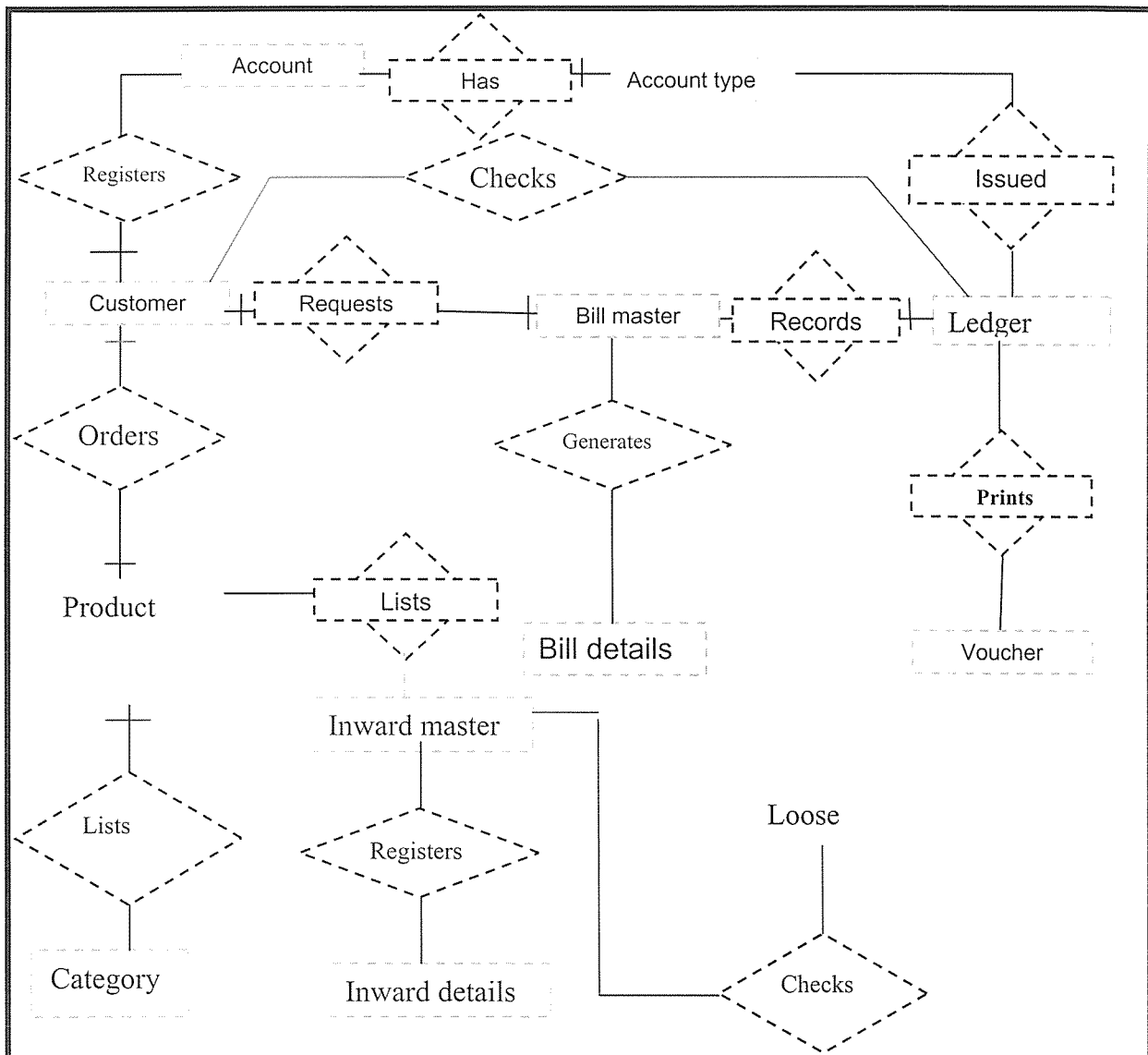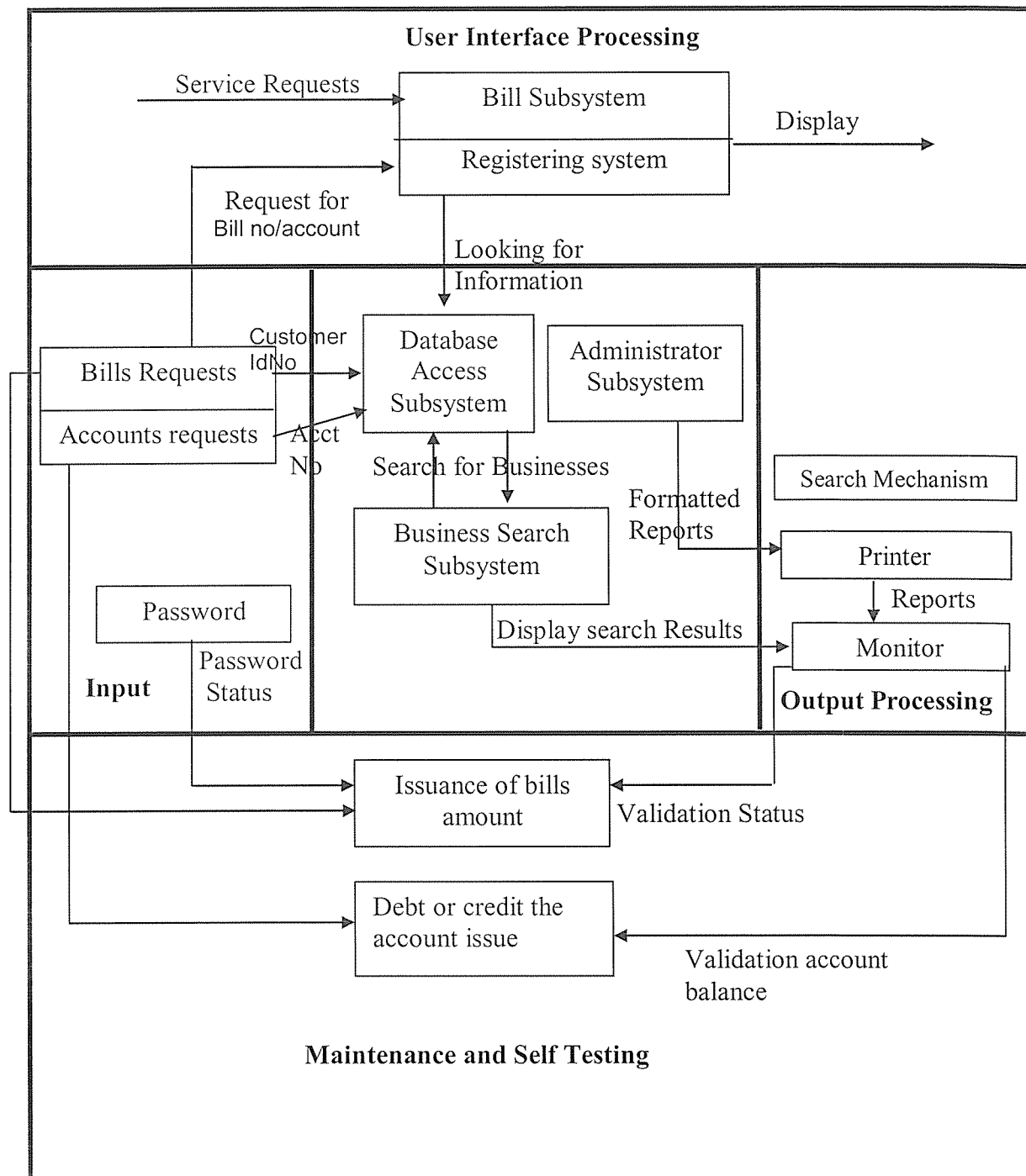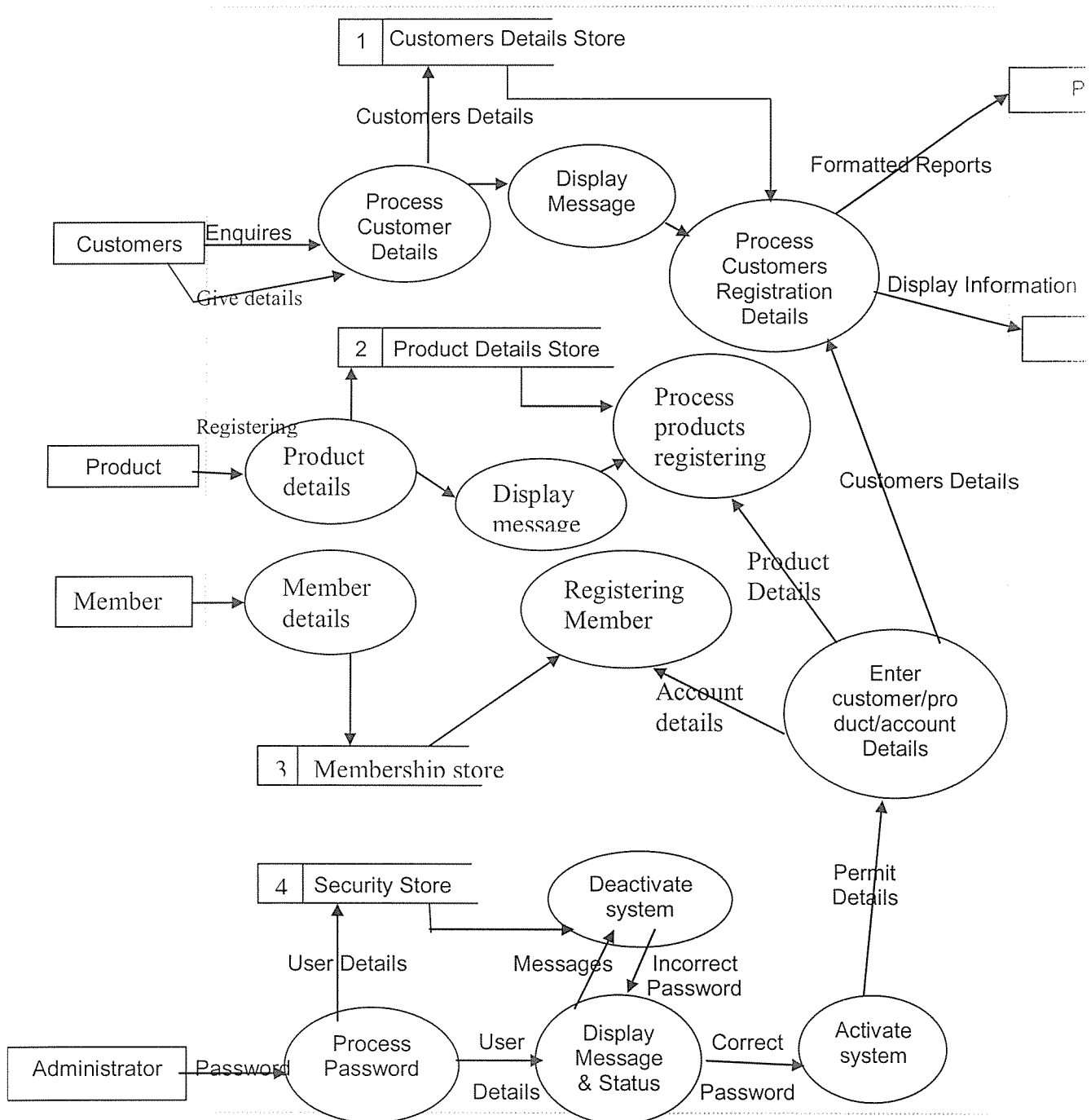

_Figure 6 Data Flow Diagrams (level 1)

Table 1 Conceptual design of the Database

Object	Attributes	Description
ACCOUNT	AcctNo	This shows account number of the member
	AcctName	The name of the holder of the account
	Address	This refers to physical address of the holder
	City	Details of the city holder come from
	MobileNo	Give the holder cell phone
	PermitNo	IdNo or Permit of holder
	TypeCd	Type of account code holder wants
	Opening	Amount of cash holder deposit
	DrCr	Whether account is debited or credited
ACCOUNT TYPE	TypeCd	the account code of account available
	TypeName	This is the name account type available
BILLDETAIL	BillNo	number given to a bill of a customer
	ProdID	Description of identity of product sold
	Qty	Amount or number of product sold
	Loose	Number of empty bottles loosed
	Rate	This gives the amount a product costs.
	Amt	This show the total amount sold on a bill
BILL MASTER	BillSrNo	number given to a bill of a customer
	Date	This is the day the bill was made
	Time	The time bill was made
	AcctNo	This shows account number of the member
	CustName	The name of customer of the bill
	WaiterID	details of waiter with identity number
	NetAmt	Total amount for the customers bills
	Paid	amount of cash customers pays against bill
CATEGORY	CatID	Number assign identifying certain products
	CatName	Name identifying certain products
	Stock	Total amount product in the store
INWARD DETAIL	EntrySrNo	The products brought serial number
	ProdID	Description of identity of product sold
	Quantity	The amount on product supplied to hotel
VOUCHER	VSrNo	Receipt Serial number uniquely it
	Vchtype	details why receipt was given
	VchNo	Gives times customer is given a receipt
	Date	When[day] was loosed was known
	Amt	This show the total amount sold on a bill
	AcctNo	This shows account number of the member
	Against	Gives whether customer is paying cash or deduction to the account
	Remark	Description of how cashiers comments
PRODUCT	ProdID	Description of identity of product sold

39

	Name	The name given to product identifying it
	Unit	The quantity supplied
	SizeId	identity number given identifying the size
	CatID	Number assign identifying certain products
	Rate	This gives the amount a product costs
	OpeningStock	The stock available at each start of the day
	OpeningStkLost	The stock lost as noticed start of the day
	CurrStock	The amount of stock current available
LEDGER	SrNo	Serial number identifying the ledger
	TranDate	The day the transaction took place
	AcctNo	This shows account number of the member
	Particulars	Give description of the events
	TranType	details of which transaction took place
	EntryNo	The number identifying the entry
	PrintNo	The ledger number being printed
	DebitAmt	The amount the accounts have been debited
	CreditAmt	The amount the accounts credited
	ClosingBal	The amount the accounts balance.
INWARD MASTER	EntrySrNo	The products brought to hotel must have serial number identifying them
	Date	When[day] of supply of products
	Time	What time it was noticed has been loosed
	Remark	Comments of products supplied

4.6   Logical Design

Logical modeling deals with gathering business requirements and converting those requirements into a model. The logical model revolves around the needs of the business, not the database, although the needs of the business are used to establish the needs of the database. Logical modeling involved gathering information about business processes, business entities (categories of data), and organizational units.

40

(a)Table 2 Account Table
Table name: Account
Primary key: AcctNo
Foreign key: TypeCd

Account table

Field name	Description	Data type	Field size
AcctNo*[pk]*	account *unique identifier*	*Varchar2*	**25**
AcctName	*Holder's name*	*Text*	**10**
Address	*Holder's Surname*	*Text*	**10**
PermitNo	IdNo or Permit of holder	*Varchar2*	**15**
MobileNo	*Holder's Phone number*	*Varchar2*	**20**
Address	*Holder's street Address*	*Varchar2*	**10**
City	*Holder's City*	*Varchar2*	**20**
TypeCd	account code of account	*Varchar2*	**10**
Opening	*Employee's Position Name*	*number*	**10**

(b) **Table 3 Bill Master**
Table name: BillMaster
Primary key: BillNo
Foreign key: AcctNo

BillMaster **table**

Field name	Data type	Field Size	Description
BillNo*[pk]*	*number*	*9*	***bill number***
AcctNo	*Varchar2*	*9*	***Unique identify account***
Date	*Date*		***Date of billing***
Time	*time*		***Time of billing***
waiterID	*Varchar2*	*10*	***Waiter code***
NetAmount	*number*	*10*	***Net amount against bill***
Paid	*Int*	*9*	***Days Absent***

41

(c) **Table 4 Account Type**

Table name: Account type

Primary key: TypeCd

Account table

Field name	Description	Data type	Field size
TypeCd*[pk]*	Type code	int	9
TypeName	Type name	Varchar2	25

(d)

Table 5 Bill Details

Table name: BillDetail

Primary key: BillNo

Foreign key: ProdID

BillDetail **table**

Field name	Data type	Field Size	Description
BillNo[pk]	*Varchar2*	*15*	**Bill Number**
ProdID	*Varchar2*	*25*	**Product Number**
Qty	*number*	*10*	**Overall number**
loose	*number*	*10*	**Bottle loosen**
Rate	*Varchar2*	*10*	**product costs**
Amt	*number*	*10*	**Total amount**

(e) **Table 6 Bill Master**

Table name: BillMaster

Primary key: BillSrNo

Foreign key: AcctNo

Bill master table

Field name	Data Type	Field size	Description
BillSrNo[pk]	*Varchar2*	*10*	**serial Number**
Date	*Date*		**Date of billing**
Time	*time*		**Time of billing**
AcctNo	*Varchar2*	*9*	**Unique identify account**
CustName	*Varchar2*	*30*	**Customer name**
waiterID	*Varchar2*	*9*	**Waiter number**
NetAmt	*Number*	*10*	**Total amount**
Paid	*Number*	*10*	**Amount paid**

42

(f) **Table 7. Category Table**
Table name: Category
Primary key: CatID
Foreign key: none
Category table

Field name	Data Type	Field size	Description
CatID[pk]	*Varchar2*	*10*	*Category id Number*
CatName	*Varchar2*	*10*	*Category name*
Stock	*Varchar2*	*10*	*Stock in place*

(h) **Table 8. Lost Table**
Table name: Loose
Primary key: SrNo
Foreign key: ProdID
Loose table

Field name	Data Type	Field size	Description
SrNo[pk]	*Varchar2*	*10*	*Serial Number*
Date	*date*		*Date of loose*
Time	*Time*		*Time of notice*
ProdID	*Varchar2*	*15*	*Total Days of the week*

(g) **Table 9. Voucher Table**
Table name: Voucher
Primary key: VSrNo
Foreign key: AcctNo

Field name	Data Type	Field size	Description
VSrNo*[pk]*	*Varchar2*	*10*	*Voucher serial Number*
Vchtype	*Varchar2*	*10*	*Voucher type*
VchNo	*Varchar2*	*10*	*Voucher Number*
Date	*date*		*Date*
AcctNo	*Varchar2*	*9*	*Unique identify account*
Net	*Number*	*10*	*Total amount*
Against	*Varchar2*	*15*	*Who to pay*
Remark	*Varchar2*	*255*	*Details*

43

k) **Table 10. Inward Master Table**
Table name: Inward Master
Primary key: EntrySrNo
Foreign key: none

Inward Master table

Field name	Data Type	Field size	Description
EntrySrNo*[pk]*	Varchar2	20	serial number
Date	Date		Date of supply
Time	Time		Time of supply
Remark	Varchar2	255	comments

(I) **Table 11. Product table**
Table name: Product
Primary key: ProdID
Foreign key: CatID
Product table

Field name	Data Type	Field size	Description
ProdID[pk]	*Varchar2*	*25*	*Product Number*
Name	Varchar2	30	Product name
Unit	Number	12	Quantity
SizeID	Varchar2	15	Size identity
CatID	Varchar2	10	*Category id Number*
Rate	Number	10	Price for each item
OpeningStock	Number	12	Stock at start of day
OpeningStkLoose	Number	12	Stock noticed loosed

j) **Table 12. Ledger Table**
Table name: Ledger
Primary key: SrNo
Foreign key: AcctNo
Ledger table

Field name	Data Type	Field size	Description
SrNo*[pk]*	Varchar2	15	Serial number
TransDate	Date		Transaction date
AcctNo	*Varchar2*	*9*	*Unique identify account*
Particulars	Varchar2	25	description
TranType	Varchar2	25	Transaction made
EntryNo	Number	10	Entry identifier
PrintNo	Number	8	Printout identifier
DebitAmt	Number	12	Debited amount
CreditAmt	Number	12	Credited amount
ClosingBal	Number	12	Amount remaining

4.6   Physical Design

Physical modeling involves the actual design of a database according to the requirements that were established during logical modeling. Logical modeling mainly involved gathering the requirements of the business, with the latter part of logical modeling directed toward the goals and requirements of the database. Physical modeling deals with the conversion of the logical or business model, into a relational database model.

Figure 7 Logical Design
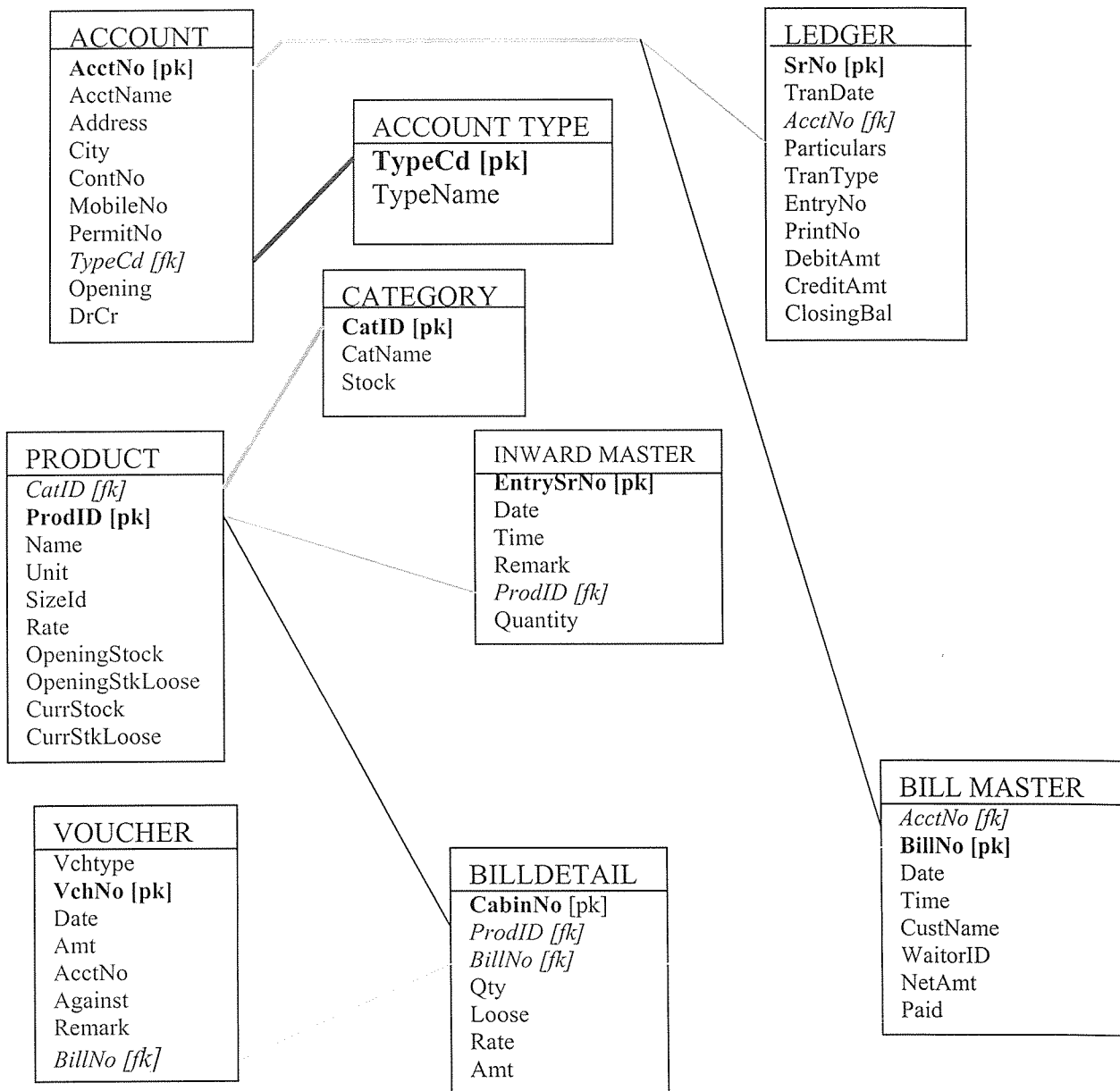
4.7 Conclusion

System design and development were very interesting phases. Design included identifying entities, attributes and their relationships. This included liaising with the direct uses of the system. This was intended to reduce potential problems in future as possible.

Once the design phase was complete, a further confirmation from direct and indirect users of the system was done until they were satisfied that all the intended purpose was too considered. This phase was complete by converting the design into a working application.

The implementation of the physical model was dependent on the hardware and software being used by the company. The hardware determined what type of software could be used because software was normally developed according to common hardware and operating system platforms.

CHAPTER FIVE

SYSTEM IMPLEMENTATION

5.1   Introduction

Having completed development of the new system, it is now ready for implementation. It

in this chapter begins the first step of implementation. That is, program testing, then,

finally is a description of the system change over.

Once the design was complete, the development entailed two broad phase-Back-end and

User Interface. The back-end comprised database application whereas the user interface

comprised the application that the users would use to interact with the database. For the

database, Microsoft access was used while visual basic 6.0 was used to develop the user

interface.

5.2   Program testing

During the programming stage, each programmer of programming team performed his/her own

program testing to the specifications laid out by the designers. The completed programs were

then to be passed to the designers for further testing, who were to examine them and approve

their interfaces with of the system. System level program testing addresses functional concerns

and the following elements were the devices software that was related to the intended use(s).

- Performances issues (the response time and reliability measurements).
- Responded to stress conditions
- Operational of internal and external security.
- Usability
- Capability with other software's

5.2.1 Types of testing

- Unit testing or program testing was to test whereby each module was to be tested.
- System testing was a test that ensured that programs written in isolation work properly when they are being integrated into system into the total system.
- User acceptance testing was the testing of the system by the user area after the system had passed the systems test.
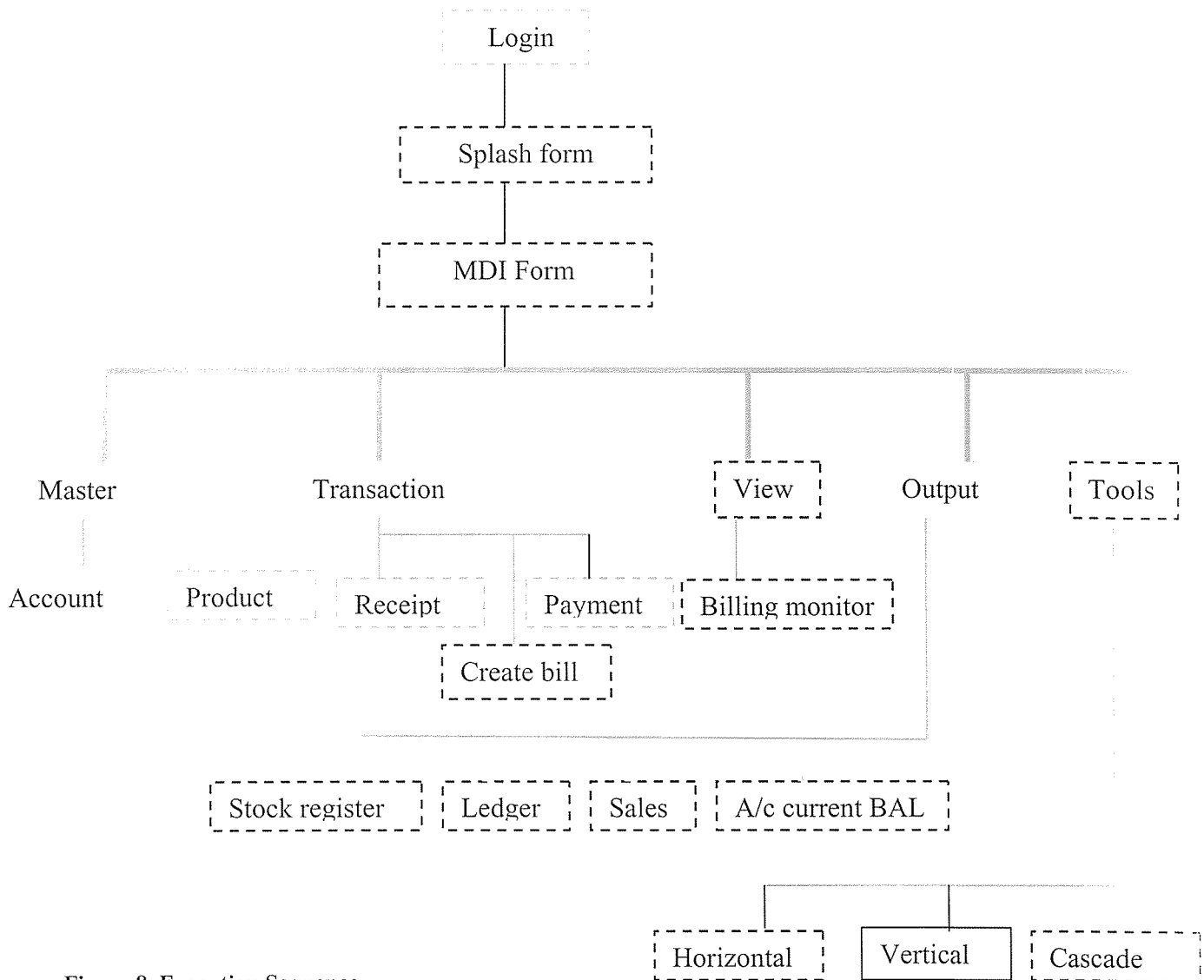

Figure 8. Execution Sequence

48

5.3 Project Implementation

After the process and product were developed it was to be implemented so it was available to be used. The designer carried this process where it involved the new system and period of a parallel running alongside the existing system were to be carried out as to the user literate to the system. This also enabled results to be checked and any last minutes problems were to be ironed out before the organization was fully reliant of the new system.

5.3.1 System Implementation

System implementation entails the construction of the new system and delivery of that system into production (day to day production). During this stage, each of the components from the design is realized as a program unit. The designer verified each unit that must be against its specification obtained in the design stage. This is where the system was installed and put into practical use. Systems evolution was vital and important part of system implementation. Its objective was the systematic assessment of system performance to determine whether the established goals were being achieved. A number of criteria were commonly used to measure the performance of the system;

a) Time i.e. the time required for a particular action to be performed. The response time that elapsed before the systems responded to the demanded placed upon.

b) Accuracy, measure of freedom from errors achieved by the system was measured in several ways.

c) Morale was reflected in the satisfaction and acceptance that system users felt towards their jobs.

d) Customers reactions toward the system were important factors; less numbers of complaints from customers and more input indicated that the system as performing satisfactorily.

e) Software performance was measured in terms in terms of processing speed reliability, and quantity of output, accuracy, reliability, maintenance and update requirements.

f) Security means that all the records are secure, that equipment was protected and those unauthorized or illegal access was minimized.

5.4   User Interface

The specification of inputs and dialogues forms a key part of the designer's tasks because of the high visibility of those interfaces to the users. The output produced by the computers was the main reason for developing the new system.

The layout of the screen and the consistency of the dialogue were important to those users who had to spend a lot of time in front of the terminals and who would base their evaluations of the whole system on those interfaces. The time and effort spent getting the design of forms screens and reports were to enable designer to meet the objective mentioned earlier of making the system easy to use. For best presentation of information, three important principles were applied;

- The contents were kept simple. This was achieved by achieving by presenting only that information which was needed by the user.
- The page or screen should not be clustered and easy to read. The use of white spaces on a printed page significantly improves its readability in case of reports.
- The information was arranged logically on the page on screen in such way that it can be easily and quickly used and understood by the user. Every output screen or report was to include a main heading which identifies the purpose of the output and subheading that were identifying the various sections within it.

When designing input, it was ensured that data, which would be processed by the system, was collected and entered into system efficiently, according to the specified requirements and with minimal errors. In discussion with the clients, the designer had chosen a method of input design, which was cost effective and acceptable to the end users.

Essentially a dialogue consisted of user responding to prompt from the computer by providing inputs was to be designed as user friendly as possible, where WIMP interfaces which was increasingly common interface used in many applications.

5.4.1 Sample interfaces for the system
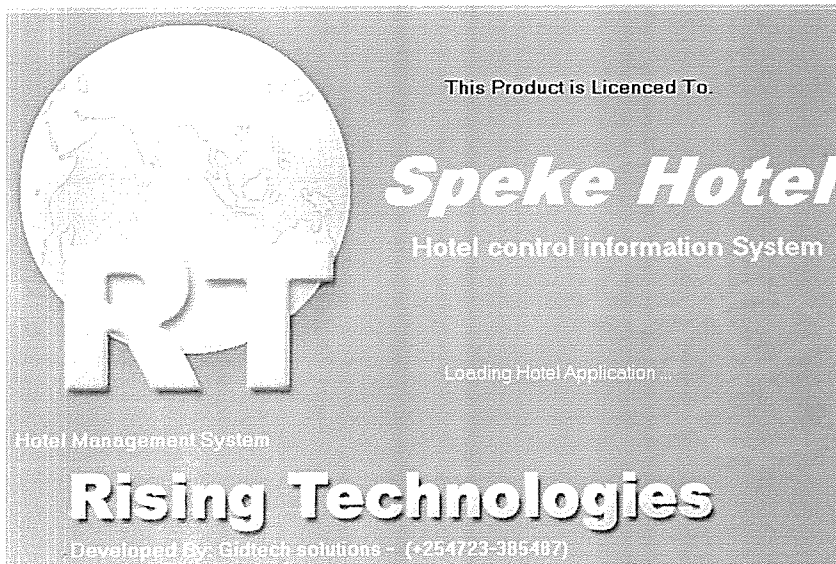
[1] For forms

Figure 9. Splash form
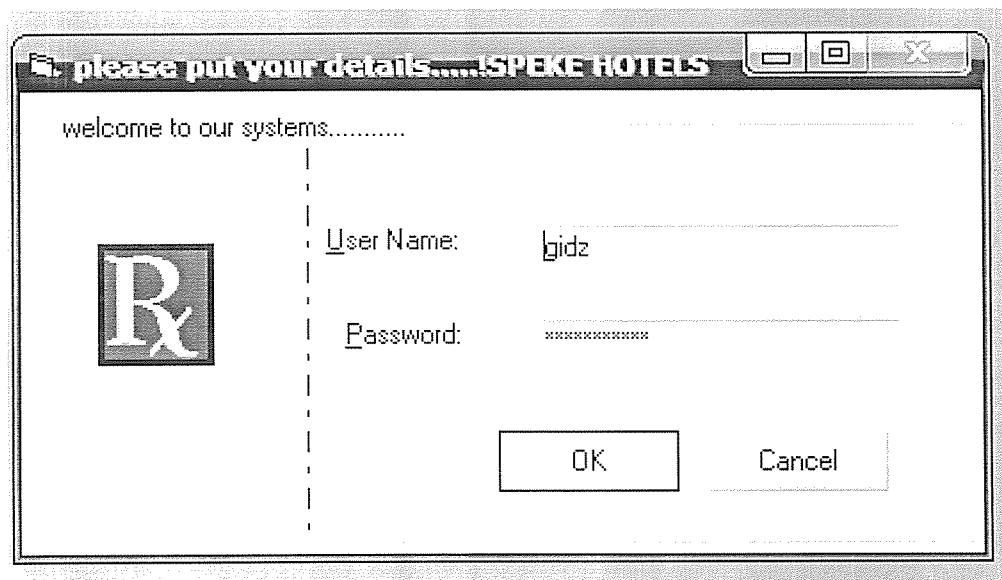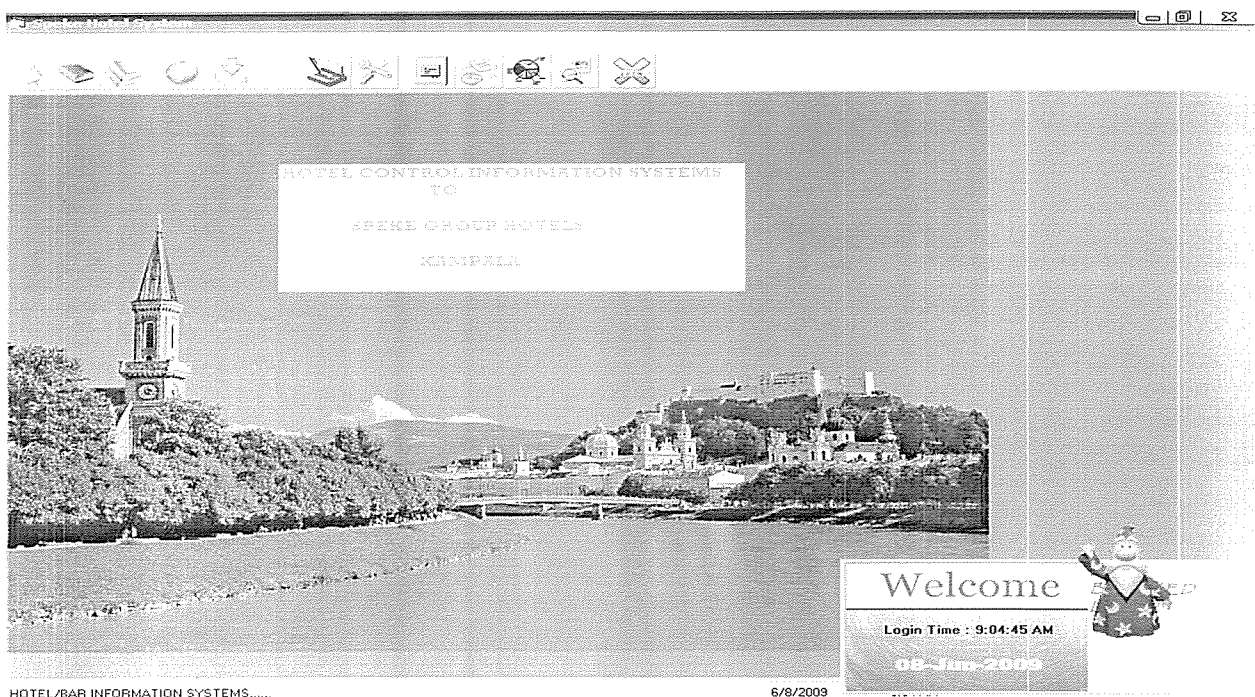

Figure 10. Login form

Figure 11. MDI and Welcome Form
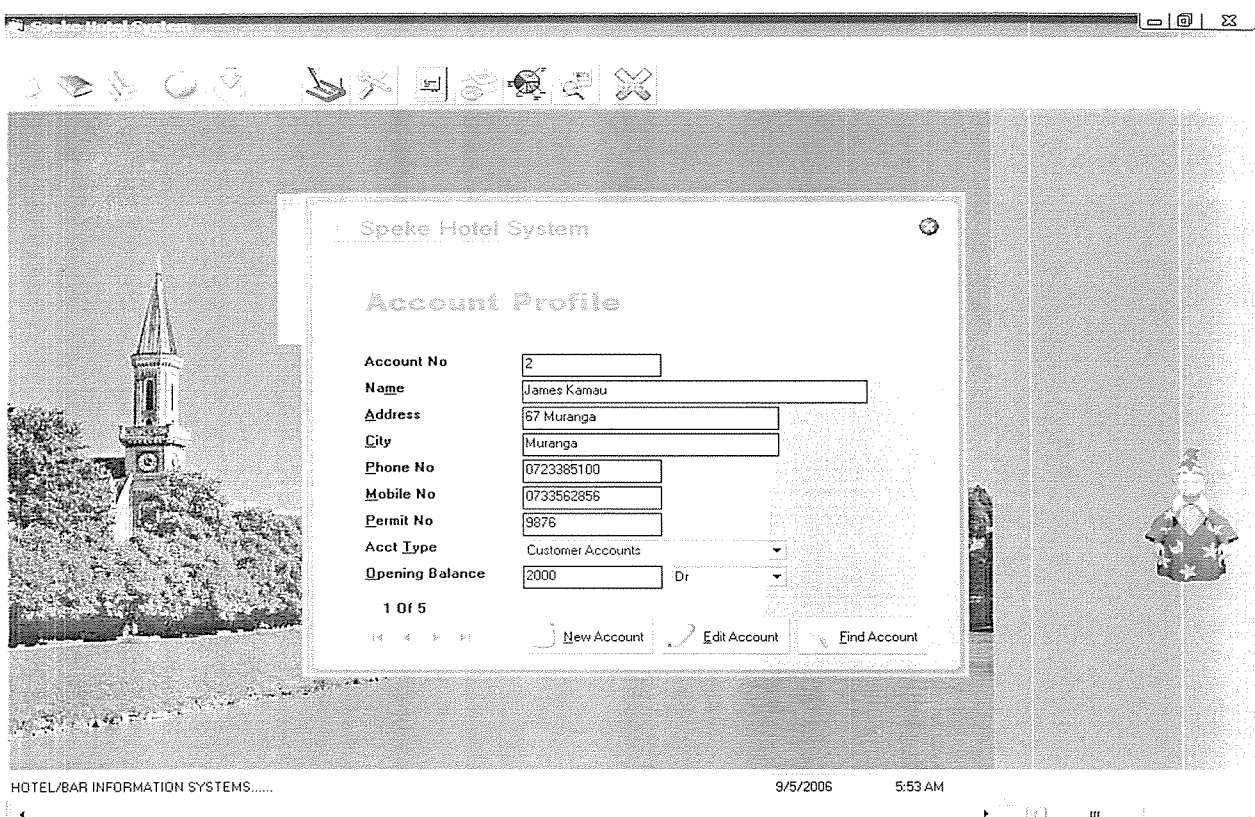

Figure 12. Product Profile Form

Figure 13. Bill Creation Table

Figure 14. Bill Monitoring Form

53

Figure 15. Ledger Form

Figure 16. Sale Summary Report

Figure 17. Counter Stock Status Report

5.5 System Conversion

The conversion to new system may essentially involve any four approaches: direct changeover, phased changeover, parallel running and pilot changeover. The system designer decided to use parallel running.

Parallel Running involved the running at the same time of both old and new systems, with the results being compared. Until the new system was proven the old be relied upon. A relatively safe approach, which could also allowed staffs to consolidate training in the new system before live running commenced. It was expensive, however because of extra resources required to run two systems side by side. To this case the system had point-of-sale [POS] system this was the most suitable method of changeover as parallel running was necessary as the new system was vital and was to be proven before operation.

5.6   Training

It covers recruitment of new personnel and retraining of the current staff. The latter involves user involvement, advertising salary advice and interviewing. For training to be effective, it must be clear what is trying to achieve.

The researcher practiced training in following ways; use of tutorials, seminars, case studies, practice, complete based training (C.B.T).

5.7   Maintenance

Maintenance includes all changes to the product once the client has agreed that it satisfied the specification document. Maintenance includes corrective Maintenance (or software repair) as well as enhancement (or software update). Corrective Maintenance involves correcting errors which were not discovered in earlier stages of the development process while leaving the specification unchanged. There are, in turn, two types of enhancement:

- *Perfective maintenance* involves changes that the client thinks will improve the effectiveness of the product, such as additional functionality or decreased response time.

- *Adaptive maintenance is* about changes made in response to changes in the environment in which the product operates, such as new government regulations.

5.8   Conclusion

When the system is implemented it must be maintained whereby files are updated and unnecessary information is deleted. It should show the workings of the new system and how the user should navigate through the system from login to the generation of reports

CHAPTER SIX

RECOMMENDATIONS AND CONCLUSIONS

6.1 Introduction

It was earlier highlighted at the beginning of this project that the study came about for the purpose of improving the previous system that was used at hotel. The problem was mainly due to lack of credible sources of information and as a researcher found out that it was due to poor storage and analysis of data at the grassroots level, which handles the most sensitive parts of the hotel. The project took seven months to be fully completed, tested and implemented

6.2 Recommendations

The Control information system was meant to be one of the most needed sources of the benchmark information that will better performance for the company. The system was not developed without experiencing drawbacks as earlier expected. As such, it was fair to acknowledge that the system has not been subjected to all kinds of tests that are necessary for the system to be implemented to all kinds of platforms. A thorough division of the constraints to determine the appropriate data values for different fields in order data integrity was necessary, though the sample data that the system was tested on was a success. It would be beneficial to consider other different platforms as the information system evolves.

The DBMS was recommended for small size databases; that was why I chosen to deal with the customer and product only. Alternative platforms such as Sql 20000, Oracle 8i

and Oracle 9i should be considered bearing in mind that the human resource management information system, as a whole is main reason why the system has to be developed.

Password levels may be increased to higher levels depending on the confidentiality of the stored data. The current system password was basically low level which can be improved such that every user having own privileges and rights

It is recommended that the system can be redeveloped using other robust programming tools that would be in position to enhance more functionality like CASE which supports the construction and maintenance of logical system specification models as it supports the rules and interactions of models defined in a specific methodology.

6.3 Conclusion

For the system to be ease to work with during implementation, the researcher concluded user had to be trained which was to cover the retraining of current staff and the recruitment of new personnel, however the system the staffs had to see its cumbersome as they were not used to the system hence they were not fast as many customers were in need of services. Though the Information system will not provide 100% satisfaction, however much it may be customized; it guarantees significant user satisfaction and boost up efficiency.

6.4 Future Work

As part of recommendation for future work is the improvement of the whole system as the hotel expands. Alongside hotel expansion, with the current sudden change of technology, there is a need to change with the times. Where applicable, the new system shall need to be upgraded for increased efficiency and reliability.

REFERENCES

A.K CHAUDAHARY, (1997). Encyclopedia of Management Information System. Published by McGraw-Hill

BLANCHARD, B. S., & FABRYCKY, W. J.(2006) . Systems Engineering and Analysis (4th edition.) New Jersey: Prentice Hall.

DATE, C. J, (2001) Introduction to Database System, 7th Edition, Pearson Education Publishers Newdelhi, India.

CUMMINGS, HAAG, MCCUBBREY, PINSONNEAULT, DONOVAN, (2006), Management Information Systems for the Information Age, Toronto, McGraw-Hill Ryerson

CHRIS GANE (1979), Software Engineering: Tools, Principles and Techniques, Umesh Publications

GERALD V. P (2000). Database management systems- designing and building business applications: second edition. Published by McGraw-Hill, 1221 Avenue of the Americas, New York, NY, 10020.

GREENSPAN, JAY & BULGER, BRAD, (2001). Mysql/php database applications; M&T publishers, IDG Books Worldwide.

JAMES A & O'BRIEN, (2006). Managing Information Technology in the business Enterprise 6th Edition. Published by McGraw-Hill

KENNETH C. LAUDON (2005). Essential of Management Information Systems Organization & Technology in the Networked Enterprise

LANGEFORS & BÖRJE (1973). Theoretical Analysis of Information Systems. Auerbach. ISBN 0-87769-151-7.

NEWMAN AND LAMMING (1995). Introduction to Literature Review AZ: USDA/CSREES &University of Minnesota.

O'BRIEN (1999). Management Information Systems – Managing Information Technology in the Internetworked Enterprise (in English). Boston: Irwin McGraw-Hill ISBN 0071123733

S. KIEMA, (2002) Beginners' Introduction to Management Information Systems. ksps publishers

RAGHU R. & JOHANNES G. (2000). Database Management System, 2nd Edition. McGraw-Hill International Edition.

THOMAS C. & CAROLYN B. (2000). Database Systems, A Practical Approach to design, Implementation and Management. Third Edition. Published by Addison-Wesley publishing ltd., Edinburgh Gate, Harlow England.

PHILIP KOTLER, (2006). Marketing Management, Pearson Education, 12 ED
William Brian K. Stacey, Stacey C. Hutchinson, Sara E. Computers, Communication, Information, 3rd Edition, Irwin/McGraw Hill Publishers, New Delphi India, 2001.

TEOREY T.; LIGHTSTONE S. AND NADEAU T. (2005) Database Modeling & Design: Logical Design, 4th edition, Morgan Kaufmann Press. ISBN 0-12-685352-5

PATTON, M. Q. (1990). Qualitative evaluation and research methods (2nd edition.). Newbury Park, CA: Sage.

60

APPENDICES

APPENDIX I - Sample Questionnaire

Am a Third year in Kampala International University student pursuing Bachelor's degree in Information Technology. I will highly appreciate your contribution to this study.

1. When was the Speke Hotel founded?

....

....

2. What is the hierarchy of this organization?

....

....

3. Which methodologies do you use to capture and store information?

☐ **Paper based**   ☐ **Computerized** *(tick where appropriate)*

Other methods used...

4. What are some of the challenges that you face while undertaking these procedures?

....

....

5. Is there any measure that has been taken as a remedy to the challenges faced?

☐ Yes   ☐ o   *(tick where appropriate)*

If yes, please state it (them)

....

6. Do you have back-up copies for your records?

☐ Yes   ☐ No   *(tick where appropriate)*

If yes, state the kind of information you backup.

....

....

8. How often do you have records updated? *(Tick where appropriate)*

☐ After a year ☐ never ☐ egularly ☐ fter one month

9. Do you specialized record keeping Employees? *(Tick where appropriate)*

☐ Yes ☐ No

If yes, what are some of the activities they perform and how do you ensure that every record is where it is supposed to be?

....

....

10. Other than dealing with Employee's records, are there any other activities that take place in this human resource department.

....

....

APPENDIX II- Sample Interview guiding questions

[handwritten: It would be better on an independent page]

1. What problem do you face when using the existing system?

2. Suggest how the problem can be solved?

3. How many Employees do you have in this organization?

4. Do you have any computer operator in the organization?

5. How many computers do you have?

6. What are your expectations from the new system?