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DEVELOPMENT OF A COMPUTERIZED CHILD ABUSE DATABASE MANAGEMENT SYSTEM

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Abstract
Child abuse is a serious problem affecting millions of children worldwide, and the need for effective management and prevention of this problem is more pressing than ever. This project aims to design and implement a computerized child abuse database management system that would help in management, reporting, and prevention of child abuse cases. The project involves conducting a thorough review of the literature on child abuse, its prevalence, impact on victims, and the legal framework for child protection. The system's methodology includes system analysis and design, database design and implementation, system development, and testing. The results and discussion present the system requirements, specifications, architecture, functionality, user interface design, and performance. Finally, the study concludes with a summary, recommendations, and future research directions. The computerized child abuse database management system proposed in this project has the potential to enhance the management, reporting, and prevention of child abuse cases, thereby contributing to the overall welfare of children.

Introduction

Child abuse is a widespread problem in Nigeria, affecting millions of children across the country. According to United Nations Children's Fund (UNICEF), one in four girls and one in ten boys in Nigeria have experienced sexual violence before the age of 18. The problem of child abuse is compounded by factors such as poverty, lack of education, cultural beliefs, and a weak legal

system. Despite the existence of laws and policies aimed at protecting children from abuse, child abuse cases often go unreported or are not properly addressed. One of the challenges facing the child protection system in Nigeria is lack of a comprehensive database management system to track and manage child abuse cases. Traditional paper-based reporting and case management systems used by child protection agencies in Nigeria have several limitations. These limitations include inefficiency, inaccuracy, and lack of data analysis and reporting capabilities. For example, paper-based systems require manual data entry, which can be time-consuming and prone to errors. Additionally, these systems may not be able to track and analyse data effectively, hindering the identification of patterns and trends in child abuse cases.

To overcome these limitations, there is a need for a computerized child abuse database management system that can enhance the management, reporting, and prevention of child abuse cases in Nigeria. A computerized child abuse database management system is an electronic database that stores information on reported cases of child abuse. The system can store data on victim and perpetrator information, the nature of the abuse, and the actions taken by child protection agencies in response to the report. A computerized child abuse database management system can provide several benefits to the child protection system in Nigeria. The system can help to improve the efficiency, accuracy, and effectiveness of child protection agencies, enabling them to respond more effectively to child abuse cases. The system can also help to identify and prevent instances of child abuse, leading to better outcomes for children and society as a whole.

Overall, the design and implementation of a computerized child abuse database management system in Nigeria has the potential to improve the management, reporting, and prevention of child abuse cases, thereby contributing to the overall welfare of children in the country. The system can enhance the efficiency, accuracy, and effectiveness of child protection agencies, leading to better outcomes for children and society. It is, therefore, a critical intervention in the fight against child abuse in Nigeria.

Literature Review

The literature review section of this project aims to explore and analyse existing research and studies related to child abuse, database management systems, and their implementation in the context of Nigeria. This section provides a comprehensive overview of the current state of knowledge and research gaps in the field. Child abuse is a critical issue that requires efficient

management and intervention to ensure the well-being and protection of children. The use of a computerized database management system can greatly enhance the effectiveness and efficiency of addressing child abuse cases by providing a centralized platform for collecting, storing, and retrieving relevant data. The literature review section would also delve into various aspects of child abuse, including its definitions, types, prevalence, and the impact it has on the victims.

Stoltenborgh et al. (2019) found that child abuse is a widespread and complex problem that affects millions of children globally. The study identified several risk factors associated with child abuse, including poverty, substance abuse, and social isolation. In Yacoubian et al. (2021), physical abuse is the most common form of child abuse, followed by neglect, sexual abuse, and emotional abuse. The study found that physical abuse can result in physical injuries, such as bruises, broken bones, and head injuries, and can also lead to long-term psychological problems, such as anxiety, depression, and post-traumatic stress disorder. Vachon et al. (2019) identified the long-term effects of child abuse on adult mental health. The study found that adults who had experienced abuse as children were at a higher risk of developing mental health problems, including depression, anxiety, and substance abuse. Tuffour et al. (2020) found that sexual abuse can have long-term effects on a child's mental health, including an increased risk of depression, anxiety, and post-traumatic stress disorder. Radford et al. (2020) found that emotional abuse can have long-lasting effects on a child's mental health, including an increased risk of depression, anxiety, and low self-esteem. Jones et al. (2019) found that neglect can lead to physical and mental health problems, including malnutrition, developmental delays, and depression.

In Oyedeji (2019), the prevalence of child abuse in Nigeria is high, with 60.7% of children experiencing at least one form of abuse. The study found that physical abuse was the most common form of abuse, followed by emotional abuse, sexual abuse, and neglect. Onasoga-Jarvis et al. (2020) found a high prevalence of child abuse in Nigeria, with 49.3% of children experiencing at least one form of abuse. Emedoh (2019) conducted in Southeast Nigeria found that 37.2% of children experienced physical abuse, 35.6% experienced emotional abuse, 8.1% experienced sexual abuse, and 19.1% experienced neglect. The study also found that the prevalence of child abuse was higher among female children than male children. Oshodi et al. (2021) conducted in Lagos, Nigeria, the prevalence of child abuse was found to be 48.6%, with physical abuse being the most common form of abuse. The study also found that parental education, occupation, and income were significantly associated with the prevalence of child abuse. Adebowale et al. (2021)

conducted in Southwestern Nigeria found that 49.8% of children experienced at least one form of abuse, with emotional abuse being the most prevalent form of abuse. The study also found that child abuse was significantly associated with parental factors such as age, education, and occupation.

Olakunle and Emeke (2019) conducted in Northern Nigeria found that 47.6% of children experienced at least one form of abuse, with physical abuse being the most common form of abuse. The study also found that poverty, parental education, and occupation were significant predictors of child abuse.

The findings of this review would contribute to the design and implementation of an effective system that can facilitate data management, analysis, and decision-making in addressing child abuse cases, ultimately leading to better protection and support for vulnerable children in Nigeria. In summary the literature reviewed highlights the need for a computerized child abuse management system in Nigeria to enhance the reporting, tracking, and management of cases. The use of technology, including ICTs, is seen as a potential solution to improving child protection in Nigeria. A comprehensive and coordinated approach to addressing child abuse, which includes the development of a computerized system, is necessary to ensure the safety and well-being of children in Nigeria.

Methodology

The methodology section of the project report provides a detailed explanation of the system specifications and data collection methods that were employed in the study. This section aims to outline the system design, data design, analysis, and presentation procedures that were used to achieve the project's objectives. The data collection method explains how the data was collected and the methods used to analyse the data. The section concludes with system implementation presentation and evaluation. The system will be designed using a client-server architecture. The client-side would consist of user interfaces and input/output devices such as keyboards and monitors. The server-side will consist of the database management system, application server, and web server. The system may be developed using .NET framework and C# programming language.

In summary, these specifications will guide the development and implementation of the system to meet the project's objectives.

Flowchart of the system

Step 1: The flowchart begins with the "Start" symbol, indicating the initiation of the process.
Step 2: The next step is to input user credentials.
Step 3: The next step is to validate input user credentials, if valid move to the next step otherwise returns to step 2
Step 4: The next step is to access the child abuse database
Step 5: The next step is to add or view child abuse case(s) on the database
Step 6: The next step is to display child abuse case(s) on the database
Step 7: The next final step is to stop the process/iteration.

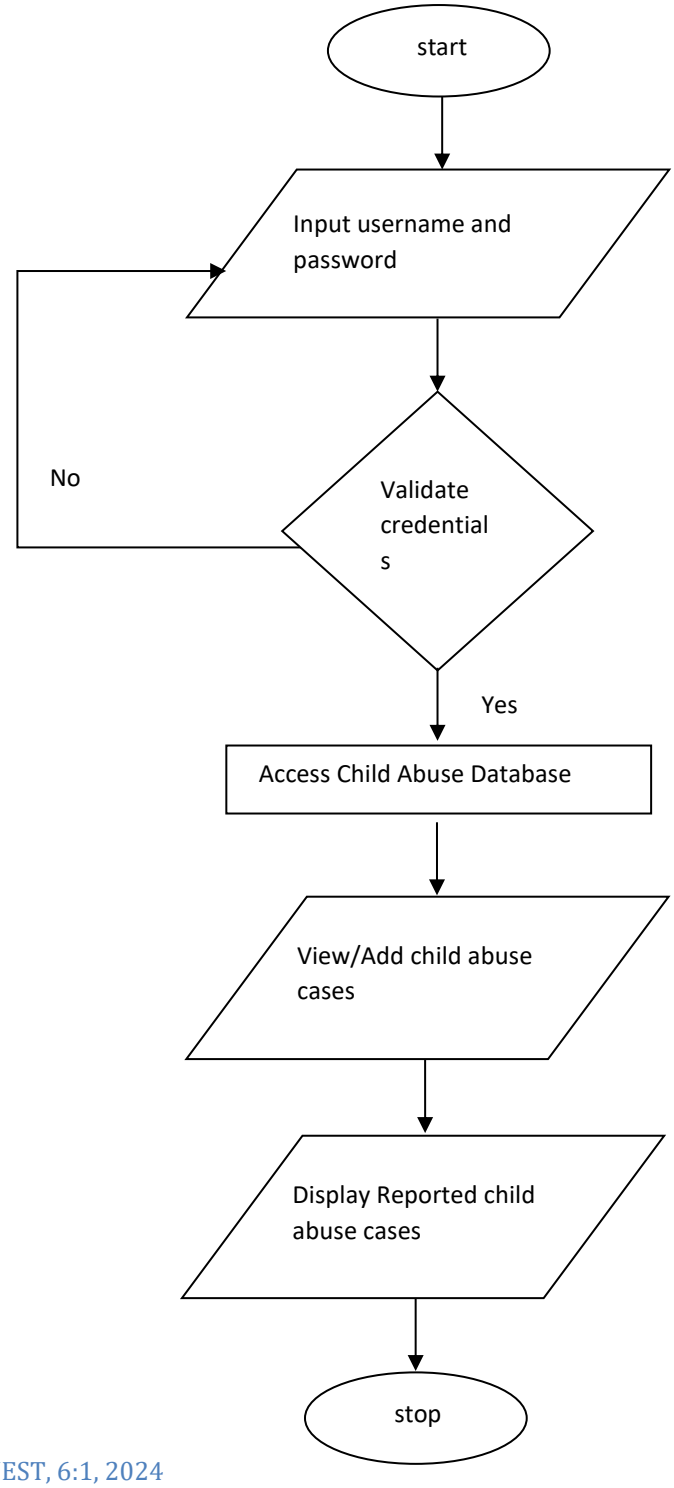

Figure 1: Flowchart of the proposed system

Figure 1 above shows the flowchart of the proposed child abuse management system. It shows the different iterations that take place on the system starting from when users input credentials on the system up until when users can report cases on the system.

Methods of Data Collection and Implementation

In order to collect the necessary data for the project the following methods will be utilized:

1. Online Survey: A survey will be conducted online to gather information from relevant stakeholders in child protection services, such as social workers, child protection organizations, law enforcement agencies, and healthcare providers. The survey will be designed to collect information on current methods of data collection and management, as well as any challenges or limitations that may exist.
2. Interviews: Interviews will be conducted with key stakeholders, including social workers, child protection organizations, law enforcement agencies, and healthcare providers. The purpose of these interviews will be to gain a deeper understanding of the current system and identify any areas for improvement.
3. Document Analysis: Existing documentation, such as government reports, policy documents, and academic literature, will be analysed to gain a better understanding of the current state of child protection services in Nigeria and any relevant legal and policy frameworks.
4. Observation: Observations will be made at relevant institutions, such as social welfare offices, hospitals, and police stations, to gain an understanding of the current practices and procedures for collecting and managing data related to child abuse.
5. Case Studies: Case studies of past incidents of child abuse will be analysed to gain insights into the challenges faced by child protection services and the potential benefits of a computerized database management system.

The data collected through these methods will be used to inform the design and implementation of the computerized child abuse database management system, as well as to evaluate its effectiveness

in improving data collection, management, and sharing in the context of child protection services in Nigeria**.**

The model formulation will also involve specifying the algorithms and logic for various functionalities of the system, such as user authentication, data validation, and report generation. Additionally, the model will include the security features that will be implemented to ensure the confidentiality and integrity of the data, such as encryption, user access control, and regular data backups.

Pseudo Code for the developed system

1. Start
2. Initialize database connection
3. Display main menu options
4. If user selects “Add new abuse report”

Collect victim’s information (name, age, gender, etc.)
Collect abuser’s information (name, relationship to victim, etc.)
Collect abuse details (type of abuse, date, location, etc.)
Save report to database
Display success message

5. If user selects “View abuse reports”

Query database for all abuse reports
Display abuse reports

6. If user selects “Search abuse reports”

Collect search criteria (victim name, abuser name, etc.)
Query database for abuse reports matching search criteria
Display matching abuse reports

7. If user selects “Update abuse report”

Collect report ID to update
Display current report details
Allow user to update report details
Update report in database
Display success message

8. If user selects “Delete abuse report”

Collect report ID to delete
Confirm delete with user
Delete report from database
Display success message

9. If user selects “Exit”

Close database connection
End program

Overall, the implementation phase is a critical phase in the development of the system. It is important that all the necessary steps are taken to ensure that the system is stable, functional, and meets the specified requirements.

Results and Discussion

In this section, we present the design and implementation details of the Computerized Child Abuse Database Management System in Nigeria. The focus is on the architectural design, user interface, database structure, security measures, and functionality of the system. The section highlights the technical aspects and decision-making processes that have led to the final design.

The project aimed to address the complex and critical issue of child abuse by creating an efficient and secure system to manage child abuse cases. The successful completion of the project has yielded significant outcomes that warrant thorough discussion. The project successfully achieved its primary objective of designing and implementing a comprehensive database management system tailored to handle child abuse cases. The system's architecture, characterized by a client-server model, allowed authorized users to access and interact with the system through a user-friendly web interface. This achievement is crucial as it provides a robust foundation for streamlining case management processes and facilitating timely interventions.

Figure 2 represent a simplified view of the database structure for the Computerized Child Abuse Database Management System. Additional tables may be included to accommodate more complex requirements, such as user accounts and roles, reporting statistics, and administrative settings. The relational structure facilitates data retrieval, updates, and reporting, ensuring a comprehensive and effective system for managing child abuse cases in Nigeria.

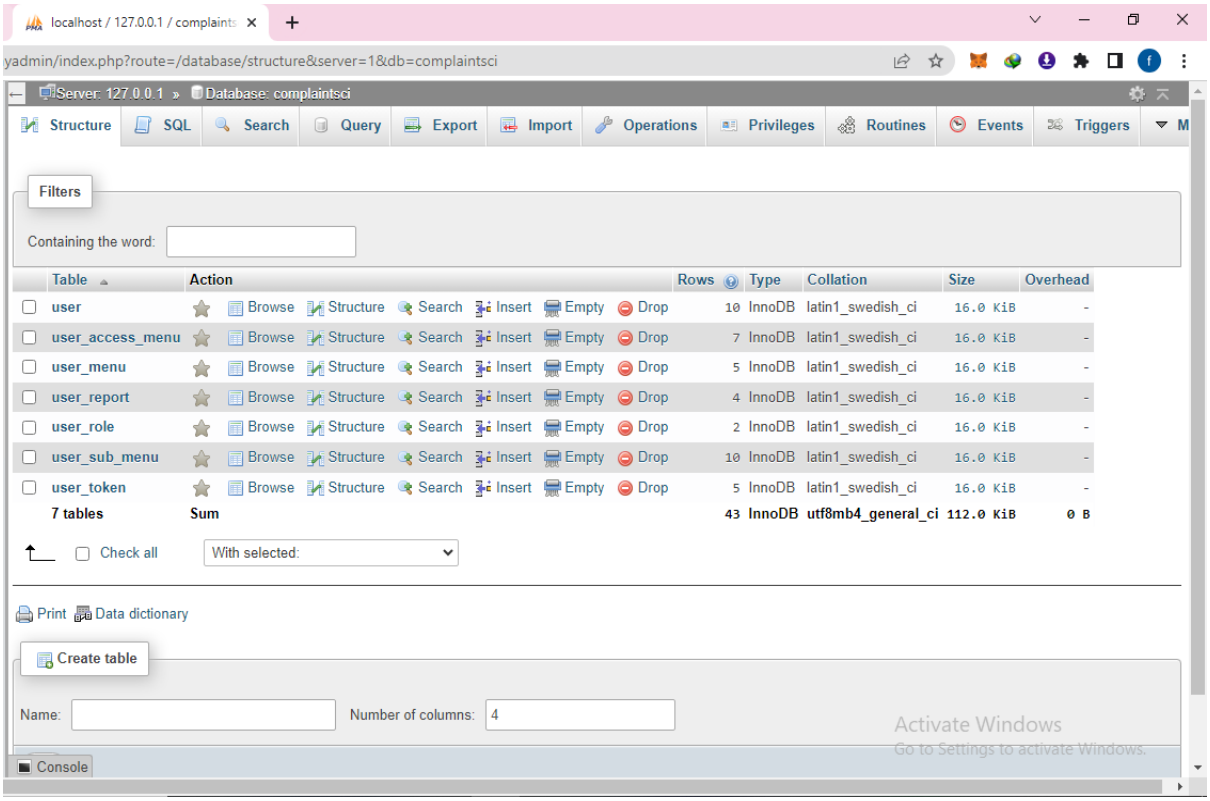

Figure 2: A Screenshot of the database of the child abuse management system

Figure 3 shows the secure login screen where users are required to enter their unique credentials, such as username and password, for authentication purposes. User authentication ensures data security and restricts access to authorized personnel only.

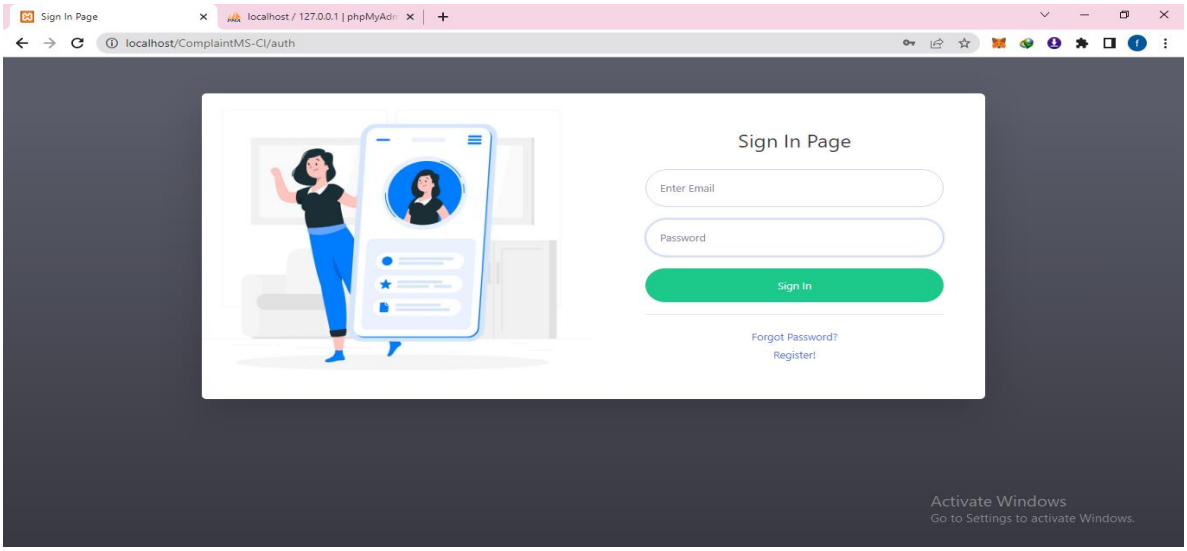

Figure 3: Login of the system

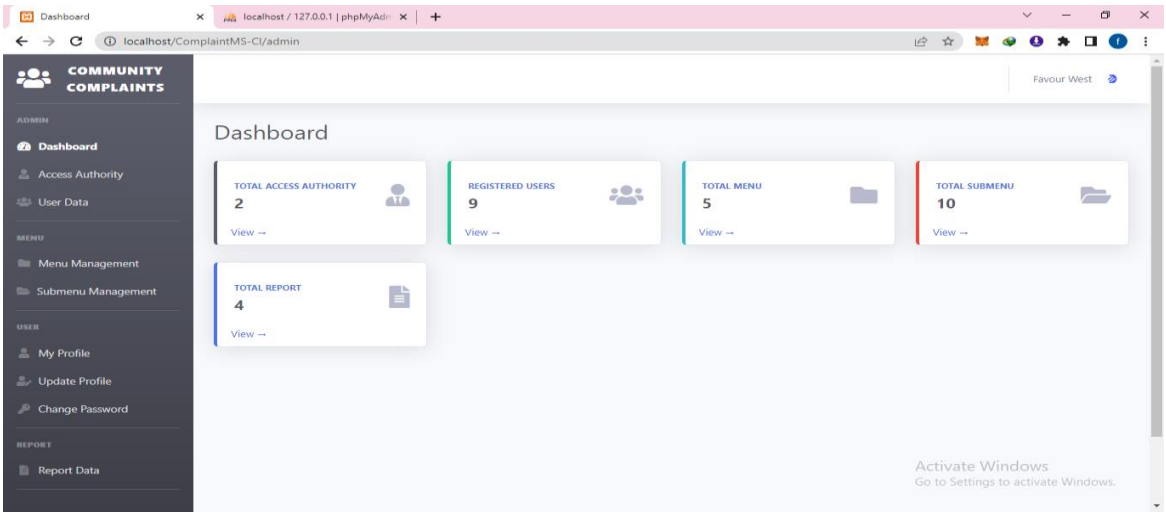

Figure 4: Dashboard of the system

Figure 4 shows the dashboard of the system after successful login, the dashboard serves as the central hub for all user activities. The dashboard provides an overview of ongoing child abuse cases, pending tasks, and recent updates. It may include graphical representations and summary statistics for quick insights.

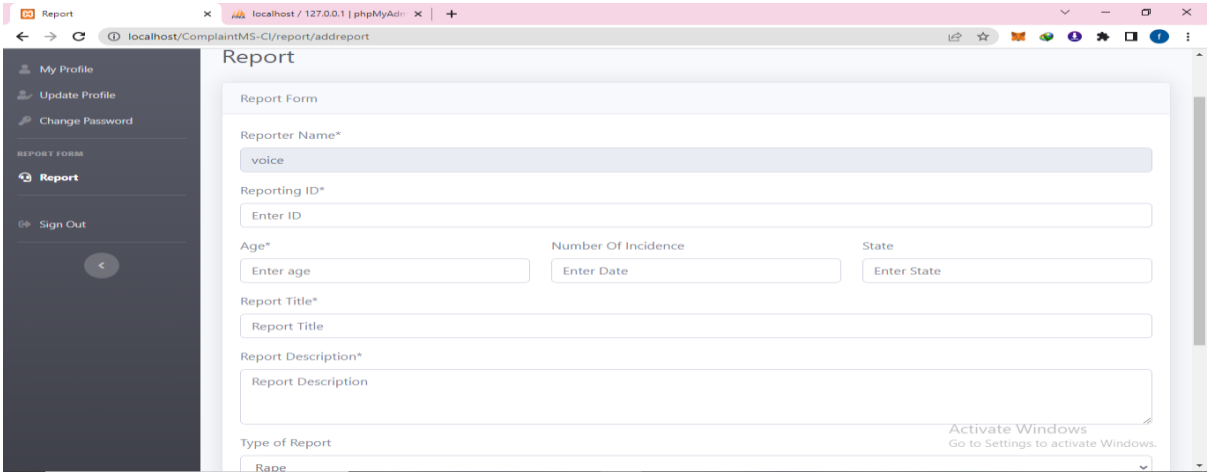

Figure 5: Report cases page of the system

Figure 5 shows the report a case page of the system, this page can be used by users to report cases directly to the system admin. The page contains a report form that requires users to provide some details like reporter name, age, number of case incidence, state, description of report etc before a user can successfully add his/her case on the system.

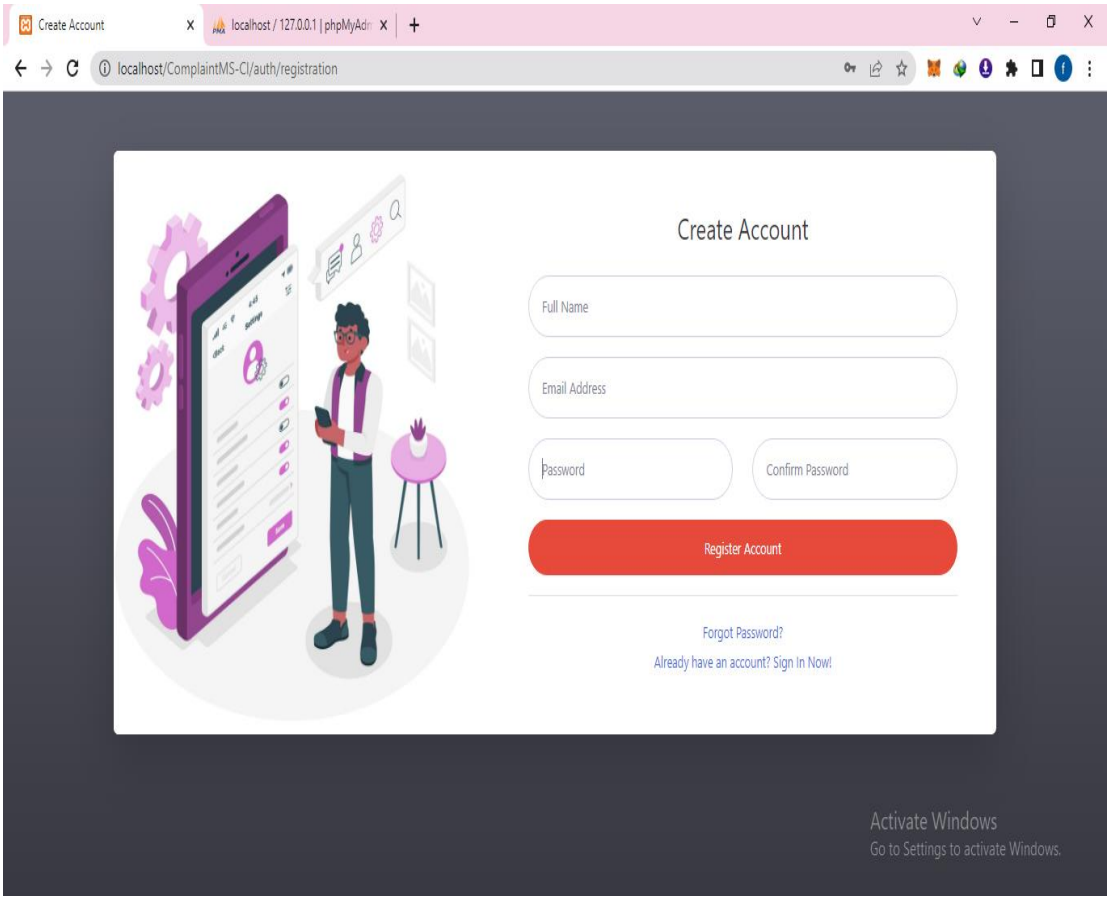

Figure 6: Registration of the system

Figure 6 shows the Register page of the system, this page can be used to access the entire features just by providing valid details such as your full name, email address and password. The page can also be used by users to recover their account password in cases in which they are no longer able to login to the system.

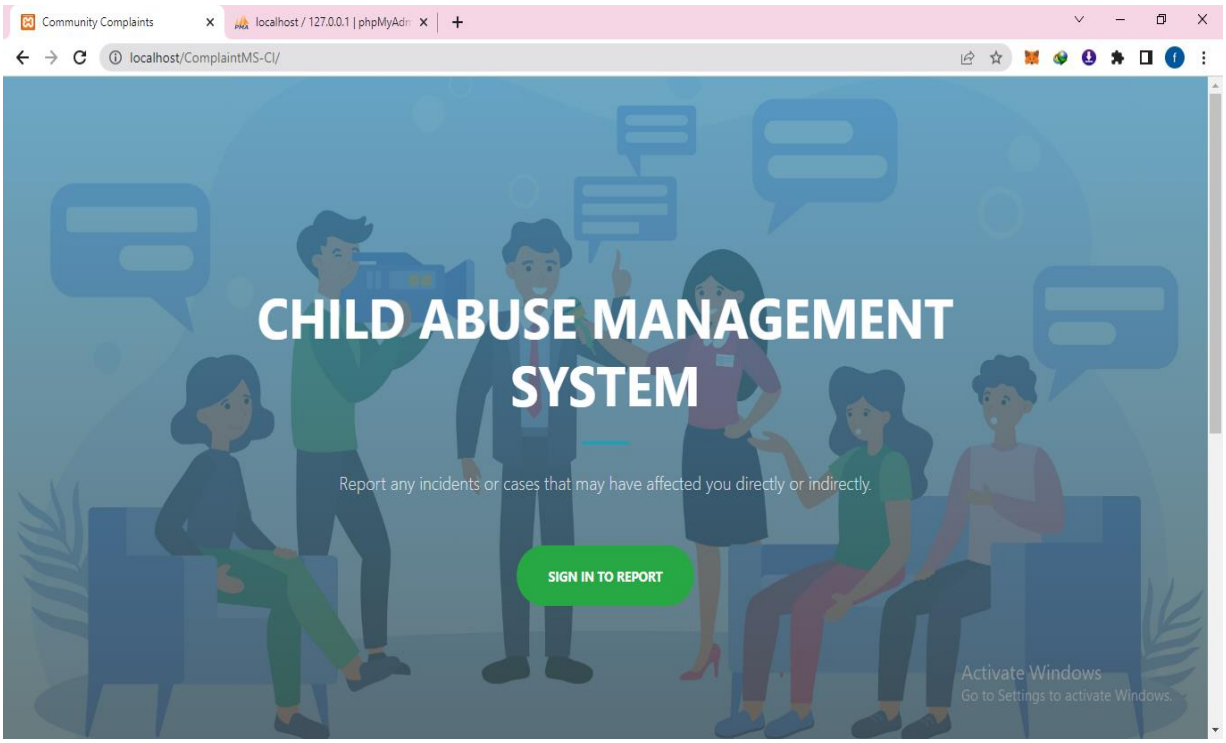

Figure 7: Home page of the system

Figure 7 shows the home page of the system, this is the first page a user sees when they try to access the system. This page can be used to navigate through the system, login to your account or even create an account for new users. Figure 8 shows the list of different cases reported on the system. This page shows the name of reporters, ID number, report title, report type and even the date the report was made. From this page the admin can view the full details of each reports made and also delete reports that have already been attended to.

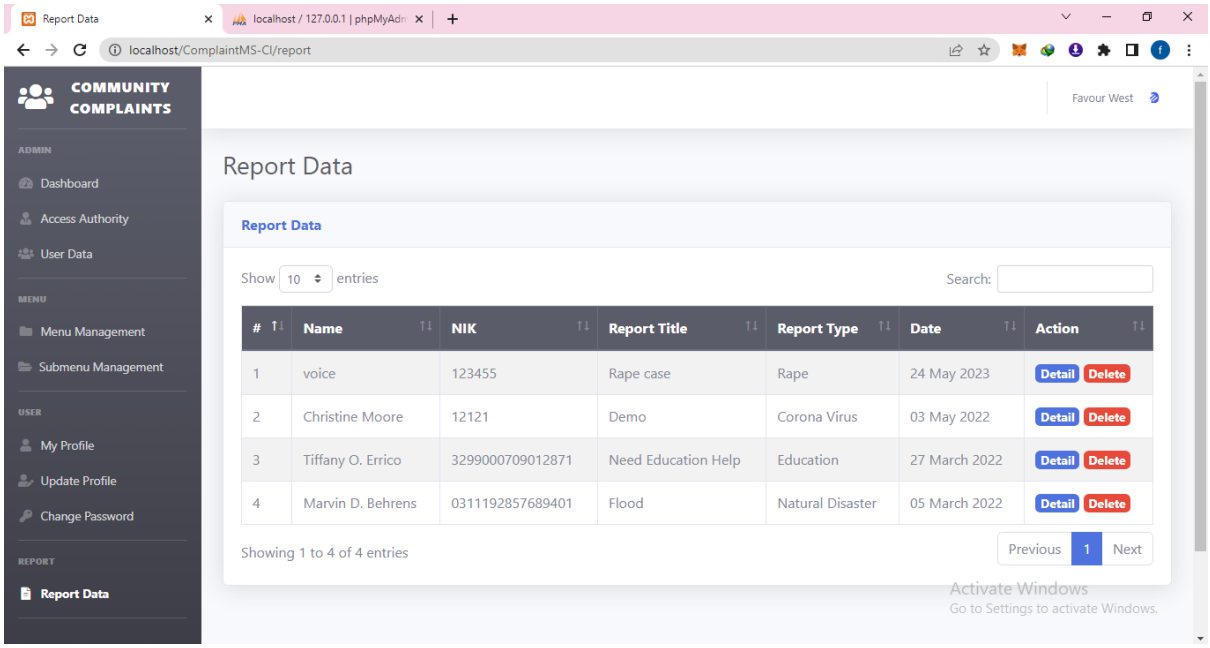

Figure 8: Reported case page of the system

This section presents the technical aspects of the system, focusing on the architecture, user interface design, database structure, security measures, functionality, and implementation approach. The section starts with an overview of the system architecture, which follows a client-server model. Users access the system through a web-based interface, interacting with the server-side application to manage child abuse cases effectively. The client-side components encompass web browsers and a user-friendly interface designed with a user-centric approach to ensure ease of use and navigation.

The database structure, presented as a relational model, comprises essential tables for child details, abuse types, perpetrators, cases, and case notes. Data normalization is implemented to eliminate redundancy and maintain data integrity within the database. In summary, this section presents a comprehensive overview of the technical aspects involved in the design and implementation of the Computerized Child Abuse Database Management System. The section highlights the system's user-friendly interface, robust database structure, stringent security measures, and diverse functionalities that collectively contribute to a powerful and efficient solution for managing child abuse cases in Nigeria.

Conclusions

The project was undertaken with the aim of addressing the pressing issue of child abuse in the country and enhancing the management of child abuse cases. Through a systematic and comprehensive approach, the project successfully developed and implemented a robust, user-friendly, and secure system to manage child abuse incidents and provide timely support to victims. The project's foundation was laid through an extensive literature review, which highlighted the prevalence of child abuse in Nigeria, its detrimental impact on victims, the legal framework for child protection, and the need for a computerized database management system. The insights gleaned from the literature review guided the project's objectives, ensuring that the system would address critical challenges in managing child abuse cases. The successful implementation of the Computerized Child Abuse Database Management System represented a significant step towards addressing child abuse issues in Nigeria. The system centralized case management processes, enabling data-driven decision-making and facilitating timely interventions to protect vulnerable children. It played a vital role in supporting the efforts of relevant stakeholders in ensuring the safety and well-being of children across the country.

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