

**“COMPUTERIZATION OF BIRTH AND DEATH RECORDS”
A CASE STUDY OF SPECIALIST HOSPITAL KABBA**

BY

ISAIAH AGNES

PGD/MCS/2001/2002/1088

**DEPARTMENT OF MATHEMATICS / COMPUTER SCIENCE
FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA - NIGER STATE**

NOVEMBER, 2004

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A PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE POST GRADUATE
DIPLOMA IN COMPUTER SCIENCE

OF

DEPARTMENT OF MATHEMATICS / COMPUTER SCIENCE
FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA - NIGER STATE

NOVEMBER, 2004

CERTIFICATION

This is to certify that this project titled “computerisation of Birth and Death process” was carried out by Isaiah Agnes in partial fulfilment of the requirement for the award of Post Graduate Diploma in Computer Science of Federal University of Technology, Minna.

Mallam A. Isah
(Supervisor)

Date

Mr. L.N. Ezeako
(Head of Department)

Date

External Examiner

Date

DEDICATION

This project is dedicated to the Almighty God my City of Refuge For His mercies and sustaining grace to me in completing the programme.

My dedication also goes to my Beloved Husband **MR. FEMI THOMAS OLUPEHIM** and to my beloved family, the family of **MR& MRS. ISAIAH OCHIGBO** for their uniting support, personal sacrifices and encouragement to me all through the programme.

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AGNES ISAIAM
NOVEMBER 2004

ABSTRACT

The record unit of the specialist hospital Kabba. This unit actively involves the keeping of record of births and deaths which involves large volume of document that is liable to removal without anybody's knowledge or loss. This manual operation of records causes a lot of delay, lack of proper recording unwillingness in the part of the staff due to this reason the researcher decide to computerise the specialist hospital Kabba. The registration of births and deaths done by four or five staff could only be done by one person with a personal computers (PC) installed with the proposed system and open a file for births and deaths to keep their record. This would reduce delay we retrieving record, misplacement of file and updating it would be easy in the activities.

CHAPTER ONE

GENERAL INTRODUCTION

1.0 INTRODUCTION

This research work is based on computerization of Births and Deaths records in Specialist Hospital Kabba, Kogi State, Nigeria from 1994-2003.

1.1 BACKGROUND OF STUDY

The Specialist Hospital Kabba, was established in the year 1982. The aim for establishing it was to bring health care system closer to people in line with Federal Government policies to promote good health, teaching people of the new hygiene formula and assisting the community in eradicating some diseases that easily spread. Through the assistance of World Health Organisation (WHO) and foreign body. The specialist hospital is headed by Head of Hospital Service (HHS) Chief Nursing Officer (CNO) and hospital administrator serve people from within and outside the state and had a capacity of admitting patients numbering about 1,500. The specialist hospital Kabba, is one of the best hospital in Kogi State because of its well equipped and functioning mortuary departments. Among many of the reasons for establishing specialist hospital includes.

- Giving training to students on attachment
- Carrying out research work
- Consultancy service
- Giving a new hygienic formula in currying difference sickness and diseases
- And selling of drugs to patients in a cheaper rate.

The structure of the building is divided into different section, each of this section have head and they worked hand in hand in speeding the recovery of the patients on admission. These department or section that are available in the specialist hospital Kabba are:

Administrative block, maternity department, Dental units, laundry section, theatre room, psychiatric unit, orthopaedic section, gynaecological unit, laboratory unit, maintenance section, mortuary room, out patients departments, security post, staff quarters and so on.

PSYCHIATRIC UNIT:- The unit that is responsible for the treatment of the maritert illness

DENTAL UNIT:- This unit take care of teeth.

PAEDIATRIC WARD: This is the unit that take care of the problems of the hospital as a whole.

MATERNITY SECTION: Is the unit that care for women who are about to become mother.

ORTHOPAEDIC UNIT: This is the unit that is responsible for currying sickness and disease of brains.

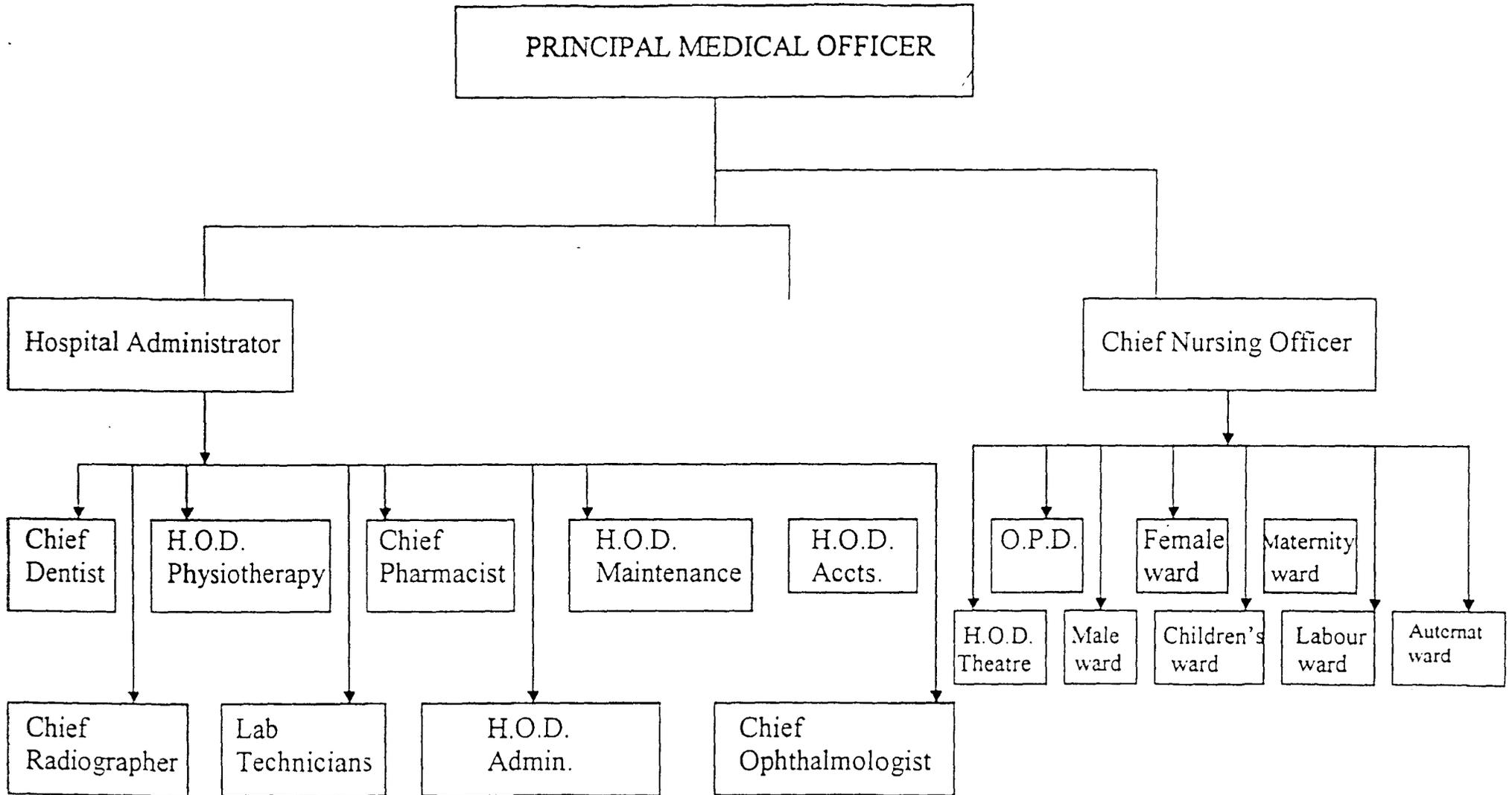
THEATRE ROOM: Is a unit where an operation is been performed

GYNAECOLOGICAL UNIT: Is a unit that specialises on disease of Women.

LAUNDRY SECTION: Is a section where hospital clothes are been wash

LABORATORY UNIT: Is a section where the hospital drugs and tensile's are kept, and a place for carry out test.

ORGANIZATION OF SPECIALIST HOSPITAL KABBA, KOGI STATE



1.2 OBJECTIVES OF STUDY

Objectives of this work is to develop a computer based births and death record – keep system that will provide the following to the hospital communities and the nation by extension.

- Easy accessibility of birth and death information drug/equipment/acquisition to the various arms of the hospital
- Enhance retrospective and introspective study of birth and death pattern of the population which the hospital services. Such study too enhances the knowledge/skill of the healthcare providers.
- Data generation for onward submission to the appropriate authority at the local, state and federal level which will help in health facilities allocation e.g. the cold chain materials for minimization against children killer disease.
- Easy, time saving and accurate data computation by the health information manager of the hospital (Health Records Officer)
- To lay down a solid foundation for a comprehensive computerization of death and birth processes
- To increase accuracy of keeping fact as manual system is promote human stress.
- Rapid retrieval of information regarding death and births.

3 SIGNIFICANCE OF STUDY

The idea of computerizing the number of birth and death came as a result of long time problem studied and important problem identified hindering the efficiency of the activity of the country.

Information on the population of a country is important for economic and social planning. Statistical record of birth and death has been experience a lot of problems which includes:

PROBLEM IDENTIFICATION

- Lack of adequate skilled of manpower in record management
- Inadequate provision of equipment and tools, such as cabinets, files, case note, guides, exercise book e.t.c.
- A great deal of time taken (with difficulties)
- Files are easily misplaced due to laziness or carelessness of the record officers
- There is slow response to release of the record on birth and death.
- Attitude of the people for instance. The non reporting of birth, death and diseases affecting the record units.
- Inadequate attention by the authority to the study of Bio-statistics especially in the area of data collection.
- Lack of finance to embark on periodic collection of bio-medical data locally and nationally.

1.4 DEFINITION OF TERMS

BIRTH: A birth is an act or process of child delivery irrespective of the duration which after such separation is life.

DEATH: According to United Nation, death is the permeate disappearance of all efficient of life at anytime after birth have taken place.

STILL BIRTH: This refers to the off-springs that died shortly after birth.

LIVE BIRTH: These are children born alive i.e. children who could breath in and out immediately after birth.

FERTILITY RATE: This refers to the relative frequency with which births actually occur within a given population.

FECUNDITY: Fecundity refers to the potential level of birth performance of the population.

POPULATION: These refers to the total number of people living in a particular area at a given period of time.

COMPUTER: This is an electronic device, which store information on discs or magnetic tapes, analysis it and produces information as required from the data on the discs or tapes. Defined in another way, computer is an electronic machine that can receive instruction through input, process the instructions and produce meaningful results.

RECORDS: i A record is made up of fields which contain specific information about what the record represents
ii.A unit of hospital were patients record an kept, health information are compiled and analysis.

DATA: This simply means, unstructured facts.

INFORMATION: Data, fact that has been structured or processed generates information.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

There is very little in life as important to a person as his/her life. This is evident in people's willingness to pay for made care ever when it is expensive. The goal of medical care is effectively achieved through a good medical record.

The word record has no acceptable universal define from but however, it could be defined as "an act of assemblings facts in a book or a form of unit of information relating to a particular subjects".

The word birth and death record is a written accounts of patients births and deaths contract/relationship with health facilities usually recorded by the medical team, maintained, preserved and produced on demand by the medical records department.

The word computer is an electro-mechanical device which processes information and can stored it according to instructions coded into it, without any human intervention. They are known to process information in a very high speed with accuracy and can store large amount of information. The time required for computer's to sort and process data as well as execute such and process data as addition and subtraction varies from a few monoseconds (millionth of a second) to eight monoseconds (billionth of a second).

Once the circuit of a computer has been designed, built and fully tested, it is predictable that it never makes a mistake in performing their million of operation.

Generally, the focus of this write-up shall be the management of births and deaths records to enhance the job of medical record personnel.

2.2. RECORD KEEPING METHOD

Record keeping is a method by which facts and figures are record and stored with ease and speed with which these facts and figures are retrieved when needed which may make the difference between success and failure.

2.3 RECORD MANAGEMENT

Today there are ways and methods of regulating the volume of record. Records are usually destroyed because the information are either duplicated or changed due to changes in law and regulation in business practice and the need of the user. The system of controlling these record is known as record management. The available system and techniques needed to support information, retention and retrieved at optimal level are not being used to any large degree.

This is supported by current estimate that 55% of all records currently retained valueless and this means extra cost to maintain. This has lead to development of highly sophisticated system of collecting, evaluating, retrieving, reproducing and referencing information through mechanization and automation. However, it is entirely possible to achieve dramatic reduction in cost without deployment of elaborate and expensive equipment and methods.

The adoption of some of the most elementary concept and technique of record management will result in shrinking the number of all records being processed and store in other to provide easier and accurate record and retrieval of essential records.

2.4 THE RECORD UNITS

The medical record units is the first part of call and last part of call and is the image maker of the hospital. This is a section within the hospital where patients births and deaths notes are kept and it is the first point of call whenever a patients want to give birth or reported sick. It is responsible for the custody maintenance and other functions related to the recording, preserving and the use of the medical record.

2.1.2 THE OUT GUIDES

This is very important in control of records. The need may arise for transfer of record from signed-out location to another in the hospital. In this case, the use of out guides is used to provide an important means of control over record usage. They are used to replace a folder that has been removed from the files. The guide remains in the file until the borrowed file is returned and refilled. Folder or sign out cards with pockets for starting requisition ships are popular for this purpose.

BIRTH RECORDS	
Identification Data	
- Surname	_____
- Mother's Name	_____
- Baby's Name	_____
- Address	_____
- Birth weight	_____
- Sex	_____
- Age	_____
- Apgar score	_____
- Termed preg	_____
- Place of Birth	_____
- Date of Birth	_____
- Time of Birth	_____
- Delivered by	_____

DEATH RECORDS

Identification Data

- Surname _____
- Name _____
- Address _____
- Hosp. Number _____
- Tribe _____
- Occupation _____
- Sex _____
- Age _____
- Marital Status _____
- Next of kin _____
- Date of death _____
- Time death occur _____
- Underlying cause of death _____

2.13 LOCATION OF MISFILE

Sometimes due to some lapses here and there, a file/folder may be misfiling. It is important to locate such file. Certain methods are used which speed the such file. Certain methods are used which speed the finding process of a record been misfile. The method outlines below is more popular with the conventional numerical filing.

Step in locating misfiled:

- A. Look for the transposition of the last two digits of the number or if the hundred pr thousand digit.
- B. Check for a certain number in the hundred group just proceeding or following the number e.g. 385,485.
- B. Check for the transposition of the first and last number.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 SOURCE OF DATA

The data for this project was obtained from the registration book maintained by the medical research at the record unit of the specialist hospital. They were collected by medical record department in the specialist hospital Kabba. For the purpose of this project it is collected as secondary data.

Then tabulated the data orderly as they are been registered monthly. The data used for this project work was collected by staff of the hospital. The records were extracted from the files of medical record department, which scattered in the office.

3.2 METHOD OF DATA COLLECTION

The data for statistical investigation can be personal interview, questionnaire from i.e. through experimental survey, personal interview questionnaire by secondary basis, that data extracted from previous published documentary source.

The data collected for this project work are secondary source that is secondary data that were obtained from medical record unit of specialist hospital Kabba, the period under consideration in this project is between the period of 1994 – 2003

3.2.1 ORGANIZATION OF DATA

The data collects for this project are arranged, organized and presented in two main forms.

1. Tabulations
2. Graphic method

TABULATION

Tabulation is the process by which statisticians present data in any orderly manner so that they are easily comprehended.

Tabulation enhances comparison between classes. Data are said to be raw if the elements are presented without any form of arrangement.

GRAPHICAL PRESENTATION OF DATA

After collection of the raw data on the birth and death, having classified the data in a suitable form it becomes necessary to present the data in the form of charts for easy analysis and interpretation.

CHARTS

These are aids or guides used in some aspects underlying patterns of births and deaths as observed at specialist Kabba, Kogi State. We have bar chart and pie chart will be used.

SIMPLE BAR CHART

The simple bar chart consists of a series of bars, each length equal to the size of the figure it represents.

PIE CHARTS

A pie chart is simply a circle divided into sections and each section representing a part of the total of the data being presented and each section is drawn proportional to its relative size.

3.3 TABULATION AND PRESENTATION OF DATA

3.3.1 MONTHLY REGISTERED BIRTHS IN SPECIALIST HOSPITAL KABBA, KOGI STATE FROM 1994 – 2003.

TABLE I

MONTHS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	TOTAL	PER-CENT %
JAN	15	26	19	22	14	20	14	20	18	19	197	7.56
FEB	23	22	8	16	26	27	23	21	20	19	205	7.87
MARCH	31	23	16	18	23	19	22	20	21	22	215	8.25
APRIL	19	24	40	25	25	26	18	26	25	24	252	9.7
MAY	16	40	30	17	33	15	12	23	24	22	232	8.90
JUNE	22	26	34	32	33	12	19	26	25	24	253	9.71
JULY	18	22	25	23	22	21	23	23	22	21	220	8.44
AUG.	30	19	27	13	18	10	26	21	20	19	203	7.79
SEPT.	27	13	30	34	16	11	19	22	21	20	213	8.17
OCT.	10	25	21	22	20	22	19	20	19	18	196	7.52
NOV.	28	24	19	28	15	23	24	24	23	22	230	8.83
DEC.	32	20	18	18	6	15	24	20	19	18	190	7.27
YEARLY TOTAL	271	284	294	265	259	219	243	266	257	248	2,606	100

SOURCE: From the record unit, specialist hospital Kabba.

3.3.2 MONTHLY REGISTERED DEATHS IN SPECIALIST HOSPITAL KABBA, KOGI STATE FROM 1994 – 2003.

TABLE II

MONTHS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	TOTAL	PER-CENT %
JAN	7	3	3	2	1	2	-	3	4	2	27	9.54
FEB	4	-	2	4	1	-	2	3	2	4	22	7.77
MARCH	4	-	1	3	1	-	1	2	3	2	18	6.36
APRIL	-	5	-	4	3	1	3	2	3	2	23	8.13

	-	5	2	5	1	5	2	3	4	6	33	11.66
	-	4	2	5	1	3	-	2	6	6	29	10.25
	-	4	5	1	3	1	2	6	7	1	30	10.60
	1	-	2	-	2	4	3	2	6	3	23	8.13
	1	-	2	-	2	4	-	3	-	4	16	5.65
	-	3	2	1	-	1	7	-	3	-	17	6.01
	3	2	2	-	3	2	1	-	3	-	16	5.65
	1	-	2	-	2	4	3	2	6	3	23	8.13
RLY	24	30	27	26	19	27	22	29	47	32	283	100
AL												

URCE: From the record unit, specialist hospital Kabba.

3

BLE 3

Table shows the total number of birth and relative size in degree to each portion from the year 1994 – 2003

BLE 3.0

YEAR	NUMBER OF BIRTH	DEGREE
4	271	37.44 ^o
5	284	39.23 ^o
6	294	40.61 ^o
7	265	36.61 ^o
8	259	35.78 ^o
9	219	30.25 ^o
0	243	33.57 ^o
11	266	36.75 ^o
12	257	35.50 ^o
13	248	34.26 ^o
TAL	2606	360^o

∴ Chart can be calculated by using the actual figure thus:

Add up the frequency

Divided each frequency by the total and multiply by 360° . This will give the degree of each class. For example for 1994

$$\frac{271}{2606} \times 360 = 37.44^{\circ}$$

For 1995

$$\frac{284}{2606} \times 360^{\circ} = 39.23^{\circ}$$

PIE CHART SHOWING THE ANNUAL BIRTH IN DEGREE IN SPECIALIST HOSPITAL KABBA

or 1996

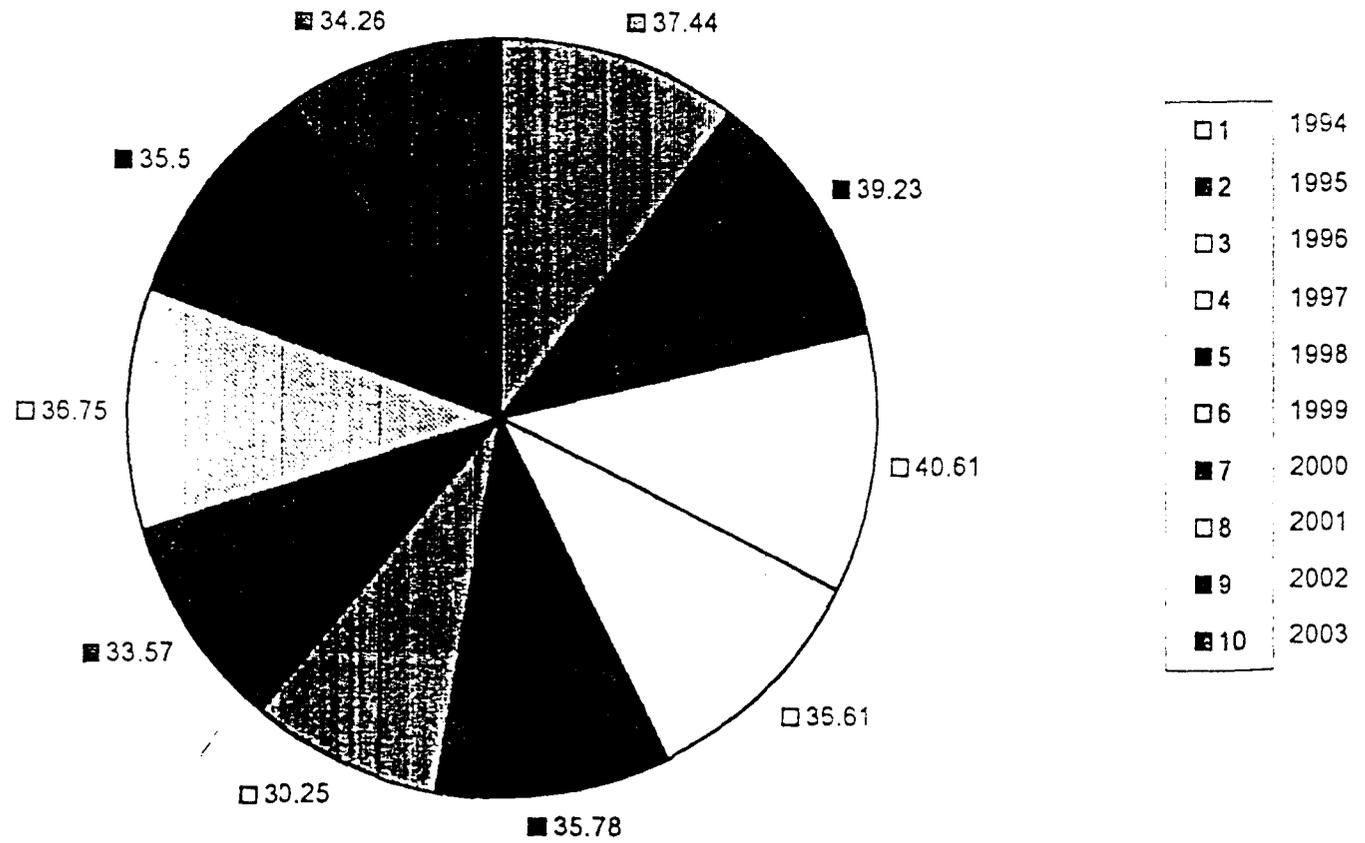
$$\frac{294}{2606} \times 360^{\circ} = 40.61^{\circ}$$

CONSTRUCTION OF THE PIE CHART

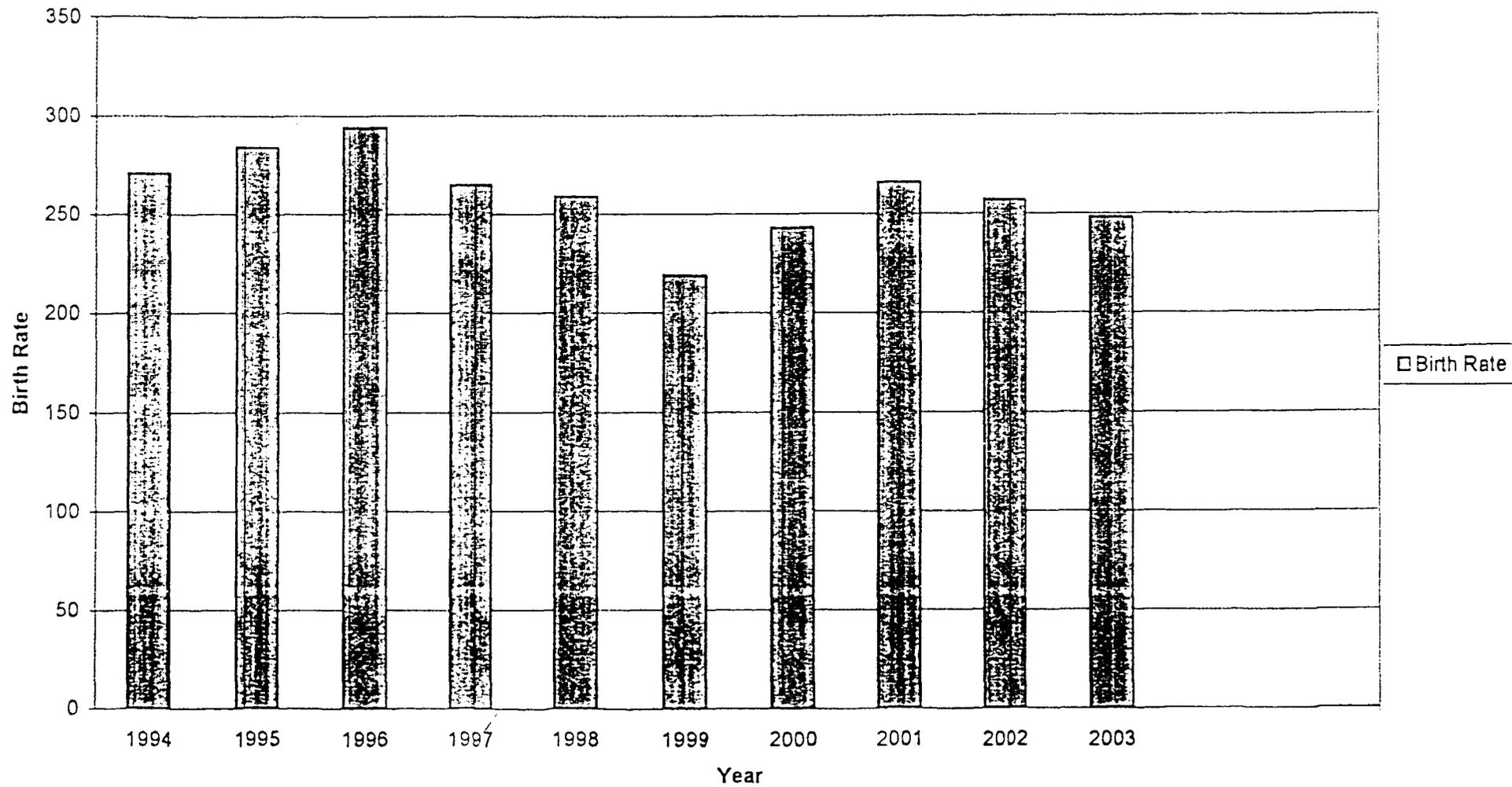
Draw a perfect circle.

- i. Divide the circle by radial lines into sectors according to degree of each class.
- ii. Write in each sector the class and the degree being represented.

A simple Pie Chart Showing the Annual Birth Rate in specialist hospital Kabba, Kogi State From 1994 - 2003



A simple Bar Chart Showing the Annual Birth Rate in Specialist Hospital Kabba, Kogi state from 1994 to 2003



**SIMPLE BAR CHART SHOWING THE ANNUAL BIRTH IN
 SPECIALIST HOSPITAL KABBA KOGI STATE FROM 1994 – 2003
 SCALE: 2CM TO 50 UNIT ON Y AXIS AND 2CM TO A YEAR ON X-
 IS**

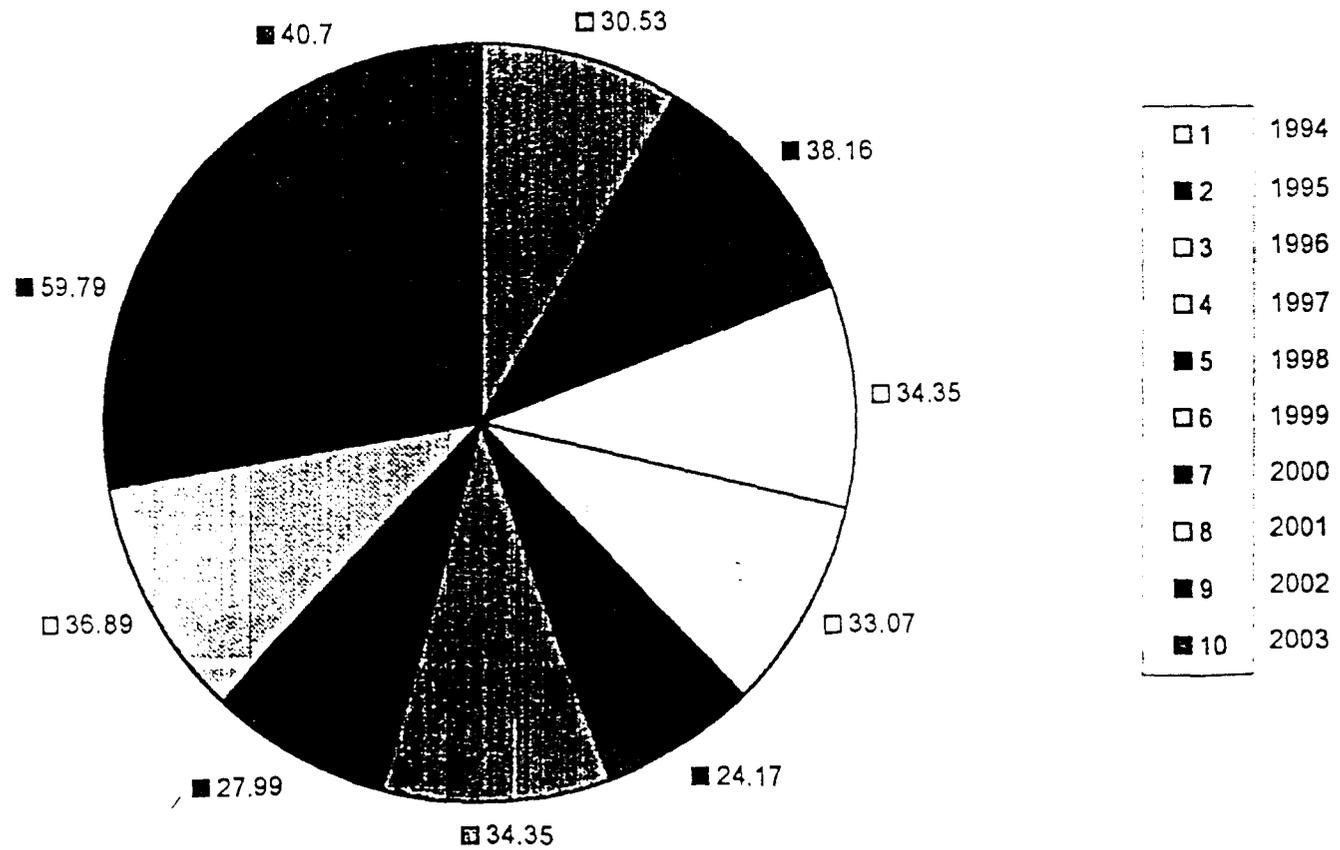
4.4

TABLE 4.0

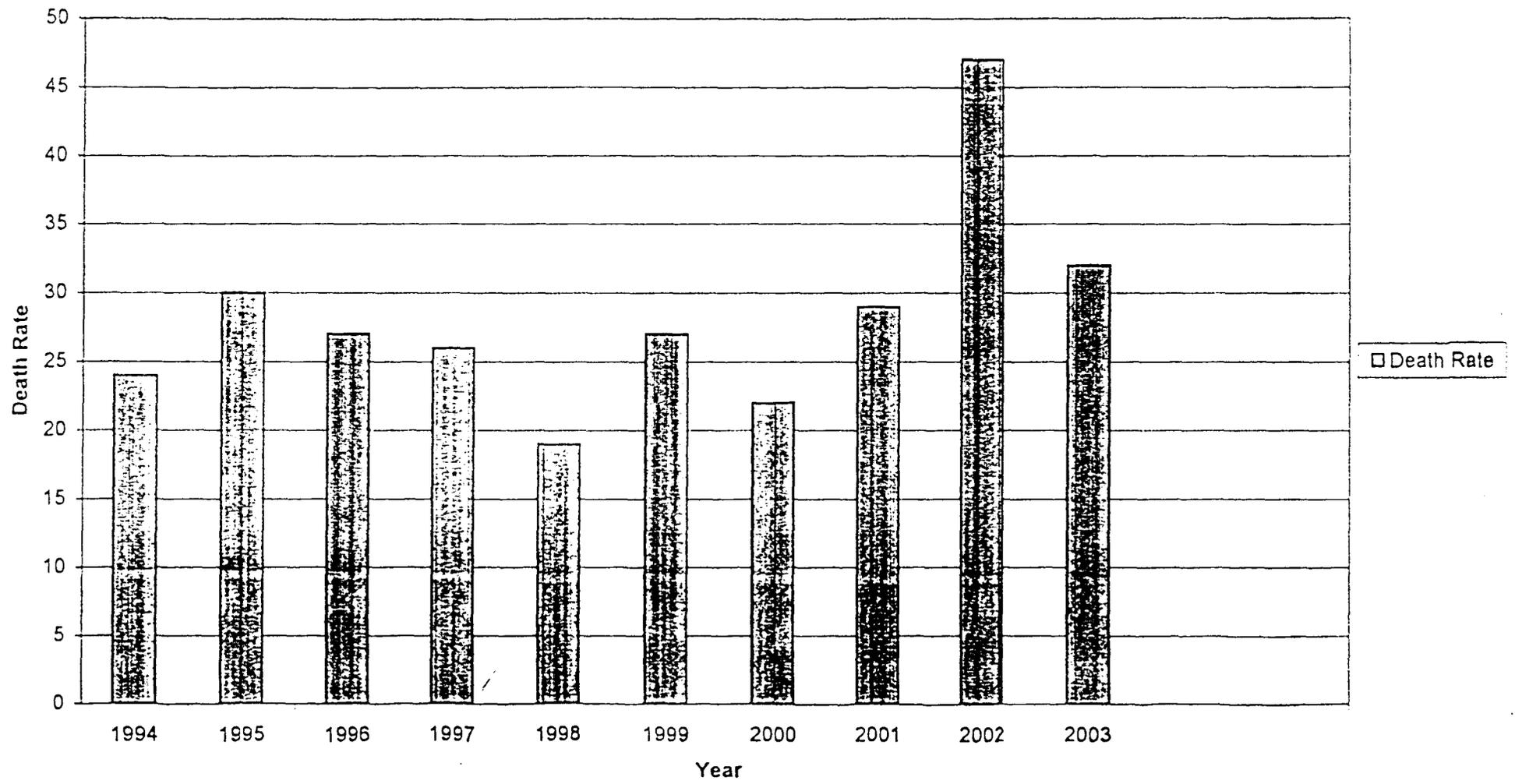
The table below shows the number of death and relative size in degree in each proportion from the year 1994 – 2003

YEAR	NUMBER OF DEATH	DEGREE
1994	24	30.53°
1995	30	38.16°
1996	27	34.35°
1997	26	33.07°
1998	19	24.17°
1999	27	34.35°
2000	22	27.99°
2001	29	36.89°
2002	47	59.79°
2003	32	40.70°
TOTAL	283	360°

A simple Pie Chart Showing the Annual Death Rate in specialist hospital Kabba, Kogi State From 1994 - 2003



A simple Bar Chart Showing the Annual Death Rate in Specialist Hospital Kabba, Kogi State From 1994 - 2003



ample

r 1994

$$\frac{24}{283} \times 360^\circ = 30.53^\circ$$

r 1995

$$\frac{30}{283} \times 360^\circ = 38.16^\circ$$

r 1996

$$\frac{27}{283} \times 360^\circ = 34.35^\circ$$

r 1997

$$\frac{26}{283} \times 360^\circ = 33.07^\circ$$

**PIE CHART SHOWING THE ANNUAL DEATHS IN THE
SPECIALIST HOSPITAL KABBA KOGI STATE FROM 1994 – 2003**

**SIMPLE BAR CHART BELOW SHOWING THE ANNUAL DEATHS
IN SPECIALIST HOSPITAL KABBA, KOGI STATE FROM 1994 – 2003**

5 DATA ANALYSIS AND INTERPRETATION

The data was analyzed using regression analysis, correlation analysis and time series and the result obtained were interpreted to the good understanding of those who have no pre-knowledge of statistics.

3.5.1 REGRESSION ANALYSIS

This is a technique for finding and describing a relationship between two variables (X and Y) represented in a collection of bivariate data observation. It is used, is predict one variable in terms of others. We have a linear regression when the dependent variable is predicted from independent variable.

It is, therefore, to use the regression analysis in this project so to make decision and forecast for future needs.

This is done after making necessary observation in scatter diagram which shows the pattern of relationship which between two variables.

The line of best fits the scatter diagram is called the regressing line or estimation equation.

It is required by the formular $Y = a + bx$

Where Y_B The predicted value of Y given

a_B The Y intercept

b_B The slope of regression equation

The regression equation is interpreted below

$Y = a + bx$; i.e,

$$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$$

$$a = \frac{\sum x^2 \sum y - \sum x \sum yx}{n\sum x^2 - (\sum x)^2}$$

$$a = \bar{y} - b\bar{x}, \text{ where } \bar{y} = \frac{\sum y}{n}; \bar{x} = \frac{\sum x}{n}$$

REGRESSION ANALYSIS COMPUTATION

REGRESSION ANALYSIS

This shows the relationship between the birth and death rate at Specialist Hospital Kabba, Kogi State

BIRTH AND DEATH FROM 1994 – 2003

TABLE III REGRESSION AND CORRELATION TABLE

YEARS	BIRTHS (X)	DEATH (Y)	XY	X ²	Y ²
1994	271	24	6504	73441	576
1995	284	30	8520	80656	900
1996	294	27	7938	86436	729
1997	265	26	6890	70225	676
1998	259	19	4921	67081	361
1999	219	27	5913	47961	729
2000	243	22	5346	59049	484
2001	266	29	7714	70756	841
2002	257	47	12079	66049	2209
2003	2248	32	7936	61504	1024
TOTAL	2606	283	73781	683158	8529

Source: Record unit Kogi Specialist Hospital, Kabba

REGRESSION COMPUTATION

Regression Computation

Regression equation is given by

$$B = \frac{n(\sum xy) - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2}$$

$$\sum x = 2606, \sum y = 283, \sum x^2 = 683158, \sum xy = 73761, n = 10$$

$$b = \frac{10(73761) - (2606)(283)}{10(683158) - (2606)^2}$$

$$= \frac{112}{41514}$$

Therefore, $b = 0.0028$

$$a = y - bx$$

$$a = \frac{\sum y}{n} = \frac{283}{10} = 28.3$$

$$a = \frac{\sum x}{n} = \frac{2606}{10} = 260.6$$

$$= 28.3 - (0.0028)(260.6)$$

$$= 28.3 - 0.72968$$

$$= 27.57032$$

$$= 27.57$$

Therefore $a = 27.57$

$$= a + bx$$

$$= 27.57 + 0.0028xi$$

INTERPRETATION FROM THE ABOVE CALCULATION

$= a + bx$ where "a" is the constant rate of increment with "b" the unit of increase and decrease which may bring about increase or decrease in the registered births and deaths in the Specialist Hospital Kabba, Kogi State. And since the slope is positive, this will bring increase in the hospital in Kabba, Kogi State.

3.5.2 CORRELATION ANALYSIS

Sir, Francis Galton, first investigated the co-efficient of correlation graphically. This analysis shall be used to determine the strength or degree of relationship between x and y variable.

This is denoted by “y” This degree of relationship can be obtained by either spearman rank correlation Karl Pearson’s method. The Karl Pearson method is given

$$y = \frac{n\sum xy - \sum x \sum y}{[n\sum x^2 - (\sum x)^2] [n\sum y^2 - (\sum y)^2]}$$

CORRELATION ANALYSIS BETWEEN BIRTH AND DEATH RATE FROM 1994 – 2003 AT SPECIALIST HOSPITAL, KABBA KOGI STATE

Let x = Number of births

y = Number of deaths

Y = Correlation coefficient

$$y = \frac{n\sum xy - \sum y}{[n\sum x^2 - (\sum x)^2] [n\sum y^2 - (\sum y)^2]}$$

$$y = \frac{10(73761 - (2606)(283))}{[10(683158 - (2606)^2)] [10(8529 - (283)^2)]}$$

$$= \frac{737610 - 737490}{(6831580 - 6791236)(85290 - 80089)}$$

$$= \frac{112}{(40344)(5201)} = \frac{112}{209829144}$$

$$= 0.00770$$

$$= 0.008$$

$$r = 0.008$$

COMMENT: The correlation coefficient computed above shows that there is a very low degree of relationship between birth and death from 1994 – 2003

TO SHOW THE RELATIONSHIP BETWEEN BIRTH AND DEATH USING TEST OF HYPOTHESIS

To test degree of relationship between birth and death rate in Specialist Hospital Kabba Kogi State. From the computation of correlation using Karl Pearson Correlation coefficient between birth and death rate, it was observed that the correlation base on size 10 has $y = 0.008$

Therefore, we can now test the hypothesis that there is no great difference between birth and death against the alternative that there is a significant difference between birth and death rates. We now test the null hypothesis H_0 against the alternative H_1 at 10% level of significance.

TEST II

Level of significant = 10% = 0.1

Since $n < 30$, we use t-test

Test Statistic

$$T_c = \frac{1 - y^2}{n - 2}$$
$$= \frac{1 - (0.008)^2}{10 - 2}$$

$$= \frac{0.999936}{8}$$

$$= 0.022628141$$

$$= 0.023$$

Decision Rule: Reject H_0 if $t_c > t_{n/2}$ otherwise do not reject H_0

$$t_{\alpha/2} = t_{\frac{0.10}{2}} = t_{0.05} = 1.860$$

$$t_{\alpha/2} = 1.86$$

Conclusion; since $t_c < t_{\alpha/2} = 1.860$ we do not reject H_0 finally, we conclude that there is no significant difference between birth and death rates.

CHAPTER FOUR

SYSTEM ANALYSIS AND DESIGN

This chapter examines the existing manual operation and the problem associated with it, with a view to providing solution to the problem using computer as well as implementation of this new computerized system

4.1 SYSTEM ANALYSIS:

This is the method of determining how best to use computers with other resources to perform task which meet the information needs of an organization. It is concerned with converting the objectives of the management as far as information and data are concerned into methods that are amenable processing by a computer. It is the link between management and software/hardware computing. It therefore involves the examination of each component parts of a system both as separate entity and in relation to the whole. System analysis consists of a series of stages. These are what often called system life cycle is. These stages are problem definition, feasibility study investigation and fact recording as well as analysis.

PROBLEM DEFINITION/PRELIMINARY SURVEY: This enable us to establish whether there is a need for a new system or to clearly define the problem to be solved or the new system to be designed.

FEASIBILITY STUDY: Here we investigate the problem and look at all the possible alternative solutions. We also compile the actual cost and do a cost benefit analysis for each alternative solution proposed. We then recommended what we consider 'Best' for the establishment.

INVESTIGATION AND FACTS RECORDING: Here, a more detailed study is conducted. The purpose is to fully understand the existing system and to identify the basic information requirements e.g. the range of data types, volumes of data that are to be processed and exceptional conditions as well as problems associated with the present working method.

ANALYSIS: Analysis of the full description of the existing system and of the objectives of the proposed system should lead to a full specification of the users requirements. The following questions are asked here like why problem occurred. Why were the present methods adopted? And what are the alternative methods? This analysis should be able to help us to spells out the strength and weakness of the existing system. It should be obvious at this stage. Whether or not it would be feasible and sensible to proceed with computerization.

4.2 SYSTEM DESIGN:

The analysis above may lead to a number of possible alternative designs. For example different combination of manual and computerized element may be considered or only a computerized method may be considered. Once one alternative has been selected, the purpose of the design stage is to work from the requirement specification to produce a new system specification.

The system specification will be a detailed set of document which provides details of all features of the proposed system. It serves as communication to management, programmers, operating staff and user. It also provides complete record of the system used for evaluation.

4.2.1 DESIGN CRITERIA:

A well-designed system must have the following features:

- a. **Acceptability:** It must be accepted by the personnel who is to use the system.
- b. **Decision making ability:** The output must produce relevant and timely information for making decision.
- c. **Flexibility:** The system must be able to adapt to changing environmental conditions by providing for easy expansion and for added output of production capacity.

4.3 DATABASE

The proposed system was developed using usual basic 6.0 software, which is a database oriented language. A database is a collection of useful information organized in a specific manner. Access to the files is not direct by application, but it is provide by a database system (DBMS) is a set of program that makes the data contents easily accessible to its three chief users. The programmer, the operating system, and the information user. Already made DBMS eliminates the need for an organization to develop it own detail data handling capacities. One of the major purposes of the DBMS is to bring out physical data independence. That is, it allows the physical layout of data fields to be altered without necessitating changes in application programs.

4.4.1 BENEFITS OF A DATABASE

- i. Any existing database can be accessed so that record, addition, deletion, modification e.t.c can be performed on the data.
- ii. Easy retrieval of appropriate data from various files.
- iii. Data software can protect data from access by unauthorized users.
- iv. Elimination of data redundancy that is duplication of the same piece of information in several files, which leads to higher storage and access cost.

- v. Elimination of inconsistency that is, the various copies of the same data not agreeing.

4.5 OUTPUT SPECIFICATION

The output is what is expected to be produced by the new system. This could be viewed by displaying on the screen or printed out from the printer to obtain the hard copy. The following are the types of output that can be operated from the system.

- i. List of all births report.
- ii. List of all deaths report.

As the system tested and found to be good, it is important to document it for further use anywhere and at any place.

4.6 OBJECTIVES GUIDING THE COMPUTERIZATION OF BIRTHS AND DEATHS PROCESS

Problem identification under system analysis, the starting point of any system life cycle. Ability to identify this problem gives go-ahead for further analysis. Once the problem is discoursed, then the design of the new system can be carried out, it is based on this, that the following objectives were used as a guide in the investigation.

- A. Better planning of records of births and deaths.
- B. Timeless in the information preparation.
- C. Eliminate problem of data redundancy.
- D. Security of information is guaranteed.

All these objectives have been a guide in the investigation and also been reflected the design of the new system right from the implementation plan down to the conversion stage.

4.7 FEASIBILITY STUDY

This is one of the important stages in developing a system. This look at the system which is presently in operation considering the existing problems and bringing out alternative problems of doing the job. This is by gathering and interpreting facts in order to involve a proper understanding of a system as to diagnose the problem associated with it. The outcome of this analysis is used to determine what must be done to solve the problems of the existing manual system.

The existing system is manually carried out several possibilities were outline and for each option, a list of cost-benefit is compiled and recommended solution is presented to the management.

4.8 INPUT SPECIFICATION

Input data are provided from the registration form coded.

However, the filling of the form and some data elements depends on the class of the officer/personnel or patients.

FIELD NO	FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD WIDTH
1	NAM	Surname	Text	15
2	OTN	Other name	Text	25
3	REG NUM	Registration	Numeric	15
4	SX	Sex	Text	4
5	DA	Date	Numeric	8
6	AG	Age	Numeric	3
7	DOB	Date of Birth	Numeric	8
8	DOD	Date of Death	Numeric	8
9	ADD	Address	Text	8
10	OCC	Occupation	Text	20
11	REL	Religion	Text	15
12	POO	Place of Birth	Text	19
13	NOK	Next of Kin	Text	12

14	ANOK	Address of Next of kin	Text	15
15	RTS	Relationship	Text	25
16	DB	Delivered by	Text	16

4.8.1 REQUIREMENT SPECIFICATION

This is divided into two for easy identification

- i. Software requirement specification
 - ii. Hardware specification
1. Software requirement specification that includes the type of software that is to be used. The software is in the internal structures of the computer and this includes:
 - i. A single user disk operating system (DOS) version A.
 - ii. A GW basic dialect basic language interpreter
 - iii. A DOS-basic multi-user operating system preferably M3868 user to link the various work status to the server.
 2. The hardware requirement specification is the requirement specification of the physical point of the system (Computer) this include:
 - i. A server 4A6 that shall be mounted in a separate room called computer room.
 - ii. A work station terminals at the record room where patient fill the registration form as corf .I.
 - iii. A Dot-matrix printer patient

OUTPUT DESIGN FORM REPORTS SPECIALIST HOSPITAL KABBA.

GENERAL BIRTH RECORD

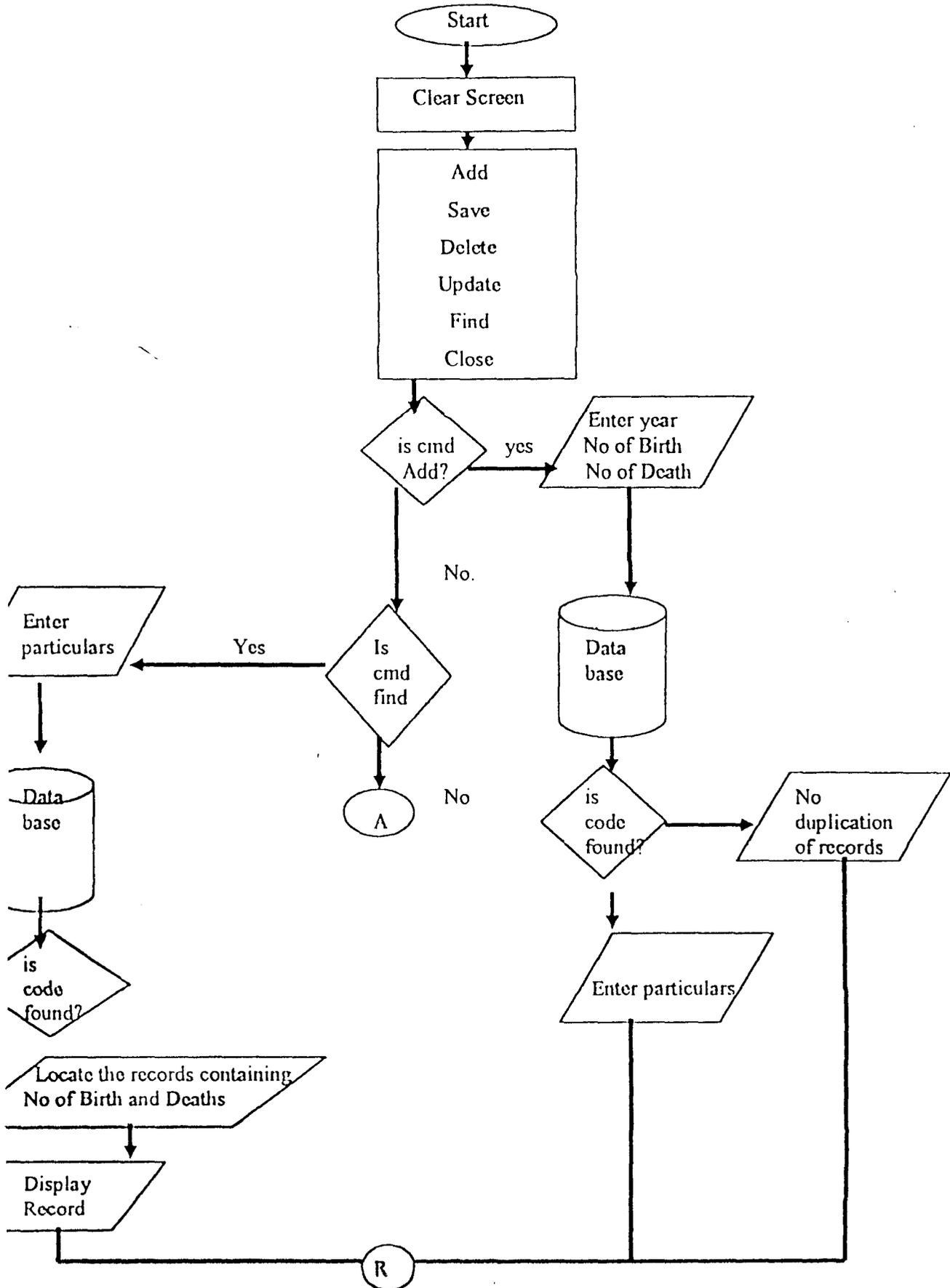
Field No	Hosp. No.	Surname	Mothers name	Baby's name	Birth Weight	Sex	Age	Date of Birth	Termed preg.	Time of Birth	Address	Deliver By.
1	000001	Gbenga	Fumilayo	Baby girl	4	F	27	11/1/94	9	6.00pm	Kabba/Bunu	Nurse Kemi
2	000002	Tolu	Kemi	Baby boy	3	M	30	9/10/94	8	8.00pm	Isonlu	Nurse Faith
3	000003	Tayo	Faith	Baby boy	4.5	M	32	4/2/95	9	10.00pm	Kabba	Nurse Ayo
4	000004	Kabiru	Zainab	Baby girl	3.8	F	26	5/10/95	8	12.00nonn	Isonlu	Nurse Tola
5	000005	Bello	Talatu	Baby girl	4.2	M	28	4/2/96	9	11.00pm	Kabba/Bunu	Nurse Ayo

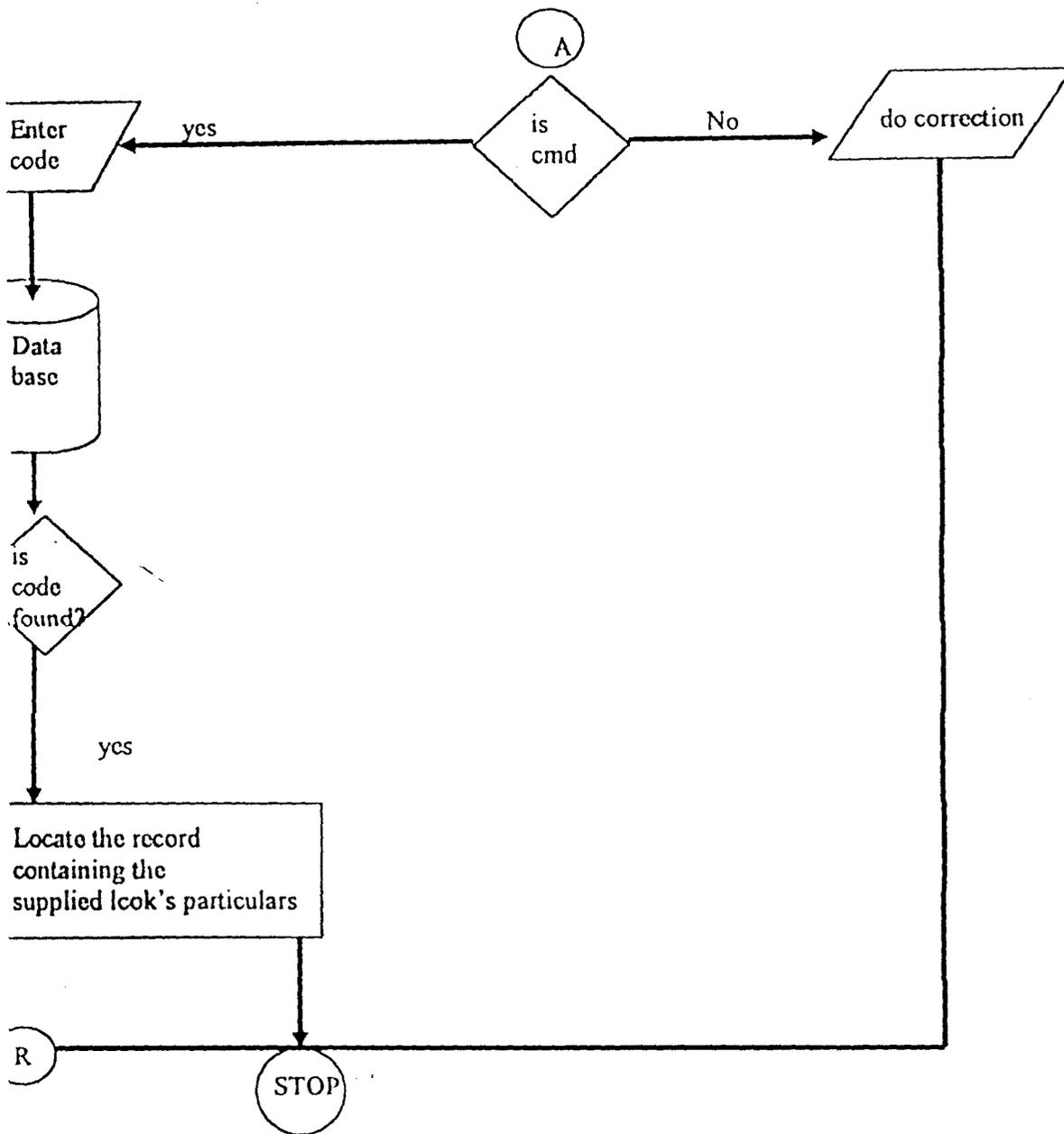
OUTPUT DESIGN FORM REPORTS SPECIALIST HOSPITAL KABBA.

GENERAL DEATH RECORD

Field No	Hosp. No.	Surname	name	Address	Tribe	Occupation	Sex	Age	Marital Status	Next of Kin	Date of Death	Time Death occur
1	000001	Raji	Tina	Lokoja	Igala	Students	F		Married	Bala	11/2/94	5.00am
2	000002	Kola	Telui	Idah	Igala	Trader	M		Single	Kato	12/1/95	7.30pm
3	000003	Ayo	Bola	Okene	Igbera	Civil Servant	F		Single	Katum	3/2/96	7.45am
4	000004	Bash	Safi	Kabba/Bunu	Kabba	Teacher	M		Married	Bose	2/11/96	4.55pm
5	000005	Bafure	Sunday	Kabba/Bunu	Kabba	Lecturer	M		Married	Sam	3/4/97	10 00pm

4.7 ALGORITHM FOR THE PROPOSED SYSTEM
 4.7.1 FLOWCHARTS FOR THE PROPOSED SYSTEM





COST AND BENEFIT ANALYSIS

The breakdown of costs as will be summarized later are as follows:

BREAKDOWN OF COSTS

(a)	DEVELOPMENT COSTS	N
(i)	System Analyst's charge	450,000.00
(ii)	Programmer's charge	<u>350,000.00</u>
		<u>800,000.00</u>
(b)	PERSONAL COSTS	
(i)	2 statistician or operations paid N10,000 per months for a year	240,000.00
(c)	HARDWARE COSTS	
(i)	1 Compaq Computer System 600 MHZ processor, 10 gigabyte Hard disk, multi-media system	} 330,000.00
(ii)	Printer – (Compaq coloured printer)	60,000.00
(iii)	APC – uninterrupted power supply	<u>20,000.00</u>

410,000.00

(d) SOFTWARE COSTS

(i) Microsoft windows me (operating system)	50,000.00
(ii) Microsoft Visual Studio	60,000.00
(iii) Microsoft office	<u>30,000.00</u>
	<u>140,000.00</u>

(c) SOFTWARE COSTS

(i) Electricity Bill	10,000.00
(ii) Consumables (i.e. inks disks, stationeries etc)	40,000.00

SUMMARY OF COSTS

COSTS	2002	2003
Tangible costs	N	N
Development costs	800,000	-
Personnel costs	240,000	240,000
Hardware costs	410,000	-
Software costs	140,000	-
Operating costs	50,000	50,000
TOTAL EXPECTED COSTS	<u>1,640,000</u>	<u>290,000</u>
BENEFITS	2002	2003
Reduction in statistician salary c.g. 12 staff	240,000	240,000
Saving in time, in recording of Birth/Death and storage space, etc	2,000,000	2,000,000
Saving from misplacement of Data & errors	100,000	100,000
Total	<u>2,340,000</u>	<u>2,340,000</u>

COST/BENEFIT ANALYSIS

BENEFITS	2,340,000	2,340,000
COSTS	1,640,000	290,000
TOTAL	<u>700,000</u>	<u>2,050,000</u>

The feasibility report reveals that the expected benefit of implementing the new computerized system will recover all costs within the first year of operation.

CHAPTER FIVE

PROGRAM DEVELOPMENT & IMPLEMENTATION

5.1 IMPLEMENTATION OF THE COMPUTERIZED SYSTEM

This is the co-ordination of efforts of the user department and data processing department in getting the new system into operation. A co-ordinating committee is formed with some staff from user department, staff from computer department (Analyst, Programmers) as members. Detail of the implementation would have been stipulated in the system specification this includes:

- i. Design, write and test computer program.
- ii. Train users.
- iii. Test Clearable i.e. manual for staff/users.
- iv. Produce documentation.
- v. Create master file for the program.
- vi. Change over to new system through any of the following method.
 - a. Parallel: Here the old and new systems are run concurrently, using the same inputs. The inputs are compared and reasons for differences resolved. Outputs from the old system continue to be distributed until the new system has proved satisfactorily. At this point, the old system is discontinued and the new one takes the place.
 - b. Direct or One for one change: Here the old system is discontinued altogether and the new one becomes operational immediately.
 - c. Pilot: This is a variation of two basic method mentioned above where for example if a bank start computerization from one branch to another, the organization gradually computerized each branch so as to spread the workload and to enable on term of specialist to carry out the implementation strongly.

5.2 PROGRAMME DEVELOPMENT:

5.2.1 CHOICE OF PROGRAMMING LANGUAGE

The choice of the programming language is an important factor to be considered when developing a system.

a. Definition of Visual Basic

The “Visual” part refers to method use to create the graphical user interface (GUI). Rather than writing numerous lines of code to describe the appearance and location of interface elements.

The “Basic” part refers to the Basic (Beginners All-Purpose Symbolic Instruction Code) language, a language used by more programmers – than any other in the history of computing. Visual Basic has evolved from the original Basic Language and now contains several hundred statements, functions and keywords, many of which relate directly to the Windows (GUI).

b. Visual Basic Tools

Whether your goal is to create a small utility for yourself or your work group, a large enterprise wide system, or even distributed applications spanning the globe via the internet. Visual Basic has the tools you need.

Data Access features allow you to create data bases, front-end applications, and scalable server side components for most popular database formats, including Microsoft SQL server and other enterprise.

Level Database

Active X technologies allow you to use the functionality provided by other applications, such as Microsoft Word Processor, Microsoft Excel Spread Sheet and other Windows applications. You can even automate

applications and objects created using the professional or Enterprise editions of Visual Basic.

Internet Capabilities, make it easy to provide access to documents and applications across the internet or intranet from within your application, or to create

Internet Server application

Your finished application is a true.exe file that uses a Visual Basic Virtual machine that you can freely distribute.

) Visual Basic Editions

Visual Basic is available in three versions each geared to meet a specific set of development requirements.

The Visual Basic learning edition allows programmers to easily create powerful applications for Microsoft windows and Windows NT.

The professional edition provides computer professionals with a full-featured set of tools for developing solutions for others.

The enterprise edition allows professionals to create robust distributed application in a team setting.

) **LIMITATION OF THE STUDY**

This project work is focused on Computerization of death and birth records in specialist hospital Kabba. The period of study coursed from 1994 to 2003. the data for the project are obtained from the record unit of specialist hospital Kabba, Kogi State. It is to be understood that the structure being designed is applicable and adaptable to all medical hospitals, National population commission, Vital registration offices were records or birth and death are kept.

However, for the limited time available for this project, the volume of work involved, the designed system is limited to the specialist basis or

applications and objects created using the professional or Enterprise editions of Visual Basic.

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- * Internet Server application
- * Your finished application is a true.exe file that uses a Visual Basic Virtual machine that you can freely distribute.

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5.3 LIMITATION OF THE STUDY

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However, for the limited time available for this project, the volume of work involved, the designed system is limited to the specialist basis or

insight with which similar system can be developed of all other medical units and offices.

Hence, we could not extend our sample area beyond specialist hospital Kabba due to inadequate finance to transport to other hospitals for data collection.

5.4 CONCLUSION

The principal goals of the project are effectively design and develop a computerized system that would grossly inefficiency; data duplication associated with the medical record section. This system was designed, developed, debugged and tested with some of the existing data with the section and found to be working fine.

This project design and development were based on the information gathered from the reward unit and to hospital as whole.

Generally, the project has helped me to know and understand what system design and development entails and how to go about it, not only in the school as a project but also for future needs.

In modern hospitals, information processing needs to be fast, efficient and error free. To achieve these computers has to come in and more so a system to do the processing must be developed.

5.5 RECOMMENDATION

This system though tested and found to be good, can not be used as a very reliable system, since some of the technical aspect of hospital work were

dodged due to my not too good experience both in hospital and system designing.

Training of more medical personnel in the use of computer since this will help in the smooth running of the hospital.

The hospital management should endeavor to produce terminals so that the record units will have access to the use of this modern technology.

All activities of the hospital should be fully computerized.

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APPENDIX 3:

Source code for the proposed system.

Private sub command 1 click ()

With Data 1. Record set.

Move first

While not. EOF

If Text 1. Text = I, Nam Then

Text 2. Text = I, Reg Num

Text 3. Text = I, SX

Text 4. Text = I, DA

Text 5. Text = I, AG

Text 6. Text = I, DOB

Text 7. Text = I, DAS

Text 8. Text = I, ADD

Text 9. Text = I, OCC

Text 10. Text=I, REL

Text 11. Text = I, POO

Text 12. Text = I, NOK

Text 13. Text = I, ANOK

Text 14. Text = I, RTS

Text 15. Text = I, REL

Move Next

END if

Wend

End with

End sub

Private Sub Command 2 click ()

With data 1 Record set.

Add New

l, Nam = Text 1. Text

l, ONT = Text 2. Text

l, Reg Num = Val (Text 3. Text)

l, SX = Text 4. Text

l, DA = Val (Text 5. Text)

l, AG = Val (Text 6. Text)

l, DOB = Text 7. Text

l, MS = Text 8. Text

l, ADD = Text 9. Text

l, OCC = Text 10. Text

l, POO = Text 11. Text

l, NOK = Text 12. Text

l, ANOK = Text 13. Text

l, RTS = Text 14. Text

l, REL = Text 15. Text

Update

End with

Text 1. Text = “ ”

Text 2. Text = “ ”

Text 3. Text = “ ”

Text 4. Text = “ ”

Text 5. Text = “ ”

Text 6. Text = “ ”

Text 7. Text = “ ”

Text 8. Text = “ ”

Text 9. Text = “ ”

Text 10. Text = “ ”

Text 11. Text = “ ”

Text 12. Text = “ ”

Text 13. Text = “ ”

Text 14. Text = “ ”

Text 15. Text = “ ”

End Sub

Private Sub Command 3 Click ()

Data 1. update record

Data 1. Record set. Book mark= Data 1 Record set. Last modified

End Sub

Private Sub Command A Click ()

On Error Resume Next

With Data. 1 record set

Delete

Move Next

If EOT then. Move Last

Exit Sub

End With

Text 1. Text = “ ”

Text 2. Text = “ ”

Text3. Text = “ ”

Text 4. Text = “ ”

Text 5. Text.= “ ”

Text 6. Text = “ ”

Text 7. Text = “ ”

Text 8. Text = “ ”

Text 9. Text = “ ”

Text 10. Text = “ ”

Text 11. Text = “ ”

Text 12. Text = “ ”

Text 13. Text = “ ”

Text 14. Text = “ ”

Text 15. Text = “ ”

End Sub.

Private Sub Command 5 Click ()

Unload me

End Sub.

Private Sub Command 6 Click ()

Text 1. Text = “ ”

Text 2. Text = “ ”

Text3. Text = “ ”

Text 4. Text = “ ”

Text 5. Text.= “ ”

Text 6. Text = “ ”

Text 7. Text = “ ”

Text 8. Text = “ ”

Text 9. Text = “ ”

Text 10. Text = “ ”

Text 11. Text = “ ”

Text 12. Text = “ ”

Text 13. Text = “ ”

Text 14. Text = “ ”

Text 15. Text = “ ”

End Sub.

Private Sub form Load ()

Text 1. Text = “ ”

```
Text 2. Text = ""
Text3. Text = ""
Text 4. Text = ""
Text 5. Text = ""
Text 6. Text = ""
Text 7. Text = ""
Text 8. Text = ""
Text 9. Text = ""
Text 10. Text = ""
Text 11. Text = ""
Text 12. Text = ""
Text 13. Text = ""
Text 14. Text = ""
Text 15. Text = ""
Data 1. data base name = App. Path & " / Isaiah mdb"
Data 1. Record source = " Tisaiah"
End Sub.
```

```
Private sub command 1 click ()
DIM INF AS Integer.
If Text. Text = "ISALAH" And Text 2. Text = "PASSWORD" Then
Form 1. Show
Else
INF = Msg Box ("UNAUTHORIZED USER", vbok cancel", WARNING!!!")
End if
End Sub
Private sub command 2. click ()
Text 1. Text = ""
Text 2. Text = ""End Sub
```

```
Private Sub form Load ()  
Private sub command 2. click ()  
Text 1. Text = ""  
Text 2. Text = ""End Sub  
Private Sub Timer1 - Timer ()  
Form 2. show  
Timer 1. Enabled = false  
End sub
```