**DESIGN AND IMPLEMENTATION OF AN ONLINE BARCODE ATTENDANCE SYSTEM**

**BY**

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**NOVEMBER, 2022**

# TITLE PAGE

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**FEDERAL POLYTECHNIC, MUBI, ADAMAWA STATE.**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF NATIONAL DIPLOMA (ND) IN COMPUTER SCIENCE.**

**NOVEMBER, 2022**

# DECLARATION

We hereby declare that the work in this project titled **“Design and Implementation of a Barcode Attendance System”** was performed by us under the supervision of Mallam Gambo Salihu. The information derived from literatures has been duly acknowledged in the text and a list of references provided. The work embodied in this project is original and had not been submitted in part or in full for any other diploma or certificate of this or any other institution.

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(ST/CS/ND/20/364) Signature Date

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(ST/CS/ND/20/365) Signature Date

# CERTIFICATION

This project work titled **“Design and Implementation of a Barcode Attendance System”** meets the regulations governing the award of National Diploma (ND) in Computer Science, Federal Polytechnic Mubi, Adamawa State

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(Project Supervisor) Sign/Date

Mallam Adamu Garba Mubi \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Head of Department) Sign/Date

Mal. Abdurahman Saidu \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(External Examiner) Sign/Date

# DEDICATION

We dedicate this project work to our lovely parents for the care, support and encouragement throughout our study.

# ACKNOWLEDGEMENTS

We want to acknowledge Almighty God for his infinite mercy and protection throughout our academic activities. And for the understanding in achieving our academic success.

We also recognize our Supervisor Mallam Gambo Salihu who took time, despite his busy schedule to direct and guide us throughout this research work.

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We also want to appreciate our parents for their love and care and for giving us the opportunity to be trained and achieve our dreams.

Finally, we appreciate the efforts of our Uncles and aunties, for their encouragement and support throughout the course of our study and also our friends and relatives, course mates and all well-wishers. I love you all, may the Almighty God bless you abundantly, Amen.

TABLE OF CONTENTS

[TITLE PAGE i](#_Toc120605491)

[DECLARATION ii](#_Toc120605492)

[CERTIFICATION iii](#_Toc120605493)

[DEDICATION iv](#_Toc120605494)

[ACKNOWLEDGEMENTS v](#_Toc120605495)

[LIST OF TABLES viii](#_Toc120605496)

[LIST OF FIGURES ix](#_Toc120605497)

[ABSTRACT x](#_Toc120605498)

[CHAPTER ONE 1](#_Toc120605499)

[INTRODUCTION 1](#_Toc120605500)

[1.1 Background of the Study 1](#_Toc120605501)

[1.2 Problem statement 3](#_Toc120605502)

[1.3 Aim and Objectives 3](#_Toc120605503)

[1.4 Significance of the Study 4](#_Toc120605504)

[1.5 Scope of the Study 4](#_Toc120605505)

[1.6 Definition of Some Operational terms 4](#_Toc120605506)

[CHAPTER TWO 6](#_Toc120605507)

[LITERATURE REVIEW 6](#_Toc120605508)

[2.1 Introduction 6](#_Toc120605509)

[2.2 Review of related work 6](#_Toc120605510)

[2.2 Information systems in education institutes 6](#_Toc120605511)

[2.3 Biometric technology 8](#_Toc120605512)

[2.4 Information System 8](#_Toc120605513)

[2.5 Related literatures 9](#_Toc120605514)

[CHAPTER THREE 11](#_Toc120605515)

[SYSTEM DESIGN AND ANALYSIS 11](#_Toc120605516)

[3.1 Introduction 11](#_Toc120605517)

[3.2 Disadvantages of the existing system 11](#_Toc120605518)

[3.3 Advantages of the proposed system 11](#_Toc120605519)

[3.4 The Proposed method 11](#_Toc120605520)

[3.5 Method of data collection 11](#_Toc120605521)

[3.6 System design 12](#_Toc120605522)

[3.6.1 Algorithm diagram 12](#_Toc120605523)

[3.6.2 System architecture 13](#_Toc120605524)

[3.6.3 Database Tables/Queries Structures 13](#_Toc120605525)

[3.6.4 Input and Output Design 14](#_Toc120605526)

[3.7 System requirement specification 15](#_Toc120605527)

[3.7.1 Hardware requirement 15](#_Toc120605528)

[3.7.2 Software Requirements 15](#_Toc120605529)

[3.7.3 Personnel Requirement 15](#_Toc120605530)

[CHAPTER FOUR 16](#_Toc120605531)

[RESULTS AND DISCUSSION 16](#_Toc120605532)

[4.1 Introduction 16](#_Toc120605533)

[4.2 Results 16](#_Toc120605534)

[4.3 Discussion 18](#_Toc120605535)

[4.4 User manual 18](#_Toc120605536)

[CHAPTER FIVE 19](#_Toc120605537)

[SUMMARY, CONCLUSION AND RECOMMENDATION 19](#_Toc120605538)

[5.1 Summary 19](#_Toc120605539)

[5.2 Conclusion 19](#_Toc120605540)

[5.3 Recommendations 19](#_Toc120605541)

[5.4 Contribution to Knowledge 19](#_Toc120605542)

[5.5 Area for further work 19](#_Toc120605543)

# LIST OF TABLES

Table 1: Admin Details - - - - - - - - 13

Table 2: Student Attendance - - - - - - - - 13

Table 3: Student Details - - - - - - - - 14

# LIST OF FIGURES

Figure 3.1: Use case diagram - - - - - - - - 12

Figure 3.2: System architecture - - - - - - - 13

Figure 3.3: Registration Form - - - - - - - - 14

Figure 3.4: Login form - - - - - - - - 14

Figure 3.5: Scan QR Code - - - - - - - - 15

Figure 3.6: Generate QR Code - - - - - - - 15

Figure 4.1: Welcome interface - - - - - - - 16

Figure 4.2: Login page interface - - - - - - - 16

Figure 4.3: Add Student interface - - - - - - - 17

Figure 4.4: QR Code Generator Interface - - - - - - 17

Figure 4.5: Identity Card Generator Interface - - - - - - 17

# ****ABSTRACT****

*This project presents a Barcode-based attendance system which will be using a computer device to scan Barcode in order to achieve the attendance in the class. Barcode system is a combination of a web applications developed for taking and storing the attendance to a database storage. The reason why this advanced method has been chosen as the attendance tracking system instead of others advanced method such as biometric-based, RFID based attendance system is because of Barcode-based attendance system does not required any high-cost implementation on hardware and maintenance fee for specific hardware. Other than that, it will solve the issues that have been facing by those tradition attendances taking method such as calling out names and paper recording. These tradition attendance systems were highly use in manpower, resources and less effectiveness. Students will be easily cheated in having their attendance without attending the class. Therefore, Barcode-based attendance tracking system will help in increasing the effectiveness and efficiency on taking students attendance. Lecturers will not be required to shout out students’ name in the class and waste their time for the teaching lessons. This method will provide a more rapid and accurate attendance records of the class due to the highly convenience in the class and strict authentication while scanning the Barcode. Students’ attendance will not be recorded if any authentication does not fulfil the regulations such as, the location of the students scanning the Barcode.*

# ****CHAPTER ONE****

# ****INTRODUCTION****

## ****1.1 Background of the Study****

Many academic institutions are beginning to update their standards by issuing students with identification cards that are equipped with barcodes, ID chips, radio frequency identification (RFID) tags, and so on (Andrew, 2011). This decision opens up a window to implement barcode identification systems in classrooms as a management tool to solve many of the problems faced by lecturers and the institutions’ management in classroom attendance management. Due to the inefficiency of traditional methods of attendance record keeping, a more secure and accurate barcode technology model is needed to be formulated and implemented.

Attendance monitoring of students in institution can be rigorous using the conventional method of paper sheets and old file system method. Every academic institution poses some standards concerning how attendance is to be confirmed for student in classes, laboratory sessions and examination halls. That is why keeping the accurate record of attendance is very important. The approach of using paper sheets and the old file system to confirmed students has been in use for years. Attendance is a basic and most important criteria needed in all the education system (Samkee, 2021).

Attendance is used as a record to assess student consistency in participate the class. Therefore, student is required to attend all teaching activities held by the institutions. Once attendance is below the required policy, the student will be subjected to further action or suspended from taking the final exam depend on the respective institutions they are in. This impractical method will lead to fraud on number of absentees by students. Besides, this method also easily allow for impersonation as some student may purposely sign on another student’s name. Besides, lecturer needs to analyze manually every attendance sheet to identify the number of absentees for both lecture and lab classes correspond to subject. Then, lecturer needs to count and calculate percentage of present of all the students manually to identify when warning letter need to be given to the student depend on his or her number of absents without providing any medical certificate or notice. As a result, it is time consuming, increase number of works of the lecturer and prone to human error as it is difficult to ascertain whether the calculation made was correct. Moreover, student needs to spend unnecessarily time during class session to sign on the attendance sheet. This also disturbing and student may lose focus when the attendance sheet is passing around during the class session (Romil, 2015).

Therefore, Student Attendance Monitoring System is proposed to help or reduce lecturer’s work. This system facilitates to access or manage the attendance information of all the classes. Student by default is assumed to be present as number of present will be higher than the absentees for most of the attendance report. After that, lecturer is allowing to change or modify absentee’s attendance data. The system will automatically count the number of absents and the percentage of present for all the students based on the subject classes. Once the number of absents exceed the attendance policy, appropriate warning letter will be generated automatically to be given to the absentee. Hence, this system provides a tedious work in maintaining attendance records besides saving time to analyze every attendance list and assuring the calculation made was error-free (Geeta, 2013).

Barcode recognition is one of the mature technologies and widely used in globally. There are two types of barcodes that were 1-dimensional and 2-dimensional. 1D barcodes are usually used to store text information while 2D are more complex and consist of more information such as text, price, quantity and image. Barcode can be usually seen in market store, convenience store, supermarket and hypermarket. There will be a square or rectangular image consisting of a series of black striped lines and blank areas with different width on the product. These images could be read by scanner, and it was applied to products for a quick identification by just scanning through it. They are widely used as a part of purchase process in retail, to track inventory in warehouse, and assisting in accounting on invoices. Mostly for education such as primary, secondary and University had applied this kind of technology to their library system and attendance system for events. Every student from the new intake will be required to take a photo in the campus to conduct an enrolment process for their student identification card. On the student identification card will contains of their student identification number, photo and an image of barcode. This barcode that consists on the student identification card will allow student to borrow books from the library or attend certain event for scanning through the barcode reader for their attendance. In this system, it could provide a more visibility of attendance for administrator and lecturer of their students’ attendance instead of using traditional attendance system (Samkee, 2021).

In our life today, computer is one of many inventions that greatly affect our way of living. In fact, it is noted as an essential tool in many areas including business, government, industry, sciences, education, school, home, and in almost any company and establishment that existed. It can perform process data rapidly, accurately and reliable and by using these machines, spending a lot of time and effort in doing a certain task is minimized.

Computer nowadays has become the backbone of data and information processing. Computers have been very effective in many fields of work and study. It certainly helps man to make his task much easier and with great precision. In schools and universities, computers are used to maintain the basic flow of data and information and also checking the grades/results of the students. The computer is very useful in performing a great task in data and information processing, such as securing files, data, and information of different. Computer programmers now a day try to build and develop high-quality systems that are very useful. A computerized management system maintains the standard flow of data and information with highly secured and make data processing faster and easier. These computerized systems help one person, company, organization or any type of management agency throughout the world to enhance and develop its general profile (Shehu, 2019).

School attendance is a baseline factor in determining student success (Smith, 2016). The attendance is important because students are more likely to succeed in academics when they attend school consistently. It’s difficult for the teacher and the class to build their expertise and growth if a large number of students are often absent. In addition to falling behind in academics, students who do not attend classes regularly are more likely to get into difficulty with their academics and cause problems to their school.

## ****1.2 Problem statement****

Based on available information, there is no student attendance system in use at Federal Polytechnic, Mubi. The Polytechnic is still practicing the manual way of taking daily attendance. Lecturer distributes attendance sheet to be sign by student during class session or personally marked the attendance sheet one by one by calling out student name accordingly. However, the attendance sheet can be lost easily and the whole attendance process is tending to human mistake. Consequently, data loss may happen and the data in attendance list might be inaccurate due to deception. Besides, lecturer needs to manually analyze number of absences and calculate the percentage of present from the attendance list collected or recorded. Lecturer needs to identify number of absentees based on each subject with the respective classes that he or she taught. At the end of the semester, lecturer required to calculate the percentage of present of each student to make sure the student can take their final exam for the respective subject. Therefore, it is time consuming and the result of calculation might go wrong when lecturer missed out some of the data in the attendance record. In addition, lecturer needs to manually write all the details about the attendance data to the appropriate documents when needed.

## **1.3 Aim and Objectives**

The aim of this project is to develop a Barcode Attendance system for monitoring and taking of student attendance. The objectives are listed as below:

1. To store, access and manage student attendance data for every lecture taken.
2. All student attendance data will be stored and managed through Student Attendance monitoring System.
3. This system enables lecturer to add, view, make changes or delete on subjects, classes, students and attendance accordingly. Moreover, saving attendance records into the system will be more secured as compared to paper-based records.
4. On the other hand, attendance list can be printed out easily when required as the data is ready to be obtained from the system with the format based on the manual attendance sheet. Therefore, attendance report, attendance list and warning letter will be filled, displayed and printed based on the analysis made from the inputted student attendance details with the approved format.

## ****1.4 Significance of the Study****

The System also allows the departmental management to track or investigate student class attendance in a particular course having poor attendance thereby enabling the department to rectify the situation by providing the necessary interventions. The system provides high level of security whereby making it impossible for imposters and impersonators in making their ways to examination halls.

## ****1.5 Scope of the Study****

This Software is mainly focused and only accommodates the computerized attendance exercise due to the time and resource constraint for Computer Science Department, of Federal Polytechnic, Mubi. This Software is limited in eliminating the manual procedure involved in recording attendance. The program is also limited to small classes i.e. (0-100) so as not to take much time for lectures.

## ****1.6 Definition of Some Operational terms****

**Attendance**: The act or state of going regularly to or being present at a place or event. Operationally, attendance refers to the number of students and teachers that are present (Shehu, 2010).

**Authentication**: Authentication is the process of determining whether someone or something is, in fact, who or what It declared to be (Romil, 2015).

**Automation***.*the technique, method, or system of operating or controlling a process by highly automatic means, as by electronic devices, reducing human intervention to a minimum (Merriam Webster, 2021).

**Barcode:** A machine-readable code consisting of an array of black and white squares, typically used for storing URLs or other information for reading by the camera on a smartphone (Merriam Webster, 2021).

**Database:**is a collection of information that is coordinated so that it can easily be accessed, managed, and updated. In one view, databases can be classified according to types of content (Kathuria, 2014).

**Information System***.* is any organized system for the collection, organization, storage, and communication of information.  Operationally, the information system refers to all the manual and computer-based application systems of the attendance monitoring system (Geeta, 2013).

**Monitoring**: To observe and check the progress or quality of (something) over a period of time (Merriam Webster, 2021).

**MySQL:** is an open-source relational database management system (Wikipedia, 2016).

**Report:** This contains the record of an/or employees (Merriam-Webster, 2013).

**Scanner:**a device for examining, reading, or monitoring something in particular (Merriam-Webster, 2013).

**Software:** These are set of logically related instructions given to the computer to perform some specific tasks (Merriam-Webster, 2013).

**System:** This is any collection of components that work together to perform a task (Butler, 2017).

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This chapter discusses the review of literature related to Barcode Attendance System done by means of information technologies, and evaluation of websites that are active in the field of medical consultation at present. This review emphasis on Barcode attendance and verification.

## 2.2 Review of related work

Biometrics refers to metrics related to human characteristics. Biometrics authentication is used in computer science as a form of identification and access control. Biometrics" means "life measurement" but the term is usually associated with the use of unique physiological characteristics to identify an individual. The application which most people associate with biometrics is security. However, biometric identification has eventually a much broader relevance as computer interface becomes more natural. Knowing the person with whom you are conversing is an important part of human interaction and one expects computers of the future to have the same capabilities. A number of biometric traits have been developed and are used to authenticate the person's identity (Babich, 2012). The idea is to use the special characteristics of a person to identify him. By using special characteristics, we mean the using the features such as face, iris, fingerprint, signature etc. Different types of biometrics are used in any identification system, such as DNA Matching (Chemical Biometric), Ear (Visual Biometric), Eyes (Iris Recognition and Retina Recognition), Face Recognition (Visual Biometric), Fingerprint Recognition (Visual Biometric), Gait (Behavioral Biometric), Signature Recognition (Visual/Behavioral Biometric), Voice (Speech and Speaker Recognition), etc (Biometrics Institute Limited, 2018). A biometric system can be either an 'identification' system or a 'verification' (authentication) system. Biometrics can be used to determine a person's identity even without his knowledge or consent. For example, scanning a crowd with a camera and using face recognition technology, one can determine matches against a known database. Biometrics can also be used to verify a person's identity. For example, one can grant physical access to a secure area in a building by using finger scans or can grant access to a bank account at an ATM by using retinal scan.

## 2.2 Information systems in education institutes

Nowadays information communication technology (ICT) has the important role to increase efficiency in general education institutes in term of information management and communication. Simin, Mojgan, Saedah, and Kalaivani (2013) reviewed the administration and management of ICT application in many education institutes and found that many education institutes use information system in the administration and management of many tasks but not examinee verification task. Electronics school management system (e-SMS) in Macedonia from Majlinda Bekim and Mirlinda (2013), is the information system in school that only focuses on web technology to supports teachers, students and parents to access systems. The examination management system developed by Vasupongayya, Noodam, and Kongyong (2013), focuses on how to manage examinations but does not mention to examinee verification. Shah (2014) surveyed the effects of using ICT in education institutes and found many institutes focus on the back-office task management more than examination tasks. Shahmir, Hamidi, Bagherzadeh and Salimi (2011) presents role of ICT in the education curriculum, but still doesn’t mention examination management tasks.

Sergis, Sholla, Zervas, and Sampson (2014) presents supporting school ICT uptake. Although an examination management system is one kind of information system in education institutes, there are concentrations only on the systems to manage information in the examination while the methodology to verify an examinee is still done by the traditional method such as checking examinee documents or signatures. There is some research into information system to examination management such as Suleiman and Nachandiya1 (2018), which presents the design and implementation of a computer-based testing system that incorporates computers into examination task – the examinee verify process uses user names and passwords to access the system.

Singh and Tiwari (2016), presents the design and implementation of secured computer-based examination system based on B/S Structure which also uses a user name and password to login the system. Fagbola, Adigun and Oke (2013) presents Computer-Based Test (CBT) System for University Academic Enterprise Examination that provides a computer-base for the enterprise of examination which concentrates on managing many tasks in the examination but for the examinee verification task still use the old login method is still used. Most research in the field of examination management is focused on electronic examination (e-test) or online-test such as the Secure E-Exam Management System by Castella-Roca, Herrera-Joancomarti, and Dorca-Josa (2006), which presents how to manage the security for e-learning using cryptographic protocols for the testing process in order to ensure the examinee who have the key, can access the examination and Al-hayek, et al. (2016), presents E-School – School Management System. There are many examples of research that provide information system to make examination management more efficiency in many issues, this paper focuses on the ways to reduce human error in the examinee verification process by developing a software design model to be a framework for every education institute.

## 2.3 Biometric technology

To verify an examinee by using human decision makes it rather difficult to guarantee the right examinee, because of human errors such as bias and negligence might cause mistakes in the examination. Moreover, the proctors do not have any tools to ensure against this issue. Using biometric technology is the solution to make the proctor have more confidence in verifying an examinee by using facial scan, fingerprint scan, voice recognition and etc.

There is a lot of research in the biometric technology field that has many different issues. Uddin et al. (2011), surveys a variety of biometric techniques including finger print, hand geometry, face, voice and iris. Sruthy (2013), presents a literature survey on automated person identification techniques that shows various biometric techniques to identify person and also shows the comparison of biometric techniques in various ways. Jain, Nandakumar, and Ross, (2016) presents 50 years of biometric research: accomplishments, challenges, and opportunities that show the evaluation of biometric techniques over the last 50 years. The big question in applying biometric technology in any task is what the best biometric might be.

Prabhakar, Pankanti and Jain (2003), presents the comparison of several biometric technologies that can answer the previous question that there is no best biometric, each has both strong and weak points. The application of biometric technology to any task has to consider the character of the task. Biometric technology also depends on availability of hardware to collect the biometric information such as digital camera, finger print scanner, microphone for voice recording and other biometric device. Using biometric technology to verify an examinee in BEPVS model does not specify the biometric techniques. That mean BEPVS model can support any type of biometric depending on the requirement of each education institute. The most compatible biometric technique to verify the examinee should be the general basic biometric such as face and voice recognition because of their ease of use and the devices needed are not too expensive for education institutes.

## 2.4 Information System

According to Hevner (2014), Information Systems (IS) are implemented within an organization for the purpose of improving the effectiveness and efficiency of that organization. Two paradigms that characterize much of the research in the IS discipline are behavioral science and design science. The behavioral science paradigm seeks to develop and verify theories that explain or predict human or organizational behavior. The design science paradigm seeks to extend the boundaries of human and organizational capabilities by creating new and innovative artefacts.

These two paradigms are complementary but distinct (March & Smith, 2015). The behavioral science paradigm has its root in natural science research methods. It seeks to develop and justify theories that explain or predict organizational and human phenomena (Hevner, 2014). The design science paradigm has its roots in engineering and the science of the artificial (Simon, 2016). It is fundamentally a problem-solving paradigm and seeks to create innovations that define the ideas, practices, technical capabilities, and products through which the analysis, design, implementation, management, and use of information systems can be effectively and efficiently accomplished (Denning, 2017).

This project work falls in the realm of the design science due to the problem-solving nature of the work. As the Information System (IS), literature recognizes, while the importance of design is well recognized, designing a useful system is complex. This system is built on the work of the design science paradigm and followed the literature suggested guidelines in (Hevner, 2014).

## 2.5 Related literatures

There are numerous proposals for Automatic Attendance Management Systems in the literature and in the market. Nowadays, barcodes are frequently used in most industries, supermarkets, and wherever information needs to be read automatically.

Shoewu, Olaniyi, and Lawson (2011) proposed an electronic card-based solution to the lecture attendance problem in higher institutions in the developing countries. This system used a singlechip computer based on subsystems interfaced serially to the serial port of the digital computer. Some of the limitations of this system are that not all computer systems possess serial port.

Mahyidin (2018) also proposed student attendance management system using Radio Frequency Identification (RFID). The system makes use of student card in order to grant or denial the student from taking attendance. This technique also did not identify individual based on who he/she is which therefore, can lead to impersonation.

Victor, Jonathan, Reece, and Lemire (2013) presented a system that is based on student wolf pack club tracking system to improve the process of student wolf pack club ticket distribution for athletic events. This system did not, however, integrate any aspect of student attendance monitoring.

On the other hand, Saraswat and Kumar (2017), proposed fingerprint verification technique in taking attendance. Their proposed system makes use of fingerprint verification by using extraction of minutiae technique and system that automates the whole process of taking attendance.

Xue (2019), discusses a prototype system that uses facial recognition technology to monitor and authenticate user or student for attendance taking. A neural network-based algorithm was implemented to carry out face detection, and an eigen face method was employed to perform facial recognition. The experimental results demonstrate the feasibility of near-real-time continuous user verification for high-level security information systems.

# CHAPTER THREE

# SYSTEM DESIGN AND ANALYSIS

## 3.1 Introduction

This chapter contains the system design and analysis that was employed to achieve the aim of the project.

## 3.2 Disadvantages of the existing system

1. The existing system involves a tedious process and it is time consuming.
2. The result of calculation might go wrong when lecturer missed out some of the data in the attendance record.
3. In addition, lecturer needs to manually write all the details about the attendance data to the appropriate documents when needed.

## 3.3 Advantages of the proposed system

The following are the advantages of an Attendance Monitoring system. They include the following:

1. Accuracy of student attendance.
2. Reduce cost of materials usage such as papers and pens.
3. Productivity / Efficiency: The time and effort saved combined with data accuracy helps in optimizing the use of resources which lead to increased productivity and improves profits.
4. Hassle Free Workflow Management
5. Real-time tracking
6. Security and up to date record.

## 3.4 The Proposed method

The user employed the use of a website in implementing the system in order for it to be available at all times and accessible from any device. The researcher used two programming languages in the accomplishment of this system, they include: PHP for the database scripting side and MySQL for the database storage. They system also involves the use of HTML, CSS and Java Script codes for full functionality of the system.

## 3.5 Method of data collection

There are two main sources of data collection in carrying out this study, information was basically obtained from the two sources which are:

**Primary Source:** In my research I used the interview method for my primary source of Information; this is done by asking question from the different departments. We also used a method of observation where we were attentive to all the activities of the departmental classes, studying their activities and recording them down on daily basis or as required.

**Secondary Source:** The need for the secondary sources of data for this kind of project cannot be over emphasized. The secondary data were obtained by me from magazines, Journal, newspapers, library source and from other sources. Most of the information from the library research has been covered in my literature review in the previous chapter of this project.

## 3.6 System design

## 3.6.1 Algorithm diagram

**Use case diagram**

Login

Take Attendance

Add Student

Scan QR code

Admin

View report

Log out

Print report

Figure 3.1: Use case diagram

## 3.6.2 System architecture

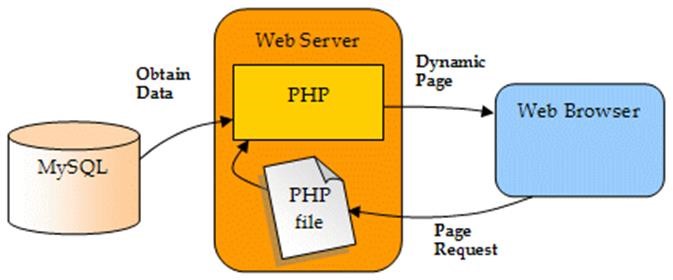


Figure 3.2: System architecture

## 

## 3.6.3 Database Tables/Queries Structures

**Table 1: Admin Details**

**Top of Form**

| **Name** | **Type** | **Extra** |
| --- | --- | --- |
| **id Primary** | int(11 | AUTO\_INCREMENT |
| **Name** | varchar(50) |  |
| **Department** | varchar(255) |  |
| **EmailId Index** | varchar(50) |  |
| **MobNo** | bigint(11) |  |
| **Password** | varchar(50) |  |

**Table 2: Student Attendance**

Top of Form

| **Name** | **Type** | **Extra** |
| --- | --- | --- |
| id Primary | int(11) | AUTO\_INCREMENT |
| Studentid | varchar(250) |  |
| Timein | Timestap() |  |
| Timeout | Timestap()- |  |
| Logdate | varchar(250) |  |
| Status | varchar(250) |  |

Bottom of Form

**Table 3: Student Details**

Top of Form

| **Name** | **Type** | **Extra** |
| --- | --- | --- |
| id Primary | int(11) | AUTO\_INCREMENT |
| Studentid Index | varchar(250) |  |
| Studentname | varchar(250) |  |
| Age | varchar(250) |  |
| Gender | varchar(250) |  |
| Level | Vacrchar(250) |  |
| Department | varchar(255) |  |
| image | varchar(255) |  |

Bottom of Form

## 3.6.4 Input and Output Design

**REGISTRATION**

Registration Number

Age

Department

**REGISTER**

Full Name

Level

Gender

Figure 3.3: Registration Form

**LOGIN**

**LOGIN**

**LOGIN**

Figure 3.4: Login form

**SCAN QR CODE**

REGISTRATION NUMBER

Figure 3.5: Scan QR Code

**GENERATE QR CODE**

REGISTRATION NUMBER

**GENERATE**

Figure 3.6: Generate QR Code

## 3.7 System requirement specification

## 3.7.1 Hardware requirement

The software to be design needs the following hardware for an effective operation of the newly designed system.

1. A system running on intel, P(R) duo core with higher processor
2. The-Random Access Memory (RAM) should be at least 512MB.
3. At least 20-GB hard disk.
4. A monitor.

## 3.7.2 Software Requirements

The software requirements include:

1. A window 7 or higher version of operating system.
2. XAMP or WAMP for Database
3. PHP
4. MySQL
5. Browser

## 3.7.3 Personnel Requirement

Any computer literate who has a technical knowhow of internet surfing can use the system because it is user friendly.

# CHAPTER FOUR

# RESULTS AND DISCUSSION

## 4.1 Introduction

The new system is designed using PHP and MySQL programming language for easy Attendances records inserting and updating. This system will help in managing and easily retrieving of Student attendance information from the system for management purposes.

## 4.2 Results

Welcome interface

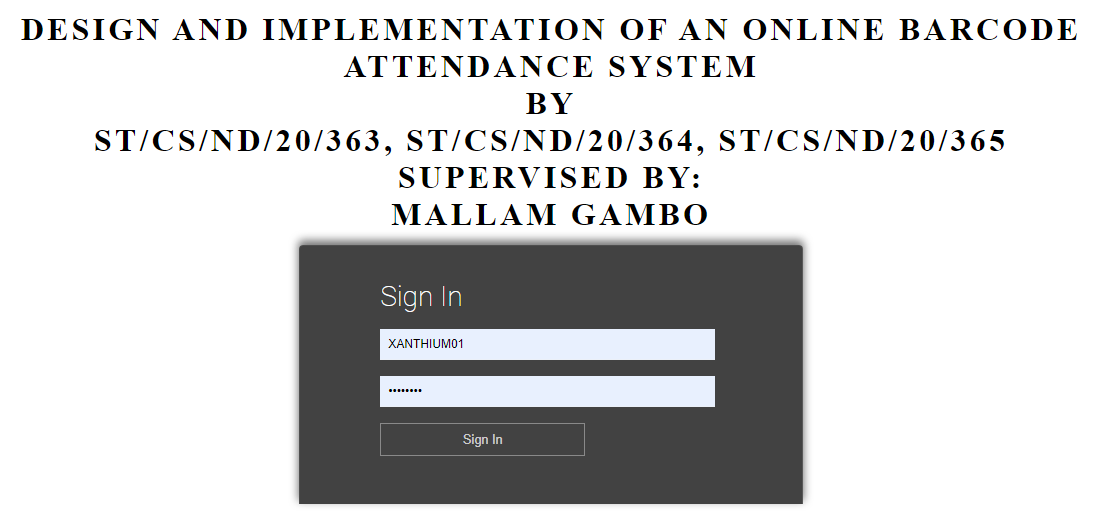


Figure 4.1: Welcome interface

Login interface



Figure 4.2: Login page interface

Add Student interface

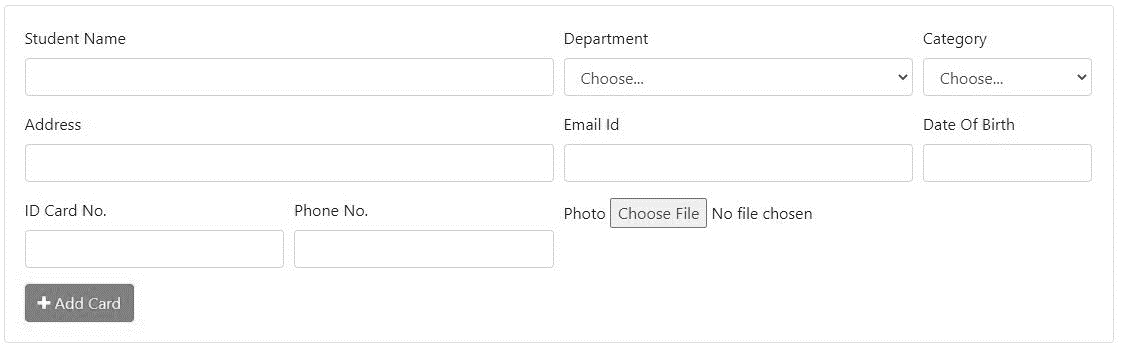


Figure 4.3: Add Student interface

QR Code Generator interface

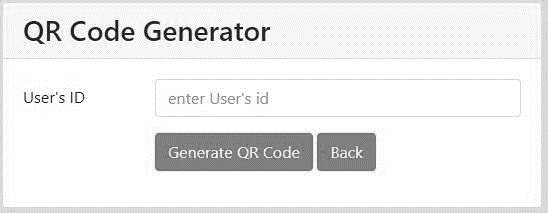


Figure 4.4: QR Code Generator Interface

Identity Card Generator

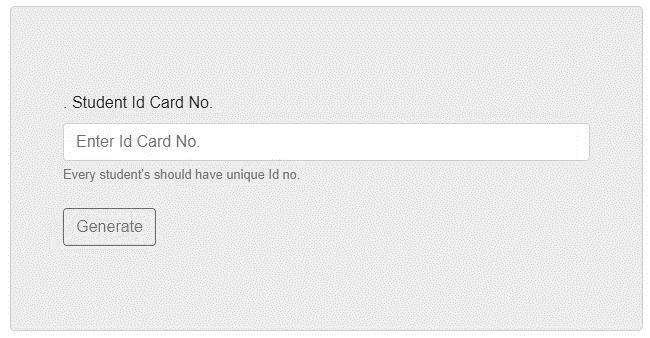


Figure 4.5: Identity Card Generator Interface

## 4.3 Discussion

**Welcome interface**

This is the first interface that the user will see, it contains the project topic, student and the supervisor of the project.

**Login interface**

This section is used by an existing admin to login into the system before completing any operation.

**Add Student interface**

This section on the system is used to add or register new students into the system.

**QR Code Generator interface**

This section is used by the admin to generate a Quick Response (QR) code for a particular student.

**Identity Card Generator interface**

This section is used by the admin to generate an Identity card for a particular student.

## 4.4 User manual

The following are the necessary steps to take in order to use the system efficiently and effectively.

1. Load the url of the system <https://localhost/ams/> the welcome page will be displayed.
2. Click on the Proceed button to proceed to the main system.
3. Provide your login details by entering your username and password.
4. You will be automatically directed to the dashboard.
5. The various task that you can perform on the system will be displayed on the sidebar of the dashboard.

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATION

## 5.1 Summary

The new system was designed in such a way that records about of the student of Computer Science department, Federal Polytechnic, Mubi will be stored in a database for easy retrieval and manipulation, which will be used by a lecturer to keep track of all attendance records and be able to know those that are consistent in attending lectures and those that are not easily with less stress.

## 5.2 Conclusion

The Online QR Code Attendance System was designed and implemented successfully, the aim and specific objectives of the project were achieved successfully.

## 5.3 Recommendations

The researcher puts forward the following recommendations:

1. The QR code attendance system be used, and lecturers should imbibe the use of this technology in carrying out their attendance in order to reduce the time wastage and easily damages that are involved with the manual system.
2. The researchers also recommend that the system be put to effective use in order to derive the necessary efficiency of the system.

## 5.4 Contribution to Knowledge

The new system was designed in a structured and robust way employing responsive design to it to ensure usability and efficiency. The project research will serve as a reference point for other research work and contribute immensely to knowledge for those conducting a research on similar topic.

## 5.5 Area for further work

The research work limited in making use of a finger print face recognition technology. Therefore, the researcher suggests that further studies be conducted to include the use of face recognition or finger print technology.

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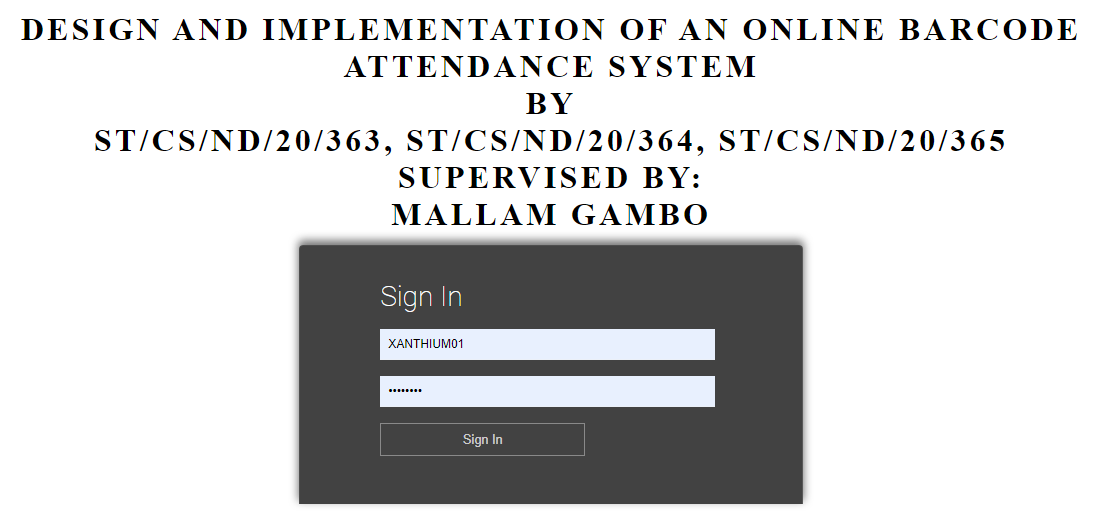
Wikipedia (2016). Web development. In *Wikipedia, The Free Encyclopedia*. Retrieved 03:42, November 17, 2022, from [https://en.wikipedia.org/w/inde x.php?title=Web\_development&oldid=1094071868](https://en.wikipedia.org/w/inde%20x.php?title=Web_development&oldid=1094071868)

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# 

# APPENDIX A

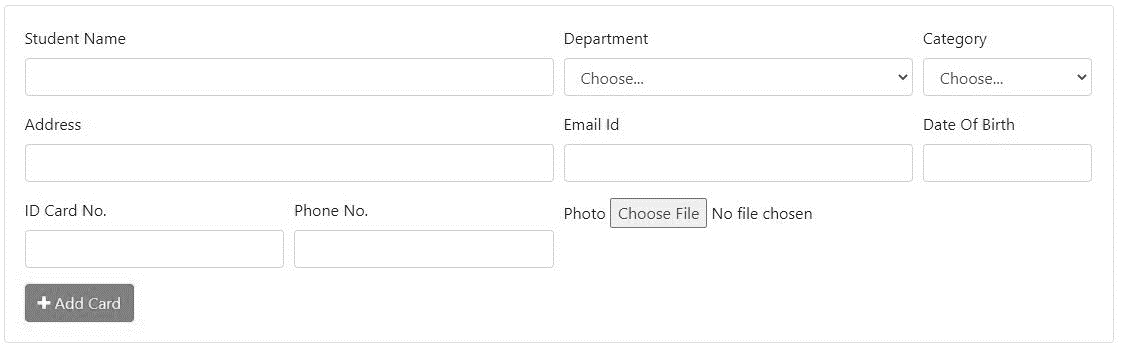
Welcome interface



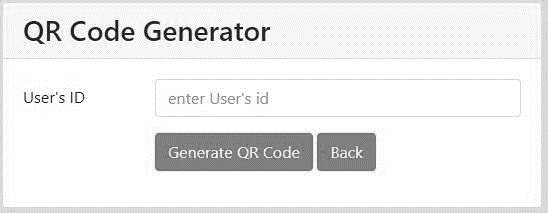
Login interface



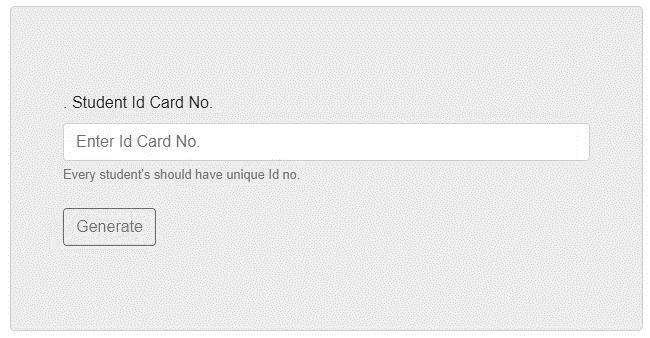
Add Student interface



QR Code Generator interface



Identity Card Generator



# APPENDIX B

**PROGRAM CODE**

<!DOCTYPE html>

<html lang="en">

  <head>

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <meta name="description" content="">

    <meta name="author" content="">

    <title>DOCTOR -PATIENT SYSTEM</title>

    <!-- Bootstrap Core CSS -->

    <link href="vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">

    <!-- Custom Fonts -->

    <link href="vendor/font-awesome/css/font-awesome.min.css" rel="stylesheet" type="text/css">

    <link href="https://fonts.googleapis.com/css?family=Source+Sans+Pro:300,400,700,300italic,400italic,700italic" rel="stylesheet" type="text/css">

    <link href="vendor/simple-line-icons/css/simple-line-icons.css" rel="stylesheet">

    <!-- Custom CSS -->

    <link href="css/stylish-portfolio.min.css" rel="stylesheet">

  </head>

  <body id="page-top" style="background:rgb(236, 234, 231);">

    <!-- Navigation -->

    <a class="menu-toggle rounded" href="#">

      <i class="fa fa-bars"></i>

    </a>

    <nav id="sidebar-wrapper">

      <ul class="sidebar-nav">

        <li class="sidebar-brand">

          <a class="js-scroll-trigger" href="#page-top">SMIS</a>

        </li>

        <li class="sidebar-nav-item">

          <a class="js-scroll-trigger" href="iconsult/">Proceed</a>

        </li>

    </nav>

    <!-- Header -->

    <header class="masthead d-flex">

      <div class="container text-center my-auto">

        <h1 class="mb-1" style="font-size: 30px; text-transform: uppercase;"><span style=" font-size: 50px; margin-top: 25px;"> A WEB-BASED SYSTEM FOR DOCTOR-PATIENT CONSULTATION AND DIAGNOSIS</span> <br><br>  </h1>

        <h2>BY: <br> ST/CS/HND/20/052</h2> <br> <br>

        <h2>SUPERVISED BY: <br>MR.  SIMON HYELLAMADA

        </h2>

        <br><br><br>

        <strong><a class="btn btn-primary btn-xl js-scroll-trigger" href="iconsult/" style="font-size: 20px;"><span class="fa fa-long-arrow-right"></span> PROCEED</a></strong>

              </div>

      <div class="overlay"></div>

    </header>

    <!-- Scroll to Top Button-->

    <a class="scroll-to-top rounded js-scroll-trigger" href="#page-top">

      <i class="fa fa-angle-up"></i>

    </a>

    <!-- Bootstrap core JavaScript -->

    <script src="vendor/jquery/jquery.min.js"></script>

    <script src="vendor/bootstrap/js/bootstrap.bundle.min.js"></script>

    <!-- Plugin JavaScript -->

    <script src="vendor/jquery-easing/jquery.easing.min.js"></script>

    <!-- Custom scripts for this template -->

    <script src="js/stylish-portfolio.min.js"></script>

  </body>

</html>

<?php

session\_start();

include '../php/db\_config.php';

if (isset($\_SESSION['userType'])) {

    if ($\_SESSION['userType'] != 3) {

        header('Location: ../login.php');

    }

} else {

    header('Location: ../login.php');

}

?>

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="utf-8" />

    <meta name="viewport" content="width=device-width, initial-scale=1" />

    <link rel="shortcut icon" href="../favicon.ico" type="image/x-icon">

    <link rel="icon" href="../favicon.ico" type="image/x-icon">

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-wEmeIV1mKuiNpC+IOBjI7aAzPcEZeedi5yW5f2yOq55WWLwNGmvvx4Um1vskeMj0" crossorigin="anonymous" />

    <link href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/5.15.1/css/all.min.css" rel="stylesheet" />

    <link rel="stylesheet" href="../css/style.css" />

    <link href="https://unpkg.com/aos@2.3.1/dist/aos.css" rel="stylesheet">

    <title>iConsult | Consultation</title>

    <style>

        .cards {

            height: calc(100vh - 93px);

        }

        .myinbox {

            height: calc(100vh - 140px);

        }

        .sender {

            border-top-left-radius: 15px;

            border-top-right-radius: 15px;

            border-bottom-left-radius: 15px;

        }

        .receiver {

            border-top-left-radius: 15px;

            border-top-right-radius: 15px;

            border-bottom-right-radius: 15px;

        }

        .chats {

            height: calc(100vh - 170px);

            overflow-y: auto;

        }

        .reqs:hover {

            cursor: pointer;

            background-color: #eee;

        }

        /\* body {

            background-image: url("assets/images/bg.jpg");

            background-size: cover;

            background-position: center;

            background-attachment: fixed;

        } \*/

    </style>

</head>

<body>

    <div class="container-fluid p-0">

        <?php include 'components/navbar.php'; ?>

        <div class="row m-0">

            <?php include 'components/sidebar.php'; ?>

            <div class="col-md-9 col-sm-12 col-12">

                <div class="vh-100 py-3">

                    <div class="p-3">

                        <button class="btn btn-outline-primary shadow-sm round-1 fw-bold btn-sm float-end px-3" type="button" data-bs-toggle="offcanvas" data-bs-target="#offcanvasRight" aria-controls="offcanvasRight">Find a Doctor <i class="fas fa-search"></i></button>

                        <div class="h4 fw-bolder"><span id="backmobile"><a class="pointer"><i class="fas fa-chevron-left"></i></a></span> Consult</div>

                        <div class="row">

                            <div class="col-md-4">

                                <div id="main1" class="card round-2 cards border-0">

                                    <div class="card-body p-2">

                                        <div class="myinbox" id="myinbox" style="overflow-y: auto">

                                            <div id="requests">

                                            </div>

                                            <div class="" id="active"></div>

                                            <div class="" id="closed"></div>

                                        </div>

                                    </div>

                                </div>

                            </div>

                            <div class="col-md-8">

                                <div id="main2" class="card round-1 cards">

                                    <div class="card-header bg-transparent border-bottom  " id="conshead">

                                        <div class="h6 fw-light fst-italic text-muted mb-0">Choose a consultation</div>

                                    </div>

                                    <div id="chats" class="card-body pb-0 chats">

                                    </div>

                                    <div class="card-footer" id="consfoot">

                                    </div>

                                </div>

                            </div>

                        </div>

                    </div>

                </div>

            </div>

        </div>

    </div>

    <div class="offcanvas offcanvas-end" tabindex="-1" id="offcanvasRight" aria-labelledby="offcanvasRightLabel">

        <div class="offcanvas-header mb-0">

            <h5 id="offcanvasRightLabel">Doctors</h5>

            <button type="button" class="btn-close text-reset" data-bs-dismiss="offcanvas" aria-label="Close"></button>

        </div>

        <div class="offcanvas-body">

            <!-- <div class="h6 fw-bold">Find Doctor</div> -->

            <select name="" id="category" class="form-control bg-white round-2 mb-2" onchange="load\_doctor()">

                <option value="0">All</option>

                <option value="1">General Practice</option>

                <option value="2">Opthalmologist</option>

                <option value="3">Dermatologist</option>

            </select>

            <input type="text" id="search" class="form-control mb-3 round-2" placeholder="Search" onkeyup="load\_doctor()">

            <div id="doctors">

            </div>

        </div>

    </div>

    <!-- Button trigger modal -->

    <button type="button" class="btn btn-primary d-none" id="viewdoc" data-bs-toggle="modal" data-bs-target="#exampleModal">

        Launch demo modal

    </button>

    <!-- Modal -->

    <div class="modal fade" id="exampleModal" tabindex="-1" aria-labelledby="exampleModalLabel" aria-hidden="true">

        <div class="modal-dialog modal-dialog-centered">

            <div class="modal-content">

                <div class="modal-header">

                    <h5 class="modal-title" id="exampleModalLabel">Doctor Information</h5>

                    <button type="button" class="btn-close" data-bs-dismiss="modal" aria-label="Close"></button>

                </div>

                <div class="modal-body" id="docdetails">

                </div>

                <div class="modal-footer">

                    <button type="button" class="btn btn-secondary" data-bs-dismiss="modal">Close</button>

                </div>

            </div>

        </div>

    </div>

    <!-- Modal -->

    <div class="modal fade" id="attach" tabindex="-1" aria-labelledby="exampleModalLabel" aria-hidden="true">

        <div class="modal-dialog modal-dialog-scrollable">

            <div class="modal-content">

                <div class="modal-header">

                    <h5 class="modal-title" id="exampleModalLabel">My History</h5>

                    <button type="button" class="btn-close" data-bs-dismiss="modal" aria-label="Close"></button>

                </div>

                <div class="modal-body">

                    <div class="">

                        <?php

                        $sql = "SELECT \* FROM diagnosis WHERE userid = " . $\_SESSION['user']['userID'] . " ORDER BY id DESC";

                        $result = mysqli\_query($conn, $sql);

                        if ($result->num\_rows > 0) {

                            while ($row = $result->fetch\_assoc()) {

                                $output = json\_decode($row['result']);

                        ?>

                                <div class="

                                                    bg-white

                                                    p-2

                                                    border

                                                    round-1

                                                    mb-3

                                                ">

                                    <div>

                                        <a style="cursor: pointer" class="text-decoration-none smallTxt float-end mb-0" onclick="attachme(<?= $row['id'] ?>)">Send <i class="fas fa-share-square"></i></a>

                                        <div class="smallTxt mb-0"><?= $row['date'] ?></div>

                                        <div class="bg-light round-2 p-2">

                                            <div class="smallTxt mb-0">Symptoms:

                                                <?php

                                                $symp = json\_decode($row['symptoms']);

                                                foreach ($symp as $s) {

                                                    $sql = "SELECT \* FROM symptoms WHERE symptomID = $s";

                                                    $res = mysqli\_query($conn, $sql)->fetch\_assoc();

                                                    echo $res['name'] . ", ";

                                                }

                                                ?>

                                            </div>

                                            <div class="smallTxt mb-0">Top result: <span class="fw-bold"><?= (count($output) != 0) ? $output[0]->Issue->Name : "No result" ?></span></div>

                                        </div>

                                    </div>

                                    <!-- <div class="ms-auto">View</div> -->

                                </div>

                        <?php

                            }

                        }

                        ?>

                    </div>

                </div>

                <div class="modal-footer">

                    <button type="button" class="btn btn-secondary" data-bs-dismiss="modal">Close</button>

                </div>

            </div>

        </div>

    </div>

    <button type="button" class="btn btn-primary d-none" id="finalizeopen" data-bs-toggle="modal" data-bs-target="#finalize">

        Launch demo modal

    </button>

    <div class="modal fade" id="finalize" tabindex="-1" aria-labelledby="finalize" aria-hidden="true">

        <div class="modal-dialog modal-dialog-scrollable moddal-dialog-centered">

            <div class="modal-content">

                <div class="modal-header">

                    <h5 class="modal-title" id="exampleModalLabel">Consultation Summary</h5>

                    <button type="button" class="btn-close" data-bs-dismiss="modal" aria-label="Close"></button>

                </div>

                <div class="modal-body">

                    <div id="result"></div>

                </div>

                <div class="modal-footer">

                    <button type="button" class="btn btn-secondary" data-bs-dismiss="modal">Close</button>

                </div>

            </div>

        </div>

    </div>

    <form action="" class="d-none" id="imagesend" method="post" enctype="multipart/form-data">

        <input type="file" name="file" id="file" accept="image/\*" onchange="selimg()">

        <input type="submit" value="Upload Image" name="submit" id="imagebtn">

    </form>

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0/dist/js/bootstrap.bundle.min.js" integrity="sha384-p34f1UUtsS3wqzfto5wAAmdvj+osOnFyQFpp4Ua3gs/ZVWx6oOypYoCJhGGScy+8" crossorigin="anonymous">

    </script>

    <script src="https://code.jquery.com/jquery-3.6.0.min.js" integrity="sha256-/xUj+3OJU5yExlq6GSYGSHk7tPXikynS7ogEvDej/m4=" crossorigin="anonymous"></script>

    <script src="//cdn.jsdelivr.net/npm/sweetalert2@11"></script>

    <script src="https://unpkg.com/aos@2.3.1/dist/aos.js"></script>

    <script>

        AOS.init();

        var screen = 0;

        updateScreen();

        $("#backmobile").hide();

        window.addEventListener('resize', updateScreen);

        function updateScreen() {

            if (window.innerWidth < 600) {

                $("#myinbox").removeClass('myinbox');

                $("#main1").removeClass('cards');

                if (screen == 0) {

                    $("#main2").hide();

                }

            } else {

                $("#myinbox").addClass('myinbox');

                $("#main1").addClass('cards');

                $("#main2").show();

                $("#main1").show();

                $("#backmobile").hide();

            }

        }

        $("#backmobile").click(function() {

            if (window.innerWidth < 600) {

                screen = 0;

                $("#main1").show('');

                $("#main2").hide('');

                $("#backmobile").hide();

            } else {

            }

        });

        loadconsultation();

        function loadconsultation() {

            $.post('ajax/loadconsultation.php', function(data) {

                var array = JSON.parse(data);

                $("#active").html(array[0]);

                $("#requests").html(array[1]);

                $("#closed").html(array[2]);

            });

        }

        load\_doctor();

        function load\_doctor() {

            $("#doctors").load('ajax/loaddoctors.php', {

                search: $("#search").val(),

                category: $("#category").val()

            });

        }

        function loadconvo() {

            $("#chats").load("ajax/loadconvo.php", {

                id: selected,

                doc: doc,

                code: code

            });

        }

        $("#navconsult").addClass("bg-info text-white shadow");

        var selected = '0';

        var doc = '0';

        var code = '';

        chatBox = document.querySelector("#chats");

        setInterval(() => {

            console.log("Fetching chat");

            loadconvo();

            loadconsultation();

            if (!chatBox.classList.contains("active") && window.innerWidth >= 600) {

                scrollToBottom();

        function loadchatbox() {

            $.post('ajax/loadconvobox.php', {

                doc: doc,

                id: selected

            }, function(data) {

                var array = JSON.parse(data);

                $("#conshead").html(array[0]);

                $("#consfoot").html(array[1]);

            });

        }

        chatBox.onmouseenter = () => {

            chatBox.classList.add("active");

        }

        chatBox.onmouseleave = () => {

            chatBox.classList.remove("active");

        }

        function scrollToBottom() {

            chatBox.scrollTop = chatBox.scrollHeight;

            // $('#chats').stop().animate({

            //     scrollTop: $('#chats')[0].scrollHeight

            // }, 800);

        }

                        'info'

                    )

                }

            });

            scrollToBottom();

        }

        function openFinalize() {

            $("#finalizeopen").click();

            $("#result").load('ajax/loadfinalize.php', {

                id: selected

            });

        }

        function imgattach() {

            $("#file").click();

        }

        function selimg() {

            $("#imagesend").submit();

        }

        $("#imagesend").submit(function(e) {

            e.preventDefault();

            $("#sending-text").removeClass("d-none");

            var fd = new FormData();

            var files = $('#file')[0].files;

            // Check file selected or not

            if (files.length > 0) {

                fd.append('file', files[0]);

                fd.append('conid', selected);

                fd.append('doc', doc);

                $.ajax({

                    url: 'ajax/sendimage.php',

                    type: 'post',

                    data: fd,

                    contentType: false,

                    processData: false,

                    success: function(response) {

                        // if (response != 0) {

                        //     $("#img").attr("src", response);

                        //     $(".preview img").show(); // Display image element

                        // } else {

                        //     alert('file not uploaded');

                        // }

                        // alert(response);

                        $("#sending-text").addClass("d-none");

                        loadconvo();

                        scrollToBottom();

                    },

                });

            } else {

                alert("Please select a file.");

            }

        });

        function deleteconsultation(id) {

            Swal.fire(

                'Deleted!',

                'Your request has been deleted.',

                'success'

            )

            $.post('ajax/cancelrequest.php', {

                id: id

            }, function() {

                loadconsultation();

            });

        }

    </script>

</body>

</html>