**DESIGN AND IMPLEMENTATION OF A WEB-BASED ALUMNI DATABASE MANAGEMENT SYSTEM**

**(SOFTWARE ALSO AVAILABLE)**

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This is to certify that this project work, “**Design and Implementation of a Web-based Alumni Database Management System**”, was written by ***Student’s Name***with Registration number ***Your Matric / Registration Number*** and has been read and approved for the award of **(Degree, ND, or HND)** in the department of ***(Your Department)****,* ***Your School (SIAS, SBMT, SHSS)****,* ***Institution Address.***

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***Your HOD’s Name* DATE**

**(Head of Department)**

**DEDICATION**

This work is dedicated to God for his enabling grace, and to all computer enthusiasts who help to make life a pleasant experience.

**ACKNOWLEDGEMENT**

I owe my indebtedness to my Supervisor (Name of your Supervisor), the Head of Department (Name of your HOD) and the Lecturers in the department of (Your Department) for their moral support that facilitated the successful completion of my (Tertiary Institution level). I am grateful to God Almighty and my parent for their financial support in my career. I really appreciate you all for everything, Thank you very much.

**TABLE OF CONTENTS**

**PRELIMINARY PAGES**

Title page

Approval page

Dedication

Acknowledgement

Table of Contents

Abstract

**CHAPTER ONE**

**INTRODUCTION**

1.1 Introduction

1.2 Background of Study

1.3 Statement of Problem

1.4 Aim and Objectives of the Study

1.5 Significance of Study

1.6 Scope of Study

1.7 Limitations of the Study

1.8 Definition of Terms

**CHAPTER TWO**

**LITERATURE REVIEW**

2.1 Introduction

2.2 Overview of Information System

2.3 Alumni Database Management System (DBMS)

2.3.1 History of Database Management Systems

2.4 Database Management System (DBMS)

2.4.1 Database and Database Systems

2.5 Components of the DBMS

2.5.1 System Hardware

2.5.2 System Software

2.5.3 Data

2.5.4 Users

2.5.5 Procedures

2.5 The Need for a Database Management System

2.6 Database Management Administration

2.6.1 Roles of a Database Administrator

2.7 Web based Alumni Database Management System

2.8 Database Query system

2.9 Review of Related Works

**CHAPTER THREE**

**SYSTEM ANALYSIS AND DESIGN**

3.1 Methodology Adopted

3.1.1 Problem Identification Using SSADM

3.2 Analysis of the Existing System

3.2.1 Dataflow of the Existing System

3.3.2 Disadvantages Of The Existing System

3.2.3 Weakness of the existing System

3.3 Analysis of the Proposed System

3.3.1 Data Flow Diagram of the Proposed System

3.3.2 Advantages of the Proposed System

3.3.3 Justification of the Proposed System

3.4 Functional Requirements

3.4.1 Use Case Diagram Of The Admin / User Privileges

3.5 Data Requirements

3.6 High Level Model of the Proposed System

**CHAPTER FOUR**

**SYSTEM DESIGN AND IMPLEMENTATION**

4.1 Objectives of the Design

4.2 Cohesion and Decomposition High level Model

4.3 Control Center / Overall Dataflow Diagram

4.3.1 Proposed System Operation Flowchart

4.4 System Specification and Design

4.4.1 Input and Output Specification

4.4.2 Database Specification and Design

4.4.3 Data Dictionary

4.5 Choice and Justification of Programming Language

4.6 Program Documentation

4.7 Implementation Techniques

4.8 Programming Module Specification

4.8.1 Installation

4.8.2 Security Design Specification

4.8.3 System Architecture

4.9 Computer Hardware Minimum Requirement

4.10 Software Requirement

4.11 Personnel / User Training

**CHAPTER FIVE**

**SUMMARY, CONCLUSION AND RECOMMENDATION**

5.1 Introduction

5.2 Summary

5.3 Conclusion

5.4 Recommendation

**REFERENCES**

**APPENDIX A - “SOURCE CODE”**

**APPENDIX B - “OBJECT PROGRAM”**

**ABSTRACT**

*An Automated Web based Alumni Database Management System is a way of bringing many methods of reporting and control into one working environment. The aim of the study is to design and implement of a Web-based Alumni Database Management System. In achieving this aim, the following specific objectives were laid out as follows to develop an application software that will keep alumni information organized under administrative control no matter how disparate, fast changing or intricate it may seem, incorporate automation in the storage and retrieval of alumni information and provide ease of access through the use of well-designed, user friendly interfaces and the World Wide Web. The motivation that led to the implementation of the proposed system is that the manual approaches employed in the management of alumni information are not flexible, efficient and productive. Keeping track of all students who passed through the university since its inception is obviously an uphill task as files containing information and details of these students may have been lost, damaged or even forgotten about. The methodology adopted in this study is the structured system analysis and design methodology (SSADM) which is a technical approach for analyzing and designing an application or system by applying object throughout the software development process. The programming language used is HTML, CSS, JAVASCRIPT, PHP, SQL and JQUERY. The reason why web programming languages was used is because, it is platform independent and it is a web based application. This research work will be of benefit to college of education, polytechnic and university students and alumni officials. The expected result is a web-based alumni database management system that will automate the mechanism for search and retrieval of information, save time and cost and ensures uniformity by providing a centralized database system for all alumni information.*

**CHAPTER ONE**

**INTRODUCTION**

**1.1 Introduction**

An Automated Web based Alumni Database Management System is a way of bringing many methods of reporting and control into one working environment. The Alumni association is independent of the school in funding and administrative support. The Association administration is run through the efforts of volunteers and part-time hires. The inability of the association to become a viable entity can be attributed to a few major factors. First, the fluctuations in the work force effort and the lack of consistent commitment to the association have caused inefficient and misguided efforts. The second major factor affecting the viability of the Alumni Association is the lack of an accurate and homogeneous database of the school’s alumni. Alumni records over the history of the school have been maintained in a variety of non-automated methods.

As a prelude to other parts of this study, this chapter will discuss the background upon which this study was initiated, the statement of problems that led to this study, the Aim and Objectives of the study. Others are Significance of the study, Scope of work, Limitation of the study and Definition of technical terms.

**1.2 Background of Study**

The Nnamdi Azikiwe University Alumni Association has been in existence for a number of years but has not been able to become a viable entity. The association's goal is to provide a professional network for the graduates of the Nnamdi Azikiwe University. The Alumni association is independent of the school in funding and administrative support. The Association administration is run through the efforts of volunteers and part-time hires.

The inability of the association to become a viable entity can be attributed to a few major factors. First, the fluctuations in the work force effort and the lack of consistent commitment to the association have caused inefficient and misguided efforts. The second major factor affecting the viability of the Alumni Association is the lack of an accurate and homogeneous database of the school's alumni. Alumni records over the history of the school have been maintained in a variety of non-automated methods. Once a student graduatesthe records are archived, thus making access to these records difficult and time consuming.

This research work is focused on developing a computerized Web based Alumni Database Management System to handle the data requirements of the association. The basic requirements for the system include the storing of alumni data for quick and efficient retrieval, which would also provide mechanisms for the updating of the stored data in an automated manner.

Increasing demand for accuracy, efficiency and effectiveness coupled with user friendliness has become the major strive of most organizations public or private. This fundamental requirement presents the notion that automated systems are not only indispensable part of every organization but is also a way of achieving accuracy, efficiency and stated effectiveness within the body.

Zuboff (1988) defines the process of automation as a service to perform tasks with great speed and accuracy.

A web based Alumni Database Management System, all necessary efforts and analysis were implemented in order to develop a suitable database management system that will solve the problem faced by the university alumni department, by efficiently reducing the time taken in storing varied information of the numerous alumni in files and cabinets that are almost insecure and stressful to access. Nnamdi Azikiwe University Alumni Association has variety of methods in the control, management and reporting thereby necessitating automation of the system.

Grammatikou et al., 2003 had found that databases and information retrieval technology had changed the ways organizations were producing reports by providing on spot and timely access from various locations.

The World Wide Web (WWW) became one of the most important media for sharing information resources. Programs, tracking of information, information monitoring, and various other types of resources could be accessed through the www (Bing et al., 2001). Research results, new findings, and other information could also be put on the web from anywhere at any time by the right people. Therefore, since www had provided a good infrastructure, Reports could be accessed centrally by management of alumni department using an integrated Management Information System through the Internet.

Harpreet (2002) mentioned that the use of WWW or computer system could enhance organizations and improve on their communication and therefore effectiveness in service delivery. Likewise, organizations and institutions today are being forced by the internet to move toward “teleworking”. Therefore, there was need for web-based computer system that could provide easy access of information online and also provide accessibility to information from anywhere, anytime. This necessitated management to have access to the database. This was done by registering them into the system and then giving the privilege to them once logged-in. This was provided at the login time and other unauthorized users denied access.

An automated Web based Alumni Database Management System is important for management of university alumni as well as for the staff and productivity. Unfortunately, the system seemed to be far-fetched, especially when it was done manually using many different methods of data manipulation. But with automation, only the administrator will have to be responsible for the manipulation of data using highly advanced and user friendly user interfaces. This of course will result in speed and accuracy in data handling Zuboff (1988).

**1.3 Statement of Problem**

Overtime, traditional approaches have been employed in the management of alumni information, and this approach is not flexible, efficient and productive. Keeping track of all students who passed through the university since its inception is obviously an uphill task as files containing information and details of these students may have been lost, damaged or even forgotten about. At times reports disappear as they are hard copies and tracing them becomes a problem.

The few computers in use are all stand-alone which has created a lot of loopholes in the system because there is no tracking and/or monitoring of the system for the information available in the department and there are no security measures in place.

Such complex scenarios were often not easy to satisfy manually because the process of managing data will be stressful due to numerous file handling, slow because of non-automation, inflexible due to disparity in information supplied and most likely repetition of records; thus the need for computer software, and a web based automated system as well as a centralized database.

**1.4 Aim and Objectives of the Study**

The aim of the study is to design and implement of a Web-based Alumni Database Management System. In achieving this aim, the following specific objectives were laid out as follows to develop an application software that will:

1. Keep alumni information organized under administrative control no matter how disparate, fast changing or intricate it may seem.
2. Incorporate automation in the storage and retrieval of alumni information.
3. Incorporate security measures in data manipulation within the system.
4. Provide ease of access through the use of well-designed, user friendly interfaces and the World Wide Web.

**1.5 Significance of Study**

A web-based alumni database management system for Nnamdi Azikiwe University will:

1. Save time and cost.
2. Automate the mechanism for search and retrieval of information.
3. It ensures uniformity by providing a centralized database system for all alumni information.
4. It is faster, more user friendly, and provides secured access to information.

This study will be of immense benefit to other researchers who intend to know more on this study and can also be used by non-researchers to build more on their research work. This study contributes to knowledge and could serve as a guide for other study.

**1.6 Scope of Study**

The scope of this study is limited to designing a web-based alumni database system for Nnamdi Azikiwe University alumni, which will serve as a central repository for all information of her graduates.

**1.7 Limitations of the Study**

During the course of this study, many things militated against its completion, some of which are:

1. **Time Constraint:** The time frame given to accomplish this project was very short due to school academic calendar and it was carried out under pressure which made the researcher not to implement some necessary features.
2. **Establishment Policies:** Establishment policies posed a serious limitation as most staffs are not ready to release information needed for this project work. There were lots of information needed from the staffs of this institution to enhance the study which took them time to release or they did not release at all for security purposes, hence the scope was reduced.
3. **Research material:** availability of research material is a major setback to the scope of the study.
4. **Frequent power failure:** This made the researcher append more money on fuel to ensure sustainable power.
5. **Financial Constraint:** Insufficient fund tends to impede the efficiency of the researcher in sourcing for the relevant materials, literature or information and in the process of data collection (internet).

**1.8 Definition of Terms**

**Data:** facts or information, especially when examined and used to find out other things or to make a decision.

**Data item:** smallest named unit of data that has meaning in the real

**Record:** group of related data items treated as a unit by an application program

**File:** collection of records of a single type (examples: president, election)

**Database:** an organized set of data that is stored in a computer and can be looked at and used in different ways

**Database management system (DBMS):** a generalized software system for organizing and managing a large amount of data.

**Database administrator (DBA):** person or group responsible for the effective use of database technology in an organization or enterprise.

**Object:** is anything exhibiting a property and/or behavior of interest within the scope of the system under investigation.

**Messages:** represent the interactions between objects in a system.

**Methods:** are operations that are carried out on a message as it moves between objects.

**CHAPTER TWO**

**LITERATURE REVIEW**

**2.1 Introduction**

This chapter focuses on the review of related literature. A literature review includes the current knowledge as well as theoretical and methodological contributions to a particular topic. It documents the state of the art with respect to the topic you are writing. It surveys the literature in the topic selected. In this research work the literature review includes the Overview of Information System, Alumni Database Management System (DBMS), Database Management System (DBMS), Components of the DBMS, Need for a Database Management System, Database Management Administration, Web based Alumni Database Management System, Database Query system and Review of Related Works.

**2.2 Overview of Information System**

An Information System is a set of interrelated components that collect/retrieve, process, store and distribute information to support decision-making and control in an organization Laudon (2002).In addition to supporting decision-making and control, information systems helped managers and workers to analyze problems, visualize complex subjects and created new products. An Information System contains information about significant people, places and things within the organization or in the environment surrounding it. In order to have an information system, there had to be raw data that had to be transformed into information, which was meaningful and useful to human beings. Laudon (2002) stated that information was a resource like any other commodities. It becomes stale and worthless if not used in time. This called for regular updates to replace old, stale and outdated information.

Information collected and possessed had to be utilized for increased benefits to solve problems, appropriate decision-making and for development Abidi (1991). At the same time, the right information was obtained Yilmaz (1995).

Other scholars observed information as part of human existence and acquiring and processing it were fundamental aspects of life itself Debons(1988). Yet other scholars argued that information was power and even the Holy Bible said, ’My people were perishing because of lack of information’. Again, Laudon & Laudon (2002) stated why information systems were needed by clarifying that not until 1980s; managers knew little about how information was collected, processed and distributed in organizations as it was considered unimportant.

Most of the time, management process was face-to-face, personal art but nowadays managers value the information handled by the organization. Also competition had brought about worldwide changes and altered the environment of working. Global economy had strengthened the emergency of transformation of industrial economies and societies into knowledge and information, posing a number of new challenges to business firms and their employees by having distributed computing in a network to allow geographically wider connectivity. Information technology had brought about changes in organizations that made the firms even more dependent than in the past on the knowledge, learning and decision making of individual employees.

A feedback was required about the information systems, which was in form of output returned to appropriate members of the organization to help evaluate or correct the input stage. This was done through querying the database for the required reports depending on the uniqueness of the culture and fundamental set of assumptions, values and ways of doing things accepted by the organization. Management had to track information. Tracking of the information given was to monitor progress of a particular record. The record would show various details to enable monitoring of various activities. Monitoring was the act of overseeing the progress and ensuring the right system was protected, accurate data entered, complete, verifiable and compliant with the system. At the same time, accessing data was restricted by giving privileges to the right people to access it. This denied unauthorized users to have access to the reports. Therefore, Management Information System provided timely, reliable and useful information to management for quick decision-making in real world through practical business problems.

**2.3 Alumni Database Management System (DBMS)**

According to Stoner et al., (1995), Management Information System is the computer based information system used for effective planning, decision-making and control. This was through a database. As leaders of departments, good information ought to be maintained and controlled in a database by use of security measures through quotas, usernames, passwords and privileges. A database is a shared collection of logically related data and a description of this data, designed to meet the information needs of an organization. In order for quicker and easier retrieval of alumni details, there was need to automate the system to come up with a database for faster, cheaper, more efficient and effective performance than the manual processing system.

This built permanent information kept for future use. Also the database had become an integrated part of almost every human’s life without it, many things we do would become tedious and perhaps impossible. A database gives way to do complex things, which human being cannot do, as they are prone to errors. Consequently, Connolly and Begg (2001) stated that a database management system and management information system was a software system that enabled users to define, create, maintain and control access to the database. In many instances, it gave access to users at the click of a button to get the required information without traversing into many documents.

Accordingly, constraints were alleviated like storage space, budget and time factor making information easier operated in order to be automatically converted into printed form, which is exactly encompassed in the new era.

This gave chance to enter into the global competition. Output could be brought forward at any desired time; information would be retrieved at any time when needed which was a requirement development in the changing world. The traditional system takes long to finish a single transaction resulting into time wastage to get the required reports. It was inadequate and did not respond to the needs of management for efficient and effective data access.

**2.3.1 History of Database Management Systems**

It is a known fact that the predecessor to the DBMS was the file-based system. However, there was never a time when the database approach began and the file-based system ceased because the file-based system still exists in specific areas. The history of DBMSs begins in the late 1960s, when an IBM product named IMS (Information Management System) was launched. Data was structured hierarchically, in forests of trees of records, providing very fast access. A few years after IMS appeared, in 1971, the CODASYL Database Task Group proposed a new type of database models known today as the network model. The original report considered DBMSs as extensions of the COBOL language, and structured data contained by databases as graphs of records, consisting essentially of circular linked lists. The development of relational database began in the late 1970s and early 1980swith an experimental relational database system at IBM called System R, a pre-cursor of commercial IBM DBMSs, SQL/DS and DB2. A multitude of DBMS emerged in the 1980s, such as ORACLE, INGRES, Rdb, etc. Relational technology evolved further in the 1990s with the addition of ideas and techniques inspired by object-oriented programming.

**2.4 Database Management System (DBMS)**

Database Management Systems (DBMS) are complex, mission-critical software systems. Today’s DBMSs embody decades of academic and industrial research and intense corporate software development. Database systems were among the earliest widely deployed online server systems and, as such, have pioneered design solutions spanning not only data management, but also applications, operating systems, and networked services. The early DBMSs are among the most influential software systems in computer science, and the ideas and implementation issues pioneered for DBMSs are widely copied and reinvented, (M. Hellerstein1 et al, 2007).

**2.4.1 Database and Database Systems**

A database is a collection of one or more data files or tables stored in a structured manner, such that interrelationships which exist between different items or sets of data can be utilized by the DBMS for manipulation and retrieval purposes. A database can be summarily described as a repository for data. A database management system is also a general purpose software system that facilitates the processes defining, constructing and manipulating databases for various applications (Korth & Silberschatz, 1991).

Further definition of database management system (DBMS) refers to a software package for the storage, manipulation and retrieval of data from a database.

According to Silberschatz et al., 200, a database management system (DBMS) is an aggregate of data, hardware, software, and users that help an enterprise manage its operational data. The main function of a DBMS is to provide efficient and reliable methods of data retrieval to many users.

Additionally, a database management system is the software system that allows users to define, create and maintain a database and provides controlled access to the data.

A database management system (DBMS) can also be described basically as a collection of programs that enables users to store, modify, and extract information from a database as per the requirements. It is an intermediate layer between programs and the data. Programs access the DBMS, which then accesses the data.

Most DBMSs deal with several users who try simultaneously to access several data items and, frequently, the same data item. For instance, suppose that we wish to introduce an automatic registration system for students. Students may register by using terminals or workstations. Of course, we assume that the database contains information that describes the capacity of the courses and the number of seats currently available. Suppose that several students wish to register for cs210 in the spring semester of 2003. Unfortunately, the capacity of the course is limited, and not all demands can be satisfied. If, say, only one seat remains available in that class, the database must handle these competing demands and allow only one registration to go through.

**2.5 Components of the DBMS**

There are some major components that make a database management system environment. These components include system hardware, system software, data, and users (Oddi etal, 2000). These components are described below:

**2.5.1 System Hardware**

Database management systems are, in most cases, installed on general-purpose computers. The hardware is the actual computer system used for keeping and accessing the database. Conventional DBMS hardware consists of secondary storage devices, usually hard disks, on which the database physically resides, together with the associated Input-Output devices, device controllers and• so forth. Databases run on a range of machines, from Microcomputers to large mainframes. Other hardware issues for a DBMS includes database machines, which is hardware designed specifically to support a database system.

**2.5.2 System Software**

The software is the actual DBMS. Between the physical databases itself (i.e. the data as actually stored) and the users of the system is a layer of software, usually called the Database Management System or DBMS. All requests from users for access to the database are handled bythe DBMS. One general function provided by the DBMS is thus the shielding of database users from complex hardware-level detail.

The DBMS allows the users to communicate with the database. In a sense, it is the mediator between the database and the users. The DBMS controls the access and helps to maintain the consistency of the data. Utilities are usually included as part of the DBMS. Some of the most common utilities are report writers and application development.

**2.5.3 Data**

It is the most important component of DBMS environment from the end users point of view. Data acts as a bridge between the machine components and the user components. The database contains the operational data and the meta-data, the 'data about data'.

The database should contain all the data needed by the organization. One of the major features of databases is that the actual data are separated from the programs that use the data. A database should always be designed, built and populated for a particular audience and for a specific purpose.

**2.5.4 Users**

The community of users of a DBMS includes a variety of individuals and organizational entities. These users can access or retrieve data on demand using the applications and interfaces provided by the DBMS.

**2.5.5 Procedures**

Procedures refer to the instructions and rules that govern the design and use of the database. The users of the system and the staff that manage the database require documented procedures on how to use or run the system.

These may consist of instructions on how to:

* Log on to the DBMS.
* Use a particular DBMS facility or application program.
* Start and stop the DBMS.
* Make backup copies of the database.
* Handle hardware or software failures.
* Change the structure of a table, reorganize the database across multiple disks, improve performance, or archive data to secondary storage.

**2.5 The Need for a Database Management System**

Controlling Redundancy: In file system, each application has its own private files, which cannot be shared between multiple applications (Elmasri & Navathe, 1989). This can often lead to considerable redundancy in the stored data, which results in wastage of storage space. By having centralized database most of this can be avoided. It is not possible that all redundancy should be eliminated. Sometimes there are sound business and technical reasons for• maintaining multiple copies of the same data. In a database system, however this redundancy can be controlled.

Integrity can be enforced: Integrity of data means that data in database is always accurate, such that incorrect information cannot be stored in database. In order to maintain the integrity of data, some integrity constraints are enforced on the database. A DBMS provides capabilities for defining and enforcing the constraints.

Other capabilities of a database management system are:

1. Reduced Inconsistency in data
2. Sharing of data is made possible
3. It allows for easy enforcement of standards
4. There is restricted access to unauthorized users
5. Can be used to solve enterprise problems rather than individual problems
6. Provides data backup and recovery
7. Cost of developing and maintaining server is lower
8. Data models can be developed
9. There is concurrent control of data access by multiple users.
10. Flexibility in the manipulation of data

**2.6 Database Management Administration**

**2.6.1 Roles of a Database Administrator**

Database administration defines a technical function that is responsible for physical database design and for dealing with technical issues such as security enforcement, database performance, and backup and recovery and often some mixture of these duties.

A database administrator is a full time manager responsible for maintaining a DBMS and ensuring accuracy and the integrity of data. Some specific roles of a database administrator include:

1. Determine what data should go into the database
2. Determine what relationships should exist between different data items
3. Identify who has permission to read the database information (allocate passwords) •
4. Specifies who has the authority to update the database.
5. To be involved in the design of the database and make changes if necessary
6. To keep users informed of any changes
7. To maintain the data dictionary
8. To provide training to users

**2.7 Web based Alumni Database Management System**

According to Enrado (2000),a web-based system should be an easy-to-use system that provided Web-based access for all staffs, rules-based, entry of preferences and viewing of data, credential management, and ability to retrieve information.

Carter et al, 2005 confirmed that a web-based system increases the convenience and accessibility of management information system services and information about the organization in order to develop their details with a database management system.

Users were provided with accessible, relevant information and quality services that were more expedient than traditional manual system through integration of an automated system for the utilization of e-government services citizen trust, innovation and acceptance factors. Web-based System made work easier for an organization to produce presentations, dramatically speeding time to get the required reports.

According to Joch (2000), web-based management information systems will be an important component for any association that desires an effective management of their information. Minimization of report delay through better management information system was directly related to manager’s satisfaction, which was always an important criterion for organizations administrators.

**2.8 Database Query system**

Users interact with database systems through query languages.(Johnson et al, 2002).The database management system in return interacts with the database by issuing instructions known as queries to the database. These queries are executed and the appropriate results are obtained and sent back to the software. These queries are written in what are known as query languages, and they employ the non-procedural approach of programming. The query language of a database management system performs the tasks of defining the data structures that serve as receptacles for the data of the database, and also to allow the speedy retrieval and modification of data. Accordingly, two components of a query language can be identified namely: the data definition component and the data manipulation component. The task of data manipulation are data retrieval and data update respectively. Data retrieval entails obtaining data stored in the database that satisfies a certain specification formulated by the user in a query while data update includes data modification, deletion and insertion.

**2.9 Review of Related Works**

Umoh, et al, (2009) adopted a state-of-the-art technology to design an Object-Oriented Database Management System (OODBMS) for the management of information in Nigerian Universities. We apply the object-oriented design tools to create a database model that is reliable, dependable and secure. We focus on creating a unified modeling language (UML) structure by specifying the use case, classes, and activities in the client-server application. The design strategies of the web-based OODBMS are also discussed and a server-based application with state-of-the-art facilities expected. We develop a working prototype of the system on a three-tier client server architecture based on the advantages discussed in the work MySQL DBMS, Apache web server, and PHP server pages are adopted as system development tools. We apply existing client-server and database technologies to provide an object-oriented web-based, data-retrieval system for the Universities that will enable access by the various users at all times.

Kohlheim (1992) developed a database management system for the Naval Postgraduate School Alumni Association. This system provides a standardized format for storing data and tracking alumni. It also performs the time consuming accounting and billing functions associated with the Association's membership management. This thesis provides an outline covering the Alumni Association's system requirements analysis and design methodology. The system was written using dBASE IV, version 1.1.

**CHAPTER THREE**

**SYSTEM ANALYSIS AND DESIGN**

**3.1 Methodology Adopted**

The structured system analysis and design methodology (SSADM) was adopted for the analysis, design and implementation of this system. Structured systems analysis and design methodology (SSADM) is a set of standards for systems analysis and application design. It uses a formal methodical approach to the analysis and design of information systems.

SSADM follows the waterfall life cycle model starting from the feasibility study to the physical design stage of development. One of the main features of SSADM is the intensive user involvement in the requirements analysis stage. The users are made to sign off each stage as they are completed assuring that requirements are met. The users are provided with clear, easily understandable documentation consisting of various diagrammatic representations of the system. SSADM breaks up a development project into stages, modules, steps and tasks. The first and foremost model developed in SSADM is the data model. It is a part of requirements gathering and consists of well defined stages, steps and products. The techniques used in SSADM are logical data modeling, data flow modeling and entity behavior modeling.

1. **Logical Data Modeling:** This involves the process of identifying, modeling and documenting data as a part of system requirements gathering. The data are classified further into entities and relationships.
2. **Data Flow Modeling:** This involves tracking the data flow in an information system. It clearly analyzes the processes, data stores, external entities and data movement.
3. **Entity Behavior Modeling:** This involves identifying and documenting the events influencing each entity and the sequence in which these events happen.

**3.1.1 Problem Identification Using SSADM**

The SSADM was used to discover some problems;

1. **Feasibility Study:** This assumes that the proposed project has been identified as a result of an exercise such as strategic planning and sets out to evaluate the various technical, organizational, financial and business options available. The aim is to establish the whether the direction and requirements of the project are feasible. The aim is to evaluate the feasibility of the proposal, involving an analysis of the problem and determination of the best solution; usually a range of potential solutions are presented.
2. **Investigation of the Environment:** The process of identifying, modeling and documenting the data requirements of the system being designed. The result is a data model containing entities (things about which a business needs to record information), attributes (facts about the entities) and relationships (associations between the entities).
3. **Business System Option (BSO):** A BSO defines the functional scope of a proposed solution. At its most basic level it consists of textual descriptions of those requirements satisfied by the solution. All BSOs must satisfy the minimum requirement as identified by user representatives.
4. **Requirement Certification:** Requirement Certificate aims to equip the learner or end user (client) with the advanced knowledge of project management and will enable the learner to understand the system requirement to uphold the project management required parameters.
5. **Technical System Option (Implementation):** There is availability of software, hardware and technical man power for the development and running of the new system. Hence the system is technically feasible as the requirement can be met without stress and much financial input. The software and hardware requirements include an Integrated Development Environment for web based applications, a standard PC for running this application, a local server and an up to date web browser for testing. As a programmer, the researcher can provide these requirements with ease and as such, this project is technically feasible.
6. **Logical Design:** Technical system options are production and logical design updates and query processing and system dialogue.
7. **Physical Design:** physical database design and a set of program specifications Program specifications are using the logical system specification and the technical system specification.

**3.2 Analysis of the Existing System**

The present system uses file based approach in storing and managing of the university’s alumni information. Information is collected manually through the aid of bio-data forms issued to students who must have graduated from the institution. Upon graduation, the student returns to the school to pay alumni dues within any of the banks in the school. This fee is compulsory before the student can proceed with his/her clearance. After this payment, the student returns to the alumni office and presents his/her teller or evidence of payment. A paper and pen register is then issued to him/her to put down their details. All these information when sorted and collated are stored on physical storage like file cabinets.

For most pen and paper approach to data collection and storage, more energy and manpower is required as a single individual may not be efficient in performing such duty. This system is exposed to different challenges such as, loss of data, incorrect data entry due to ignorance, disparity of information provided by the student and so on. Another limitation of the existing system is that, it cannot be accessed from anywhere. This restricts the coverage, as most alumni do not reside within the school environment.

**3.2.1 Dataflow of the Existing System**

**WEB-BASED ALUMNI DATABASE MANAGEMENT SYSTEM**

Input Analysis

Output Analysis

Process Analysis

Fill Alumni Form

Opening Account

Login to System

Process Request

Process New Account

Validate Login Details

Produce Result

Generate Report

**Figure 3.2.1:** Dataflow of the Existing System

DVC

Administration

Dean of Student Affairs

Internal Audit

Chancellor

Governing Council

DVC

Academic

Vice Chancellor

Registrar

Bursar

Director of Medical Services

(Dr) Personnel

Payroll Officer

Alumni Department

**Figure 3.2.1.1:** Organization Structure of Nnamdi Azikiwe University

**3.3.2 Disadvantages Of The Existing System**

Some of the problems identified in the present system include:

1. The speed of processing data manually is low and prone to errors.
2. The current process is stressful to end-users
3. Things done manually were very uncomfortable.

**3.2.3 Weakness of the Existing System**

The following are the weakness of the existing system;

1. **Insecurity of Alumni Data:** security of alumni information is not fully guaranteed owing to the fact that the present system is integrated hence; leading to several administrators viewing the alumni data.
2. **Time constraint:** The retrieval and modification of information can be time consuming considering the fact that the staff in-charge of collating the information from the alumni bio-data will have to be sorted before management approves the information. Hence, there is a slow process collection and transfer of data.
3. **More manpower services:** The present system is characterized with a manual process of collecting and sorting the individual information, and for effective productivity, more trained personnelare required.
4. **High Risk of Data Entry Errors:** due to the disintegration the alumni or secretary in-charge is prone to making errors in data Entry.
5. **Risk of Travelling:** safety of lives is not fully guaranteed owing to bad roads which may easily lead to accidents.

**3.3 Analysis of the Proposed System**

The database management system (DBMS) for NAU alumni is an automated system with an integrated managerial process of alumni information. It is integrated because the system manages alumni personal information and also provides a search mechanism for this information. This system can be accessed from anywhere by an alumni of the school. This system solves the challenges encountered in the existing system, whereby the alumni have to travel from far and near in order to access the alumni office. The proposed also provides an online community for the alumni to continue to update their information as their status changes. This gives the university alumni department up-to-date information about her alumni.

This DBMS has three modules namely: the alumni module, search module and the administrator modules. The system allows alumni to access the system via a valid personal identification number and valid registration number, however, if a wrong password is entered, the system will deny the alumni a login process but if he/she gains access to the system, he can input his information or edit his profile.

The system also allows access to administrators via a valid admin username and password, on getting into the system they can view alumni data, create and delete alumni access accounts. The administrator through this platform can delete alumni record from the database, edit the alumni information based on the alumni update request, change username and passwords, and also register an alumni. He also has the privilege of querying the database via the advance SQL query in order to get to view the entire information in the database.

**3.3.1 Data Flow Diagram of the Proposed System**

This is a data flowchart of the proposed system as shown in figure 3.2.

Registration Details

ADMIN TABLE

ALUMNI TABLE

ADMIN

STUDENTS

LOGIN ACCOUNT

REGISTER

Success / Failure

Success / Failure

Login Details

Success / Failure

Login Details

Sends Details

Sends Details

Found / Not Found

Found / Not Found

**Figure 3.2:** Data Flow Diagram of the Proposed System

**3.3.2 Advantages of the Proposed System**

The following are the advantages of the proposed Web-based Alumni Database Management System:

1. Keep alumni information organized under administrative control no matter how disparate, fast changing or intricate it may seem.
2. Incorporate automation in the storage and retrieval of alumni information.
3. Incorporate security measures in data manipulation within the system.
4. Provide ease of access through the use of well-designed, user friendly interfaces and the World Wide Web.

**3.3.3 Justification of the Proposed System**

The proposed system harmonizes all the procedures involved in the existing system and centralizes them into a simpler unified platform. With the proposed system, the alumni do not need to experience the difficulties associated with the existing system, instead an online platform gives them global access into the university alumni department.

The proposed system:

1. Saves time and cost
2. Reduces the number of redundant files and paper works
3. It ensures uniformity by providing a centralized database system for all alumni information.
4. It is faster, more user friendly, and provides secured access to information.

To ensure a standardized object oriented program in its entire ramification, HTML, CSS, JAVASCRIPT, PHP and MYSQL Database was used in the development of seaport billing software. These entire programs are used to ensure effective program. The motive behind the use of the language is its compatibility with several Operating Systems. It is object oriented and combines the feature of hypertext Preprocessor (PHP) and JavaScript platform thereby making it to run on any Operating System. It is secured in that it does not cause harm to user’s system and access to information is restricted. The language is simple and easy to learn.

**3.4 Functional Requirements**

The following figure 3.4 shows the various modules involved in the system and available to users who have limited access and to the Admin who have full access to the system.

**3.4.1 Use Case Diagram Of The Admin / User Privileges**

**ADMIN**

**END-USER**

**Figure 3.3: Use Case diagram of the Admin**

**Figure 3.4: Use Case diagram of the User (Client)**

**3.5 Data Requirements**

The following are the data requirements of new and existing users in the system. New users are required to create an account by providing some necessary information such as:

1. **Email Address:** The user's email address is required during registration and subsequent login on the system.
2. **Password:** The user is required to enter a secured password or pin during registration and subsequent login on the system
3. **User Name:** The user is required to enter a nickname which he/she will be addressed as subsequently for security reasons.
4. **Passport:** This field contains the photograph or picture of the account holder or system user.
5. **Address:** This field contains the address of the system user.

**3.6 High Level Model of the Proposed System**

The high level model of the proposed system is illustrated below;

**ALUMNI DATABASE MANAGEMENT SYSTEM**

HOME

Admin

END-USER (Client)

Open Account

Input Full Name

Input Matric No

View Receipt

Update Record

Insert/Delete Record

Monitor Transaction

Respond

Give Feedback

**Figure 3.5:** High Level Model of the Proposed System

**CHAPTER FOUR**

**SYSTEM DESIGN AND IMPLEMENTATION**

**4.1 Objectives of the Design**

The following are the objectives of the proposed Web-based Alumni Database Management System design will;

1. Keep alumni information organized under administrative control no matter how disparate, fast changing or intricate it may seem.
2. Incorporate automation in the storage and retrieval of alumni information.
3. Incorporate security measures in data manipulation within the system.
4. Provide ease of access through the use of well-designed, user friendly interfaces and the World Wide Web.

**4.2 Cohesion and Decomposition High level Model**

**Description:** This is a cohesion and Decomposition High level Model

Admin

Update Record

Insert/Delete Record

Activate Account

Deactivate Account

Admin

Admin

**Figure 4.1:** Admin User Privileges

Client (User)

Open Account

Input Full Name

Input Password

View Alumni Receipt

Give Feedback

**Figure 4.2:** Client (User) Privileges

**4.3 Control Center / Overall Dataflow Diagram**

**Description:** This is a control center / overall dataflow diagram

Alumni Database Management System

Input from keyboard

Process

Disk storage

Result to screen

Report (output)

**Figure 4.3:** Control Center / Overall Dataflow Diagram

**4.3.1 Proposed System Operation Flowchart**

**Description:** The diagram below entails the proposed system operation flowchart

Input Username and Password

Is username and password valid?

Display “Invalid Username/password”

No

Yes

**Figure A:** Login flowchart

INPUT REGISTRATION DETAILS

SAVE TO DATABASE

CONTINUE?

NO

YES

**Figure B:** Registration Flowchart

INPUT STAFF REGISTRATION DETAILS

SAVE TO DATABASE

CONTINUE?

NO

YES

**Figure C:** Staff Registration Flowchart

Enter Student ID

Input Phone Number

Validate Student IDDirector of Works

Give Feedback

Answer security question

A

B

Are answers correct?

Send Request

Display Error message

Save

NO

YES

**Figure 4.4:** Proposed System Operation Flowchart

**4.4 System Specification and Design**

**4.4.1 Input and Output Specification**

**Description:** The diagram below entails the Input and Output Specification of the proposed system.

**Alumni Database System**

Enter Phone Number

Enter Password

Sign In

Register Here

Student ID:

Password:

**Figure 4.5:** Input Specification for Login System

**Login Successful**

**Or**

**Login Unsuccessful**

**Figure 4.6:** Output Specification for Web-based Alumni Database Management System

**4.4.2 Database Specification and Design**

The Web-based Alumni Database Management System database contains four (4) tables which are Login Table, Alumni Table and Admin Table:

**Table 4.1: Login Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **FIELD NAME** | **DATATYPE** | **FIELDLENGTH** | **KEY** |
| 1 | Admin\_ID | Varchar | 8 | Primary key |
| 2 | Username | Varchar | 20 |  |
| 3 | Password | Varchar | 20 |  |

**Table 4.2: Alumni Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **FIELD NAME** | **DATATYPE** | **FIELDLENGTH** | **KEY** |
| 1 | RegNO | Varchar | 12 | Primary Key |
| 2 | Name | Varchar | 20 |  |
| 3 | Address | Varchar | 50 |  |
| 4 | Phone | Varchar | 11 |  |
| 5 | Email | Varchar | 20 |  |
| 6 | Current\_City | Varchar | 20 |  |
| 7 | Country | Varchar | 20 |  |
| 8 | MaritalStatus | Varchar | 8 |  |
| 9 | Department | Varchar | 12 |  |
| 10 | Sex | Varchar | 8 |  |
| 11 | D.O.B | Date | 9 |  |
| 12 | Faculty | Varchar | 20 |  |
| 13 | YearGraduated | Varchar | 9 |  |
| 14 | Degree | Varchar | 20 |  |

**Table 4.3:** Admin Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **FIELD NAME** | **DATATYPE** | **FIELDLENGTH** | **KEY** |
| 1 | Firstname | Varchar | 20 |  |
| 2 | Lastname | Varchar | 20 |  |
| 3 | Email | Varchar | 20 |  |
| 4 | Phone | Varchar | 11 |  |
| 5 | Security\_question | Varchar | 10 |  |
| 6 | Security\_answer | Varchar | 10 |  |

**4.4.3 Data Dictionary**

The data dictionary table contains the list of field and their description used in the database table structure designation.

**Table 4.5: Alumni Data Dictionary**

|  |  |  |
| --- | --- | --- |
| **S/N** | **Field Name** | **Description** |
|  | Id | This field signifies the unique identification of the table and it’s a primary key. |
|  | Name | A word, term or phrase by which a student or a lecturer is known and distinguished with from others |
|  | Address | The number, street name, and other information that describes where a student lives |
|  | Password | A secret word, phrase or numbers used to gain access to the system |
|  | Country | The country name |
|  | City | The state or city within a country |
|  | Date of Birth | The date which the staff was born |
|  | Email Address | A unique address used to send or receive electronic mail |
|  | Phone No | The mobile phone number of the staff |
|  | Marital Status | The fact about somebody whether he is married, unmarried or single |
|  | Faculty | A term used to describe a department within a university |
|  | Department | This describes a segment of the faculty where the staff plies his trade. |
|  | Reg Number | A student registration number |
|  | Sex | The sex definition of the staff. Whether “male” or “female” |
|  | Year Graduated | Year that alumni graduated from the university |
|  | Degree | Degree(s) obtained by the alumni. (B.Sc, M. Sc, NCE etc) |

**4.5 Choice and Justification of Programming Language**

To ensure a standardized object oriented program in its entire ramification, HTML, CSS, JAVASCRIPT, PHP and MYSQL Database was used in the development of Web-based Alumni Database Management System. These entire programs are used to ensure effective program. The motive behind the use of the language is its compatibility with several Operating Systems. It is object oriented and combines the feature of hypertext Preprocessor (PHP) and JavaScript platform thereby making it to run on any Operating System. It is secured in that it does not cause harm to user’s system and access to information is restricted. The language is simple and easy to learn.

Below is a brief explanation of the programming languages used;

**HTML:** HTML is a **markup** language for **describing** web documents (web pages).

1. HTML stands for **H**yper **T**ext **M**arkup **L**anguage
2. A markup language is a set of **markup tags**
3. HTML documents are described by **HTML tags**
4. Each HTML tag **describes** different document content

**CSS:** stands for Cascading Style Sheet, it describes how HTML elements are to be displayed on screen, paper, or in other media. CSS saves a lot of work. It can control the layout of multiple web pages all at once and External style sheets are stored in CSS files

**JAVASCRIPT:** JavaScript is the programming language of HTML and the Web. Programming makes computers do what you want them to do. JavaScript is easy to learn.

**Hypertext Preprocessor (PHP):** PHP is a server scripting language, and a powerful tool for making dynamic and interactive Web pages. PHP is a widely-used, free, and efficient alternative to competitors such as Microsoft's ASP.

**MYSQL:** SQL is a standard language for accessing and manipulating databases. SQL stands for Structured Query Language, SQL lets you access and manipulate databases, and SQL is an ANSI (American National Standards Institute) standard. SQL can perform the following task;

1. SQL can execute queries against a database
2. SQL can retrieve data from a database
3. SQL can insert records in a database
4. SQL can update records in a database
5. SQL can delete records from a database
6. SQL can create new databases
7. SQL can create new tables in a database
8. SQL can create stored procedures in a database
9. SQL can create views in a database
10. SQL can set permissions on tables, procedures, and views

**4.6 Program Documentation**

The main purpose of program documentation is to describe the design of your program. The documentation also provides the framework in which to place the code. As coding progresses, the code is inserted into the framework already created by the program documentation. The following was documented for the successful implementation of the software;

1. README file which contains a brief description of the project, installation instructions, a short example/tutorial,
2. Document your code which comprises application of coding conventions, such as file organization, comments, naming conventions, programming practices, etc.
3. Version of the files along with the major edits you did in each version

**4.7 Implementation Techniques**

The software Implementation is a process carried out to make changes on the tested programs developed in the system. The software will be installed successfully if the hardware requirement and the software requirement are available. The following phase contains how the software was implemented successfully;

**1) Coding:** The coding system has been developed to meet the following main objectives will;

* Keep alumni information organized under administrative control no matter how disparate, fast changing or intricate it may seem.
* Incorporate automation in the storage and retrieval of alumni information.
* Incorporate security measures in data manipulation within the system.
* Provide ease of access through the use of well-designed, user friendly interfaces and the World Wide Web.

**2) File conversion:** During file setup it is necessary to convert the existing master file to a new page. This new form is the responsibility of the newly designed, which undergoes the process of converting the old system master file to a new one.

System Conversion is a transformation process stage in system implementation at which the newly designed system is put in place of the old system by the organization after been tested and documented to prove that it is working. It is a significant milestone after which the ownership of the system if been officially transferred from the researcher (analyst) and the programmer to the end user.

The under listed are various system conversion briefly described to enable the implementation process.

1. **Parallel System of Conversion:** This takes place simultaneously at the same time, runs between the old and new system until probably the new system is completely put in place and the old system discarded.
2. **Direct System of Conversion:** This takes place automatically at a time over a short period of time. It saves cost, manages time and enhances fast operation but finds to a high risk of failure without new system comparability.

**3) Changeover Procedure:**

This is the process of changing from the former or previous system to the new system. In a changeover procedure, the organization change from the existing system to new system. This can be done in one of the following ways:

1. **Parallel Changeover:** This is the process of running the two systems simultaneously and comparing their results until the new system proves satisfactory; after which the use of the new system would be commenced.
2. **Direct Changeover:** This is the case whereby the new system replaced the old system immediately after development and when it must have proved successful. This procedure may be drastic if the new system fails.
3. **Phased Changeover:** In phased changeover method, the system usually starts with one unit or department of the organization. The advantage is that the organization would avoid losses in case it (the new system) fails.

**4) Commissioning:** This is the process of ensuring that installed systems are functionally tested and capable of being operated and conform to the design intention.

**4.8 Programming Module Specification**

Programming module specification follows successful implementation and incorporates also evaluation of the system in order to give the desired or necessary improvement. It includes monitoring the process of the other stages of system development to ensure that the development plan and objective are being accomplished. There are three types of system maintenance which include;

1. **Corrective Maintenance:** This covers maintenance, which is needed to put right coding errors and other faults, which may be introduced into the software. It include, the routine “debugging” of newly produced or recently amended code and emergency error correction in response to report faults.
2. **Adaptive Maintenance:** This covers the changes which are made to the software to meet new or changed circumstances, such as restructuring of a database, alternatives in operating procedures and changes to hardware or software versions.
3. **Preventive Maintenance:** This covers attempts to make the software perform more effectively. It includes user requests for enhancement, improvement due to experience, changes to make the software more easy to use and rewrite the code to make the maintenance that is specifically used for the new system to reduce its chances of breakages.

**4.8.1 Installation**

The following are the steps required for the installation of the new Web-based Alumni Database Management System;

**Installing Software from the CD Drive or Flash Drive**

**Step 1:** Insert and Open you Compact Disk (CD)

**Step 2:** Copy the “**alumni-database-management-system”** folder and paste in your WAMP server Path to Paste the folder: **C:\wamp\www\**

**Step 3:** Turn on your Window Apache MySQL and PHP (WAMP Server 2.4)

**Step 4:** Open your browser e.g Mozilla Firefox, Google Chrome.

**Step 5:** Type in this URL below on your address bar of your browser

**localhost/phpmyadmin/**

**Step 6:** Ensure the username is **root** and password is empty before clicking on **Go** button

**Step 7:** Click on Import and Browse your computer to search for alumni.db

Path: **C: \wamp\www\alumni-database-management-system\db**

Step 8: Click and open on **alumni**, then click on **Go** button below the import page.

Step 9: Type in this URL below to execute the Software

**127.0.0.1/alumni-database-management-system/**

Step 10: You’re done

**Re-Executing the Software after Installation**

Step 1: Start your WAMP Server

Step 2: Open your browser and type in the URL below and click enter

**127.0.0.1/alumni-database-management-system/**

**4.8.2 Security Design Specification**

The security design specification is an authentication system that required a valid password to be input before using the proposed system. Below is a diagram of the Security Design Specification:

Input Login Details

Is

Login = Valid

?

Yes

No

DISPLAY MAIN MENU

**Figure 4.7:** Security Design Specification

**4.8.3 System Architecture**

A system architecture or systems architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system. A system architecture can consist of system components and the sub-systems developed, that will work together to implement the overall system. Proposed Application Software Architecture:

Front End

Back End

Database

Server

Sends Data Packer

Receives Data Packer

**Figure 4.8:** System Architecture

**4.9 Computer Hardware Minimum Requirement**

The software designed needed the following hardware for an effective operation of the newly designed system.

1. A system running on AMD, Pentium 2 or higher processor
2. The random access memory (ram) should be at least 512mb.
3. Enhanced keyboard.
4. At least 20 GB hard disk.
5. V.G.A or a colored monitor.

**4.10 Software Requirement**

The software requirements include:

1. A Windows XP operating system or higher version for faster processing
2. MySQL database
3. Apache webserver
4. PHP 5.6+ runtime environment

**4.11 Personnel / User Training**

Before the user can use the software, it is necessary to give a thorough training on how to use the software. It is also important to note that the users of the software are the operators. Training involves the tutorials, lectures or other methods used to make the users to understand how to use and maintain the software program. The following steps would help train and guide the users on how to use the program effectively:

1. Follow the instruction as in the software installation above
2. Right click on the Enhanced Web-based Alumni Database Management Software and copy to the installed WAMP server
3. If successful, click on your browser and type in **127.0.0.1/alumni-database-management-system**
4. Enter the security password and click on login
5. Enter the main menu, select any of the submenus you want and continue
6. After performing necessary actions on the submenu, exit the program from the browser close button.

**CHAPTER FIVE**

**SUMMARY, CONCLUSION AND RECOMMENDATION**

**5.1 Introduction**

It is important to ascertain that the objective of this study was on the Design and Implementation of a Web-based Alumni Database Management System. In the preceding chapter, the relevant data collected for this study were presented, critically analyzed and appropriate interpretation given. In this chapter, certain recommendations made which in the opinion of the researcher will be of benefits in addressing the Web-based Alumni Database Management System.

**5.2 Summary**

An Automated Web based Alumni Database Management System is a way of bringing many methods of reporting and control into one working environment. The Alumni association is independent of the school in funding and administrative support. The Association administration is run through the efforts of volunteers and part-time hires. The inability of the association to become a viable entity can be attributed to a few major factors. First, the fluctuations in the work force effort and the lack of consistent commitment to the association have caused inefficient and misguided efforts. The second major factor affecting the viability of the Alumni Association is the lack of an accurate and homogeneous database of the school’s alumni. Alumni records over the history of the school have been maintained in a variety of non-automated methods.

The aim of the study is to design and implement of a Web-based Alumni Database Management System. In achieving this aim, the following specific objectives were laid out as follows to develop an application software that will keep alumni information organized under administrative control no matter how disparate, fast changing or intricate it may seem, incorporate automation in the storage and retrieval of alumni information and provide ease of access through the use of well-designed, user friendly interfaces and the World Wide Web.

The motivation that led to the implementation of the proposed system is that the manual approaches employed in the management of alumni information are not flexible, efficient and productive. Keeping track of all students who passed through the university since its inception is obviously an uphill task as files containing information and details of these students may have been lost, damaged or even forgotten about.

The methodology adopted in this study is the structured system analysis and design methodology (SSADM) which is a technical approach for analyzing and designing an application or system by applying object throughout the software development process. The programming language used is HTML, CSS, JAVASCRIPT, PHP, SQL and JQUERY. The reason why web programming languages was used is because, it is platform independent and it is a web based application. This research work will be of benefit to college of education, polytechnic and university students and alumni officials. The expected result is a web-based alumni database management system that will automate the mechanism for search and retrieval of information, save time and cost and ensures uniformity by providing a centralized database system for all alumni information.

**5.3 Conclusion**

This ADBMS software was designed and developed for fast and easy way of handling alumni information. It reduces error usually encountered in the management of large and varied data from different sources. In essence, the software is designed to help the management handle processes of storing, retrieval and updating of alumni information of Nnamdi Azikiwe University.

The software eliminates data redundancy as it will also keep alumni information organized under managerial control no matter how disparate, fast changing or intricate the information may be.

The system is a web based system that will enable alumni to register their information in the system irrespective of their locations. They can also make modifications on their profiles with a proper authentication and approval by the system administrator.

In essence, the research work was successfully researched to meet the objectives set at the beginning of the project work. While one cannot completely rule out one form of limitation or the other, it was a success to a greater extent. On the whole, the research has been a worthwhile exercise. It has afforded the researcher the opportunity to really appraise the situation on the ground and allow one to bring out areas that might need attention for the improvement of the research work.

**5.4 Recommendation**

The following are recommendations for further study on this research work;

1. With this ADBMS software, it is easy to classify and reclassify data thereby reducing duplication of efforts of the staff or personnel.
2. The system is easy to understand and it is user friendly.
3. The system has an integrated search engine mechanism which makes user experience fast and efficient.
4. The ADBMS software is a web based system, therefore there’s no geographical restriction or barrier.

Only few across the counter information were provided for in the research work, it is strongly recommended for subsequent researcher to expand the scope of the research work.

**REFERENCES**

Abidi, S.A.H., (1991). Information and Communication for development in Africa, Nairobi

Bing, T., Schubert, R, and Siu, C. (2001), Web Information Monitoring for competitive intelligence, Taylor and Francis Academic Information Journals, 33(3):235-251

Carter, Lemuria, and Belanger (2005), The Utilization of e-government services citizen trust, innovation and acceptance factors. France Information Systems 15 (1), 5-25.

Cohn, M. (2014). "Zoho Revamps Online Accounting Software". Accounting Today. Retrieved 29 January 2014.

Connolly,T., Begg, C., (2001), Alumni Database Management System (DBMS)

Debons, L., (1988). The right to access of information: A paper presented at theSCESCAL XI Zomba, Malawi Library Association, p. 8

Donna, O. (2019). "What is horizontal portal? definition and meaning". BusinessDictionary.com. Retrieved 8 August 2019.

Enrado, P. (2000). Staff and patient, Room and Resource scheduling systems, Healthcare

Grammatikou, M ., Stamatelopoulos, F., and Maglaris, B. (2003), Distributed information system architecture for healthcare.

Harpreet, S.R. (2002),Transferring data between Heterogeneous databases using the web.

Hosea, (1995) Chapter 4, Verse 6, (King James Version).

http://www.healthcareitnews.com/new

Joch, A. (2000), Take the pain out of patient scheduling, Physician and Sport Medicine.

Johnson, R. and Mehra, S. (2002), Best practice complaint management, Academy of management Executive, 16(4): 145-254.

Joseph M. Hellerstein, et al (2007), Architecture of Database System.

Laudon, K. C., Laudon, J. D., (2002), Management Information Systems, Organization and technology.

Lee, S.M. and Ssllani, A. (2001), A decision support system for health care services,Hospital management Quarterly, 22(3):64-70.

Michael, S. (2010). CPA Technology Advisor. "Building Strategy: How Workflow, Document Management and Portals Work Together".

Michael, S. (2010). CPA Technology Advisor. "Building Strategy: How Workflow, Document Management and Portals Work Together".

Nielsen, B. (1994), Management Information Systems, Michigan, U.S.A.

Oddi, A., and Cesta, A. (2000), Toward interactive scheduling systems for managing Medical Resources: Artificial intelligence in medicine, 20(2): 113-138.

Rodrigue, J. (2018). American Institute of CPAs. "The Rage Surrounding Client Portals".

Samuel, D. (2010). Journal of Accountancy. "Client Portals: A Secure Alternative to E-Mail".

Samuel, D. (2010). Journal of Accountancy. "Client Portals: A Secure Alternative to E-Mail".

Saucer, J. and Bruns, G. (1997), Knowledge-based Design of scheduling system in industry and medicine, IEEE-expert, 12(1):24-31.

Sean, O. (2010). CPA Technology Advisor. "Building Strategy: How Workflow, Document Management and Portals Work Together".

Sean, O. (2010). CPA Technology Advisor. "Building Strategy: How Workflow, Document Management and Portals Work Together".

Seyle, T. (2014). "Expand Your Solo or Small Firm Practice Using Client Portals" (PDF). Law Practise Today. Retrieved 29 January 2014.

Seyle, T. (2014). "Expand Your Solo or Small Firm Practice Using Client Portals" (PDF). Law Practise Today. Retrieved 29 January 2014.

Stoner, J. (1995),Management 6th Edition, London, Prentice Hall

Susan, L. (2011). "What is vertical portal? definition and meaning". BusinessDictionary.com. Retrieved 8 August 2011.

Yilmaz, B. (1995). The right information: Is it possible for developing countries?IFLA25

Zuboff, S. (1988), In the age of the Smart Machine, The future of Work and Power.

**APPENDIX A**

**“SOURCE CODE”**

**1) Admin Login Page**

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<title>Alumni Database Management System</title>

<style type="text/css">

@import url("style/style.css");

</style>

<script type="text/javascript" src="js/js.js"></script>

</head>

<body>

<div id="wrapper"><div id="pageHeader">

<table width="512" height="86" border="0" align="center" cellpadding="2" cellspacing="1">

<tr><td width="87" valign="top"><imgsrc="img/logo.jpg" alt="" width="83" height="85" /></td><td width="414" align="center" valign="top"><h2>Alumini Database Management System</h2><h3>NnamdiAzikiwe University, Awka<br /></h3> Department of Computer Science</td></tr></table></div>

<div class="allBody"><form>

<table width="100%" height="241" border="0" cellpadding="2" cellspacing="1">

<tr><td height="47" colspan="2">ADMIN LOGIN</td><td width="38%" rowspan="4" valign="top"><imgsrc="img/locked.jpg" width="205" height="153" /></td></tr><tr><td width="21%" height="35" valign="top">Username</td><td width="41%" valign="top"><input name="uname" type="text" id="uname" size="35" placeholder="username" /></td></tr><tr>

<td valign="top">Password</td><td valign="top"><input name="pswd" type="password" id="pswd" size="35" placeholder="password"/></td></tr><tr><td valign="top">&nbsp;</td>

<td valign="top"><input name="login" type="submit" class="button" id="login" value="Login" /></td></tr></table></form></div></div>

<div id="pageFooter"><br />

<table width="273" height="99" align="center">

<tr><td height="30" valign="top"><b style="color:!important;">Project by:</b>

</td></tr>

<tr>

<td height="61" valign="top"><b style="color:#933; font-family:'Trebuchet MS', Arial, Helvetica, sans-serif; font-weight:lighter; font-size:14px;">Fakorede M. Femi - 2013514419<br />

<br />

Ezendu Christian C. - 2012514217</b>

</td></tr></table>

</div>

</div>

</body>

</html>

**2) Alumni Login Page**

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<title>Alumni Database Management System</title>

<style type="text/css">

@import url("../style/style.css");

</style>

<script type="text/javascript" src="../js/js.js"></script>

</head>

<body>

<div id="wrapper">

<div id="pageHeader">

<table width="512" height="86" border="0" align="center" cellpadding="2" cellspacing="1">

<tr><td width="87" valign="top"><imgsrc="../img/logo.jpg" alt="" width="83" height="85" /></td>

<td width="414" align="center" valign="top"><h2>Alumini Database Management System</h2><h3>NnamdiAzikiwe University, Awka<br /></h3> Department of Computer Science</td>

</tr></table></div><div class="allBody"><form><table width="100%" height="250" border="0" cellpadding="2" cellspacing="1"><tr><td height="53" colspan="2">LOGIN</td><td width="40%" rowspan="5" valign="top"><imgsrc="../img/connected.jpg" width="205" height="132" /></td></tr>

<tr><td width="18%" height="35" valign="top">Username</td>

<td width="42%" valign="top"><input name="uname" type="text" id="uname" size="35" /></td></tr><tr><td height="31" valign="top">Password</td><td valign="top"><input name="pwd" type="password" id="pwd" size="35" /></td>

</tr><tr><td height="66" valign="top">&nbsp;</td><td valign="top"><input name="login" type="submit" class="button" id="login" value="Login" /></td></tr><tr><td height="30" valign="top">&nbsp;</td>

<td valign="top">Don't have an account? &nbsp;<a href="a\_registerAlumni.php">Register as Alumni</a></td></tr></table></form></div>

</div><div id="pageFooter"><br />

<table width="273" height="99" align="center"><tr><td height="30" valign="top"><b style="color:!important;">Project by:</b></td></tr>

<tr><td height="61" valign="top"><b style="color:#933; font-family:'Trebuchet MS', Arial, Helvetica, sans-serif; font-weight:lighter; font-size:14px;">Fakorede M. Femi - 2013514419<br /><br />

Ezendu Christian C. - 2012514217</b></td></tr>

</table></div>

</div></body>

</html>

3) Alumni Registration Page

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<title>Alumni Database Management System</title>

<style type="text/css">

@import url("../style/style.css");

</style>

<script type="text/javascript" src="../js/js.js"></script>

</head>

<body>

<div id="wrapper">

<div id="pageHeader">

<table width="512" height="86" border="0" align="center" cellpadding="2" cellspacing="1">

<tr>

<td width="87" valign="top"><imgsrc="../img/logo.jpg" alt="" width="83" height="85" /></td>

<td width="414" align="center" valign="top"><h2>Alumini Database Management System</h2><h3>NnamdiAzikiwe University, Awka<br /></h3> Department of Computer Science</td>

</tr></table></div>

<div class="allBody">

<p> ALUMNI REGISTRATION</p>

<form><fieldset><legend>Personal Information</legend>

<table width="100%" border="0" cellspacing="1" cellpadding="2">

<tr><td width="26%">Full Name</td>

<td colspan="3"><input name="name" type="text" id="name" size="40" placeholder="fullname" /></td></tr>

<tr><td>Sex</td>

<td colspan="3">

<select name="sex" id="sex">

<option selected="selected">choose</option>

<option>Male</option>

<option>Female</option>

</select></td>

</tr><tr>

<td>Date of Birth</td>

<td width="13%"><select name="year" id="year" >

<option selected="selected"></option><option>1960</option>

<option>1961</option><option>1962</option><option>1963</option><option>1964</option><option>1965</option><option>1966</option><option>1967</option><option>1968</option><option>1969</option><option>1970</option><option>1971</option><option>1972</option><option>1973</option><option>1974</option><option>1975</option><option>1976</option><option>1977</option><option>1978</option><option>1979</option><option>1980</option><option>1981</option><option>1982</option><option>1983</option><option>1984</option><option>1985</option><option>1986</option><option>1987</option><option>1988</option><option>1989</option><option>1990</option>

</select></td>

<td width="16%"><select name="month" id="month">

<option selected="selected"></option><option>January</option><option>February</option>

<option>March</option><option>April</option><option>May</option><option>June</option><option>July</option><option>August</option><option>September</option><option>October</option><option>Novemeber</option><option>December</option>

</select></td>

<td width="45%"><select name="day" id="day">

<option selected="selected"></option><option>1</option><option>2</option>

<option>3</option><option>4</option><option>5</option><option>6</option><option>7

</option><option>8</option><option>9</option><option>10</option><option>11</option>

<option>12</option><option>13</option><option>14</option><option>15</option><option>16</option><option>17</option><option>18</option><option>19</option><option>20

</option><option>21</option><option>22</option><option>23</option><option>24</option><option>25</option><option>26</option><option>27</option><option>28</option>

<option>29</option><option>30</option>

</select></td>

</tr><tr>

<td>Marital Status</td>

<td colspan="3"><select name="sex3" id="sex3">

<option selected="selected">choose</option>

<option>Married</option>

<option>Single</option>

</select></td></tr></table></fieldset><br />

<fieldset>

<legend>Contact Information</legend>

<table width="100%" border="0" cellspacing="1" cellpadding="2">

<tr><td width="26%">Email</td>

<td width="74%"><input name="email" type="text" id="email" size="40" placeholder="email address"/></td></tr>

<tr><td>Contact Address</td>

<td><input name="address" type="text" id="address" size="40" placeholder="contact address" /></td>

</tr><tr>

<td>Phone Number</td>

<td><input name="phone" type="text" id="phone" size="40" placeholder="phone number" /></td></tr>

<tr>

<td>Current City</td>

<td><select name="city" id="city">

<option selected="selected">choose</option><option>Abia</option>

<option>Adamawa</option><option>Enugu</option><option>Edo</option><option>Kaduna</option><option>Kano</option><option>Sokoto</option><option>Others</option>

</select></td></tr><tr>

<td>Country</td>

<td><select name="sex4" id="sex4">

<option selected="selected">choose</option>

<option>Nigeria</option>

<option>Others</option>

</select></td></tr></table></fieldset>

<br />

<fieldset>

<legend>School Information</legend>

<table width="100%" border="0" cellspacing="1" cellpadding="2">

<tr><td width="26%">Reg NO</td>

<td width="74%"><input name="regno" type="text" id="regno" size="40" placeholder="registration number"/></td>

</tr><tr>

<td>Department</td>

<td><select name="dept" id="dept">

<option selected="selected">choose</option>

<option>Law</option><option>Mechanical Engineering</option><option>Chemeical Engineering</option><option>Linguistics</option><option>Computer Science</option>

<option>Industrial Physics</option><option>Geology</option>

<option>Biochemistry</option><option>Microbiology</option><option>Zoology</option>

<option>Econoics</option><option>Masscommunication</option><option>Public Administration</option><option>Music</option><option>Theatre Arts</option>

<option>Guidance and Counseling</option><option>Library and Information Science</option><option>Business Administration</option>

<option>Parasitology and Entomology</option>

</select></td></tr><tr>

<td>Faculty</td>

<td><select name="faculty" id="faculty">

<option selected="selected">choose</option>

<option>Management Sciences</option><option>Arts</option><option>Engineering</option>

<option>Environmental Sciences</option><option>Physical Sciences</option>

<option>Biosciences</option><option>Law</option>

</select></td></tr><tr>

<td>Degree</td>

<td><select name="degree" id="degree">

<option selected="selected">choose</option>

<option>B.sc</option><option>B.ed</option><option>B.A</option><option>B.Eng</option>

<option>Other</option></select></td>

</tr>

<tr>

<td height="32">Year Graduated</td>

<td><select name="yrGrad" id="yrGrad">

<option selected="selected">choose</option>

<option>1991</option><option>1992</option><option>1993</option><option>1994</option><option>1995</option><option>1996</option><option>1997</option><option>1998</option><option>1999</option><option>2000</option><option>2001</option><option>2002</option><option>2003</option><option>2004</option><option>2005</option><option>2006</option><option>2001</option><option>2007</option><option>2008</option><option>2009</option><option>2010</option><option>2011</option><option>2012</option></select></td></tr></table></fieldset><tr><br />

<td align="center"><input name="reg" type="submit" class="button" id="reg" value="Register" /><input name="cancel" type="reset" class="button" id="cancel" value="Cancel" /></td></tr></form></div></div>

<div id="pageFooter"><br /><table width="273" height="99" align="center">

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<tr><td height="61" valign="top"><b style="color:#933; font-family:'Trebuchet MS', Arial, Helvetica, sans-serif; font-weight:lighter; font-size:14px;">Fakorede M. Femi - 2013514419<br /><br />Ezendu Christian C. - 2012514217</b></td></tr></table></div></div>

</body>

</html>

**APPENDIX B**

**“OBJECT PROGRAM”**

**THE SOFTWARE (OBJECT PROGRAM) IS AVAILABLE ON REQUEST**