AUTOMATED ACCREDITATION RECORDS FOR POLYTECHNICS IN NIGERIA

BY

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DECLARATION

This project is an original work carried out by me under the supervision of Dr. Y.M. Aiyesimi and to the best of my knowledge, no part thereof has been submitted elsewhere for the award of any degree but works of other had been acknowledged and referenced.

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APPROVAL

This project work titled, Automated Accreditation Records for Polytechnics in Nigeria carried out by Ogbonna Fidelis Chukwuemeka with Registration number PGD/MCS/2007/1228 had been read and approved by the undersigned, as meeting the requirements for the award of Postgraduate Diploma in Computer Science of the Department of Mathematics and Computer Science, Federal University of Technology, Minna.

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DEDICATION

To the Almighty God, my family and other well wishers for their moral support during the programme.

ACKNOWLEDGEMENT

I give thanks to God almighty for his infinite guidance. Without which I would not have been able to complete this programme. I adore you oh Lord!

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I also want to appreciate the assistance of my course mate in the department whose names are too numerous to mention here. I thank you all may God bless you.

ABSTRACT

This project is aimed at maintaining efficient records about each Polytechnic programmes and getting necessary information about each as quickly as possible. The program is written in SQL to quickly highlight when a polytechnic programme is due for next accreditation after five years of last visit.

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CHAPTER ONE

1.0 GENERAL INTRODUCTION

1.1 Introduction

Information constitutes a major tool in any management decision process. It is therefore very important that the collation and storage of such information should be given adequate attention. The importance of computers in this regard cannot be over emphasized.

Computer can be defined as a machine that accepts data, process the data, stores and releases the result of such processing in a prescribed format as information as and when required. For example, we use information to calculate, communicate and make (management) decisions, while computer is used to create manage and manipulate information faster and easier than any other previous system devised.

Processing of information by the computer involves three activities:

- Input: This is the process of feeding data into the computer input devices include keyboard, joystick, touch-tone.
- Processing: this act of turning the data into information. The action extend on the data is called processing. Processing actions are sorting, recording, calculating, classifying and summarizing data.
- Output: the outcome of the data processed is the output. That is, the information which the data has been turned into is called output. Output is obtained through output devices such as printer, monitor, plotters, desktop film recorders etc. It is the output opened through these devices that is used to make decisions that are referred to as management information.

1.2 NBTE IN PERSPECTIVE

About National Board for Technical Education (NBTE)

- i) The National Board for Technical Education is a principal organ of Federal Ministry of Education specifically created to handle all aspects of Technical and Vocational Education falling outside University Education. It was established by Act No. 9 of 11th January, 1977.
- ii) In addition to providing standardised minimum guide curricula for technical and vocational education and training (TVET), the Board

supervises and regulates, through an accreditation process, the programmes offered by technical institutions at secondary and post secondary levels. It is also involved with the funding of Polytechnics owned by the Government of the Federation of Nigeria.

- Our Vision is to uphold the ideals of a free, united and egalitarian society and promote good quality technical and vocational education; a system that is flexible and accessible to all for the purpose of producing competent and relevant technological manpower needed for sustainable national development.
- iv) **Our Mission** is to promote the production of skilled/semi-skilled technical and professional manpower, to revitalize, and sustain the national economy, reduce unemployment and poverty through the setting and maintenance of high standards, provision of current and reliable information for planning and decision making, sourcing and disbursing of funds and adequate linkages with industry.

***The National Board for Technical Education (NBTE) is the coordinating agency for Technical and Vocational Education (TVE) in Nigeria.

NBTE was established by Act 9 of January, 1977 to among others advice the Federal Government on, and coordinate all aspect of Technical and Vocational Education (TVE) falling outside the university. ***

NBTE undertake activities in the areas of:

- i) Curriculum development
- ii) Quality assurance
- iii) Physical and academic planning
- iv) Policy formulation for technical education
- v) TVE policy implementation
- vi) Budgeting and funding of Federal Polytechnics

NBTE has developed over 120 curricula in various areas of TVE such as:

- i) Engineering technology
- ii) Surveying and Goe-informatics

- iii) Agriculture and related technology
- iv) Computer science and related technology
- v) Printing and related technology
- vi) Business and related studies
- vii) Finance and related studied
- viii) Hospitality and related technology

NBTE ensures quality in Nigeria TVE sector through the accreditation process involving:

- a) Advisory visitations
- b) Resource Inspection visitation
- c) Accreditation visitations, to evaluate if a specific programme, or course of study has meet National Minimum Standard in terms of:
- i) Physical Resources
- ii) Staffing
- iii) Academic matters
- iv) Funding, etc

Looking Ahead

The vision of NBTE for TVE is that of National and International cooperation with respect to:

- i) Expanded access to disadvantaged groups
- ii) Increased relevant practical skill for TVE students
- iii) Improved curricula to address current and feature needs
- iv) Adequately trained technical teachers in partnership with international organizations such as; IBRD, DFID, UNESCO, etc

BRIEF HISTORY OF NATIONAL BOARD FOR TECHNICAL EDUCATION (NBTE)

During the preparations for the Third National Development Plan, 1975-80, the objectives for education were stated as follows:

- a) to expand facilities for education aimed at equalizing individual access to education throughout the country;
- b) to reform the content of general education to make it more responsive to the socio-economic needs of the country;

- c) to make an impact in the areas of technological education so as to meet the growing needs of the economy;
- d) to consolidate and develop the nation's system of higher education in response to the economy's manpower needs;
- e) to streamline and strengthen the machinery for educational development in the country; and
- f) to rationalize the financing of education with a view to making the educational system more adequate and efficient.

The Federal Government also identified the acute shortage of technical manpower as a major constraint towards the execution of the development plan. In response to this, government in 1972 established the then National Science and Technology Development Agency (which later metamorphosed to Federal Ministry of Science and Technology) which set up a Working Committee on Scientific and Technical Manpower and Science Education. The Committee produced a report on middle-level technical manpower and their training. Some of the Committee's recommendations included the following:

- a) in order to have a nationally accepted standard in technical education, there should be a harmonization of the entry qualifications and diploma standards throughout the nation;
- b) in order to eliminate the non-uniformity in terminal diplomas issued by existing colleges of technology, there should be a national certificate in technical education;
- c) in order to attract the right kind of staff to the technical colleges (now polytechnics) there should be a harmonization of technical staff standards including staff structure, remuneration and conditions of service;
- d) in view of the fact that courses in many technical fields from which the Development Plans need to draw manpower at the middle-level are not provided for in our existing colleges, there should be expansion of the

courses and facilities in these colleges; and new colleges should take into account the required courses in planning their programmes;

- e) in view of the gaps in the admission capacity and actual enrolment for the existing courses in the technical colleges (now polytechnics) there should be full utilization of these facilities through a review of the admissions policy, including part-time admissions, and massive awards of technical scholarships;
- f) in order to encourage more enrolment in technical courses, more avenues for practical experience for newly qualified trainees, should be created; this can be achieved through immediate employment of the trainees in public and private industries using, if necessary, the facilities of the Industrial Training Fund.

The Committee further recommended that a National Board for Technical Education be created which should be charged with the implementation of its recommendations.

The Federal Government established the National Board for Technical Education by Act 9 of January 1977. In August, 1985 and January 1993 respectively, the Federal Government enacted Act 16 (Education (National Minimum Standards and Establishment of Institutions) Act) and Act 9 (Education (National Minimum Standards and Establishment of Institutions) (Amendment) Act). With these Acts, the functions of the Board were extended to include accreditation of academic programmes in all Technical and Vocational Education (TVE) institutions. Act No.9 of 1st January 1993 further empowered the Board to recommend the establishment of private Polytechnics and Monotechnics in Nigeria.

There are at present 110 approved tertiary technical institutions and 159 technical colleges under the purview of the Board with different types of ownership summarized in Table below:

SUMMARY OF NUMBER, TYPE AND OWNERSHIP OF POLYTECHNICS, MONOTECHNICS AND FECHNICAL COLLEGES IN NIGERIA

| nstitution | Ownership | | Total | |
|--------------------------|-----------|-------|---------|-------|
| Гуре | Federal | State | Private | Total |
| Polytechnics | 21 | 30 | 7 | 58 |
| Monotechnics: | | | | |
| Colleges of Agric. | 17 | 13 | - | 30 |
| Colleges of health Tech. | 4 | 1 | 1 | 6 |
| Other Specialised Ins. | 13 | - | 3 | 16 |
| Sub-total (Monotechnics) | 34 | 14 | 4 | 52 |
| Total | 55 | 44 | 11 | 110 |
| | | | | |
| Technical Colleges | 19 | 137 | 3 | 159 |

Functions of the Board

The functions of the Board as contained in its enabling Act are as follows:

- i) to advise the Federal Government on, and co-ordinate all aspects of technical and vocational education falling outside the universities and to make recommendations on the national policy necessary for the training of technicians, craftsmen, and other middle-level and skilled manpower;
- ii) to determine, after consultation with the National Manpower Board, the Industrial Training Fund and such other bodies as it considers appropriate, the skilled and middle-level manpower needs of the country in the industrial,

commercial and other relevant fields for the purpose of planning training facilities and in particular to prepare periodic master-plans for the balanced and co-ordinate development of polytechnics and such plans shall include;

- iii) the general programmes to be pursued by polytechnics in order to maximize the use of available facilities and avoid unnecessary duplication while ensuring that they are adequate to the manpower needs of the country;
- iv) recommendations for the establishment and location of new polytechnics as and when considered necessary.
- v) to inquire into and advise the Federal Government on the financial needs, both recurrent and capital, of polytechnics and other technical institutions to enable them meet the objectives of producing the trained manpower needs of the country;
- vi) to receive block grants from the Federal Government and allocate them to polytechnics in accordance with such formula as may be laid down by the Federal Executive Council;
- vii) to act as the agency for channeling all external aid to polytechnics in Nigeria;
- viii) to advise on, and take steps to harmonize entry requirements and duration of courses at technical institutions;
- ix) to lay down standards of skill to be attained and to continually review such standards as necessitated by technological and national needs;
- x) to review methods of assessment of students and trainees and to develop a scheme of national certification for technicians, craftsmen, and other skilled personnel in collaboration with ministries and organization having technical training programmes;
- xi) to undertake periodic review of the terms and conditions of service of personnel in polytechnics and to make recommendations thereon to the Federal Government;
- xii) to collate, analyze and publish information relating to technical and vocational education;

- **kiii)** to consider any matter pertaining to technical or technological education as may be referred to it from time to time by the Minister;
- xiv) to carry out such other activities as are conducive to the discharge of its functions.

In addition to the above, paragraphs 8(1) and 8(2) of Act 16 of 1993 states as follows:

"The responsibility for the establishment of minimum standards in Polytechnics, Technical Colleges and other technical institutions in the Federation shall be vested in the Minister after consultation with the National Board for Technical Education and thereafter the Board shall have responsibility for the maintenance of such standards".

"The Board shall have power to accredit programmes of all institutions mentioned in subsection (i) above for the purpose of award of national Certificates and diplomas and other similar awards, and for entry into national and zonal examinations in respect of such institutions".

The Board has a Governing Council and four departments namely:

- 1 Programmes Department
- 2 Planning Research and Statistics
- 3 Personnel Management
- 4 Finance and Supplies

In addition to the departments there are eight units in the Executive Secretaries Office, namely:

- SERVICOM Unit
- Anti-corruption Unit
- Media and Public Relations
- Internal Audit

- Legal Services Unit
- Security Unit
- Staff Clinic
- UNESCO Nigeria TVE Project Unit

Programmes Department

Main Activities of Programmes Department

- (a) to lay down, and review as necessary, entry requirements, durations of courses and skills to be attained in technical and vocational institutions;
- (b) to propose guidelines on curricula and contents of courses and procedure for the evaluation of programmes and for national certification of technicians, craftsmen and artisans;
- (c) to propose ways of encouraging technical and vocational subjects in secondary schools;
- (d) to advise on ways of enlightening the general public on the importance of technical education;
- (e) to lay down guidelines for and advise on programmes to be accredited in all polytechnics, technical colleges and other technical institutions in the Federation for the purpose of award of National Certificates and Diplomas and other similar awards, and for entry into national examinations in respect of such institutions;
- (f) to advise on ways and means of improving and developing the resources and materials for teaching and production in technical institutions.

Brief Description of the Department of Programmes

The Department of Programmes constitutes the main operational arm of the National Board for Technical Education (NBTE), referred hereafter as the Board, in executing its key functions of Quality Assurance and Maintenance of National Academic Standards in technical/vocational education & training (TVET). The department operates through its five divisions that specialize in different areas, or categories of institutions, of TVET as illustrated in the organogram (Appendix I). The allocation of responsibilities among the divisions is presently as below:

Agriculture/Science Division: Agricultural Technologies; Applied Sciences; Health Technologies; Hospitality & Related

Polytechnics Division: Engineering Technology; Environmental studies; Fine and Applied Art

Private Technical Institutions Division: Business; Management, Financial Studies, Social Studies, General Studies; Establishment of Private institutions

Post-HND/Research Division: Post-HND programmes; Specialized Institutions; Research Coordination

Technical Colleges Division: Mechanical Trades; Building & Wood Trades; Electrical Trades; Miscellaneous Technical areas

Focus of Activities

The focus of the Department, in line with the Board's Vision, is to facilitate the development of curricula and assessment of resources in Nigerian polytechnics and monotechnics, for the promotion of good quality technical and vocational education. Department endeavors' to effect the Board's Mission of promoting the production of skilled manpower in TVET to revitalize and sustain the national economy, while reducing unemployment and poverty.

Varieties of Academic Programmes

As prescribed by its establishment law, the Board supervises and coordinates policies in all areas of TVET falling outside the universities. Accordingly, it is concerned with programmes of Polytechnics, Colleges of Agriculture, Varieties of Colleges of Technology providing training in Oil & Gas, Maritime, Fisheries, Forestry, Cooperatives, Chemical/Leather Technology, etc, often referred to collectively as Monotechnics. Board's purview also extends to TVET at post-basic level (senior secondary) as executed in Technical Colleges.

The Board has established a credible Quality Assurance Mechanism in the technical institutions in the country for the award of National Certificates – National Diploma (ND), Higher National Diploma (HND) and Post Higher National Diploma (Post-HND), as well as National Technical Certificate (NTC), National Business Certificate (NBC), Advanced National Technical Certificate (ANTC), and Advanced National Business Certificate (ANBC).

An important recent development is the recent approval by the federal government of the *Vocational Enterprises Institutions (VEIs*) and the *Innovative Enterprises Institutions (IEIs*), with specific focus on delivery of employable skill to stem the raging tide of unemployment among the youth. These are private sector driven institutions, designed to operate closely with relevant industries in such fields as Oil & gas, Hospitality, Innovative Agriculture, ICTs, Technical Trades, Paralegal, Engineering & Construction, etc. An entirely new scheme of qualification is now being developed in the form of *National Vocational Certificate (NVC)*, for VEIs and *National Innovation Diploma (NID)*, for IEIs.

Modalities of Quality Assurance in Polytechnics, Monotechnics and Technical Colleges

Any institution wishing to secure national recognition has to satisfy certain minimum requirements stipulated by the Board in the provision of teaching/learning resources, such as laboratories, workshops and classrooms, instructional equipment and human resources for teaching and support. The recognition process for a new institution begins with an *Advisory Visit*, which is a

preliminary inspection to ascertain that basic requirements for successful delivery of required programmes are in place. This is needed for both public institutions, established by federal or state government, and private institutions. (Entrepreneurs wishing to establish private institutions may refer to relevant Guidelines as explained under Publications.)

Subsequently, an institution wishing to offer a new programme would invite the Board for *Resources Inspection*. Upon a successful visitation, approval is given the institution to commence the programme(s) and admit students. A full accreditation visitation on the programme, *Initial Accreditation*, must however be undertaken, usually in the third Semester of studies, but in any event before the first set of students graduate.

The Board carries out accreditation visits at regular intervals, within two years after approval of commencement of new programmes to ensure that laid down standards for each programme are followed. Initial accreditation is granted for a period of 5 years after which a programme must be presented for **Reaccreditation**, to ensure that initial standards have been maintained or improved upon.

Development of Curricula and Course Specifications

The Board, as part of its statutory responsibilities, develops minimum guide curricula and course specifications for all National Diploma, Higher National Diploma and Professional Diploma programmes offered in polytechnics and similar institutions in Nigeria. It has so far developed curricula and course specifications for 190 programmes at National Diploma (ND) and Higher National Diploma (HND) and Professional (Post-HND) Levels.

The minimum guide curricula and course specifications are usually produced at *National Critique Workshops* organized by the Board for each programme. Participants in such national workshops are stakeholders drawn from polytechnics and similar level institutions, universities, industry, professional bodies, employers and any other interested professionals and academics in the relevant field.

Recent Developments in Curriculum Activities

In the period 2001 – 2004, fifty-seven (57) curricula were revised with full participation of international experts provided by UNESCO, Paris. Major thrusts and outcomes of the review are:

| Curricula now more learner-centered |
|---|
| Competence-based, including life skills |
| More practical-oriented |
| Provision of clear guidelines of teacher activities |
| Provision of clear guidelines on learner- experiences |
| Incorporation of Entrepreneurial education |
| Incorporation of ICT |

Building on the experience, the Board has also reviewed fifty (50) additional curricula along the same principles.

New curricula in emerging fields such as mechatronics, prosthetics and orthotics, occupational therapy, pasture and range management as well as mining, fisheries, animal husbandry, laboratory instruments repairs, trades, etc. have also been developed.

Development of VEI and IEI curricula began in August 2007, with the initial Critique Workshop to formalize twenty-six (26) programmes. This is expected to be followed with arrangement for Resource Inspection for all institutions having adequate resources to commence programmes.

1.3 Problem of Existing System

The use of the existing system is associated with some problems that render it inefficient and unreliable. Such problems are:

- Retrieving of information is slow under the manual system. Longer time is spent in locating particular information in a file.
- b) Since retrieval is slow, temporary files may be opened pending the time the original file is found. This causes duplication of records since the information in the temporary file is already kept in the original file.
- c) Due to poor and inadequate storage facilities, files can easily be misplaced and or damaged.
- d) There is no security of information stored in a file.
- e) There is no confidentiality since people have easy access to information kept in the files.
- f) Since various files are kept in various department there is the problem of limited space.

1.4 Aims and Objective of the Project:

Specifically, the objectives of the study are

- i)To simplify the Accreditation record keeping of NBTE through the use of computer.
- ii) To study and analyse the activities of Programmes Department, NBTE.
- iii) To identify the problems associated with existing system.
- iv) To produce a computer assisted system in order to:
- ✓ Manage accreditation records efficiently and accurately
- ✓ Produce needed information in a fast and easier way
- ✓ Produce an up-to-date information about each Polytechnic in Annual Reports, Directory of Accredited Programmes offered in Polytechnics an similar Tertiary Institutions, etc
- ✓ Reduce boredom, tiredness and fatigue caused by routine work

1.5 Extent and Limitations

The project centers more on the current NBTE Directory of Accredited Programmes offered in Polytechnics and Similar Tertiary Institutions, 13th Edition published January, 2007.

Limited time for the project and insufficient reference materials in the organization in similar study.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Meaning of Management Information System

Simply put, this is a system by which information useful to management is managed. By definition there are as many definitions of MIS as there are authors on MIS.

Management information system is an organized collection of procedures, people database, and devices used to provide routine information to managers and other decision makers. The focus, usually, is on operational efficiency.

Management information system is not completely tied to computer. That is, management information system exists without computers but since the use of computers assist in entire process of information management, it has to be determined as to what extent it is to be computerized.

2.2 Characteristics of Management Information System

The characteristics of management information system are as follows viz.

i) Distributed Data Processing:

The majority of organization that implement MIS have a geographical net work of offices, manufacturing plants, divisions etc some of these locations are operated in a completely independent way and therefore may not be a part of the integrated MIS. In most cases, the remote sites do have a connection with each other and with the operation. In order to create an effective MIS with geographical boundaries, some form of distributed data processing is important. This means that two or more information sub-systems in different locations in a co-operative manner.

ii) Flexibility and Ease of Use:

It is very important for a system developer to build a system that is flexible to accept changes in the information needs of an organization. This is so, because it is not possible to correctly access future information needs of an organization irrespective of careful analysis of future management information needs. A system developer should incorporate features that make a system readily accessible to a wide range of users and uses.

iii) Management Oriented:

Since the whole idea of MIS is making information available for management, it is therefore important for any MIS to be management oriented. That is, the development of a system should start from an appraisal of management needs and overall organization objectives. In fact, this is the most significant of all the characteristics of management information system.

iv) Management Directed:

MIS is management oriented. Consequently, it is important for management to participate in the daily activities in the system development efforts. The manager or any high level representative of the department to ensure that the implemented system meets the specification of the system that was designed. It is the responsibility of management to set system specification and play a major role in the subsequent trade off decision that occurs in system development.

v) Data Base:

Gathering of all data relevant in the MIS should be seen as the first step in the system design. Data Base binds the functional system together. Each system requires access to a master file of data covering all aspects of the organization. If all relevant data is stored effectively and with common "sage in mind, one master file can provide the data needed by any of the functional system.

vi) Information Processing Integrating:

There must be an integrating mechanism among the individuals application within the information system. This is to allow for consistency and compatibility. Redundant development of separate applications when a single application could serve more than one nee will be prevented. All bottlenecks associated with a user waiting to perform analysis using data from two different applications are prevented.

vii) Need for Common Data Flow:

Because of the integration concept of management information system, there is an opportunity to avoid duplication and redundancy in data gathering, storage and dissemination system designers are aware that a few key source documents, accounts for much of the information flow and affect many functional areas.

As economical and logical as this concept may sound, it is very important to view it in very practical terms with reference to a particular organization in mind. This is because; it may be more workable for an organization to allow for a little duplication.

Generally, however, at the design stage of any system, efforts should be made to prevent overlapping of development system, provided for adoptability, reduce cost, ensure a uniform sequence of development, provide standard for communication, allow for integration and provide for a positive strategy for the development of management information system.

2.3 The Need for Computer Application

A computer is a machine, which accepts data in a prescribed form, follows instruction in order to process the data, and produce the result of the processing in a specified format as information or as signals to control automatically some further machine or process. Computer are used in finding solutions to a wide range of problems, such as assisting in the design of roads and bridges, planning menu for hotel guests, and also carry out some other specific tasks.

Information provided by the computer are used, for example, to calculate, communicate and make decisions and computer becomes very relevant as it crates, manipulates and manage information faster and easier than any system previously devised.

From the foregoing, therefore, the importance of computers in our society cannot be over emphasized. Even since humans began to count and do simple arithmetic, they had to make the process easier and faster by the use of machines.

When a computer is working, one or more activities are performed. The activities involved in data processing by the computer are input, processing and output. In organization, such information assist management in deciding about production, which markets it can sell its products, what strategy to adopt in marketing and also in deciding on personnel matters.

2.4 System Life Cycle

If information were not vital to the existence of an organization, there would be no need for automated method to produce and store relevant information. It is out of necessity that the information and data processing techniques now in use were developed in order to produce the required information as economically and quickly as possible.

Computer contributions to organization growth are found in the record keeping aspects of the operations. A federation of information systems that support various business functions serves organizations. System owners (organizations) and users initiate most projects. The impetus for most projects is some combination of problems, opportunities and directives.

<u>Problem</u> here mean undesirable situations that prevent the organization from fully achieving its goals and objectives. For instance, an organization might identify that it is taking too long to fulfill customer orders. A project would then be initiated to achieve more responsive and timely order fulfillment.

An <u>opportunity</u> is a chance to improve the organization even in the absence of specific problems. For instance, management is usually receptive to cost cutting ideas, even when costs are not currently considered a problem. Improvement due to opportunity is the source of many of today's most interesting project.

While <u>directive</u> is a new requirement that is imposed by management, government or some external influence.

2.5 The NBTE Directory has continued to be an authoritative source of information to all stakeholders, parents, teachers, students, employers, guidance counselors, professional registration councils, the NYSC Directorate, educational institution, government and other organizations about the status of the programmes offered in the polytechnics, Collages of Agriculture and similar institutions as well as admission requirements into the programmes.

The Directory covers 1,829 different programmes which are offered in the polytechnics, Monotechnics and similar tertiary technical institutions and for which National Curricula have been developed by the Board.

Only the programmes listed against the institutions as approved/accredited are nationally recognized as ND, HND and Post HND as the case may be, as at January 2007. The effort here has been to automate these records.

CHAPTER THREE

3.0 SYSTEMS ANALYSIS AND DESIGN

3.1 Introduction

The system analysis and design stage focuses on analyzing the existing system In order to aid the designing of the proposed new system this analysis is considered necessary because the design of the new system is dependent on the information gathered at the analysis stage. As a result of the foregoing, this chapter will dwell on the description of the existing system and its associated problem as well as the logical and physical designs of the proposed system. The logical design will be considered in terms of the output format, the input format, the choice of language to be used and the description of the database files needed by the system. The physical design will specify the sources program for the achievement of the set objectives.

3.2 Feasibility Study

The objective of this project is to design a system that will enable the personal department of NBTE to manage the accreditation records of Polytechnics.

The fact finding technique used in this work were observation of work, collection of manual and interviewing. During the interview, series of questions were asked and appropriate responses were received from the people that have the necessary information about the operations of the programmes department. Procedures of works were also observed to gather the necessary information about the existing system.

3.3 Analysis of the Existing System

The existing system is manual, where files are treated and kept in a cabinet, which can be retrieved manually when the need arises. The moment a new polytechnic is approved, a record opened and all necessary information about the institution

The record contains information about the following:

- ✓ Institution name
- ✓ Polytechnic or Monotechnic
- ✓ Number of programmes approved
- ✓ Dates of: i) approval ii) initial accreditation iii) reaccreditation

The record is referred to documentation in NBTE directory. This is kept in a database from where they are retrieved for various uses. Whenever a file is to be retrieved, it is looked for in the cabinets or shelves and indexing them either by names alphabetically or departmentally does this.

3.4 Choice of Language

PHP, which stands for "PHP: Hypertext Preprocessor" is a widely-used Open Source general-purpose scripting language that is especially suited for Web development and can be embedded into HTML. Its syntax draws upon C, Java, and Perl, and is easy to learn. The main goal of the language is to allow web developers to write dynamically generated web pages quickly, but you can do much more with PHP.

The choice of this language is due to the fact that it has a great deal of power to handle database information on its own. Through the control center, the user can design database, manipulates and edit records and files, generates reports, perform data as a query, design labels and browse database.

3.5 Features of the Language Chosen

About PHP

PHP began in 1994 as a series of scripts called PHP/FI (Personal Home Page/Forms Interpreter), and it was written by a fellow named Rasmus Lerdorf to help him manage documents on his web site. Over the years, PHP grew into something more serious. In 1997, a second version of the system came out with additional functionality.

In late 1998, PHP 3.0 was released, leading to a major rewrite of the code and the involvement of two new developers Zeev Suraski and Andi Gutmans. The goal was to support progressively broader and more complex applications on the web. In early 2000, version 4.0 was released. Based on a new language engine called the

Zend Engine, this version had much better performance and increased code modularity. By late 2004, the much-evolved version 5.0 was released. It included many new features, such as new language constructs, broader web server support, sessions, and additional third-party extensions. Among the new language features was a significantly improved and expanded object-oriented programming model, which this book uses extensively. Somewhere along the way, PHP ceased to refer to "Personal Home Page" and came to mean "PHP Hypertext Preprocessor," a so-called recursive acronym. (The acronym actually forms part of the term it defines!) PHP is a remarkably productive language you can sit down and crank out (yes, that's the technical term) large amounts of code in a short period of time, and this productivity are what drew me to it some years back. With PHP, I was able to put together surprisingly robust and dynamic travelogues of my journeys to various

The one possible "fly in the ointment" is that the language can be quirky compared to other programming languages especially if you, like me, come from a background of languages more similar to C/C++, Java, or Visual BASIC. In fact, many of the things covered in this book are the result of my sitting around and scratching my head for a couple of hours. However, after you become comfortable with it, the language proves fun to write and is surprisingly powerful.

***Features of MySQL are as follows:

countries with relatively little code.

- i) It is user-friendly
- ii) It makes programming easier
- iii) Programmes and procedures can also be compiled and saved as object codes for faster execution.
- iv) It is highly flexible in file handling and manipulation.
- v) It also highly supports modular programming***.

3.6 Software Development

Overview of the MySQL Database ManagementSystem

MySQL, the most popular Open Source SQL database management system, is developed, distributed, and supported by MySQL AB. MySQL AB is a commercial company, founded by the MySQL developers. It is a second generation Open Source company that unites Open Source values and methodology with a successful business model. The MySQL Web site (http://www.mysql.com/) provides the latest information about MySQL software and MySQL AB.

General Information

• MySQL is a database management system.

A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL Server. Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities or as parts of other applications.

• MySQL is a relational database management system.

A relational database stores data in separate tables rather than putting all the data in one big storeroom. This adds speed and flexibility. The SQL part of "MySQL" stands for "Structured Query Language." SQL is the most common standardized language used to access databases and is defined by the ANSI/ISO SQL Standard. The SQL standard has been evolving since 1986 and several versions exist. In this

manual, "SQL-92" refers to the standard released in 1992, "SQL: 1999" refers to the standard released in 1999, and "SQL: 2003" refers to the current version of the standard. We use the phrase "the SQL standard" to mean the current version of the SQL Standard at any time.

• MySQL software is Open Source.

Open Source means that it is possible for anyone to use and modify the software. Anybody can download the MySQL software from the Internet and use it without paying anything. If you wish, you may study the source code and change it to suit your needs.

• The MySQL Database Server is very fast, reliable, and easy to use.

If that is what you are looking for, you should give it a try. MySQL Server also has a practical set of features developed in close cooperation with our users. You can find a performance comparison of MySQL Server with other database managers on our benchmark page MySQL Server was originally developed to handle large databases much faster than existing solutions and has been successfully used in highly demanding production environments for several years. Although under constant development, MySQL Server today offers a rich and useful set of functions. Its connectivity, speed, and security make MySQL Server highly suited for accessing databases on the Internet.

• MySQL Server works in client/server or embedded systems.

The MySQL Database Software is a client/server system that consists of a multi-threaded SQL server that supports different backends, several different client programs and libraries, administrative tools, and a wide range of application programming interfaces (APIs). We also provide MySQL Server as an embedded multi-threaded library that you can link into your application to get a smaller, faster, easier-to-manage standalone product.

• A large amount of contributed MySQL software is available.

It is very likely that your favorite application or language supports the MySQL Database Server. The official way to pronounce "MySQL" is "My Ess Que Ell" (not "my sequel"), but we don't mind if you pronounce it as "my sequel" or in some other localized way.

***Software can be defined as a programme that directs and control the activities of a computer. It serves as intermediary between the computer hardware and the computer users. This accounts for why it is believed that software enables the users to fully exploit the designed system to work on a computer is due to the requirement and ability of the software.

The proposed system requires the installation of MySQL. This is to allow for modification. This is possible because the system is developed using MySQL***.

3.7 Cost and Benefit of Analysis

Execution of any project involves running of some costs. Usually, the benefits accruable from such a project are compared with the cost to determine whether it is worthwhile. To computerize any organization, a huge capital outlay is required. Various costs are involved. The cost incurred in the course of study, the purpose of the hardware and the amount spent on training the staff are regarded as the initial take-off cost.

Benefits of the New System

- Problems of lack of storage space or insufficient space associated with the system are eliminated.
- Efficiency in data processing is enhance
- Both data duplication and redundancy are eliminated.
- It enhances accuracy of data and information.
- It prevents both accidental and deliberate destruction.

Despite the huge cost expected to be incurred, the benefits that would be derived (as stated above) are greater in the long run.

3.8 Input Specification

For computer to processes data, data needs to be entered into the system. The input specification states the source and type of data that needs to be supplied into a system. This is important because if the information supplied is correct, it usually follows that the result of the processing would also be right. This is in consonance with the popular saying in computer parlance "Garbage In Garbage Out" (GIGO). It is in line with this that at input of the proposed system is designed to produce a cost effective method aimed at achieving the highest level of accuracy and ensuring that the input is acceptable and easily understandable to the user.

For the proposed system, the data required include, name of polytechnic, name of programme, date of approval, date of initial accreditation, date of reaccreditation etc. All these are designed as input form in the proposed system. The computer will accept and store this information for each polytechnic in a database for easy access, retrieval and analysis.

CHAPTER FOUR

4.0 SOFTWARE/PROGRAMME DEVELOPMENT

4.1 Introduction

This chapter contains choice of language, the implementation of the solution to the manual system and the guide on how the new system can be effectively used.

4.2 Testing Project Feasibility

The feasibility carried out was limited to

- a) Economics feasibility
- b) Operational feasibility and
- c) Technical feasibility

a) Economics Feasibility

Management tends to give priority to feasibility than any other. The test for financial feasibility was carried out to asses cost o implementing the proposed project vis-à-vis the benefit deniable from the proposed system.

b) Operational Feasibility

This relates to the applicability of the proposed system to the operations of the organization.

The proposed system is favored by management, whereas other members of staff do not agree and would raise some criticism. New skills are required. Existing staff are to be trained or new staff hired. Planned job changes must be carefully handled so that those affected are seen to gain in away that they feel is acceptable.

c) Technical Feasibility

This clarifies if the proposed system can be done with the current equipment, existing software and available personnel. A change from manual to the new electronic system requires a computer to be installed and the qualified personnel to man the system.

4.3 Comparison between the New and the Existing Systems

a) Economy

A little sum of money is required for stationeries and hardware in the proposed system while the existing system wastes a lot of money in terms of stationeries.

b) Efficiency

The proposed system is highly efficient while the query of a computer is processed in a second, the existing system spends hours to process query.

c) Security

With the use of password, unauthorized users do not have access to information in the computer and this assist in securing the information. On the other hand, information is usually lost during movement of files and also by unauthorized user having access to files.

d) Reliability

The proposed system is more reliable in that it gives error signals and corrections are allowed immediately.

d) Duplication

The proposed system avoids data duplication, which has been very common with the existing system.

4.4 Testing Implementation

System testing is the stage of implementation which is aimed at ensuring that the system works accurately and efficiently before life operation of the system commences. At this stage, the logical and the physical design should be thoroughly and continually examined on paper to ensure that they will work when implemented. Therefore the system testing implemented should be a confirmation that the system is correct and an opportunity to show the user that the system works. The proposed system is fully tested to confirm its reliability. Specifically, a user acceptance testing was performed. This type of testing involves the users of the system in testing to confirm that the system is doing what it is designed to do.

4.5 Change over Procedure/System Conversion

The system conversion is very important activity which is sometimes underestimated. It is usually an expensive stage. In the course of this project, on the job training is provided for the clerks that would be operating the new system. Since NBTE is using manual system of operation, the computer process used in the new system is batch processing where a clerk transcribed all the data to a special input document designed for ease of data entry. Then with the aid of a keyboard, the data is transcribed to the system data file. The transcribed data is thoroughly verified before comparing the data in the old document with the data in the computer data file and if there is any difference, this signifies a mistake and appropriate modification is made.

4.6 Change-Over

This is the change from the old to the new system. It takes place when other implementation activities have been completed and the parties involved have been satisfied with the result of the new system. The change over may be achieved in a number of ways. The most common methods are: i) Direct method

- ii) Parallel
- iii) Pilot running method
- iv) Stage change over

The change over method that is used in this project is parallel running. This means current data would be processed by both old and new system to cross check the results. It tends to be difficult, expensive and sometimes impracticable since the user staff would be carrying out different clerical operations for two systems for one, but this could be out weighed since the results of the two system would be compared, thereby promoting the confidence of the management.

4.7 Starting the System

At the dot prompt of the MySQL, the user will type: do person (i.e. the name of the security program) and press "enter key." The security screen will be displayed on the monitor prompting for user name and password. If correct username and password are not supplied, the system will display the message "access denied" and will give the person opportunity of two more trials. After the third trail, a warning message "leave the system "is displayed accompanied by a beeping sound. The system will then go back to the dot prompt. If on the other hand, the username and password are

correctly given to the system, a logo. Is displayed together with the full name (NBTE) underneath. This pauses for five seconds to acquaint the use with the description of the system. At the end of the five seconds, the introductory message is cleared from the screen and the menu comes up as shown below:

4.8 Menu Structure:

| Home | About Us | Services | Add Records | View Records | Logout | Contact Us |
|------|----------|----------|-------------|--------------|--------|------------|

Fig I: Logical Structure of the main menu

The menu prompt is produced within a frame. The user highlights choice by right and left arrow (-><-) keys and activities the choice by pressing the ENTER KEY. At the bottom of the menu frame, there is appropriate message that describes the task that is being performed by any of the choices the user selected.

File Maintenance

The new system is designed modularly. That is, the program is broken down into modules. It is menu driven. It has a main menu which leads to every other sub-menu. These modules produce the menu prompt within a frame. The user highlights choices by right and left (-><-) arrow keys and activates the choice by pressing ENTER KEY. There are also pull up and pull down sub-menu connected to the main module.

There are five procedures by which the desired output id produced.

They are: ****

- ✓ Appending the record
- ✓ Editing of record
- ✓ Deleting of record
- ✓ Processing of query and
- √ Viewing of record

a) Appending of the Record

This is a process that allows the user to create, input new information into existing information. It also allows issuing of query to master and penalty data base file.

b) Editing of Record

This is the process by which a document is revised or corrected

c) Deleting of Records

This allows for the removal of records that are no longer required by the organization.

d) Processing of Query

This is where a particular record queried is treated and there is appropriate updating in master and penalty database.

e) Viewing of Records

Whenever this procedure is aimed out, it is assumed that the user has a good acquaintance with the data that has been entered. It provides the most effective way to look at the records in both master and penalty databases files by displaying the important parts of each file seven (7) records at a time.

4.9 Output Specification

Output refers to the result and information that are generated by a system. The output from a computer system are required primarily to communicate the result of processing to users or other system or more importantly, to provide a permanent (hard) copy of this result for consultation. The design of the output begins by the identification of what the output system must produce. It is a result of this that in designing the output for the proposed system, the needs of the users were considered.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter closes the research work with general summary, recommendation and final conclusion. After this the references of the materials consulted during this research work is listed then appendices of some screen shots from programme run and programme source codes

5.2 Summary

A computerized procedure cannot be put in place without going through some stages of its development. The analysis of these procedures we examined and the result was considered in the design of the proposed system.

The installation of a computerized operation is being undertaken because of the expected benefits. Most organizations that are computerized enjoy all these benefit. Added to this, is the fact the world is in the computer age and any organization that wants to be relevant in the future needs to be computerized.

It is necessary to state that an organization does not only require to be computerized, it also demands an efficient operation of the computerized procedures and this is expected to be pursued with necessary vigor. This is necessary so that the expected benefits of a computerized system will be fully maximized.

This study has produced a package that:

- Increases efficiency especially timely provision of information to management for faster decision making.
- Reduced the expenses such as cost of stationery.

This is possible because the new system eliminates duplication of operations associated with the manual system and consequently reduces cost of stationery.

Finally, it is believed that the proposed system will improve on the operations of the organization and they day to day activities of the organization would be greatly enhance based on the benefits accruable to a computerized system.

5.3 Recommendation

- i) NBTE should computerize other operations so as to fully take advantage of the benefits of computerized operations.
- ii) Existing staff should be trained through seminars and symposia to enlighten them about the use of computer. This will make them committed as it will erase the negative believe that computerized operation leads to loss of jobs.
- iii) There should be back-up to eliminate the problems associated with system failure.

5.4 Conclusion

The success of computerized operation depends on the maturity, honesty and dedication of the various staff involved. With no errors, and absence of negative motives towards fraudulent act, accuracy can be achieved. The programmes department is an important section of an organization to generate vital information promptly for decision making by management. If NBTE Computerize programmes department records; many problems of quick retrieval of information concern to institution would be solved. Incorrect statistical records of institution will be eliminated and these would be useful in other areas.

Finally NBTE should be watchful in the feeding of data into the system, because correct data leads to correct output and vice versa. That is what is referred to as garbage in garbage out (GIGO)

APPENDIX

THE PROGRAMME NAME IS PROJECT MySQL

User Manual

The user's program manual is a documentation of the records of steps and commands necessary for the users of the program (especially non skill and semi skill program users) as a guide for them to effectively use the program without any professional skill.

Accessing Sql

Like in all other software, to access SQL file, we go to the directory where SQL FILES are stored e.g. drive c:\. Then we double-click on the file. With above commands, the programme will be displayed showing welcome page, with some other command buttons and the security features for the use of the software.

RUNNING THE PROGRAMME

To run the programme means to test the workability of the programme with valid data. That is to find out if the programme performs the function expected of it according to the objective specification of the programme.

Therefore, to achieve this, after the programme has been loaded onto the computer memory, then we press f5 key or click on start menu, with that command the source programe's set of instruction and command will be transformed into objective program by the programming language editor. The objective program is the executable language format that computer can understand and execute. However, after the execution of source program's instructions and syntax the objective program will be transformed into the format that is understandable by the program user. Hence the main menu will be displayed with menu option number for further selection.

Users Interface

The program is a graphical designed one and the menu of the program is self explanatory. Therefore, the use of the program can select any of the menu option by typing the user password, to indicate that the user has a legal access to the program.

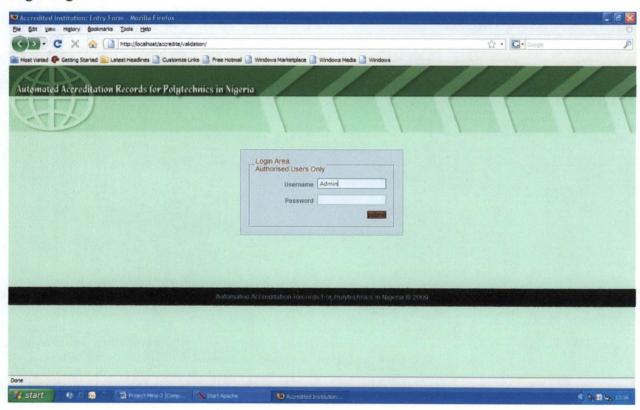
However, since the user has been granted access to the program, user only needs to respond to the messages of the program with his own data as these messages appear on the screen under each menu.

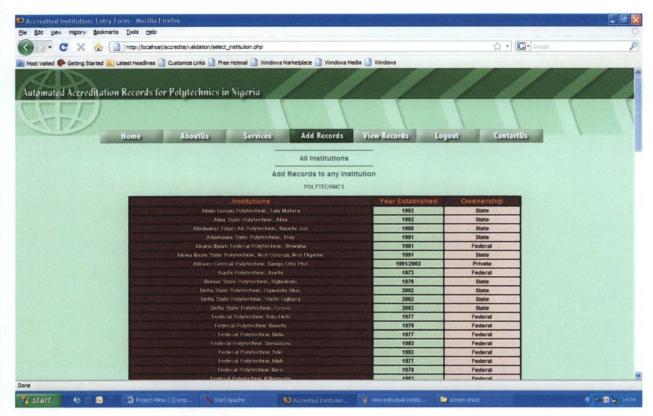
Saving of the Program

It is always necessary to save back the program after we might have finished using it.

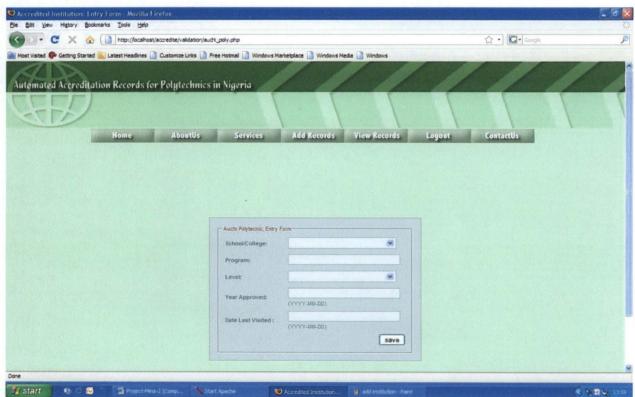
SCREEN SHOTS FROM PROGRAM

Login Page:

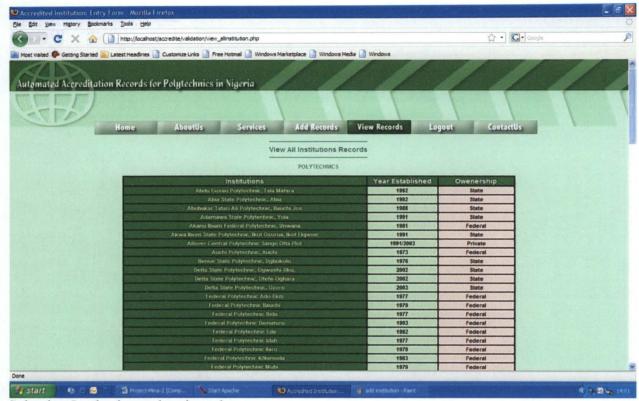




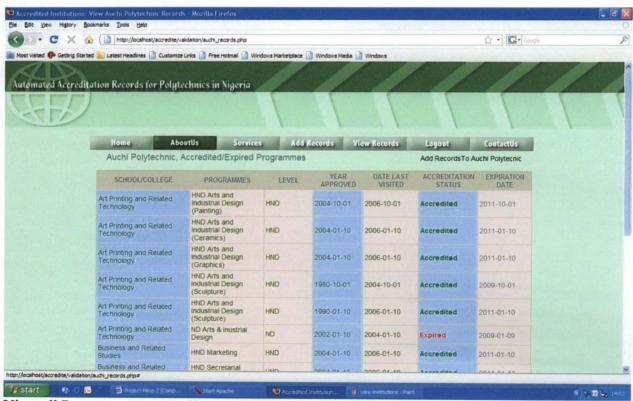
Add New institution:



Adding Records to institution:



Selecting Institution to be viewed:



View all Programs Approved/Accredited/Expired

Source Codes

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<a href="http://www.w3.org/1999/xhtml">
<head>
   <title>Accredited Institution: Entry Form</title>
   <script src="js/mootools.js"></script>
  <script type="text/javascript">
     window.addEvent('domready', function(){
            $('registerForm').addEvent('submit', function(e) {
              new Event(e).stop();
               var log = $('log_res').empty().addClass('ajax-loading');
                 update: log.
                 onComplete: function() {
                   log.removeClass('ajax-loading');
          1);
  </script>
<?php $today = date("Y-m-d");?>
<script language="javascript" src="cal2.js"></script>
<script language="javascript" src="cal_conf2.js"></script>
   <style type="text/css">
     body {
  font:0.7em Arial, helvetica, sens-serif;
  color:#567475;
  background-image: url(../image/bg.jpg);
  background-repeat: repeat-x;
  margin-left: 0px;
  margin-top: 120px;
  margin-right: 0px;
  margin-bottom: 0px;
  background-color: #FFFF99;
       border: 1px solid #99b3b4;
       width: 220px;
       background: #e4ebeb;
       font: 11px verdana, sans-serif;
       color:#443;
       padding:3px;
       margin-bottom:4px;
       outline:none;
     input:focus {
       border:1px solid #567475;
       background: #e4ebeb;
     .date {
       border: 1px solid #99b3b4;
       width: 110px;
       background: #cccc99;
       font: 11px verdana, sans-serif;
       color:#443;
       padding:3px;
       margin-bottom:4px;
       outline:none;
     date:focus {
       border: 1px solid #567475;
       background: #66ffcc;
       color:#000000;
```

```
.submit-btn {
      width: 54px;
      height: 20px;
      background: #743 url(http://www.roscripts.com/images/submit.gif) no-repeat;
      outline: none;
     .submit-btn:hover {
      background: #069 url(http://www.roscripts.com/images/submit.gif) no-repeat 0 -20px;
    div#container {
      border:1px solid #99b3b4;
      padding:15px;
      margin:auto;
      width:400px;
      background:#C5D8D8;
    #log_res {
      height:auto;
      padding:15px;
      margin:100px auto 20px auto;
      width:400px;
    #log_res p {
      margin:0;
      padding:4px 0 4px 0;
    #log_res.ajax-loading
      {background: url(http://www.roscripts.com/images/spinner.gif) no-repeat center;
    .error {
      color:red;
      margin:0;
      padding:0;
    text-decoration:none;
    color:#ffffcc;
    a:hover
      color:#99CCCC;
      padding:0px;
  #footer
    padding:10px;
    margin:108px auto;
    margin-bottom: 0px;
    background-color:#cdd0ff;
    color:#993300;
 #menu {
    width:100%;
    font-size:1.2em;
    background-color:#000000;
    margin-top:15px;
    padding:3px;
    float:center;
 body,td,th {
          font-family: Geneva, Arial, Helvetica, sans-serif;
          font-size: 14px;
.style1 {font-size: 12px}
  .style2 {
          font-size: 10px;
```

```
font-weight: bold;
<ur>div id='menu' align='left'> | <a href='#'> Home </a>| <a href='#'> AboutUs</a></a></a></a></a>
  | <a href='#'>Services</a> |
               <a href=\#'>Portfolio</a> |
               <a href='#'> Gallery</a> |
               <a href="login.php">Logout</a>
               <a href='#'> ContactUs</a> |
             </div>
       <div id="log">
        <div id="log_res">
<!-- SPANNER -->
        </div>
       </div>

<
        #993300">Complete This Form /font>
           gend><tont color= #995500 >Complete this roun \text{\text{folit}} \text{\text{regend}} 
             <div align="left"><strong>
             </strong></div>
               <input name="institution" type="text" class="input" id="institution" value="" size="32" /></div>
              string">
              <div align="left" class="style2">
               <LABEL for="programmes"><span class="style1">Program:</span></LABEL>
               </div>
                <input name="programmes" class="input" type="text" id="programmes" value="" size="32" /></div>
               "left">
               <div align="left" class="style1"><strong>
               <LABEL for="programmes">Program:</LABEL>
               </strong></div>
</dr>
<div>
</dr>
                                              <select name="level" class="input" id="level">
                                              <option value=""></option>
                                              <option value="pre_nd">Pre-ND</option>
                                               <option value="nd">ND</option>
                                               <option value="hnd">HND</option>
                                               <option value="p-hnd">P-HND</option>
                                               </select>
                                               </div>
               <div align="left"><strong>
                <LABEL for="year_approved"><span class="style1">Year Approved:</span></LABEL>
                </strong></div>
                ="left">
                <input name="year_approved" class="input" type="text" id="year_approved" value="" size="32" />
                </div>
                <div align="left"><strong>
```

```
font-size: 14px;
         font-weight: bold;
 </style>
 meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1"></HEAD>
 table align="center" id="menu">
 >
    <div id='menu' align='left'> | <a href='#'> Home </a>| <a href='#'> AboutUs</a>
             | <a href='#'>Services</a> |

<a href='#'>Portfolio</a> |
             <a href='#'> Gallery</a> |
             <div align="center" class="style1">All Institutions Programmmes Accredited/Approved or Expired</div>
<strong><br>
<? echo "$contact_list"; ?></strong><br>
<a href="index.php">Return to Main Menu</a>
<div id="footer" align="center">Automated Accreditation Records For Polytechnics in Nigeria &copy; 2009</div>
</BODY>
</HTML>
```