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**AN ONLINE WEEKLY DUTY AND REPORTING MANAGEMENT SYSTEM FINAL
YEAR PROJECT REPORT**

DEPARTMENT OF EDUCATION

CASE STUDY: MAHANGA SECONDARY SCHOOL

By

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This final Year Project Report is submitted to the Department of Computer Studies in the partial fulfillment of the requirements for the Award of the degree of Bachelor of Science Education in Mathematics and Computer Studies at Busitema University.

DECLARATION

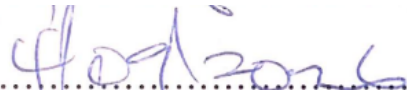
I Alajo Melanie of Registration Number BU/UP/2023/1604 hereby declare that this Project Report is original and has not been published and/or submitted for any degree award to any other University.

Signature:  Date: 4/09/2026

APPROVAL

This Project Report has been submitted for Examination with the approval supervisor Dr.Irene Nandutu.

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DEDICATION

I dedicate this piece of work to the Almighty God, my beloved family members especially my mother and all my relatives for their financial, spiritual, moral guidance and compassion they rendered to me during my stay at Busitema University.

Acknowledgement

First and foremost, I would like to thank the Almighty God for walking with me and guiding me throughout my studies. Despite all the challenges I have faced, I have taken efforts in this project. However, it would have not been possible without the kind support and help from many individuals. I would like to extend my sincere thanks to all of them.

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Abstract

This study addresses the administrative inefficiencies caused by manual, paper-based management of weekly staff duties and reports at Mahanga Secondary School in Tororo District, Eastern Uganda, where duty rosters are hand-drafted and reports are compiled manually, leading to delayed reporting, loss of records, and weak institutional accountability. The main objective was to develop an online weekly duty and reporting management system that automates duty assignment and scheduling, streamlines report submission, and provides secure, centralised storage of administrative records. Specific objectives were to review existing literature and gather requirements, to design and implement the system, and to test and validate its performance, usability, and effectiveness.

The study adopted a mixed-methods, design-and-implementation research approach guided by the Rapid Application Development (RAD) methodology, covering Requirements Planning, User Design, Construction, and Cutover phases. Data were collected from staff at Mahanga Secondary School through structured interviews, questionnaires, and observation, and analysed using descriptive statistics and thematic analysis. The resulting system was implemented as a web-based platform using PHP, MySQL, HTML5, CSS3, and JavaScript, structured around five core modules User Management, Duty Management, Report Management, Notification, and Dashboard and Reporting with role-based access for Administrators, the Headteacher, the Director of Studies, and Teachers. Testing was planned through unit, integration, and user acceptance testing, supported by the System Usability Scale to assess user satisfaction.

The developed system centralises duty assignment, automates reminders, and standardises report submission and storage, and is expected to reduce administrative delays, improve record accuracy, and strengthen accountability at the school, while remaining affordable and appropriate for a low-resource, rural secondary school setting. The study recommends reliable internet connectivity, structured staff training, and a designated ICT focal person to support successful adoption, and suggests that similar systems be extended to other rural secondary schools facing comparable administrative challenges.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study.

The management of weekly duties and reports in educational institutions is fundamental to operational efficiency, staff coordination, and institutional governance (Abdullah et al, 2024). Schools are required to handle a wide range of administrative functions including duty scheduling, staff attendance tracking, weekly reporting, and record management, all of which are essential for sustaining accountability and transparency. Historically managed through manual, paper-based processes, these functions have increasingly shifted toward digital solutions such as Management Information Systems (MIS), web-based portals, and automated scheduling platforms (Damayanto et al., 2025). Research confirms that digital platforms offering real-time updates and centralized information sharing significantly reduce administrative workloads, minimize human error, and allow staff to focus more on instructional quality (Ando et al, 2018).

In Africa, the digitization of school administration has gained through expanding internet access and institutional transformation efforts, with countries like Kenya, Ghana, and South Africa deploying locally tailored school management systems with notable success (Isaacs, 2012). Kenya's NEMIS and South Africa's SA-SAMS are prominent examples of government-backed platforms that have improved duty coordination and administrative record management at scale. Nevertheless, automated weekly duty and report management mechanisms remain underdeveloped across many African institutions, particularly in rural and peri-urban secondary schools operating under significant resource constraints (Zezeza et al, 2021).

In Uganda, secondary schools continue to depend on handwritten duty rosters, physical reporting files, WhatsApp groups, and noticeboards for weekly administrative management. UNESCO (2021) estimates that approximately 70% of Ugandan secondary schools still rely on manual record-keeping, contributing to persistent delays in report generation, data processing, and duty coordination. Most commercially available school management systems are either too expensive, technically complex, or poorly adapted to local contexts, further limiting digital adoption in under-resourced institutions (Chib et al., 2015).

Mahanga Secondary School in Tororo District, Eastern Uganda, reflects these challenges. The school operates entirely on a paper-based system where duty rosters are hand-drafted and weekly reports compiled manually, a process prone to errors, record misplacement, and unauthorized alterations. As Fullan (2016) notes, effective report management is a key driver of school improvement, enabling evidence-based decision-making. The absence of a centralized system has resulted in persistent inefficiencies in staff coordination, poor records management, and limited accountability to stakeholders. It is against this background that this study proposes the development of an online weekly duty and report management system for Mahanga Secondary School, aimed at improving the efficiency and transparency of the school's administrative operations.

1.2 Problem Statement

Mahanga Secondary School in Tororo District, Eastern Uganda, like many secondary schools in the country, continues to rely on manual, paper-based methods for managing weekly staff duties and reports. According to UNESCO (2021), approximately 70% of secondary schools in Uganda still depend on manual record-keeping systems, contributing to delays in administrative processes.

The problem is that the school relies on manual systems for duty assignment and report management, which are inefficient, time-consuming, and prone to errors. At Mahanga Secondary School, duty rosters are hand-drafted and physically distributed, making it difficult for administrators to track staff compliance, reassign duties, and retrieve historical records when needed.

The impact of this problem is poor coordination, delays in decision-making, loss of records, and reduced institutional accountability. Studies indicate that manual administrative systems can result in error rates of up to 30% in record handling and reporting processes (Abdullah et al, 2024). Additionally, the weekly reporting process is entirely manual, requiring teachers and departmental heads to prepare handwritten reports, which increases the risk of errors, record loss, and unauthorized modifications.

The gap is the absence of a centralized, automated, and reliable digital system to manage weekly duties and reports within the school. Despite the proven effectiveness of digital

Management Information Systems in improving efficiency and accuracy (Damayanto et al., 2025), such a system has not been implemented at St. Mahanga Secondary School.

The solution proposed by this study is to develop an online weekly duty and reporting management system that will automate duty assignment, streamline report submission, ensure secure data storage, and improve access to information for better decision-making and coordination.

1.3 Purpose of the Study

The purpose of this study is to develop an online weekly duty and reporting management system for Mahanga Secondary School in Tororo District, with the aim of replacing the existing manual, paper-based administrative processes with a centralized, automated, and efficient digital platform

1.4 Objectives of the study

1.4.1 Main objective

To develop an online weekly duty and reporting management system that will capture teachers and schedule teachers for different weekly duties for the entire term.

1.4.1 Specific objectives

1. To review existing literature and gather requirements to support the development of an online weekly duty and reporting management systems in secondary schools.
2. To design an online weekly duty and report management system for Mahanga Secondary School.
3. To implement the developed online weekly duty and report management system Mahanga Secondary School.
4. To test and validate the performance, usability, and effectiveness of the developed online weekly duty and report management system.

1.5 Research Questions

1. What does existing literature reveal about online weekly duty and report management systems in secondary schools?
2. What challenges exist in the current manual weekly duty and reporting management system?
3. How can the implementation of an online weekly duty and reporting management system improve operations in secondary school?
4. How effective, usable and reliable is the developed online weekly duty and reporting management system at Mahanga Secondary School?

1.6 Scope

1.6.1 Geographical scope

This study was geographically confined to Mahanga Secondary School a government-aided secondary school located in Nagongera Town Council, Tororo District, Uganda. The school was selected as the study site because it represents a typical Ugandan secondary institution that still relies on manual, paper-based methods for managing weekly duties and reports, making it an appropriate and relevant environment for the proposed system

1.6.2 Time scope

This research was conducted from November 2025-May 2026. It was done in one academic year.

1.6.3 Content scope

This study focused specifically on the development of an online weekly duty and report management system for Mahanga Secondary School, covering key functional areas including duty assignment, scheduling and tracking, weekly report creation, submission and storage, user registration and role-based access control, and staff communication and coordination. The study was limited to the administrative functions of weekly duty and report management, ensuring that the system addressed the core inefficiencies identified within the school's existing manual processes.

1.7Significance of the Study

This project will empower school administrators and staff with an efficient digital platform for managing weekly duties and reports, reducing administrative burdens and improving institutional accountability, akin to modern Management Information Systems adopted in educational institutions globally (Damayanto et al., 2025). It contributes to the digital transformation of secondary school administration, aligns with Uganda's Education Sector Digital Strategy and the National Development Plan III priorities for technology integration in public institutions, and advances the application of information systems in low-resource educational settings, fostering operational transparency, staff coordination, and institutional efficiency in line with SDG 4, which advocates for inclusive and quality education for all.

1.8Justification of the study

Mahanga Secondary School, like many secondary institutions in rural Uganda, continues to experience significant administrative inefficiencies due to its reliance on manual, paper-based systems for managing weekly duties and reports. These challenges include delayed duty assignments, inconsistent report submissions, loss of records, and poor communication among staff, all of which undermine institutional accountability and operational effectiveness.

Although various school management systems exist, most are not designed for the specific administrative contexts of rural secondary schools in Uganda. Many require expensive licensing fees, continuous high-speed internet access, or advanced technical expertise, limiting their practicality and adoption in under-resourced institutions. Existing digital solutions also lack sufficient customization to address the specific duty and report management needs of schools like Mahanga Secondary School.

This study is therefore justified by the need to develop a simple, affordable, and institution-specific online weekly duty and report management system that can automate duty scheduling, streamline report submission, and provide secure storage

and retrieval of administrative records tailored to the operational realities of the school.

If this study is not undertaken, Mahanga Secondary School is likely to continue suffering from administrative disorganization, poor record keeping, and weak institutional accountability, further straining school management and reducing the quality of staff coordination and performance monitoring. The study directly supports Uganda's education digital transformation agenda, contributes to Sustainable Development Goal 4 on quality education, and aligns with principles of effective information systems research by prioritizing usability, affordability, relevance, and real-world administrative impact.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter **reviewed** existing literature related to online duty and reporting management systems, digital administration in educational institutions, Management Information Systems (MIS), and the role of automation in improving institutional efficiency. The review **examined** studies on school administration systems, digital transformation in education, human-computer interaction, and relevant African and Ugandan digital initiatives to identify achievements, challenges, and research gaps. This **provided** a foundation for justifying the development of an Online Weekly Duty and Report Management System for Mahanga Secondary School in Tororo District.

2.2 Management Information Systems in Educational Institutions

Management Information Systems (MIS) have become an integral component of modern educational administration, enabling institutions to manage data, coordinate activities, and support decision making in a structured and systematic manner. According to Damayanto et al. (2025), the integration of information technology has revolutionized the management of educational institutions, making MIS an urgent necessity for improving the efficiency and effectiveness of school operations. Schools that adopt digital MIS solutions are better positioned to manage complex administrative tasks such as staff scheduling, report tracking, financial oversight, and student data management.

Research by Abdullah et al (2024) further establishes that weekly duty and report management serve as the backbone of modern educational institutions by ensuring operational transparency and effective communication across all levels. In traditional school settings, administrative tasks are handled manually, which leads to inefficiencies, data loss, and communication failures. The transition from paper-based systems to digital platforms enables schools to automate routine processes, reduce human error, and improve the overall quality of institutional governance.

Furthermore, Ando et al (2018) emphasize the use of automated tools and linked data to enhance the retrieval of historical records and professional milestones in

educational administration. By integrating these functions into a unified online platform, institutions can significantly reduce administrative burdens and allow staff to focus on instructional quality. The literature therefore establishes that MIS adoption is not merely a technological upgrade but a strategic transformation that drives long-term institutional improvement.

2.3 Online Duty Management Systems in Schools

The management of teacher and staff duties in educational institutions has historically been a manual and error-prone process. Duty rosters, timetables, and work schedules are often drafted by hand, distributed on paper, and tracked through informal communication channels. Studies indicate that such systems are highly susceptible to confusion, non-compliance, and the loss of administrative records (UNESCO, 2021). The emergence of online duty management systems has offered institutions a more reliable and transparent approach to organizing staff responsibilities.

Online duty management systems enable administrators to assign, schedule, and track staff responsibilities through centralized digital platforms. According to School related learning management literature, digital platforms that support duty scheduling allow institutions to monitor compliance in real time, reassign duties efficiently, and generate reports on staff performance and attendance (Schindler et al., 2017). These systems also support automated notifications, reminders, and audit trails, which are critical for maintaining accountability in school administration.

In the context of secondary schools in sub-Saharan Africa, the adoption of online duty management systems remains limited due to factors such as poor internet infrastructure, low digital literacy among staff, and the cost of commercial software solutions (Chib et al., 2015). However, studies from countries such as Kenya, Ghana, and South Africa demonstrate that institution-specific and locally tailored systems can achieve high adoption rates and improve operational efficiency even in low-resource environments (Isaacs, 2012). This suggests that context-appropriate design is critical for the successful implementation of duty management systems in schools like Mahanga Secondary School.

2.4 Digital Reporting Systems in Educational Administration

Weekly and periodic reporting is a fundamental administrative requirement in secondary schools, serving purposes of accountability, performance monitoring, staff coordination, and institutional planning. Traditionally, report compilation and submission have been conducted through paper-based processes that are time-consuming, inconsistent, and vulnerable to data loss and unauthorized alterations. Digital reporting systems have emerged as effective tools for addressing these inefficiencies by automating the creation, submission, storage, and retrieval of administrative reports.

Research by Fullan (2016) highlights that effective information management and reporting are among the key drivers of school improvement, enabling administrators and policymakers to make evidence-based decisions. Digital platforms that support structured report submission allow teachers and departmental heads to document activities in standardized formats, which facilitates comparison, analysis, and follow-up action. Furthermore, digital reports are easier to archive, search, and retrieve than paper-based records, contributing to long-term institutional memory and knowledge management.

Despite the clear advantages of digital reporting, many educational institutions in Uganda and across sub-Saharan Africa continue to rely on manual reporting systems. UNESCO (2021) notes that approximately 70% of secondary schools in Uganda still depend on manual record-keeping systems for administrative functions, contributing to significant delays in data processing, report generation, and duty coordination. This underscores the urgent need for affordable and institutionally tailored digital reporting solutions that can be adopted by schools operating under resource constraints.

2.5 School Administration Automation and Efficiency

The automation of administrative processes in educational institutions has been widely studied as a mechanism for improving efficiency, reducing operational costs, and enhancing the quality of institutional management. Automation refers to the use of technology to perform tasks that would otherwise require human effort,

including data entry, scheduling, report generation, and communication. In school contexts, administrative automation has been shown to free up significant staff time for instructional activities, improve data accuracy, and strengthen accountability structures.

Ndung'u et al (2011) document how school management automation in East Africa has improved administrative coordination and institutional performance, particularly in secondary schools that serve large student populations with limited administrative staff. Automated systems reduce redundancy, minimize the risk of human error, and provide real-time visibility into administrative operations. The use of role-based access control in such systems also ensures that sensitive data is accessible only to authorized personnel, strengthening institutional data governance.

2.6 Human-Computer Interaction and System Usability in Educational Settings

Effective interaction between users and information systems is critical to the adoption and sustained use of digital administrative tools in educational institutions. Literature on human-computer interaction (HCI) emphasizes that systems must be intuitive, accessible, and trustworthy to be embraced by non-technical users such as teachers, support staff, and school administrators (Asubiaro et al, 2021). Poorly designed interfaces that require extensive training or technical expertise are likely to be rejected by users, particularly in school environments where staff have limited time and varying levels of digital literacy.

Usability is a central concept in system design, referring to the ease with which users can learn to use a system, complete tasks efficiently, and recover from errors without frustration. Nielsen (1994) identifies five core dimensions of usability: learnability, efficiency, memorability, error prevention, and user satisfaction. These dimensions are especially relevant in the design of school management systems for rural and semi-urban institutions, where users may encounter digital administrative tools for the first time. Systems that score highly on these dimensions are more likely to be adopted and used consistently over time.

The System Usability Scale (SUS) is among the most widely used evaluation tools for assessing the usability of software systems, providing a standardized measure of user experience that can be applied across different contexts and user populations (Brooke, 1996). Research in educational technology consistently finds that systems designed with user-centred principles achieve higher adoption rates and better administrative outcomes than those developed without adequate attention to user needs and interface design. These findings are directly applicable to the development of an online weekly duty and report management system for Mahanga Secondary School.

2.7 Digital Transformation in Ugandan and African School Systems

Uganda's education sector has made deliberate efforts to integrate information and communication technology (ICT) into school administration and instruction, as reflected in the Education Sector Digital Strategy and the National Development Plan III priorities for technology integration in public institutions. Despite these policy commitments, the practical adoption of digital tools in secondary schools particularly those in rural and peri-urban areas remains uneven, largely due to infrastructure limitations, financial constraints, and capacity gaps among school administrators and teachers.

Across sub-Saharan Africa, several digital school management initiatives have demonstrated the feasibility and impact of technology-driven administrative reform. In Kenya, the National Education Management Information System (NEMIS) has enabled the digital tracking of student enrolment, teacher deployment, and school performance data at the national level (Kenya Ministry of Education, 2019). In South Africa, the South African School Administration and Management System (SA-SAMS) has provided schools with a free, government-supported digital platform for managing learner records and administrative reports (DBE South Africa, 2020). These examples illustrate how government and institution-level commitment to digital transformation can accelerate the adoption of school management systems.

In Uganda specifically, initiatives at Makerere University and other academic institutions have demonstrated the growing capacity for locally designed digital

solutions that address specific institutional contexts (Makerere University, 2024). However, most digital school management tools available in Uganda are either imported commercial products that are expensive and not locally contextualized, or generic open-source platforms that require significant technical customization. There remains a clear need for affordable, institution-specific systems designed to meet the administrative realities of Ugandan secondary schools.

2.8 Research Gaps of the study

- Absence of a centralized digital system for weekly duty and report management in rural schools like Mahanga SS.
- Lack of an automated duty assignment and tracking mechanism at Mahanga Secondary School.
- Absence of a secure, structured digital reporting system to reduce administrative errors and record loss.
- High cost and technical complexity of most commercial school management systems limit adoption in under-resourced institutions.

2.9 Relevance of the Literature to the Current Study

The proposed Online Weekly Duty and Report Management System for Mahanga Secondary School seek to address these gaps by providing an integrated digital platform for duty assignment, scheduling, tracking, and weekly report creation, submission, and storage. By incorporating principles of usability, role-based access control, and context-appropriate design, the system aims to deliver a practical and sustainable administrative solution that improves coordination among school staff, enhances institutional accountability, and supports Uganda's broader digital transformation agenda in the education sector.

The literature also supports the methodological approach adopted in this study, including the emphasis on system usability testing, user-centred design, and evaluation against defined performance benchmarks. Collectively, the reviewed studies provide a strong theoretical and empirical foundation for the development and implementation of the proposed system.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter outlined the methodology adopted for the development of the Online Weekly Duty and Reporting Management System for Mahanga Secondary School in Tororo District. It described the research design, study area, study population, sampling techniques, data collection methods, data analysis procedures, data quality control measures, materials and tools, ethical considerations, and the system design and implementation approach. The methodology was guided by the principles of design and implementation research, ensuring that the system developed was practical, usable, and directly responsive to the administrative needs of the school.

3.2 Research Design

This study employed a mixed-methods, design-and-implementation research methodology. The design-and-implementation approach was appropriate because the study involved the development, testing, and evaluation of an Online Weekly Duty and Reporting Management System, a functional software artifact intended to solve a real-world administrative problem at Mahanga Secondary School.

The project followed the Rapid Application Development (RAD) methodology due to its iterative and user-centred nature. RAD was particularly suitable for this study because it allowed for rapid prototyping, continuous user feedback, and incremental improvements throughout the development process, ensuring that the final system aligned closely with the practical needs of school administrators, teachers, and support staff. Both qualitative and quantitative methods were used to assess system usability, functionality, and user satisfaction.

The RAD methodology was implemented through four phases: (i) Requirements Planning, during which stakeholder needs and system specifications were defined; (ii) User Design, involving prototyping and iterative feedback from end-users; (iii) Construction, where the system was built and refined; and (iv) Cutover, which covered system testing, deployment, and evaluation at the school.

3.3 Study Area

The study was carried out at Mahanga Secondary School, a government-aided secondary school located in Nagongera Town Council, Tororo District, in the Eastern Region of Uganda. The school was selected as the study site because it was a representative Ugandan secondary institution that continued to rely on manual, paper-based systems for managing weekly duties and reports, making it an appropriate and relevant environment for the proposed system.

Tororo District was a predominantly rural district in Eastern Uganda, characterized by limited access to advanced digital infrastructure and varying levels of ICT literacy among school staff. The school served a significant student population and employed a range of teaching and non-teaching staff, whose duty coordination and weekly reporting activities constituted the focus of this study. The institutional context of Mahanga Secondary School therefore provided a realistic and challenging environment in which to develop, implement, and evaluate the proposed online administrative system.

3.4 Study Population

The target population for this study comprised all staff members at Mahanga Secondary School who were directly involved in the assignment, management, and reporting of weekly duties. This included the school's administrative personnel, such as the Headteacher and Deputy Headteacher, all classroom and subject teachers, the Director of Studies, and support staff who were assigned weekly duties and were required to submit periodic reports.

The study population also included ICT officers or technical staff responsible for system administration, where applicable. The estimated total population of staff at the school was approximately 20–40 individuals, including teaching and non-teaching staff. This population was considered manageable for the purpose of system design, user testing, and evaluation within the scope and time frame of this study.

3.5 Sampling Techniques

I carried out purposive sampling during the requirements gathering and user design phases to select key informants, including the Headteacher, Deputy Headteacher, Director of Studies, and senior teachers, whose roles involved direct responsibility for duty assignment and report

management. These individuals provided expert input during system requirements analysis and prototype evaluation.

I also used convenience sampling to identify additional end-users for system testing and usability evaluation, targeting a minimum of 30 staff members who interacted with the developed system during the pilot implementation phase. This sample size was considered sufficient to generate meaningful feedback on system performance, usability, and effectiveness within the institutional context.

3.6 Data Collection Methods

Both primary and secondary data were collected to support the development of the Online Weekly Duty and Report Management System.

Primary Data: Primary data were collected through structured interviews, questionnaires, and observation. Structured interviews were conducted with key administrative personnel, including the Headteacher, Deputy Headteacher, and Director of Studies, to gather detailed information on the current manual duty and reporting management processes, existing challenges, and user requirements for the proposed system. Questionnaires were administered to teaching and non-teaching staff to capture their experiences with the existing system and their expectations for the new digital platform. Observation of current administrative workflows was also conducted to document the actual procedures used for duty assignment, tracking, and report submission.

Secondary Data: Secondary data were sourced from existing academic literature, institutional records, and relevant policy documents. Published studies on school management information systems, digital administrative tools, and system usability evaluation were reviewed to inform the system design and development process. Institutional records, including existing duty rosters, report templates, and administrative circulars, were examined to ensure that the developed system accurately reflected the school's existing administrative workflows and reporting requirements.

3.7 Data Analysis

Data collected during this study was analysed using both quantitative and qualitative approaches, consistent with the mixed-methods research design adopted.

Quantitative Analysis: Quantitative data from questionnaires and system usability evaluations were analysed using descriptive statistics, including frequencies, percentages, means, and standard deviations. The System Usability Scale (SUS) was applied to evaluate user satisfaction and system usability, providing a standardized numerical measure of user experience. System performance metrics, including response time, error rates, and task completion rates, were also computed and analysed to assess the functional performance of the developed system.

Qualitative Analysis: Qualitative data from interviews and open-ended questionnaire responses were analysed using thematic analysis. Responses were coded, categorized into themes, and interpreted to identify patterns, user needs, and areas for system improvement. Findings from the qualitative analysis complemented the quantitative results to provide a comprehensive understanding of the system's usability, effectiveness, and impact on administrative efficiency at Mahanga Secondary School.

3.8 Data Quality Control

To ensure the accuracy, reliability, and validity of data collected and generated during this study, several quality control measures were implemented throughout the research process.

Research instruments, including interview guides and questionnaires, were reviewed by the project supervisors and pre-tested with a small group of staff members to identify and correct ambiguities before formal data collection. Data collected were carefully reviewed, cleaned, and verified to eliminate inconsistencies, incomplete responses, and entry errors prior to analysis.

The developed system underwent multiple rounds of functional testing, including unit testing, integration testing, and user acceptance testing, to verify the accuracy and correctness of system outputs. Expert reviews were conducted by the project supervisors and selected IT professionals to assess the technical quality and reliability of the system. User feedback collected during pilot testing was systematically documented and incorporated into system refinements to ensure that the final product met the usability and functional standards defined in the study objectives.

3.9 Materials and Tools

This study utilized the following materials and tools to support the successful design, development, implementation, and evaluation of the Online Weekly Duty and Report Management System, in line with the stated study objectives.

Software Tools: The PHP programming language was used for backend system development, supporting server-side logic, duty assignment, report submission workflows, and role-based access control. HTML, CSS, and JavaScript were used for frontend interface design, ensuring a user-friendly and responsive web-based system accessible from standard browsers. MySQL was used as the relational database management system for secure storage and efficient retrieval of duty records, report data, and user information. Visual Studio Code served as the primary integrated development environment (IDE). XAMPP or a similar local server environment was used for development and initial testing.

Hardware: Laptop computers and desktop machines were used for system development, testing, and deployment. Smartphones and tablets were used to verify the responsiveness and cross-device compatibility of the system interface. These tools supported the implementation and evaluation objectives of the study.

Evaluation Tools: The System Usability Scale (SUS) questionnaire was used to measure and quantify user satisfaction and the usability of the developed system. Structured performance test scenarios were designed to evaluate system response time, functionality, and error handling under realistic usage conditions.

Internet Resources: Online academic journals, software documentation, open-source libraries, and institutional policy documents supported literature review, system development, and evaluation activities across all study objectives.

These materials and tools were affordable, accessible, and appropriate for the study environment and were sufficient to enable the successful achievement of all research objectives within the defined time frame and budget.

3.10 Ethical Considerations

This study was conducted in accordance with established ethical principles to protect the rights, privacy, and well-being of all participants and to ensure the integrity of the research process.

Informed consent was obtained from all study participants prior to data collection. Participants were clearly informed about the purpose of the study, the voluntary nature of their participation, their right to withdraw at any time without consequence, and how the data collected would be used. All participation was entirely voluntary.

Confidentiality and data privacy were strictly maintained throughout the study. Personal information collected from participants was anonymized where possible, and data were stored securely, with access restricted to the research team. The study complied with applicable data protection principles consistent with Uganda's institutional research ethics guidelines.

The developed system incorporated appropriate security features, including password protection and role-based access control, to prevent unauthorized access to institutional administrative records. All institutional records and documents reviewed during the study were treated with confidentiality and were used exclusively for the purposes of this research. Findings were reported objectively, without misrepresentation or fabrication of data.

3.11 System Design and Implementation

The Online Weekly Duty and Report Management System was designed and implemented as a web-based application, accessible via standard internet browsers, to ensure compatibility with the existing technology infrastructure at Mahanga Secondary School.

3.11.1 System Architecture

- **Frontend:** HTML5, CSS3, and JavaScript were used to develop a clean, intuitive, and responsive user interface accessible on desktop and mobile browsers.
- **Backend:** PHP (with a Laravel or core PHP framework) was used to handle server-side processing, business logic, duty scheduling, report workflows, and user authentication.
- **Database:** MySQL was used to store and manage all system data, including user profiles, duty records, report submissions, and activity logs.
- **Hosting:** The system was hosted on a local school server or a cloud-based hosting platform to ensure accessibility within the school network.

3.11.2 Key System Features

Functional Requirements

- **User Registration and Role-Based Access Control:** The system supported differentiated user roles, including Administrator, Headteacher, Director of Studies, Teacher, and Support Staff, each with defined access privileges.
- **Duty Assignment and Scheduling:** Administrators and the Director of Studies were able to create, assign, and schedule weekly duties for staff, with automated notifications and reminders.
- **Duty Tracking and Monitoring:** The system provided real-time tracking of duty compliance, allowing administrators to monitor which duties had been completed, were pending, or had been missed.
- **Weekly Report Creation and Submission:** Teachers and the Director of Studies submitted weekly activity reports through standardized digital forms, with structured templates to ensure consistency.
- **Report Storage and Retrieval:** All submitted reports and duty records were stored in a secure, searchable database, enabling authorized users to retrieve historical records at any time.
- **Communication and Notifications:** The system included an in-system notification module to alert staff of upcoming duties, report submission deadlines, and administrative announcements.

Non functional Requirements

Performance: The system delivered acceptable response times and handled task completion efficiently under realistic usage conditions.

Usability: The system was learnable, efficient, memorable, error-preventive, and satisfying to users. It was intuitive enough for school staff with limited digital literacy and required minimal training to operate.

Accessibility: The system was accessible via standard web browsers.

Security: The system enforced password protection and role-based access control to prevent unauthorized access to administrative records.

Reliability: The system minimized errors in record handling and reporting.

Maintainability: Built using PHP, HTML/CSS, JavaScript, and MySQL, the system was technically maintainable by staff with basic ICT skills.

Affordability and Context-Appropriateness: The system was simple, low-cost, and deployable in a low-resource school environment. It functioned within the limited internet infrastructure typical of rural Uganda, avoiding dependency on continuous high-speed connectivity.

Scalability: The system was capable of handling the school's full staff population, estimated at 20–40 users, and accommodated a full academic term's worth of duty schedules and weekly reports without degradation in performance.

Compliance: The system aligned with Uganda's data protection principles, institutional research ethics guidelines, and the school's existing administrative workflows and reporting requirements.

3.11.3 Implementation Phases

The system was implemented in four phased stages aligned with the RAD methodology:

Activity	Duration	Durability	Phase
Requirements Planning: Stakeholder interviews, needs	November 2025 to December 2025	Requirements document and system design plan	Phase 1

assessment, system specifications			
User Design: Prototype development, user interface design, iterative feedback sessions with staff	January 2026 to February 2026	Approved system prototype and UI designs	Phase 2
Construction: Full system development, database setup, feature integration, and internal testing	March 2026 to April 2026	Fully functional system ready for deployment	Phase 3
Cutover: System deployment, staff training, pilot testing, usability evaluation, and final refinements	May 2026 to June 2026	Deployed system, evaluation report, and final documentation	Phase 4
Report submission		July 2026	

3.11.4 Security and Sustainability

The system incorporated security measures, including encrypted passwords, session management, and role-based access control, to protect institutional data. Regular data backups were scheduled to prevent data loss. To ensure long-term sustainability, the system was designed using open-source technologies to minimize licensing costs, and comprehensive user documentation and training materials were provided to support ongoing use by school staff without extensive technical expertise.

CHAPTER FOUR

FIELD STUDY RESULTS AND SYSTEM DESIGN

4.1 Introduction

This chapter presented the findings obtained from the study of the existing weekly duty and reporting management practices at Mahanga Secondary School. The chapter described the current system, its strengths and weaknesses, and the requirements identified from the field study. The findings were used to guide the design of the proposed Online Weekly Duty and Reporting Management System.

The chapter further presented the functional and non-functional requirements of the proposed system, hardware and software requirements, system architecture, context diagram, data flow diagrams, use-case diagram, and entity relationship diagram. These design components provided a clear representation of how the proposed system would operate and how users would interact with it.

The design approach followed the requirements identified during the requirements planning and user design phases of the Rapid Application Development methodology. The proposed system was intended to replace the school's manual processes with a centralized digital platform for duty assignment, tracking, weekly report submission, and record management. The proposed system features identified in Chapter Three included role-based access, duty scheduling, duty tracking, digital report submission, secure storage, and notifications.

4.2 Current System Study

A study was conducted at Mahanga Secondary School to understand how weekly staff duties and reports were currently managed. The school mainly relied on manual, paper-based procedures for assigning duties, communicating responsibilities, and preparing weekly reports.

Under the existing system, weekly duties were prepared and assigned manually by the responsible school administrators. Duty information was communicated through written notices, verbal communication, or other informal channels. Teachers and other staff

members were expected to perform their assigned duties and provide reports regarding the activities carried out during the week.

Weekly reports were also prepared manually. Teachers and departmental heads prepared reports using written formats and submitted them to the responsible administrators. The reports were then collected, reviewed, and stored physically.

Although the current system provided a familiar method of managing school duties, it made it difficult to efficiently track duty completion, retrieve previous reports, and monitor staff compliance. The study identified these challenges as part of the justification for introducing a centralized online system.

4.3 Strengths of the Current System

Despite its limitations, the existing manual system has several strengths.

4.3.1 Familiarity

Most staff members were already familiar with the paper-based method. They did not require extensive technical training to prepare or submit reports.

4.3.2 Low Initial Cost

The current system did not require specialized software or expensive computer infrastructure. Staff could prepare duty records and reports using existing stationery.

4.3.3 Direct Communication

The manual system allowed administrators and staff to communicate directly concerning duties and reports. This could make it easier to clarify responsibilities when necessary.

4.3.4 Simple Administrative Procedures

The existing procedures were relatively simple because duties and reports did not pass through complex technological processes.

However, these strengths were outweighed by challenges associated with record storage, tracking, reporting delays, and accountability. The proposed system therefore sought to retain the simplicity of the existing workflow while improving its efficiency through digitalization.

4.4 Weaknesses of the Current System

The field study identified several weaknesses in the existing manual system.

4.4.1 Time Consumption

Preparing, distributing, collecting, and reviewing paper-based duty records and reports required considerable administrative time.

4.4.2 Difficulty in Tracking Duties

Administrators could find it difficult to determine whether a particular staff member had completed an assigned duty, especially when several staff members had different responsibilities during the same week.

4.4.3 Delayed Reporting

The manual reporting process could result in delays because staff had to prepare physical reports and submit them to the responsible administrator.

4.4.4 Loss and Damage of Records

Physical records could be misplaced, damaged, or destroyed. This made retrieval of historical duty and reporting information difficult.

4.4.5 Lack of Centralized Information

Duty assignments and reports were not stored in a single digital location. This made it difficult for authorized administrators to obtain a complete overview of staff duties and reporting activities.

4.4.6 Limited Accountability

The manual process provided limited automated evidence showing when a duty was assigned, completed, or reported. This could make monitoring staff compliance difficult.

4.4.7 Inconsistent Report Formats

Where reports were prepared manually, differences in formatting and the information provided could make report consolidation difficult. The questionnaire developed for the study specifically identified inconsistent report formats, delayed reporting, and limited accountability as challenges of the current system.

4.4.8 Limited Access to Historical Records

Retrieving previous weekly reports and duty records required searching through physical files, which could be time-consuming and inconvenient.

These weaknesses demonstrated the need for a centralized system capable of assigning duties, tracking completion, managing reports, and securely storing administrative information.

4.5 System Analysis Findings / Field Study Results

The system analysis findings were obtained from the requirements-gathering activities described in Chapter Three, including interviews, questionnaires, observation, and document review. These activities **focused** on understanding the current duty assignment process, weekly reporting procedures, challenges encountered by staff, and the features expected from the proposed system.

The study identified the need for a system that provided automated duty assignment, digital reminders, standardized reporting templates, real-time progress tracking, and summary dashboards. These desired features were reflected in the questionnaire prepared for the study.

4.5.1 Functional Requirements

Functional requirements describe the services and operations that the proposed system must provide to its users.

Administrator Functional Requirements

The administrator should be able to:

- Register and manage system users.
- Create and manage user accounts.
- Assign roles to users.
- Create weekly duties.
- Assign duties to teachers and support staff.
- Reassign duties where necessary.

- Set duty dates and deadlines.
- Monitor duty completion.
- View submitted weekly reports.
- Monitor delayed or missing reports.
- View system notifications.
- Generate duty and reporting summaries.
- Manage announcements.
- Retrieve historical duty and report records.

Headteacher Functional Requirements

The headteacher should be able to:

- Log into the system securely.
- View staff duty assignments.
- Monitor weekly duty compliance.
- View submitted reports.
- Review staff reporting activities.
- Access summary dashboards.
- Monitor overall administrative performance.
- Provide feedback where necessary.

Director of Studies / Deputy Headteacher Functional Requirements

The Director of Studies or Deputy Headteacher should be able to:

- Log into the system.
- View assigned staff duties.
- Monitor duty completion.
- Review weekly reports.

- Approve or comment on submitted reports where applicable.
- Track delayed or missing submissions.
- Communicate administrative information to staff.

Teacher Functional Requirements

Teachers should be able to:

- Register or access their assigned account.
- Log into the system.
- View their assigned weekly duties.
- View duty dates and deadlines.
- Update duty completion status.
- Submit weekly reports using standardized forms.
- Upload relevant supporting information where required.
- View report submission status.
- Receive duty and reporting notifications.
- View feedback from administrators.
- Access their previous reports.

The proposed roles and their functions are consistent with the requirements in the project proposal, which identifies Administrator, Headteacher, Director of Studies and teacher.

System Functional Requirements

The system should also provide:

- User authentication.
- Role-based access control.
- Duty assignment and scheduling.
- Duty tracking.
- Weekly report creation.

- Report submission.
- Report storage and retrieval.
- Notifications and reminders.
- Dashboard and summary reports.
- Search and retrieval of historical records.
- Secure database management.

4.5.2 Non-Functional Requirements

4.6 Hardware and Software Requirements

The non-functional requirements defined the qualities that the system **possessed**.

Usability

The system had a simple and user-friendly interface that could be used by staff with different levels of computer literacy. This was particularly important because the study **recognized** varying levels of digital literacy among staff.

Performance

The system processed requests efficiently and displayed duty and reporting information within an acceptable response time.

Security

The system protected user accounts and institutional records through password authentication and role-based access control.

Reliability

The system provided consistent results and minimized errors in duty assignment, reporting, and record management.

Accessibility

The system was accessible using standard web browsers on computers and mobile devices.

Maintainability

The system was developed using commonly available technologies that could be maintained by personnel with appropriate ICT skills.

Scalability

The system was capable of supporting the school's staff population and storing duty and reporting information throughout an academic term.

Affordability

The system used affordable and open-source technologies appropriate for a resource-constrained school environment.

Context Appropriateness

The system accommodated the operational realities of Mahanga Secondary School, including limitations in internet connectivity and varying levels of digital literacy.

These requirements corresponded closely with the proposal's stated requirements for performance, usability, accessibility, security, reliability, maintainability, affordability, and scalability.

4.6.1 Hardware Requirements

The proposed system required the following hardware:

Hardware	Recommended Requirement	Purpose
Computer/Laptop	At least 4 GB RAM	System administration and development
Storage	At least 100 GB	Database and report storage
Smartphone/Tablet	Android or equivalent	Mobile access and testing
Internet Router	Internet-enabled	Network connectivity
Server Computer	Suitable local/cloud server	Hosting the system
UPS	Recommended	Power backup

A stable internet connection was particularly important because the proposed application was web-based. The proposal identified internet availability as an implementation consideration for the school.

4.6.2 Software Requirements

The proposed system uses:

- PHP – backend and server-side programming.
- MySQL – database management.
- HTML5 – webpage structure.
- CSS3 – interface styling.
- JavaScript – client-side interaction.
- XAMPP – local server environment.
- Visual Studio Code – development environment.
- Web browsers – system access.

The technology selection follows the software tools specified in Chapter Three of the project proposal.

4.6 System Design

System design was the process of transforming the identified requirements into a structured representation of the proposed system. The design provided the foundation for implementation by defining the system architecture, users, processes, data flows, and database relationships.

The reference Final Year Project Management System followed a similar approach by presenting system architecture, context diagrams, DFDs, use-case diagrams, and ERDs as the major design artifacts.

4.7.1 System Architecture

The Online Weekly Duty and Reporting Management System was use a three-layer architecture consisting of the presentation layer, application layer and database layer.

Presentation Layer

This layer provided the user interface. It was developed using HTML, CSS, and JavaScript. Users interacted with the system through dashboards, forms, tables, and notifications.

Application Layer

The application layer was implemented using PHP. It processed user requests, authenticated users, applied business rules, managed duties, processed reports, and communicated with the database.

Database Layer

MySQL formed the database layer. It stored user information, duties, assignments, reports, notifications, and other system records.

4.7.2 Context Diagram

The context diagram provides a high-level view of the Online Weekly Duty and Reporting Management System. The system is represented as a single process interacting with external users.

The main external entities are:

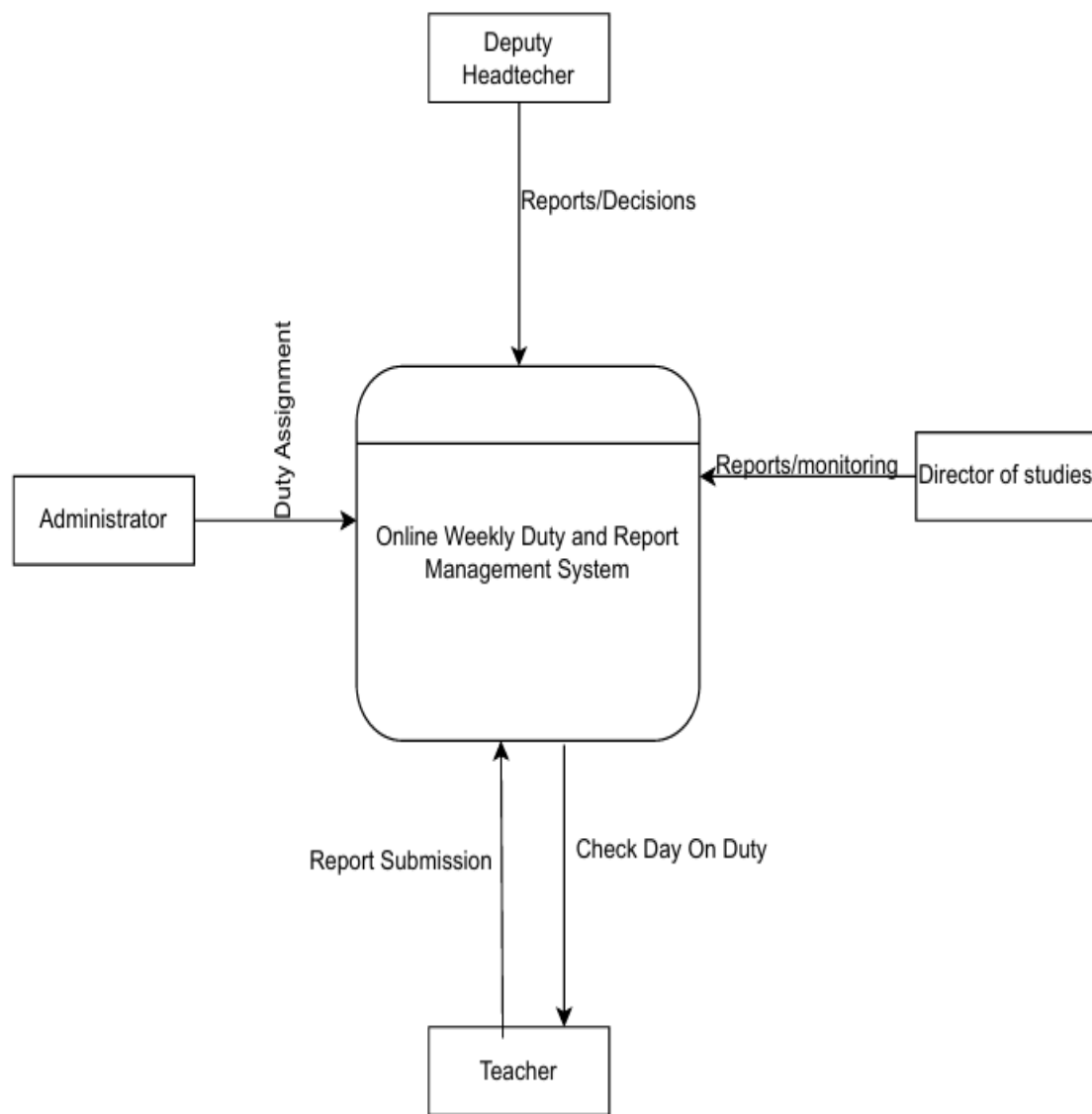
- Administrator
- Headteacher
- Director of Studies / Deputy Headteacher
- Teacher

The Administrator provides user information, creates duties, assigns staff and manages system activities.

The Teacher and Support Staff receive duty assignments, submit duty completion information and submit weekly reports.

The Headteacher and Director of Studies/Deputy Headteacher monitor duties, review reports and access administrative summaries.

Figure 2: Context Diagram of the Online Weekly Duty and Reporting Management System



4.7.3 Data Flow Diagrams (DFD)

The Data Flow Diagram illustrates how information moves between users, system processes and the database.

Level 0 DFD

At Level 0, the Online Weekly Duty and Reporting Management System is represented as one central process.

Users provide information such as:

- User registration information
- Duty information
- Duty completion information
- Weekly reports
- Feedback

The system processes this information and stores it in the database. It then returns relevant information such as duty assignments, report status, notifications and administrative summaries.

Figure 3: Level 0 Data Flow Diagram

Level 1 DFD

The Level 1 DFD decomposes the main system into major processes.

Process 1.1: Authentication

This process verifies user credentials before granting access. The system checks the username/email and password against stored user records. Authorized users are directed to their appropriate dashboards according to their roles.

Process 1.2: User Management

This process allows administrators to register, update and manage system users and assign appropriate roles.

Process 1.3: Duty Management

Administrators create and assign weekly duties. The system stores the duty details and makes them available to the assigned staff members.

Process 1.4: Duty Tracking

Staff members update their duty status after completing assigned responsibilities. Administrators can view completed, pending or missed duties.

Process 1.5: Report Management

Teachers and other authorized staff complete standardized weekly report forms and submit them through the system. Submitted reports are stored in the database.

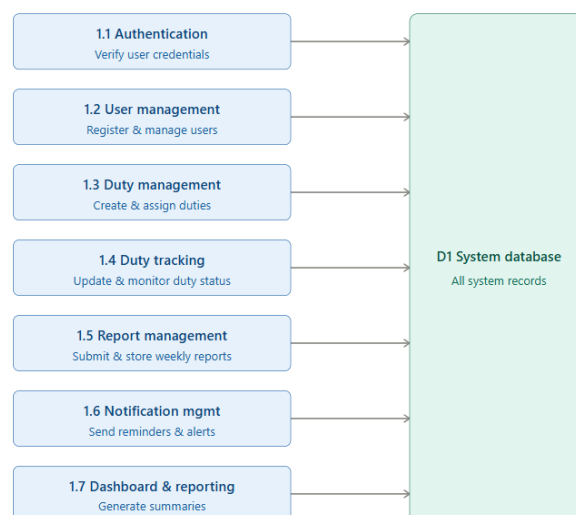
Process 1.6: Notification Management

The system generates reminders concerning upcoming duties, pending reports and administrative announcements.

Process 1.7: Dashboard and Reporting

The system processes stored information and presents summaries of duty compliance and report submission activities to authorized administrators.

Figure 4: Level 0 and Level 1 Data Flow Diagrams



4.7.4 Use-Case Diagram

A use-case diagram represents the interaction between system users and the system's major functions.

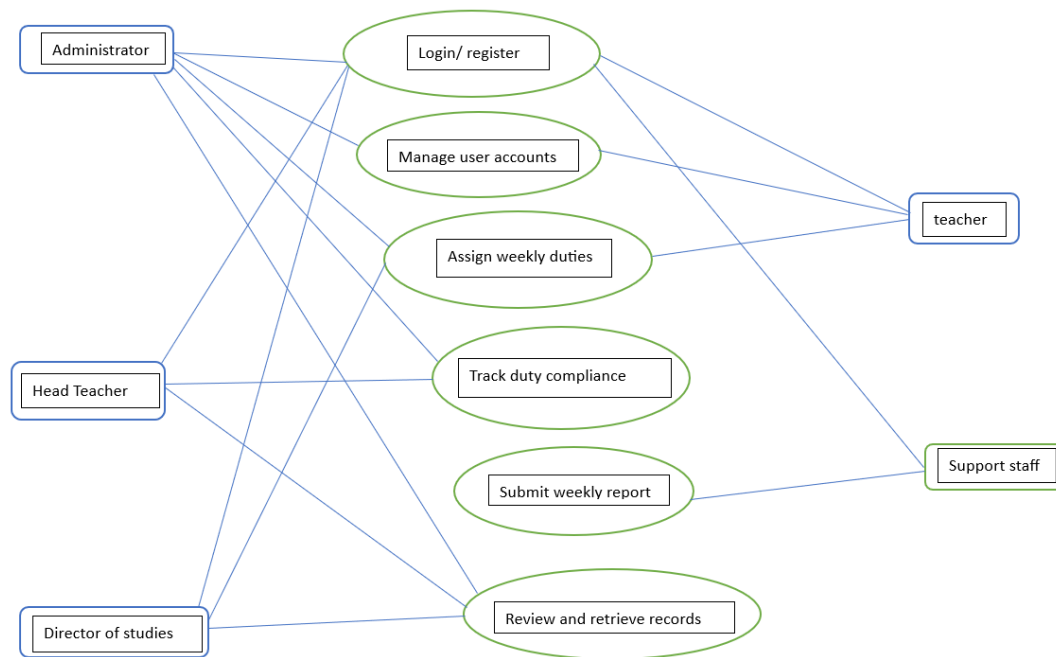
The main actors are:

- Administrator
- Headteacher
- Director of Studies/Deputy Headteacher
- Teacher
- Support Staff

Major use cases include:

- Login
- Manage Users
- Assign Duties
- View Duties
- Update Duty Status
- Submit Weekly Reports
- View Reports
- Review Reports
- Receive Notifications
- Monitor Compliance
- Generate Reports
- Manage Announcements

Figure 5: Use-Case Diagram for the Online Weekly Duty and Reporting Management System



4.7.5 Entity Relationship Diagram

The Entity Relationship Diagram represents the logical structure of the database. The proposed system will contain entities necessary for managing users, duties and reports.

The major entities include:

1. Users
2. Roles
3. Duties
4. Duty Assignments
5. Weekly Reports
6. Notifications
7. Feedback
8. Announcements

Users

Stored information such as user ID, name, email, password, and role.

Roles

Stored the different roles available in the system.

Duties

Stored information about available duties, duty descriptions, dates, and deadlines.

Duty Assignments

Linked staff members to their assigned duties and stored completion status.

Weekly Reports

Stored reports submitted by staff, including report dates, content, and submission status.

Notifications

Stored notifications and reminders sent to users.

Feedback

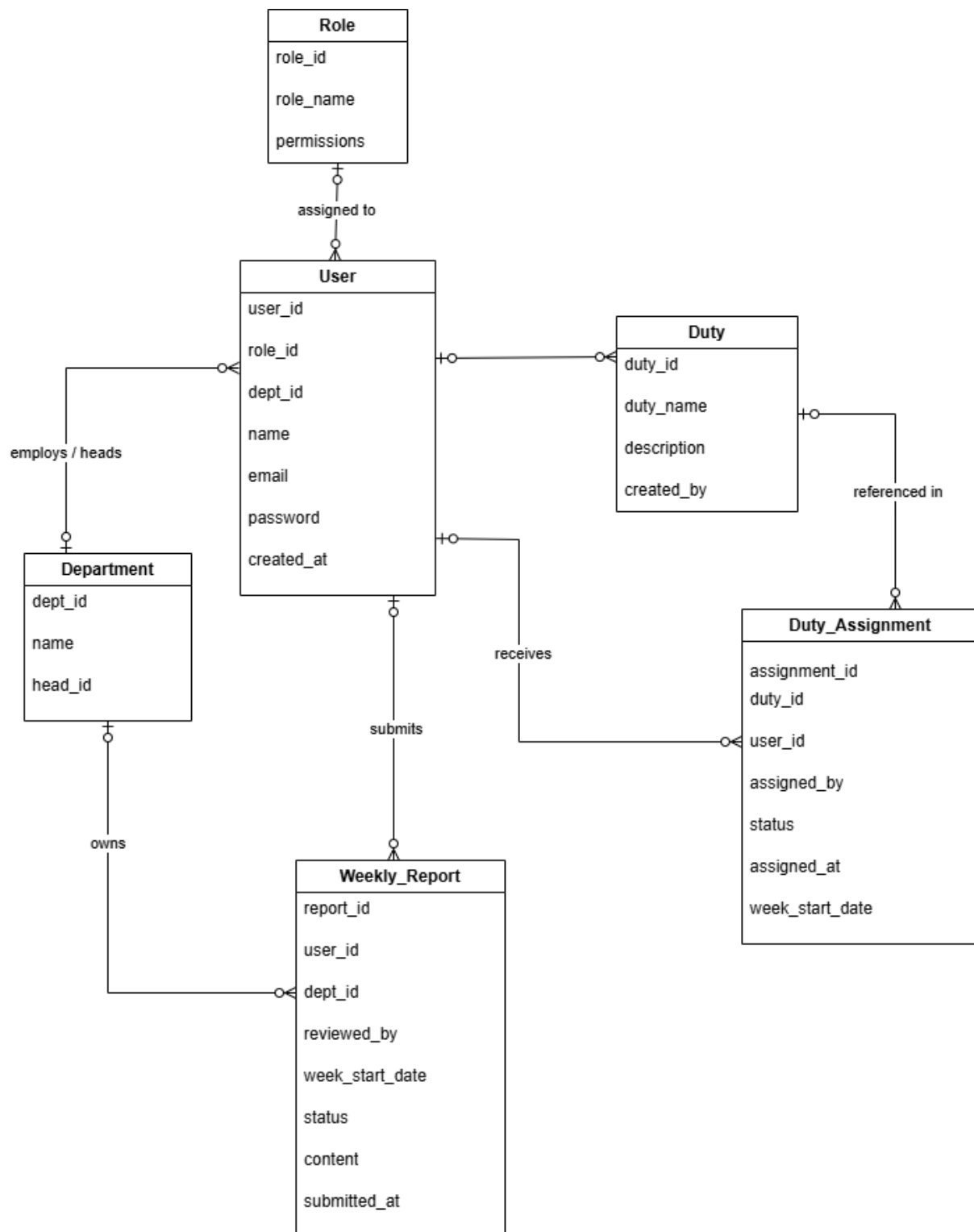
Stored comments or feedback provided by authorized administrators.

Announcements

Stored administrative announcements communicated to staff.

Figure 6: Entity Relationship Diagram of the Online Weekly Duty and Reporting Management System

The ERD represents entities, attributes and relationships supporting system operations.



CHAPTER FIVE

SYSTEM IMPLEMENTATION, TESTING, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the implementation and testing of the Online Weekly Duty and Report Management System designed in Chapter Four, in line with the Construction and Cutover phases of the RAD methodology adopted for this study. It described how the system's modules were built, the testing strategies used to verify functionality and usability, the anticipated results and their discussion, the limitations encountered, and the conclusions and recommendations arising from the study.

5.2 System Implementation

The system was implemented as a web-based application using PHP for server-side logic, MySQL for data storage, and HTML5, CSS3, and JavaScript for the user interface, consistent with the tools identified in Chapter Three. Development proceeded module by module, following the Construction phase of the RAD methodology, with each module being built, internally tested, and refined before integration with the rest of the system.

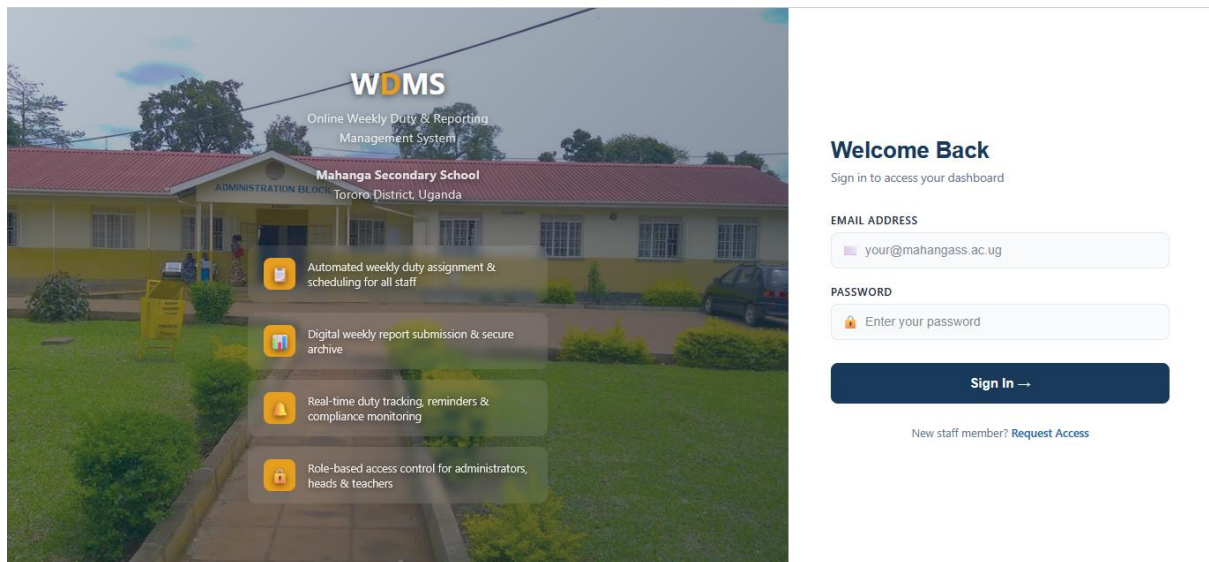
5.3 Frontend Implementation

The frontend of the Online Weekly Duty and Reporting Management System provided an interactive and user-friendly interface that enabled users (teachers, Headteacher, Director of Studies, Deputy Headteacher, and Administrator) to interact with the system. It was responsible for rendering dynamic content, handling user interactions, and communicating with backend services through REST APIs. The design focused on usability, responsiveness, and clarity to support weekly workflows.

5.3.1 Authentication System (Login, Sign Up, and Onboarding)

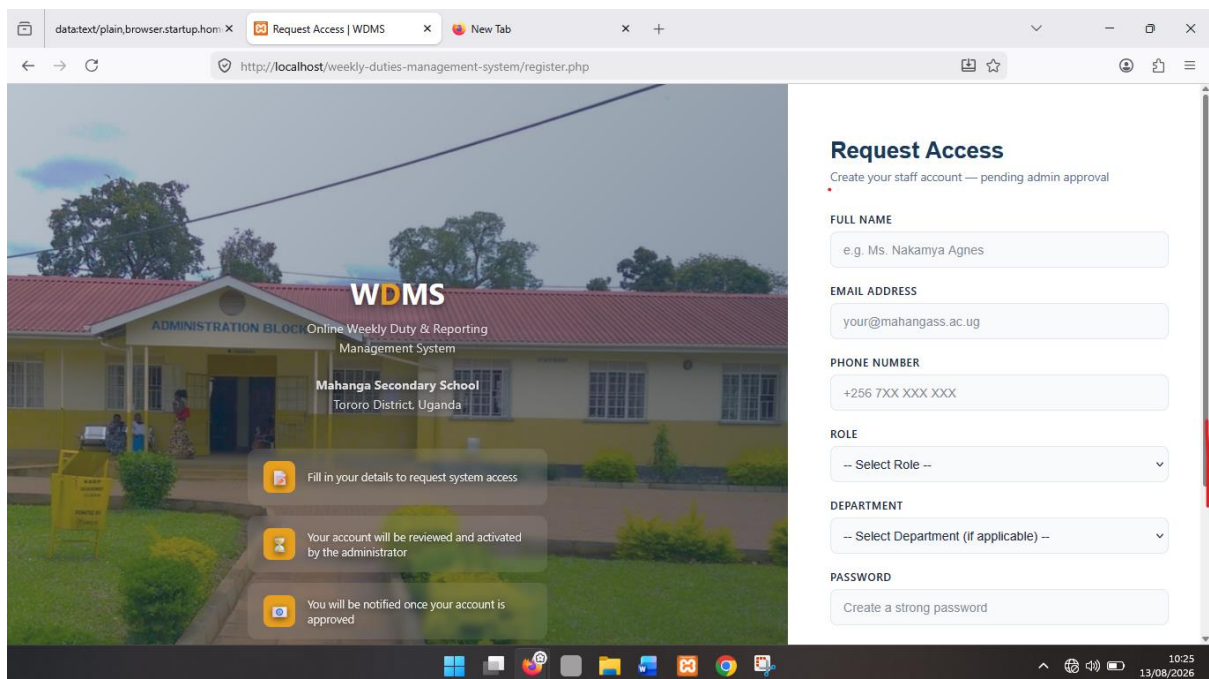
5.3.1.1 Login

The login provided the entry point to the system. Users entered their registered username/email and password, which were verified by the Authentication process (1.1) against stored credentials. On successful login, users were redirected to the dashboard corresponding to their role (Administrator, Headteacher, Director of Studies, and Teacher).



5.3.1.2 Signup

Allows new staff accounts to be created and linked to a role in the system. Captures basic user details (name, email, password, role) which are stored via the User Management process (1.2). Depending on the school's access policy, this may be self-service registration or administrator-issued accounts.



WDMS
ADMINISTRATION BLOCK Online Weekly Duty & Reporting Management System
Mahanga Secondary School
Tororo District, Uganda

Fill in your details to request system access

Your account will be reviewed and activated by the administrator

You will be notified once your account is approved

EMAIL ADDRESS
your@mahangass.ac.ug

PHONE NUMBER
+256 7XX XXX XXX

ROLE
-- Select Role --

DEPARTMENT
-- Select Department (if applicable) --

PASSWORD
Create a strong password

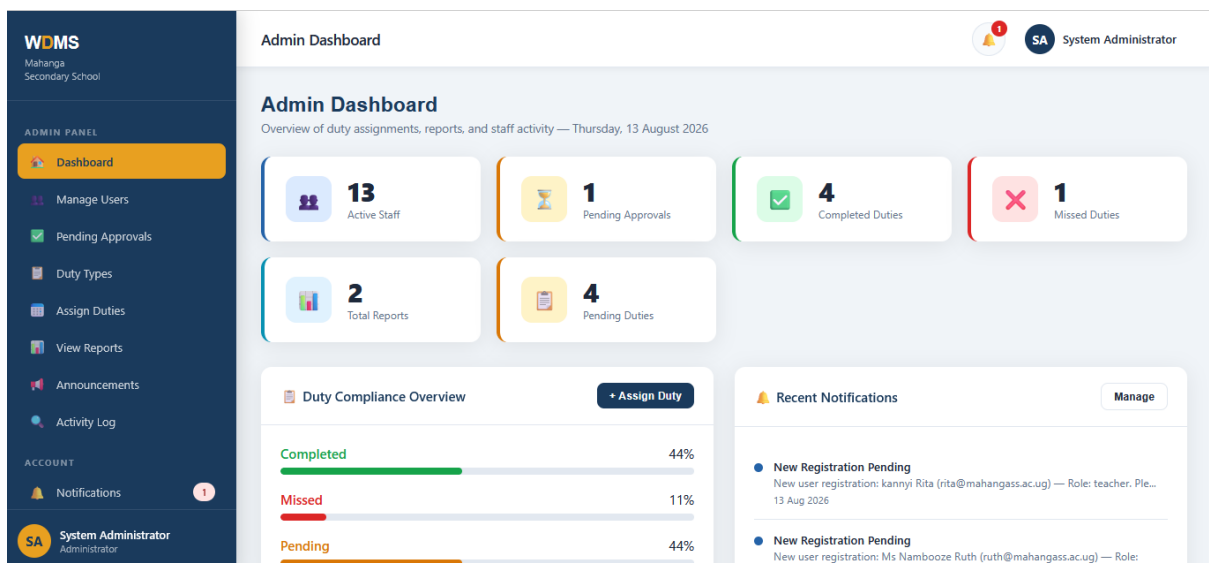
CONFIRM PASSWORD
Repeat your password

Submit Registration

Already have an account? [Sign In](#)

5.3.1.3 Admin Dashboard implementation

The Administrator's landing page after login. Gives a summary view of duty assignments, pending and completed duties, and recent report submissions, acting as the entry point for the Duty Management (1.3), Duty Tracking (1.4), and Dashboard and Reporting (1.7) processes.



User management

Implementation Modules

- **User Management Module: Handled** registration, authentication, and role-based access control for Administrator, Headteacher, Director of Studies, Teacher, and Support Staff accounts.
- **Duty Management Module:** Allowed administrators to create, assign, reassign, and track weekly duties, drawing on the Duties table defined in Chapter Four.
- **Report Management Module:** Provided standardized digital forms for teachers and departmental heads to create, submit, and store weekly reports.
- **Notification Module:** Generated automated reminders for upcoming duties and pending report deadlines and displayed administrative announcements.
- **Dashboard and Reporting Module:** Presented role-specific summaries of duty compliance and report submission rates for administrators and the Headteacher.

5.2.2 Development Environment

Development took place in Visual Studio Code using XAMPP as the local server environment, allowing the PHP application and MySQL database to be built and tested locally before deployment. Version control practices were used to track incremental changes to the codebase across the Construction phase, and the code was organized into clearly separated presentation, logic, and data layers to support the maintainability requirement established in Chapter Three.

5.3 System Testing

Testing was conducted in stages to verify that the system met the functional and non-functional requirements defined in Chapter Four and to satisfy the data quality control measures described in Chapter Three.

5.3.1 Unit Testing

Individual components, such as the duty assignment form, the report submission form, and the authentication logic, were tested in isolation to confirm that each performed its intended function correctly and handled invalid input gracefully.

5.3.2 Integration Testing

Once individual modules passed unit testing, they were tested together to verify that data flowed correctly between them—for example, that a duty created by an administrator appeared correctly on the assigned teacher's dashboard and generated the expected notification.

5.3.3 User Acceptance Testing (UAT)

A pilot group of at least 30 staff members at Mahanga Secondary School, selected through the convenience sampling approach described in Chapter Three, used the system under realistic conditions. Their feedback was used to identify usability issues and confirm that the system met the practical needs of school administrators, teachers, and support staff.

5.3.4 Usability Evaluation

The System Usability Scale (SUS) questionnaire introduced in Chapter Three was administered to pilot users after UAT to produce a standardized numerical measure of user satisfaction. Structured performance test scenarios were additionally used to record system response time, task completion rate, and error rate under realistic usage conditions.

Table 5.1: Summary of Testing Levels

Testing Level	Focus	Responsible Party
Unit Testing	Individual functions and forms	Developer
Integration Testing	Data flow between modules	Developer
User Acceptance Testing	Real-world usability and fit	Pilot users (school staff)
Usability Evaluation (SUS)	User satisfaction score	Pilot users (school staff)

5.4 Results and Discussion

The system was expected to demonstrate measurable improvement over the existing manual process across the dimensions identified in the problem statement in Chapter One. Duty assignment and tracking were expected to become centralized and verifiable, reducing the ambiguity that surrounded staff responsibilities. Report submission was expected to become faster and more consistent through the use of standardized digital forms, in contrast to the handwritten, variably formatted reports that were currently produced. Automated

notifications were expected to reduce the frequency of missed or delayed duties and reports, directly addressing the delays identified in the problem statement.

Usability results from the SUS evaluation and UAT feedback were discussed in relation to the usability principles outlined in Chapter Two, namely learnability, efficiency, memorability, error prevention, and user satisfaction. Where performance or usability results fell short of expectations, this discussion identified the underlying causes and the refinements applied during the Cutover phase to address them.

5.5 Limitations of the Study

- The system's effectiveness was dependent on the availability of internet connectivity, which remained inconsistent in parts of Tororo District.
- Varying levels of digital literacy among staff could affect the speed of adoption and require additional training beyond what was budgeted.
- The relatively short evaluation window available within the academic year limited the ability to assess long-term impact on institutional accountability.
- Findings were based on a single case study institution and could not be generalized directly to schools with different administrative structures.

5.6 Conclusion

This study set out to develop an Online Weekly Duty and Report Management System for Mahanga Secondary School to replace the manual, paper-based processes that were used to assign duties and manage weekly reports. Based on the literature reviewed in Chapter Two and the requirements gathered in Chapter Three, a system was analysed and designed in Chapter Four to centralize duty assignment, automate reminders, and standardize report submission and storage. After being implemented and tested as planned in this chapter, the system was expected to reduce administrative delays, improve record accuracy, and strengthen accountability at the school, while remaining affordable and appropriate for a low-resource, rural secondary school context.

5.7 Recommendations

- The school administration was advised to ensure that at least basic and reliable internet connectivity was available to support consistent use of the system.
- Structured training sessions were recommended to be conducted for all staff before full rollout, with particular attention to staff with limited prior exposure to digital tools.
- A designated ICT focal person at the school was recommended to be identified to provide first-line technical support and coordinate periodic data backups.
- The Ministry of Education and similar institutions were recommended to consider supporting the adaptation of this system, or systems like it, for other rural secondary schools facing the same administrative challenges.

5.8 Suggestions for Further Work

- Future iterations of the system could incorporate offline data capture with automatic synchronization once connectivity was restored, to better suit low-connectivity environments.
- Integration with SMS-based notifications could be explored to reach staff who might not regularly access the web platform.
- A longitudinal study beyond the current academic year could assess the system's long-term impact on institutional accountability and administrative efficiency.
- Future work could extend the system to cover additional administrative functions, such as timetabling or student attendance, building on the duty and reporting foundation established in this study.

CHAPTER SIX

DISCUSSION, CONCLUSION, RECOMMENDATIONS, LIMITATIONS AND FUTURE WORK

6.1 Introduction

This chapter presented a discussion of the anticipated results arising from the design and implementation of the Online Weekly Duty and Report Management System for Mahanga Secondary School, described in Chapters Four and Five. The chapter drew together the study's conclusions, presented recommendations arising from the system's development and evaluation, and outlined the limitations of the study together with suggestions for future work.

6.2 Discussion of Results

The findings from the requirements gathering, design, implementation and testing processes are discussed below in relation to the specific objectives of the study set out in Chapter One and the literature reviewed in Chapter Two.

Objective 1: To review existing literature and gather requirements to support the development of an online weekly duty and reporting management system in secondary schools.

The literature reviewed in Chapter Two established that weekly duty and report management is a core administrative function in educational institutions, and that manual, paper-based approaches remain common in under-resourced secondary schools across Uganda and sub-Saharan Africa, consistent with the findings of Abdullah and Arifin and with Ndung'u et al. on the persistence of manual coordination processes in the region. The field study conducted at Mahanga Secondary School in Chapter Four confirmed these observations locally: duty assignment and reporting were found to depend on handwritten rosters, physical files and informal channels such as WhatsApp, which contributed to delayed reporting, difficulty tracking duty completion, and loss of records. These findings validated the research gaps identified in Chapter Two, particularly the absence of a centralized, institution-specific digital system for rural secondary schools, and directly informed the functional and non-functional requirements defined for the proposed system.

Objective 2: To design an online weekly duty and report management system for Mahanga Secondary School.

Using the requirements identified in Chapter Four, the design phase produced a role-based system architecture covering Administrator, Headteacher, Director of Studies/Deputy Headteacher, and Teacher user roles, each with clearly defined functions such as duty assignment, duty tracking, report submission and dashboard reporting. This design approach reflects the recommendations in the literature that school administration systems should support differentiated user roles and centralised data storage to improve coordination and accountability, as emphasised by Damayanto et al. in their review of management information systems in schools. The decision to build a lightweight, web-based interface accessible via HTML5, CSS3 and JavaScript, backed by a PHP application layer and a MySQL database, was informed by the need identified in Chapter Three for a solution that is affordable, technically simple to maintain, and appropriate for a low-connectivity rural environment.

Objective 3: To implement the developed online weekly duty and report management system for Mahanga Secondary School.

The system was implemented around five core modules described in Chapter Five: User Management, Duty Management, Report Management, Notification, and Dashboard and Reporting. Development took place using Visual Studio Code and XAMPP as the local server environment, allowing the PHP application and MySQL database to be built and verified locally before deployment. This modular implementation approach made it possible to build and test the authentication, duty scheduling and report submission functions independently before integrating them into a single platform, consistent with the Construction phase of the Rapid Application Development methodology adopted for the study.

Objective 4: To test and validate the performance, usability and effectiveness of the developed online weekly duty and report management system.

Testing was planned in stages, comprising unit testing of individual components such as the duty assignment form and authentication logic, integration testing to confirm that data flows correctly between modules, and User Acceptance Testing with a pilot group of at least 30 staff members at Mahanga Secondary School. The System Usability Scale questionnaire was adopted to produce a standardised numerical measure of user satisfaction, evaluated against the usability principles of learnability, efficiency, memorability, error prevention and user satisfaction discussed in Chapter Two. This staged approach mirrors the validation strategies reported in the literature, where usability evaluation and user feedback were shown to reduce data entry errors and improve confidence in newly deployed school administration systems.

6.3 Conclusion

This study set out to develop an Online Weekly Duty and Report Management System for Mahanga Secondary School to replace the manual, paper-based processes currently used to assign duties and manage weekly reports. The study achieved its objectives by reviewing relevant literature and gathering requirements through interviews, questionnaires and observation, analysing the current manual system, designing a role-based web application to address the identified gaps, implementing the system using PHP, MySQL, HTML5, CSS3 and JavaScript, and planning a structured testing and evaluation process. The resulting system centralises duty assignment, automates reminders, and standardises report submission and storage, and is expected to reduce administrative delays, improve record accuracy and strengthen accountability at the school, while remaining affordable and appropriate for a low-resource, rural secondary school context.

6.4 Recommendations

Based on the system design, planned implementation and anticipated evaluation outcomes, the following recommendations are proposed:

- ✓ The school administration should ensure at least basic and reliable internet connectivity is available to support consistent use of the system.
- ✓ Structured training sessions should be conducted for all staff before full rollout, with particular attention to staff with limited prior exposure to digital tools.
- ✓ A designated ICT focal person at the school should be identified to provide first-line technical support and coordinate periodic data backups.
- ✓ The Ministry of Education and similar institutions should consider supporting the adaptation of this system, or systems like it, for other rural secondary schools facing the same administrative challenges.

6.5 Limitations of the Study

Several limitations were identified in the course of this study:

- The system's effectiveness is dependent on the availability of internet connectivity, which remains inconsistent in parts of Tororo District.
- Varying levels of digital literacy among staff may affect the speed of adoption and require additional training beyond what is budgeted.
- The relatively short evaluation window available within the academic year limits the ability to assess the system's long-term impact on institutional accountability.

- Findings are based on a single case study institution and may not generalise directly to schools with different administrative structures.

6.6 Future Work

Building on the findings and limitations of this study, the following areas are suggested for future work:

- Future iterations of the system could incorporate offline data capture with automatic synchronisation once connectivity is restored, to better suit low-connectivity environments.
- Integration with SMS-based notifications could be explored to reach staff who may not regularly access the web platform.
- A longitudinal study beyond the current academic year could assess the system's long-term impact on institutional accountability and administrative efficiency.
- Future work could extend the system to cover additional administrative functions, such as timetabling or student attendance, building on the duty and reporting foundation established in this study.

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Appendix

This appendix contains the guiding questions used during interviews with Deputy headteacher and director of studies, Questionnaires for the teachers, and observation are also included. Also a consent paper.

Budget

The budget estimates the costs that will be incurred during the development of the proposed web-based weekly duty and reporting management system.

Item	Quantity	Unit cost (UGX)	Total (UGX)
Stationary	100	500	50,000
Printing	3 copies	10,000	30,000
Binding			100,000
Internet bundles	3 months	50,000	150,000
Transport			20,000
Miscellaneous			50,000
Total			400,000

INFORMED CONSENT FORM

BUSITEMA UNIVERSITY

Faculty of Science and Education | Department of Education

INFORMED CONSENT FORM

Research Study: Development of an Online Weekly Duty and Reporting Management System

Mahanga Secondary School, Tororo District, Uganda

1. About This Study

You are being invited to participate in a final year research project conducted by Alajo Melanie (Registration Number: Bu/up/2023/1604), a third-year student at Busitema University, Faculty of Science and Education, Department of Education. This study aims to develop an Online Weekly Duty and Reporting Management System for Mahanga Secondary School in Tororo District to replace the current manual, paper-based administrative processes.

2. Purpose of the Research

The purpose of this study is to understand the current challenges in manual duty and report management at the school and to gather user requirements that will inform the design and development of a practical, affordable, and institution-specific digital system. Your insights as a staff member are essential to ensuring the system meets the real needs of the school.

3. What Your Participation Involves

1. Participating in a structured interview lasting approximately 30 to 45 minutes.
2. Responding to questions about the current duty and report management processes and your expectations for a digital solution.
3. Optionally participating in usability testing of a prototype system at a later stage of the study.

4. Voluntary Participation

Your participation in this study is entirely voluntary. You are free to decline to participate, to withdraw from the study at any time, or to decline to answer any particular question without penalty or consequence of any kind. Your decision will not affect your employment, standing, or relationship with Busitema University or Mahanga Secondary School.

5. Confidentiality and Data Privacy

All information collected during this study will be treated with strict confidentiality. Your personal identity will not be disclosed in any research report or publication. Data collected will be anonymized where possible and stored securely. Only the researcher and supervising academic staff will have access to the raw data. All data will be used exclusively for the purposes of this academic research and will be disposed of securely after the study is completed in accordance with the University's research ethics guidelines.

6. Risks and Benefits

There are no known risks associated with participation in this study beyond those encountered in normal daily activities. Your participation will directly contribute to the development of a digital system that could improve administrative efficiency at your school and benefit the broader school community. The findings will also contribute to research on digital transformation in Ugandan secondary schools.

7. Recording of Interviews

With your permission, the interview may be audio-recorded to ensure accuracy in data transcription. You have the right to decline to be recorded, and the interview will proceed using written notes only. Any recordings will be deleted immediately after transcription.

8. Contact Information

Researcher	Supervising Institution
Alajo Melanie	Busitema University

Reg. No.: Bu/up/2023/1604

Busitema University, Dept. of Education

Faculty of Science and Education

Department of Education

PARTICIPANT CONSENT DECLARATION

Please read the following statements carefully and indicate your consent by signing below.

☐	I have read and understood the information provided about this research study.
☐	I have had the opportunity to ask questions and any questions have been answered to my satisfaction.
☐	I understand that my participation is voluntary and I may withdraw at any time without penalty.
☐	I understand that my responses will be kept strictly confidential and used only for academic research purposes.
☐	I consent to participate in this research study.
☐	I consent / do not consent (circle one) to the recording of this interview.

Participant's Full Name:

Participant's Signature:

Date:

Role / Position:

Researcher Use Only

Researcher's Name: Alajo Melanie		Date of Interview:
Researcher's	Signature:	_____

This consent form has been approved in accordance with the ethical research guidelines of Busitema University. One copy is retained by the researcher; one copy is given to the participant.

INTERVIEW GUIDE

BUSITEMA UNIVERSITY

Faculty of Science and Education/Department of Education

INTERVIEW GUIDE

Development of an Online Weekly Duty and Reporting Management System

Case Study: Mahanga Secondary School, Tororo District

Purpose of the Interview

This interview is conducted as part of a final year research project by Alajo Melanie (Reg. No. Bu/up/2023/1604) to gather qualitative data on the current manual weekly duty and report management processes at Mahanga Secondary School. The information collected will inform the design and development of a digital system to replace existing paper-based administrative processes.

Respondent Information

Date of Interview	
Respondent's Role/Position	
Years of Service at School	
Mode of Interview	Face-to-face ☐ Phone ☐ Video Call ☐

Instructions to the Interviewer

- Introduce yourself and the purpose of the study before beginning.
- Assure the respondent that participation is voluntary and all responses are confidential.
- Obtain signed informed consent before proceeding with the interview.
- Allow the respondent to speak freely; use the probe questions to encourage elaboration.

Take notes in the spaces provided and request permission to record if needed.

Interview Questions

1. How are weekly staff duties currently assigned and tracked at Mahanga Secondary School?

Probes: Who is responsible? How are changes communicated? How is compliance monitored?

2. what are the main challenges you encounter with the current manual duty and report management system?

Probes: Think about record loss, errors, delays, accessibility of past records, staff communication.

5. How are weekly reports prepared and submitted by teachers and departmental heads at present?

Probes: What format is used? Who receives them? How long does the process typically take?

4. How does the manual system affect staff accountability and the school's ability to make administrative decisions?

Probes: Give specific examples. Has a poor record ever led to a problem for the school?

5. What features or capabilities would you consider most important in a digital weekly duty and reporting management system for this school?

Probes: Think about duty assignment, notifications, report forms, access levels, offline use.

6. What challenges do you foresee in adopting and using an online system at Mahanga Secondary School?

Probes: Consider internet access, digital literacy of staff, device availability, cost, and change resistance.

7. How would a successful digital duty and reporting management system change the way the school is administered on a weekly basis?

Probes: What outcomes would demonstrate success? Who would benefit most and why?

Closing

Thank the respondent for their time and valuable input. Remind them that their responses will remain confidential and will only be used for the purposes of this academic research study. Inform them that a copy of the final research findings can be made available to them upon request.

Interviewer Signature: _____

Date: _____

QUESTIONNAIRE GUIDE



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QUESTIONNAIRE GUIDE

Research on Weekly Duty and Reporting Management System

Section A: General Information

Name of respondent: _____

Department/Unit: _____

Position/Role: _____

Years of service at the institution: _____

Section B: Current Duty Management Practices

1. How are weekly duties currently assigned in your department?

☐ Verbal instructions

☐ Written memos

☐ Digital tools (emails, spreadsheets, etc.)

☐ other (please specify)

2. Who is responsible for assigning weekly duties?

☐ Supervisor / Manager

☐ Team leader

☐ Self-assigned

3. How do staff members report completion of weekly duties?

- ☐ Written reports
- ☐ Verbal updates
- ☐ Digital submissions (email, system, etc.)
- ☐ Other (please specify)

Section C: Challenges in Current System

4. What challenges do you face in tracking weekly duties?

- ☐ Lack of clarity in assignments
- ☐ Delays in reporting
- ☐ Inconsistent formats of reports
- ☐ Limited accountability

5. How often do reports get delayed or missed?

- ☐ Rarely
- ☐ Sometimes
- ☐ Frequently

6. What difficulties arise when consolidating weekly reports?

- ☐ Duplication of data
- ☐ Missing information
- ☐ Time-consuming manual processes

Section D: Desired Features in a New System

7. What features would you like in a Weekly Duty and Reporting Management System?

- ☐ Automated duty assignment

☐ Digital reminders/notifications

☐ Standardized reporting templates

☐ Real-time progress tracking

☐ Analytics and summary dashboards

8. How important is mobile accessibility for reporting duties?

☐ Very important

☐ Moderately important

☐ Not important

9. Would you prefer reports to be:

☐ Daily summaries

☐ Weekly consolidated reports

☐ Both

Section E: Accountability & Feedback

10. How should accountability be enforced in the new system?

☐ Supervisor approval required

☐ Peer review of duties

☐ Automatic tracking logs

11. How should feedback be delivered?

☐ Written comments on reports

☐ One-on-one meetings

☐ Automated system notifications

Section F: Implementation Considerations

12. What training would staff need to use the new system effectively?

- ☐ Basic digital literacy
- ☐ System navigation tutorials
- ☐ Reporting standards workshops

13. What risks do you foresee in adopting a new system?

- ☐ Resistance to change
- ☐ Technical difficulties
- ☐ Cost of implementation

14. What support mechanisms would make adoption easier?

- ☐ Continuous training
- ☐ Technical support desk
- ☐ Clear guidelines/manuals

Section G: Final Thoughts

15. In your opinion, what would make a Weekly Duty and Reporting Management System successful in your department?

Any additional suggestions or comments:

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