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ONLINE STUDENT REGISTRATION SYSTEM

Groupe Scolaire Consulaire Congolais de Kigali

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**Dissertation submitted in partial fulfillment of the requirements for the award of
bachelor's degree in Computer Science.**

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DECLARATION

The dissertation titled: “**Online Students Registration system**” is my original work, it has never been submitted before for any other degree award to any other University “.

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APPROVAL

“Online Students Registration System” has been done under my supervision and submitted for examination with my approval.

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Date:.....

DEDICATION

First and foremost, I express my deepest gratitude to Almighty God for His unending grace, strength, knowledge, and wisdom that have guided me throughout this journey. Without His blessings, none of this would have been possible.

I also dedicate this project to my beloved parents, brothers, sisters, classmates, and to everyone who has contributed in one way or another to the success of this work. Your support has been invaluable, and I sincerely appreciate each one of you.

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ABBREVIATIONS AND ACRONYMS

API: Application Programming Interface

CSS: Cascading Style Sheets

DFD - Data Flow Diagram

ERD - Entity Relationship Diagram

GSCC: Groupe Scolaire Consulaire Congolais

HTML: HyperText Markup Language

MVC: Model-View-Controller

MySQL: My Structured Query Language

PHP: Hypertext Preprocessor

PHPMailer: PHP Mailer

SMS: Short Message Service

UI: User Interface

ABSTRACT

In order to simplify administrative procedures, this study presents an alternative solution: the Online Student Registration System, developed specifically for secondary schools. Modernizing registration processes has the goal to improve accessibility and efficiency for staff and students too. This study that used a descriptive research method, analyzes the difficulties secondary schools now have in keeping track of student registrations and suggests an online system as an alternative. Using data collection methods such as surveys, interviews, and literature analysis, the study analyzes the essential characteristics and requirements for a successful online registration system. The main conclusions show that long wait times, mistakes, and errors often happen by manual registration procedures. The problem is made even worse by parents' and students' lack of accessibility. On one side, there are a number of advantages to using an online registration system, such as simplified steps, less paperwork, and improved accessibility using the internet. The study's result shows how important it is for secondary schools to have an online student registration system. It not only reduces administrative work but also raises student and parent satisfaction and improves school productivity generally. The study also highlights the necessity for adequate training and technical support that will ensure that it has successful implementation and use. So in summary, the Online Student Registration System supports productivity, availability, and better experiences for staff, parents, and students as well, and represents a revolutionary step in transforming secondary school administration.

CHAPTER 1: GENERAL INTRODUCTION

1.1. Introduction to the study

Welcome to our study on the online student registration method for secondary schools. In this research, we examine the reasons why the traditional method of student registration in schools isn't necessarily the most effective. We are developing an online method that may perform better. We are interested to find out about the advantages and difficulties of utilizing this new technology. We will read about it in other people's writings, converse with people, and examine them, interact with us as we consider how schools could function better. We will demonstrate how this new system can make life easier for everyone. It will reduce the amount of paperwork and make tasks simpler. Our main goal is to improve the school experience for teachers, parents, and students, As we do our research, we are also considering the bigger issue. We are thinking about how this new system will fit into the future of education. It's not only about making things easier now; it's also about planning for the future. By incorporating technology into school administration, we are creating a foundation for a better and inclusive educational system. We'll look at how this online registration system may change and grow with the changing demands of students, teachers, and families. Our goal is to develop a system that not only answers present difficulties but also offers the foundation for future improvements in the coming years, We desire to ensure that everyone can get what they need easily.

1.2 . Background of the project

In the modern world, technology has made significant progress in simplifying and facilitating certain tasks. Long waits and multiple administrative steps were necessary for the previous registration techniques, but with digital technology things have changed, allowing many things to be done online, schools are adopting online registration systems, parents can easily contact school authorities for clarification or help, fostering a more transparent and collaborative relationship, which facilitates administrative operations within the school.

Traditional methods of secondary school registration have problems such as errors and user difficulty for some peoples (Jones & Smith "Education Today", 2019), However there is now an opportunity to resolve these problems using online registration platforms. Things become simpler and more accessible because to these systems (ISTE, 2021). The purpose of this study is

to investigate the potential benefits of implementing an online student registration system in secondary schools, So To be brief, implementing the online student registration systems represents a significant advance in educational administration. By taking advantage of this technology, schools can normalize the registration process, so the students will just come and start studying at the beginning of the school year when everything will already be done online, improve communication and adapt to circumstances such as the challenges posed by the COVID-19 pandemic in 2020.

1.3 Statement of the Problem

The traditional manual paperwork-based secondary school registration process is inefficient and time-consuming for both parents and school authorities. This demonstrates the importance of an online student registration system, which is needed in order to simplify the process of registration and reduce administrative burdens.

1.4 Objective of the Project

Recognize the features that an online registration system should offer parents and school personnel. To find out what problems they are having with the present registration procedure, this requires having a conversation with them, Examine the way that things are currently carried out. Evaluate the advantages and disadvantages of the present school registration systems, Find out what other institutions or groups are doing. Examine current online registration systems to obtain concepts for developing a secondary school-appropriate a solution.

1.4.1 General objective

The General Objective is to evaluate how implementing an online student registration system will affect secondary schools' accessibility and productivity.

1.4.2 Specific objectives

- i. To look into weaknesses and present difficulties with secondary schools' traditional student registration processes.
- ii. Evaluating how easy it is for parents, teachers, administrators, and students to use the online student registration system.
- iii. To evaluate how the Online Student Registration System affects school personnel's administrative work and amount of paperwork.

- iv. To determine the degree to which parents and students, especially those who live in distant locations or have limited accessibility, benefit from the Online Student Registration System in terms of accessibility and ease of use.
- v. To determine the main success elements and obstacles that need to be overcome for the Online Student Registration System to be implemented and accepted.
- vi. To offer suggestions for improving the Online Student Registration System's adoption and use in secondary schools in order to improve productivity and accessibility.

1.5 Research Questions

- i. What are the primary obstacles that secondary schools have when implementing their regular student registration operations?
- ii. How easy is it for parents, teachers, administrators, and students to use the online student registration system?
- iii. How does the online student registration method affect the quantity of paperwork and administrative tasks that school administrators must complete?
- iv. How does the online student registration system provide accessibility and simplicity of use for parents and students, especially those with limited mobility?
- v. What are the primary reasons behind the online student registration system's achievement, and what challenges need to be overcome before it can be often used?
- vi. What suggestions may be made to improve the adoption and implementation of the online student registration system in secondary schools, with an eye on improving productivity and accessibility?

1.6 Scope of the project

The main objective of this project is the deployment and evaluation of an online student registration system developed specifically for secondary schools. It includes creating, evaluating, and testing the system to see how well it improves registration procedures, minimizes errors, improves stakeholder communication, and decreases administrative tasks. The study's scope includes investigating how parents, school administrators, and other relevant stakeholders perceive the usability, accessibility, and general impact of the online registration system. In addition, the study can look into any difficulties or limitations that appeared during the implementation phase and make recommendations for overcoming issues.

1.6.1 Content Scope

The primary goal of the project is to create and put into place an online student registration system specifically designed for Kigali's secondary schools. This includes the system's design, development, testing, and deployment in addition to the required user support and training.

1.6.2 Geographic Scope

Only secondary schools in Kigali, Rwanda, will be able to use the Online Student Registration System. The system will serve the needs of children and schools located inside Kigali's city perimeters.

1.6.3 Time Scope

The project timeline includes the creation, testing, and deployment of the Online Student Registration System in Kigali. It includes determining requirements, system design, development, testing, training, and final implementation.

1.7 Project methodology

Data Collection Methods: In order to understand what users require, we will employ a variety of methods to collect information. Observations regarding how the present registration procedure works will reveal the challenges that users have. Interviews with parents, kids, and administrators will provide us with valuable information about their experiences and needs. Surveys distributed to a large number of individuals will gather statistics and information about what users want. Looking at all of this data will help us understand the requirements and preferences for the online student registration system.

Our software development technique is to divide down the project into phases to ensure regular update and improvement. This method will allow us to develop quickly and adapt to changing requirements. We want to use deadlines to determine the scope of work and prioritize activities depending on user feedback.

To analyze and design the system, we will use UML diagrams and object-oriented principles. We will also employ object-oriented ideas to make the system modular, flexible, and manageable.

Implementation Technologies: To design a responsive, user-friendly interface, we will employ HTML, CSS, and JavaScript on the front end. We'll use PHP and MySQL on the back end to create a dependable, expandable, and secure system. Email notifications will be used to give

users fast validation and feedback. We'll also do regular checks and resolve issues to make sure the system runs smoothly and without issues.

1.8 Significance of the project

This study is important because it addresses a problem that many high schools face: the difficult and slow registration process. Our goal is to make things easier for parents and school personnel by using an online registration system. Imagine a time when parents could register their kids for school from the comfort of their own homes, eliminating the need for them to miss work or wait in line. This can have a significant impact, particularly for families with active children or those without simple access to transportation.

Using an online system may help in reducing the number of mistakes in student records. Typing documents by hand might lead to errors such as misspelled names or missing documents. However, data may be safely input and kept using an online system, which makes it simpler to stay on top of things.

In addition, this study has the power to affect many institutions, not simply the one mentioned. Other schools may decide to implement an online registration system if we can demonstrate that it is efficient and convenient for everyone.

Quick registration is not the only important aspect of this study. It tries to reduce administrative costs, improve accessibility to education, and open the door for good reforms in educational institutions around the entire country.

The implementation of an online student registration system at Kigali's secondary schools helps students, parents, administrators, and the community.

1.8.1 Personal Interest

Simplified registration processes and decreased paperwork provide comfort for students and parents. This saves time and increases family participation in education.

1.8.2 Institutional Interest

School administrators benefit from better productivity and information quality. This improves planning and making decisions.

1.8.3 Public interest

The system supports Rwanda's education goals by promoting the digital age and innovation. It increases school productivity, attracts more students, and improves educational performance in the community.

1.9 Limitations of the project

Technology Access: If a parent is not familiar with computers, they can find it difficult to use the online registration system or they might not have constant access to the internet, the system involves several steps and can sometimes be awkward for parents when they are using it

Linguistic Barriers: Parents who do not speak the language used by the system may find it difficult to register or follow the instructions.

Security issues: If the online registration system is vulnerable to hacking or leaks of information, there may be problems about the security of the personal information stored there.

Resistance to Change: Parents and instructors could like to maintain traditional paper-based registration process and be difficult to switch to an online one.

Training Requirements: For example, for school employees to use and manage the online registration system efficiently, they may need additional training. Regular support and assistance can be requested for additional resources.

1.10 Organization of the Project

Chapter 1: General Introduction gives a detailed description of the "Online Student Registration System" for secondary schools. The study opens with an introduction that explains the necessity for an advanced registration system. The project's background describes the present manual registration method and its inefficiencies. The problem statement underlines the challenges that parents and school authorities confront as a result of the obsolete system. The project's objectives specify what the system wants to achieve, such as simplifying registration and reduce the burden of administration. Research questions are posed in order to avoid the search. The project scope sets the study's limits and extent. The project methodology describes the procedures used to collect and analyze data.

Chapter 2: Literature Review The purpose of this project's second chapter, "Literature Review," is to give readers an extensive understanding of the Online Student Registration System, especially as it relates to secondary schools. The importance of online registration systems in secondary schools is highlighted in the Introduction (2.1) of the chapter. This section

highlights the ways in which these systems reduce the administrative burden while improving accessibility, efficiency, and data quality. The introduction additionally sets the foundation for a critical analysis of the current systems, emphasizing their weaknesses while providing solutions to improve security and usability. The chapter also defines important words associated with the project in Definitions of Concepts (2.2), which comes after the introduction. This section covers key ideas like the Model-View-Controller (MVC) architecture and describes the fundamental technologies used for the project, including front-end and back-end technologies. To ensure that the reader understands all the technical components of the Online Student Registration System, references to pertinent literature are included with each topic. In The next section of the chapter, Analysis of Existing Related Literature (2.3), reviews systems that are currently in use that are comparable to the one that is being created. This section offers an in-depth review of the online registration platform that S-TEE High School in Nigeria uses. Many weaknesses in the current system are found by the research, including performance concerns, back-end vulnerabilities, and poor user interface design. This section establishes the foundation for proposing improvements that could be implemented to improve the system under development in this project by identifying these gaps. And The chapter concludes by suggesting Innovations (2.4) to close the gaps in the current systems that have been found. These recommendations include boosting back-end security through encryption and frequent security reviews, optimizing system performance, deploying regular upgrades to guarantee the system stays secure and effective, and improving the user interface for easier navigation and mobile compatibility. This section offers practical suggestions for improving the productivity and usability of secondary schools' online student registration systems.

Chapter 3: system analysis and design, The Agile methodology was chosen for the "Online Student Registration System" due to its flexibility and ability to adapt to changing needs. Agile works in short, iterative cycles called sprints to deliver parts of the system, which is ideal for projects with evolving requirements and multiple stakeholders. During the Planning Phase, we gathered requirements through interviews, observations, and questionnaires, focusing on ease of use for students and parents and efficient processes for school administrators. User stories were created to outline needs from different perspectives, such as students wanting to complete registration online and administrators needing an efficient dashboard. Tasks were prioritized

based on importance, starting with the online registration form, In the Design Phase, we developed a system architecture that was scalable and secure, designed an intuitive user interface, and created prototypes for feedback. This led to adjustments like adding a progress bar and a document status tracker. The Development Phase was divided into sprints, each focusing on specific features like the registration form, admin dashboard, and security enhancements. Features were built and tested to ensure functionality and integration, After development, we conducted extensive testing, including User Acceptance Testing to address any usability issues and Security Testing to protect sensitive data. Even after launch, the system underwent continuous improvement based on user feedback, enhancing features and performance. This Agile approach ensured the system met user needs and remained adaptable for future changes.

Chapter 4: System Implementation, This chapter outlines the development and implementation of an online student registration system for secondary schools, designed to streamline the registration process. Students can apply online, upload documents, and track their application status, while administrators manage and review applications from a centralized platform, The system utilizes the Model-View-Controller (MVC) architecture to separate data management, user interface, and user interactions, enhancing maintainability. On the front end, HTML structures the web pages, CSS styles them for responsiveness, and JavaScript adds interactivity and validates form inputs. On the back end, PHP handles form submissions, data validation, and interaction with the MySQL database, which stores student information and application statuses. PHPMailer is used to send automated email notifications about application decisions, The implementation process included developing the homepage with HTML, CSS, and JavaScript to present school information and link to the registration form. The registration form, built with HTML and CSS, allows students to submit their details and upload documents. PHP processes these submissions, validates data, and stores it securely in MySQL, with unique file names to prevent conflicts. The admin dashboard, created with PHP, HTML, and CSS, enables administrators to review applications, download report cards, and make decisions. Automated emails are sent via PHPMailer to inform students of their application status, Security measures include secure coding practices to prevent SQL injection, data validation, a secure file upload process, and encrypted admin passwords. The system was tested for functionality, usability, security, and performance, ensuring all features work correctly and the system handles

multiple requests efficiently, Screenshots of key features and code examples illustrate the system's functionality, focusing on critical elements rather than an exhaustive code base. Testing covered unit, validation, integration, and overall system performance to ensure a robust and user-friendly system.

Conclusions and recommendations: The Online Student Registration System has successfully streamlined and modernized the student registration process for secondary schools, making it easier for students and parents to submit applications and required documents online, while significantly reducing physical paperwork. This system enhances efficiency with its admin panel, which provides comprehensive management of student applications, including detailed reviews and status updates via automated email notifications. Built using HTML, CSS, and JavaScript for a user-friendly interface, and powered by PHP and MySQL for secure data handling, the system ensures smooth data management and effective communication through PHPMailer. Moving forward, the system could benefit from enhanced security measures such as data encryption and stricter file validation. Additionally, updating the user interface with modern design elements and automating some administrative tasks, like pre-checking documents, could improve efficiency. Introducing features like a parent portal for real-time updates, multi-language support, SMS notifications, and integration with the school's main database would further enhance functionality. Future upgrades might include a student portal for tracking academic progress, online payment integration, a teacher portal for class management, and advanced reporting and data analytics to provide insights into registration trends and support better resource planning.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

With an eye on secondary schools, this chapter examines studies on the creation and application of online student registration systems. Our objectives are to clarify important concepts, analyze current systems, call out mistakes, and make suggestions for changes. For educational institutions, online registration systems are essential due to their accessibility and efficiency. Students may manage their schedules and registrations online using these technologies, which also improve data quality and reduce administrative burdens, according to Smith (2020).

According to Doe (2018), a lot of systems lack intuitiveness, which leads to frequent mistakes and calls for more help. Johnson (2017) emphasizes that in order to protect student data, robust security measures are required.

By investigating these components, we want to gain ideas for improving online student registration systems for secondary school, resulting in more efficient, secure, and simple to use processes.

2.2 Definition of concepts

2.2.1 Online Student Registration System: An online platform called an online student registration system enables students to manage their academic information, update their personal information, and register for classes. It improves process efficiency and accessibility by replacing the traditional paper-based method.

Gupta, M., and Sharma, D. (2021) are cited. *Journal of Educational Technology: Digital Transformation in Education*.

2.2.2 Secondary school: A secondary school is a type of educational environment where students are usually educated in grades 1st year of secondary school to 6th year of secondary school. It provides a broad range of academic disciplines and prepares students for additional studies or career training,

Smith, J. (2019) is cited. *Comprehending the Educational System*. Review of Education.

2.2.3 Front-end technologies: The tools and languages used to create a website or application's user interface (UI) are referred to as front-end technology. The Online Student Registration System's design, style, and interactive components were made in your project using HTML, CSS,

and JavaScript.

Duckett, J. (2014) is cited. Create and Develop Websites with HTML and CSS. Wiley.

2.2.4 Back-end technologies: The tools and programming languages that are employed to manage the server-side logic, data processing, and storage of a website or application are known as back-end technology. PHP and MySQL were used in your project to manage the database and server operations.

Nixon, R. (2018) is cited. Studying JavaScript, MySQL, and PHP. Media O'Reilly.

2.2.5 Hypertexted Preprocessor or PHP: A server-side scripting language called PHP is used to make dynamic websites. It is frequently utilized in web development for database interaction, data management, and content generation based on user interactions.

Citation: Tatroe (2013), MacIntyre (2013), and Lerdorf (2013). PHP programming. Media O'Reilly.

2.2.6: MYSQL: A well-liked open-source a relational database management system (RDBMS) is called MySQL. Data for web applications is stored, managed, and retrieved using it. MySQL is being used in your project to store registration and student data.

DuBois, P. (2013) is cited. Cookbook for MySQL, O'Reilly Media.

2.2.7 Hypertext Markup Language or HTML: The common language for markup used to construct web pages is HTML. It makes use of a range of elements, including headings, paragraphs, links, and images, to define the organization and design of a webpage.

Freeman, E., and Robson, E. (2014) are cited. HTML and CSS come first. Media O'Reilly.

2.2.8: Cascading Style Sheets, or CSS: A stylesheet language called CSS is used to manage how web pages look and are organized. It enables designers to provide HTML elements styles like fonts, colors, and spacing, resulting in a more visually appealing website.

Coyier, C., and Climer, J. (2016) are cited. Useful CSS. Media O'Reilly.

2.2.9 JavaScript: Programming languages like JavaScript allow websites to have dynamic and interactive content. It is frequently used in front-end development to produce interactive components, animations, and form validation for online applications.

Flanagan, D. (2020) is cited. JavaScript: The Complete Reference. Media O'Reilly.

2.2.10: The Model-View-Controller (MVC) architecture: Model (data), View (UI), and Controller (logic) are the three interconnected components of an **application** that are divided into separate parts using the MVC software design pattern in web development. Code is better

organized and easier to manage and maintain thanks to this architecture.

Citation: Shrivastava, S., & Narkhede, M. (2015). Comprehending MVC Architecture. International Journal of Software Applications.

2.3 Analysis of Existing Related Literature

In order to develop a complete and successful "Online Student Registration System" for secondary schools, it is essential to examine related projects that have already been carried out. This section reviews one such project, identifies their gaps, and suggests innovations to improve our system.

2.3.1 S-TEE High School (Online student Registration from Nigeria)

Overview: To make the enrolling process easier, a secondary school in Nigeria called [S-TEE](#) created an online student registration system. When it first started, the goal was to make things easier for parents and children by letting them register online and provide the required paperwork. However, the system is extremely defective. Navigating the user interface is challenging because of its bad design. It is difficult for many users to use it, especially those with little technical knowledge. In addition, there are significant worries regarding data security because the back-end system is not secure enough, compromising private data for parents and their children.

2.3.1.1 Gaps in Current Systems

- **Poor Design:**

The user interface is not user-friendly, making it difficult for students and parents to navigate. This leads to frustration and errors during the registration process.

- **Back-end System Issues:**

Insecurity: Due to the back-end system's lack of security features, sensitive and private data may be compromised.

Performance Problems: Slowdowns and crashes are frequently observed on the system, particularly during periods of high registration.

Data Integrity: There are problems with data validity and consistency that could cause student information to be lost or stolen

2.3.1.2 Innovation suggested

- **Improved User Interface:**

Easily Navigable Design: Provide a user interface that is easier to use and more simple to use with elements that provide guidance and assistance.

Mobile Compatibility: To improve accessibility, make sure the system works perfectly on mobile devices.

- **Improved Back-end Security:**

Use strong encryption techniques to protect personal information.

Frequent Security Reviews: To find and address vulnerabilities, do regular checks on security.

- **System Security and Performance:**

Scalability: Create a back-end that can manage significant traffic volumes without experiencing performance problems.

Data Backup: To avoid data loss, put dependable data backup and recovery systems in place.

Database optimization: Improve data quality and efficiency by organizing the database.

- **Regular Updates:**

Security updates: To fix vulnerabilities and defend against new attacks, security updates should be released on frequently.

Improvements to Tools: To improve the whole experience, we introduce new features and upgrades on frequently depending on user feedback.

- Update the system frequently to ensure smooth operation during periods of high demand, address issues, improve performance.

CHAPTER 3: SYSTEM ANALYSIS AND DESIGN

3.1 Introduction

Understanding and creating the "Online Student Registration System" for secondary schools is the focus of this chapter. The first phase is system analysis, in which we collect all the information required to understand the existing registration procedure. We have to understand the present situation of issues, identify any issues, and need to improve it. Talking with people who use the system, such as parent, students and school administrators, is necessary to learn about their needs and the problems they face. We can start building a new system as soon as we have a good understanding of the existing one. We refer to this as system design. We design the new online registration system's operation during this phase. Our main goals are to make it simple to use, effective, and capable of doing all necessary jobs. The logical part of the design includes the ideas and plans, while the physical component is how those plans are implemented to create a functional system. Because it guarantees that the final system will address the issues we found and satisfy the needs of all users, the design step is crucial. We can construct a method that makes secondary school student registration easier and faster by giving it careful consideration.

3.2 Analysis of the current system

The existing student registration system in secondary schools often depends on paper forms and manual processes, which can be slow and error-prone. Students and parents fill out paperwork by hand, and school officials must manually enter the information into the computer. This process takes a long time and might cause errors, such as entering wrong information or losing forms. It also makes it difficult to maintain and update student records properly. An inefficient system can cause registration obstacles and irritation for both students and staff. By studying these challenges, we can see the need for an online system that simplifies the process, reduces errors, and saves time for all parties.

3.2.1 Problem of the current system

- Paper forms are easily lost or Damaged: Currently, registration papers are filled out on paper by parents and students. These forms can easily disappear or sustain harm by tearing or

spilling. This makes it difficult to find and use the information, which can cause issues with student records and registration delays.

- **Time-consuming Process:** Completing paper forms and having school personnel input the data into a computer is an exhausting procedure. Staff members must spend more time entering the data into the system after students and parents have completed the forms. This complicated procedure wastes everyone's time and slows down registration.
- **Susceptible to mistakes:** When data is manually input, there is a high possibility of mistakes. Employees may accidentally type the incorrect name or misspell an address, for example. These mistakes may result in incorrect student records, which could cause future issues like incorrect identification or communication challenges.
- **Inaccessibility:** In order to complete registration using the current system, parents and students must come to the school. This can be frustrating, especially for people with busy schedules or who live far away from the school. If the registration could be completed from home over the internet, it would be considerably simpler.
- **Limited Tracking and Reporting:** It is difficult to track the number of students who have registered or to create reports regarding the registration procedure using the current technology. It is difficult for school personnel to see the whole growth without these tools, and it is also difficult to identify problems quickly.
- **Resource-intensive:** Paper forms, writing, and room for storage are only a few of the many things that are needed when using them. Additionally, it means that arranging and organizing these papers will take more work from the personnel. The process would be simpler and need less equipment if it were an online system.

3.3 Analysis of the new system

The new "Online Student Registration System" improves registration by allowing people to sign up online, reducing mistakes, and keeping everything up to date and safe. It additionally allows school staff to track registrations and manage documents effectively, saving both resources and time.

3.3.1 Introduction

This section will look at the Student Registration System that secondary schools use, focusing the ways in which it improves and improves the student registration procedure. The new system tries to replace old paper-based procedures with a more precise and effective online platform. With an examination of this system, we are going to explore how it resolves issues with the present registration method, including errors in entering data by hand, laborious paperwork, and problems with updating student records. The new method does deal with the necessity for paper forms and personally school visits by allowing parents and students to complete registrations from any location with internet access. It includes improved security mechanisms that protect sensitive data, real-time updates to keep information current, and computerized data entry to reduce errors, time savings, less error, and better student information management, this research will show how these features make registration more efficient and user-friendly for both students and school administrators.

3.3.2 System Requirements (Functional Requirements and Non-Functional Requirements)

- **Functional Requirement**

Online Registration Form: The system has to have an online form that students or their parents may use to fill out and submit the necessary data, which includes contact details, academic history, and personal information, and previous academic records.

Uploading Documents: Users should be able to upload required files in supported formats, like (PDFs, JPG, PNG, ZIP, ...) such as report cards, using the system.

Submission Confirmation: After submitting the registration form and documents, the system should display a confirmation message to the user, acknowledging that their information has been received.

Administrator Review: The system must enable school administrators to access and review submitted information and documents to determine if the student meets the criteria for acceptance.

Decision Alert: The system should send an email to the student or parent, notifying them of the acceptance or rejection decision made by the administrators.

Data Storage: All provided data and documents must be securely stored by the system until the administrators have had a chance to review them.

- **Non-Functional Requirements**

Usability: Students or parents should be able just look at the registration form and submit documents without the need for technical support if the system has a user-friendly interface.

Security: The system must ensure that all data entered is safely saved and protected from unwanted access. Important data, such as report cards and personal information, must also be secured.

Performance: In order to ensure that users may submit their information without interruptions or complications, the system should be able to manage several registrations at once with quality.

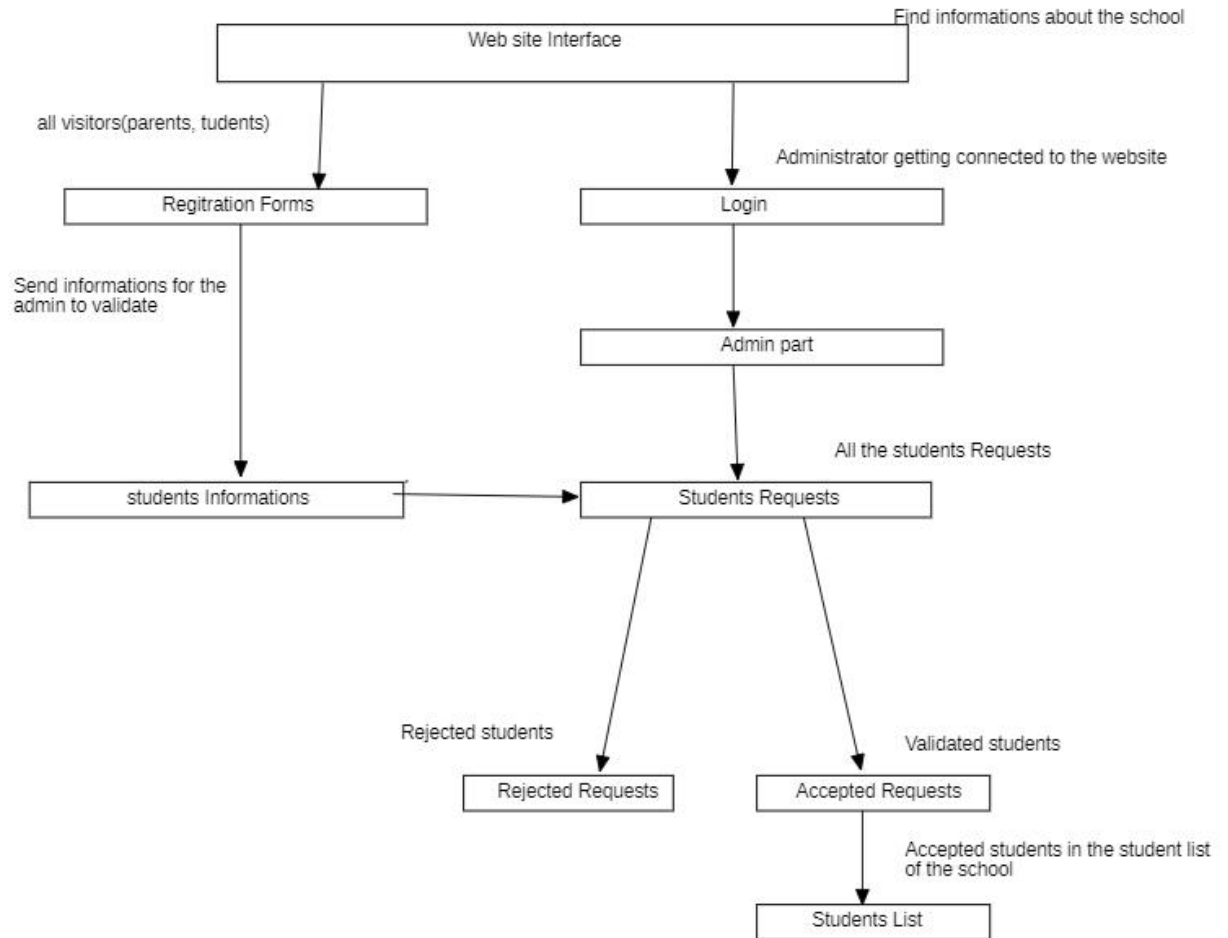
Reliability: The system needs to be consistent in order to ensure that data is securely saved and made available to administrators for evaluation once it has been submitted.

Compatibility: Students or parents should be able to enter their information via desktops, tablets, or cellphones since the system should work with a variety of hardware and browser combinations.

Maintenance: It should be simple to update and maintain the system so that modifications to the registration procedure may be made without having an impact on already-completed registrations.

Scalability: At times of high demand, like the beginning of the school year, the system should be able to handle a growing number of registrations.

Figure 3.1 Functional Diagram



3.3.4 Methodological approach

3.3.4.1 Data collection Techniques

The Five main research instruments that will be the focus of the data collecting procedures for the "Online Student Registration System" project are observation and documentation.

- **Observation:** To collect primary information, observation will be used to closely observe how it works of the present student registration procedure. During the registration process, this involves watching how parents, kids, and school administrators interact. By the

observation of these interactions, we can identify inefficiencies, common issues, and blockages within the current system. For example, the observation may show that manual registration procedures take a long time, are complicated, and necessitate multiple trips to the school. In order to develop a better online system, we must have a solid understanding of how it works and user experience of the present system, which can only be achieved by direct observation.

- **Documentation:** All current data and forms related to the registration procedure must be systematically collected and evaluated as part of the documentation process. This involves gathering documents such as up-to-date registration forms, parent and student instructions, and any administrative procedures manuals. Through the examination of these documents, the researcher can gain an understanding of the data points that are needed for registration, the process that is in place at the moment, and any rules that are currently in place that need to be integrated into the new system. Plus, examining previous registration data can give details about recurrent problems, variations in student registration, and locations that frequently result in misunderstandings or delays. By ensuring that the new online system is created with all necessary data and procedures in mind, this documentation review contributes to a more efficient and successful registration process.

Observation and documentation can work together as the main methods for collecting data, providing an adequate understanding of the existing registration procedure and providing advice for the creation of the new system. We will use also

- **Interviews:** Administrators and employees of the school who work directly with the student registration process will be interviewed. Through these interviews, the researcher will have a better understanding of the difficulties and inefficiencies that staff members encounter when handling large paperwork, controlling data entry, and ensuring the integrity of student information. The researcher may identify the places where the new online system could improve productivity and reduce administrative tasks by talking with them about their experiences and pain spots.
- **On-site Observation:** The existing registration procedure will be seen in operation by the use of on-site observation. The researcher will spend time observing how staff members take part with parents and students, how paperwork are filled out, and how data is managed in the

school's administrative office. The researcher will be able identify inefficiencies from in person observation, including long waits, mistakes made while entering data by hand, and possible security risks when managing important student information. Real-time observation of these procedures offers valuable knowledge that cannot be fully obtained through interviews alone, guaranteeing that the new system effectively solves real-world problems that exist during the registration process.

- **Questionnaires:** Parents and children who recently completed the registration procedure will receive questionnaires. Through the use of these surveys, information about their experience—including any challenges they had, how clear the instructions were, and how satisfied they were with the procedure overall—will be collected. The feedback obtained from these surveys will help the researcher in understanding the opinions of the users, which is essential for creating an online registration system that is easy for people to use. We can make sure that the new system satisfies the needs of the majority of users and improves their experience by evaluating the replies to find common issues and preferences.

To create an effective "Online Student Registration System" for a secondary school, comprehensive data regarding the existing registration procedure must be gathered. Creating a system that really satisfies the needs of school personnel and registrants requires an understanding of the experiences and difficulties they face. Through an extensive review of the current process, participant observations, and feedback collection, We must identify particular issues, including inefficiencies, errors, and areas where the user experience can be improved. This meticulous approach ensures that the new system is a carefully planned solution that solves actual problems, not just an unnecessary upgrade. In the end, it helps the school and the families using the registration process by making it more accurate, efficient, and user-friendly.

3.3.4.2 Software Development Methodology

The software development methodology of choice for creating the "Online Student Registration System" for a secondary school is the Agile model. Agile's adaptability, progressive structure, and focus on continuous improvement made it the perfect choice for a project with a variety of interested parties and changing requirements. This is an in-depth and understandable description of how this project used the Agile approach.

1. Planning Phase:

- Understanding requirement: In order to find out what parents, kids, and administrators were required from the registration system, we first spoke with them. For instance, administrators needed a mechanism to evaluate and accept or reject these contributions, while students needed a simple way to turn in their report cards and information online.
- Creating User Case: To describe the needs that various users would have from the system, we created user accounts. Our understanding of crucial features is helped by user accounts. For example

Case of student: "As a student, I want to fill out a registration form online so I can apply to the school without visiting in person."

Case of the Administrator: "As an admin, I want to see all submitted registrations on a dashboard so I can easily review and approve or reject them."

- Prioritizing Tasks: We determined which features should be created first because they were the most important. For example, since they are essential to the operation of the system, designing the admin dashboard and student registration form was a top priority.

2. Design Phase:

- System Architecture: We made plans for the system's construction. This involved creating the database structure that stores report cards and student data, as well as the registration form and admin dashboard designs.
- Design Phases: After generating initial designs, we discussed them with the parties involved. As an example, we modified the registration form in response to user input to make sure it was user-friendly and collected all required data.

3. Development Phase:

- Planning the Sprints: The development work was divided into several sprints. Every sprint focused on creating particular features. As an illustration, one sprint was dedicated to creating the home page, where people can find all the information about the school, the second one was the registration form, and another to creating the admin login form, and the admin dashboard.

- **Building and Testing:** We worked on coding and feature testing during each sprint. For example, we evaluated the registration form during development to ensure that it worked well and that students could submit their information without any problems.
- **weekly Stand-Ups:** We had brief meetings every week to talk over the day's work, any issues, and the next steps that needed to be taken. This made it easier for everyone to stay on task and enabled us to resolve problems fast.

4. Testing Phase:

- **Continuous Testing:** In order to identify and address any issues, we tested the system frequently. For example, we tested the admin dashboard after it was developed to make sure admins could accept or reject registrations and that all registrations were shown correctly.
- **Feedback Gathering:** During the development process, we asked users for their opinions. This helped us to determine whether adjustments were required. For instance, we changed the registration form based on students and parents feedback if they thought it was unclear.

5. Implementation stage:

- We made features accessible to users as soon as they had been evaluated and approved. For example, we launched the student registration form on the school website so that students could use it immediately after testing.
- We trained school administrators on the system's operation. This contained details on how to send emails approving or rejecting students as well as how to see and manage their registrations.

6. Phase of Maintenance:

- **Continuous Updates:** Following the system's begin operating we kept on giving assistance and making changes. This involved developing new features in response to user feedback and resolving any bugs that were discovered.
- **Continuous Improvement:** In order to make sure the system remained functional and productive, we continued to pay attention to the input provided by administrators and

students. For instance, we planned to include more reporting options in later releases if administrators requested them.

3.3.4.3 System Design Methodology

This secondary school's "Online Student Registration System" will be implemented using the Structured System Analysis and Design Methodology (SSADM). An organized method for information system analysis and design is called SSADM. It involves multiple steps, where the system is modeled and documented using certain methods and tools in each step. The main procedures and instruments utilized in the system's design—such as data flow diagrams (DFDs), entity relationship diagrams (ERDs), and data dictionaries—will be described in this section.

- **Dataflow diagram(DFD):**The Level 0 DFD offers a high-level overview of the system's interactions with external entities. The Level 1 DFD provides more detail, showing how internal processes interact with each other and with external entities.

Figure 3.2 DFD Level 0

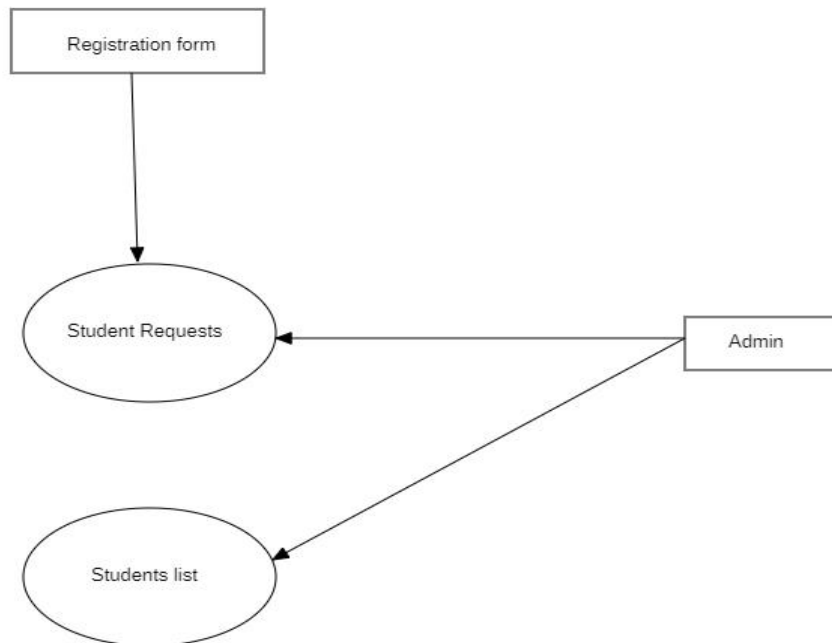
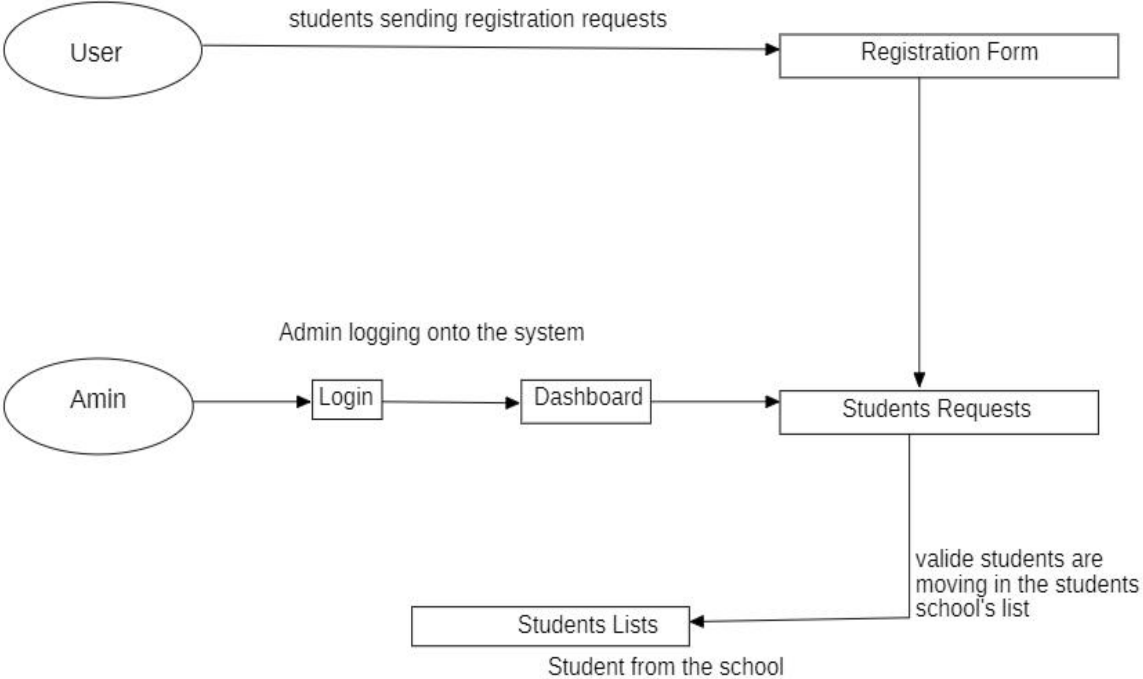
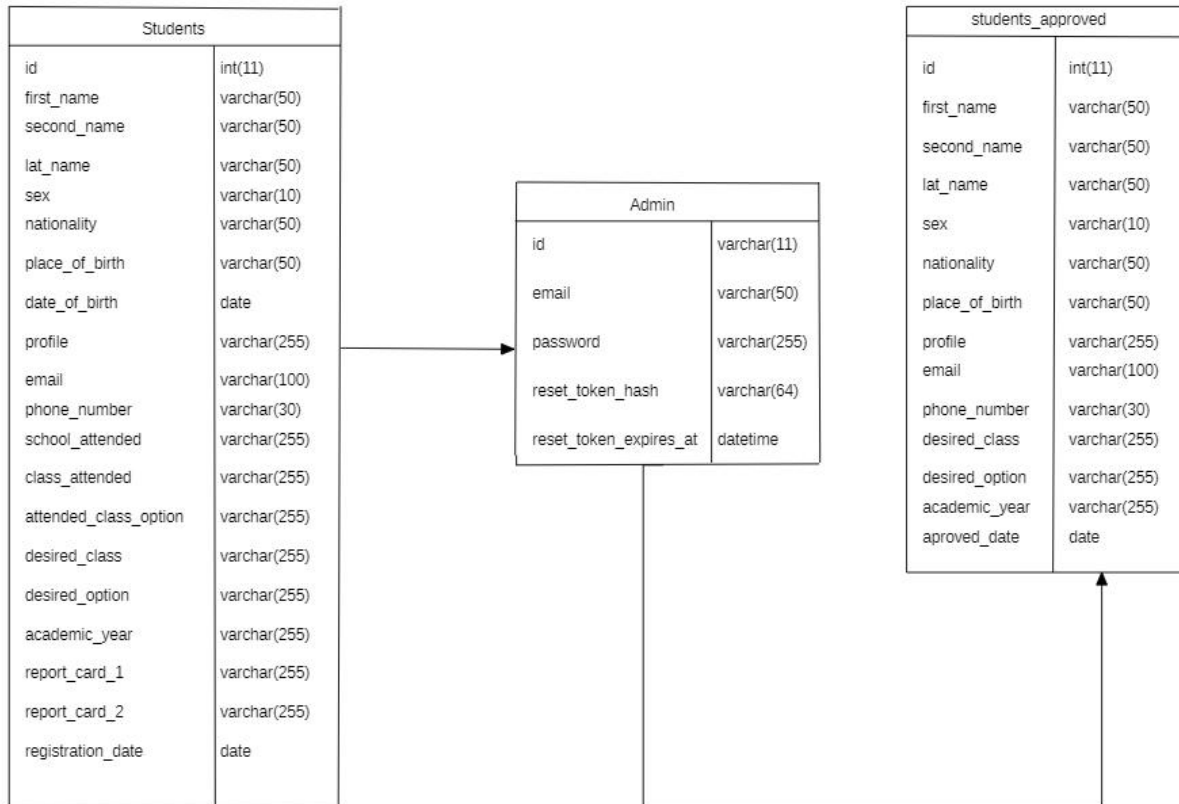


Figure 3.3 DFD level 1



- **Entity Relationship Diagram(ERD):** The database structure is visually represented by the Entity Relationship Diagram (ERD), which lists all of the system's entities along with their characteristics and connections.

Figure 3.4 ERD



- **Data dictionary:** The Data Dictionary describes in detail the database's data elements, such as field names, data types, and restrictions.

Table 1: Admin

Field	Data Type	Constraint	Description
id	int(11)	Primary Key	Identity of Admin
email	varchar(255)	Not Null	Email of Admin
password	varchar(255)	Not Null	Password for Admin
reset_token_hash	varchar(64)	Nullable	Reset token hash
reset_token_expires_at	datetime	Nullable	Reset token expiration time

Table 2: Students

Field	Data Type	Constraint	Description
id	int(11)	Primary Key	Identity of Student
first_name	varchar(50)	Not Null	First name of the student
second_name	varchar(50)	Not Null	Second name of the student
last_name	varchar(50)	Not Null	Last name of the student
sex	varchar(10)	Not Null	Gender of the student
nationality	varchar(50)	Not Null	Nationality of the student
place_of_birth	varchar(50)	Not Null	Place of birth of the student
date_of_birth	date	Not Null	Date of birth of the student
profile	varchar(255)	Not Null	Profile image of the student
email	varchar(100)	Not Null	Email of the student
phone_number	varchar(30)	Not Null	Phone number of the student
school_attended	varchar(255)	Not Null	School attended by the student
class_attended	varchar(255)	Not Null	Last class attended
attended_class_option	varchar(255)	Not Null	Class option attended
desired_class	varchar(255)	Not Null	Desired class to join
desired_option	varchar(255)	Not Null	Desired option for class
academic_year	varchar(255)	Not Null	Academic year of application
report_card_1	varchar(255)	Not Null	Previous year's report card
report_card_2	varchar(255)	Not Null	Last year's report card
registration_date	date	Nullable	Date of registration

Table 3: Students Approved

Field	Data Type	Constraint	Description
id	int(11)	Primary Key	Identity of Approved Student
first_name	varchar(50)	Not Null	First name of the student
second_name	varchar(50)	Not Null	Second name of the student
last_name	varchar(50)	Not Null	Last name of the student
sex	varchar(10)	Not Null	Gender of the student
nationality	varchar(50)	Not Null	Nationality of the student
place_of_birth	varchar(50)	Not Null	Place of birth of the student
date_of_birth	date	Not Null	Date of birth of the student
profile	varchar(255)	Not Null	Profile image of the student
email	varchar(100)	Not Null	Email of the student
phone_number	varchar(100)	Not Null	Phone number of the student
desired_class	varchar(255)	Not Null	Desired class to join
desired_option	varchar(255)	Not Null	Desired option for class
academic_year	varchar(255)	Not Null	Academic year of application
approved_date	date	Not Null, Default current_timestamp()	Date of approval

CHAPTER 4: SYSTEM IMPLEMENTATION

4.1 Implementation and Coding

4.1.1 Introduction

This chapter explains in detail the implementation and coding of the "Online Student Registration System" for a secondary school. The project provides an avenue for digitization of the student registration process, thereby making it easier for students or parents to submit information that is personal and academic in nature through the website. It also provides an avenue for the administrators of the school to consider applications from students for review, approval, or rejection. This chapter outlines the development methodology, tools, and technologies used and the steps followed during the implementation.

4.1.2 Description of Implementation Tools and Technology

➤ Software Development Methodology

The system was developed using the **Model-View-Controller (MVC)** architecture, which segments the project into three parts: Model, View, and Controller. This pattern provides a well-structured system that will be easier to maintain and develop further in the future.

Model: Responsible for data management and interaction with the database. All the data about the students and their registrations are stored in a MySQL database.

View: This is the front end of the system, with which users actually interact. The development of this has been done using HTML, CSS, and JavaScript so that the interface is user-friendly and easy on the eyes. **Controller:** Handles logical issues and serves as a bridge between the front-end and back-end. It's designed in PHP, which processes the request sent by a user and communicates with the database.

The MVC pattern allows the system parts to be independent for better organization of code and for easy troubleshooting.

➤ **Front-end Technologies**

HTML (HyperText Markup Language): HTML structures all the pages such as the homepage and registration form. Basically, the homepage would include information about the school and its mission, and any updates in addition. It shall also carry a registration button that will link to the student registration form.

CSS Cascading Style Sheets: CSS gives the styling to the website. It is used for the homepage and registration form to look appealing and responsive toward different devices. The layout of the homepage is clean and very easy to navigate, displaying sections with information about the school and a clear call-to-action-the button for registration.

JavaScript: It brings interactivity to the webpage. It ensures that the registration form validates all the required fields before submission. For example, it checks that the email format is correct and the report card file is uploaded before submitting the form.

➤ **Back-end Technologies**

PHP (Hypertext Preprocessor): PHP is the server-side scripting language to be used to maintain the logic of the system. It will process the form submitted by the students/parents and update the MySQL database. It will also process the actions of the admin where the students' applications can be reviewed for approval or rejection.

MySQL: The MySQL database management system is used for storing all the information related to students, their respective report cards, and the status of their applications like pending, approved, or rejected. It retrieves and manages this data with much efficiency; hence, the back-end it provides to the registration system is reliable.

PHPMailer: PHPMailer will be used to send e-mail notifications to students after an admin has reviewed the student's application. The approved student gets an email of acceptance, while the rejected one is notified of the reasons for the decision.

➤ **Implementation Process**

Development of the "Online Student Registration System" was done systematically, dividing the implementation process into different steps. In subsequent paragraphs, this paper will give a detailed breakdown of each part of the system.

Homepage Development: It was built using HTML, CSS, and JavaScript on the homepage, which is usually the main landing page for a website that contains detailed information about the mission, vision, academic programs that the school is offering, and also upcoming events.

The home page also includes links to other main sections on the site. Notice the **Registration Link** in the header, where a student or parent can initiate the process of registration. Clicking it will lead to the registration form.

Creating the Registration Form: Upon clicking the registration button, users will be brought to the registration form that was created using HTML and CSS. With this form, students or their parents can provide personal details such as First name, Second name, Last name, Sex, Nationality, Place of birth, Date of birth, Profile (profile picture), Email address, Phone number, Previous school attended, Previous class attended, Class option attended, Desired class, Desired class option, Academic year, Two report cards (uploaded), Registration date (automatically recorded)

Form Submission Handling: Upon form submission, the form data is handled by ****PHP****. PHP performs all the validations to ensure that the submitted data meets the required minimum qualifications. Examples include email addresses and uploaded files.

Validated data is then put into the MySQL database: all the personal informations, First name, Second name, Last name, Sex, Nationality, Place of birth, Date of birth, Profile , Email address, Phone number, Previous school attended, Previous class attended, Class option attended, Desired class, Desired class option, Academic year, Two report cards, Registration date, The file is uploaded securely to the server by giving it a unique name generated using the PHP `uniqid()` function so that no file conflicts occur.

Admin Dashboard: Admin is developed in PHP, HTML, and CSS. It outlines the student registration requests in summarized form, such as students pending approval and students approved. The admin should click on the student's profile each, to review the submitted information, inclusive of the report card uploaded. Upon the review of the application, the admin can either approve or reject the application. Here, using PHP, the status of the student will be updated in the MySQL database. Students whose applications were approved are flagged for that

status, and their information remains permanently in the system. The rejected ones will also be logged in, with a status showing that they were rejected.

Email Notification System: Using PHPMailer, the system sends automated e-mails to the students regarding the admin's decisions. If an applicant is accepted, then he/she will receive a congratulatory e-mail showing further details of the enrollment date and other necessary things he/she needs to bring. In the event of rejection, the email sent to a student rejects them with lots of politeness, sometimes stating the grounds on which the student was rejected. This mail is very crucial, as it will help keep both the student and parents informed about their application status.

Security Measures: Security is utmost with the system, especially because sensitive data of students is collected. PHP and MySQL have been implemented, keeping in mind security best practices to prevent common attacks such as SQL injection. The data entry first goes through validation and sanitation before going into the database. File uploads (e.g. report cards) are handled securely - each file is given a unique name so that no file may overwrite another. PHP checks that files are only uploaded if they are of the correct format and size, Admin passwords are securely hashed using PHP functions and stored in the database. Even in the event of database compromise, the admin password remains safe.

Testing and Validation: Various rounds of testing were conducted to ensure the usability and reliability of the system:

Functional Testing: Each functionality that was a part of the process was tested individually, including forms for registration, the admin dashboard, and email notifications to ensure everything worked as it should.

Usability Testing: The website has been tested from the perspective of ease of use. It is important that students and admins can alike comfortably use the system to get things done.

Security Testing: Thorough security testing has been performed to ensure the system is free from any 'security vulnerabilities such as SQL injection, unauthorized access to certain files, etc.

Performance Testing: The system was subjected to trial for its ability to handle multiple registration requests simultaneously without failing to work efficiently during peak times.

4.1.3 Screen Shorts

4.1.3.1 User side

Figure 4.1 Menu



The menu on the website shows links to the most important sections. The Home button takes you to a main page of general information. About Us gives you the history and purport of the school, Mission shows its aims, and Principles reflects the values and regulations of the school. All these options open in the same page, shifting right to the desired section. Whereas the button for Registration for the School leads users to another registration form, where students or parents can input information for enrollment, this system makes site navigation straightforward and unobtrusive.

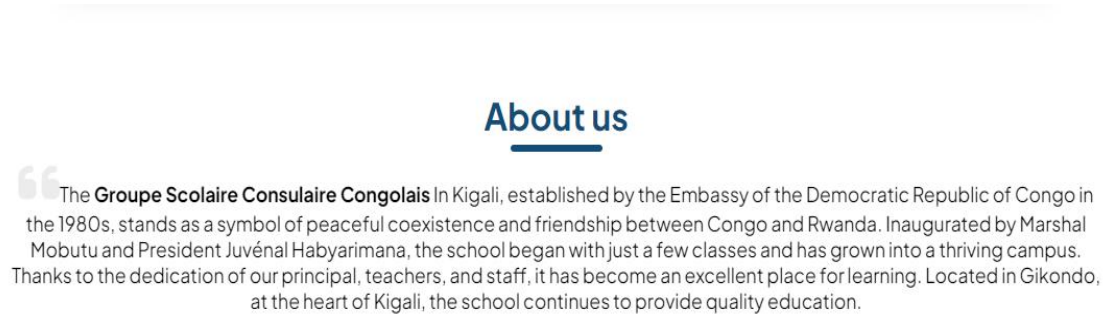
Figure 4.2 School Introduction Banner



After the menu, a background image of students from the school appears with an overlay text describing, in a few words, what the school is. This section shall bring out the commitment of the school towards education and visually connect them to the students. It would be an introductory part before going on to go into details within the About Us, Mission, and Principles sections in

order for any visitor to get a friendly and interactive overview of the school environment. Image and text together create a powerful sense of spirit and community in this school.

Figure 4.3 About the school

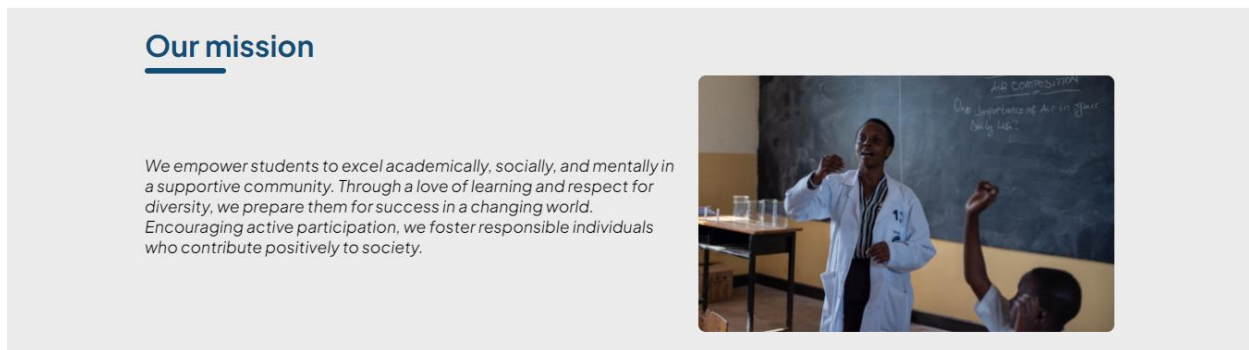


About us

“The **Groupe Scolaire Consulaire Congolais** In Kigali, established by the Embassy of the Democratic Republic of Congo in the 1980s, stands as a symbol of peaceful coexistence and friendship between Congo and Rwanda. Inaugurated by Marshal Mobutu and President Juvénal Habyarimana, the school began with just a few classes and has grown into a thriving campus. Thanks to the dedication of our principal, teachers, and staff, it has become an excellent place for learning. Located in Gikondo, at the heart of Kigali, the school continues to provide quality education.


The About the School Section contains basic information about history, mission, values, and key aspects of the school. It informs the reader of the background of the school, what it is hoping to achieve for its students, and what makes it different from others. This section helps in learning the identity of the school and what principles are necessary for an education.

Figure 4.4 Missions of the school



Our mission

We empower students to excel academically, socially, and mentally in a supportive community. Through a love of learning and respect for diversity, we prepare them for success in a changing world. Encouraging active participation, we foster responsible individuals who contribute positively to society.



The Our Mission section articulates the commitment of the school to the nurturing of its students in academic, social-emotional growth, and development. In this section, it has underlined the attention and importance that the school has placed on creating a supportive learning environment which embraces diversity and increases the love for knowledge among its students. It has also emphasized how to prepare students to meet further challenges while developing responsible active citizens to positively affect society.

Figure 4.5 School Statistics



In this section, we present some key figures that highlight the school’s experience, diversity, and community engagement. These numbers provide a clear picture of the school’s long-standing dedication to education and its connection with both students and the wider public. Our school has been providing quality education for 34 years, offering a rich history of academic excellence. We teach 3 languages, helping students develop important communication skills for the future. Additionally, we have 1,200 subscribers on social media, showing our strong connection with the school community and beyond.

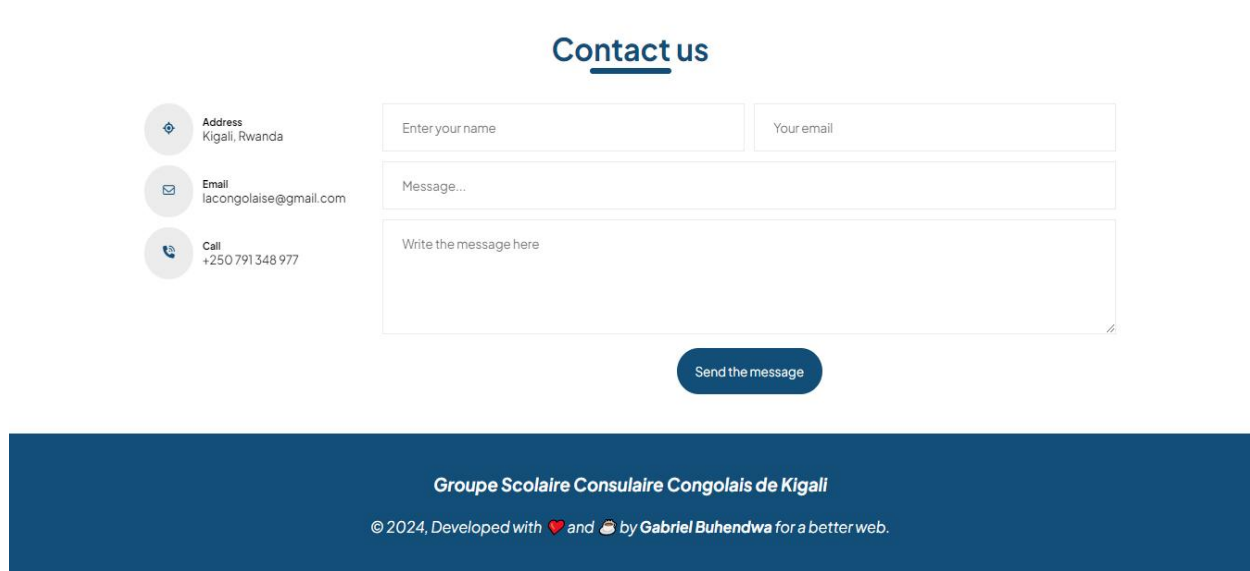
Figure 4.6 Our Educational Approach

Our principles

At Groupe Scolaire Consulaire de Kigali, we prioritize exploratory education, logical thinking, and holistic development. Our innovative teaching methods foster creativity, teamwork, and problem-solving skills, catering to diverse learning styles. Within our supportive environment, students feel valued, challenged, and free to explore their interests.

The section entitled Our Principles explains the core values of the school. Education at Groupe Scolaire Consulaire de Kigali is exploratory, eclectic, and includes critical thinking. The modern pedagogic methodology practiced in the school encourages creativity, teamwork, and problem-solving for all learning styles to be appropriately met. At Groupe Scolaire Consulaire de Kigali, students will find themselves in an environment where they are valued, challenged, and allowed to pursue interests unique to themselves.

Figure 4.7 Contact Information and Footer



Contact us

Address
Kigali, Rwanda

Email
lacongolaise@gmail.com

Call
+250 791 348 977

Enter your name

Your email

Message...

Write the message here

Send the message

Groupe Scolaire Consulaire Congolais de Kigali

© 2024, Developed with ❤️ and 🍷 by Gabriel Buhendwa for a better web.

The Contact Us section offers the necessary contacts to reach the institution. It contains the address of the school in Kigali, Rwanda, with an attached contact email address, lacongolaise@gmail.com, and a telephone contact, +250 791 348 977. The section also offers a contact form where visitors can include their name, email, and message to communicate directly to the school. Below the contact form, a footer can be found displaying the school's name followed by a copyright notice of the current year, also mentioning that the website was developed by Gabriel Buhendwa. This footer will be used by visitors to identify who is behind this website and how to contact them further if needed.

Figure 4.8 Registration Form

The image shows a web form titled "Student Registration". It contains the following fields and controls:

- First name: Text input field with placeholder "Enter your first name".
- Second name: Text input field with placeholder "Enter your second name".
- Last name: Text input field with placeholder "Enter your last name".
- Sex: Dropdown menu with "Select your gender" and a downward arrow.
- Nationality: Text input field with placeholder "Enter your Nationality".
- Place of the birth: Text input field with placeholder "Enter the place of your birth".
- Date of the birth: Text input field with placeholder "mm/dd/yyyy" and a calendar icon.
- Profile: File upload field with a "Choose File" button and "No file chosen" text.
- Email address: Text input field with placeholder "Enter your email address".
- Phone: Text input field with placeholder "Enter your phone number".
- School Attended: Text input field with placeholder "Enter your school attended".
- Attended Class: Dropdown menu with "Select The Class you Attended" and a downward arrow.
- Attended Class Option: Text input field with placeholder "Enter (none) if the Option is not chosen yet".
- Desired Class: Dropdown menu with "Select your desired class" and a downward arrow.
- Desired Option: Dropdown menu with "Select your desired option (last one if you don't have)" and a downward arrow.
- Academic Year: Dropdown menu with "Select The Academic Year" and a downward arrow.
- Previous Year's Report Card: File upload field with a "Choose File" button and "No file chosen" text.
- Last Year's Report Card: File upload field with a "Choose File" button and "No file chosen" text.

At the bottom of the form is a dark blue button labeled "Submit My Informations".

The Registration Form is created for students to get detailed information from a student. This includes information like first name, second name, last name, gender, nationality, place of birth, and date of birth. Students can upload their profile pictures, email addresses, phone number, and details regarding the previously attended school, class, special options. This form will allow the students to select a class and option that they want to take up in the coming academic year and also upload their report card for the previous year. Once the required details along with the

necessary documents have been provided, the students shall be able to submit the form for admission registration.

4.1.3.2 Admin Side

Figure 4.9 Administrator Login Page

Dear Administrator
Enter your creadetiials to get connected

Welcome

Log in to account

Enter your email

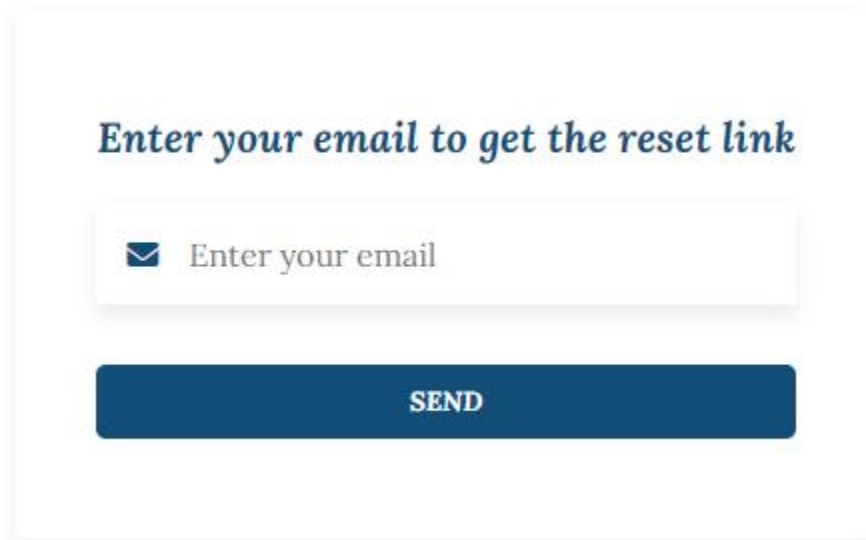
Enter your password

Forgotten password click here

LOGIN

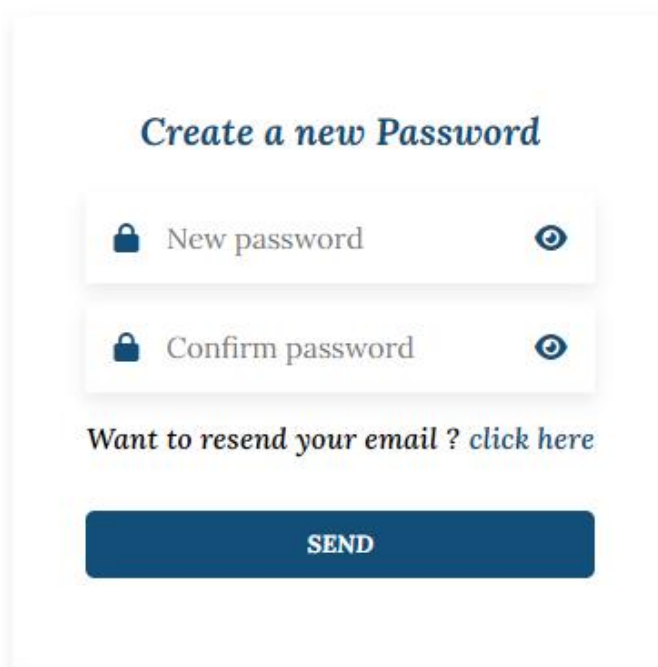
The Administrator Login Page provides an entry into the account of the school's administrator in a secure way. There is a greeting for the administrator, requesting him or her to enter the credentials. An administrator should log in with an email address and password for it to work correctly. After correctly keying these in, he or she can just hit the "Login" button to access administrative functions and the dashboard.

Figure 4.10 Password Reset Page



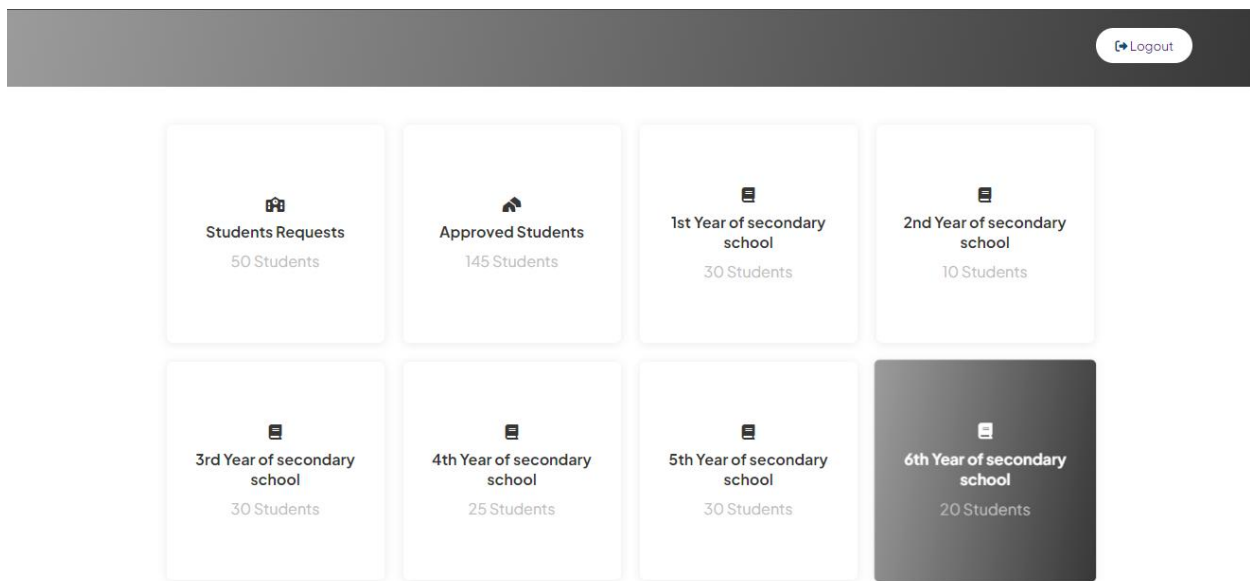
On the Reset Password page, the admin, who has forgotten his login credentials, provides his email address to request a password reset. Then, after providing the email, they click "Send". Through this, the system sends a link to them via the e-mail provided for resetting their password and thus regaining access to their account.

Figure 4.11 Set New Password Page



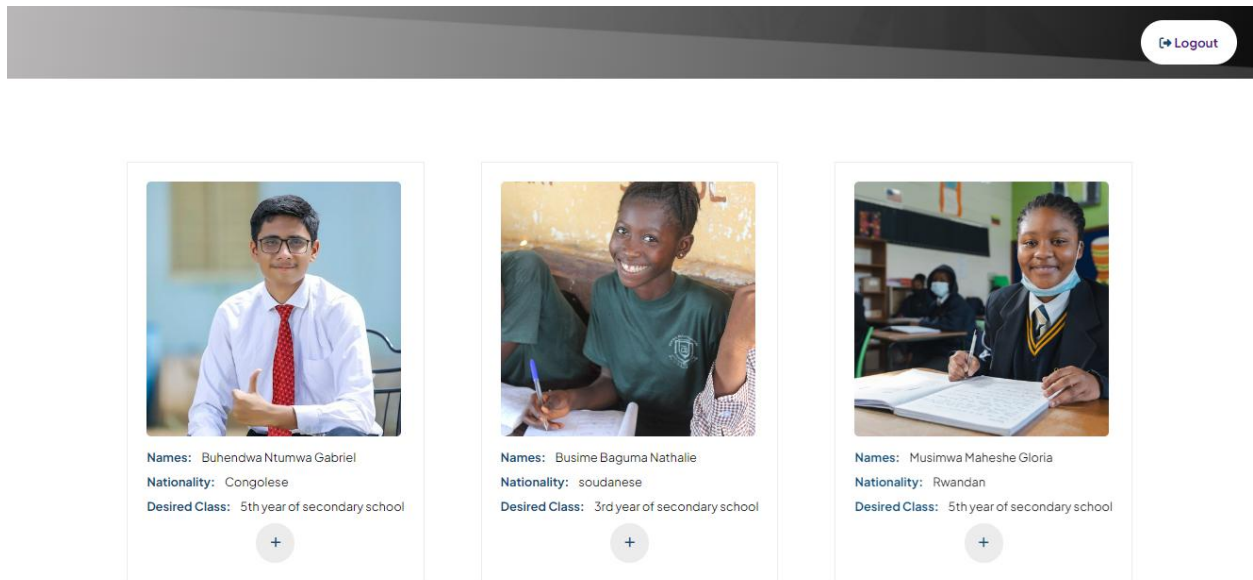
The Set New Password Page is used by administrators to set a new password after they have received the reset link. On the page, an administrator fills in their new password in the field labeled "New Password," and then repeats the same in the "Repeat New Password" field as confirmation of the same password entry. This serves as assurance that the correct entry is made and that it is the new one. Once both fields are filled in, the administrator clicks the "Save" or "Submit" button, and the new password is updated to the database. This makes the account more secure because the old password has been replaced with the new one.

Figure 4.12 Admin Dashboard



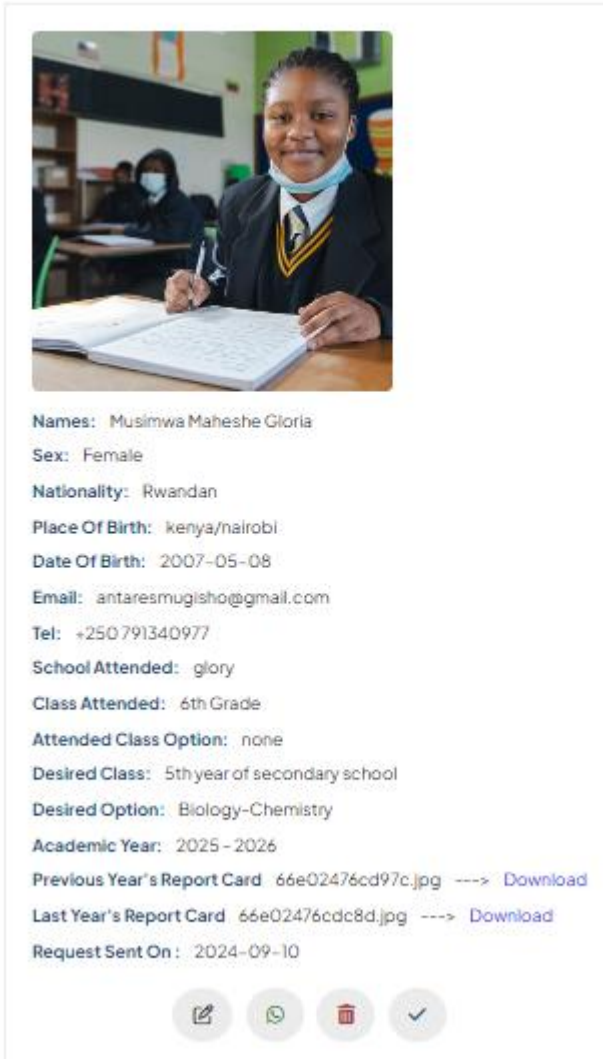
The Admin Dashboard is an overview of the students' activities in the school's registration system. Additionally, it provides the administrator with an ability to observe all admission requests from the students and stages each may be at in the process. Data on approved students for enrollment is then further segmented into specific school years. This classification includes the first-year students to the sixth year of secondary school. It clearly shows the number of enrollees for every secondary year. Having this on record, well organized, the dashboard can therefore allow the administrator to manage and oversee all the processes of enrollment of students with efficiency so that each application is properly processed and categorized.

Figure 4.13 Student Requests Overview Page



The Student Requests Page is designed for administrators to review all student registration submissions received online. On this page, the admin can view a comprehensive list of students who have applied for registration, along with their basic information. This overview allows the admin to easily browse through the submissions. To review a specific student's details, the admin can click on an individual entry, which directs them to a detailed view of that student's complete information. This detailed view provides all the necessary data about the student, enabling the admin to thoroughly assess each application before proceeding to validate or approve it. The actual validation process takes place on a separate page, where the admin can make final decisions regarding the student's acceptance into the school.

Figure 4.14 Student Application Detailed Review Page



Names: Musimwa Maheshe Gloria
Sex: Female
Nationality: Rwandan
Place Of Birth: kenya/nairobi
Date Of Birth: 2007-05-08
Email: antaresmugisho@gmail.com
Tel: +250 791340977
School Attended: glory
Class Attended: 6th Grade
Attended Class Option: none
Desired Class: 5th year of secondary school
Desired Option: Biology-Chemistry
Academic Year: 2025 - 2026
Previous Year's Report Card: 66e02476cd97c.jpg ---> [Download](#)
Last Year's Report Card: 66e02476cdc8d.jpg ---> [Download](#)
Request Sent On: 2024-09-10

The Student Request Full Details Page provides the administrator with a detailed view of a specific student's registration application. On this page, the admin can access the complete information submitted by the student, including personal details and any attached documents such as report cards. The admin has the option to download these report cards for a thorough review. This page allows the admin to carefully assess all aspects of the student's application, including verifying the authenticity of the report cards. Based on this detailed examination, the admin can make informed decisions regarding the student's registration status. They can choose to approve or reject the application, contact the student for further clarification, or even edit the

student's information if necessary. This ensures that each student's application is meticulously reviewed and processed according to the school's criteria.

Figure 4.15 Student Application Review Actions



In the student application review process, the admin has four key options for managing each student's registration. The first button allows the admin to **edit** the student's information, giving them the ability to update any details or correct errors before making a final decision. The second button is for **contacting** the student, which is used when the admin requires additional information or clarification. If, after reviewing the details, the admin determines that the student does not meet the requirements for admission, they can use the **reject button**. This action will mark the student's application as rejected, and the student will receive an email notification explaining the decision. Conversely, if the student's application is approved, the admin can click the **validate button**, which moves the student's details to the approved list. Once validated, the student will receive an email confirming their acceptance into the school, and they can begin their studies when the classes start.

In documenting the "Online Student Registration System," we focused on taking screenshots of the most important parts of the system. We didn't capture every single page or feature but concentrated on the key areas that show how the system works and its main functions. This way, we highlight the most crucial aspects, such as how students register, how admins review applications, and how approvals or rejections are managed. This approach gives a clear view of the system's essential features and processes.

4.2 Testing

4.2.1 Introduction

The "Online Student Registration System" for secondary schools was subjected to a comprehensive testing process to ensure its functionality, security, and performance. The system enables students to register online, upload necessary documents, and submit their applications, while providing the admin with tools to review, approve, or reject these applications. This section covers the testing procedures applied to verify the integrity of the system, including unit, validation, integration, functional, and acceptance testing. Each phase of testing was essential in verifying that the system meets the requirements and functions reliably under different conditions.

4.2.2 Unit Testing Outputs

Unit testing focused on individual modules to ensure each part of the system worked as expected. Key units tested in the system included:

Student Registration Module: This module allows students to fill out a detailed form with personal and academic information. We tested form validation to ensure that all required fields (e.g., first name, last name, birth date, class, report cards,...) are filled, appropriate formats are followed (e.g., email validation), and that the file upload function correctly handles profile pictures and report cards. We also tested form error messages, ensuring users were guided to correct any mistakes before submission.

Admin Login and Reset Password: The admin login module was tested to verify that only authorized personnel can log in. This included testing for correct email and password combinations and confirming the system prevented access with incorrect credentials. Additionally, we tested the "Forgot Password" feature, which ensures that the admin can request a password reset, receive a secure reset link via email, and update the password correctly.

Student Information Viewing and Management: This unit involved testing the admin's ability to view student applications, including their detailed profiles, uploaded documents, and all relevant academic information. The ability to download report cards and other files was thoroughly tested to ensure functionality. The admin's ability to edit student details, contact

students for additional information, and make decisions about their application (approve or reject) was also validated.

Each of these units performed well, and outputs were as expected. Error handling, form validation, and file uploading processes all worked correctly, ensuring smooth user interactions.

4.2.3 Validation Testing Outputs

Validation testing was done to ensure that the data submitted by both students and administrators complied with the required formats and rules. Key validations tested were:

Form Field Validation: Students must provide specific information, such as their first name, last name, email, and uploaded documents. We tested validation rules for fields such as mandatory entries, proper formatting (e.g., for email addresses), and ensuring that the correct file types (e.g., PDFs or images for report cards) are accepted.

File Upload Restrictions: The system restricts the size and type of files uploaded for student profile pictures and report cards. Validation testing ensured that files larger than the maximum allowed size were rejected with appropriate error messages, and only valid formats (like .jpg, .png, and .pdf) were accepted.

Email Notifications: We tested the email system to ensure that once a student submits their application, they receive an automated confirmation email. Similarly, when the admin approves or rejects an application, the appropriate emails are sent, notifying the student of their status. This ensures students are kept informed throughout the registration process.

The validation process ensured that no incomplete or incorrectly formatted data could be submitted, keeping the system secure and reliable.

4.2.4 Integration Testing Outputs

Integration testing was conducted to verify that all modules work seamlessly together. Since the "Online Student Registration System" involves multiple components, we focused on the following integrations:

Registration and Database: We confirmed that when a student submits their registration, the system correctly writes their data to the database. The admin can then retrieve, view, and manage this information. We tested that all student data, including profile images and report cards, were stored correctly in the database and displayed properly in the admin dashboard.

Admin Dashboard and Approval Workflow: We tested the workflow from the time a student submits an application to when the admin reviews and either approves or rejects the application. Once approved, the student's data moves from the general requests section to the list of approved students. If rejected, the student's data is flagged, and they receive an email with the reason for rejection.

File Download and Review: The admin can download the student's report cards and other uploaded documents for review. We tested this integration to ensure that files are properly retrieved from the server and that the admin can view and assess them.

This phase of testing confirmed that all parts of the system, including form submissions, database interactions, and file uploads/downloads, worked well together without issues.

4.2.5 Functional and System Testing

Functional and system testing was performed to ensure the entire system operates as expected in various real-world scenarios. Key areas of focus included:

End-to-End Registration Process: We tested the entire process of a student registering on the system, from submitting the form to receiving email confirmation. This included testing for different scenarios, such as correct submissions, incomplete submissions, and uploading large files. The system successfully handled all cases, guiding users with appropriate feedback where necessary.

Admin Workflow: We tested the admin's ability to manage student applications. The admin can view detailed student profiles, download documents, approve or reject applications, and contact students if needed. We also ensured the admin dashboard displayed accurate statistics, such as the total number of students registered, approved students, and students by class year.

Security Features: We tested login security to ensure only authorized admins could access the system. Password encryption was verified, along with the functionality of the "Forgot Password" feature. Additionally, we ensured that all sensitive student data is protected from unauthorized access.

System testing confirmed that the platform functioned well across different devices and browsers, ensuring a smooth experience for both students and administrators.

4.2.6 Acceptance Testing Report

Acceptance testing involved school administrators and key stakeholders to evaluate whether the system meets the school's expectations and requirements. The following aspects were particularly highlighted during this phase:

Ease of Use: The user-friendly design of both the student registration form and the admin dashboard was well-received. Administrators noted that the layout made it easy to review student data and manage applications efficiently.

Automated Email Notifications: The feature that automatically sends students an email after their application is approved or rejected was appreciated. This reduced the workload for the administration and improved communication with students.

Document Review: The ability to download and review student report cards and other documents directly from the dashboard helped streamline the approval process. Admins found it easy to make decisions based on the information provided.

Real-Time Statistics: The admin dashboard displayed accurate, real-time data about the number of registered, approved, and rejected students, as well as students categorized by class. This provided a clear overview of the registration process.

The system passed all acceptance criteria and was approved for deployment in the school environment.

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

These days, schools have to handle their processes efficiently in this digital world. The **Online Student Registration System**, developed for secondary schools, meets the needs by simplifying the process of student registration. It is easy for students or their parents to access information about the school through the system, submit their application forms, and previous school records online. As a matter of fact, it reduces much physical paperwork; hence, the process is not cumbersome for both the school and the applicants, Among the important features included in this system is the admin panel, through which school administrators can have full control over the admission system. It will help the admin see a list of all the students who have registered themselves, the details provided, and academic reports. In this way, it is assured that the admin goes through every application carefully to decide whether or not to accept/reject a student based on the information provided. It sends an automatic notification via email to the student or parent after going through the application by the admin. In cases of selection, the email would confirm that a student is approved to join the school. In cases of rejection, the system writes to the student or parent stating the reason for their application not being accepted. This is also the reason why the use of **PHPMailer** in sending e-mail notifications is important; such communication becomes really lightning-fast and efficient, consequently cutting down the spending on wasted time that would take away from the school's real work of keeping the students abreast of their progress, Technically, this system was developed at the front with the use of HTML, CSS, and JavaScript. These technologies ensure the intuitive interface of the system; they are easy to work with, letting users with a very different level of computer skills master it without too much hassle. The system backend is developed on PHP and MySQL, which are used for data storage and retrieval. Ensuring that happens would enable the system to store many students' data in secure ways for efficient management. Sending emails with notifications using PHPMailer is another core feature; by the way, it was possible to keep both students and parents informed of their application status. It also includes a list of students where, after a student gets approved, they appear in the list of all students who got successfully registered at school. This would help the school manage the records of the students easily at school and trace the history of every application. In short, the Online Student Registration System promotes efficiency among school administrators and students alike. It cuts down on paper works and automates communications,

providing an online one-stop platform where all registration information is securely stored. This application uses modern web technologies to make the process of student registration faster, easier, and more efficient for all parties involved.

5.2 Recommendations

Security Enhancements: The system is up and running and very user-friendly; however, there is always room for improvement in terms of security. It is advisable that further security features be considered, such as the encryption of data to ensure confidentiality regarding sensitive student information, report cards, and personal information. Stringent file validation on document upload should also be implemented to block malicious files from uploading to the system.

User Interface (UI) Improvement: All functions work well in the system, but it needs to look fresher. Giving it a more modern design with things like a better layout structure, cleaner fonts, and better color schemes will make the system not only look much better but also be more appealing to even the youngest students and their parents.

Automation of Part of the Admin's Work: The admin goes through each of the applications manually. Of course, that needs to be done, but automating some of these things will really save a lot of time. An example could be an AI-based system that helps in checking whether report cards fit into certain criteria or whether the details of a student match the requirements kept forth by the school. This would enable the admin to go through and review for final approval.

More Parents' Features: Adding more features to make the system parent-friendly is needed. In this regard, a parent portal would be nice wherein they could observe in real time the status of their child's application. Events at school, deadlines, or announcements can similarly be informed to parents through the portal.

Language Support: Often, schools serve students and parents in multiple languages. Adding the feature of multi-language support to the system will go a long way in enabling parents and students who have difficulty speaking any form of English to use the system in a more comfortable language. This will help make the registration process more accessible to a wider audience.

SMS Notifications: While email notifications are helpful, adding SMS notifications could further improve communication, especially for parents who may not go to email frequently. This

could enable the school to send a text message to let the parents know if their child has been admitted or otherwise.

Integration with the School's Database: The system at present is designed to cater only to the registration process. In this regard, it could be integrated with the main database of the school in the future. This could automatically add student information once a student gets approved to the student management system of the school. This would save the school administration time and avoid errors from manual feeding of data.

Bulk Approval for Admin: For more efficiency on the admin side, incorporate the functionality to approve/reject multiple students in bulk by the admin. Currently, the admin has to process each application individually, which may take a long period of time, especially during the peak registration period of students.

5.3 Future Work

Student Portal Development: Further development that could be made in this system includes incorporating a student portal. A portal like this would allow students to track their academic progress, timetables, exam results, and many more. Besides that, this portal should grant the student the facility to communicate with teachers and other students, receive learning materials, and catch up on school activities.

Parent Dashboard Development: The parent will view their child's performance in terms of attendance and updates by the teacher in school. This would help increase bonding between relations at school and parents for better involvement in their children's education.

Online Payment Integration: It can be developed further to facilitate the parents in paying the school fees online. The same will also reduce the headache of parents and facility on the part of the school for collecting the same. Integrate secure payment gateways for safe processing of the payments.

Teacher Portal to Manage Classes: Similarly, the system can also integrate the teacher portal for class management, assignment uploads, and other interactions with students online. Grades can also be recorded by a teacher that can be accessed by students and parents through respective portals.

Reporting Features Enhancement: The system could provide the school administration with automated reports regarding students' registration, attendance, and academic performance. This will help the school collect useful insights that may be helpful in decision-making to ensure proper school management.

Introduction of Online Interview Feature: Adding a feature for the future, it would be of essence if one could add the feature to conduct online interviews with the proposed students or parents. This shall enable the admin or school officials to assess the applicants further before admitting them into their school.

Data Analytics Implementation: Introduce data analytics into the system to provide such insights as trending of student applications regarding registration, e.g., what classes were most sought after, or during what periods. This would help the school in better resource planning and also streamline the registration process more smoothly for the incoming students.

The Online Student Registration System shall be the continuously updated and expanding feature through which the school improves its operations in service to the students, parents, and staff alike.

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APPENDICES

Appendix A: Interview Transcripts

This section presents detailed interviews with school staff and students from Groupe Scolaire Consulaire Congolais de Kigali. The focus is on the outdated paper-based registration process and the new, efficient **Online Student Registration System**.

Appendix A.1: Staff Interview Questions

1. How do you currently handle the student registration process, including report cards?

Answer: The process is entirely manual. Students and parents have to physically come to the school to fill out paper forms by hand, where they enter all their personal and academic information. They must also bring physical report cards from their previous schools. These documents are stored in filing cabinets at the school, and nothing is digitized.

2. What are the biggest challenges with this paper-based system?

Answer:

- **Long Waiting Times:** Students and parents often have to wait in long lines just to get the forms. After filling them out, they wait again to submit them.
- **Errors in Forms:** Handwritten forms are full of mistakes. Some forms are hard to read, and others are incomplete. This causes back-and-forth delays where parents need to come back and redo the forms.
- **Lost or Damaged Report Cards:** Physical report cards are easy to lose or damage. If a report card is missing or ruined, it creates more delays because we have to ask the student to bring another one.
- **No Backup:** Since everything is kept on paper, there's no digital backup. If something happens to these files like they get misplaced, damaged, or lost permanently there's no way to recover the data.

3. How do you inform students or parents whether they've been accepted or rejected?

Answer: Right now, students or parents have to physically come back to the school to check whether their child was accepted. This often leads to long lines again, as many parents are anxious to know the results.

4. How will the new online system change the way you handle registrations?

Answer: With the Online Student Registration System, everything will be done online. Parents and students will fill out digital forms and upload Pictures, or PDF copies of their report cards directly into the system. The school admin will review all the information and documents online and decide whether to accept or reject the student. No need to come to school, or call the school staff, students will be notified by email if they've been accepted or rejected.

Appendix A.2: Student Interview Questions

1. How do you currently register for school, including submitting your report cards?

Answer: We have to physically go to the school, get paper forms, and fill them out by hand. We also need to bring hard copies of our report cards. It takes a lot of time, especially if there are mistakes or if I forget a document.

2. Have you experienced any problems with the current registration process?

Answer: Yes, many problems. Long waiting times are the worst part. You wait in line just to get the form, then wait again to submit it. If you make a mistake on the form or forget a report card, you have to go back home and do it all over again.

3. How would you feel about submitting everything online, including report cards?*

Answer: It would be a lot easier. I wouldn't have to worry about losing my report cards, and I could fill out everything correctly from home. No more waiting in line, and I'd get instant confirmation once I submit everything.

4. How do you currently find out if you've been accepted to the school?

Answer: We have to go back to the school to see if we were accepted. This means more waiting and sometimes standing in long lines with other students, sometime we try to call them to now if we were accepted but they are too busy, that means we should come back again to see physically

5. How do you feel about receiving acceptance or rejection notices via email?

Answer: That sounds much better! It would save me the trouble of going to the school and waiting around. If I can just check my email to know if I was accepted, it would make everything faster and easier.

Appendix B: Detailed Critique of the Current Registration Process

1. Manual Forms and Long Waits:

The current process requires students and parents to ****physically come to the school**** to collect registration forms, fill them out by hand, and then submit them. This means waiting in long lines, often under stressful conditions. The forms are frequently filled out incorrectly due to mistakes in handwriting, missing information, or simply misunderstanding the instructions. Each time a mistake is made, the form has to be redone, creating additional delays.

2. Physical Report Cards:

Students must bring hard copies of their report cards from previous schools, which presents several challenges:

- Lost or Damaged Documents: Physical report cards can easily be lost or damaged, creating delays. If a report card is missing or forgotten, the student has to go back home and bring another copy, which causes more waiting.
- No Digital Backup: Once the report cards are handed in, they are filed away with the paper forms. If these paper copies are lost or damaged, there's no way to recover them, and the school has no backup system.

3. Time-Consuming and Error-Prone:

Manually entering all the student information and storing report cards in filing cabinets takes a lot of time and effort for school staff. If a form is missing or misplaced, it can take hours to find it, causing frustration for both staff and students. There is no easy way to access student records once they've been stored in the school's physical archives.

4. In-Person Notification:

To find out whether they've been accepted into the school, students and parents must return to the school to check the results. This often leads to long lines and unnecessary stress as parents wait anxiously to see if their child was accepted or rejected.

Appendix C: Advantages of the New Online Student Registration System

1. Completely Digital Forms:

With the Online Student Registration System, students and parents can complete the entire registration process online. This eliminates the need to fill out paper forms by hand, drastically reducing errors and making the process much faster. Students can submit all their information digitally, from the comfort of their home, and avoid long waits at the school.

2. Digital Report Cards:

Instead of bringing physical report cards to the school, students will now upload their report cards as digital files (either as images or PDFs) during the registration process. This has several benefits:

-No Risk of Loss or Damage: Digital copies are stored securely in the system and can be accessed at any time.

-Instant Submission and Review: School staff can review the report cards as soon as they are uploaded, speeding up the review process.

3. Automatic Notifications:

Students no longer need to return to the school or to call the school staff to find out if they've been accepted or rejected. The new system sends automatic email notifications as soon as the decision is made. Students will know instantly whether they've been accepted into the school or not, without the need to wait in line or visit the school again.

4. Faster, More Efficient for Staff:

The online system reduces the workload for school staff. They no longer need to manually enter information from paper forms or sort through piles of report cards. Everything is digital and easily accessible, making the entire process more efficient and secure.

- Easy Review: Staff can check both the student's information and their report cards online, then approve or reject the application with just a few clicks.
- Secure Data Storage: All student information and documents are securely stored in a digital format, ensuring they are never lost or damaged.

5. No More Long Lines:

With everything done online, the long lines and waiting times that were common during the old registration process are gone. Students and parents can complete registration from home, and receive results without ever setting foot on school grounds.

Summary of Improvements

The Online Student Registration System represents a significant improvement over the outdated paper-based process:

- No more long waits to submit forms or check acceptance status.
- No more lost or damaged report cards everything is safely stored online.
- Instant feedback via email on whether a student has been accepted or rejected.
- Faster processing for both students and staff, leading to a smoother, more efficient registration experience.

Appendix D: System Source Code

Figure 4.16 Code for the header of the website

```
<header data-aos="fade-down" data-aos-easing="linear" data-aos-duration="1500">
  <div class="menu">
    <i class="fa-solid fa-bars-staggered menu-icon"></i>
    <i class="fa-solid fa-xmark exit-icon"></i>
  </div>
  <div class="header-items">
    <a class="link" href="#">Home</a>
    <a class="link" href="#about">About us</a>
    <a class="link" href="#mission">Mission</a>
    <a class="link" href="#principles">Principles</a>
    <a class="link" href="registration.php">Registration</a>
  </div>
</header>
```

Figure 4.17 Code for Database Connection

```
<?php
try{
    $bdd = new PDO('mysql:host=localhost;dbname=gsc; charset=utf8;', 'root', '', array(PDO::ATTR_ERRMODE => PDO::ERRMODE_EXCEPTION));
} catch(Exception $e){
    die('error found : ' . $e->getMessage());
}
```

Figure 4.18 Code for the footer Logic

```
<footer>
  <h3>Groupe Scolaire Consulaire Congolais de Kigali</h3><br>
  © <script>
    document.write(new Date().getFullYear())
  </script>,
  Developed with ❤️ and 🍷 by <strong>Gabriel Buhendwa</strong>
  for a better web.
</div>
</footer>
```

Figure 4.19 Css code for the four key options for managing each student's registration

```
.buttons a i {
  color: var(--blueColor);
  padding: 15px 15px;
  border-radius: 50%;
  background-color: var(--grayColor);
}

.buttons button .delete {
  color: #ab4242;
  font-size: 0.938rem;
}

.buttons button .agree {
  color: var(--blueColor);
  font-size: 0.938rem;
}

.buttons button .whatsapp {
  color: green;
  font-size: 0.938rem;
}

.buttons button .edit {
  color: black;
  font-size: 0.938rem;
}

.feedback {
  display: flex;
  justify-content: center;
  border: 2px solid red;
}

.feedback button {
  border: none;
  outline: none;
  padding: 10px 15px;
  color: var(--whiteColor);
  background-color: var(--blueColor);
  font-family: "Plus Jakarta Sans", sans-serif;
}
```

Figure 4.20 Code for PHPMailer Logic

```
<?php
    use PHPMailer\PHPMailer\PHPMailer;
    use PHPMailer\PHPMailer\SMTP;
    use PHPMailer\PHPMailer\Exception;

    require('vendor/autoload.php');

    $mail = new PHPMailer(true);

    // $mail->SMTPDebug = SMTP::DEBUG_SERVER;

    $mail->isSMTP();
    $mail->SMTPAuth = true;

    $mail->Host = "smtp.gmail.com";
    $mail->SMTPSecure = PHPMailer::ENCRYPTION_STARTTLS;
    $mail->Port = 587;
    $mail->Username = "gabrielbuhendwa400@gmail.com";
    $mail->Password = "furx wyoy qtwu nrab";

    $mail->isHtml(true);

    return $mail;

?>
```


Figure 4.22 Javascript code for the entire system

```
document.addEventListener("DOMContentLoaded", function() {
  setupPasswordToggle();
});

// Functions for animation values
function startValueAnimation() {
  let valueDisplays = document.querySelectorAll('.run');
  let interval = 4000;

  valueDisplays.forEach(valueDisplay => {
    let startValue = 0;
    let endValue = parseInt(valueDisplay.getAttribute("data-val")); // use parseInt to handle decimals
    let decimalPart = endValue % 1; // get the decimal part
    let steps = Math.floor(endValue);
    let stepDuration = interval / steps;
    let counter = setInterval(function() {
      if (startValue < steps) {
        startValue += 1;
        valueDisplay.textContent = startValue;
      } else if (startValue === steps && decimalPart > 0) {
        // handle decimal part
        startValue = steps;
        valueDisplay.textContent = endValue.toFixed(1); // display the first decimal
        clearInterval(counter); // stop the counter after reaching the end value
      } else {
        clearInterval(counter);
      }
    }, stepDuration);
  });
}

// Function for the menu toggle
document.addEventListener("DOMContentLoaded", function() {
  setupMenuToggle();
});

function setupMenuToggle() {
  const listHeader = document.querySelector(".header-items");
  const myLinks = document.querySelectorAll(".link");
  const menuIcon = document.querySelector(".menu-icon");
  const exit = document.querySelector(".exit-icon");

  if (menuIcon && exit && myLinks) {
    menuIcon.addEventListener("click", () => {
      listHeader.classList.add("active");
      menuIcon.style.display = "none";
      exit.style.display = "inline-block";
    });

    exit.addEventListener("click", () => {
      listHeader.classList.remove("active");
      menuIcon.style.display = "inline-block";
      exit.style.display = "none";
    });

    myLinks.forEach(link => {
      link.addEventListener("click", () => {
        listHeader.classList.remove("active");
        menuIcon.style.display = "inline-block";
        exit.style.display = "none";
      });
    });
  }
}

// Function for toggle menu
function setupPasswordToggle() {
  let passwordInput = document.querySelector(".password");
  let openIcon = document.querySelector(".open");
  let closeIcon = document.querySelector(".close");

  if (passwordInput && openIcon && closeIcon) {
    passwordInput.setAttribute("type", "password");

    openIcon.onclick = function() {
      passwordInput.setAttribute("type", "text");
      openIcon.classList.add("hidden");
      closeIcon.classList.remove("hidden");
    };

    closeIcon.onclick = function() {
      passwordInput.setAttribute("type", "password");
      openIcon.classList.remove("hidden");
      closeIcon.classList.add("hidden");
    };
  }
}
}
```