Application of online Birth and Death Registering System in Nigeria

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Abstract:- The hospital's duties, including maintaining personal records, tracking drug and disease inventory, and compiling birth statistics, continuously expand as the population grows. To solve the problem of lack of easy accessibility to birth and death statistics and a manual system, we developed a database management system (DBMS) to manage structured data, automatically storing information. The purpose of this project was to allow staff and users to accurately track birth and death rates. and create an automated system for reporting. Using the method of input, process, storage and output analysis birth and death information can be collected and processed. The system was built using PHP and HTML as the programming languages. A fully automated online system with readily available information would be the result of research. Developing a central database system with full capabilities is still possible in the future.

Keywords:- Design Implementation Death Rebirth, Death Registration, System.

I. INTRODUCTION

The widespread use of computer applications in all aspects of life demonstrates the need for computerization in every activity, organization, company, hospital, etc. The transition from the individual age to the information age is a result of advancements in electronics and information technology. The widespread use of computers in business organizations is due to the availability of affordable computing power, which has transformed their mode of operation.

The integration of microcomputers into information processing empowers managers at all levels to easily retrieve and process information, without relying on computer specialists. The advent of desktop computers and access to information from multiple sources promises a significant increase in the productivity of decision-makers.

Continual monitoring of new technologies and their applications, especially in the area of individual registration, is crucial. This highlights the importance of documenting all aspects of computer systems. The focus should shift towards reducing the technicalities that system developers previously had to deal with in order to create new systems. (UNICEF 2012, NICE 2007).

The hospital's responsibilities, such as managing staff records, tracking drug and disease supplies, and recording birth statistics, are expanding due to a rising population. Implementing computer technology, specifically a database management system (DBMS), can improve the management and organization of this increasing data.

The problems associated are manual and hand written system which could be affected by fire outbreaks and flooding or loss of papers and physical records. To combat this, we aim at :

➢ A promise to provide quality medical services to all.
➢ To diagnose and treat a variety of illnesses and to maintain records of patient information.

The purpose of the study is to provide users with the ability to accurately record death and birth rates.
The specific goals include:

➢ Create database for birth and death information.
➢ Design an online application to ease the access to records.
➢ Issue Birth and Death Certificate online and save the stress of acquiring such certificate by the family of the individual.
➢ Make it easy for any vaccination center to view how much babies need certain vaccinations in the coming month or year.

Death and birth online registration system are carried out in almost all over the world today mainly in the develop countries like America, Britain, China etc. Nigeria as a country lacks a coordinated birth and death registration system. The fact that the activities of some organizations are done manually means it becomes necessary to state the problem encountered in carrying out their daily operations such as number of babies giving birth to and number of babies which are dead, also help on population statistics. While the limitations are;

➢ *Insufficient Material:*
Since some hospitals have not introduced using the computer in previous years. It is very difficult to get necessary materials needed to carry out this study and material that are related to online medical system.

➢ *Resources:*
One of the difficulties encountered during study is the lack of money, to finance the researcher in order to get all the materials needed. Some finds it difficult to transport themselves to place where he want to get materials from.

➢ *Time Constraint***:**
Lack of time affect this study the time given is not enough for the researcher to encounter all the materials he need for the study, in this process he write only on the little materials he got. The above factor makes it difficult for the researcher to obtain all the information required for the competition of the project work. Nevertheless, the few materials gotten and enumerated make is study a successful one despite all odds.

➢ *Automation:*
This is the use of automation equipment/machines to do work that are previously done by people.

➢ *Advent:*
This has to do with the arrival or approach of an important person, event.

➢ *Computer:*
This is an electronic device that accepts, process and sores the processed data as information that may be use for another operator.

➢ *Constraints:*
This is defined as a thing that limits or restricts an individual from processing.

➢ *Database:*
It is a large stores data held in a computer and accessible to a person e.g., individual same, address, sex etc.

➢ *Computer Hardware:*
This are those physical peripheries that one can see touch in a computer system and also medical attach to the computer to examine patience body.

➢ *Computer Software:*
These are programs that are stored in the computer by the manufactures and programmers.

➢ *Hard Copy:*
Is the information that is displayed on the screen.

➢ *Medical Laboratory:*
This is a place where patient are tested, examined to know the particular problem that they have before treatment.

➢ *Cardiologist Laboratory:*
This is a medical doctor who specialized in the diagnosis and treatment of heart disease he is an expert in handling specialized equipment such as the electrocardiograph, and in reading the various training that indicate whether the heart muscle is working normally or behaving in some unusual manner.

➢ *Pathologist:*
A pathologist is not a medical doctor although he has some basic training in the effect of medicines upon the human body.

➢ *Pharmacologist:*
A pharmacologist is medical doctor who specialized in the field of drugs and their effect upon the human body.

➢ *Laboratory Scientist:*
He/she is a specific in the field of medical laboratory. He directs and supervises a specialized division.

➢ *Specimen Specialist:*
This is a substance taken to be tested to represent the whole for definite purpose. B This is an individual who is sick and the person is admitted in the hospital for treatment.

➢ *Ultrasound:*
This has to do with the following having volume, bulky and copies.

➢ *Website:*
This is defined as the network of web pages that contain information about a person organization.

Giving birth refers to the act or process of producing offspring. In mammals, hormone signals trigger the contraction of the uterus, leading to the delivery of the fetus when it has reached a stage where it can feed and breathe. The newborn's level of independence varies among species, with some (precocial) able to move around shortly after birth, while others (altricial) are fully reliant on caregiving. Some species, including reptiles, amphibians, fish, and invertebrates, also give birth, with some (ovoviviparous) hatching eggs inside the mother's body, and others (viviparous) having the fetus develop inside the mother like in mammals.

Large mammals such as primates, cattle, horses, some antelopes, giraffes, hippopotamuses, rhinoceroses, elephants, seals, whales, dolphins, and porpoises usually carry one offspring at a time, although multiple births may occur. The birth process in these animals is similar to humans, though most offspring are precocial and able to stand, walk, or swim soon after birth (Barnes, 2019). Whales, dolphins, and porpoises give birth to a single calf tail first, reducing the risk of drowning, (Simmonds, 2007) and the mother helps the newborn reach the water's surface to breathe, (Gary, 2011).

Humans generally have one baby at a time. Hormones from the pituitary gland, ovary and placenta help prepare the mother's body for delivery (Dorit, 2005). The average pregnancy lasts about 38 weeks from conception to birth (which typically happens 40 weeks after the last menstrual period). Childbirth typically takes several hours and goes through three stages. The first stage begins with the uterus contracting and the cervix gradually dilating. The active first stage starts when the cervix reaches more than 4 cm in diameter and the contractions become stronger and more consistent. The baby's head or buttocks pushes against the cervix, which continues to expand until it is 10 cm wide. At some point, the amniotic sac breaks and the fluid inside it spills out(also known as rupture of membranes or breaking the water).

According to Nice (2007), in stage two of labor, when the cervix is fully dilated, the uterus contracts and the mother pushes to deliver the baby through the birth canal, which is the vagina during this stage. The baby is born with the umbilical cord attached. In stage three, after the baby is born, further contractions lead to the delivery of the placenta, amniotic sac, and remaining portion of the umbilical cord, usually within a few minutes. Significant changes occur in the newborn's circulation to allow breathing in air. In the uterus, the fetus depends on blood flow through the placenta for sustenance, including gaseous exchange, and its blood bypasses the lungs through the foramen ovule (a hole in the septum separating the right and left atria). After birth, the umbilical cord is clamped and cut, the baby starts breathing air, and blood from the right ventricle starts flowing to the lungs for gaseous exchange. Oxygenated blood then returns to the left atrium, which is pumped into the left ventricle and then into the main arterial system. As a result, the blood pressure in the left atrium becomes higher than in the right atrium, forcing the foramen ovule to close and separating the two sides of the heart. The umbilical vein, umbilical arteries, ductus venosus, and ductus arteriosus are no longer necessary for life in air and eventually become ligaments (embryonic remnants) (Rob, 2007).

According to Gilland (2002), the relationship between fertility rate and overpopulation is related to birth control. Some countries, such as the People's Republic of China, employ strict measures to reduce birth rates. Religious and ideological opposition to birth control has been a factor contributing to overpopulation and poverty. Some leaders and environmentalists, such as Ted Turner, argue that there is a pressing need for the United Nations to implement a one-child policy globally, similar to China's, in order to control and gradually reduce population, as it has led to reduced poverty and economic growth in China. In the 1970s, late Indian Prime Minister Indira Gandhi implemented a forced sterilization program where men with two or more children were required to undergo sterilization. However, it is believed that many unmarried young men, political opponents, and uninformed men were also sterilized. This program is still controversial in India and is blamed for creating public opposition to family planning, hindering government programs for many years.

II. DEATH CERTIFICATE

A death certificate is a document that confirms a person's passing. It can either be issued by a medical professional, who confirms the death, or by a vital statistics registrar, who records the date, location, and cause of death in official death records. Each government has set guidelines for the design of the document and the processes needed to make it legally valid. The death certificate's main goal is to examine the cause of death to distinguish if any foul-play was involved, such as an accidental death or murder, based on the medical examiner's findings and determination.

A death certificate may also be necessary to arrange a funeral or cremation and serve as proof of death for purposes such as settling a will or making a life insurance claim. Death certificates are also employed in public health for the collection of information about prevalent causes of death and other statistical data. The issuing authority typically demands a certificate from a doctor or coroner to confirm the cause and identity of death before issuing the death certificate. In situations where the deceased state of a person is in doubt, due to their body being sustained by life support, a neurologist is often consulted to affirm brain death and complete the relevant paperwork (as stated by WHO in 2010).

A physician not promptly submitting the required paperwork to the government to initiate the issuance of a death certificate can result in criminal charges and loss of their medical license. This is due to past incidents where deceased individuals still received public benefits or voted in elections (UNICEF, 2018). Death certificates can also be issued by court or executive order for individuals declared dead in absentia.

In some cases, death certificates can be issued for missing persons or mass disaster victims through court orders or executive orders. In certain circumstances, a police officer or paramedic may also be authorized to sign the certificate. A death certificate may be issued in circumstances where the cause of death is clear and no suspicion of wrongdoing exists, such as in cases of advanced old age, without performing an autopsy. The procedures for certifying a death vary by region. Some places allow police officers to sign death certificates for sudden infant death syndrome (SID) victims, while others require a physician to sign for all deaths of people under 18.

For fatal accidents with no chance of survival, such as decapitations, police officers or paramedics may certify the death, but an autopsy is often still conducted if alcohol or drugs may have been involved in the accident.

➤ *Significance of Documenting A Death*
Oklahoma (2019) states that the death certificate serves three main purposes and lists them as follows.

• *Legal Reasons:* The death certificate is a formal, legal document that officially records the fact of a person's death. According to Oklahoma law (63 OS 1-317(a)), filing a death certificate is mandatory. The document contains significant details about the deceased person, including the cause of death and the final disposition. This information is crucial for various purposes, such as applying for insurance benefits, settling pension claims, and transferring ownership of assets. The death certificate serves as strong indication of the fact of death and can be presented in court as proof when necessary.

• *Personal Reasons:* For many, the death certificate offers comfort, closure and documentation of the cause of death. It also helps ensure the smooth and efficient handling of important benefits, such as insurance and pension claims.

• *Vital Statistics Reasons:* The death certificate is the starting point for compiling state and national mortality statistics, and is crucial for various medical and health research endeavors. This data helps determine funding for researching specific medical conditions, shape public health goals and policies, and evaluate the health status of communities at local, national, and global levels. However, the accuracy of the statistical information obtained from death certificates is contingent on the accuracy of the information recorded on the certificate. Hence, it's imperative that all parties involved in registering deaths work towards thorough, accurate and timely reporting of these events.

➤ *Importance of Birth Registration*
According to (UNICEF (1989) birth registration is important in the following ways.

• *It Opens Up a World of Health Care:*
Annually, millions of young children die from avoidable illnesses prior to reaching 5 years old. Children who lack a birth certificate often face difficulties accessing healthcare and may have to pay more for services compared to registered children. A birth certificate enables a child to receive medical care and the necessary vaccinations to maintain good health.

• *It Means An Education:*
Unregistered children may be excluded from attending school. A birth certificate provides the necessary documentation for enrolling in publicly funded schools.

• *It Can Provide Protection:*
Without proper identification, government officials are unable to confirm a child's existence, rendering the law unable to safeguard them from crimes and abuse. Proper birth registration ensures the protection of children and grants them legal rights.

• *It Can Help Provide An Inheritance:*
If a child without birth registration loses their parents, they may face difficulties legally establishing their relationship to inherit family property. A birth certificate provides legal proof of family ties, ensuring the child's inheritance rights are honored.

• *It creates a permanent record of existence:*
In the event of a disaster that causes a child to be separated from their family, reunification may be unlikely without proper identification. Birth registration helps government officials reunite families and ensures no child goes unaccounted for.
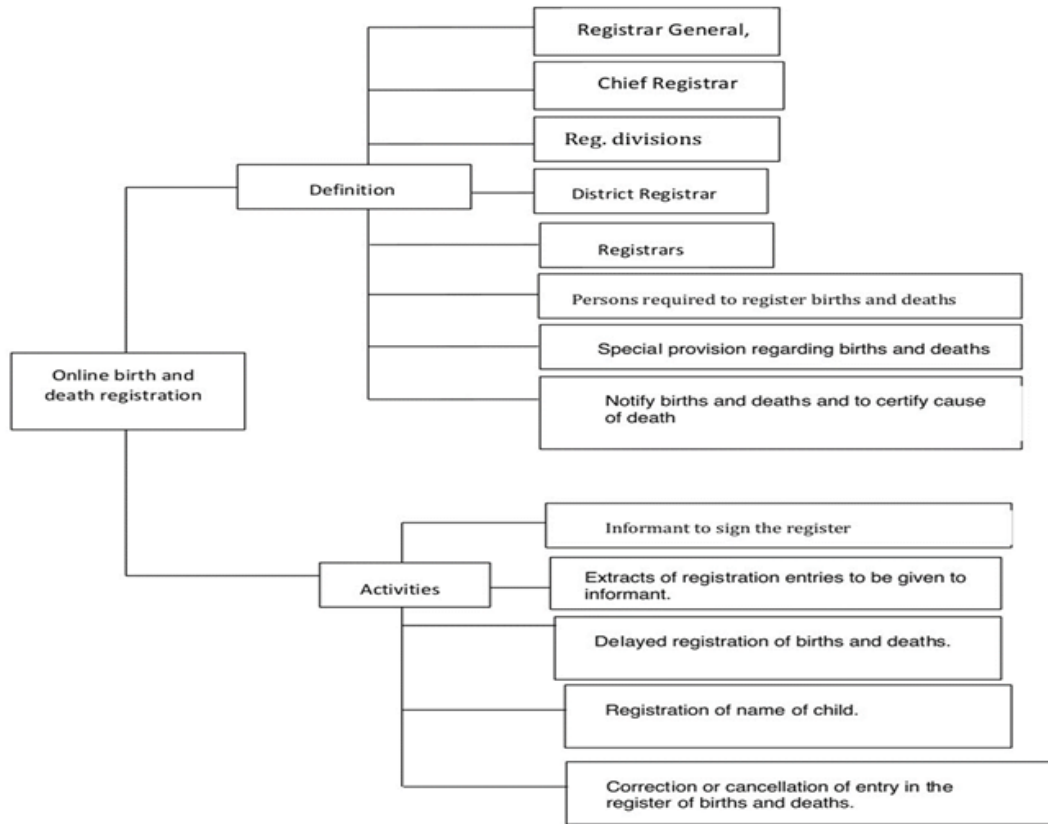
Examination entailed a comprehensive examination of the former manual process, resulting in the formulation of specifications for a new system. The old system of birth and death system is highly manual since the inability of covering all the hospital he wishes to cover, considering this, fact that the activities of the organization, it then becomes essential to state the problem encountered in carrying out their daily operations.

➤ *Method*
This was done between the students. System of conducting birth and death and the data for registration was collected from them, and a thoroughly documented process for registering was established. h.

III. REFERENCE TO WRITTEN TEXT

An inquiry into the birth and death registration system was conducted and extensive details regarding the system were obtained. The necessary and available forms were evaluated, and online downloads were done to acquire related text materials.

INPUT ANALYSIS

The input to the system is the registration of the child name and the registration of the person that die. These forms are filled by parent or

Fig 1 Information Flow Diagram

➢ *Input Analysis*

The system inputs are the child's name registration and the death registration. These forms are filled out by a parent or relative in the case of birth or death and submitted to relevant offices for certificate issuance.

➢ *Process Analysis*

The papers filled out by the relevant individual are gathered and evaluated to confirm that the child or concerned person has fulfilled all required registration requirements. As a result, a certificate is given to indicate that the child or concerned person has been registered.

➢ *Output Analysis*

The result produced by the system is the birth certificate delivered to the relative indicating that the child or deceased person has completed all necessary registration and is now recognized by the official registrar.

➢ *Issues With the Old System*
- The manual operation process faces many challenges, including slow processing time for forms.
- Important documents are at risk of being lost due to the manual filing system.
- Documents may be damaged as a result of a fire.
- Fraudulent employees illegally removing forms creates a security risk.
- Retrieving a specific registration form requires a significant amount of time.

➢ *Rationale for the application of the new system*

The application of the new system aims to address the issues present in the current system. The reasons for its introduction are as follows**:**
- Precision in data management**.**
- Speedy operation speed and prompt response time**.**
- A simple method of backing up or duplicating data on floppy disks in the event of data loss.
- Improved storage and quicker recovery system.
- Global openness.

IV.   SPECIFICATIONS OF THE NEW SYSTEM

The new system is meant to gather data from input devices, process it, and produce relevant output on output devices. It has specific design requirements. These specifications are for input, output, and database. The design goals include:

- Creating an input format that allows the user to capture all crucial data for the purpose of birth and death registration.
- Organizing a record to store all information and designing a well-organized output to present the data to organization in a useful format.
- Keeping a record for birth and death registering information.

➢ *Input Specification*

It's important to note that the data entered into the computer for processing influences the output. Screen designs are typically created for data entry. The order of data capture should match the sequence on the hardcopy form used for data collection.

Table 1 Child registration database structure

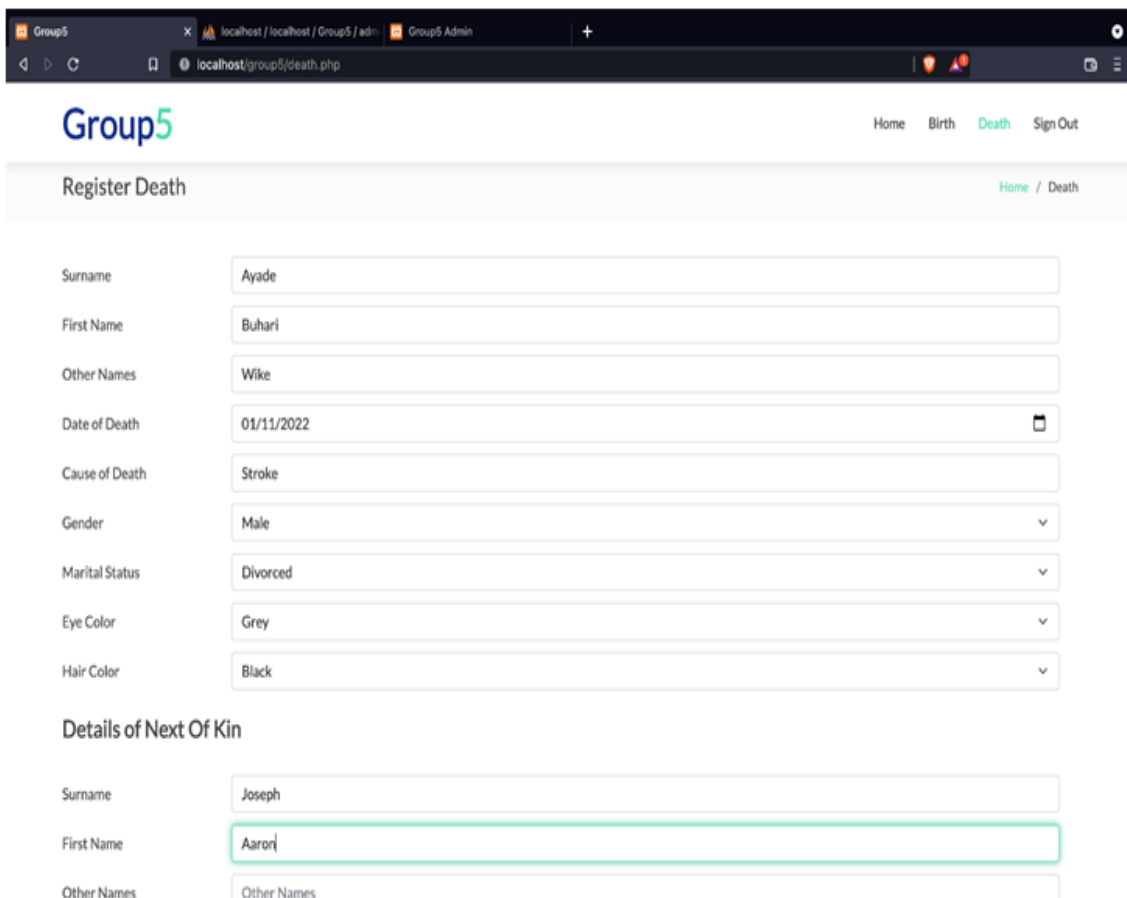| Field Name	Data Type	Field Size
Surname	Text	40
First Name	Text	20
Other	Text	30
Place of birth	Text	10
Date of birth	Text	20
L.G.A	Text	20
Origin	Text	30
Nationality	Text	40
Sex	Text	19
Mid wife Name	Text	8
Mid wife Address	Text	10
Father's name	Text	8
Mother's name	Text	10
Occupation of Father	Text	8
Occupation of mother	Text	10
Mother's median name	Text	8
Previous children from either parents	Text	10
Parent Address	Text	8

Fig 2 Input Section to Capture User Details Under The Register Death Option

➢ *Output Specification*

The production forms are designed to give full reports on the child Register. The forms are designed using data grid controls in visual basic.

The reports can be printed out on a hard copy.

Fig 3 Certificate of Birth

➢ *Database Design Specification*
The new system was designed using an Access record. The structure of the data tables in the database includes:

Table 2 Child birth and death registration Database Structure

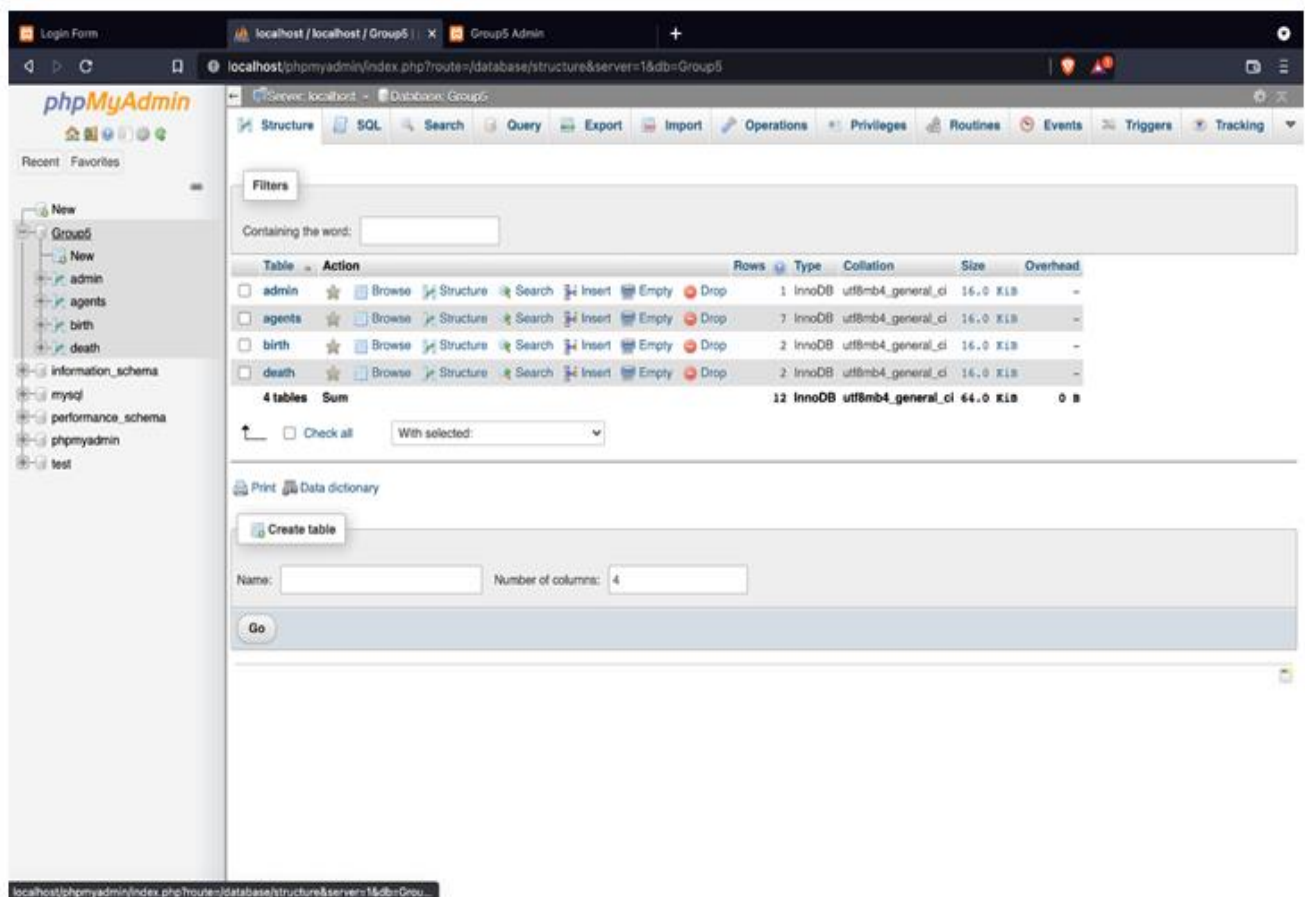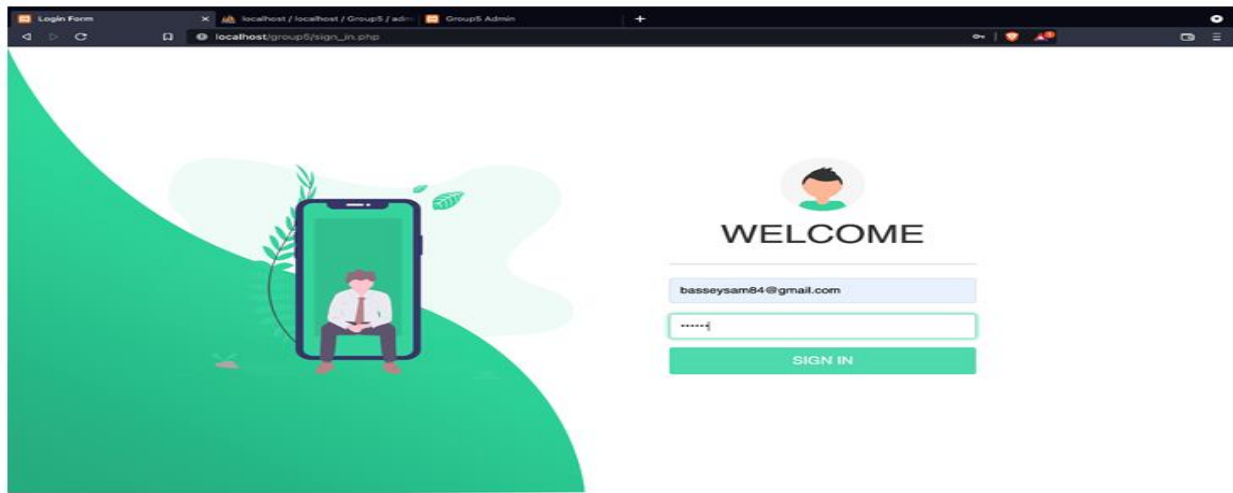| Field Name	Data Type	Field Size
Surname	Text	10
First Name	Text	40
Other	Text	30
Place of birth	Text	10
Date of birth	Text	20
L.G.A	Text	20
State of origin	Text	25
Nationality	Text	10
Sex	Text	19
Mid wife Name	Text	8
Mid wife Address	Text	10
Father's name	Text	8
Mother's name	Text	10
Occupation of Father	Text	8
Occupation of mother	Text	10
Mother's median name	Text	8
previous children from either parents	Text	10
Parent Address	Text	8

Fig 3 The Database Designed Using Mysql

Fig 4 The Login Page Designed Using Css and Html

V. PROGRAMMING INTERFACE

➢ *System Hardware And Software Needs*

The Online birth and death Registration system can be run on any microcomputer setup with the following specifications:

- A hard disk of at least 40GB
- 256 RAM memory
- Pentium IV 1.0 MHz
- Window 7 operating system
- Microsoft Office suite

➢ Program Modules Specification

The new system established was divided into program segments. Each segment handles a specific operation in the software. We have segment for the following operations.

- *Login Page:* once the program is started, this module prompts for security login through the supply of a valid password.
- *Register:* This module displays registration form for child to input their necessary data accordingly.
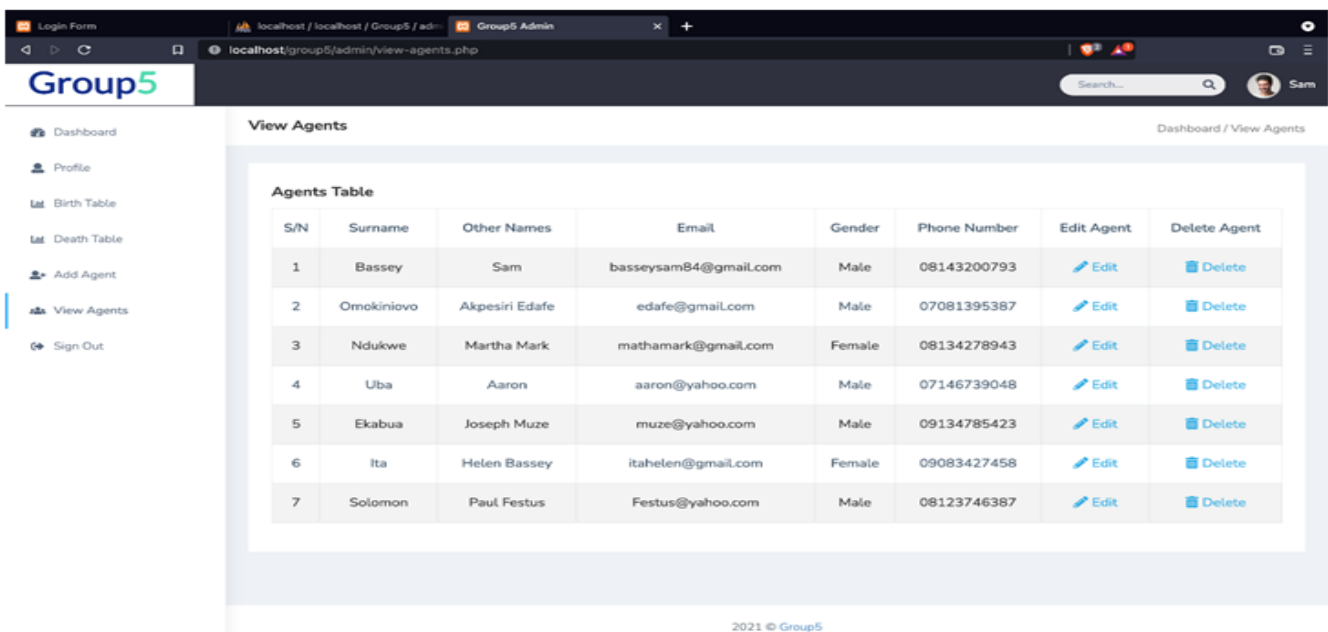

Fig 5 Admin Panel Where Staff And Agents Can Be Added Or Removed At Any Point In Time By The Administrator

- *Comment:* This module allows users to post comments, and makes the comment available for other users when they login; it also recorded in the database.
- *Help:* This segment gives information on how to use the software.

- *Exit:* This module requests the user whether to exit or not, it prompts the user to enter either yes to quit or no to remain in the application.

➤ *Selection of a Programming Language*

Many programming languages were taken into account during the design of this software. A number of factors were taken into account, including access to electronic records, network data transmission, record safety, electronic record recovery, multi-user network admittance, and automated data capture.

MySQL database was a good choice for designing the database structures. Additionally, the MySQL database is a strong system that ensures database integrity, provides database protection, and can handle large databases.

VI. SUMMARY

Research and development are ongoing efforts in both computer and software growth. Despite the high performance and efficacy of the new system, there is still room for enhancement as some of the project's goals were not achieved due to limitations. These goals can be revisited in the future. Nevertheless, the newly developed online birth and death registration system will bring significant benefits to medical management by enabling online registration for both birth and death events.

SUGGESTION

The study only focuses on online birth and death registration. A comprehensive portal for information management technology in the hospital would be more beneficial. To achieve this, the following modules should be added to the portal.

➤ Creating a system for online birth and death registration to thoroughly monitor birth and death records.
➤ Automating birth registration to provide the management with access to birth records.
➤ Keeping a centralized database for accessing all birth and death related information.

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