**STUDENT ACADEMIC INFORMATION SYSTEM; AN INTRODUCTION TO RELATIONAL DATABASE AND HTTP SERVER**

**By**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF BACHELOR OF SCIENCE (BSC) IN COMPUTER SCIENCE.**

**OCTOBER, 2011**

**----------------------------------------------------------------------------------------------------------------**

**Certification**

This is to certify that this project research “Academic Information System; an introduction to Relational Database and HTTP Server” was carried out by “UKELERE WINNEFRED” with the matriculation number 2009HDM/2764/CS.

UKELERE WINNEFRED 6th October, 2013

(Student) Date

**Approval**

This project is approved by the Department of Computer Science, Michael Okpara University of Agriculture, Umudike as having met the requirement for the award of BSc..

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

REV.DR (ENGR.) F.O. OKAFOR Date

(Project Supervisor)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

REV. DR (ENGR.) F.O. OKAFOR Date

(Head Of Department)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

External Examiner Date

----------------------------------------------------------------------------------------------

**Dedication**

This project research is dedicated to God Almighty for his infinite goodness and mercy upon my life and to my parents Godfrey O and Mrs. Godfrey O.

-------------------------------------------------------------------------------------

**Acknowledgment**

The successful completion of this work of thinking, researching and writing would not have been possible without the infinite mercies of God Almighty. To Him be all the glory.

I also acknowledge my able supervisor REV. DR (ENGR.) F.O. OKAFOR for his encouragements and advise towards the achievement of this work. My thanks are also due to the Head Department of computer science REV. DR (ENGR.) F.O. OKAFOR for his fatherly advice and also to all lecturers of computer science department.

Finally, I thank all my friends and well wishers for their encouragement and support towards achieving this work. May God in his infinite goodness reward you abundantly. I say thank you very much.

**Table Of Content**

Title page i

Certification ii

Approval iii

Dedication iv

Acknowledgment v

Abstract vi

Table of Content vii

List of Tables viii

List Of Figures ix

**CHAPTER ONE: INTRODUCTION**

1.0Introduction 1

1.1 Statement of The Problem 2

1.2 Objective of The Study 3

1.3 Significance of The Study 4

1.4 Scope And Limitation of the Study 5

1.5 Background of The Study 5

**CHAPTER TWO: LITERATURE REVIEW**

2.0 Literature Review 7

2.1 Data And Information 11

2.2 Data Model 15

2.3 Data Relation And Keys 16

2.4 Entry and Integrity Constraints 17

2.5 Database Normalization 17

**CHAPTER THREE**

**RESEARCH METHODOLOGY, SYSTEM ANALYSIS AND INVESTIGATION**

1. Research Methodology 23

3.1 Method Of Data Collection 23

3.2. Method Of Data Analysis 24

3.3 System Investigation 24

3.4 Data Analysis 25

3.5 Result Of Analysis And Interpretation 27

3.6 System Analysis 27

3.7 Problems Of The Existing System 28

3.8 Proposal of a New System 28

3.9 Benefits Of The New System 28

**CHAPTER FOUR: SYSTEM DESIGN AND IMPLEMENTATION**

4.0 System Design 30

4.1 File Design/System Flow Chart 32

4.2 Input, Process And Output Form Design & Specification 33

4.3 System Requirement 35

4.4. System Implementation 36

4.5 Programming Language and Program Design 37

4.6. Program Testing and Debugging 37

4.7 Staff Training 39

4.8 Changeover Procedure 40

4.9 System Evaluation and Maintenance 41

4.10 Documentation 42

**CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION**

5.0 Summary 44

5.1 Conclusion 44

5.2 Recommendation 45

5.3 Areas For Further Studies 45

Reference

Appendix

**List Of Tables**

Table 3.1 Mode of Operation 25

Table 3.2 Efficiency Of The Mode 25

Table 3.3 Awareness of Relational Database 26

Table 3.4 Anticipated Benefits RD-HTTP Server 26

Table 4.1 Database Implementation 32

**List Of Figures**

Fig. 2.1 Hierarchical Model 11

Fig. 2.2 Network Database Model 13

Fig. 2.3 Many to Many Relationship Model 14

Fig. 4.1 Dataflow Layout 31

Fig. 4.2 Simple HTML Form (Input) 34

Fig. 4.3 Simple HTML Form (Output) 35

Fig. 4.4 Open Source LOGOS 36

**Abstract**

This research study has developed an introduction to Academic Information System to relational Database and HTTP server. In considering the design of a web-driven relational Database Management System, it is obvious that RDBMS success to a very large extent depends on the level of data structure. While structure itself depends on the level of reliability, which can be achieved through the kind of tables and web interface to be rendered and the requirements needed. It is my convention that a closer look at this project work give insight and vital information to any interested person who wish to know the requirement for developing a HTTP and a relational database management system server to effectively implement an academic information system design has demonstrated its HTML web pages integration via PHP programming by demystifying and defining what it takes to implement an Apache HTTP server, a MYSQL relational Database Management system and a PHP scripting engine.**CHAPTER ONE: INTRODUCTION**

1. **Introduction**

There is an outgrowing need for electronic accessories in a world where there is great necessity speed efficiency and perfection of work. Information factor of efficiency access to electronic devices and relevant information is usually considered in the setting up of a relational database for a local network. Intranet that is a private network set up by an organization or company that reassemble the www (World wide Web) but which is not accessible by external users.

The internet has revolutionized the computer and communications world like nothing before the invention of the telegraph, telephone, radio and computer set. The stage for this unprecedented integration of capability. The intranet is at once a location based broadcasting capability, a mechanism for information dissemination, and a medium for collaboration and interaction between individuals and their computers without regards for extensive location.

Now, the internet represents one of the most successful examples of the benefits of sustained investment and commitment to research and development of information infrastructure. Starting with the early stage of research in packet switching, the government, industry and academic have been partners in evolving and developing the existing new technology. Terms like “http//:www.abiapolyportal.org,http//:www.goggle.com,www.yabatech.edu.ng’’ trip off the wings of the random person on the street. Information handling has gone beyond papers and is now at the direction of the PC. Thus, this project is a conceivable effort to ameliorate the pressing need for a more web-centric environment, although its primary focus is not on website design, yet, it is not inevitable since the emergence of the internet and its accompanying protocols. Web use has become more strong in use and so developing web application is a promising way of reaching great audience. Web use is not limited to the internet but virtually any application that can interface and communicate its web protocols intranet.

With the proposed design, staff, students and any authorized persons can get all the available information from the polytechnic internet integrated database. They can get their syllabus, academic calendar and results, register courses etc.

Furthermore, to brighten or bring out efficient and effective administration of academic information system like students results, academic calendar, syllabus, register course etc.

It will also help in making the processing of information as well as feedback more faster and also give focus to institution of higher learning on the facilities obtained in the use of modern system of communication.

Also, the aim of this project is to give a rough and ready introduction to database and its integration with http server. Before the specifics and theoretical as we focus on some of the more generic aspect of this study.

**1.1 Statement Of The Problem**

The problem that gave rise to this study system from the continuos use of manual methods of dispensing academic details in the institution. The core is the information management. As the adage says “if you are not informed, you are deformed and he who is deformed cannot perform”. It will not be an exaggerated statement if I say that graduates from Nigeria institution are deformed because they are not being well informed due to inadequate information acquisition facilities. It can be seen that information is not only important in this stage but also the methods of accessibility.

According to Powell (2005), “Lack of information breeds analysis paralysis”. Without adequate information on any subject matter, it would be difficult to handle.

To eradicate this to its optimum, a robust database and web server should be implemented where the information can be shared easily among the students and also being kept so that it can be retrieved at anytime by anybody who is in need of it. Again, it will make the information remain authentic without adding or removing anything.

The problems of the study are:

1. The problem of being deformed in the society
2. The problem of keeping untidy records.
3. Using of manual and archaic system in processing data.
4. To determine ways which information can process a large volume of data such as academic tedious and detail and repetitive denial work done with manual method in some information.
5. method of accessibility.
6. The problem of managing information thereby accessing it to make something out of it.
   1. **Objective Of The Study**

The new system will bring about efficient and effective academic information system. The concise documentation of students and staff details will tremendously improve its timely decision support.

The project would also go a long way in fostering good perception of the information age in our various institutions and individual organization thereby breaking the ugly bone of continuous use of manual and archaic systems. It fosters on the in-depth, principles, rules and protocols of coding, scripting and hosting of database driven web pages. It will also help in making the processing of information as well as in the sport feedback faster, enlighten our young database developers and provide for them a springboard. It also stirs and gives focus to our institutions of higher learning on the facilities obtained in the use of modern system of communication.

In order to produce a more classified knowledge of the subject matter, the researcher intends to;

1. To describe the tools required to design and implement a functional Apache HTTP web, HTTP web server and MYSQL relational database server for the institution through HTML communication.
2. To develop the system and procedure for the college is to ensure that end-users are provided with equisetic tools and data that are cost effective and easily accessible.
   1. **Significance Of The Study**

This research work critically explores the possible ways of making clear of the mystery behind database and related technologies, web hosting services, protocols and of course design and encourages young programmers to join the race without feeling interims to their counterparts in the development parts of the world.

Without shifting this focus to website design, we might still be in darkness for the next twenty years and by then a new inventions might be made which can sentence us into another one thousand years of dark ages.

The study will go a long way to cutting down on time wastage, inefficient use of statistical data, manual errors and duplication of efforts by both staff and academic personnel. It will also enhance efficient query and inquiring, ensure security of records and assist the college in coping with the daily work based.

Designing a database driven website for an educational institution entails more of data collection than traditional programming. Nevertheless, the outcomes and benefits of a well planned website cannot be emphasized. Although many factors contribute to an effective website, yet there are so many that one could not but think of them all. The internet with all its functionality has indeed changed the way people live and interact politically, socially, economically and otherwise the internet as with database combines audio, video and texture contents while eliminating time and space of traditional media.

This has enable website an interactive media when integrated with a database making it a cost effective one on one educational tool. Thus, if Yaba College of Technology and its contemporaries should utilize this honeycomb, literacy in Africa as a whole would wear a glorious crown.

To this end, the researcher suggests the following recommendations;

1. Implementing a database local website for Yaba College of Technology, Yaba not only enhances management communication but also accomplished effective resources utilization in terms of information sharing and decision making. It is therefore recommended that ecudational institution, Yaba College of Technology, Yaba inclusive adopt an interactive institution system. This proposal is 70% achievable considering the already existing equipment which only required little manpower .
2. This implementation will also allow for staff, student and management interaction through live survey charts forms and e-mails. While helping to improve the knowledge and understanding of the institutional needs and interests.
3. Undoubtedly, a well incorporated webbed database for Yaba College of Technology Yaba would improve the customer support service by saving money and time while expanding on its educational distribution.
   1. **Scope And Limitation Of The Study**

Data not withstanding of its size cannot be too large to process. However, a guided approach is adopted to stay within limits for easy comprehension.

To end this, the study will focus on the student together with its accompanying web interface, students registration details and academic results. In its most common form, the wide application of computers in accessing remote files make way for adoption of more superior ays of making information available to the millions of users. And it also exposes the researcher to the core about the difficulties of database programming for the web, an all-round technology but because of the following constraints, the study may not be completed. They include;

* Time constraints and finance
* The college does not have enough necessary software and extended network of computers.
* It lacked the projected operational hardware
* Unavailability of power supply to test and implement the developed work.
  1. **Background Of The study**

The case study I used is Yaba College of Technology, Yaba, the cradle of higher education in Nigeria located at Yaba. It was chosen as the case study because of its inadequate of information and untidy data or ineffective and inefficient of academic information system.

Yaba college of Technology, Yaba was established in 1947 as an immediate successor to Yaba Higher College. It attained autonomous status in 1969 by virtue of Degree 23 which granted it the mandate provide full time and part-time courses of instruction and training in technology, applied science, commerce and management and in such other fields of applied learning relevant to the needs of the development of Nigeria in the areas of industrial and agricultural production and distribution; and for research in the development and adaptation of techniques.

Yaba College of technology is structured into eight schools and thiry four academic departments with a total of sixty four accredited programs which cut across the ND, HND and POST-HND levels. The college also offers certificate courses.

YABATECH as the college is popularly called also offers B.Sc(Ed) courses in technical and vocational education and Post Graduate Diploma in engineering. The two programmes are run in conjuction with the University of Nigeria, Nsukka and federal University of Technology, Akure respectively. The present student population is about 15,000 while the total staff strength is about 1,600.

Furthermore, the institution has other decisions that run non-academic activities and they include

Works

Bursary

Registry

Medical Services

Student Affairs Division

And all these division in the institution are headed by Deans or Directors as the case maybe while the various departments are headed by the Head of Department. (H.O.D).

**CHAPTER TWO: LITERATURE REVIEW**

1. **Review Of Related Literature**

According to Engr. P. D Joseph (2006) said that there was a time in the primitive and barbarian days before computer, the amount of information shepherded by a group of people could be collected in the wisdom and the stories of its older members. In this world story tellers, magicians and grandparents were considered a great and honoured storehouse for all that was known.

It gets to a stage when the data are too much to be managed in the minds of the elders. And so in order to store all the new information, humanity invented the technology of writing and then great scholars like Aristotle warned that the invention of the alphabet would lead to the subtle but total demise of the creativity and sensibility of humanity, data began to be stored in voluminous data repositories called books. As we know, eventually books capsulated with great speed and soon whole communities of books migrated to the first real “database” libraries. Unlike previous versions of data warehouses (i.e People and books) that might be considered the australopitheaic of the database lineage, libaries crossed over into the modern day species, though they were incredibly primitive of course over into libraries introduced.

“Standards” by which data could be stored and retrieved. Afterall, without standard for accessing data, libraries will be like closet, endless and engulfing swams of chaos, books and the data within books, had to be quickly accessible by anyone , if they were to be useful.

According to Brenden (2005), the useful of a library or any base of data is proportional to its data storage and retrieval efficiency. This one corollary would drive the evolution of database over the next 2000 years to its current state.

Thus, early libraries defined standardized filing and retrieval protocols, perharps, if you could visit the college library, you will see its cute little indexing system (card catalog) and pointers (dewy decimal system) and more complex that simple libraries grew and grew along with associated storage /retrieval technologies such as the filing cabinate, coloured tabs and three ring binders. The computer was born almost instantly and was applied to the age old problem of information storage and retrieval. After all, World War II, information was already accumulating all rates beyond the space available in publicly supported libaries. Beside, it seemed somehow cheap and tawdry to store the entire archives of the “The Three” in the library congress. Information was sweeping out of every crack and pore of modern society.

The first attempt at information storage and retrieval followed traditional lives and metaphors. The first system were based on descrete files in a vitual library. In this file oriented system, a bunch of files would be stored on a computer and could be accessed by a computer operator. Files of achieved data were called table “ because they looked like record and colum in the data.The archival data were called tables because they look like tables used in traditional file keeping, rows in the table were called “Record and coulumns were called “Field”.

Adopted from Nwosu and Dimoji (2005) says that “flat” system was a start and however was seriously ineffeicient essential, in order to find a record. Now, a record can be defined as a collection of related fields.

Fields- is a group of collected characters and

Data – can be defined as any number, letter or symbols which are fed into the computer as raw material for processing.

Meanwhile Dimoji (2006) “Introduction to Cobol Programming” says that data can be seen in the aspect of every business in spite of the size and purpose is concerned with processing facts or data about its operations in order to provide current, and accurate information to management.

Decision in college are based on data such as students result, inventory level and other quantities factors. Data are also facts, events, transactions and so on. It is only after these data have been examined; compared, classified and summarized do they become usuable information. Someone would have to read through the entire file and hope it was not the last record, with a hundred thousands records you can imagine the delemus. What was needed are computer scientists and according to Dimoji and Okafor (2005) defined computer as an “electronic device which accepts data as “input”, store them as “storage”, process them as “processor” decoding to precise or logical instruction as “program” to produce a fast and accurate result “information” as the output.

Database, since its conception in the 60’s were created to solve the problems with file oriented system in that they were compact, fast easy to use, current, accurate, allows the easy sharing of data between multiple users and well secured.

Date (1990), in the mid 70’s. computer database as we know them today were in their infancy around 1970 a research called “ted codd” had developed the “relational data model” which has become the foundation stone of modern database technology. In the mid-70’s however, computer database particularly in the hands of end users were not a common thing. It wasn’t until the beginning of the 80’s, with the development of dBase II (there was no dBase riddled with bugs) dBase put enormous powers into the hand of micro computer developers and to remain the permanent detail also program until the advent of windows 3.x with windows 3 versions came a new breed of PC database designd to be much easier to use than their DOS-based predecessors.

These days when you talk about database in the wild, you are primarily talking about two types which include the

1. Analytical database
2. Operational database

Operational database (a.k.a OLTP (On-line transaction processing), on the other hand are used to manage more dynamic bits of data. These types of database allow you to modify that way of adding, changing or deleting data.

These type of database are usually used to track real-time information for example, a financial company might have an operational database used to track cash transactions that is as customers make payment from an online store an operational database can be used to keep tracks of how much cash is left and the customers draw his credit line.

According to Date C.J (2003) “ fundamental of database system”, says that a database might be as complex and demanding as an account tracking system used by a bank to manage the constantly changing accounts of thousands of bank customers, or it could be as simple as a collection of student registration number with matching departments. The important thing is that database allows you to store data and get it or modify it when you need to easily and effectively regardless of the amount of data being manipulated. What the data is and how demanding you will be when retrieving and modifying that data is simple a matter of scale.

Traditionally, database ran on large powerful mainframes for business applications. You will probably have head of such packages as oracle 10g or Microsoft SQL server, for exemple. However, with the advent of small powerful personal computer database have become readily usable by the average computer user. MySQL open source Microsoft access and Borland’s Dbase proprietary are a few popular PC-based engines around. More importantly for our focus, database have quickly become integrated to the design, development and service offered by websites.

Veen (2001) “The Art and Science of Web Design”, says that webpages are generated dynamically by queuing the list of available products in the inventory against some search parameters. The dynamically generated page will display the information about each item such as title, author, ISBN, price that is stored in the database.

Now, what is Data Model? It is a way of structuring CPU. Dimoji (2007) in his note says that well, essentially a data model is a “description” of both contain for data and a methodology for storing and a retrieval of data from that container. You cannot realy touch a data model. But nevertheless, they are very useful. The analysis and design of the data model has been the concern of the evaluation of database. As model has advanced so has database efficiency. Before the 1980’s the three most commonly used database model were the hierarchical network system and relational database model.

As it implies, the hierarchical database model define hierarchical arranged data. Perhaps the most intuitive way to visualize this type of relationship is by visualizing an upside down tree of data. In this tree, a single table acts the “roof” of the database from which other tables “branch” out. You will be instantly familiar with this relationship because that is how all windows is based directory management systems like window explorer works. Relationship in such a system are thought of in terms of children and parents such that a child may only have one parent but a parent can have multiple children. Parents and children are fed together by links called “pointers” (perhaps physical addresses inside the file system). A parent will have a list of point to each of their children.

Example:

COURSE ID

COURSE NAME

DEPARTMENT

PROCESSOR

ID

NAME

ADDRESS

PHONE

ASSIGN 1

NAME

ADDRESS

PHONE

Course

Student grade

Fig. 2.1 Hierarchical Model

This child/parent rule assures that data is systematically accessible to get to a law level table, you start at the root and work your way down through the tree until you reach your target of course, as you might imagine one problem with this system is that the user must know how the tree is structured in order to find anything in the hierarchical model.

However, it is more efficient than the flat file model because there is not as much need for redundant data. If the change in the data is necessary, the change might only need to be processed once.

**2.1 Data And Information**

Ugorji (2006), Dimoji (2005) and Okafor (2009) are at the view that data and information are terms people use interchangeably in everyday speech, but they mean different thing. Data are facts such as a Name, a Number etc while the term information is simply a processed data, that is when data is converted into a more useful or intelligent form.

A data item e.g.(the data 28/06/2011) means title, when you associate the data item such as deadline and a subject, you can create information. Example, the deadline for your next project might be 28/06/2011. you store data in a database, you retrieve information from the database. One cornerstone of data design and data normalization is that data organization for storage differs from the information most people want to see. Example: a manager of a sporting goods supply company might want to see for one scale who the customer was, the destination of the order, the billing address, the contact phone number, the placement time of the order, the order’s shipping destination when and how delivery occurred, what article the order included and which of the company’s database differs from the particular information the maneger wants.

However, as you can imagine the hierarchical database model has some serious problem for one, you cannot add record to a child table until it has already been incorporated into the parent table. This might be troublesome if, for example you wanted to add a student to who had not yet signed up for any course. Yet the hierarchical database model still create repetition of data within the database. You might imagine that in the database system shown above, there may be a higher level that includes multiple courses. In this case, there could be redundancy because students would be enrolled in several courses and thus each “courses tree” would have redundant student information.

Redundancy would occur because hierarchical database handle one to many relationship well but do not handle many relationships well. This is because a child may only have one parent. However, in many cases, you will want to have the child to be related to more than one parent for instance the relationship between student and class is a “many-to-many” not only can a student take many subjects but many students may also take a subjects. How would you made this relationship simple and efficiently using a hierarchical database? The answer is that you wouldn’t.

Though, this problem can be solved with multiple databases creating logical links between children. The fix is very clogged and awkward faced with these serious problems. The network model was conceived in many ways “the network database model was designed to solve some of the serious problems with the hierarchical database model. Specifically the network model solves the problem of data redundancy by representing relationships in terms of sets rather than hierarchy.

Navie

User

Application

Programmers

Sophisticated users

Database

Administrator

Application

interface

Application

Program

Query

Database

Administrator

DML

Pre compiler

Query

Processor

DD compiler

Application Program Object code

Database Manager

File Manager

Data file disk storage

Data

Dictionary

Fig. 2.2 Network Database Model

The model had its origin in the conference on Database System Language (CODASYL), which had its origin in the Database task group to explore and design a model which is similar to the hierarchical model. The network model is very similar to the hierarchical model actually. In fact, the hierarchical model is a subject of the network model. However, instead of using a single parent tree hierarchy.

The network model uses set theory to provide a tree, like hierarchy with the exception that child table were allowed to have more then one parent. This allows the network model to support many-to-many relationships. Visually, a network database model looks like a hierarchy database is that you can see a type of tree. However, in the case of a network database look is several tree which share branches. Thus, child can have multiple parents and as well have multiple children

Lowery

Shiver

Maple

North

Queens

Bronx

Hoelges

Side hill

Brooklyn

900

55

556

1000000

801

10533

647

105366

Fig. 2.3 Many to Many Relationship Model

Nevertheless, though it was a dramatic improvement, the network model was far from perfect most profoundly, the model was difficult to implement and maintain. Most implementation of the work model was used by computer programmers rather than real users. What was needed was a simple model that could be used by real end users to solve real problems.

Of course in the 80’s the “Relational Database model” became the range. The relational model developed out of the work done by Dr. E. F Codd at IBM in the late 1960’s who is looking for ways to solve the problems with the exiting models. Because he was a mathematician , he naturally built the model on mathematical for large share database.

At the core of the relational model is the concept of a table (also called a relation) in which all data is stored. Each table is made up of records (horizontal rows also known as tuples) and field (vertical columns also known as attributes). It is important to note that how or where the table of data are stored make no different, each table can be identified by a unique name and that name can be used by the database to find the table behind the scene.

As a user, all you need to know is the table name in order to use it. You do not need to worry about the complexities of how the data is being stored on the hard drive. This is quite a bite different from the hierarchical and network models in which the user had to have an understanding of how the data were structured within the database in order to retrieve, insert, update or delete records from the database.

So how does one find data in a relational database if there is no map to follow? Well in the relational model, operations that manipulate data do so on the basis of the data values themselves, thus if one which to retrieve a row from a table for example, one could do so by comparing the values stored within a particular column for that row to some search criteria for example, “give me all the rows from the “STUDENTs’ table which have “OKORO” in the FIRST NAME” “column” the database might return list which looks exactly like this.

Table 2.1

|  |  |  |  |
| --- | --- | --- | --- |
| OKORO | Igwe | SID-001 | 2135 |
| OKORO | Deborah | SID-268 | 818-934-50 |
| OKORO | Chinwendu | SID-991 | 310-234-64 |

One could also use the data from a retrieval row to querry another table. For example want to know what grade OKORO Deborah received in Operation Research 421. in this case, the student ID Number from the previous query is used as the keyword in the next query. This the query could be “ I want the row in the operation research 421. course table were student ID equals “SID 001 “.

This data access methodology makes the relational model, a lot different from and better than the earlier database model because it is a much simple model to understand. This is probably the remaining season for the population of relational database systems today. Another benefit of the relational system is that, it provide extremely useful tools for database administration. Essentially, table cannot only store actual data but they can also be used as the table means for generating meta-data (data about the table and field names which form the database structure, access rights to be database, integrity and data validation rules etc.

* 1. **Database Model**

According to Navethe S. (2006) “Fundamental at Database system” says that everything within the model can be stored in tables this means that to provide information about the data. In other words, a user can query information concerning table, names, access right or some data and the results of these queries would then be presented to the user in the form of a table.

However, there are many types of database and all of them will be useful for web applications. In particular it will be the client/server database rather than the stand-alone packages that will be adopted for the web.

A client server database works like this: a database server is left running 24 hours everyday. Thus, the server can handle database request at any hour. Database request come in form of “clients” who access the database through its command line interface or by connecting to a database socket. Requests are handled as they come in and multiple request can be handle at one time.

For network application that must be available for world wide time zone usage, it is essential to build upon a client-server database, which can run all the time.

* 1. **Data Relation And Keys**

Ugorji (2009) defined relation as a set of tuples and that by definition, all the elements of a set distinct: hence all tuples in a relation must also be distinct. This means that no two tuples have the same combination of values for all values for all their attributes.

Any set of attributes of a relation schema is called a “Super key” relation has at least one super key: the set of all its attributes. A key is a minimal super key i.e. a super key from which we cannot remove any attribute and still have the uniqueness constraints hold.

In general a relation schema may have more than one key. In this case, each of the keys is called a candidate key as the primary key of the relation. A foreign key is a key in a relation R but it is not a key, rather just an attribute in other relation R’ of the same schema simple put its primary key in order table.

* 1. **Entity and Integrity Constraints**

As quoted from Codd’s definition of entity integrity (2005) “No component of primary key is allowed to have a missing value of any type”. The notation of entity arises from the choice of a primary key while reverential integrity arises from the choice of foreign keys. In a relational database, a primary key is a set of attributes designed by the user, is satisfied in a relation, if each tuple in the relation is uniquely identified by the primary key values. In addition, the primary key must be minimal set of attributes for which this uniqueness properly holds.

This is because the primary key value is used to identify individual tuple in a relation, having null values for the primary implies that some tuples cannot be identified. This referential integrity constrains is used to maintain the consistency among tuples of relations.

Informally, the referential integrity constrains states that a turple in one relation that refer to another relation must refer to an existing tuple in that relation on the other hand a prime attribute of a relation R is an attribute of a relation schema R, if it is a member of key in the relation R. Consequately, a non prime is an attribute if it is not a member of any candidate key.

In addition a functional dependency denoted by X,Y between two set of attribute X and Y that are subset of R specifies a constraint on the possible turple that can form a relation instance of R.

* 1. **Database Normalization**

According to Elmasri and Navatue (2004), the normalization process as first proposed by Codd (1972) takes a relative schema through serial tests to certify whether or not to belong in a certain form (NF). Initially, Codd proposed three normal forms which he called 1st, 2nd, and 3rd normal form. The definition of the 3NF was proposed later by Boyce and Codd and is known as Boyce Codd normal form (BCNF). All these normal forms are based on the functional dependencies among the attributes of a relation. Later, a forum normal form (4NF) and the fifth normal form (5NF) was proposed, based on the concept or multi-valued dependencies and join dependencies respectively.

Normalization of data can be looked on as a process of organizing data in a database or processes during which unsatisfactory relation schema are decomposed by breaking their attributes into smaller relation scheme that process desirable properties. One objective of the normalization process is to improve flexibility and to ensure that redundancy and inconsistent dependency anomalies do not occur.

Normal forms provide database design with :

1. A formal framework for analyzing relation schema as based on their keys and on the functional dependencies among their attributes.
2. A series of fast that can be carried out on individual relation schema. So that the relational database can be normalized to any degree. When a test fails, the relation that individual meets the normalization test as outlined below:

FIRST NORMAL FORM

A relation is in first normal form (INF) if and only if all underlying simply domains contain atomic values only. Atomic data is a form of uniminalism for data item. A data item is atomic if only one item is in each cell of a table. Thus INF tends to

i. Eliminate repeating groups in individual tables.

ii. Creat a separate table for each set of related data.

iii. Identify each setoff relation data with a primary key.

SECOND NORMAL FORM

A relation is in second normal form (2NF) if and only if it is in INF and every one-key attribute its fully dependent on the primary key. Where the INF deals with redundancy of data across a horizontal row. 2NF deals with redundancy of data in vertical columns. Thus 2NF tends to :

i. create separate table for set values that apply to multiply records.

ii. Relate these table with a foreign key

THIRD NORNAL FORM

A relation in third normal form (3NF) if and only if it is 2NF and every non-key attributes is non transitively dependent on the primary key. Eliminate fields that do not depend on the key.

CODD BOYCE NORMAL FORM

A relation is in boyce-codded normal form(BCNF) if and only if determinate is a candidate key.A determinate is any attribute on which some attribute is (full) functional dependent.

FOURTH NORMAL FORM

A relation is in fourth normal form (4NF) if and only if whenever there exist multiple dependencies in the relation. Thus, this form prohibits independent multi value components of the key, for example, if an employee can have many skills and many dependents, you would move the skills and dependents to separate tables, as they are not related in any way.

FIFTH NORMAL FORM

A relation R is in fifth Normal Form (5NF) or protection Join Normal Form (PJNF) if and only if every join dependency in R is a consequence of the candidate keys of it basically, it advocates that you continue splitting the structure down until either two states exists that you’ve split so far that the resulting tables could not be joined to reconstruct the original further splitting would re retrieval.

DOMAIN KEY NORMAL FORMs

This defines stricker forms that take into account additional types of dependencies and constrains. The idea behind Domain Key Normal Form (DKNF) is to specify (theoretically at least). The “ultimate Normal Form” that takes into account a constraints and dependencies that should hold on the relation can be enforced simply by enforcing the domain constraints and key constraints specified on the relation.

Furthermore, normal forms when considered in isolation from other factors, do not guarantee a good database design. It is generally not sufficient to check separately that each relation schema 1, the database is in BCNFO. 3NF, rather, the process of normalization through decomposition must also confirm the existence of additional properties that the relational schema, taken together should possess two of these properties

1. The loss/less join or non Additive joints property which guarantees that the super key tuple problems does not occur.
2. The dependency preservation property which ensures that all functional dependency is represented in some of this individual resulting database

It is however important to point out here that those normal forms; BCNF, 4NF, 5NF and DKNF do exit but are rarely considered. In practical design, disregarding these rules may result in their perfect database designed but should not affect functionally as originally intended.

OPEN SOURCE MODEL

This is a generalized concept for tree software development and acquisition. It is often confusing to people to learn that an open source company may give its products away for free or a minimal cost.

How then do “Open source” companies make up for the cost while it is true that an open source business may not make money directly from products, it is untrue that open source business may not make money directly from its products, it is untrue that open source companies do not generate stable and scalable revenue streams. In actually in the 21st century web technology market, it is open source company that has the greater long strategic advantage company such as LINUX, APACHE, MYSQL, and NETSCAPE, host of web specific technology companies such as mail have demonstrated this.

* 1. **Local Network And The Internet**

As Nigerian born scientist Engr. Philip Emeagwali (1999) put it that the internet is the greatest of all networks, the network of several networks (usually local networks) in its pool. The internet was not invented in 1993 by a single individual as it widely believed. The internet is product of a succession of invention that occurred in the 1970’s and 1980’s.

The dream behind the web is of a common information space in which we communicate by sharing information, its universality is essential. The fact that a hypertext link can point to anything, be it personal, local or global, be it draft or highly polished . there was second part of the dream too dependent on the web being, so generally used i.e. because a realistic mirror ( a fact of the primary embodiment) of the works in which we work, playcard and socialize that was once the state of our interactions was online, we could then use computer to help us analyze it, make sense of what we are doing, here we individually fit in how we will better work together.

With the dramatic flood of rich material of all kinds onto them in which 1990’s, the first part of the dream is large realized, although still very few people in practice have access to initiative hypertext creation tools. The second part has yet to happen, but there are signs and plans which makes us confident, sort, pay for, own information is during the design of languages for the web design for processing by machines rather than people. The web of human readable document is being merged with a web of machine understandable data. The potential of the mixture of human and machines working together and communication through the web could immense.

According to Owo Abidemmi E. (2002): “there has been lot of improvement on the web programming concepts. We had the top-down and bottom-up, the procedural and structures. The object oriented and event driven programming methods of software application and information generator to meet the users requirements.

Ndukwe and Chike (2005), says that internet is a system of computer network, connected to one another from different parts of the world, forming a very large network, hence it is a global connection of networks both big and small.

Meanwhile, internet has many subsets which of them is World wide Web (www), which is the most powerful and growing internet service, it uses hypertext links called hyperlinks to locate and retrieve pages from www servers.

Okafor and Dimoji (2009) says “ internet which is an example of national information highway, is a huge computer network available to nearly everyone who has a computer and all the accessories to connect it. Internet is a network connecting thousands of other network and computers. You can use internet to transfer electronic mail, public discussion, copying files (upload and download) and even run programs on a computer in a remote place. “ Another feature of www is the hypertext to describe text that is not constrained to be sequential. Hypertext as described by Nelson links documents to form a web of relationship that draws on the possibilities for extending and augmenting the meaning of a “flat” piece of text with links to other text. Hypertext, therefore is more than just footnotes that serve as commentary of furthermore, information in a text, instead, hypertext extends the structure of ideas by making “chuncks” of ideas available for inclusion in many parts of multiple texts, Nelson also coined the term hypermedia which is hypertext not constrained to be text.

Ndukwe and Chike(2006) says that a web is a series of interconnected servers that support specially formatted documents. It contain a server which is a program that respond to request from other programs and delivers the requested documents.

A major initial motivation for both the early network ARPNET and internet was resource connecting the two together was far more economical than duplicating these very expensive computers. However, while file and database transfer and remote login (Telnet) were very important applications, electronic mail has probably had the most significant impact of the innovations. From that era, e-mail provided a new model of how people could communicate with each other and change the nature of collaboration. First in the building of the internet www itself and later for much of society. A key concept of the internet is that, it was not designed for just one application and as a general infrastructure on which new application could be conceived, as illustrated later by the emergence of the world wide web. It is a web evolution will bring us new applications- internet telephone and slightly future out, internet television, it is evolving to permit more sophisticated forms of pricing and cost recovery, a perhaps, painful requirement in this commercial world, it is changing to accommodate yet another generation of underlying network technologies with different characteristics and requirements from broadband residential access to satellites.

The internets of these applications is generally to promote a product or service or actually sell a product or service over the network, be it local or global (Bob, BI.M 1996). Thus, attracting and keeping a target audience is an important aspect of web programming.

**CHAPTER THREE: RESEARCH METHODOLOGY, SYSTEM INVESTIGATION AND ANALYSIS**

**3.0 Research Methodology**

An individual corporation bodies or even a nation we are confronted with a lot of problems everybody such as relaxing to education technology, physiology and psychological aspect of life.

In order to solve these problems, we have to make a strong decision as to methods and steps of solving the various problems. To be able to make a headway we need to conduct research.

Therefore, research is considered as the process of arriving at a dependable solution to a given problem through the systematic collection, analysis and interpretation of data.

* 1. **Method Of Data Collection**

There are numbers of approach to data collection depending on the nature of the research being conducted. In this project, the methods adopted include the following: Interview, World Wide Web, references to published and unpublished collection. The data collected for this research can be broadly classified into two types, namely: the primary and secondary data.

**PRIMARY DATA**

Primary data can be defined as data collected directly from respondent relevant to the subject under investigation. The primary data used in this case is interview method according to Enr. D. O Dimoji (2009) says that primary source data collection are source from first hand information can be obtained. The tools for gathering the primary source of data collection include; interview, observation and questionnaire etc.

**SECONDARY SOURCES**

These are source of data collection in which an already made data are been obtained i.e. those information that is already in printed form. Sources of secondary data include, textbooks, magazines, journals etc in the case of this project, most of the data are published, documents and references.

**The Interview Approach**

I employed a combination of both oral interview, questionnaires and observation method consulting of staff, students, lecturers and downloading of information via website to investigate the system. The oral interview and distribution of questionnaires was united to Yaba College of technology, Yaba and also other facts and ideas for this research works was conducted in the exams and record of this school which involved about 5 (five) persons old and new student were also interviewed.

* 1. **Method Of Data Analysis**

The data collected will be presented and analyzed using the table and simple percentages. A thorough and initial analysis will be done at the end of each presentation. The forming of percentage is

% = N/f x  100/1

Where

N = the number of occurrence

f = the total number of occurrence

* 1. **System Investigation**

This is an in-depth and comprehensive study carried out upon an existing system in order to arrive at vital and relevant facts that will help/assist in the design and implementation of the improved /new system or change which will be brought by the proposed system. The main objective of system investigation is to find out or learn how the current system is operating so as the surface and come out with relevant data. The case organization will be properly studied based upon their operational mode. Books and records kept and approaches to decision. It will involve the presentation and analysis of data based on the system (YABA COLLEGE OF TECHNOLOGY, YABA).

The researcher took tine in studies and the academic operation of YABA COLLEGE OF TECHNOLOGY which extract course schedule study and examination time table. Record and studying the unit was also studied. Data were collected from the workers and students which will form the basis for data analysis as below.

* 1. **Data Analysis**

The data collected will be presented analyzed and interpreted following the methodology stated in 3.2 above.

Table 3.1: Mode of Operation

|  |  |  |
| --- | --- | --- |
| Options | Response | Percentage |
| Manual | 5 | 10.0 |
| Automated | 8 | 16.0 |
| Hybrid | 37 | 74.0 |
| Total | 50 | 100.0 |

Source: field survey 2010

Comment :

From the table above, it is observed that the mode of operation in Yaba College of technology, Yaba is combination of both manual and automated approach.

Table 3.2: Efficiency of the mode

|  |  |  |
| --- | --- | --- |
| Options | Response | Percentage |
| Very efficient | 8 | 16.0 |
| Efficient | 15 | 30.0 |
| Faulty | 27 | 54.0 |
| Total | 50 | 100.0 |

Source: field survey 2010

Comment:

From the above table, it can be declarified that the hybrid mode of operation is fairly (considerable) efficient, that is to say that system is efficient to an extent.

Table 3.3: Awareness of Relational Database

Database system of HTTP server

|  |  |  |
| --- | --- | --- |
| Option | Response | Percentage |
| Yes | 15 | 30.0 |
| No | 25 | 50.0 |
| Indifferent | 10 | 20.0 |
| Total | 50 | 100.0 |

Source: field survey, 2010

Comment:

From the table above, it is observed that the relation data based system powered by HTTP server is not well known to them.

Table 3.4: Anticipated Benefit of RD-HTTP server

|  |  |  |
| --- | --- | --- |
| Option | Response | Percentage |
| Easy Access | 6 | 12.0 |
| Efficient | 8 | 16.0 |
| All of the above | 36 | 72.0 |
| Total | 50 | 100.0 |

Source: field survey, 2010

Comment:

From the above table, it is observed that the anticipated benefit of the relational database and HTTP server enduced easy access to information, efficient storage system, high level data security and control.

* 1. **Result of Analysis And Interpretation**

From the data analysis concluded, the following results were made:

1. the college, Yaba College of Technology, Yaba is making use of both manual and automated approach, they have a database system that keep academic records, concern parties of student point in time and in addition to some paper, file work where the database could not be applied.
2. It was also conducted that the worker and student who knew about the new system is of the view that the anticipated benefits derivable from the the new system which can be easily accessed, efficient storage and retrieval system it removes or reduced to the barest minimum. The delay and inconsistency associated with the database system in use.
3. It was also deducted that through operation involves some element of automations, using the convectional database system. The system could be said to be fairly efficient which causes some errors, time table clash, difficult in accessing the registry system and a lot of other disadvantages or problems.
4. During the investigation and data collection, it was observed that the institution is not all that aware of the new system that is “the relational database system using HTTP server” this can be explained due to the numbers of the system and the technical involvement of it.
   1. **System Analysis**

The existing system operational dedicated from the investigation made, shown that the Yaba college of technology, Yaba uses manual course registration and as well as computerized automated process method form with high level database system which tends to be slow and inconsistent. Many hours are spent on grapping student result computing and storage of result data which leads to late release of results.

In the Yaba college of technology, Yaba scheduling and rising of academic calendar pose a great challenge as well as a lot consistent and clashes are always experienced both in general academic calendar, examination time table and lecture time table.

In the existing system, the manual approach conventional database system hampers fast decision making due to slow manual nature of processing of data, retrieval of data and overall control of data. The system is cumbersome and cost of labour at high rate, thereby affecting the measure resource of the institution.

* 1. **Problems Of The Existing System**

From the analysis made above, the following problems faced by the current system in operation include:

1. There is a lot of delay in currency and consistency in the system.
2. There is noticeable hours spent on building and release of student results.
3. The student find it very difficult in completing their course registration form due to inefficient operation.
4. There are always clashes in the scheduling and release of the academic calendar, examination and lecture time table.
5. There is cumbersomeness of operations in the current system and persistence high cost of labour.
6. There is prolonged difficulty in decision making moving to the records and not so good efficient system in use.
   1. **Proposal of a New System**

With the proposal design, staff, students and any authorized persons can get all the available information from the college of technology intranet integrated database. They can get their syllabus, academic calendars and results, register courses and whatsoever partaken with the school system. Including data transmission,information, communication and data storage by the existing system and that of a modern system that align.

* 1. **Benefits Of The New System**

It is believed that the new proposed system will bring about the following:

1. Efficiency in operations at the highest level due to the rational database prepared by the HTTP server.
2. It will enhance timeliness, accuracy, reliability and above all easy access to data and information.
3. It will accelerate decision making mechanism which will turn the whole system into modern and appreciative.
4. The system will help to reduce the high rate of labour using to its high level of automation and independency.

**CHAPTER FOUR: SYSTEM DESIGN AND IMPLEMENTATION**

**4.1 System Design**

In the design of the system, modular programming was adopted. This structural approach was top-down methodology. Here, the system ID is designed in levels, consisting of one or more modules, in practice, a module can be “routine” or “procedure” or “Page”, in this case consisting of a sequence of “calls” or “Links” to another “Page” or “routine” having only one “entry” and “exit” point. Each data pages or routine containing a link and unique identify tag as a provenance.

The design will focus on objective, model, constrains, actual programming and installation. In addition, routine testing and report documentation would be determined. At the stage, it is important to have the system specification that explained what each module perform in relative to the problem.

**4.1 File Design /System Flow Chart**

Invariably, this serve as a storage facility. The core of the database structure and it also defines the various files that houses the new system and how data will flow within this system. Basically, the HTML and related SQL forms and tables based configuration is adopted. This will also incorporate customized PHP script for an efficient menu driven and data processing form.

Web

Browser

Web

servers

PHP

Scripts

DBI

Module

DBD MySQL

Module

Database

driver

Database

driver

DBD Oracle

Module

DBD Oracle

Module

Database

driver

The Code you write

**Fig. 4.1 Data flow layout**

When designing a database, it is not advisable to model structure after the physical hierarchy of the department or organization. This is to avoid issues of unfamiliarity since your audience might involve both local and remote users, it is important to always view the student of the organization as if you have inside knowledge. In addition, a database site designed based on the content of the page is a better choice.

In this respect, the method used for navigation and data capture/ display needs to be intuitive enough that someone not familiar with the site or organization will be able to easily find the information they desire. They should be able to extract data and link to any page. In the same vein, all link names must make sense without the context of the nest of the site.

When it comes to choosing a method of navigation, it is useful to consider all levels of web experience from novince to the expert user, it is never a good idea to leave graphics buttons on a web page without offering some type of textual explanation as to where they link.However,caution should be exercised as anything graphical will impede on the download speed.

**DATABASE (LAYOUT)**

The table structure(s) below, where confined within a single database and several associated links implemented to give a relation scheme. This resultant structure was compact offered fast B-tree indexing and full-text search mechanism that can support data size of up to eight (8) billion bytes. Undoubtedly, the MYSQL benchmark text proved satisfactory with the proposed data structure

Table 4.1 Database Implementation Table

|  |  |  |  |
| --- | --- | --- | --- |
| Table | Records | Type | Size |
| Country | 25 | MYISAM | 54.2 KB |
| Course | 23 | MYISAM | 24.1 KB |
| Department | 21 | MYISAM | 32.1 KB |
| Faculty | 17 | MYISAM | 14.1 KB |
| Programme | 4 | MYISAM | 2.1 KB |
| Province | 46 | MYISAM | 42.1 KB |
| Staff | 16 | MYISAM | 34.0 KB |
| State | 30 | MYISAM | 22.1 KB |
| Student | 17 | MYISAM | 64.1 KB |
| Transcript | 1 | MYISAM | 4.0 KB |
| Tuition | 9 | MYISAM | 7.0 KB |
| II Table (s) | 209 | MYISAM | 299.9KB |

To create and maintain a computer database, you need a database program often called a database management system or DBMS. Just as database ranges from simple single table lists to complex multi-table systems, database programs too range in complexity.

Some, such as the database component of Microsoft works are designed purely to manage single fill database with such a product you cannot build a multi-table database you can certainly create numerous tables for storing different types of information, but there’s no way to link information from one table to another. Such programs are sometimes called flat file database or list managers. Other database called related database program or DBMS are designed to handle multi file database. This project adopted the MYSQL that produces a fully featured relational database management available either as a server program or as a client suits.

* 1. **4.2 Input, Process and Output From Design And Specification**

**Input Process**: - The required data entry will involve HTML forms with adequate validation for onward processing. Forms contains information into themselves (The names of buttons, the ideals for fields, and the values of check boxes and radio buttons). Forms also accepts information as in type in boxes. Forms should be designed to make it’s own information accessible, make it easy to manipulate.

REGISTER

Sign up as a new user.

NOTE: this sign up form is for registered student only. You must use a valid e-mail address to receive your username and password via e-mail..

First Name:

(Maximum of 10 character )

Last Name:

E-mail:

Your e-mail will be used as your username

Sign Up

Password:

( Maximum of 10 characters)

Department:

Level

Course 1:

Course 2:

Course 3:

Course 4:

Course 5:

Course 6:

Course 7:

Course 8:

Course 9

Course 12

Save

Clear

Submit

Fig. 4.2 Simple HTML form (Input Format)

HTML forms are a means of collecting information. Please fill in the form and /or select something, then click a button, setting up a form is one thing, but processing its contents is another. This project design was built using the famous method “get” and method “post” attribute method: “GET” is used if you want to send information somewhere via a browser URL Eg. <http://statepoly.edu/transcript.php?studid> = 586$deptcode=013.

In the above URL, the part after the question mark is information sent to transcript PHP. This method is not secure since they are visible to users. Method = “post” is the most common method used to send information from a form to an information processing, Program or function. This is the method used when sending form information to PHP script functions.

Data can also be sent directly to employing the basic database manipulation command. INSERT which adds a new record to a specified table for example. The above input form can alternatively be added using

INSERT INTO THE USERS

(FIRST NAME, LAST NAME, E-MAIL, PASSWORD)

VALUES

(“Deby; Anele; “Deby@outgun.com; password)

However, most PHP programs are written to accept information with post method, some to accept only the GET method.

OUTPUT FORM ANALYSIS: The output is somehow closely tried to the input design invariably HTML forms would be adopted for report and message prompt, some output will be formatted HTML pages which are printable if needed.

Department:

Level:

|  |  |  |
| --- | --- | --- |
| Course | Score | Grade |
| Course 1 | ……………………… | ……………………. |
| Course 2 | ……………………… | ……………………. |
| Course 3 | ……………………… | ……………………. |
| Course 4 | …………………….. | ……………………. |
| Course 5 | ……………………. | ……………………. |
| Course 6 | …………………….. | ……………………. |
| Course 7 | ……………………. | ……………………. |
| Course 8 | ……………………. | ……………………. |
| Course 9 | ……………………. | ……………………. |
| Course 10 | ……………………. | ……………………. |
| Course 11 | ……………………… | ……………………. |
| Course 12 | …………………….. | ……………………... |

SAVE

EXIT

CLEAR

PRINT

Fig. 4.3 Simple HTML (Output format)

* 1. **4.3 System Requirement**

The software developed for the implementation is PHP Dev. V.5 (42,3) an open source package containing MYSQL v. 4.0.0, Apache V 1.3.2, perl 5.6.1 zend engine V.1.2.0 and optimized V.1.3.1. other versions of this applications are available but phpdev5 was adopted because of the bundled easy development process, free licensing, stability and how hardware requirement of impressive process or utilization. The apache version is from the mod-perl binary distributing for win 32 of 5.6.1 built with VCH 6.0 (SP 5), under windows NT/XP. It also include an associate apache 13.27 binary. The apache binary includes the mod-SSL (2.8.11.3.27), based on open SSL (0.9.6g) and perl sources of build 633 provided by active state. The MYSQL driver was compiled with the win 32 binary version 4.0.x.n.t) package.

php

Powered by zend

Apache MYSQL

Fig. 4.4 Open source LOGOS

To successfully run php script, the web server expect script to be in a known place. The $DOCUMENT.ROOT. Only files in or below the $DOCUMENT .ROOT can be passed by apache to PHP, parsed and then displayed on any browser in phpdev.5 the $DOCUMENT-ROOT is e:/phpdev/www. So all php/html scripts was placed in there. It is worthwhile to note that any other item required for the website need also to be in this location.

HARDWARE REQUIREMENT

The new system would easily be integrated into the existing college network and subsequently be extended to include other sections and divisions. Technically, the following hardware is required.

* 1. 8MB of maximum memory or a high RAM module
  2. Display monitor with a minimum of 640 x 480 resolution and at least 256-color depth.
  3. Intel Pentium 80386 or better work station with configuration based on availability of funds.
  4. An active local network connection using the existing 24-port 10/100 mbps inter network packet.
  5. Microsoft windows 98, windows NT 4.0, windows XP/2000 with support for TCP/IP suit of protocols.

**4.4 System Implementation**

This involves all activities aimed to installing a new system, in order to put it into full operation. The activities include the following

1. Programming
2. Training
3. Conversion/ change over
4. Evaluation and maintenance
5. System documentation

**4.5 Programming Language and Program Design**

The programming language in use will be HTML, PHP, JAVA SCRIPT, while the blackened database is Access and VB.net. The choice is as a result of its flexibility when integrated with PHP, HTML helps in the web and interface design. The program was designed in models which is the structure it bears. The source and object code is seen at the appendix column.

MENU AND SUBSITES

In this project, the data sites is assumed small and will probably need a number of submenu pages that users enter from a general category listing on the home page. In complex sites with multiple topic areas, it is not practical to burden the home pages with dozens of links. The page grows too long to load in a timely manner, and its sheer complexity may be off putting to many users, providing a submenu page for each category will create mini-home pages for each section the site.

For specialized details submenus it is recommended that frequent users link there directly, in this way the submenus will become alternative home page in “sub-sites” oriented to a specific audience.

* 1. Academic result
  2. Tuition and fees confirmation
  3. Admission, course and student registration
  4. **Program Testing And Debugging**

Debugging involves the identification and removal of localized implementation errors or bugs from a program or system. Programs are typically integrated in a top down incremental fashion for ease of testing. In this regard, websites should be adequately evaluated for accessibility preferable with real people. Consultant and lab technicians can also be hired to perform user testing depending on affordability.

It is also important to develop a strategy for maintaining a website once its up and running, periodically. Debugs the site for broken links and out of data information. It is also good idea to keep a list of each page. Containing time sensitivity data and how often they need to be updated. For example, course syllabi and exam schedule need to be updated once in a semester, while a page listing upcoming event probably should be updated weekly. You should come up with a calendar of when different pages need to be updated and make sure that someone is in charge of updating that information.

The second evaluation, issue that should be recognized is that the current site is always considered the prototype for its replacement. What this mean is that we should always be thinking about ways to improve on the site. It is a good idea to all ideas down and implement several changes all at once rather than implement shall changes periodically.

An important aspect of improving on a site once it’s up, is to pay attention to user, input in case of the viewers takes time to send an e-mail message connecting on your site. Then, the necessity of considering what they say is very vital weather good or bad. The input of this viewers will help and elaborate the part of the site that are most useful and well visited. Because visitors will let you know what aspect of the page prove to be incompatible with their computer systems and what material is just had to see or laid out in a confusing manner. A viewer input is perhaps the most important feedback one will get in regards to the database and websites.

Major polytechnic unit to be affected will include

1. schools and its departmental units as concerns to individual students
2. Academic registries ameliorate student records processes
3. Exams and records to ease transcript preparation.
4. Bursary division for efficient tuition management.
5. Library and consultancy services.
   1. **Staff Training**

The training should include both the individual employee and the college as a whole. The training should also be designed to assist staff to meet the new web-work place demands, staff training can be developed in-house and focused on the specific needs of the institution, especially on e-messaging, e-document, e-filling and other web applications. A number of sandwich courses and inter-department workshops would assist these training efforts. In addition, the web provides access to variable of online learning resources developed by professionals and other institutions.

Resource allocation to staff education should be directed towards educational activities that will further the strategic aims and goals of the polytechnic particularly on information security, policy and other web scheme as examined below.

SECURITY

The implementation of an educational database website introduces several user securing concerns. By it’s nature, access to a website is usually intended to be unlimited and easy, recognizing the web content or data as the main concern of the organization. But at the same time, this simple access introduces the opportunity for security incidents. Many of this current internet and survey list security as a major concern of management when implementing a critical website. Thus, it is mandatory that the web data retains availability, confidentiality and integrity at all times as a single compromise can cost the institution a considerable amount of time, effort, revenue and reputation.

POLICY

The most important component of an overall security training is a sound security policy. The college security policy should define what is considered acceptable behaviour regarding information security and what response will be to violate that behaviour. It should include a full inventory that a lift of the risks and definition of a security incident including planning response. Each employee in the institution must be educated on the policy and agree with its guidelines. On the long run, the security policy must be reviewed to reflect new applications, new technologies and new user populations.

STRATEGY

There are three main web commonly issues to be considered when implementing website on both local and public networks especially the internet. These issues also have networks especially the internet. These issues also have a counter measure as outlined below:

Table 4.2

|  |  |  |
| --- | --- | --- |
| STRATEGY | DEFINES | CONTROL MECHANISM |
| User authentication  Access control  Data concealment | Who you are  What you can do  What you can see | ID & Password  TCP/IP port verification  Encryption |

* 1. **Change Over Procedure**

Typically, it is advisable to run the old information system along side the new system at the same time until management decide that the old system can be turned off. This parallel change over procedure would ensure that core institutional activities are not interrupted. However, an incremental (phased) change from the old system to this new information system, starting with one or a few functional components and then gradually extending the procedure to cover the entire new system could also be observed. The maintenance strategy is really something that needs to be observed though about before the database, web page and image begin to populate the site. The most important thing to remember when creating a data web page for a department or organization is that one will not be maintaining a site forever.

Eventually, it will become someone else’s job. It is up to the designed whether the handover will be smother or full of confusion and duplicate work.

The biggest problem that can occur when handling over maintenance of a site is that:

1. The new webmaster will not know where any of the file (s) or images are located and
2. People will not understand the method or design process one has gone through to create the database page (s). both of these problems lead to a lot of wasted time on the part of the new webmaster.

The problem of not being able to find the files can be greatly relieved with a well design directory structure. For example, www directory where one keeps all webs script documents and images for the site. It is also necessary to create sub directories in which to organize the content. Every organization with a website should have a subdirectory where they store all their images and another subdirectories to store any script or programs etc. other information may warrant holding related data.

Simplified example of directory structure for the computer science department on Yaba College of education campus. The www directory appears at the top and all subdirectories are laid below their parent directory in the tree form.

At the beginning of this project, the question was asked “How dos a webmaster create a site that can be competitive such an over populated environment? The answer to that is simple, plan your size carefully make it clear and easy to access. Keep the information updated and finally and most importantly, an attention to the audience because it is around the audience that the success of the whole site revolves.

* 1. **System Evaluation and Maintenance**

System maintenance is the act of monitoring, evaluating and modifying a system to make desirable or necessary improvement. System maintenance involve the constant, reviewing of output from the system, updating its format to make it current as well as the need of the changing situation. System evaluation involves a detailed measure in the design. The evaluation is to ensure improved performance, great efficiency and high profit margin. If a system performance is below the standard set in the design or required from system. Therefore, in the need to identify the faults by the application of relevant maintenance methods.

How to maintain the system, the recommended approach to maintenance of the system will be the parallel approach, which implies that use of both the old and new system simultaneously. The choice is because of its standard and emulative approach in nature.

* 1. **Documentation**

Documentation is undoubtedly necessary in every new system development cycle. It is the detailed information about a systems design specifications, its internal workings and its functionality. It generally involves written and other visual information about an application system, how it works and how to use it.

The author agrees that documentation tools should seek to better extract knowledge from core resources. These resources include the system’s source code, test code and changes to both. Resulting technologies could then help reduce the effort for documentation maintenance something that is shown to rarely occur.

In this project, Apache documentation is included at c:/apache/htdoes/manual, while that of mod-perl and mod-ssl is at c:/apache/htdoes/manual/mod/mod-perl and c:/apache/htdocs/manual/mod/mod-ss/respectively. Links to these are found by running the web server. The standard perl document, as well as that for all available locally installed modules is available on uncer/ perl/html.

On a final note, any level of a functional database together with its website should be maintained.

Therefore, each aspect needs a document mechanism in place. Consequently, some vital comments on the database program module, php and html, page(s) have been included for ease of accountability and future modifications.

Traditionally, an update of the system logs ensures each database, script, webpage and the overall website lifecycle is adequately recorded. In addition, the internet service provider (ISP) systems blue print (if consulted) must be well understood to avoid design incompatibility issues.

The procedures for documentations are as follows:

1. Insert the CD where the program is stored in the D-drive and close the drive.
2. Double click on my computer icon on the desktop and then on the D-drive icon.
3. The folder named database Management System will appear. Double click on it to display the files and folder contained in it.
4. Double click on the folder named setup files
5. Double click on setup to install the Database Management System in http sserver.
6. Follow the information instruction to successfully install it.
7. After the installing database management and HTTP Server, double click on setup client folder to display the contents.
8. Double click on setup to install the database management and HTTP server client.
9. Follow the instruction to successfully install the database management client.
10. Move back to my computer environment by clicking repeatedly on the back arrow icon.
11. Close my computer environment
12. Remove CD from its drive and close the door.
13. Click on the start button, go to the program .
14. Select the academic information and then click on Academic Information using database and HTTP server.
15. Enter the required username and password to gain access to the program.
16. Start working with the program by using the appropriate submenu in the main menu.
17. click on the close button to close the application at the end of the operation.

**CHAPTER FIVE**

**SUMMARY, CONCLUSION AND RECOMMENDATION**

1. **SUMMARY AND RECOMMENDATION**

This chapter summarizes the research in academic information and introduction database system using HTTP server as regards to information as a veritable instrument for school administration and academic schedule, in the Yaba College of Technology, Yaba.

Therefore, the study were able to achieve the stated aim. It was able to address the issue delay inefficiency and inaccuracy of data processing and information storing accessing, retrieving and editing.

The study also fostered good perception of information age and developed efficient and effective academic information system for school administration and academic schedules. That is through presenting the rules and protocols of coding, scripting and hosting of data base driven WebPages.

**5.1 Conclusion**

The need for available secure and reliable information solution is heightened by the increasing dependence on web like systems and database technologies to provide educational services, develop efficient academic products, administer daily activities and perform both short and long term management functions.

Using Yaba college of technology as a case study, this project has elaborated on the technical and operational requirements of developing an academic information system. Issues on web and database concept and technologies,analysis and design tools, security and content maintenance were adequately explained, database and dynamic web page scripting are the communication means to live information content. These technologies have come to stay, no doubt that every organization, institution and government parastatal wants to join the e-race.

Designing a functional academic website for Yaba college of technology,Yaba is indeed a giant step in the right direction.

* 1. **Recommendation**

For these problems stated above, I hereby suggest that

1. The college should provide an efficient internet network by incorporating its existing computers into an enterprise local network. Staff and students should be sensitized to leverage its resources such as chart and voice messaging, classroom conferencing, catalogues, library and other academic information ranging from registration, lectures to result requires.
2. In addition to the above network infrastructural enhancement, it is suggested that the college should have its own VSAT (satellite communication). This will ensure dedicate internet connection with its counterparts in the world wide web (www).
3. A major drawback to these proposal would be unreliable power supply system. Therefore, the institution is urged to complement this with industrial uninterrupted power supply system (UPS) that can ensure round the clock power supply for the network.
4. Management should develop an intensive in-house training for academic and non academic staff. This will help reduce the dependence on manual process and also increase staff competence on world class office automation.
5. Once, the database is fully integrated with [www.yaba](http://www.yaba) college of technology will not only register the registrations presence, but also boost its academic as a citadel of technological excellence students and individuals of academic interest should include these with mobility of constraints will find the universal access very comforting. It will also create avenue for online research and development which in turn will create more revenue for the state.
   1. **Suggestion For Further Studies**

Owing to some constraints beyond the research’s control, I therefore suggest that future research should be made online and website development of education and development information system to serve as improvement to the existing study.

**References**

Brendan, P. Kende(2005):*Zen and the Art of the Internet (1st ed.) A Beginner’s Guide*. New York: Prentice Hall Publishing

Burstan, Cari. D (1997): *Accessible Site Design Elements*: [http://www.anybrowser.org/coampaign/abdesign<html](http://www.anybrowser.org/coampaign/abdesign%3chtml)

Conger, She and Richard Mason (1998): *Planning and Designing Effective Websites*: Cambridge, MA: International Thompson Publishing Co.

Date, C. J (2003): *Fundamental of Database System (1st ed.)*. USA: Addition Wisley Publishing Company, Volume 1Reading.

Dimoji, D.O (2006): *Introduction To COBOL Programming and Thesis Writing,* Aba: Zemek Graphics Production.

Elmasri, R. and Navather.S(2004): *An Introduction to Database System (1st Ed.).*California: The Benjamin Cummings Publishing Co.

Internet, Society (ISOC)(2003): *A Brief History of The Internet.* <http:www.isoc.org/internet/history/brief.html>

Jeffre, Veen (2001): *The Art and Science of Web Design*: New York: Riders Publishing House, Inc.

Jennifer Niederst (2002): *Web Design in a Nutshell O’Reilly Books,(2nd Ed.)*. Okalam: Drydem

Joe, Clerk (2007): *Building Accessible Website*, New Jersey: Owyer Publishers. ISBN 07357115 xhttp://www.joederk.org

Lahman, Roberts (1998): *Multiple Computer Network and Inter Computer Communication* ; ACM Gattlinburg Conference, June.

Ndukwe, C.M (2010); *Handbook on Research Project and Thesis Writing,* Aba; Cheeda Prints.