COMPUTER APPROACH TO EXAMINATION RECORDING SYSTEM

A CASE STUDY OF FEDERAL COLLEGE OF EDUCATION, KOTANGORA, NIGER STATE

BY

ABU AZEEZ ISO- OLA
PGD/MCS/2000/2001/1022

FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA, NIGER STATE, NIGERIA.

APRIL 2002

COMPUTER APPROACH TO EXAMINATION RECORDING SYSTEM

A CASE STUDY OF FEDERAL COLLEGE OF EDUCATION, KOTANGORA, NIGER STATE

BY

ABU AZEEZ ISO- OLA
PGD/MCS/2000/2001/1022

A PROJECT SUBMITTED TO THE DEPARTMENT OF MATHEMATICS/COMPUTER SCIENCE, SCHOOL OF SCIENCE AND SCIENCE EDUCATION IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF POSTGRADUATE DIPLOMA IN COMPUTER SCIENCE

FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA, NIGER STATE, NIGERIA.

APRIL 2002

CERTIFICATION

I certified that this research work is carried out by ABU AZEEZ ISO- OLA of the Department of Mathematics and Computer Science, School of Postgraduate Studies, Federal University of Technology, Minna under my supervisor.

PROFESSOR K. R. ADEBOYE
Supervisor

DATE

L. N. EZEAKO
Head of Department

DATE

External Examiner

DATE

ABSTRACTS

This project is a careful study of the present Examination Recording system in the federal college of Education, Kotangora Niger State.

In addition to improving the existing system, it attempts to design a new Examination Recording system whereby substantial and sensitive parts of the exercise will be done with the use of computer.

The Examination Recording system is developed as a complete package and the program codes are written in visual Basic language. The system is designed to provide accurate and timely students result. The implementation of the proposed system will ensure general improvement in terms of reliability, effectiveness and efficiency.

Finally, the output (results) of the program is presented and discussed.

ACKNOWLEDGEMENT

My greatest thanks go to Almighty Allah, the uncreated creator, who in His infinite mercy sustained me through in the course of my study at federal University of Technology minna, Niger State.

My special thanks goes to my supervisor, professor K.R. ADEBOYE who made this work possible through his meaningful advice. I also wish to express my sincere gratitude to the Head of Department of mathematics and computer science Mr, L.N. EZEAKO

I also express my profound gratitude to the program co-ordinator Mallam Isah Audu and all the lectures and non-academic staff of the department.

I also acknowledge and appreciate the understanding and co-operation given by my parents Mr,, Sanusi Abu and Mrs Khadijat Abubakr during the course of my study. So also my profound gratitude goes to my able and erudite Head of Department, Finance and Supply Department of Irepo Local Government in Oyo State, Alhaji R.O. Adebayo (B.S.C, PGD, MBA, CPA) for his moral and financial support throughout the program, who also used to give constant encouragement to me whenever I want to feel discouraged. I also appreciate the understanding and

co-operation of my brothers and sisters most especially Sulaiman Abubakar, Mariam Abubakar and the whole family.

I will not fail to acknowledge the effort of Engineer Tajudeen Ajelani of irepo local Government KISI, Mr. Azeem Alatize, Mr. Abdul Ganiyu Basheer Alaanu, Mr, Yunus Jmad, Mr. Taye Abdul Salam Adenlo and Mr. Abdul Rauf of winner Guest Inn kotangora Niger State.

I also recognise and appreciate the contribution of my course mate Mr. Ademola Abdul Rafiu for his consistence explanation of difficult area in the courses and Mrs Aminat Sidi and her Husband for their kind and moral support. I also thank my good friend Abdul Mujeeb Olorunnisola of DELL Computer Ilorin through whom I learn most of the practical aspect of the course and Mallam Toheer of computer science Department federal college of Education Kotangora for his professional advice. I also thank the Amir and the entire member of Muslim students society of Nigeria, federal university of Technology, minna Branch.

Finally, my special appreciation goes to sister Nurat Fasasi of Biology Department, the polytechnic Ibadan, who gave me the Physiological support at the time I need it most. May Allah reward you all (Amin)

DEDICATION

This piece of work is dedicated to all lovers of truth, seekers of truth and the people that established justice throughout the world.

TABLE OF CONTENTS

CHAPTER FOUR –SYSTEM DESIGN

CHAPTER FIVE –SYSTEM DEVELOPMENT

CHAPTER ONE

INTRODUCTION

1.1 BRIEF DESCRIPTION OF EXAMINATION RECORDING OPERATIONS

Higher Institutions are often saddled with the responsibility of collating the assessment records of performance of students in their various courses. These records are processed with the aim of generating result for individual students. This result contains marks and grades obtained in all the courses offered by the students. These operations are carried out twice in an academic session. That is, at the end of each semester.

In the process of generating student result, every lecturer is expected to set examination and mark the answer in their various courses. At Federal College of Education, Kontagora, Niger State. The examination is 60 marks while the continue assessment is 40 marks. After marking of the examination, the lecturer will add the continue assessment and the examination scores together to arrive at percentage score. The lecturers also grade each students using their respective marks into either "A" if 70 marks and above or "B" if marks $\geq$ 60 and $\leq$ 69 or "C" if marks $\geq$ 50 and $\leq$ 59 or "D" if marks $\geq$ 45 and $\leq$ 49 or "E" if marks $\geq$ 40 and $\leq$ 44 or "F" if marks $\leq$ 39. The above grades have the following points. A is 5 points, B is 4 points, C is 3 points, D is 2 points and E is 1 point.

Each lecturers will then submit his or her record sheet to the Head of Department of every Department. Each Department will carryout the cumulative grades of every students by multiplying credit unit of each course with the points mentioned above in order to arrive at Grade Point (GP). The addition of Grade Point will give Total Grade Point (TGP). Total Credit Offer (TCO) as well as Total Credit Pass (TCP) will also be acknowledged. The Grade Point Average (GPA) will be derived by dividing Total Grade Point (TGP) by Total Credit Offered (TCO). This exercise is performed for every level of students. The Head of Departments will later present these results to the Deans of their respective school, who in turn will submit it to the Academic Board for approval. After which the result will be submitted to Registry Department Academic Affairs who now issue result to students.

The examination records are always very many and voluminous. As the institution passes through many semester, the examination records become larger and more voluminous. These records occupied a very large space in the office and in most cases may be destroyed by insects, water or fire.

1.2 BACKGROUND TO THE STUDY

I carry out this project as a student who could not get his first-degree result in time, which lead to loosing most of the lucrative jobs available at that time. I was even unable to further my education because of the delayed in my result.

Hence, I was unable to do anything. Thus after been well trained, I still remain in the dependent sector of the economy rather been on the productive sector. This had adverse effect on the family economy in particular and the nation economy in general.

Eventually, when the result is out, it will still be characterise with errors like transcription and transposition of students marks, wrong addition of students scores etc.

There is also difficulty in retrieving past records whenever the need arise. This problem is notable whenever a student demands for his/her transcript. Most of these records might have been eaten up by insects and rats, thereby making it almost impossible to obtain some information from these records.

1.3 OBJECTIVES OF THE PROJECT

The main aim of embarking on this project is to find better and quicker means of recording and compiling students result so as to be able to collect their result almost two weeks after completing their examination. This will allow students to know whether he had passed or failed so as to be able to know the next course of action. It will also allow students to further their education or if want to work can start working. Thereby reducing their dependency on their parent and relative and contribute their own quota to the production of

the nation Gross Domestic Product (GDP). I still wish to save many lives, that would have been lost, during the course of travelling up and down to collect result.

I had therefore decided to develop a computer software in examination recording system in our Higher Institutions using Federal College of Education, Kontagora, Niger State as a case study. This will not only solved the identified problems in (1.2) above, but will also provide other services that will ensure proper keeping of records and make the retrieval of necessary information very easy.

1.4 SCOPE OF THE STUDY

The study is carried out at Federal College of Education, Kontagora, Niger State. It is solely concerned with recording of students mark in their examination. Any other aspect of producing students result is not considered under this study due to money and time constraints.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 COMPUTER SYSTEM

A computer can be defined as an electronic machine, which is capable of processing data in a wide variety of ways with an extremely high degree of speed and accuracy. A computer is a machine that is capable of accepting data and instructions needed to process the data so received. It is an assemblage of electrical devices. It not only receives data, but it process them and ultimately makes the results of the processing available to the user.

A list of instructions written in a computer language and given to the computer to solve a computational task is known as program. Consequently, writing a set of instructions for the computer is known as programming. One cannot use the computer without giving it instructions. There is no knowledge in any computer except what the programmer puts there. The machine cannot add one to one unless if is explicitly told to do so, in which case a program must be written to that effect.

Indeed, the machine has to be taught how to perform operations as if it were a baby, no matter elementary such operations are. Paradoxically, this same

machine can solve very complex mathematical problems and monitor space shuttle as long as algorithms exists for such problems. An algorithm is a step by step procedure defining the solution to a given mathematical or computational problem. In general, a problem, no matter how simple or complex remains solvable as long as algorithm exists for it.

The History of Computer was date back to 1939, John Attanasoff, a mathematics professor of Lowa State College along with his assistant Clifford Berry design and developed the 1st electronic computer or simply the ABC computer.

In 1944, Howard Aiken of Howard University used relays and other electro-mechanic devices to produce the 1st computing machines that can be properly called digital, the ASCC (Automatic Sequence Controlled Calculator) also called the Mark 1. it was followed by four other mark versions.

In 1949, at Cambridge University, Maurius Wikes with his colleague developed the first storage program concept based computer, the Electronic Delay Storage Automatic Computer (EDSAC).

In 1951, the first computer denoted to non-military work was produced and delivered to the U. S. Bureau of census. The universal Automatic Computer

(UNIVAC) was used to predict the outcome of the 1952 presidential election by the Columbia broadcasting service – ATV Company.

In 1955, the first large scale computer was built by Dr John Maunchly and J. Presper Echeit Jnr called ENIAC (Electronic Numerical Integrator and Computer).

There are three types of computer namely:. Digital Computer, Analogue Computer and Hybrid Computer.

Digital Computer: - Represents data and information in a discrete or discontinues form and operates with symbols expressible in some number system, usually binary system.

Analogue Computer: It represents data and information in a continues manner using physical variables e.g. speedometer.

Hybrid Computer: - It has the features of both the digital and analogue computers example is lift system (elevator).

However, the commonest type of computer is the Digital Computer. Both the Analogue and Hybrid Computers are limited to scientific and engineering applications, whereas Digital Computer is the doyen of business world in addition to its primary usage for scientific and engineering applications.

A computer system comprises of Hardware, Software and Humanware. Hardware is the electro-mechanical but physical component that laymen generally called the computer. "Hardware parse would remain a hunk of metal totally useless to the buyer unless driven in its data processing functions by appropriate programs. These programs are collectively called software" – by Mr Tunde Bamkefa in a paper titled "Review of different computer languages" 1991. Similarly, in his article titled "Revolution of Computer Software" in Daily Times of 21st of April, 1992. Batatude Odufuma said "through the use of software or programmes, hardware is activated to assist people in their work, entertainment and day to day lives". Softwares are just the programs that run the computers. Human wares are all the professionals that work in the computer industry.

There are other instruments like the disk operating system (used for booting the machine) and the language translators called the assembler, interpreter and compiler. Assembler is used to translate from assembly language to machine language. Interpreter and compiler are used to translate High Level Language to Machine Language before the machine executes the set of instruction.

In essence a computer system consists of three components namely: (i) The Hardware (ii) The Software (iii) Human Ware)

2.1.1 THE HARDWARE

This is the pieces of equipment that make up a computer. Theses are usually physical devices assembled together to constitute the computer system. All hardware equipment is either a constituent of the central processing unit or the peripheral. The central processing unit (CPU) is made up of the memory unit, the control unit and the arithmetic and logic unit. Any unit which is not part of the CPU is a peripheral. Hence, the peripheral is part of the computer system as a whole but not part of the CPU. The peripheral devices are the input unit, the output unit and the backing storage.

Computer hardware can be divided into four categories. Input hardware, storage hardware, processing hardware and output hardware.

Input hardware is purposely used to collect data and convert it into a form suitable for computer processing. The common input devices are keyboard, mouse, microphone, scanner, light pen, digitizer etc.

Storage hardware is used to provide a means of storing computer instructions and data in a form that is relatively permanent or non-volatile. The common storage hardware devices include magnetic tapes, magnetic disks (hard disks, floppy diskettes, disk packs), optical storage (computer disks of various types).

Processing hardware is used to retrieves, interpret and direct the execution of software instructions provided to the computer. The most common components of processing hardware are the central processing unit (CPU) and the main memory.

Output hardware is meant to provide a hardcopy or softcopy of the information produced by the computer system. The common devices are the printers, monitor, microphones, computer useable storage (floppies, hard disks, optical disks, tapes).

2.1.2 THE SOFTWARE

This refers to a collection of programs which control the activities of a computer. A program is a sequence of instructions or commends which a computer follows to perform a specified task. Software can be classified into two broad categories; System Software and Application Software. The System Software is used to help manage the computer and provides the environment for running of application software. Examples are Operating System e.g. Microsoft Disk Operating System (MS-DOS), programming languages (e.g. Beginners All Purpose Symbolic Instruction Code, (BASIC). The system programs also called system software are design around the internal environment of the computer. They are application independent and in most cases supplied by the manufacturer.

Application Software are programs written by the users. They are problem dependent and one need not to know about the internal structure of the computer to be used before writing such programs. A program written to solve a given problem in an organisation is an application program and may be unique to that organisation. Application software enables users to solve a problem or perform a useful task based on need. For example one installation may decide to use its own computer for purely scientific applications while another may decide to specialise in business data processing.

2.1.3 THE HUMANWARE

This is the role played by human beings in the computer hardware and software for solving or executing a given task. In data processing department, the humanware could be the system analyst, programmer or operator.

Generally, computer can be classified according to the following categories. According to age of technology, data processed, size and purpose.

Categorisations according to age, of technologies are first generation computers which used Vacuum Tubes, second generation computers which used Transistors, third generation computers which used Integrated Circuits, fourth generation computer which used Micro Processor and fifth generation computer which uses Micro Processor with major advances.

Categorisations according to data processed are:

i) **Analogue Computer:** - This represents data and information in a continuous manner using physical variables.

ii) **Digital Computer:** - It represents data and information in a discrete or discontinuous form and operates with symbols expressible in some number system, usually binary system.

iii) **Hybrid Computer:** - It combines the features of both the digital and analogue computers.

Categorisation according to size are Super Computer, Mainframe Computer, Minicomputer and Microcomputer. Microcomputer is further subdivided into two, namely: base on Internal MP inside which are 18086, 18088, 1286, 1386, 1486 and 1586 (Pentium). The other one is based on External features, which is also subdivided into fixed and portables. The portables are Desktop, Laptop, Notebook and Palmtop.

Categorisations according to purposes are Special Purpose Computer and General Purpose Computer.

2.2 DATA PROCESSING

The term data refers to un-organised facts collected from various sources. For example, in the system under study, the data to be used are the marks obtained by students in their various courses.

The different marks obtained in various courses by students cannot be used to make meaningful decisions about the students. These marks must be collected together and manipulated so as to produce useful information about the students. For example, in the system under study, each students marks are collated, multiply by unit course, totalled, averaged and used to determine his grade. All these activities been carried out on students' raw marks are referred to as data processing.

Thus data processing is the technique of collecting and manipulating data in an organisation for the purpose of producing useful information for the top level management for taking useful decisions.

Data processing has three components namely: Input, Processing and Output. The Input part is the art of gathering data from various sources and assembling it at one location. The processing is the art of transforming the data collected into useful form (i.e. information). The output part is the information obtained from the transformed data.

The bulk of existing computer power is dedicated to information systems and data processing. This includes all uses of computers that support the administrative aspects of an organisation.

2.3 THE USE OF COMPUTER IN DATA PROCESSING

Hall (1983) in comparing between the man and the computer noted that "the human, though very intelligent, creative, intuitive and self motivated easily become bored, tired and forgetful". Computer however perform a single task based on a set of instruction created by a person, work very rapidly obeys instructions or commands exactly and repeat task untiringly. However, in Nigeria, the manual technique of data processing has three major problems. these are:

i) **Speed:** - There is delay in processing and generation of information.

ii) Accuracy: - They are prone to many errors.

ii) Storage: - The method of data storage is very poor and thereby making retrieval of such data absolutely difficult when the need arises.

One of the major uses of computer is for processing data. This is possible because the various units of computer machine can co-ordinated effectively using the suitable software to process raw data and transform it into useful information. This indicates that computerisation of the examination recording

system would be a better alternative and it will help in achieving the following:

i) High Speed Processing - the time taken by computer to process data is often in millisecond (MS), microsecond or even nanosecond (NS).

ii) The result produced by computer (i.e information) is often error free. That is, it is very accurate provided correct data are fed into the computer.

iii) It has memory for storing data and this data can easily be retrieved anytime.

iv) It makes work more easier and more accurate.

v) Checking and correcting errors without being bored.

vi) Time and cost benefit – the amount of stationeries consumed under manual method will be minimised. A lot of time will be saved because of the amazing high processing speed of the computer.

CHAPTER THREE

SYSTEM ANALYSIS

3.1 FEASIBILITY STUDY

After the problem have been successfully defined. The next thing is to determine whether a solution to the problem is feasible. This is to prevent wasting of effort and many thousand of Naira, if the project is not feasible or simply impossible to carryout.

The researcher, having travel to Federal College of Education, Kontagora, Niger State, met the Head of Department of Computer Department and collect some useful information as regard the feasibility of the project by means of personal interview. The researcher then carryout the following feasibility test.

Technical Feasibility – This is investigating what equipment is on ground. At present Federal College of Education, Kontagora has some microcomputers and some few personnel needed to man the computer. Hence, the technical support is already in placé.

Operational Feasibility – This is investigating whether it will be possible to change the manual operation to computer based operation. With trained

manpower and workable systems, it is expected that the project will be operationally feasible.

Economic Feasibility - This is finding out whether the college has enough resources to carryout this project. It is very hopeful that if the management of the college gives high priority to this project, it will be economic feasible. Moreover, in the long run, the cost of operation will be cheaper compare to the present manual system. Already, most equipment needed for the project are already in place. There are micro computers, printers, air-conditioners, good office, tables etc. Since the project is feasible by all criteria, I can now move to system analysis.

3.1.1 COST AND BENEFIT ANALYSIS

	Develop Cost		**N :K**
-	System Analysis and Design,		
	3 weeks,	@ 8000 per week	24,000.00
-	Software Development and Implementation		
	4 weeks	@ 10,000 per week	40,000.00
-	Equipment Procurement		150,000.00
-	Installation		20,000.00
-	Office Expenses and Furniture		60,000.00
-	Personal Training for one Week	@ 5000 per week	25,000.00
	TOTAL		**319,000.00**

3.1.1 COST AND BENEFIT ANALYSIS

System Operating Cost	**N :K**	
Equipment Maintenance per annum	50,000.00	
Program Maintenance per annum	20,000.00	
Labour Cost		
Head of Computer Centre Salary per annum	480,000.00	
Three Computer Clerks @ 240,000 each	720,000.00	
Watchman and Messenger @ 120,000 each	240,000.00	
Utilities	15,000.00	
Stationeries	10,000.00	
Miscellaneous	20,000.00	1,555,000.00
TOTAL COST		**1,874,000.00**

Benefit Analysis Per Annum

- Savings of salaries of 10 non-academic staff that would have been appointed at average salary of 20,000 per month	2,400,000.00
- Savings of salaries of 5 lecturers that would have been appointed at average salary of 28,000 per month	1,680,000.00
	4,080,000.00
TOTAL BENEFIT PER ANNUM	**4,080,000.00**
TOTAL COST PER ANNUM	**(1,874,000.00)**
TOTAL BENEFIT PER ANNUM	**2,206,000.00**

In addition to the monetary value Benefit of N2,206,000.00. The Institution will still derive intangible value from the Goodwill that will be attributable to the Institution as a result of standardization in the result and certificate.

3.2 OPERATION'S PROCEDURE

Full detailed study of the current system including its procedures, information flows and methods of work organisation and control are carefully looked into. This analysis also spells out the strength and weakness of the existing system.

System analysis according to Hall (1983) is part of data processing which is "concerned with the investigation of the business need for information and for the design of a system to supply that information".

Oliver and Chapman (1990) sees computerisation of a system to "entail more than just the automation of parts of the existing system by means of computer. Analysis of an organisation information requirements may show that the requirement will be better served by a newly designed and implemented system with the virtues of both the manual and computerised elements".

This research uses these premises in the analysis and design of the Examination, Recording System of Federal College of Education, Kontagora, Niger State.

At every semester of academic session, each lecturers are expected to keep a record of their students' performance in their various courses. Usually, every lecturer is expected to give an assignment of 20 marks and mid-semester test

of 20 marks and the examination will be 60 marks. All these marks are often record on a score sheet prepared by each lecturer.

Later, these marks are transferred to the head of Department office where detailed result of every student will be prepared. This operation is perform by recording each course code with their respective Credit Unit, Mark Score, Grade, Point and Grade-Point (GP) which is the multiplication of credit unit by points. Then the Total Grade Point (TGP) will be arrived at by the addition of all the Grade Point (GP). So also Total Grade Offered (TGO) will be arrived at by adding all the credit unit. The Total Credit Passed (TCP) will be ascertained to ensure that the minimum credit passed is maintained at all time. Finally, Grade Point Average (GPA) will be determined by dividing Total Grade Point (TGP) by Total Credit Offered (TCO). Cumulative Grade Point Average (CGPA) is the average of Grade Point Average (GPA) of 100 level, 200 level and 300 level. Based on the Cumulative Grade Point Average (CGPA), it will be determined whether the student is at Distinction (4.5-5 points) Credit (3.5- 4.4 points), Merit (2.0 – 3.49), Pass (1.0 – 1.99) and Fail (0 – 0.9 Points).

The Head of Department then presents these results to the Dean of their respective school who in turn will submit to the Academic Board for

approval. Thereafter, the result will be submitted to the Registry Department, Academic Affairs who issued the final result as well as certificate to students.

It should be noted however that the result of Federal College of Education, Kontagora is breaking down into four phases as follows: subject combination, this is always two subjects from two departments e.g. Math/Physics, Physics/Biology etc. This mean that Physics department will process its own students' result while Biology department will also process its own students' result in that department. Every students must do Education and Teaching Practice as a separate course. Education Department will process students result on education and whatever the student score in Teaching Practice will also be processed independently. The final result will now be the average of Cumulative Grade Point Average (CGPA) of the two teaching subject e.g. physics, Biology and Education as well as Teaching Practic.

A copy of the Detailed Result is shown in Appendix 3.

Presently, the college has five schools as follows: School of Science, School of Art and Social Science, School of Vocational Studies, School of Education and School of Languages. School of Science alone has seven departments as follows: Computer Science Department, Physics Department, Chemistry Department, Biology Department, Integrated Science Department, Physical and Health Education Department and Mathematics Department.

The population of the student of the college up-till 1999 is just an average student of 600. But between year 2000, 2001 and present year 2002, students population has jumped to between 3000 and 5000. The idea of this project is a right decision at the right time.

3.3 PROBLEMS WITH THE SYSTEM UNDER STUDY

i) **Speed of Processing and Producing Result:** - It takes longer time before each lecturer record marks of various students and process it to produce result. It takes amount of time and pain to sit down and mark students assignment, tests, examination and collations of marks. This development often brings about the delay in the issuance of result to students.

ii) **Errors in Recording and Computations:** - Some lecturers employed the services of their students to record marks. In the process of doing this, the ignorant students so employed commit a lot blunders in the process of recording marks.

iii) **The storage of Recording Sheet:** - The recording sheet are stored in the Department thereby occupying much office space. This increase redundancy and it amount to wastage of resources.

iv) **Data Processing:** - This start with recording marks in the report sheets by extracting the essential information about a candidate. A minor

error may be corrected using the liquid correction fluid while a major error may render the result sheets invalid. Wichever the case may be, causes poor quality output and of course wastage of resources (time, papers, ink and son on).

v) **Data Recording and Sorting:** - The process of recording marks and trying to sort out results whenever the need arise is very tedious and cumbersome.

vi) **Data Deletion and Updating:** Sometimes, it becomes necessary to update records. This is not an easy task under this system as it may mean repeating the task unendingly. Thus cases of omission and transposition of data are not easily resolved except new entries are made.

vii) **Data Storage and Retrieval:** - Information are stored on papers and kept in cabinets. Accessing the information means searching the entire file until the information is found. If the information is large, it then requires a large storage space and the retrieval of such information may be time consuming.

viii) **Data Manipulation:** - This entails manipulating each students mark to obtain his/her grade. However, conducting a routinely repetitions operation like this with manual method waste time. Besides, it is

boring and there is the likelihood of some deliberate human errors which could lead to rating dull student higher than brilliant students.

ix) **Time Taken by the Present System:** - The present system is slow and takes a longer time, perhaps, days or weeks to get record processed (especially where there are errors re-occurring thereby needing to be continuously corrected).

CHAPTER FOUR

SYSTEM DESIGN

4.1 INPUT SPECIFICATION

The Input data are the students' matriculation numbers, scores, course code, credit unit, grade, points. Because of time factors, only scores of very few students are going to be used. The students will be grouped into their various Department and Departmental database files will be created for them. The few students to be used will be picked from the Computer Department of the Institution and database will be created.

Subsequent to the system design, the proposed software will be menu-driven, the user will select the activity or task to be carried out. (See Appendix 1).

The software to be used is Visual Basic. It has facilities for creating files, while creating these files, it is mandatory for the user to define the fields, field type and the field widths to be used, before putting records into these files. These are describe below:

File No	Field Description	Field Name	Field Type	Field Width
1	Matriculation Number	Matrix No	Numeric	8
2	Last Name	Last Name	Character	30
3	First Name	First Name	Character	30
4	Other Name	Other Name	Character	30

5	Departmental Code	Dept. Code	Cha/Num	5
6	Status Code	Status Code	Character	1
7	Class	Class	Character	15
8	Course Code	Course Code	Cha/Num	6
9	Level	Level	Numeric	4
10	Assignment	Assign	Numeric	4
11	Test	Test	Numeric	4
12	Examination	Exam	Numeric	4
13	Total Score	Total Score	Numeric	4
14	Grade	Grade	Character	1
15	Grade Point	G. P.	Numeric	6
16	Course Description	Description	Character	50
17	Credit Unit	Credit Unit	Numeric	1
18	Semester	Semester	Numeric	1
19	Department Name	Dept. Name	Character	50
20	Total Credit Offered	T. C. O.	Numeric	2
21	Total Credit Passed	TCP	Numeric	2
22	Total Grade Points	TGP	Numeric	4
23	Grade Point Average	GPA	Numeric	6
24	Cumulative Grade Point Average	CGPA	Numeric	6
25	Status	Status	Character	20

After creating these database files, some students records will be entered in each database file for testing. These file structures are also to be used anytime a new file is to be created either for a new session or new students.

4.2 OUTPUT SPECIFICATIONS

The software to be designed will be user friendly that non-computer scientist can use. This is made possible because of the provision of USER'S GUIDE that tells the user the available options open to him. From this option, he is expected to pick one. Instruction on how to choose an option will be displayed usually at the bottom of the screen.

The final output specifications consists of the following Matriculation Number, Name, Department, Level, Result, Total Grade Point (TGP), Total Course Passed (TCP), Total Grade Point (TGP), Grade Point Average (GPA), Cumulative Grade Point Average (CGPA).

4.3 REQUIREMENTS

These are essential equipments needed for both designing and usage of the system to be developed. Desk Top Computers are required. Although, the operator of this system has only to learn a relatively simple sequence of keyboard operations, since the processing operations are menu driven, well-trained staffs are necessary. This will definitely ensure improvement and innovations into the system. Se Appendix 1 for main menu.

Specification: Intel Celeron
Processor: Pentium II,
=> 120MB RAM (Random Access Memory)

=> 6.5 GB HDD (Hard Disk Drive)

=> 1.44MB FDD (Floppy Disk Drive)

=> 15" SVGA (Monitor)

=> Enhanced Keyboard + Mouse

OTHER HARDWARE FACILITIES

=> laser Jet Printer

=> UPS

OPERATING SOFTWARE

=> Microsoft Visual Basic

=> Microsoft Access

Other requirement specifications for the proposed system are as follows:

a) Comprehensive list of all the students of the institution and their respective data.

b) Routine for data entry, modification, deletion and processing.

c) Report generation on the screen and sent to the printer for hard copy.

d) Data to be stored on the magnetic storage medium.

e) Database Management System (DBMS)

f) Formation of Examination Recording Centre to co-ordinate the task of producing effective result.

g) Computer scientist as the Head of the Centre and other computer operators.

CHAPTER FIVE

SYSTEM DEVELOPMENT

5.1 CHOICE OF SOFTWARE AND THE PROGRAMMING LANGUAGE.

The system to be implemented is carefully designed to process examination grading system of Nigeria colleges of education with emphasis on Federal College of Education Kotangora, Niger State. The program has been coded, tested and is operational.

The software in use is the database management system and visual Basis for the program development. It provides a relational database structure where data are entered and stored into the database file in rows and columns called records and fields respectively. It is very useful especially for record processing of this kind.

Database management system is a complex software system which constructs, expands and maintain data in the base. It also allocates storage to data, maintain indices so that any required data can be retrieved and so that separate data item in the base can change as needed. DBMS maintain data in the base by adding, deletion, modification etc files can be processed

sequentially or serially. It also has the function of providing security for the data in the base against unauthorized user and against corruption.

Database management system as a software is therefore aimed at the following:

1) **Data integration:** - This is where information from many files can be assessed, co-ordinated and operated upon as though they were from a single file. it is also possible for two or more applications to share data in the base.

2) **Achieving Data Independency:** - This is an insulation of application programs from the physical or logical storage of data in such a way that it allows modifications in the contents and organisation of the data without reprogramming and vice versa.

3) **Eliminating Redundancy:** - Redundancy occurs when the data in the base cannot be arranged to suit all application programs accessing them. If this happens, some data may appear in more than one file leading to wastage of storage space and duplication of efforts during data entry.

4) **Data Integrity:** – when duplication is eliminated, it gives room for consistent information.

5) **Centrally controlled:** - Data and operation on data are centrally controlled and this leads to a better management of data by enforcing standard for all users

5.2 HARDWARE OPERATIONS

All the electronic metals, panel, switches and screws that are scientifically joined together and can be seen physically as a component is know as hardware. However, without a sequence of instructions, hardware cannot be put into effective use. Without software hardware doesn't know what to do, it cannot do anything constructive or profitable.

In order to use the software, the hardware must first of all be activated; the first thing to do is to boot the machine. Then the user will select the activity or task to be carried out through the use of the main menu.

5.3 SOFTWARE OPERATIONS

The program developed is called ABZEE PROGRAM. In order to access this program, the user is expected to type in the command do abzee at the Dot prompt. Upon pressing the (enter) key, a message is displayed, and access validation gate is open for the user to enter password. If the correct password is entered, the program displays another message and the menu where the user is expected to select from. See Appendix 1

After which the user will enter the name and other data of the students into the computer. The computer will process the data and provide the desire result. The procedure here, are the steps which unify the whole processes together to produced the desired result. It involves both the manual and computer operation. The manual aspect requires that the clerks collects and enter data into the computer, the computer then performs the manipulation required to give the output in the manner so desired.

This software is user's friendly and does not require much knowledge about computer before one can operate it. Any literate person, with little inductions given to him, can easily operate it.

5.4 CHANGE OVER PROCEDURE

The change from the old system to the new one is expected to be a parallel changeover. This is a situation where the old system and the new system will be operating together for sometime. This method is chosen over other methods because, it gives room for monitoring the output of the new system and to make sure that the output meet the required stranded. After the new system's outputs have been proved satisfactorily, the old system can be discarded.

Although this method is the most expensive one, it is still better and preferable because it will avoid lost of data and total breakdown of the system in case the new system failed to operate as it is expected. The date of the changeover shall be determined and by the management of the Federal College of Education Kotangora, Niger State. The operational staffs concerned with the use of the software are expected to undergo at least one week of intensive training.

5.5 CONCLUSION

The Federal College of Education Kotangora, which is the case study presently, uses the conventional method in processing her examination result. This gives rise to several problems as discussed in the previous chapter

In trying to accomplish the aim of this research, some facts finding techniques were used to gather relevant data. Oral interviews were administered at the Head of Department computer science as well as the academic department of the institution.

The feasibility study indicates that the project will technically, economically and operationally feasible. It is base on this background that the examination recording system were quantified and a program designed, coded, tested and

found workable. The package developed uses database management system, which is very efficient in record processing.

5.5.1 FINDINGS

The findings of this research work are partly listed in the previous chapters. These include: -

1) The old system is not suitable owing to its numerous disadvantages. Consequently, the new system is preferable.
2) The management of the Federal College of Education Kotangora have given their support for the system
3) The new system will be centralised, in which case, it will reduce several costs in term of money, men, material and time.
4) It will take lesser time to process result
5) It will occupy a lesser space.

5.5.2 RECOMMENDATION

Alade (1994) stated that " since the world today is now in the computer age and virtually everything is going computerised, information is made available at the finger tips of man through information technology which is 100% computer oriented". This pre-supposes that if we must take action or make good decisions, then the information needed must be timely. In this regards, it

will be reasonable to conclude that the examination recording system of higher institution in Nigeria be automated.

In view of the financial constraint facing the institution, it will be advised that an examination centre should be created, which will be headed by a computer scientist that will collate and process the result of every student. Thus reducing the task of the lecturers. This will also improve the standard of the recording system. For easy implementation of the above task, a specific date should be given to the lecturers at the beginning of the session for the submission of the students' marks. Every lecturer should be encouraged and motivated to meet the specified date.

REFERENCES

1) Badmus R. o.; System Analysis & Design Lecture Note FUT, Minna (2002).

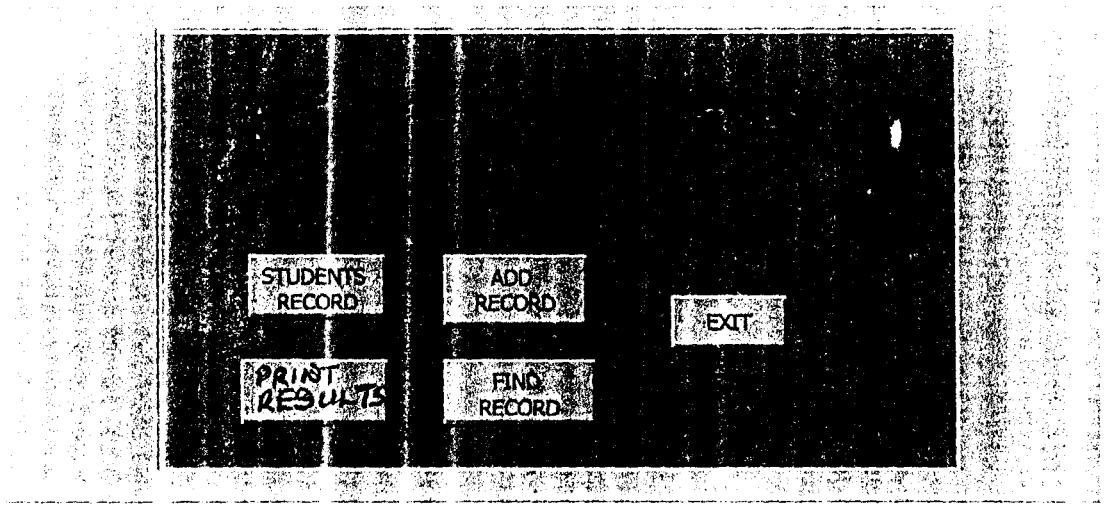
2) Colin and Andrew J. T.; Computer and Data Processing DP Publication London (1980)

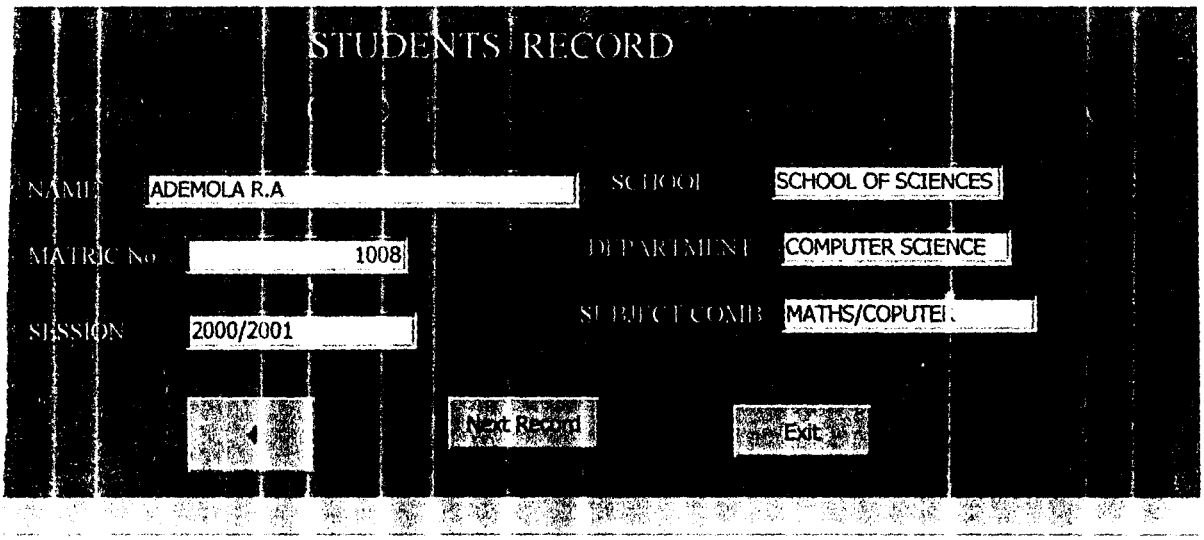
3) Hall J. Data Processing, Case II Ltd, Fast Sussex, UK, 1993.

4) Holmes B. J; Basic Programming, A Complete Text ELBS with DP publications, London, 3rd Edition, 1992

5) Oliver and Chapman; Data Processing and information Technology, DP Publication, London, 8th Edition, 1990

6) Students' Information Handbook, Federal College of Education, Kontagora, Niger State, Nigeria, 1997 Edition.


STUDENTS RECORD
ADD RECORD
EXIT
PRINT RESULTS
FIND RECORD


STUDENTS RECORD
NAME
ADEMOLA R.A
SCHOOL
SCHOOL OF SCIENCES
MATRIC No
1008
DEPARTMENT
COMPUTER SCIENCE
SESSION
2000/2001
SUBJECT COMB
MATHS/COPUTE
Next Record
Exit

NAME	LEVEL	MATRIC NO	COURSE CODE	UNIT	STATUS	SCORE	GRADE	POINT	GP
ABU AZEEZ									
	100								
		1020							
			CSC111	2	CORE	73	A	5	10
			CSC123	1	CORE	46	D	2	4
			CSC122	2	CORE	40	E	1	1
			CSC121	2	CORE	50	C	3	6
			CSC114	2	CORE	46	D	2	4
			CSC113	2	CORE	63	B	4	8
			CSC112	2	CORE	51	C	3	6
			CSC124	2	CORE	43	E	1	2
ADEMOLA R.A									
	100								
		1008							
			CSC112	2	CORE	60	B	4	8
			CSC113	2	CORE	41	E	1	2
			CSC121	2	CORE	43	E	1	2
			CSC122	2	CORE	53	C	3	3
			CSC123	1	CORE	40	E	1	2
			CSC111	2	CORE	44	E	1	2
			CSC114	2	CORE	41	E	1	2
			CSC124	2	CORE	61	B	4	8

REPORT2

NAME	*MATRIC NO*	*TGP*	*T CO*	*T CP*	*G PA*	*CGPA*	*CTGP*	*CTCO*	*CTCP*	*CLASS*
ABU AZEEZ										
	1020									
		35	12	12	3	3	35	12	12	MERIT
ADEMOLA R.A										
	1008									
		29	15	15	2	2	29	15	15	MERIT

PROGRAM TEXT

```
: Sub Command15_Click()
'or
Err_Command15_Click

, stDocName As String
, stLinkCriteria As String

)cName = "Form1"
:md.OpenForm stDocName, , , stLinkCriteria

:ommand15_Click:
 Sub

ommand15_Click:
gBox Err.Description
ume Exit_Command15_Click

ub
e Sub Command16_Click()
ror GoTo Err_Command16_Click


een.PreviousControl.SetFocus
Cmd.FindNext

Command16_Click:
it Sub

:ommand16_Click:
gBox Err.Description
sume Exit_Command16_Click

Sub
te Sub Command17_Click()
rror GoTo Err_Command17_Click


)Cmd.GoToRecord , , acNewRec

Command17_Click:
it Sub

:ommand17_Click:
sgBox Err.Description
:sume Exit_Command17_Click

Sub
ate Sub Command18_Click()
:rror GoTo Err_Command18_Click


:reen.PreviousControl.SetFocus
oCmd.DoMenuItem acFormBar, acEditMenu, 10, , acMenuVer70

t_Command18_Click:
xit Sub

_Command18_Click:
MsgBox Err.Description
:esume Exit_Command18_Click
```

```
ub
: Sub Command19_Click()
or GoTo Err_Command19_Click


Cmd.Quit

Command19_Click:
t Sub

ommand19_Click:
gBox Err.Description
ume Exit_Command19_Click

ub

te Sub Command17_Click()
rror GoTo Err_Command17_Click


Cmd.GoToRecord , , acNewRec

_Command17_Click:
it Sub

Command17_Click:
sgBox Err.Description
esume Exit_Command17_Click

Sub
ate Sub Command18_Click()
Error GoTo Err_Command18_Click


creen.PreviousControl.SetFocus
oCmd.DoMenuItem acFormBar, acEditMenu, 10, , acMenuVer70

t_Command18_Click:
Exit Sub

_Command18_Click:
MsgBox Err.Description
Resume Exit_Command18_Click

d Sub
vate Sub Command19_Click()
Error GoTo Err_Command19_Click


DoCmd.Quit

it_Command19_Click:
Exit Sub

rr_Command19_Click:
MsgBox Err.Description
Resume Exit_Command19_Click

nd Sub
rivate Sub Command19_Click()
n Error GoTo Err_Command19_Click
```

```
DoCmd.Quit

_Command19_Click:
xit Sub

Command19_Click:
sgBox Err.Description
:sume Exit_Command19_Click

Sub
tte Sub Command21_Click()
:rror GoTo Err_Command21_Click


oCmd.GoToRecord , , acNext

_Command21_Click:
it Sub

Command21_Click:
sgBox Err.Description
esume Exit_Command21_Click

Sub
ate Sub Command22_Click()
Error GoTo Err_Command22_Click


oCmd.GoToRecord , , acPrevious

_Command22_Click:
xit Sub

Command22_Click:
lsgBox Err.Description
esume Exit_Command22_Click

Sub
```