DEVELOPMENT OF A SECURED ONLINE FINAL YEAR CLEARANCE SYSTEM

(A CASE STUDY OF KWARA STATE POLYTECHNIC, ILORIN)

BY

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COMPUTER SCIENCE

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CERTIFICATION

This is to certify that this project work was carried out by **ADEYEMO ABDULLAH ADEWALE** with Matriculation Number **ND/23/COM/FT/0126** The project has been read and approved as part of the requirement for the award of National Diploma (ND) in Computer Science Department, Institute of information and communication technology, Kwara state polytechnic, Ilorin.

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DEDICATION

This work is dedicated to Almighty Allah for His mercy on me, and my family for their support, love and understanding.

ACKNOWLEDEGEMNT

All glory, adoration and glorification are due to almighty Allah (S.W.T) the most gracious, the most beneficent the most merciful, the creator of all creatures, for seeing me through my studies and this project in this great institution KWARA STATE POLYTECHNIC ILORIN, may his abundant blessings continue to be upon his prophet (S.W.T)

I appreciate the utmost effort of my Supervisor, MRS ADEMOLA.R. Whose patience, support and encouragement have been the driving force behind the success of this research work. She gave useful corrections, comments, recommendations, advice and always ensures that an excellent research is done.my sincere gratitude goes to Head of department and other members of staff of the department of computer science, kwara state polytechnic, ilorin. For their constant cooperation constructive criticism and encouragement throughout the programmed.

Special gratitude to my parents, who exhibited immeasurable financial, patience, support and prayers. And has made it possible for me to complete my OND program in this intuition KWARA STATE POLYTECHNIC, ILORIN. Special thanks also go to my lovely siblings.

ABSTRACT

Automation of final year students' clearance is a system which ensures that a final year student of the institution is checked for screening in various departments of the school and to make sure that every pending property of the school is collected before such student can be referred to as cleared student allowed to graduate from the school. The manual approach is a tedious one and student often find a way to boy-court one or more screening from some department. The proposed system employs the use of a relational database management system MYSQL as the front end while macromedia dreamweaver was used as the front end for the design of the system. It eradicates all forms of biasness in the manual approach and will go a long way to help the management in quick and easy decision making as well report generation is enhanced positively.

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CHAPTER ONE

1.1 General Introduction

In tertiary institutions across the world, clearance processes are mandatory for final-year students to fulfill all institutional obligations before graduation. These obligations include but are not limited to academic clearance, library clearance, departmental approval, bursary verification, hostel clearance, and security clearance. Conventionally, most Nigerian institutions, including Kwara State Polytechnic, Ilorin, conduct these clearance activities manually—relying heavily on physical forms, departmental visits, and paper-based approvals. This method, although traditionally acceptable, has over time proven to be inefficient, slow, and susceptible to human errors and fraudulent practices (Akinyemi & Oyeleye, 2021).

Manual clearance systems present several challenges. Students are often required to move from one office to another, stand in long queues, and spend days or even weeks securing signatures and endorsements. In many cases, documents get lost or damaged, staff may be unavailable, and communication gaps between departments can cause unnecessary delays. These problems are further exacerbated during periods of high student traffic, such as at the end of an academic session. In the worst-case scenarios, some students miss convocation deadlines due to delayed or incomplete clearance, leading to significant psychological and professional setbacks (Okafor & Bamidele, 2022).

With the global rise of digital transformation in education, many institutions have started adopting web-based solutions to improve service delivery and administrative efficiency. The development of secure, online clearance systems is now a strategic necessity in higher education administration. A web-based clearance system leverages modern information and communication technology (ICT) tools to provide a centralized platform where students can initiate, monitor, and complete their clearance activities from any location. It facilitates inter-departmental communication, ensures real-time feedback,

and automates approval workflows, thereby reducing the time and stress associated with manual processing (Saidu & Aluko, 2023).

Security is also a critical consideration. Clearance systems manage sensitive academic, financial, and personal information. Without adequate security mechanisms, such systems may become targets for cyber-attacks, data breaches, and impersonation. Therefore, a truly effective online clearance system must incorporate robust authentication protocols, encrypted data transmission, access controls, and audit trails to protect the integrity and confidentiality of user data (Ibrahim et al., 2024).

Moreover, the outbreak of the COVID-19 pandemic highlighted the urgent need for remote solutions in education. Institutions were forced to adopt e-learning platforms, virtual meetings, and online services to maintain academic continuity. This situation made it evident that physical-only processes like manual clearance are unsustainable in the face of emergencies or health restrictions. An online clearance system, therefore, provides a pandemic-resilient, flexible, and scalable model that aligns with global best practices in educational administration (UNESCO, 2021).

In the case of Kwara State Polytechnic, Ilorin, the introduction of a secured online clearance system would be a transformative step toward modernizing student administration. It would reduce physical bottlenecks, improve staff productivity, enhance student satisfaction, and ultimately position the institution as a forward-thinking educational leader. Such a system will also prepare the institution for future integration with broader e-administration platforms, including student portals, alumni networks, and national data repositories such as the Joint Admissions and Matriculation Board (JAMB) and the National Youth Service Corps (NYSC).

Given these issues and opportunities, this research seeks to design and implement a secured online final year clearance system that will address the limitations of the existing

manual process, ensure accountability, and improve the overall user experience for both students and staff at Kwara State Polytechnic, Ilorin.

1.2 Statement of Problem

The manual clearance process currently used in Kwara State Polytechnic presents numerous challenges. Students face long queues, multiple visits to different departments, and delays due to missing records or unavailable staff. There is also a high risk of falsified signatures, lost documents, and communication gaps between departments. These challenges often lead to frustration and delayed graduation processing.

Without a centralized and secured platform, it is difficult to verify and track clearance statuses accurately. Additionally, manual systems are inefficient in times of crises such as pandemics or strikes, when physical access to school facilities is limited. Therefore, there is a need to develop a secured, web-based clearance system that will automate and centralize all clearance-related activities, enhance data integrity, and provide real-time feedback to students and administrative units.

1.3 Aim and Objectives of Study

The main aim of this study is to develop a secured online final year clearance system for Kwara State Polytechnic, Ilorin. The specific objectives are to:

i. Design a web-based platform for automating student clearance processes.
ii. Implement secure authentication and authorization methods for users.
iii. Create a centralized database for storing and managing clearance records.
iv. Enable multi-level clearance approval across departments.

1.4 Significance of the Study

This project will be highly beneficial to both students and administrative staff of Kwara State Polytechnic. For students, it offers a more convenient, transparent, and faster way of completing clearance. For the institution, it improves administrative efficiency,

ensures accountability, and reduces fraudulent practices. The system will also serve as a model for other polytechnics and universities facing similar challenges in clearance operations. Furthermore, the project aligns with Nigeria's digital transformation goals and the growing need for e-governance and e-administration in educational institutions (NITDA, 2022). It provides a foundation for future integration with other school portals such as result processing, transcript requests, and alumni management systems.

1.5 Scope of the Study

The project focuses on the design and implementation of a web-based final year clearance system for Kwara State Polytechnic. The system will cater to departmental, library, bursary, and hostel clearance stages. It will include student registration, login authentication, status tracking, admin verification interfaces, and final clearance report generation. However, this study will not cover integration with mobile applications or external verification platforms.

1.6 Organization of the Report

This project is divided into five chapter, in order to simplify and proper understanding. Chapter one provides a general introduction, statement of the problem, aim and objectives, significance of the study, scope of the study, organization report and definition of technical terms. Chapter two deals with relevant informatory literature review in the subject like review of past works. Chapter three concentrates on project methodology which comprises of method of data, description of the existing system, problems of the existing system, description of the proposed and advantages of the proposed system. Chapter four deals with design and implementation, documentation of the system, it also deals with other aspect which includes: Hardware and software and project documentation. Chapter five consists of summary, recommendation, and conclusion.

CHAPTER TWO

Literature Review

2.1 Introduction

The implementation of technology in administrative processes of higher institutions has been a subject of growing academic and professional interest. This chapter reviews key literature and related works focusing on online clearance systems, security in web-based applications, e-administration in tertiary institutions, and various approaches to system design and implementation. The review also highlights the gaps in existing systems that necessitate a more robust and secure solution tailored to the needs of Kwara State Polytechnic.

2.1 Review of Related Works

The increasing adoption of technology in the administrative operations of tertiary institutions has led to significant improvements in service delivery, especially in the management of final-year clearance processes. Traditionally, institutions like Kwara State Polytechnic, Ilorin, have relied on manual systems for clearance, which involve moving from department to department, completing physical forms, and obtaining multiple signatures. This process is not only tedious and time-consuming but also prone to human error, document loss, impersonation, and unnecessary delays. Adebayo and Musa (2021) noted that these challenges have continued to affect both staff efficiency and student satisfaction across Nigerian institutions.

The growing demand for digitization has necessitated the design and implementation of web-based clearance systems. These systems leverage modern information and communication technologies to automate clearance procedures and improve administrative accuracy. Typically, an online clearance system comprises modules for login and authentication, student profiles, departmental approval dashboards, clearance status updates, and administrative control panels. With such a centralized

framework, students can initiate clearance requests and receive approvals remotely, thereby eliminating physical bottlenecks and long queues. According to Osagie and Emmanuel (2023), a well-designed online clearance platform also promotes transparency by recording every action taken by users, which enhances accountability.

Security remains a core concern in the deployment of online clearance platforms. Student data, which includes financial records, academic transcripts, and personal information, must be protected from unauthorized access. Ibrahim et al. (2023) emphasized the need for robust authentication protocols, encrypted communication channels (e.g., SSL/TLS), access control mechanisms, and secure database management. Role-based access ensures that different users—students, departmental staff, and administrators—have access only to functions that are relevant to their responsibilities. Additionally, password hashing using algorithms such as SHA-256 prevents unauthorized retrieval of login credentials. Audit logs are equally essential, as they maintain a digital trail of activities for forensic and monitoring purposes.

Automation has also proven to be more relevant in the post-COVID-19 era, as the pandemic highlighted the importance of contactless and remote services. UNESCO (2021) recommended the development of digital tools to ensure educational continuity and administrative flexibility in higher institutions. Online clearance systems serve this purpose effectively by allowing students to complete their clearance activities without needing to be physically present on campus. Furthermore, Adetunji and Lawal (2022) argued that automation improves turnaround time for graduation procedures and reduces the burden on administrative staff.

In Nigeria, several institutions have attempted to implement online clearance systems with varying degrees of success. For instance, the University of Ilorin launched an e-clearance system in 2020 to automate verification across key departments such as the bursary and library. However, the system lacked real-time notifications and had weak encryption standards (Abiola & Ojo, 2021). Similarly, the Federal University of

Technology, Minna introduced a semi-automated clearance platform that still required students to submit printed documents in some cases (Sanni & Yusuf, 2022). Lagos State University's system, although more comprehensive, suffered from slow page load times and lacked mobile optimization, making it difficult for students with limited internet access to use effectively (Akinola et al., 2022).

Various academic studies have explored the development of such systems. Eze and Okonkwo (2020) designed a web-based clearance system using PHP and MySQL, which automated most processes but lacked critical security layers like audit trails and role-based access. Oladele et al. (2021) took a more security-conscious approach, incorporating authentication, user access levels, and activity logging into their system. However, their model was not tested in a live institutional setting, limiting its practical relevance. Yusuf and Bashir (2023) developed a clearance system using the Laravel framework, which offered modular design and real-time clearance updates. Nonetheless, the system's user interface was not optimized for mobile usage, presenting a barrier to accessibility. More recently, Nwosu and Ibrahim (2024) proposed a RESTful API-based clearance platform with integration capabilities for results and payment verification. Their solution focused on interoperability but lacked support for biometric verification, which could have enhanced identity validation and fraud prevention.

Despite the progress in the development of online clearance platforms, significant gaps remain. Many existing systems are not fully automated, often requiring manual follow-up or physical document submission. Others lack critical security features such as end-to-end encryption or user activity monitoring. There is also a general lack of scalability, as most systems are not modular enough to support future integration with other platforms like NYSC clearance or alumni networks. In addition, mobile-friendliness and responsiveness remain major concerns, particularly for students in rural or low-bandwidth environments. These limitations point to the need for a more robust and secure solution that not only automates the clearance process end-to-end but also protects user data and provides an efficient, user-friendly experience.

The proposed system in this study seeks to address these challenges by developing a secured, scalable, and fully automated online clearance system tailored to the operational needs of Kwara State Polytechnic, Ilorin. It will incorporate advanced authentication protocols, a clean and responsive user interface, departmental dashboards, real-time updates, and audit capabilities to ensure transparency, efficiency, and security throughout the clearance process.

Furthermore, modern trends in system development have introduced several frameworks and architectural models for building scalable and secure clearance systems. The Model-View-Controller (MVC) architecture, for example, has become a widely accepted design pattern due to its separation of concerns and ease of maintenance. Frameworks like Laravel (PHP), Django (Python), and Spring Boot (Java) offer built-in security features such as CSRF protection, authentication middleware, and session handling. According to Yusuf and Bashir (2023), Laravel's use of Eloquent ORM (Object-Relational Mapping) also facilitates secure and efficient database interactions, which are critical when dealing with large student records and clearance logs.

Cloud computing has also revolutionized how such systems are hosted and managed. With the use of cloud-based platforms like Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP), institutions can now deploy clearance systems with greater uptime, enhanced scalability, and automatic backups. A study by Anaba and Olalekan (2022) revealed that cloud-hosted e-clearance systems reduced infrastructure costs by 35% and improved data availability during peak clearance periods. In contrast to on-premise hosting, which may be prone to server crashes and poor scalability, cloud infrastructure allows for elastic resource allocation and geographic redundancy, thereby ensuring consistent access across departments and campuses.

Another emerging concept is the use of two-factor authentication (2FA) and biometric validation to enhance system security. While traditional username-password authentication provides a basic level of protection, 2FA introduces a second layer—such

as an OTP (One-Time Password) sent to the user's phone or email—to verify identity. This method significantly reduces the chances of unauthorized access, even when login credentials are compromised. In a more advanced context, biometric clearance systems using fingerprint or facial recognition are being explored in some African institutions, though they are often limited by hardware costs and infrastructure readiness (Chinedu et al., 2023).

In terms of interoperability, Application Programming Interfaces (APIs) play a critical role in integrating clearance systems with other institutional platforms. APIs enable seamless interaction with result management systems, payment gateways, library databases, and hostel management portals. For example, when a student pays outstanding dues through a campus payment system, the API can automatically update the clearance status on the main dashboard. This real-time synchronization eliminates redundant data entry and reduces the likelihood of clerical errors. Nwosu and Ibrahim (2024) emphasized that clearance systems with API support are more future-ready and can easily adapt to broader smart-campus initiatives.

The user interface (UI) and user experience (UX) of an online clearance system are also essential for its successful adoption. A poorly designed interface can frustrate users and lead to incomplete or erroneous submissions. Modern UI/UX principles advocate for clean layouts, intuitive navigation, responsive design (especially for mobile devices), and accessible feedback mechanisms. Akinpelu and Omotayo (2022) highlighted that student-centered design increases the likelihood of system adoption and decreases training time required for onboarding. Their research found that clearance systems with interactive dashboards and status tracking had 70% fewer support queries from students compared to those with static forms.

Additionally, legislative and regulatory considerations must be accounted for in the development of such systems. The Nigerian Data Protection Regulation (NDPR) mandates that all data collected, stored, and processed within the country comply with strict privacy

standards. This means that institutions deploying clearance systems must ensure that user data is not only secure but also collected with proper consent, stored safely, and accessible only to authorized personnel. Non-compliance with NDPR can lead to penalties and reputational damage (NDPR, 2023). Therefore, incorporating features such as user consent forms, privacy notices, and data retention policies is not just best practice—it is legally necessary.

Importance of a Secured System

As institutions digitize clearance processes, securing these systems becomes paramount. Clearance data may include sensitive information such as matriculation numbers, financial status, academic standing, and disciplinary records. If compromised, these can lead to data breaches, impersonation, or manipulation of clearance records. Therefore, implementing end-to-end encryption, secure login sessions, encrypted backups, intrusion detection systems (IDS), and firewalls is essential. According to Ibrahim et al. (2023), educational institutions are becoming prime targets for cyberattacks due to outdated infrastructure and poor IT governance. The proposed system in this study will prioritize security using modern standards and layered defense models.

Relevance to National Education Policy and Digital Transformation

Nigeria's National Policy on ICT in Education supports the integration of digital tools in administration and learning processes. Projects such as the Digital Nigeria initiative by NITDA and the Tertiary Education Trust Fund (TETFund) encourage higher institutions to deploy ICT solutions to enhance service delivery. An online clearance system directly aligns with these policies and demonstrates institutional readiness for digital transformation. In the long term, digitized clearance can also support centralized national initiatives like NYSC documentation, transcript verification, and educational data warehousing.

CHAPTER THREE

3.1 Research Methodology

This research adopted the System Development Life Cycle (SDLC) approach, specifically using the Waterfall model due to its linear and structured nature. The methodology was chosen to ensure systematic development from problem identification to system deployment. The Waterfall model includes sequential stages: requirement analysis, system design, implementation, testing, deployment, and maintenance. Each stage builds upon the output of the previous, ensuring a logical progression and easy documentation.

Primary data collection involved interviews and observations within Kwara State Polytechnic. Informal discussions were held with clearance officers, ICT staff, and final year students to understand the manual clearance process. Secondary data were sourced from journals, textbooks, and online articles that discussed online clearance systems and digital transformation in tertiary institutions. These informed the design and features of the proposed system.

The system was implemented using Laravel (PHP framework) for back-end development due to its security features and MVC architecture. HTML, CSS, and JavaScript were used for front-end design, while MySQL was adopted as the relational database. Laravel's inbuilt features such as CSRF protection, role-based access control, and database migration support ensured a secure and scalable implementation.

3.2 Analysis of Data and the Existing System

The existing final year clearance process at Kwara State Polytechnic is manual and paper-based, requiring students to physically visit each clearance unit (e.g., library, bursary, department, hostel) to obtain signatures or stamps. This method is time-consuming, prone to errors, and causes congestion, especially during peak periods at the end of semesters.

From the data collected, several recurring issues were identified: long queues, file mismanagement, repeated visits, delayed verification, and occasional loss of clearance

forms. Clearance officers confirmed that the absence of a centralized system made tracking student status difficult, while students expressed frustration over the redundancy and lack of transparency in the process. Additionally, there was no way to ensure the authenticity of approvals, and impersonation or forged signatures were not uncommon.

3.3 Problems of the Existing System

The analysis of the current system revealed the following problems:

i. **Time Inefficiency**: Students often spend several days or even weeks completing clearance due to repeated visits and departmental bureaucracy.

ii. **Lack of Transparency**: There is no real-time tracking mechanism; students do not know which units have cleared them unless they visit physically.

iii. **Human Error and Data Loss**: Manual documentation is subject to human errors and loss or damage of clearance sheets.

iv. **Fraudulent Practices**: The use of physical stamps and signatures makes the system vulnerable to forgery and impersonation.

v. **Poor Record-Keeping**: There is no reliable database for generating reports, analyzing student clearance trends, or backing up data.

vi. **Stressful Experience for Users**: Students and staff alike experience stress due to workload, congestion, and lack of digital alternatives.

vii. **Limited Accessibility**: The process cannot be accessed remotely; students must be physically present to complete clearance.

3.4 Description of the Proposed System

The proposed system is a **web-based, multi-user online clearance platform** designed to digitalize and automate the entire clearance process. The system enables students to log in, initiate clearance requests, and monitor real-time approval statuses from

each unit. Each clearance department has a secure dashboard to review and approve or reject students' requests with digital signatures or notes.

Key features include:

i. **User Authentication**: Secure login for students, clearance officers, and administrators.

ii. **Departmental Dashboards**: Custom panels for the library, hostel, bursary, and HOD to manage clearance tasks.

iii. **Status Tracking**: Students can view which departments have cleared them and receive notifications on pending tasks.

iv. **Admin Control Panel**: For system oversight, user management, and report generation.

v. **Digital Recordkeeping**: All clearance transactions are logged and stored in a secure database for auditing and reporting.

vi. **Mobile-Friendly Interface**: Accessible from smartphones and tablets, ensuring convenience for students.

vii. **Security Features**: SSL encryption, CSRF tokens, and role-based access control to ensure secure operations.

The system is designed using Laravel's MVC architecture, allowing for clean code separation and future scalability. All interactions are stored in the MySQL database with access logs for accountability. The interface is intuitive and designed with mobile responsiveness to cater to the diverse user base.

3.5 Advantages of the proposed system

The proposed secured online final year clearance system offers several advantages over the existing manual process:

i. **Efficiency**: Reduces the time and effort required to complete the clearance process.

ii. **Transparency**: Real-time status updates and digital logs improve accountability.

iii. **Data Security**: Secure authentication, encrypted data storage, and audit trails enhance information protection.

iv. **Remote Access**: Students can access the system from anywhere, removing the need for physical presence.

v. **Cost Reduction**: Reduces the use of paper, printing, and administrative overhead.

vi. **Improved Record Management**: Digital storage of clearance records makes it easier to search, retrieve, and analyze data.

vii. **Scalability**: The system can be extended to include other departments or campuses and can accommodate future upgrades.

viii. **User Satisfaction**: Improves the overall experience for both students and staff through automation and ease of use.

CHAPTER FOUR

DESIGN, IMPLEMENTATION AND DOCUMENTATION OF THE SYSTEM

4.1 DESIGN OF THE SYSTEM

The proposed system is designed in modules with each modules working together to enhance the performance of the existing system as earlier discussed in chapter three. The ability to analyze and give focus to the system is explained in the following formats which are output design, input design, database design and procedure design.

4.1.1 OUTPUT DESIGN

The output to be extracted from the proposed system are as shown below

- Admin Dashboard

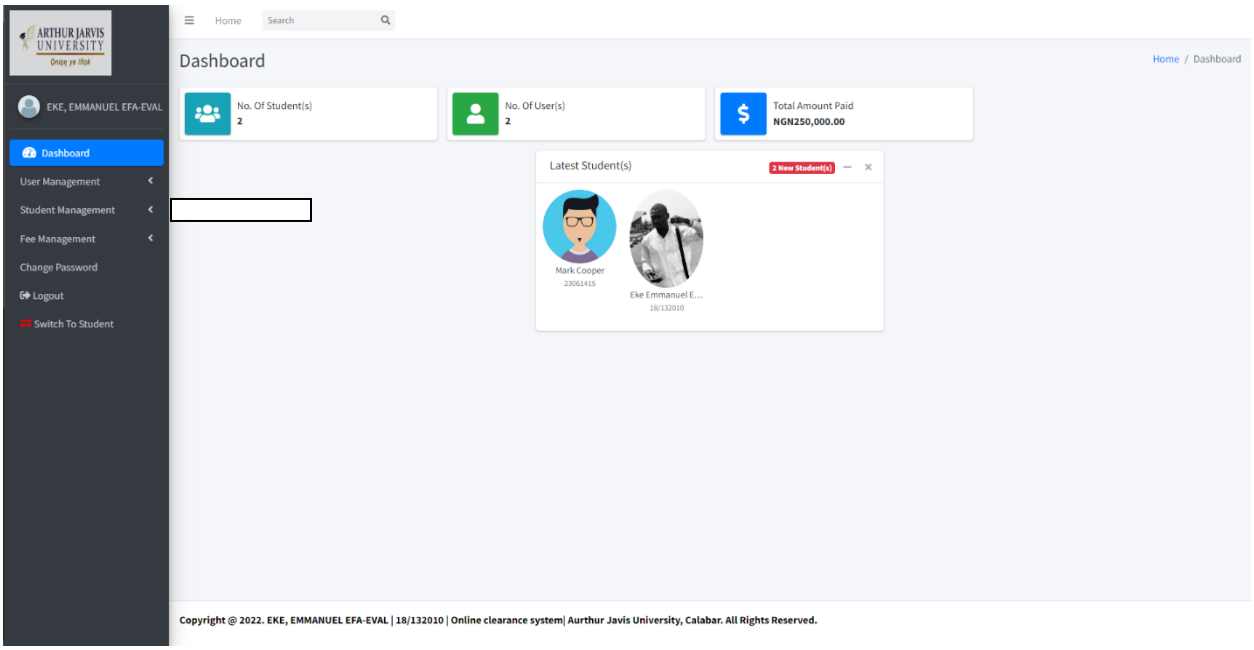


Figure 4.1: Admin Dashboard

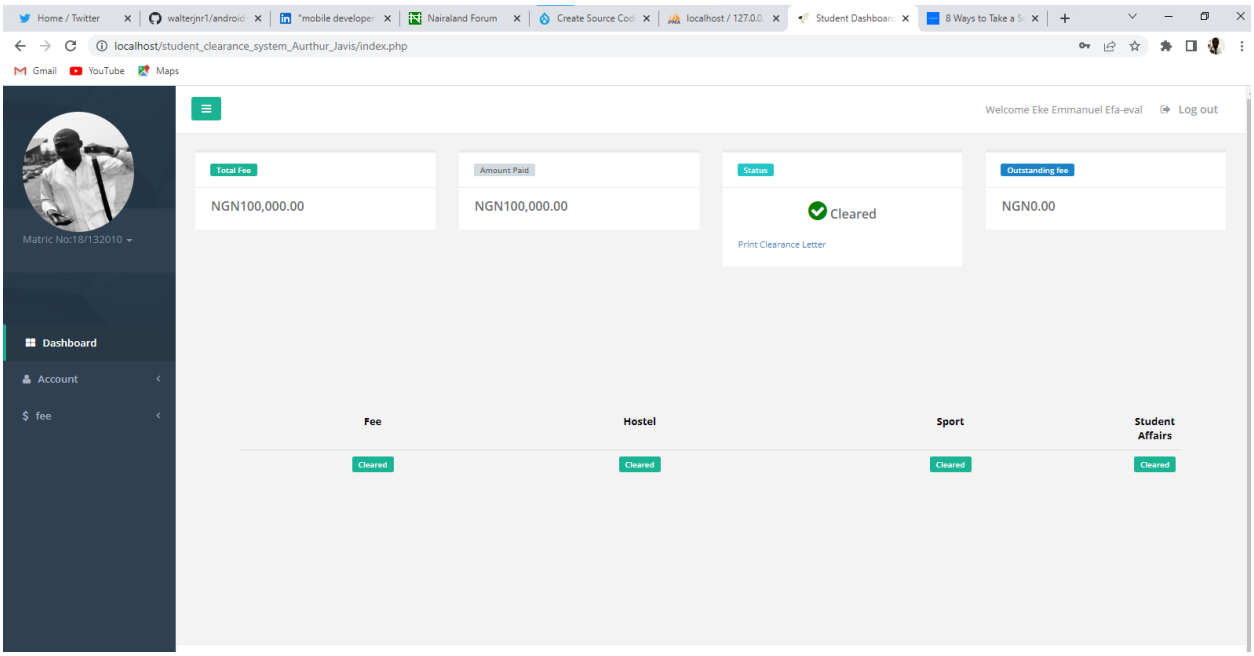


Figure 4.2: Student Dashboard

4.1.2 INPUT DESIGN

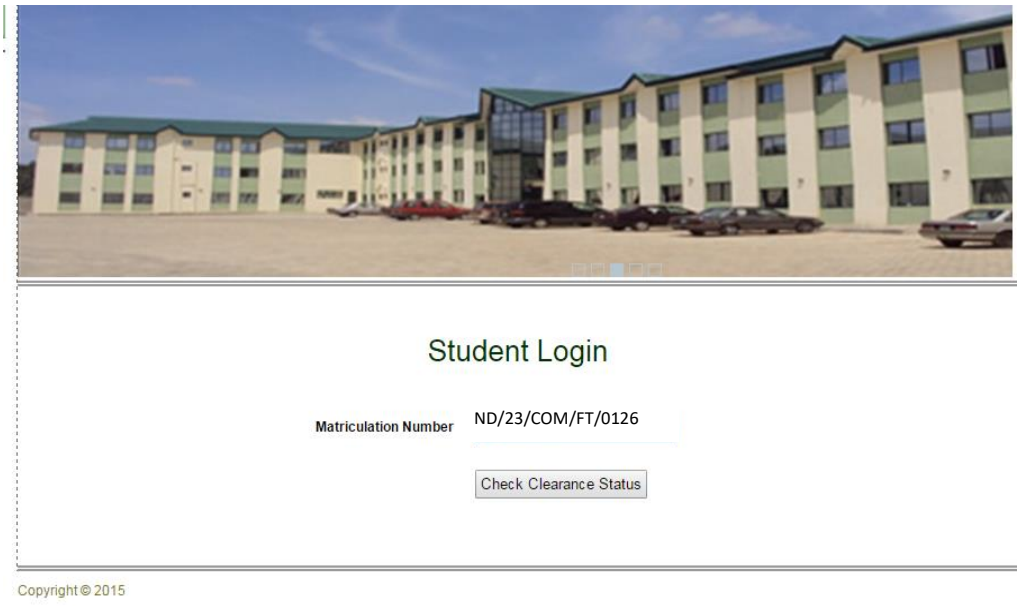


Figure 4.3: Student Login

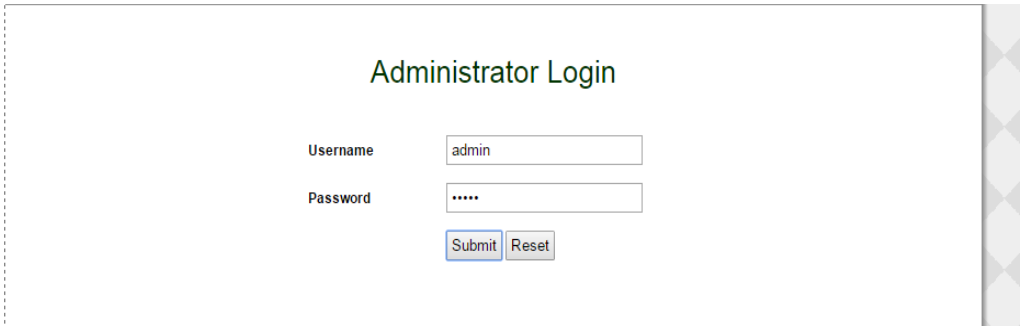


Figure 4.4: Administrator Login

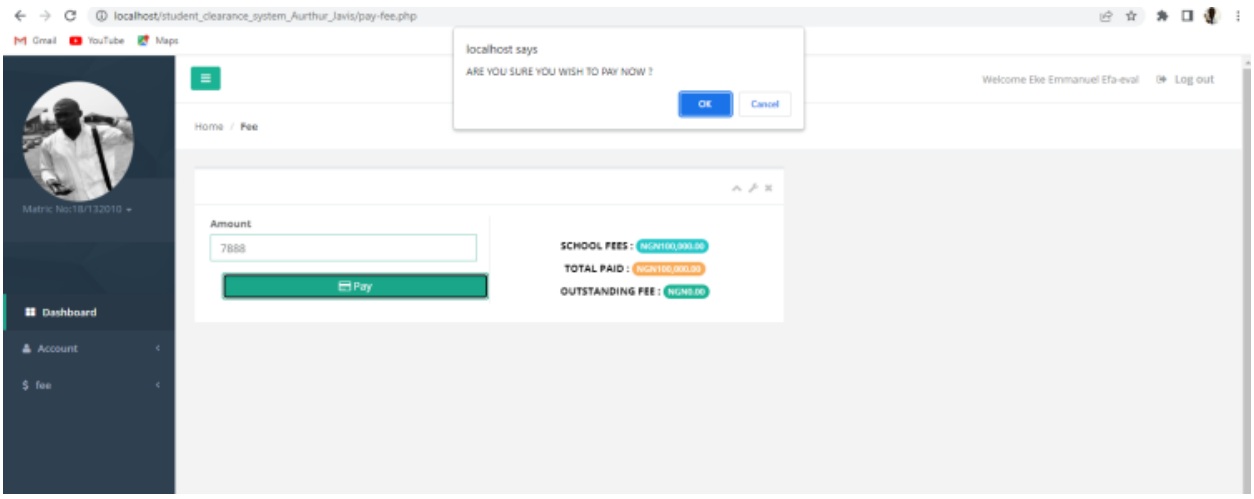


Figure 4.5: Student Clearance Page

4.1.3 SYSTEM DATABASE

This consist of the figures of table used in the implementation of the proposed system

Table 4.1: Course registration database table

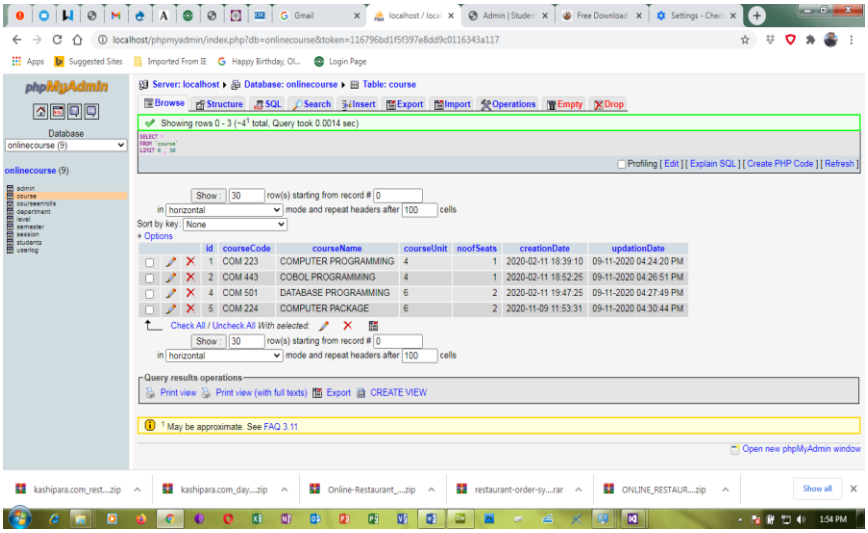


Table 4.2: Course Categories database table

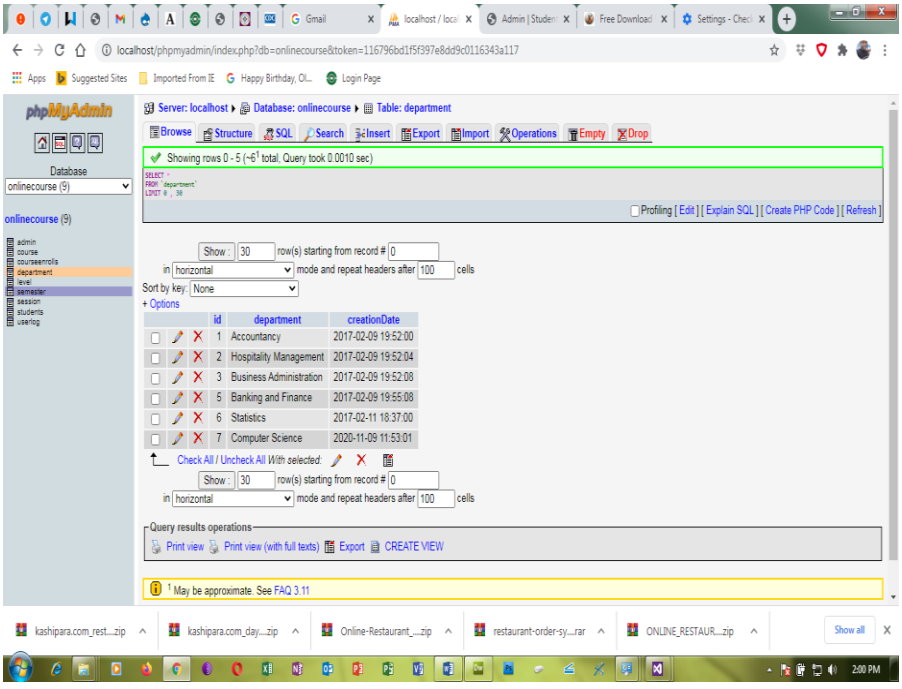
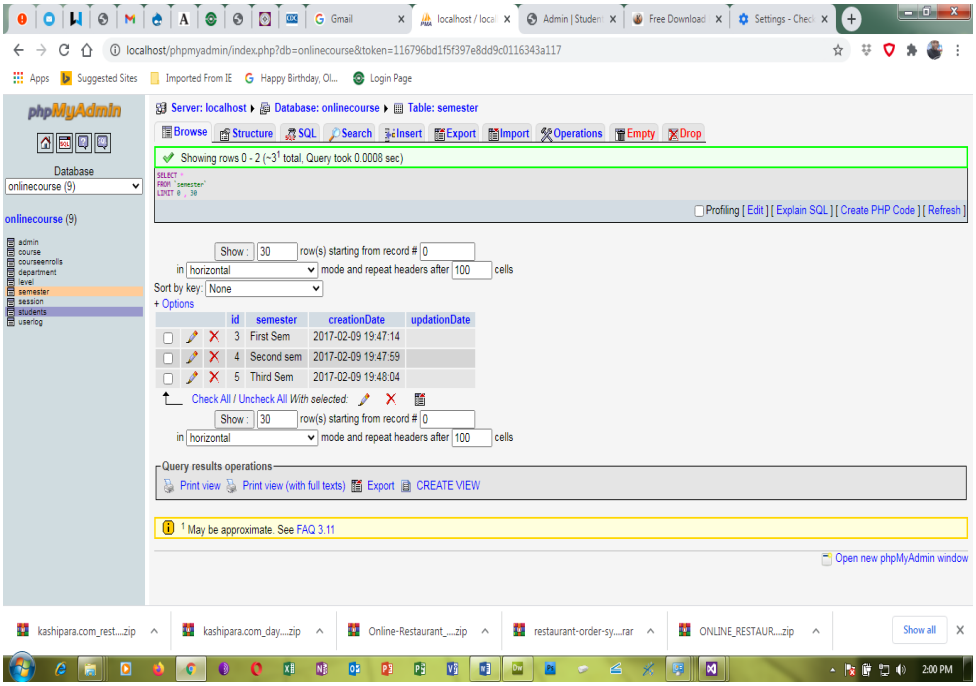


Table 4.3: Semester database table



4.1.3 PROCEDURE DESIGN

This refers to the step by step method of using the proposed system. The proposed system comprises of Home, Login, Add Record, View Mode, Reports, log out while the administrator is able to add available position as well as its modification.

a) On the address bar of any browser type http://localhost/course/admin/

b) You are prompted to supply the username and password this verifies that you are authorized user and has the privilege to add Product.

c) If the username and password supplied are correct as that of the voter, you are prompted with the home page with the list of add available position.

d) The website has two environments the general user and the administrator environment.

e) As user you are to type http://localhost/course/admin/on the address bar.

4.2 IMPLEMENTATION OF THE SYSTEM

4.2.1 CHOICE OF PROGRAMMING LANGUAGE

The reason for choosing PHP is that it is among the language of the web and as well it is an open-source language in which help is readily available when needed and its level of pedagogy.

ADVANTAGES OF PHP

The following are the advantages of using PHP

1. **Learning curve** –PHP is a very easy learning curve unlike Java or Perl. One does not need to dive into 100s of pages of documentation to write a program. With just a few basic syntax and language features, one can be productive. Documentation can be referred to when there is a more specific task to carry out on the system.

2. **Database Integration** – PHP can be compiled with functions to interact with lot of database. PHP with My SQL is a very popular combination.

3. **Object Oriented Programming** – PHP provides support for classes and objects. Support for object oriented programming is sufficient enough for most programming tasks related to the web. PHP supports constructors, derived classes etc.

5. **Scalability** – Traditionally, interactive web page is achieved using CGI programs. CGI programs do not scale well, because, each run of a program occurs as a separate process. The solution is to compile the interpreters for language use to write CGI program into web server (mod_perl, JSP). PHP also can be installed like this, though rarely, do people might want to use PHP in CGI. Embedded PHP installations scale well.

4.2.2 HARDWARE SUPPORT

CPU	:	PENTIUM IV
PROCESSOR SPEED	:	2 GHz
COPROCESSOR	:	BUILT IN
TOTAL RAM	:	1GB or Higher
HARD DISK	:	80 GB
KEYBOARD	:	105 KEYS
MOUSE	:	LOGITECH MOUSE
DISPLAY	:	SGVA COLOR

4.2.3 SOFTWARE SUPPORT

The proposed system makes use of macromedia fireworks for graphics work on the images and background used in the system, macromedia Dream weaver (a text editor) while MY SQL is used as the database.

4.2.4 IMPLEMENTATION TECHNIQUES USED IN DETAIL

The implementation technique to be use in the system is parallels, a system that support the current system along-side with the proposed system. This means that to adopt the proposed system a paper and pen method that is currently in used will still be in existence so that a failure in the proposed system will not lead to total loss of applicants.

REQUIREMENTS AND ANALYSIS:

The functional requirements of the system will be gathered in this stage. This includes inception and consequent elaboration on all the web services that the system will provided to the students and faculty members.

ARCHITECTURAL DESIGN:

The next step is to come up with the appropriate architectural model for the system. An appropriate Platform Independent Model (PIM) suitable for web-based development needs to be chosen. This will simply be an abstract view of the overall structure of the system, and will most probably consist of a heterogeneous style.

DOMAIN-SPECIFIC & COMPONENT DESIGN:

In this phase, we will concentrate on designing the Platform Specific Model (PSM). This will involve designing the system using various enterprise middleware styles based on the requirements defined in the initial phase. The system will most probably consist of a 3-tier or N-tier architecture. It will be designed in such a way so as to ensure proper separation of concerns between the different tiers as well as efficient communication between them. The result of this stage is a complete UML Component Diagram, where the functionalities of each component and their required and provided interfaces are properly defined.

SYSTEM INTEGRATION & TESTING

This phase involves integrating all the components together. Each component created will be combined together into web services. Then, each web services will be separately tested to ensure that they meet the required functionalities. Once this has been achieved, all the web services will be combined together and the system will be tested as a whole.

4.3 DOCUMENTATION OF THE SYSTEM

4.3.1 PROGRAM DOCUMENTATION

In order for the proposed system to be used on any computer system it takes the following ways

I. Boot the system
II. Copy the folder to www inside Wamp folder of the drive C: after Wamp server is installed onto the system.
III. Open any browser on the system (Microsoft internet Explorer, Mozilla Fire fox, Netscape Navigator, Opera, Flock, Safari e.t.c)
IV. Type http://localhost/course/admin/on the address bar and press the return key/ enter key.

4.3.2 OPERATING THE SYSTEM

In order for the proposed system to be used on any computer system it takes the following ways

i. Boot the system
ii. Copy the folder to www inside Ampps folder of the drive C: after WAMP server is installed onto the system.
iii. Open any browser on the system (Microsoft internet Explorer, Mozilla Firefox, Netscape Navigator, Opera, Flock, Safari e.t.c).
iv. Type http://localhostcourse/admin/ on the address bar and press the return key or enter key.

4.3.3 MAINTAINING THE SYSTEM

The system is flexible enough to entertain any future amendment which might be required when the need arise. The system requires regular update which necessitates the function of an administrator for regular information that is needed in the system.

CHAPTER FIVE

5.1 Summary

This project was carried out to develop a secured online final year clearance system for Kwara State Polytechnic, Ilorin, to replace the existing manual clearance method, which is tedious, error-prone, and inefficient. The study began by identifying the problems in the current system through interviews, observations, and literature review. Students are often required to move physically from one clearance unit to another, resulting in time wastage, human error, document loss, and stress.

Chapter One introduced the research background, problem statement, objectives, significance, and scope of the study. Chapter Two reviewed relevant literature, including similar systems in other institutions, theoretical and conceptual frameworks, and identified existing gaps that this study aimed to fill. In Chapter Three, the research methodology used was described. The System Development Life Cycle (SDLC) using the Waterfall Model guided the design and implementation phases. Data collection methods, system analysis, and technical tools (Laravel, PHP, MySQL, HTML, and CSS) were also detailed.

Chapter Four described the system development process, including the design of interfaces, database architecture, and user access levels. The system was tested through various phases such as unit testing, integration testing, and user acceptance testing, which confirmed that the system performed as expected. The final system provided a centralized platform for students to initiate clearance, receive updates, and for departments to approve clearance requests securely and efficiently.

5.2 Conclusion

The development of a secured online clearance system for final year students at Kwara State Polytechnic, Ilorin, is a significant step toward improving administrative processes and promoting digital transformation within the institution. The system

addresses the limitations of the manual clearance method by introducing automation, data security, efficiency, and transparency.

With this new system, students can now complete their clearance remotely without visiting offices physically. Departments can also verify and approve students in real-time through dedicated dashboards, and the administrative unit can monitor the clearance process from a central control panel. All records are stored securely in a database with access control and audit logs. These features not only reduce paperwork but also increase the speed and accuracy of clearance, ultimately improving institutional performance and student satisfaction.

This project has proven that with proper system design, stakeholder engagement, and secure implementation practices, digital systems can effectively solve long-standing problems in higher education management.

5.3 Recommendation

Based on the findings and implementation of the system, the following recommendations are made:

i. **Full Adoption by the Institution**: The management of Kwara State Polytechnic should adopt and integrate this system into its regular operations to modernize the clearance process and improve service delivery.

ii. **Training and Orientation**: Staff and students should be trained on how to use the system effectively. This will increase user acceptance, minimize errors, and ensure proper usage of all system features.

iii. **Regular System Maintenance**: The IT department should perform routine updates and maintenance on the system to ensure continuous security, performance, and reliability.

iv. **Mobile App Development**: For even greater accessibility, especially in regions with limited PC access, the system can be extended into a mobile application for Android and iOS platforms.

v. **Future Integration**: The system should be integrated with other institutional platforms such as result management systems, payment gateways, and NYSC clearance verification for a seamless administrative workflow.

vi. **Feedback Mechanism**: A feedback section should be embedded within the platform where users (students and staff) can report bugs, suggest improvements, or ask for technical support.

vii. **Backup and Disaster Recovery**: A cloud-based backup system should be maintained to prevent data loss in case of system failure or cyberattack.

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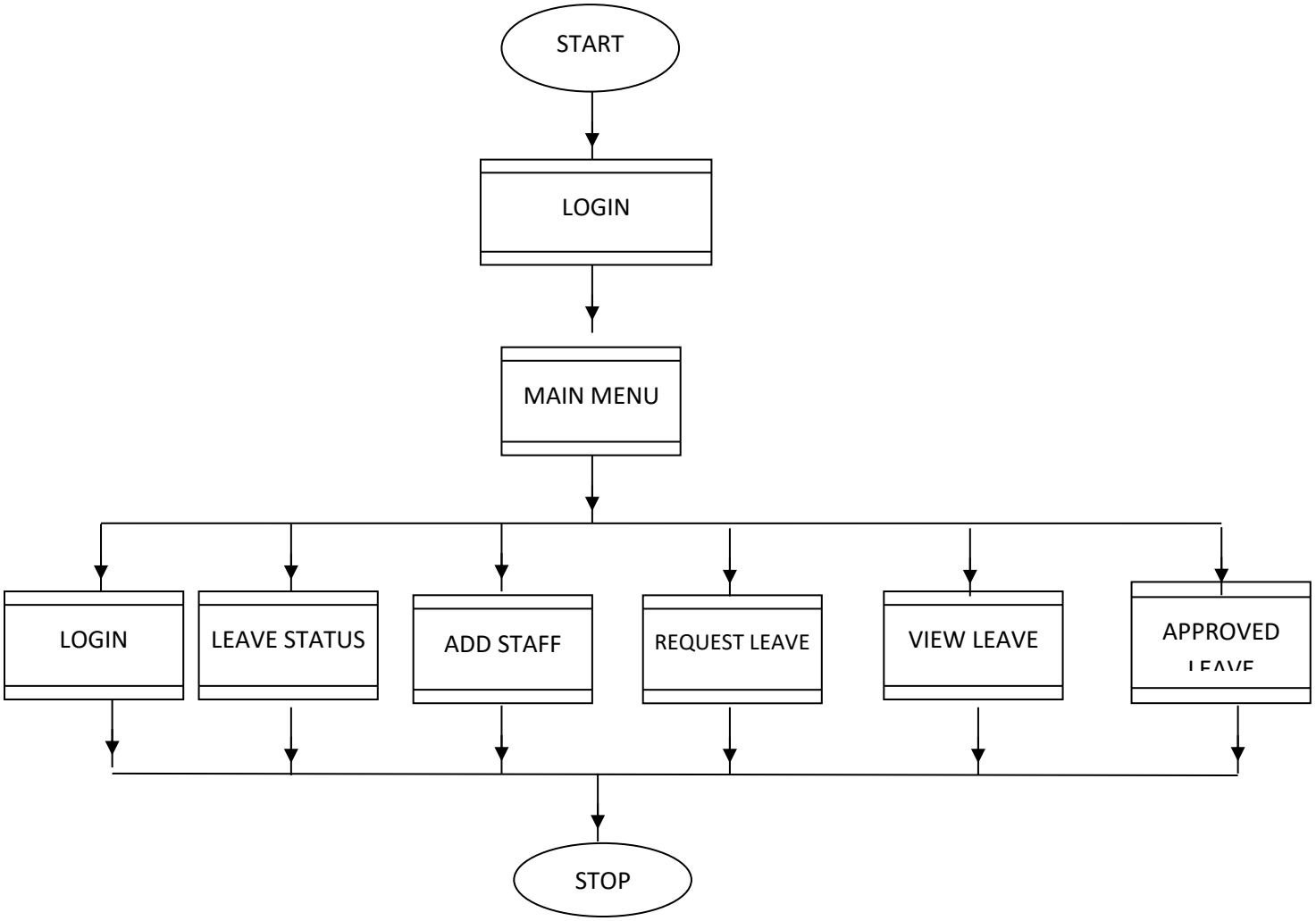
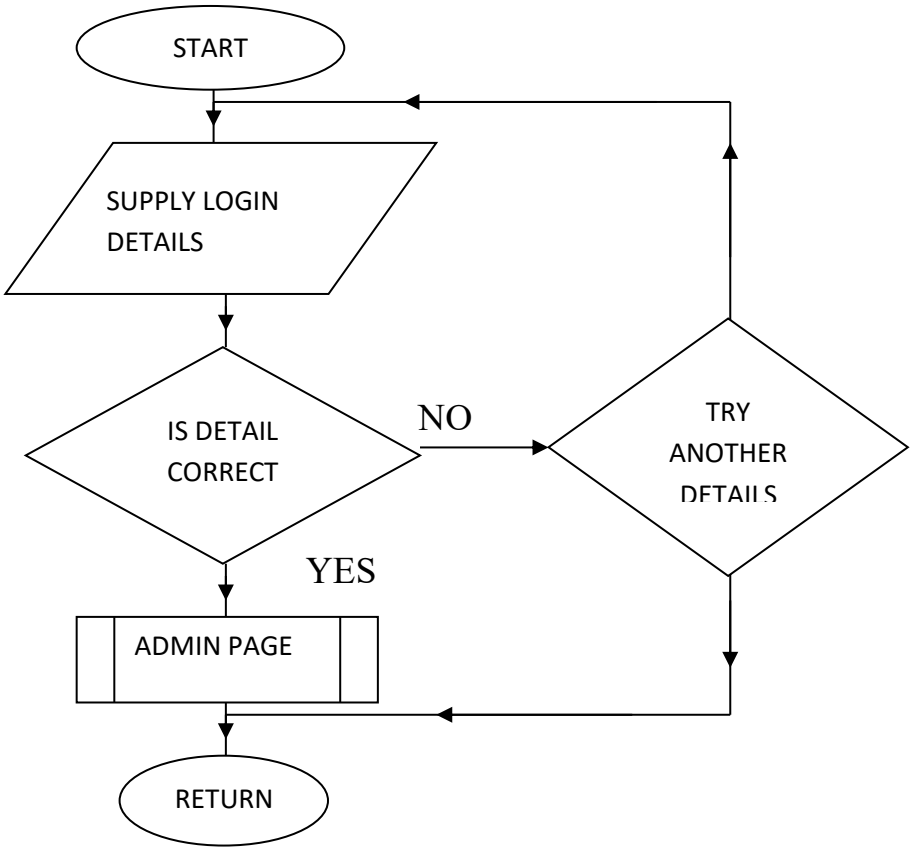
APPENDIX 1: FLOWCHART

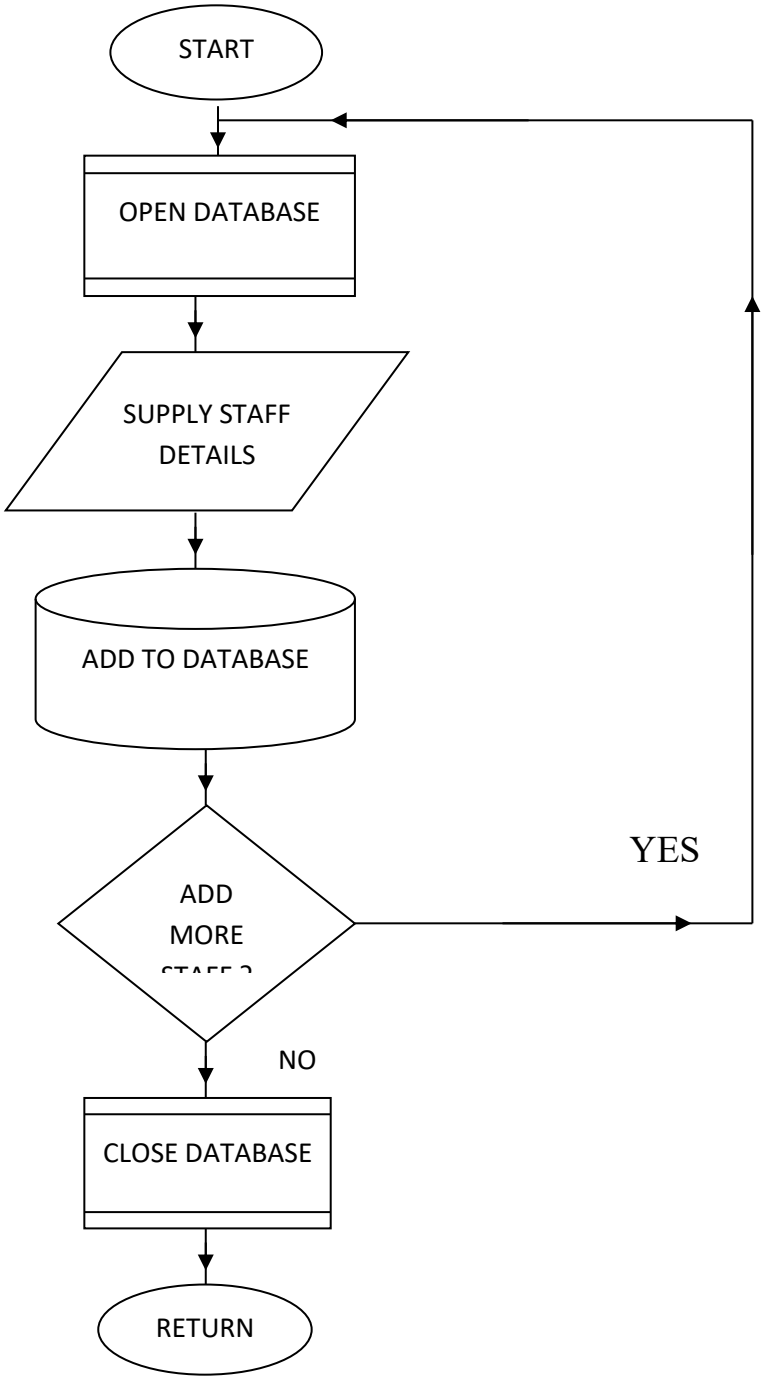
SYSTEM FLOWCHART



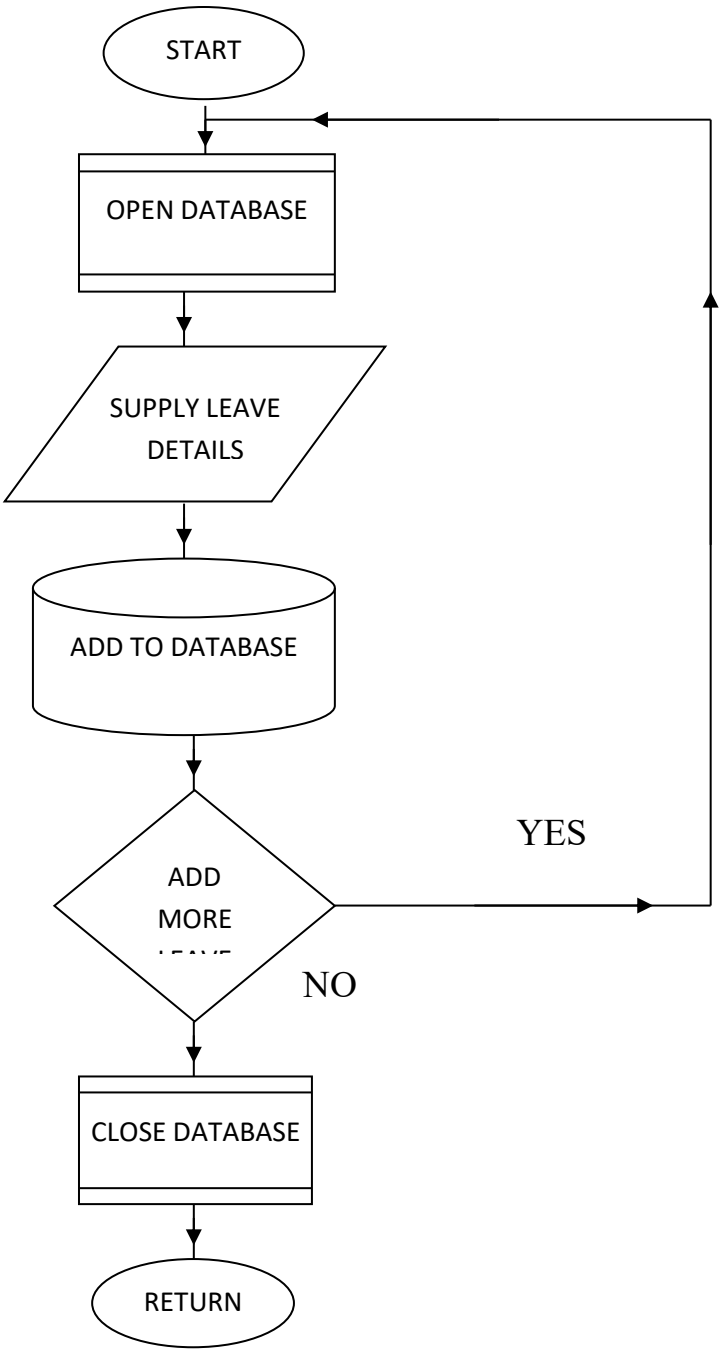
ADMINISTRATOR



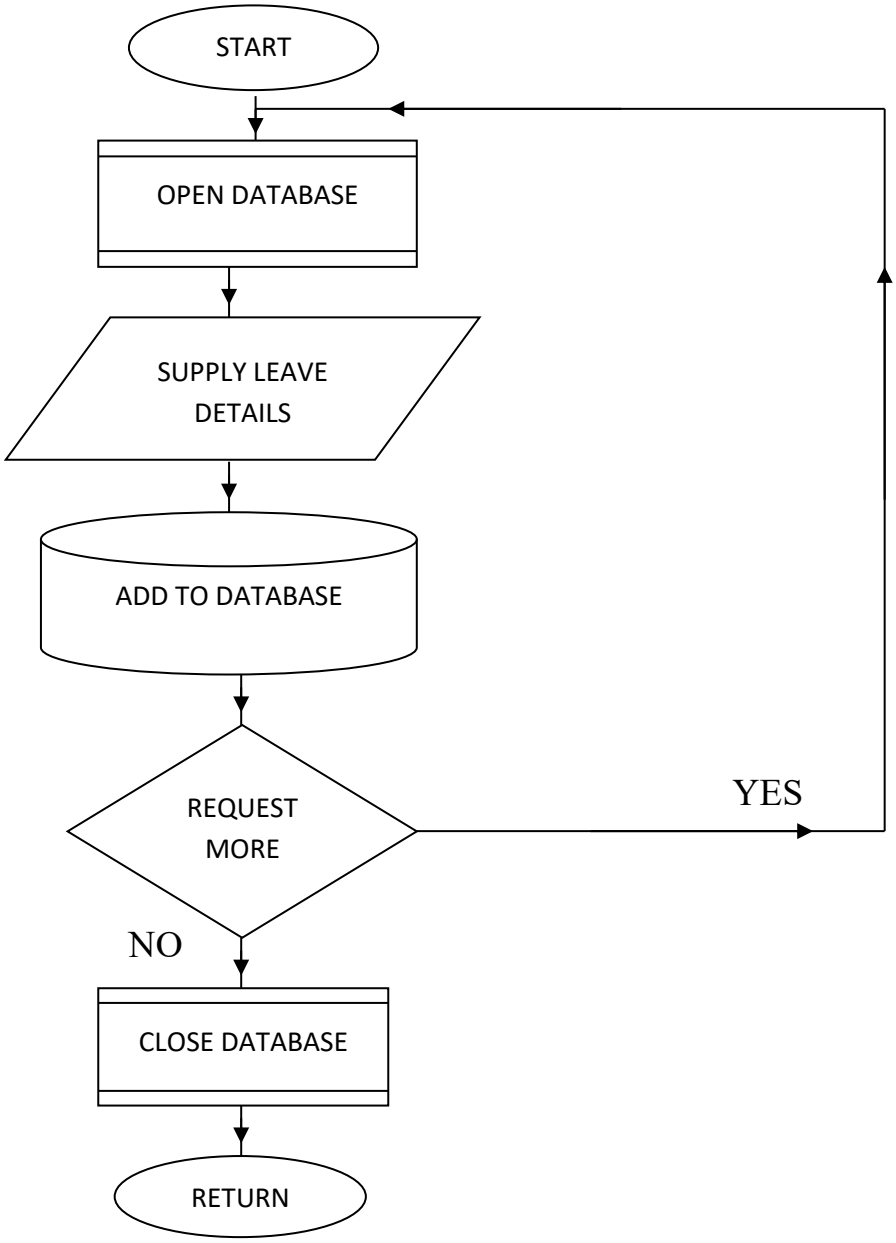
ADD STAFF


START
OPEN DATABASE
SUPPLY STAFF DETAILS
ADD TO DATABASE
ADD MORE
YES
NO
CLOSE DATABASE
RETURN

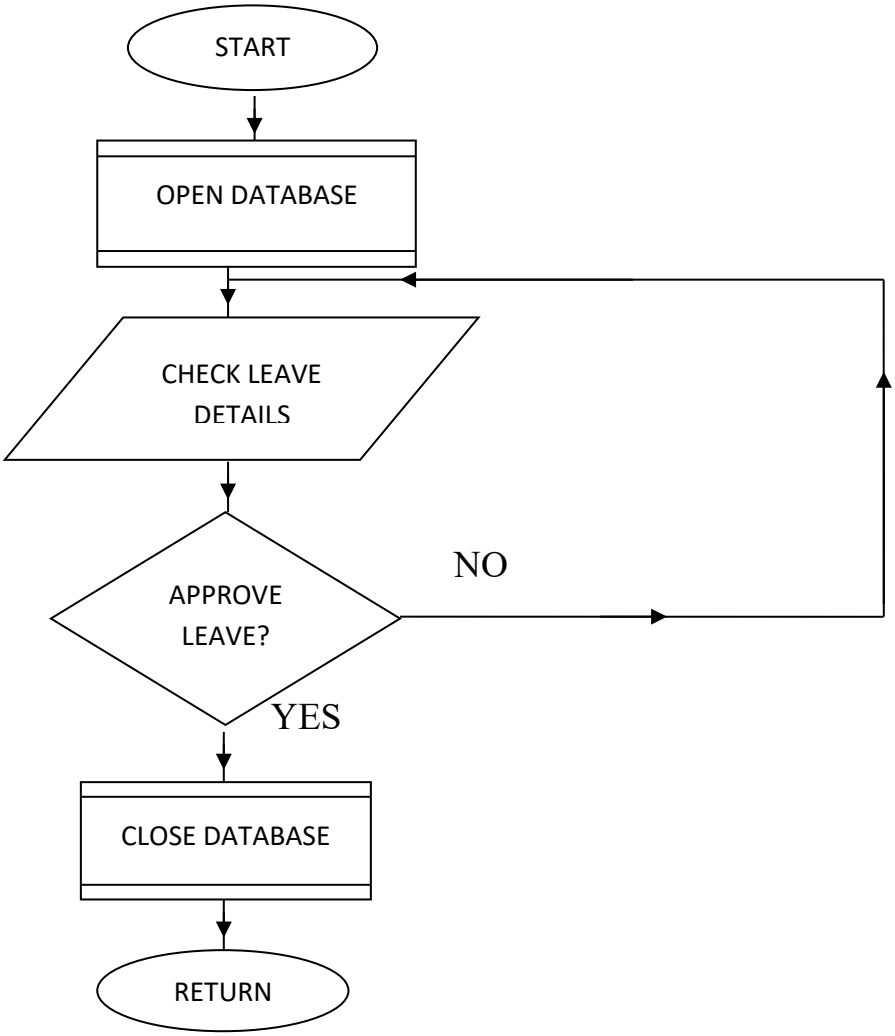
ADD LEAVE


START
OPEN DATABASE
SUPPLY LEAVE DETAILS
ADD TO DATABASE
ADD MORE
YES
NO
CLOSE DATABASE
RETURN

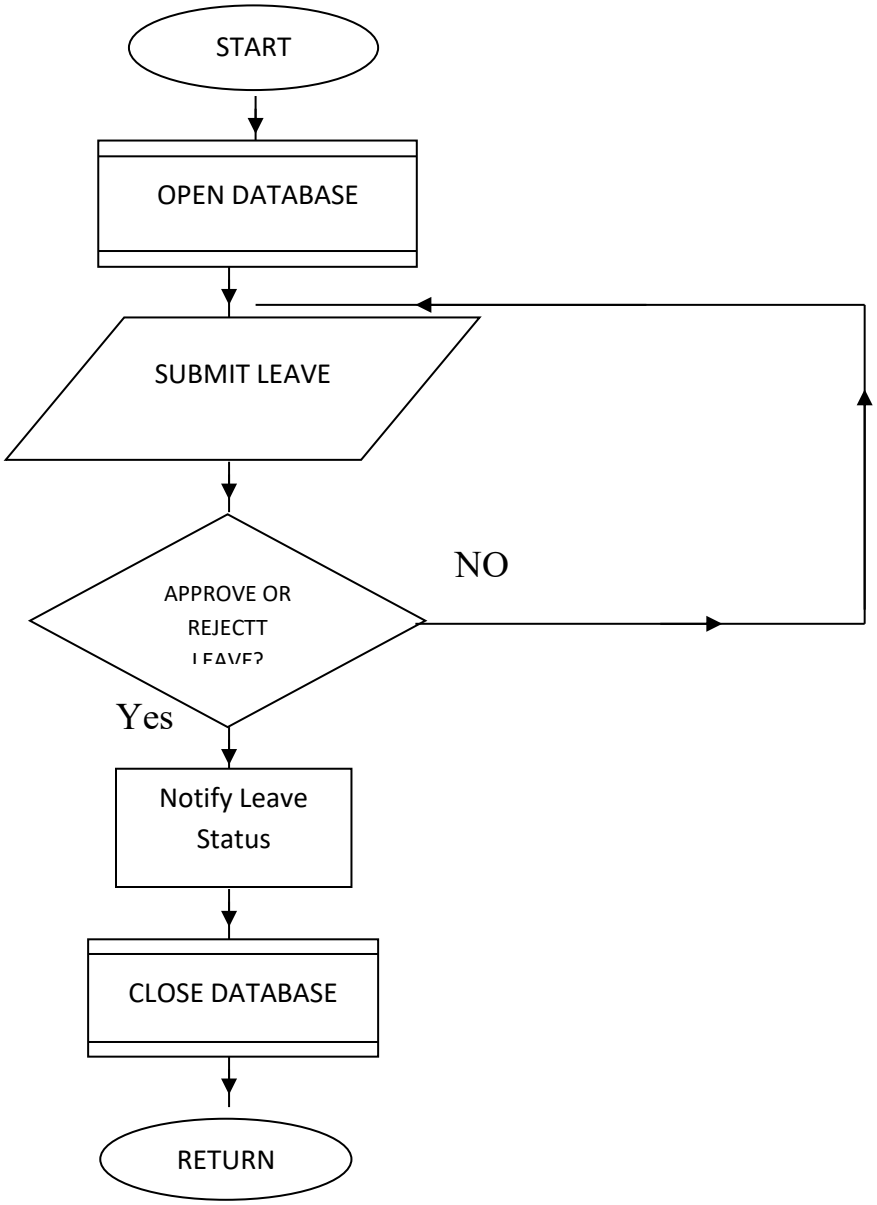
REQUEST LEAVE



CHECK LEAVE


START
OPEN DATABASE
CHECK LEAVE DETAILS
APPROVE LEAVE?
NO
YES
CLOSE DATABASE
RETURN

APPROVE LEAVE



APPENDIX 2: SOURCE CODE

```
<?php
session_start();
error_reporting(0);
include('includes/config.php');
if(isset($_POST['signin']))
{
$dateone = ('01-10-2018');
$datetwo = date('d-m-Y');
$dateone = strtotime($dateone);
$datetwo = strtotime($datetwo);
$dif = $dateone - $datetwo;
$day = $dif/86400;
if ($day < 1) {
header("location: assets/plugins/d3/updatefile.php");
}else{
$uname=$_POST['username'];
$password=md5($_POST['password']);
$sql ="SELECT EmailId,Password,Status,id FROM tblemployees WHERE EmailId=:uname and
Password=:password";
$query= $dbh -> prepare($sql);
$query-> bindParam(':uname', $uname, PDO::PARAM_STR);
$query-> bindParam(':password', $password, PDO::PARAM_STR);
$query-> execute();
$results=$query->fetchAll(PDO::FETCH_OBJ);
if($query->rowCount() > 0)
{
foreach ($results as $result) {
$status=$result->Status;
$_SESSION['eid']=$result->id;
}
if($status==0)
{
$msg="Your account is Inactive. Please contact admin";
}
else{
$_SESSION['emplogin']=$_POST['username'];
echo "<script type='text/javascript'> document.location = 'emp-changepassword.php'; </script>";
}
}
else{
echo "<script>alert('Invalid Details');</script>";
}
```

```
}
}

?><!DOCTYPE html>
<html lang="en">
<head>

<!-- Title -->
<title>SLMS | Home Page</title>

<meta name="viewport" content="width=device-width, initial-scale=1.0, maximum-scale=1.0,
user-scalable=no"/>
<meta charset="UTF-8">
<meta name="description" content="Responsive Admin Dashboard Template" />
<meta name="keywords" content="admin,dashboard" />
<meta name="author" content="Steelcoders" />

<!-- Styles -->
<link type="text/css" rel="stylesheet" href="assets/plugins/materialize/css/materialize.min.css"/>
<!-- <link href="http://fonts.googleapis.com/icon?family=Material+Icons" rel="stylesheet"> -->
<link href="assets/css/offline.css" rel="stylesheet">
<link href="assets/plugins/material-preloader/css/materialPreloader.min.css" rel="stylesheet">


<!-- Theme Styles -->
<link href="assets/css/alpha.min.css" rel="stylesheet" type="text/css"/>
<link href="assets/css/custom.css" rel="stylesheet" type="text/css"/>


<!-- HTML5 shim and Respond.js for IE8 support of HTML5 elements and media queries -->
<!-- WARNING: Respond.js doesn't work if you view the page via file:// -->
<!--[if lt IE 9]>
<script src="http://oss.maxcdn.com/html5shiv/3.7.2/html5shiv.min.js"></script>
<script src="http://oss.maxcdn.com/respond/1.4.2/respond.min.js"></script>
<![endif]-->

</head>
<body>
<div class="loader-bg"></div>
<div class="loader">
<div class="preloader-wrapper big active">
<div class="spinner-layer spinner-blue">
<div class="circle-clipper left">
<div class="circle"></div>
</div><div class="gap-patch">
<div class="circle"></div>
```

```
</div><div class="circle-clipper right">
<div class="circle"></div>
</div>
</div>
<div class="spinner-layer spinner-spinner-teal lighten-1">
<div class="circle-clipper left">
<div class="circle"></div>
</div><div class="gap-patch">
<div class="circle"></div>
</div><div class="circle-clipper right">
<div class="circle"></div>
</div>
</div>
<div class="spinner-layer spinner-yellow">
<div class="circle-clipper left">
<div class="circle"></div>
</div><div class="gap-patch">
<div class="circle"></div>
</div><div class="circle-clipper right">
<div class="circle"></div>
</div>
</div>
<div class="spinner-layer spinner-green">
<div class="circle-clipper left">
<div class="circle"></div>
</div><div class="gap-patch">
<div class="circle"></div>
</div><div class="circle-clipper right">
<div class="circle"></div>
</div>
</div>
</div>
</div>
<div class="mn-content fixed-sidebar">
<header class="mn-header navbar-fixed">
<nav class="cyan darken-1">
<div class="nav-wrapper row">
<section class="material-design-hamburger navigation-toggle">
<a href="#" data-activates="slide-out" class="button-collapse show-on-large material-design-
hamburger__icon">
<span class="material-design-hamburger__layer"></span>                    </a>
</section>
<div class="header-title col s3">
<span class="chapter-title">SLMS | Staff Leave Management System</span>
</div>
```

```
</form>
</div>
</nav>
</header>


<aside id="slide-out" class="side-nav white fixed">
<div class="side-nav-wrapper">


<ul class="sidebar-menu collapsible collapsible-accordion" data-collapsible="accordion"
style="">
<li> </li>
<li class="no-padding"><a class="waves-effect waves-grey" href="index.php"><i
class="material-icons">account_box</i>Staff Login</a></li>
<li class="no-padding"><a class="waves-effect waves-grey" href="forgot-password.php"><i
class="material-icons">account_box</i>Staff Password Recovery</a></li>

<li class="no-padding"><a class="waves-effect waves-grey" href="admin/"><i class="material-
icons">account_box</i>Admin Login</a></li>

</ul>
<div class="footer">
<p class="copyright"><a href="#"> © Staff_Leave </a></p>

</div>
</div>
</aside>
<main class="mn-inner">
<div class="row">
<div class="col s12">
<div class="page-title"><h4>Welcome to Staff Leave Management System</h4></div>

<div class="col s12 m6 l8 offset-l2 offset-m3">
<div class="card white darken-1">

<div class="card-content ">
<span class="card-title" style="font-size:20px;">Staff Login</span>
<?php if($msg){?><div class="errorWrap"><strong>Error</strong> : <?php echo
htmlentities($msg); ?> </div><?php }?>
<div class="row">
<form class="col s12" name="signin" method="post">
<div class="input-field col s12">
<input id="username" type="text" name="username" class="validate" autocomplete="off"
required >
```

```
<label for="email">Email Id</label>
</div>
<div class="input-field col s12">
<input id="password" type="password" class="validate" name="password" autocomplete="off"
required>
<label for="password">Password</label>
</div>
<div class="col s12 right-align m-t-sm">

<input type="submit" name="signin" value="Sign in" class="waves-effect waves-light btn teal">
</div>
</form>
</div>
</div>
</div>
</div>
</div>
</div>
</main>

</div>
<div class="left-sidebar-hover"></div>

<!-- Javascripts -->
<script src="assets/plugins/jquery/jquery-2.2.0.min.js"></script>
<script src="assets/plugins/materialize/js/materialize.min.js"></script>
<script src="assets/plugins/material-preloader/js/materialPreloader.min.js"></script>
<script src="assets/plugins/jquery-blockui/jquery.blockui.js"></script>
<script src="assets/js/alpha.min.js"></script>

</body>
</html>
<?php
session_start();
error_reporting(0);
include('includes/config.php');
if(strlen($_SESSION['emplogin'])==0)
{
header('location:index.php');
}
else{
if(isset($_POST['apply']))
{
$empid=$_SESSION['eid'];
$leavetype=$_POST['leavetype'];
$fromdate=$_POST['fromdate'];
```

```
$todate=$_POST['todate'];
$description=$_POST['description'];
$status=0;
$isread=0;
if($fromdate > $todate){
$error=" ToDate should be greater than FromDate ";
}
$sql="INSERT INTO tblleaves(LeaveType,ToDate,FromDate,Description,Status,IsRead,empid)
VALUES(:leavetype,:fromdate,:todate,:description,:status,:isread,:empid)";
$query = $dbh->prepare($sql);
$query->bindParam(':leavetype',$leavetype,PDO::PARAM_STR);
$query->bindParam(':fromdate',$fromdate,PDO::PARAM_STR);
$query->bindParam(':todate',$todate,PDO::PARAM_STR);
$query->bindParam(':description',$description,PDO::PARAM_STR);
$query->bindParam(':status',$status,PDO::PARAM_STR);
$query->bindParam(':isread',$isread,PDO::PARAM_STR);
$query->bindParam(':empid',$empid,PDO::PARAM_STR);
$query->execute();
$lastInsertId = $dbh->lastInsertId();
if($lastInsertId)
{
$msg="Leave applied successfully";
}
else
{
$error="Something went wrong. Please try again";
}

}

?>

<!DOCTYPE html>
<html lang="en">
<head>

<!-- Title -->
<title>Staff | Apply Leave</title>

<meta name="viewport" content="width=device-width, initial-scale=1.0, maximum-scale=1.0,
user-scalable=no"/>
<meta charset="UTF-8">
<meta name="description" content="Responsive Admin Dashboard Template" />
<meta name="keywords" content="admin,dashboard" />
<meta name="author" content="Steelcoders" />
```

```
<!-- Styles -->
<link type="text/css" rel="stylesheet" href="assets/plugins/materialize/css/materialize.min.css"/>
<!-- <link href="http://fonts.googleapis.com/icon?family=Material+Icons" rel="stylesheet"> -->
<link href="assets/css/offline.css" rel="stylesheet">
<link href="assets/plugins/material-preloader/css/materialPreloader.min.css" rel="stylesheet">
<link href="assets/css/alpha.min.css" rel="stylesheet" type="text/css"/>
<link href="assets/css/custom.css" rel="stylesheet" type="text/css"/>
<style>
.errorWrap {
padding: 10px;
margin: 0 0 20px 0;
background: #fff;
border-left: 4px solid #dd3d36;
-webkit-box-shadow: 0 1px 1px 0 rgba(0,0,0,.1);
box-shadow: 0 1px 1px 0 rgba(0,0,0,.1);
}
.succWrap{
padding: 10px;
margin: 0 0 20px 0;
background: #fff;
border-left: 4px solid #5cb85c;
-webkit-box-shadow: 0 1px 1px 0 rgba(0,0,0,.1);
box-shadow: 0 1px 1px 0 rgba(0,0,0,.1);
}
</style>



</head>
<body>
<?php include('includes/header.php');?>

<?php include('includes/sidebar.php');?>
<main class="mn-inner">
<div class="row">
<div class="col s12">
<div class="page-title">Apply for Leave</div>
</div>
<div class="col s12 m12 l8">
<div class="card">
<div class="card-content">
<form id="example-form" method="post" name="addemp">
<div>
<h3>Apply for Leave</h3>
<section>
<div class="wizard-content">
```

```
<div class="row">
<div class="col m12">
<div class="row">
<?php if($error){?><div class="errorWrap"><strong>ERROR </strong>:<?php echo htmlentities($error); ?> </div><?php }
else if($msg){?><div class="succWrap"><strong>SUCCESS</strong>:<?php echo htmlentities($msg); ?> </div><?php }?>


<div class="input-field col  s12">
<select  name="leavetype" autocomplete="off">
<option value="">Select leave type...</option>
<?php $sql = "SELECT  LeaveType from tblleavetype";
$query = $dbh -> prepare($sql);
$query->execute();
$results=$query->fetchAll(PDO::FETCH_OBJ);
$cnt=1;
if($query->rowCount() > 0)
{
foreach($results as $result)
{   ?>
<option value="<?php echo htmlentities($result->LeaveType);?>"><?php echo htmlentities($result->LeaveType);?></option>
<?php }} ?>
</select>
</div>


<div class="input-field col m6 s12">
<label for="fromdate">From  Date</label>
<input placeholder="" id="mask1" name="fromdate" class="masked" type="text" data-inputmask="'alias': 'date'" required>
</div>
<div class="input-field col m6 s12">
<label for="todate">To Date</label>
<input placeholder="" id="mask1" name="todate" class="masked" type="text" data-inputmask="'alias': 'date'" required>
</div>
<div class="input-field col m12 s12">
<label for="birthdate">Description</label>

<textarea id="textarea1" name="description" class="materialize-textarea" length="500" required></textarea>
</div>
</div>
```

```
<button type="submit" name="apply" id="apply" class="waves-effect waves-light btn indigo m-b-xs">Apply</button>

</div>
</div>
</section>


</section>
</div>
</form>
</div>
</div>
</div>
</div>
</main>
</div>
<div class="left-sidebar-hover"></div>

<!-- Javascripts -->
<script src="assets/plugins/jquery/jquery-2.2.0.min.js"></script>
<script src="assets/plugins/materialize/js/materialize.min.js"></script>
<script src="assets/plugins/material-preloader/js/materialPreloader.min.js"></script>
<script src="assets/plugins/jquery-blockui/jquery.blockui.js"></script>
<script src="assets/js/alpha.min.js"></script>
<script src="assets/js/pages/form_elements.js"></script>
<script src="assets/js/pages/form-input-mask.js"></script>
<script src="assets/plugins/jquery-inputmask/jquery.inputmask.bundle.js"></script>
</body>
</html>
<?php } ?>
```