



A Complaint Management System for Enhanced Efficiency at West Visayas State University – Himamaylan City Campus

ISBN 978-630-95064-4-3



Edlin Muzones, Jake Pomperada

**Technium
2025**

Author: Edlin Muzones

Co-Author: Jake Pomperada

A Complaint Management System for Enhanced Efficiency at West Visayas State University – Himamaylan City Campus

AUTHOR

Mr. Edlin Muzones

Affiliation: West Visayas State University – Himamaylan City Campus

Co-AUTHOR: Dr. Jake Pomperada

EDITORIAL OFFICE

TECHNIUM

E.U.



For citation purposes, cite as indicated below:

Muzones, E.; Pomperada, J. *A Complaint Management System for Enhanced Efficiency at West Visayas State University - Himamaylan City Campus*; ISBN 978-630-95064-4-3, TECHNIUM , 2025.



TECHNIUM

FIRST EDITION 2025

ISBN 978-630-95064-4-3 (PDF)

Cover image generated by AI.

© 2025 by the author. The book is Open Access and distributed under the Creative Commons Attribution license (CC BY-NC-ND), which allows users to download, copy and build upon published work non-commercially, as long as the author and publisher are properly credited. If the material is transformed or built upon, the resulting work may not be distributed.

Chapter I

INTRODUCTION

Background of the Study

In today's rapidly evolving educational landscape, efficient and transparent complaint resolution is essential to maintaining the satisfaction of key stakeholders, including students, faculty, and staff. Higher education institutions, like any large organization, encounter numerous complaints concerning a wide range of issues, from administrative inefficiencies to academic services. Traditional complaint-handling procedures—often manual, paper-based, or email-driven—are inherently inefficient. They lack real-time tracking, are prone to miscommunication, and typically suffer from delays in response, leading to frustration among complainants (Nasr & Alkhider, 2015). These limitations slow down resolution times and fail to ensure accountability, resulting in dissatisfaction and undermining trust in the institution's processes. Addressing these inefficiencies is crucial for any university aiming to maintain its reputation and foster a positive campus environment.

West Visayas State University, Himamaylan City Campus, is a regional higher education institution that faces similar challenges in handling complaints. As a public university, it caters to a large population of students and faculty, generating a wide array of complaints related to academic services, infrastructure, administrative responsiveness, and general campus management. Currently, the campus relies on a predominantly manual process to collect and address complaints, such as paper-based submissions and sporadic email communications. These methods are slow and lack the formal tracking

mechanisms to ensure timely follow-ups. Moreover, the absence of a centralized system often leads to miscommunication between departments, further compounding the difficulty in resolving complaints effectively. Similar challenges have been observed in other academic institutions, highlighting the importance of leveraging technology to streamline complaint management processes. According to Al-Waeli and Hassan (2022), implementing an online complaint management system can significantly improve the efficiency and security of handling complaints, allowing students to submit their concerns anywhere and anytime. By adopting such a system, the university can enhance its responsiveness and provide a more conducive environment for academic and administrative operations.

A Complaint Management System (CMS) is a digital platform designed to address the limitations of traditional complaint-handling methods by automating and enhancing the overall process. By enabling complaints to be logged, tracked, and resolved in an organized manner, a CMS ensures that grievances are managed effectively and efficiently (Chaudhary et al., 2016). The system supports clear communication between the complainant and the institution, providing timely updates on complaint status and allowing for transparent resolution. Additionally, the centralized digital nature of CMS enables institutions to store complaint data in one place, making it easier to track trends, identify recurring issues, and make informed improvements. Implementing a CMS at West Visayas State University, Himamaylan City Campus, could offer a significant advantage by streamlining complaint resolution and fostering accountability and transparency.

The implementation of a CMS at West Visayas State University, Himamaylan City Campus, brought several tangible benefits. First, the system would significantly reduce response times, ensuring that complaints are addressed promptly. The CMS would facilitate better communication and coordination across various departments by centralizing complaint data, reducing the risk of miscommunication and lost complaints (Manuhutu & Uktolseja, 2018). Furthermore, the CMS would introduce a layer of accountability, as all complaints would be tracked, and administrators would be required to follow up within specified time frames. This would improve the quality of service delivery, as the university would be able to identify and address recurring issues more efficiently (Anusiuba et al., 2021). Finally, the CMS would increase satisfaction among students and staff by providing them with a transparent platform to voice their concerns and track the resolution process, thereby promoting a culture of accountability and continuous improvement within the institution (Oguntosin et al., 2021).

The proposed research examines critical questions regarding the feasibility and potential impacts of implementing a Complaint Management System (CMS) at West Visayas State University, Himamaylan City Campus. Specifically, this study investigated the feasibility of adopting a CMS, considering cost and institutional readiness. It did also assess the system's expected impact on existing complaint-handling processes, especially with respect to improvements in response time and resolution efficiency. Additionally, this research explored how the CMS could influence user satisfaction, focusing on complainants (students, faculty, and staff) and the administrative personnel managing the complaints. Finally, the study aims to identify the long-term benefits of a CMS in enhancing transparency, accountability, and overall administrative efficiency at the

university. This approach builds on findings that online complaint systems can streamline processes, save time, and improve public engagement by facilitating efficient issue resolution (Suvetha et al., 2019). The research did assess the CMS's potential to transform complaint management into a more effective and systematic process for the campus community through these inquiries.

This paper argues that the implementation of a Complaint Management System at West Visayas State University, Himamaylan City Campus, would significantly enhance the institution's administrative efficiency by streamlining the complaint resolution process and improving overall service delivery. The CMS would address existing inefficiencies and provide a transparent and accountable platform for students and staff to voice their concerns. Furthermore, by collecting and analyzing data from complaints, the university would be better equipped to identify recurring issues, leading to continuous improvements in campus operations and services. In the long term, a well-implemented CMS would foster a more responsive and student-centered university environment, reinforcing stakeholder trust and satisfaction.

1.1. Purpose

This study aims to design and implement a Complaint Management System (CMS) for West Visayas State University - Himamaylan City Campus (WVSU-HCC) to enhance the management of client feedback and resolutions. The system provided a structured, digitalized platform that ensures complaints are securely submitted, efficiently categorized, and promptly routed to the appropriate departments for investigation and resolution. It also implemented real-time tracking

and automated notifications, allowing complainants to monitor the status of their concerns. Complaint data will be systematically collected, analyzed, and reported to help improve administrative decision-making and service quality.

The CMS introduced the following key improvements:

Streamlined Complaint Handling. The system did standardize the process of receiving complaints through a web-based interface where students, faculty, and staff can submit concerns either by logging in. Once submitted, complaints will be automatically categorized and assigned to the appropriate department based on predefined rules. A dashboard will provide a real-time overview of complaint statuses for administrators, ensuring no feedback is overlooked.

Facilitating Swift Resolution. The system enforced response time guidelines to ensure that all complaints are acted upon within a specified timeframe, as outlined in the university's Citizen's Charter. Automated email and SMS notifications will inform complainants of updates, ensuring transparency in the resolution process.

Enhancing Accountability and User Satisfaction. The CMS did implement data encryption and access control to protect complaint records and user privacy. System administrators will monitor the platform to track unresolved cases, while department heads will be responsible for ensuring timely responses. If a complaint is not processed within the set timeframe, escalation mechanisms will notify higher authorities for immediate action.

Additionally, the system integrated reporting and analytics tools to identify common issues, monitor response efficiency, and provided insights for continuous institutional improvements. The ownership of the system will be assigned to the

university's IT or Management Information Systems Office, ensuring regular maintenance, security updates, and user training.

Through these enhancements, the Complaint Management System has transformed the university's feedback process into a more structured, transparent, and responsive mechanism, improving stakeholder trust and institutional efficiency.

1.2. Technical Reviews of Related Systems

The Complaint Management System serves the critical purpose of streamlining complaint-handling processes by digitizing them, eliminating the need for physical storage. This study aims to delve into the technical aspects of such systems. Many complaint management systems have been implemented, predominantly focusing on digital storage within complaint journals. These journals function as centralized repositories for recording and managing complaints.

1.2.1. Zendesk Support Suite

In line with the development of modern support models like Universe, which focuses on efficient response systems to improve user satisfaction and retention (Pippuri, 2016), the Complaint Management System (CMS) in this research aims to implement similar principles within a university environment. (Wei, 2023) highlights how streamlined, cloud-based platforms can significantly enhance the responsiveness of support systems by centralizing communication and issue tracking, ultimately improving organizational efficiency and customer loyalty. Applying these ideas to a CMS allows for effective tracking, faster resolution times, and improved transparency, which are essential for managing complaints efficiently in an academic setting. This approach provides an infrastructure that optimizes user experience and

supports administrative accountability, aligning with best practices observed in customer-focused support models.

1.2.2. Salesforce Service Cloud

Salesforce Service Cloud is a robust CRM platform that streamlines customer interactions and complaint management by offering omnichannel communication capabilities, including email, phone, chat, and social media channels (Patel & Chouhan, 2016). This cloud-based service allows businesses to enhance customer engagement through seamless communication while leveraging AI-powered insights for personalized support, thus improving the overall customer experience. Additionally, Salesforce Service Cloud provides detailed reporting features that enable businesses to track performance metrics and identify opportunities for optimization. Cloud platforms like Salesforce.com are revolutionizing traditional software development models by offering flexible, scalable solutions that enhance efficiency, making it an ideal choice for companies aiming to optimize customer service operations and satisfaction (Poniszewska-Maranda et al., 2020).

1.2.3. ProProfs Help Desk

ProProfs Help Desk is a user-friendly shared inbox tool designed to streamline support conversations and effectively manage customer complaints. Similar to the strategies recommended by Tolentino-Evangelista et al., the platform enhances the resolution process through easy-to-use ticket management features, allowing businesses to track and address consumer complaints efficiently (Tolentino-Evangelista et al., 2023). The ProProfs Help Desk also incorporates automation features that help reduce response times to improve staff efficiency and training to ensure prompt complaint resolution. This

software is an effective solution for small businesses aiming to enhance customer satisfaction through efficient complaint management (Reed et al., 2020).

1.2.4. Bitrix24

Bitrix24 provides a comprehensive set of tools that can be adapted to manage student and faculty interactions, particularly in handling complaints and service requests within an academic institution. The platform's issue tracking and support management features enable schools to efficiently document, categorize, and address concerns related to academic services, facility maintenance, and administrative processes (Tievikova & Lysenko, 2019). Its integration capabilities allow seamless connection with existing university systems, such as student information systems and email platforms, optimizing workflows and minimizing response delays. Additionally, Bitrix24's reporting and analytics tools can help school administrators monitor trends in complaints, identify recurring issues, and implement data-driven improvements. By leveraging these features, educational institutions can enhance transparency, improve administrative efficiency, and foster better communication between students, faculty, and staff, ultimately leading to a more responsive and student-centered environment (Algabri et al., 2019).

1.2.5. isoTracker

isoTracker is a complaint management software designed to help organizations maintain compliance with regulatory standards, aligning with the principles of Quality Management Systems (QMS). The platform offers comprehensive reporting and analytics features, enabling businesses to track and analyze customer complaints effectively. Implementing QMS improves organizational performance by ensuring

better resource management and process efficiency, and isoTracker supports this by providing tools to maintain industry compliance. Its compliance features make isoTracker an ideal solution for businesses in highly regulated industries, contributing to improved operational outcomes and reduced risks (Estehu, 2023).

1.2.6. Tidio

Tidio is an AI-driven customer support platform that incorporates chatbots and automated responses to manage customer inquiries and complaints, similar to the application of chatbot technology in social work. The platform provides instant support, reducing response times and enhancing customer engagement, much like how chatbots facilitated quicker responses to inquiries during the COVID-19 pandemic in social work settings (Hodžić et al., 2021). Tidio's personalized interactions help businesses foster stronger relationships with their customers, paralleling the role of ICTs in improving communication and support in social work institutions. The software's seamless integration with existing communication channels further establishes it as a versatile and effective solution for managing customer complaints, akin to the integration of chatbot applications in social work services during extraordinary circumstances (Waheed et al., 2022).

1.2.7. Zoho Desk

Zoho Desk is a cloud-based help desk software that offers multi-channel support and ticket automation, which is particularly useful for organizations aiming to streamline their customer support processes. The platform's collaboration tools facilitate efficient teamwork, ensuring timely resolution of customer complaints. This is similar to the improved issue handling observed in the case study of a

transportation company's CRM software selection process (Al Jafa, 2020). Zoho Desk also features robust analytics and reporting capabilities, enabling businesses to track performance metrics and identify areas for improvement, much like how ticketing systems contribute to optimizing helpdesk activities by providing detailed reports and data (Sorsa, 2021). This software is well-suited for businesses looking to enhance their customer service processes through better organization and efficiency.

1.2.8. Freshdesk

Freshdesk is help desk software that integrates ticket management, automation, and customer engagement tools, making it an effective solution for improving customer service (Bosu et al., 2022). Its user-friendly interface and comprehensive features enable businesses to manage customer complaints efficiently. The software's automation capabilities streamline workflow and reduce response times, significantly enhancing customer satisfaction (Moreira, 2024). Additionally, Freshdesk's ability to integrate with other business tools and its detailed reporting features improve service management, making it an asset for organizations aiming to optimize their customer support processes (Nguyen, 2022).

In light of the pressing need for efficient and transparent complaint handling at West Visayas State University, Himamaylan City Campus, the implementation of a Complaint Management System (CMS) would offer significant improvements over traditional manual processes. The technical reviews of related systems, such as Zendesk Support Suite, Salesforce Service Cloud, and Freshdesk, illustrate how

modern digital platforms can centralize communication, automate workflows, and provide real-time tracking, all of which enhance both operational efficiency and customer satisfaction (Pippuri, 2016; Patel & Chouhan, 2016; Nguyen, 2022). By incorporating similar features, the proposed CMS for WVSU-HCC can streamline complaint resolution, reduce response times, and ensure that complaints are handled more transparently and accountable.

Furthermore, the CMS would allow the university to collect and analyze complaint data, identify recurring issues, and provide actionable insights for continuous improvement. This system aligns with the university's goal of fostering a student-centered, responsive environment, ultimately enhancing student, faculty, and staff trust and satisfaction. The adoption of a CMS at WVSU-HCC would not only optimize complaint management but also create a foundation for long-term institutional improvements, reinforcing the university's commitment to service excellence and accountability.

Table 1

Comparison of Related Complaint Management Systems

Software	Key Functionalities	Ease of Use	Integration Capabilities	Scalability	Uniqueness of Proposed CMS (WVSU-HCC)
Zendesk Support Suite	Provides ticketing, live chat, email support, and self-service options for users.	High	Integrates with over 1,000 apps, including CRMs, email systems, and analytics tools.	Highly scalable, suitable for small to enterprise-level organizations.	Provides a customized complaint-handling process tailored to university-specific concerns, ensuring efficient routing and tracking.

Salesforce Service Cloud	CRM functionalities, case tracking, and AI insights for customer support.	Medium	Integrates deeply with other Salesforce products and third-party systems.	Highly scalable, ideal for large enterprises needing customized solutions.	Designed to provide automated case resolution workflows aligned with institutional policies and department-specific concerns.
ProProfs Help Desk	Basic complaints management, automated responses, and simple complaint resolution tracking.	High	Basic integrations with email tools and CRMs.	Limited scalability, best for small businesses.	Implements structured tracking and escalation mechanisms, ensuring complaints are addressed promptly based on defined timelines.
Software	Key Functionalities	Ease of Use	Integration Capabilities	Scalability	Uniqueness of Proposed CMS (WVSU-HCC)
Bitrix24	Full-featured CRM with issue tracking, complaint management, and communication tools.	Medium	Excellent integration with other Bitrix24 tools and third-party software.	Highly scalable, ideal for businesses of any size.	Provides a centralized complaint-handling dashboard with data analytics for trend identification and service improvements.
isoTracker	Specializes in compliance management, issue tracking, and complaint resolution for regulated industries.	Medium	Integrates with compliance tools and document management systems.	Scalable for organizations needing strict regulatory compliance.	Ensures structured documentation and security compliance in handling complaints.
Tidio	Chat-driven support with AI chatbots for quick complaint handling.	High	Basic integrations with messaging platforms, CRMs, and email systems.	Limited scalability, best for small to mid-sized organizations.	Incorporates instant chat support and automated responses to enhance complaint submission and interaction.

Zoho Desk	complaints management, automation tools for complaint handling, and in-depth analytics.	High	Integrates with the Zoho ecosystem and many third-party apps.	Highly scalable and suitable for businesses of all sizes.	Features customizable workflows and automated prioritization to ensure streamlined resolution of complaints.
Freshdesk	Comprehensive complaints management, and customer support tracking across multiple channels.	High	Integrates with over 1,000 apps, including CRM, billing, and analytics tools.	Highly scalable, from small startups to large enterprises.	Ensures real-time updates and status notifications, keeping stakeholders informed throughout the complaint resolution process.
Software	Key Functionalities	Ease of Use	Integration Capabilities	Scalability	Uniqueness of Proposed CMS (WVSU-HCC)
Campus Management System (CMS) – Various Universities	Student complaint tracking, issue resolution workflows	Medium	Integrated with student portals, academic records	Scalable for institutions	Provides a standardized platform for complaint resolution within university environments.
Proposed CMS (WVSU-HCC)	Web-based complaint submission, automated routing, real-time tracking, escalation mechanisms, faculty & student complaint monitoring, encrypted security, SMS/email	High	Integrated with student/faculty portals, citizen's charter, and academic services.	Scalable for university-wide use	Features automated escalation mechanisms, real-time user notifications, structured reporting, and adaptive workflows to ensure efficient and transparent complaint resolution.

notifications,
and dashboard
analytics.

1.3. Project Scope

This capstone project focused on designing and implementing a Complaint Management System (CMS) for the West Visayas State University Himamaylan City Campus. This system addresses inefficiencies in the complaint-handling process by providing an automated, centralized platform for complaint submission, tracking, and resolution. The CMS will significantly improve the administrative efficiency of handling complaints while ensuring transparency and accountability, enhancing stakeholder satisfaction.

1.3.1 Objectives

The primary objectives of this project are as follows:

To streamline complaint submission. The CMS provided a user-friendly online platform that allows students, faculty, and staff to submit complaints efficiently. The system logged all complaints in a central database, minimizing the risk of lost or unaddressed grievances.

To provide real-time tracking and updates. The system tracked each complaint from submission to resolution, offering transparency throughout the complaint lifecycle. Complainants received regular updates on the status of their complaints, while administrators monitored progress in real time.

To ensure secure storage and data privacy. All complaints will be securely stored within the CMS database. Access to sensitive data was restricted to authorized personnel, ensuring compliance with institutional and legal data privacy standards.

To enable effective data analysis and reporting. The CMS will generate data analytics and reports highlighting complaint trends, resolution times, and recurring issues. These insights informed administrative decisions and contribute to continuous service improvement.

1.3.2. System Features

The Complaint Management System (CMS) for West Visayas State University - Himamaylan City Campus integrated several interconnected features to streamline the complaint-handling process, ensuring efficiency, transparency, and security. At the core of the system is the Centralized Online Complaint Submission, which allows students, faculty, and staff to submit concerns through a web-based form accessible at any time. Once a complaint is submitted, it is automatically logged in the system, categorized based on predefined parameters such as department and urgency, and assigned to the appropriate office. To enhance transparency, the system will immediately generate an automated email notification to the complainant, confirming the receipt of their complaint and providing a unique tracking ID for future reference.

The Administrative Dashboard plays a crucial role in overseeing complaint management. Administrators will have access to an intuitive interface where they can view incoming complaints, categorize issues, and assign them to the appropriate personnel. Whenever a complaint is assigned, an automated email notification will be

sent to the responsible department, ensuring they are promptly informed. Additionally, the system will enforce predefined response timeframes, automatically escalating unresolved complaints to higher-level administrators if necessary. This feature guarantees that complaints are addressed within the expected timeline, preventing bottlenecks in the resolution process.

To further improve communication and user experience, the Real-Time Tracking and Notification System ensures that complainants stay updated throughout the resolution process. Users will receive automated notifications at key points, including complaint submission, assignment to a department, status updates, and final resolution. These notifications will inform users of any required actions, such as providing additional details or confirming complaint resolution.

Ensuring interconnectivity and workflow automation, the system enables different university departments to seamlessly coordinate complaint resolution. Department heads, administrative staff, and faculty members will have centralized access to track complaints assigned to them, update statuses, and communicate internally for efficient issue resolution. If a complaint is not acted upon within the designated timeframe, the system will automatically escalate the case, notifying higher authorities and the complainant about the delay, ensuring accountability in complaint handling.

Security and data privacy are also critical components of the CMS. To protect sensitive complaint information, the system will implement role-based access control (RBAC), allowing only authorized users to access specific complaint data based on their roles. Additionally, all complaint records and communication logs will be

encrypted to prevent unauthorized access or data breaches. The system will also generate audit logs, keeping track of all user activities to enhance accountability and compliance with university data protection policies. These security measures ensure that all complaints and user interactions remain confidential while maintaining transparency in the resolution process.

By integrating these features into a unified and structured workflow, the Complaint Management System will significantly enhance efficiency, accountability, and service quality at WVSU-HCC, ensuring that complaints are addressed in a timely, transparent, and secure manner.

1.3.3. Limitations

While the CMS is designed to improve the complaint-handling process, certain limitations must be considered. First, the system will primarily handle electronic submissions, meaning that any complaints submitted manually (e.g., paper-based complaints) must be manually entered into the system by administrative personnel. Additionally, the CMS will be initially deployed for internal use within the WVSU-Himamaylan City Campus. It may not integrate with external systems unless explicitly specified for future expansion.

Chapter II

PRODUCT DESCRIPTION

The West Visayas State University - Himamaylan City Campus (WVSU-HCC) Complaint Management System (CMS) is a customized in-house solution developed to efficiently manage and track client feedback and complaints. Aligned with the principles outlined by Stauss and Seidel (2019), the system is designed to improve customer satisfaction by streamlining the complaint-handling process, ensuring timely resolution, and providing valuable data for analysis. This approach fosters transparency and operational efficiency, key factors for enhancing client satisfaction, as emphasized in their research on effective complaint management. By incorporating these best practices, the WVSU-HCC CMS aligns with industry standards for managing customer concerns while addressing the unique needs of the campus community.

2.1 Product Perspective and General Features

WVSU-HCC understands that a positive client experience is essential for the success of any institution. The Complaint Management System (CMS) was designed as a comprehensive in-house solution to streamline collecting, resolving, and analyzing client feedback. This system aimed to replace the existing reliance on physical feedback boxes, which lack a centralized, organized approach to managing complaints. To ensure a comprehensive and effective complaint management process, the CMS incorporates several key features to enhance functionality and user experience. These features include:

Centralized Online Complaint Submission. The core of the CMS was a user-friendly online form where clients (students, faculty, and external partners) can

conveniently submit their feedback at any time. This ensures that all complaints are captured in one place, removing the limitations and potential for missed feedback that can occur with physical boxes.

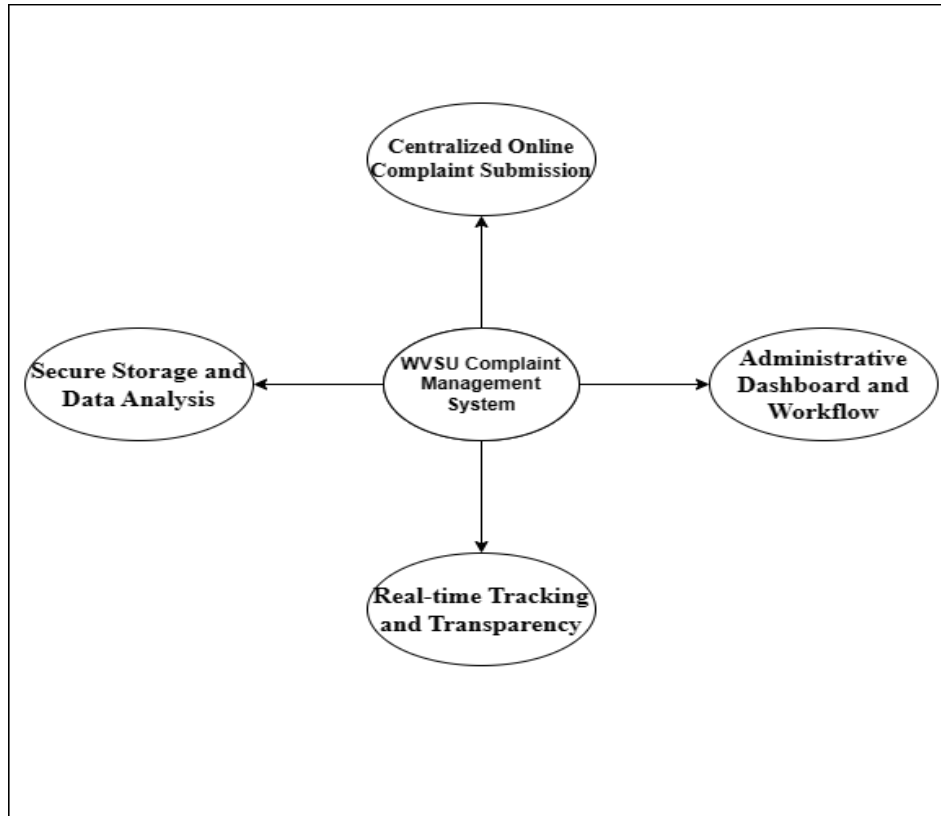
Administrative Dashboard and Workflow. The CMS included an intuitive dashboard for the designated administrator. This dashboard provided an at-a-glance view of incoming complaints, allowing for categorization based on issue types and departments involved. From here, the administrator can assign complaints directly to the responsible unit for investigation and resolution, initiating a structured and accountable workflow.

Real-time Tracking and Transparency. The CMS tracked the status of each complaint in real-time, recording details like the assigned department, current stage (in progress, pending information, resolved), and time elapsed. This visibility enhances accountability and allows for intervention to prevent unnecessary delays. Additionally, the CMS could integrate optional features for keeping clients informed about the progress of their complaints, such as automated email updates or a basic status inquiry portal.

Secure Storage and Data Analysis. All complaint details, communication logs, and resolutions will be stored securely within the system's database. This eliminates risks associated with physical records and provides a comprehensive archive. Crucially, the CMS will include reporting tools to generate insights from this collected data, revealing complaint trends, recurring issues, and areas for improvement across the university.

Figure 1

WVSU Complaint Management System Features



2.2. Operating Environment

The Complaint Management System (CMS) operated seamlessly within the West Visayas State University Himamaylan City Campus environment, leveraging existing infrastructure to ensure accessibility across various devices, including smartphones, laptops, tablets, and desktop computers. Like the interactive, user-friendly features discussed by Garcia and Sabay (2020) in their development of GADIMATH, the CMS aimed to offer an intuitive, engaging experience for stakeholders, including students, faculty, and staff. Utilizing the campus's server infrastructure will ensure smooth operation and efficient communication, facilitating complaint submission and resolution.

This focus on accessibility and ease of use aligns with the principles of interactivity and support emphasized in the development of GADIMATH, ensuring that users can interact with the system effectively within the university’s network.

2.2.1. Hardware Environment

The hardware specifications needed for this system are relatively modest. Given that the applications do not impose heavy demands, the researcher has established requirements below the standard thresholds typically associated with web-based applications. This table provides a baseline for the hardware environment and the minimum requirements to efficiently deploy and run the CMS. It is important to note that these are hypothetical requirements, and actual needs may vary based on factors such as the volume of complaints, user concurrency, and specific functionalities within the system. Adjustments may be necessary based on the actual use case and scale of deployment.

Table 2

Hardware Specification

Hardware Environment	Minimum Requirements
Processor	Intel Core i5 processor (2.4 GHz or higher)
Memory (RAM)	4GB
Storage Space	100 GB HDD/SSD
Computer Monitor	1024 * 768 Resolution Color Monitor

2.2.2. Software Environment

The software environment required for the Complaint Management System (CMS) was designed to ensure seamless functionality across the university's IT infrastructure. The CMS will be compatible with various operating systems, including Windows, macOS, and Linux, to allow flexibility in deployment across different devices and platforms. It will be built using web-based technologies, ensuring accessibility via standard web browsers such as Google Chrome, Mozilla Firefox, and Safari. The system will rely on commonly used programming languages and frameworks, including HTML, CSS, JavaScript, and PHP, for its front-end and backend development. Additionally, the CMS will integrate with existing database management systems, such as MySQL, to securely store and manage complaint data. While these software requirements are considered standard for web applications, the system's performance may depend on the volume of data and user traffic. As such, optimizations may be necessary based on the actual usage patterns and scale of deployment.

Table 3

Software Specification

Software Environment	Minimum Requirements
Operating System	Windows 10 or higher
Web Server	PHP Triad (PHP5.6, MySQL, Apache, and PhpMyAdmin)
Database	MySQL 5.7
PHP Framework	Laravel 8.x
Browser Compatibility	Google Chrome, Mozilla Firefox, Microsoft Edge, Safari
Documentation	Microsoft Word 2016

2.3.Design and Implementation Constraints

The development of the Complaint Management System (CMS) for West Visayas State University Himamaylan City Campus was subject to several constraints that must be considered during the design and implementation phases. These constraints were categorized into technical, operational, and budgetary factors:

2.3.1. Technical Constraints

The development and implementation of the Complaint Management System (CMS) at West Visayas State University Himamaylan City Campus (WVSU-HCC) must address several critical technical constraints to ensure its effectiveness and successful adoption. One of the primary concerns is the simplicity of the user interface (UI), which must be intuitive and accessible to a wide range of users, including students, faculty, and staff, who may possess varying levels of technical proficiency. To accommodate this diversity, the CMS should prioritize ease of use to promote user engagement and minimize any learning curve.

Additionally, the system must be designed to scale efficiently, especially considering the potential for increased user load and complaint volume during peak times, such as the start and end of semesters. This scalability is crucial to maintaining optimal performance under fluctuating demand. Security and data privacy also pose significant challenges, as the CMS will handle sensitive information, including the identity and personal details of complainants. Therefore, stringent measures, such as encryption, role-based access control, and secure data storage, must be implemented to comply with data protection regulations and ensure the confidentiality of users'

information. Lastly, the CMS must integrate seamlessly with the university's existing communication and IT infrastructure, including email and messaging platforms, to streamline the complaint resolution process. Failure to achieve smooth integration could disrupt system functionality and hinder user adoption, making it essential for the CMS to align with the university's current systems.

2.3.2. Operational Constraints

The successful deployment and long-term functionality of the Complaint Management System (CMS) at West Visayas State University Himamaylan City Campus (WVSU-HCC) are contingent upon addressing several key operational constraints. One of the primary challenges is effective change management, which is essential to ensure the smooth adoption of the system by students, faculty, and staff. A comprehensive strategy must be implemented to manage the transition from traditional complaint-handling methods to the new system. This includes allocating adequate time and resources for training end-users and administrative personnel to ensure they are familiar with the CMS's features and functionality. Another critical operational consideration is the system's maintenance and ongoing support. Post-deployment support must be planned thoroughly to address bugs, incorporate user feedback, and perform necessary updates. This will help ensure that the system remains operational, efficient, and responsive to the needs of users over time. Lastly, the project must adhere to strict timelines to minimize disruption to regular university operations. The availability of the technical team for testing, deployment, and training is crucial for meeting these deadlines and ensuring the timely rollout of the CMS. Additionally,

coordination with administrative staff will be essential for smooth project execution, highlighting the importance of resource planning throughout the implementation process.

2.3.3. Budgetary Constraints

The implementation of the Complaint Management System (CMS) at WVSU-HCC is subject to several budgetary constraints that may affect the project's scope, timeline, and overall feasibility. One of the primary financial considerations is the cost of hardware and software resources required for system deployment. The university must invest in server infrastructure, database storage, and networking equipment to ensure that the system operates efficiently and securely. If budget limitations arise, alternative cloud-based hosting solutions may need to be considered to reduce hardware costs.

Additionally, software development costs must be accounted for, including licensing fees, third-party integrations, and security measures. If proprietary software is required for certain functionalities, licensing expenses may increase, potentially straining the budget. Open-source alternatives may be explored to reduce costs while maintaining system efficiency and security.

The cost of training and user adoption also poses a financial challenge. Effective implementation requires training sessions for students, faculty, and administrative staff, which may necessitate additional funding for training materials, instructor fees, and technical support personnel. Limited funding may require the

university to conduct phased training sessions or leverage online training materials to minimize expenses.

Furthermore, long-term maintenance and system upgrades must be considered in the budget planning. The CMS will require regular updates, security patches, and troubleshooting support to ensure continued functionality. Without proper financial allocation for system maintenance, future enhancements and security upgrades may be delayed, affecting system performance and user satisfaction.

To address these budgetary constraints, the university may explore external funding sources, such as government grants, academic research funding, or industry partnerships, to supplement development costs. Additionally, cost-effective solutions, such as cloud-based deployment, open-source technologies, and internal university IT support, may be utilized to ensure the project's sustainability while maintaining financial efficiency.

2.3.4. Cost-Benefit Analysis and Return on Investment

To assess the financial feasibility of the Complaint Management System (CMS), a comprehensive Cost-Benefit Analysis (CBA) was conducted. The analysis considered the system development costs, annual maintenance expenses, and potential benefits derived from improved complaint resolution efficiency, reduced administrative workload, and enhanced transparency.

The estimated development and implementation cost of the system was PHP 200,000, covering software development, security features, hosting, training, and documentation. On the other hand, the projected annual benefits resulting from

improved system efficiency, faster resolution time, and reduced administrative workload amount to PHP 170,000 per year.

With these figures, the system is expected to recover its initial cost within 1.2 years and generate a Return on Investment (ROI) of 750% over subsequent years. The high ROI reflects the system’s cost-effectiveness and ability to significantly improve complaint handling processes at WVSU-HCC.

Additionally, if the CMS is deployed in other institutions, the estimated commercialization cost ranges from PHP 200,000 - 250,000 for a one-time license fee or PHP 50,000 - 70,000 for an annual subscription model. These potential revenue streams highlight the system’s scalability and potential financial sustainability beyond its initial implementation.

Table 4

Development and Implementation Cost

Expense Category	Cost (PHP)	Details
System Development	PHP 150,000	PHP (Laravel Framework), MySQL Backend
Domain & Hosting (1 Year)	PHP 5,000	Web hosting & domain registration
Security Features	PHP 15,000	Encryption, Role-based Access Control
Training & Documentation	PHP 10,000	User training and system documentation
Maintenance & Support (1 Year)	PHP 20,000	Technical support and periodic updates
Total Development Cost	PHP 200,000	Fully operational CMS with security and training

Table 5

Annual Benefits and Cost Savings

Benefit Category	Annual Savings (PHP)	Details
Reduced Administrative Time	PHP 80,000	Faster complaint handling reduces staff workload
Reduced Paper & Manual Processes	PHP 25,000	Transition to a digital platform
Faster Complaint Resolution	PHP 45,000	Fewer unresolved issues and less miscommunication
Improved Decision-Making	PHP 20,000	Data-driven improvements reduce operational inefficiencies
Total Annual Benefits	PHP 170,000	Cumulative gains in efficiency and accountability

Table 6

Payback Period and Return of Investment

Metric	Amount (PHP)
Total Development Cost	PHP 200,000
Annual Benefits (Savings)	PHP 170,000
Annual Maintenance Costs	PHP 20,000
ROI (%)	750%

With these figures, the system is expected to recover its initial cost within 1.2 years, calculated using the formula:

$$\text{Payback Period} = \text{Total Development Cost} / \text{Annual Benefits}$$
$$\text{PHP } 200,000 / \text{PHP } 170,000 \approx 1.2 \text{ years}$$

Additionally, the system is projected to generate a Return on Investment (ROI) of 750% over subsequent years, calculated as:

$$\text{ROI (\%)} = [(\text{Annual Benefits} - \text{Annual Costs}) / \text{Annual Costs}] \times 100$$

2.4 Assumptions and Dependencies

The effective development and deployment of the Complaint Management System (CMS) project depends on several key assumptions and external dependencies. Recognizing and managing these factors is essential to ensure the project progresses smoothly and achieves its objectives.

2.4.1 Assumptions

The successful implementation of the Complaint Management System (CMS) at West Visayas State University Himamaylan City Campus (WVSU-HCC) depends on several key assumptions that must be met for the system to function as intended. First, it is assumed that key stakeholders—students, faculty, and administrative staff—will actively participate in the system's design, testing, and training phases. Their involvement is critical for providing feedback and ensuring the CMS meets user needs, facilitating a smooth transition to the new platform.

Another assumption is that users will readily adopt the CMS, replacing traditional complaint submission methods, such as paper-based or email-based systems, without significant resistance. This widespread adoption is essential for the system's success. Additionally, it is presumed that the university's existing IT infrastructure, including servers and network capacity, will be sufficient to support the

CMS without requiring major upgrades. This is based on the expectation that current resources can effectively handle the system's requirements.

The project also assumes that the university will remain compliant with data privacy regulations, such as the Data Privacy Act of 2012 (Republic Act No. 10173), to ensure the secure handling of personal information collected and stored within the CMS. To achieve compliance, the system will implement role-based access control (RBAC), ensuring that only authorized personnel can access sensitive data. Additionally, all complaint records will be protected through data encryption (AES-256 standard) and secure authentication mechanisms to prevent unauthorized access or breaches. The system will also generate audit logs to monitor all activities related to data handling, ensuring transparency and accountability in compliance with university data protection policies. Furthermore, clear user consent agreements will be incorporated into the complaint submission process, informing users of how their data will be used, stored, and protected. By adhering to these security measures and regulatory requirements, the CMS will ensure compliance with national data protection laws while safeguarding the privacy and confidentiality of all users.

Finally, the availability of sufficient development resources, including developers and IT support staff, is assumed throughout the project lifecycle. These resources are vital for meeting deadlines and requirements, ultimately contributing to the successful and timely deployment of the CMS.

2.4.2 Dependencies

The successful implementation of the Complaint Management System (CMS) at West Visayas State University - Himamaylan City Campus (WVSU-HCC) depends significantly on the compatibility of the university's existing IT infrastructure, including servers, databases, and network systems, all of which must align with the CMS requirements. Coordination with the university's IT department is necessary to determine whether access to the current system will be granted or if alternative hosting solutions, such as dedicated servers or cloud-based deployment, need to be considered. Any required upgrades or modifications to the infrastructure must be carefully planned to avoid disruptions during implementation. Additionally, strict security protocols must be followed to ensure data integrity and privacy when integrating with the university's systems.

Another critical factor is the reliance on third-party software components, such as the Laravel PHP framework and MySQL database system, to ensure the CMS's functionality. Updates or changes to these components during development could impact the project timeline and necessitate adjustments to the system's design or features. To mitigate potential issues, regular compatibility checks and version control management will be implemented, ensuring that updates do not interfere with the system's core functionalities. Proper documentation and contingency plans will also be in place to address unexpected compatibility challenges.

The involvement of key stakeholders, including members of the grievance committee, IT department, administrative staff, and faculty representatives, is vital to the system's success. Their active participation in requirement gathering, system testing, feedback sessions, and decision-making ensures that the CMS aligns with the

university's needs and operational standards. To prevent potential adoption challenges, early consultations, user training sessions, and informational campaigns will be conducted, addressing concerns and promoting a smooth transition to the new system. A structured support system will also be in place post-deployment to assist users in navigating the system efficiently and addressing any concerns.

Strict adherence to data privacy regulations, such as the Data Privacy Act of 2012, is another critical dependency. Any amendments to these laws or the introduction of new regulations could require system updates to maintain compliance and protect user data. The CMS will incorporate role-based access control, encrypted storage, and automated security updates to ensure continued compliance with evolving privacy standards. Regular security audits will be performed to identify and mitigate vulnerabilities, ensuring that user data remains protected.

To proactively address these dependencies and deliver a secure, efficient, and functional CMS for WVSU-HCC, several measures will be implemented. The system will be deployed using optimized server configurations, ensuring smooth operation within the university's network while maintaining flexibility for future upgrades. Regular meetings, feedback collection, and training sessions will be conducted with key stakeholders to ensure smooth adoption and operational efficiency. Continuous monitoring of legal and security updates will be implemented, with automated system updates to address any necessary compliance modifications. A dedicated technical support team will oversee system maintenance, including bug fixes, security enhancements, and user assistance, ensuring the CMS remains reliable and fully operational. By integrating these strategies, the CMS will effectively manage

complaints, uphold security and compliance standards, and ensure seamless adoption within WVSU-HCC.

Chapter III

SYSTEM FEATURES

The Complaints Management System of West Visayas State University Himamaylan City Campus is designed to streamline receiving, addressing, and resolving student and faculty concerns. A key feature is the user-friendly complaint submission form, allowing users to easily log feedback and provide detailed descriptions of issues. The system then automatically categorizes and routes complaints to the appropriate departments or personnel, ensuring prompt attention. Administrators and designated staff have access to a secure dashboard to track the status of complaints, update progress, and communicate resolutions directly to the complainant. Robust search functionality allows for quick retrieval of specific cases or trends in feedback, aiding in identifying recurring issues and informing process improvements. The CMS prioritizes clear communication channels and timely updates, fostering transparency and accountability throughout the complaint resolution process.

3.1 System Decomposition

The CMS can be broken down into several core modules, each designed to perform specific functions for efficiently managing complaints.

The **Complaint Submission Module** provides a user-friendly interface that allows students and faculty to easily submit their complaints. It includes input fields for detailed descriptions of the issues and the option to attach supporting documents when necessary. This module also includes complaint categorization logic, ensuring complaints are appropriately categorized into types such as academic, facilities, or administrative.

The **Complaint Routing Module** utilizes a rules-based engine to assign complaints to the relevant departments or personnel. This configurable module allows complaints to be routed based on type, department, or staff availability. It also includes escalation mechanisms to promptly address urgent or unresolved issues.

The **Tracking & Communication Module** includes a dashboard for administrators and staff to monitor the status of complaints in real time. This module allows staff to update progress notes and communicate directly with the complainant. Additionally, it sends automated notifications to the complainants, keeping them informed of any status updates or changes regarding their complaints.

The **Reporting & Analytics Module** enables the generation of various reports related to complaint volume, resolution times, and common types of issues. It also features trend analysis tools to identify recurring problems, providing valuable insights for future process improvements.

Finally, the **Security & Access Control Module** ensures the protection of sensitive data by implementing role-based authentication and authorization systems. Data encryption safeguards personal information, while audit logging records system activity for security and accountability purposes.

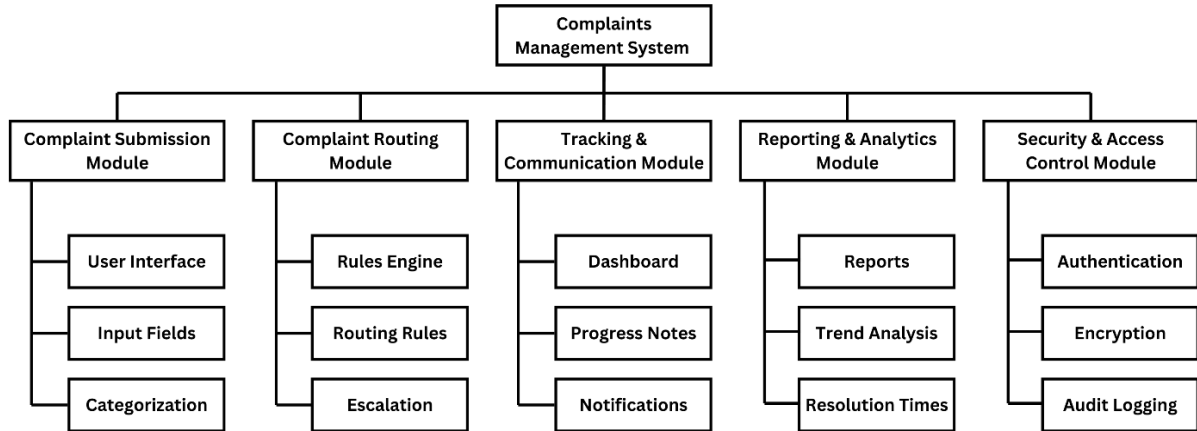
In conclusion, the Complaint Management System (CMS) is designed to streamline the complaint submission, routing, tracking, and resolution processes, offering a comprehensive and efficient solution for West Visayas State University - Himamaylan City Campus. Each module serves a specific purpose, ensuring a seamless and organized approach to managing complaints, enhancing communication, and fostering transparency. The system's modular architecture allows scalability, secure data handling, and insightful

reporting, ultimately contributing to continuous improvement and better service delivery.

An overview of these modules is shown in Figure 2.

Figure 2

Decomposition Diagram



3.2. System Functionalities

The West Visayas State University - Himamaylan City Campus Complaint Management System (CMS) is designed to provide an efficient and streamlined process for receiving, managing, and resolving complaints from students and faculty. One of the core features of the system is its secure, user-friendly complaint submission interface, which allows users to easily lodge complaints with detailed descriptions of the issues they are facing. The system ensures that complaints are captured and stored securely, allowing for easy access and retrieval of information as needed. This feature enables the university to centralize complaint management, reducing reliance on paper-based or manual processes and improving the overall efficiency of handling student and faculty concerns.

In addition to the complaint submission functionality, the CMS includes automated categorization and routing mechanisms that ensure each complaint is directed to the appropriate department or personnel for resolution. These features facilitate a swift and organized response to issues, minimizing delays in addressing complaints. The system also incorporates robust tracking tools that provide real-time updates on the status of each complaint, fostering transparency and accountability in the process. With secure data storage, organized complaint records, and easy access to progress reports, the CMS ensures that all complaints are managed effectively, contributing to improved communication and timely resolution of issues within the university.

3.3. System Features

In the context of the Complaint Management System (CMS) at West Visayas State University - Himamaylan City Campus, the system features refer to the specific functionalities and capabilities designed to address the needs of students, faculty, and staff in submitting and resolving complaints. These features outline the core operations of the system, such as complaint submission, categorization, routing, tracking, and communication, ensuring that each complaint is efficiently managed. By aligning with the university's objectives of transparency, accountability, and user satisfaction, the system's features are tailored to enhance the overall complaint-handling process, providing a seamless and secure experience for all users.

3.3.1. Secure User Authentication

3.3.1.1.Descriptive and Priority

The secure login feature of the Complaint Management System (CMS) is foundational to its functionality, ensuring that only authorized users—students, faculty, and administrative staff—can access sensitive data. By requiring a secure login, the CMS protects the integrity and confidentiality of complaint submissions, updates, and resolutions. This feature is of the highest priority, as it safeguards user privacy and reinforces trust in the system. By controlling access based on user role, the secure login feature allows for tailored permissions that align with each user's level of responsibility, enhancing both usability and security within the CMS.

3.3.1.2. Secure user authentication Stimulus / Response Sequences

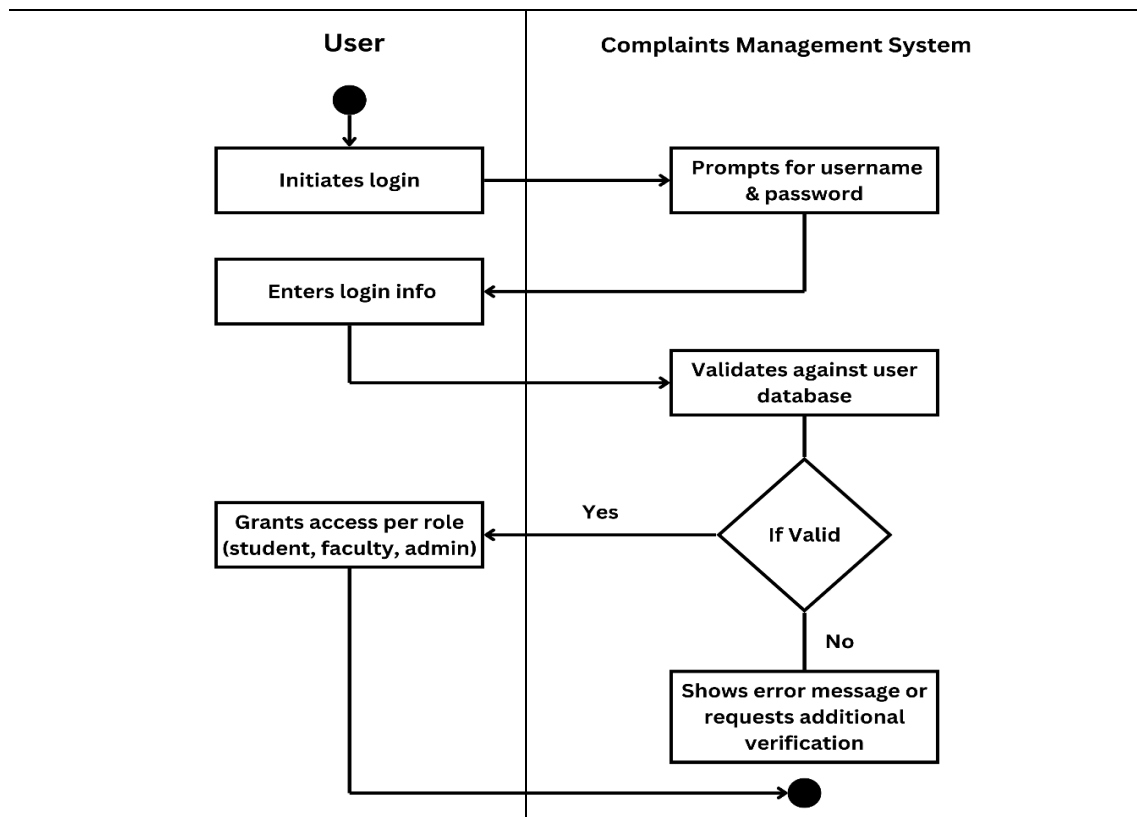
Secure user authentication is a cornerstone of the Complaint Management System (CMS), ensuring that only authorized users—students, faculty, or administrators—can access the platform. This process involves a series of well-defined steps, starting from the user initiating a login attempt to the system validating their credentials against a secure database. Access is granted if the credentials are valid based on the user's role; otherwise, error-handling mechanisms are triggered to prevent unauthorized access. These measures, including potential additional security layers like multi-factor authentication, are crucial for protecting sensitive data and maintaining the system's integrity.

Table 7

Secure user authentication Stimulus/Response Sequences

Stimulus/Response	Sequence Description
1. User Initiates Login	The user accesses the CMS login page and initiates the login process.
2. System Prompts for Credentials	The system prompts the user to enter their username and password.
3. Credentials Validation	The system checks the entered username and password against a secure user database.
4. Access Granted (if valid)	If credentials are valid, the system grants access based on the user role (student, faculty, admin).
5. Error Handling (if invalid)	If credentials are invalid, the system displays an error message and may implement additional security measures (e.g., multi-factor authentication or email verification).

Activity Flow



3.3.1.3. Functional Requirements

The secure login functionality of the CMS entails several critical requirements to maintain robust security and accessibility for users. The login form includes fields for username and password, designed for simplicity and ease of use while upholding strict security standards. To protect user credentials, the system employs advanced password encryption and secure storage protocols. The CMS also enforces role-based access control, limiting access to specific functions based on the user type—student, faculty, or admin—to prevent unauthorized activity.

Additionally, the system incorporates session management with automatic timeouts to protect against unintended access after inactivity. For user convenience and security, a password reset and recovery feature is available for those who may forget or have difficulty with their credentials. Finally, the CMS includes audit logging to track login activity, recording each access attempt, and enabling system administrators to monitor and review login patterns. Together, these functional elements ensure a secure and user-friendly experience while protecting sensitive information within the complaint management process.

3.3.2. Complaint Submission

3.3.2.1. Descriptive and Priority

The complaint submission feature is a central component of the CMS, allowing users to efficiently lodge detailed complaints directly within the system. This feature greatly enhances user experience by streamlining the submission

process, enabling students, faculty, and staff to voice concerns in a structured and accessible manner. It also plays a critical role in the system's overall effectiveness, facilitating the organized collection of information necessary for swift resolution. Given its direct impact on user satisfaction and the overall efficiency of the complaint management process, this feature is highly prioritized within the CMS framework.

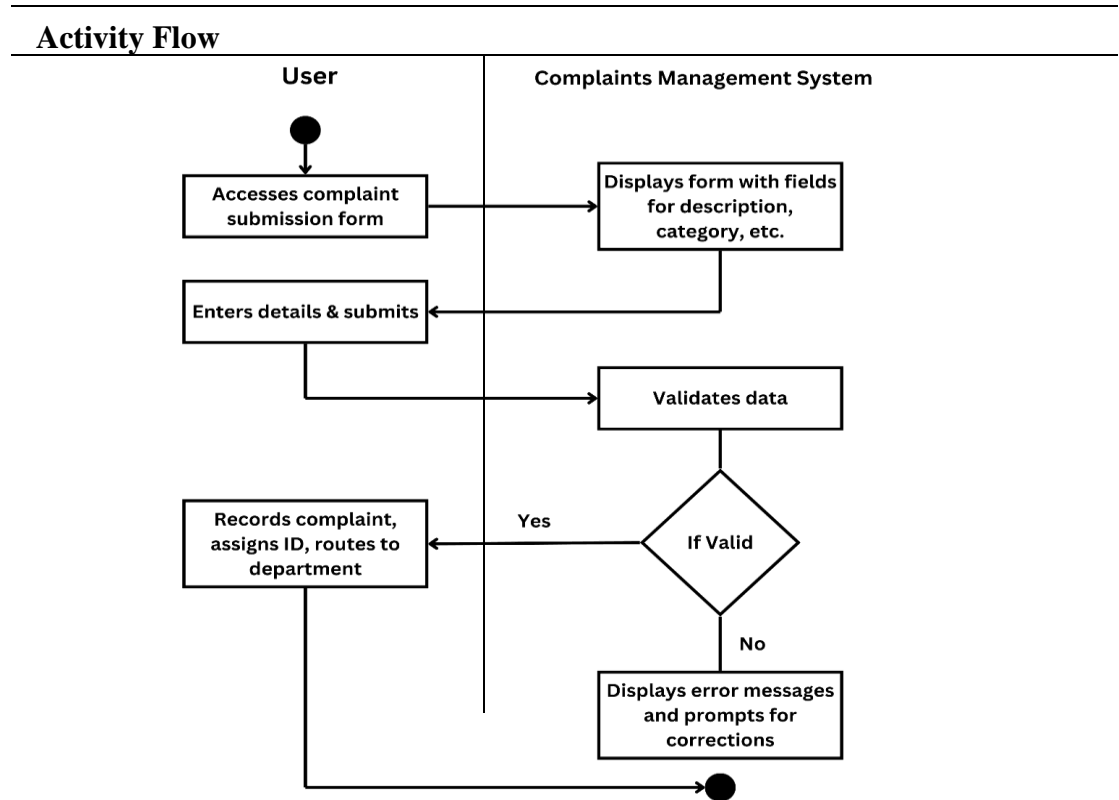
3.3.2.2. Complaint Submission Stimulus / Response Sequences

The complaint submission process in the Complaint Management System (CMS) ensures users can report issues efficiently while maintaining accuracy and data integrity. This process involves a structured sequence, starting with the user accessing the complaint submission form and filling in details such as the complaint description, category, and contact information. The system then validates the submitted data to ensure all mandatory fields are completed and correctly formatted. Once validated, the complaint is recorded with a unique ID and routed to the appropriate department for resolution. If the data is invalid, error messages guide the user to address any issues, ensuring that submissions meet the required standards before processing.

Table 8

Complaint Submission Stimulus/Response Sequences

Stimulus/Response	Sequence Description
1. Access "Submit Complaint"	The user accesses the CMS's complaint submission form.
2. System Presents Form	The system displays fields for complaint description, categorization (e.g., academic, facilities), attachments, and contact information.
3. User Completes Form	The user fills in the required fields and submits the form.
4. Validation Checks	The system checks if all mandatory fields are completed and data formats are correct.
5. If Valid, Record Complaint	If the data is valid, the system assigns a unique complaint ID, records the complaint, and routes it to the appropriate department.
6. If Invalid, Display Error	If data is invalid, the system displays error messages to guide the user in completing the required fields or correcting data formats.



3.3.2.3. Functional Requirements

The complaint submission feature within the CMS incorporates several essential requirements to ensure a user-friendly and effective experience. The submission form is designed with intuitive fields and clear instructions, helping users easily understand and complete the process. To streamline categorization, the form includes drop-down menus or selection logic that classifies complaints into categories such as "academic," "facilities," or "administrative," guiding complaints to the relevant department.

For flexibility, the form also allows users to attach files that may provide additional context or evidence, further supporting the complaint resolution process. Data validation checks are implemented to ensure that all required fields are filled in correctly and that data formats are accurate. The system confirms successful submission to enhance transparency and assurance, generating a unique complaint ID that users can reference for tracking and follow-up. These functional elements make the complaint submission process efficient, organized, and reliable for users and administrators.

3.3.3. Complaint Tracking & Status Updates

3.3.3.1. Descriptive and Priority

The complaint tracking and status update feature is essential for maintaining transparency and user confidence within the CMS. This feature

enables users to monitor the progress of their complaints, fostering a sense of accountability in the complaint resolution process. By providing timely status updates and visibility into each complaint's handling, the system empowers users to stay informed and reassures them that their concerns are being addressed. This functionality is prioritized due to its critical role in enhancing user trust, reinforcing institutional responsiveness, and ensuring a transparent communication process between users and administrators.

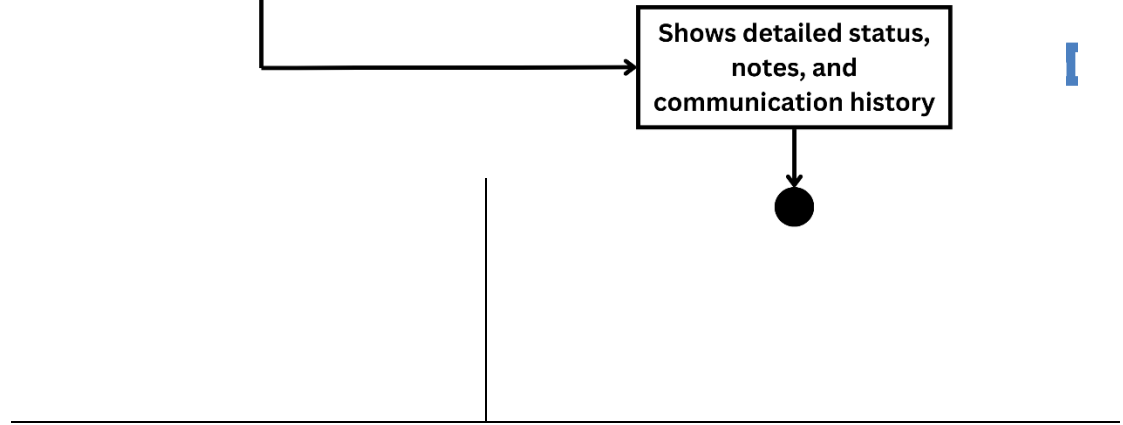
3.3.3.2. Complaint Tracking and Status Updates Stimulus / Response Sequences

The complaint tracking and status update feature in the Complaint Management System (CMS) provides users with a transparent and organized way to monitor the progress of their submitted complaints. Through this process, users can access the "View Complaint Status" section, where the system displays a comprehensive list of their complaints, including unique IDs, submission dates, and current statuses. By selecting a specific complaint, users can view detailed status updates, notes from administrators, and the full communication history. This functionality ensures users remain informed about the progress and resolution of their complaints, fostering accountability and effective communication.

Table 9

Complaint Tracking and Status Updates Stimulus/Response Sequences

Stimulus/Response	Sequence Description
1. Access Status Section	The user accesses the "View Complaint Status" section in the CMS.
2. Display Complaint List	The system displays a list of complaints submitted by the user, with details such as unique IDs, dates, and current statuses (e.g., open, in-progress, resolved).
3. Select Complaint for Details	The user selects a specific complaint from the list to view further details.
4. Display Status Details	The system displays the complaint's status updates, any notes added by administrators, and the full communication history related to that complaint.
Activity Flow	



3.3.3.3. Functional Requirements

The complaint tracking and status update feature incorporates key functionalities designed to provide users with a seamless and informative experience. A dashboard allows users to easily manage and track multiple complaints, displaying an organized list of submitted complaints alongside unique identifiers, dates, and statuses (e.g., open, in-progress, resolved). To improve clarity, each complaint entry includes clear status indicators and timelines, helping users quickly understand the current stage of resolution. A detailed view is also available for individual complaints, presenting comprehensive information, including status updates, administrative notes, and communication history. These functionalities ensure users have complete visibility into their complaints' status, fostering accountability and transparency within the CMS.

Chapter IV

EXTERNAL INTERFACE REQUIREMENTS

4.1. User Interfaces

The Complaint Management System (CMS) for West Visayas State University - Himamaylan City Campus (WVSU-HCC) is designed to accommodate multiple user roles, each with specific access levels and functionalities. The system will support four primary user classifications: Students, Faculty and Staff, Administrative Personnel, and System Administrators. Students and faculty will be able to submit complaints, track their status, and receive automated updates, while administrative personnel will manage, categorize, and resolve complaints. System administrators will oversee system security, user access, and data management to ensure smooth operations.

The CMS user interface (UI) is designed to be intuitive, responsive, and accessible across various devices, including desktops, laptops, tablets, and mobile phones. The system features a web-based dashboard tailored for each user role, ensuring ease of navigation and functionality. The Student and Faculty Interface includes a complaint submission form, complaint status tracking, and notification alerts, allowing users to monitor the progress of their concerns. The Administrative Dashboard provides tools for complaint categorization, case assignment, and resolution tracking, enabling administrative personnel to manage complaints efficiently. The System Administrator Interface includes user management, security settings, and system monitoring tools to ensure proper system maintenance and data integrity.

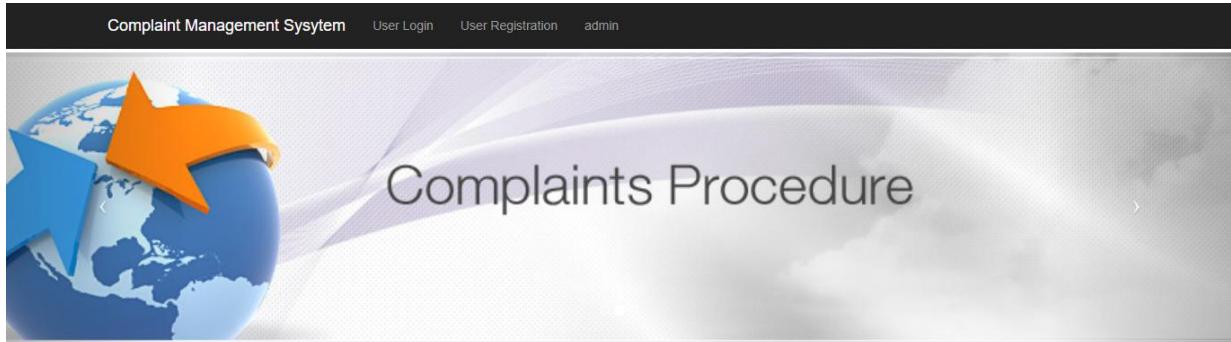
To enhance user experience, the UI follows a structured layout with minimal complexity, incorporating clear navigation menus, interactive forms, and visual indicators for complaint progress. Accessibility features such as search functionality, filter options, and mobile responsiveness ensure that users can efficiently interact with the system regardless of their device. By implementing a user-friendly interface, the CMS aims to streamline complaint handling, improve response times, and ensure transparency in the resolution process at WVSU-HCC.

4.1.1. Output Screen of System

The Output Screen is the landing page and entry point for the Complaint Management System (CMS). This screen presents users with the system's cover page, offering a clear and simple interface with buttons for User Login, User Registration, and Admin Login. Users can easily navigate the page to log in, create a new account, or access the administrative portal. The Output Screen provides a clean, intuitive entry point for users and administrators, ensuring seamless access to the system's functionalities.

Figure 3

Home Page



Complaint Management System

4.1.2. User Module

The User Module is the interface designed for students, faculty, and staff to submit complaints. This module simplifies the complaint submission process by offering an intuitive online form where users can describe their issues, attach supporting files, and categorize complaints. Users can also view the current status of their complaints and receive real-time notifications on any updates or actions taken. The User Module fosters engagement by keeping complainants informed and involved in the resolution process.

Figure 4

Sign Up

Complaint Management System

USER REGISTRATION

Registration successful. Now you can login !

Full Name

Email ID

Password

Contact no

Register

Already Registered
Sign in

Figure 5

Login Page

Complaint Management System

SIGN IN NOW

Email

Password

Forgot Password?

SIGN IN

Don't have an account yet?
Create an account

Figure 6

Profile

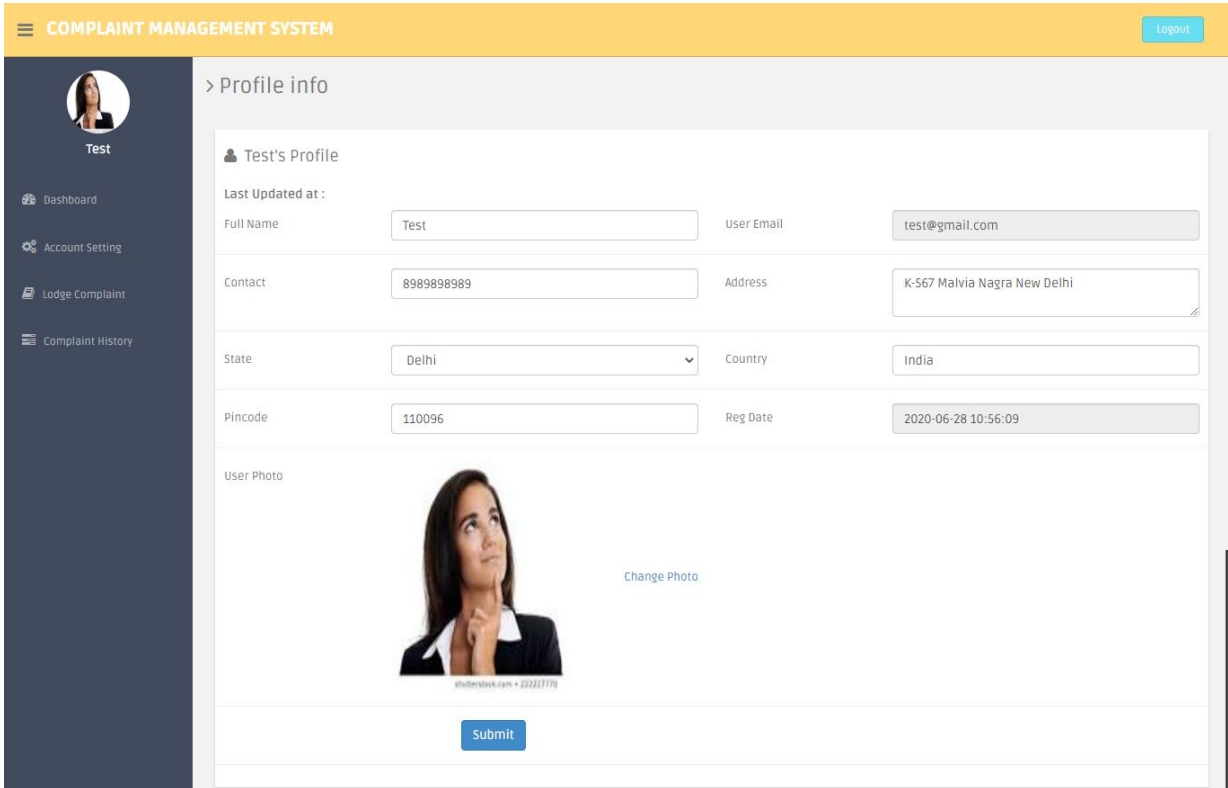


Figure 7

Change Profile Image

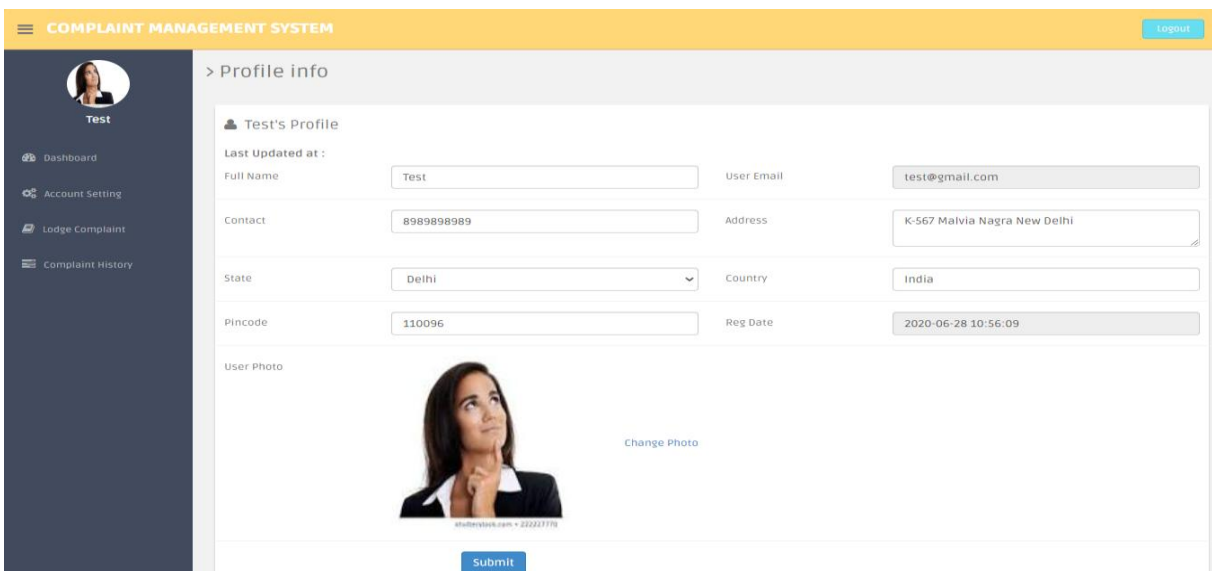


Figure 8

Change Password

COMPLAINT MANAGEMENT SYSTEM Logout

Test

- Dashboard
- Account Setting
- Lodge Complaint
- Complaint History

> Change Password

> User Change Password

Current Password

New Password

Confirm Password

Figure 9

Complain Form

COMPLAINT MANAGEMENT SYSTEM Logout

Test

- Dashboard
- Account Setting
- Lodge Complaint
- Complaint History

> Register Complaint

Category Sub Category

Complaint Type State

Nature of Complaint

Complaint Details (max 2000 words)

Complaint Related Doc(if any) No file chosen

Figure 10

Complain History

COMPLAINT MANAGEMENT SYSTEM Logout

Test

>Your Complaint History

Complaint Number	Reg Date	last Updation date	Status	Action
1	2020-06-28 11:08:35	2020-06-28 11:28:28	Closed	View Details
2	2020-06-28 11:14:44		Not Process Yet	View Details

2020 - Complaint Management System

Figure 11

View Complain Detail

COMPLAINT MANAGEMENT SYSTEM Logout

Test

> Complaint Details

Complaint Number : 1 Reg. Date : 2020-06-28 11:08:35

Category : Other Sub Category : other

Complaint Type : Complaint State : Delhi

Nature of Complaint : complain against bank File : [View File](#)

Complaint Details : Sample Test

Remark: This sample text for testing
Remark Date: 2018-09-05 22:38:26

Status: closed

Final Status : closed

4.1.2. Admin Module

Figure 12

Login

Complaint Mngaement System | Admin Back to Portal

Sign In

Login

Figure 13

Dashboard

Complaint Management System-(CMS) | Admin Admin

- Dashboard
- Subordinates (Sub-admin)
- Manage Complaint
- Manage users
- Reports
- Add Category
- Add Sub-Category
- Add State
- User Login Log
- Logout

Dashboard


Total	Not Processed Yet	In Process	Not Forwarded Pending	Closed
2	1	0	1	1

Sub Admin Data

Subadmin Name /Dept	Total	Not Processed Yet	In Process	Closed
Sub Admin-Finance	1	0	0	1
Grand Total	1	0	0	1

Figure 14

Admin Profile

Complaint Management System-(CMS) | Admin Admin 

- Dashboard
- Subordinates (Sub-admin)
- Manage Complaint
- Manage Users
- Reports
- Add Category
- Add Sub-Category
- Add State
- User Login Log
- Logout

admin's Profile

Admin Name

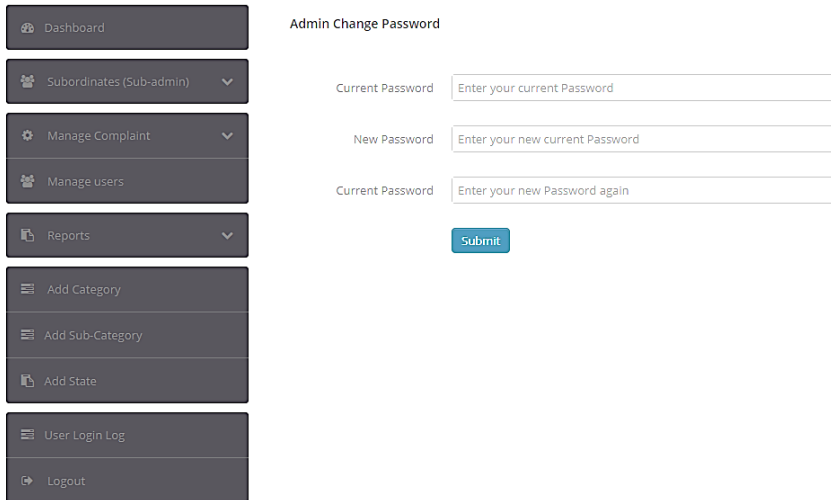
User Name

Email-Id

Contact Number

Figure 15

Change Password



Admin Change Password

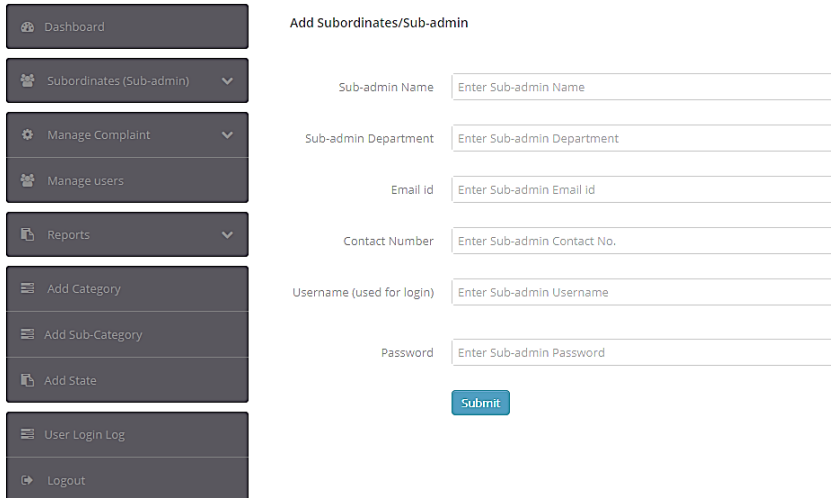
Current Password

New Password

Current Password

Figure 16

Add Sub Admin



Add Subordinates/Sub-admin

Sub-admin Name

Sub-admin Department

Email id

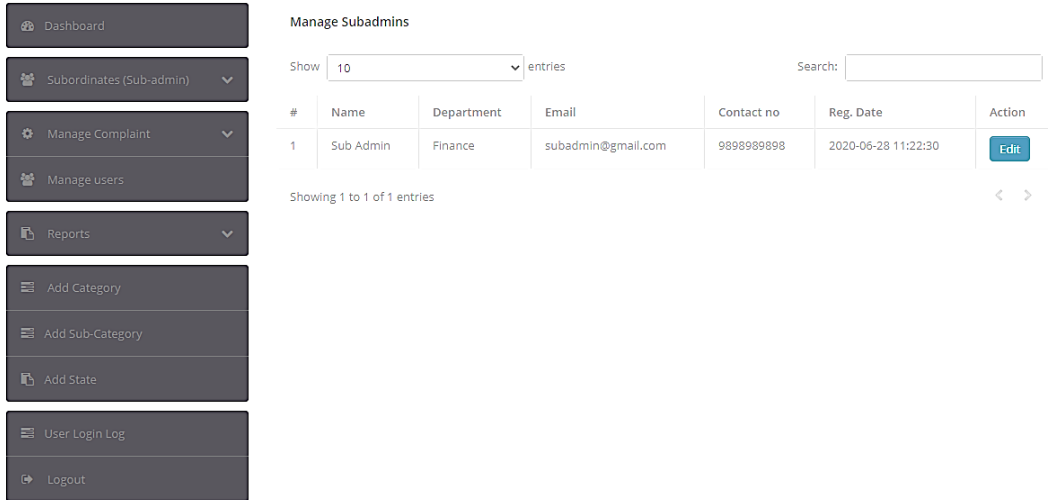
Contact Number

Username (used for login)

Password

Figure 17

Manage Sub Admin



#	Name	Department	Email	Contact no	Reg. Date	Action
1	Sub Admin	Finance	subadmin@gmail.com	9898989898	2020-06-28 11:22:30	Edit

Figure 18

Update Sub Admin

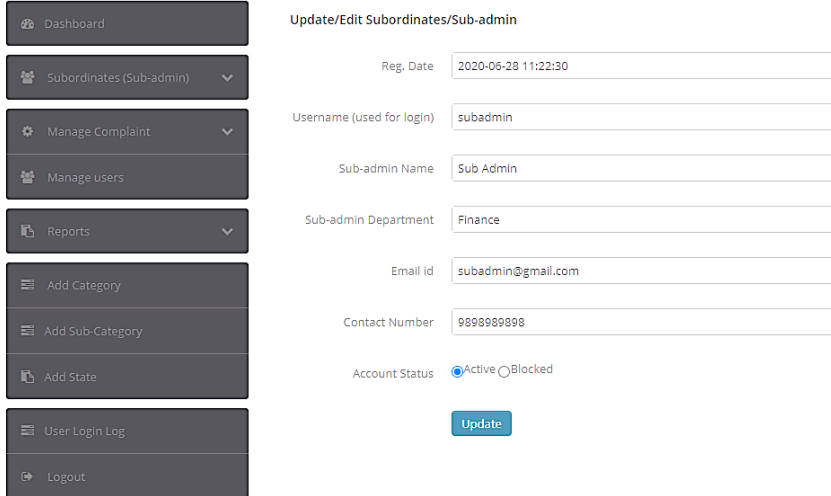


Figure 19

Not Process Complain

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Not Processed Yet Complaints

Show entries Search:

Complaint No	complainant Name	Reg Date	Status	Action
2	Test	2020-06-28 11:14:44	Not process yet	View Details

Showing 1 to 1 of 1 entries < >

Figure 20*View Not Process Complain*

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Complaint Details

Complaint Number	2	Complainant Name	Test	Reg Date	2020-06-28 11:14:44
Category	E-commerce	SubCategory	Online Shopping	Complaint Type	General Query
State	Punjab	Nature of Complaint	Sample Text		
Complaint Details	Sample Text				
File(if any)	View File				
Final Status	Not Process Yet				
Remark	Hi this for demo		Remark By :	Admin	
Status	in process		Remark Date :	2017-04-01 22:59:19	
Action	Forward To Take Action View User Details				

Figure 21*In Process Complaints*

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

In Process Complaints

Show entries Search:

Complaint No	complainant Name	Reg Date	Status	Action
2	Test	2020-06-28 11:14:44	In Process	View Details

Showing 1 to 1 of 1 entries < >

Figure 22*View In Process Complaints*

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Complaint Details

Complaint Number	2	Complainant Name	Test	Reg Date	2020-06-28 11:14:44
Category	E-commerce	SubCategory	Online Shopping	Complaint Type	General Query
State	Punjab	Nature of Complaint	Sample Text		
Complaint Details	Sample Text				
File(if any)	View File				
Final Status	in process				
Remark	Hi this for demo			Remark By :	Admin
Status	in process			Remark Date :	2017-04-01 22:59:19
Remark	Your complain is in process			Remark By :	Admin
Status	in process			Remark Date :	2020-06-28 13:01:38
Action	Forward To Take Action View User Details				

Figure 23*Not Forwarded Pending Complaints*

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Not Forwarded Pending Complaints

Show entries Search:

Complaint No	complainant Name	Reg Date	Status	Action
2	Test	2020-06-28 10:56:09	In Process	View Details

Showing 1 to 1 of 1 entries < >


Figure 24*View Not Forwarded Pending Complaints*


- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)


Complaint Details


Complaint Number	2	Complainant Name	Test	Reg Date	2020-06-28 11:14:44
Category	E-commerce	SubCategory	Online Shopping	Complaint Type	General Query
State	Punjab	Nature of Complaint	Sample Text		
Complaint Details	Sample Text				
File(if any)	View File				
Final Status	in process				
Remark	Hi this for demo			Remark By :	Admin
Status	in process			Remark Date :	2017-04-01 22:59:19
Remark	Your complain is In process			Remark By :	Admin
Status	in process			Remark Date :	2020-06-28 13:01:38
Action	Forward To Take Action View User Details				


Figure 25*Closed Complaints*


 Dashboard


 Subordinates (Sub-admin) ▼


 Manage Complaint ▼


 Manage users


 Reports ▼

 Add Category

 Add Sub-Category

 Add State

 User Login Log

 Logout


Closed Complaints


Show entries Search:


Complaint No	complainant Name	Reg Date	Status	Action
1	Test	2020-06-28 11:08:35	Closed	View Details


Showing 1 to 1 of 1 entries < >


Figure 26*View Closed Complaints*


 Dashboard


 Subordinates (Sub-admin) ▼


 Manage Complaint ▼


 Manage users


 Reports ▼

 Add Category

 Add Sub-Category

 Add State

 User Login Log

 Logout

Complaint Details

Complaint Number	1	Complainant Name	Test	Reg Date	2020-06-28 11:08:35
Category	Other	SubCategory	other	Complaint Type	Complaint
State	Delhi	Nature of Complaint	complain against bank		
Complaint Details	Sample Test				
File(if any)	View File				
Final Status	closed				
Forward to	Sub Admin- (Finance)		Forward Date	2020-06-28 11:22:47	
Remark	This sample text for testing			Remark By :	Admin
Status	closed			Remark Date :	2018-09-05 22:38:26
Remark	Complain has been resolve			Remark By :	Sub Admin-(Finance)
Status	closed			Remark Date :	2020-06-28 11:28:28
Action	View User Details				

Figure 27

Manage Users

- Dashboard
- Subordinates (Sub-admin)
- Manage Complaint
- Manage users**
- Reports
- Add Category
- Add Sub-Category
- Add State
- User Login Log
- Logout

Manage Users

Show entries Search:

#	Name	Email	Contact no	Reg. Date	Action
1	Anuj kumar	phpgurukultest@gmail.com	1234567890	2020-06-28 00:44:17	View Details Delete
2	Test	test@gmail.com	8889898989	2020-06-28 10:56:09	View Details Delete

Showing 1 to 2 of 2 entries < >

Figure 28

View User Details

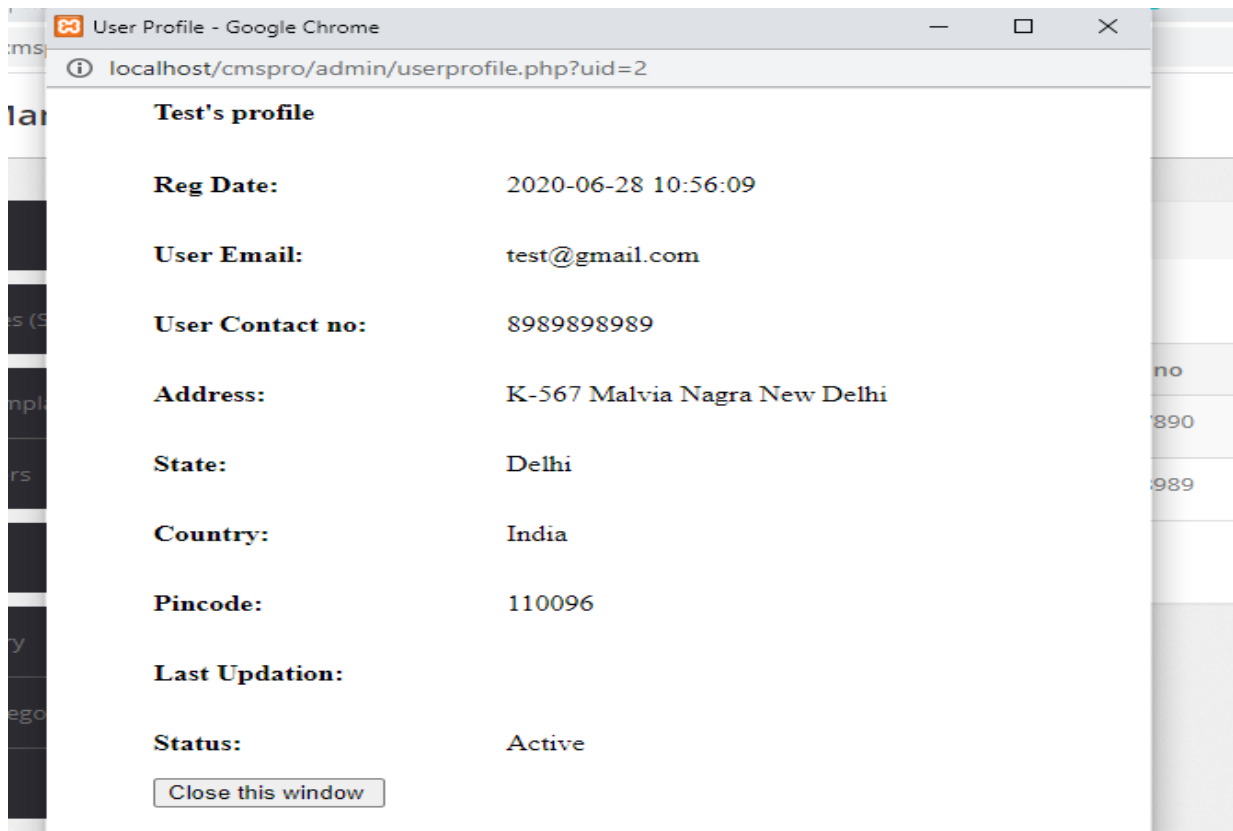


Figure 29

Between Dates Report

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

B/w Dates Report

From Date

To Date

[Submit](#)

Figure 30*View Between Dates Report*

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage Users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)











Between Dates Report from 26-06-2020 to 28-06-2020

Show entries Search:


Complaint No	complainant Name	Reg Date	Status	Action
1	Test	2020-06-28 11:08:35	Closed	View Details
2	Test	2020-06-28 11:14:44	In Process	View Details


Showing 1 to 2 of 2 entries < >

Figure 31*Sub Admin Report*

-  Dashboard
-  Subordinates (Sub-admin) ▼
-  Manage Complaint ▼
-  Manage users
-  Reports ▼
-  Add Category
-  Add Sub-Category
-  Add State
-  User Login Log
-  Logout

Subadmin B/w Dates Report











From Date 

To Date 

[Submit](#)

Figure 32

View Sub Admin Report

-  Dashboard
-  Subordinates (Sub-admin) ▼
-  Manage Complaint ▼
-  Manage users
-  Reports ▼
-  Add Category
-  Add Sub-Category
-  Add State
-  User Login Log
-  Logout

Subadmin Report from 25-06-2020 to 28-06-2020

Subadmin Name /Dept	Total	Not Processed Yet	In Process	Closed
Sub Admin-Finance	1	0	0	1
Grand Total	1	0	0	1

Figure 33

Add Category

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Category

Category Name

Description

Create

Manage Categories

Show entries Search:

#	Category	Description	Creation date	Last Updated	Action
1	E-commerce	E-commerce	2020-06-21 12:36:04	2020-06-28 00:26:17	✎ ⊕
2	Other	Other	2020-06-23 00:00:00	2020-06-28 00:29:53	✎ ⊕

Showing 1 to 2 of 2 entries < >

Figure 34*Add State*

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage Users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

State

State Name

Description

Create

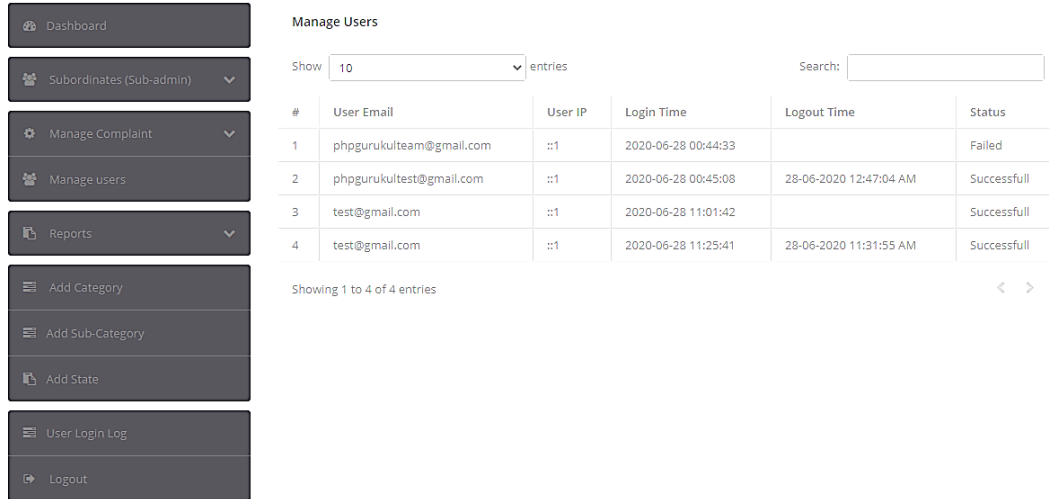
Manage States

Show entries Search:

#	State	Description	Creation date	Last Updated	Action
1	Delhi	India Capital	2020-06-28 00:48:02		✎ ⊕
2	Punjab	Punjab	2020-06-28 00:48:14		✎ ⊕
3	Haryana	HR	2020-06-28 00:48:34		✎ ⊕

Showing 1 to 3 of 3 entries < >

Figure 35*User Login Logs*



#	User Email	User IP	Login Time	Logout Time	Status
1	phpgurukulteam@gmail.com	::1	2020-06-28 00:44:33		Failed
2	phpgurukultest@gmail.com	::1	2020-06-28 00:45:08	28-06-2020 12:47:04 AM	Successfull
3	test@gmail.com	::1	2020-06-28 11:01:42		Successfull
4	test@gmail.com	::1	2020-06-28 11:25:41	28-06-2020 11:31:55 AM	Successfull

4.1.3. Sub Admin Module

The **Subadmin Module** is designed for department heads or sub-administrators responsible for resolving specific complaints. This interface allows subadmins to view complaints assigned to their department, update their status, communicate with the complainant, and escalate issues to higher authorities if needed. The module helps streamline complaint handling at the departmental level, ensuring that issues are addressed efficiently and effectively.

Figure 36

Login Page

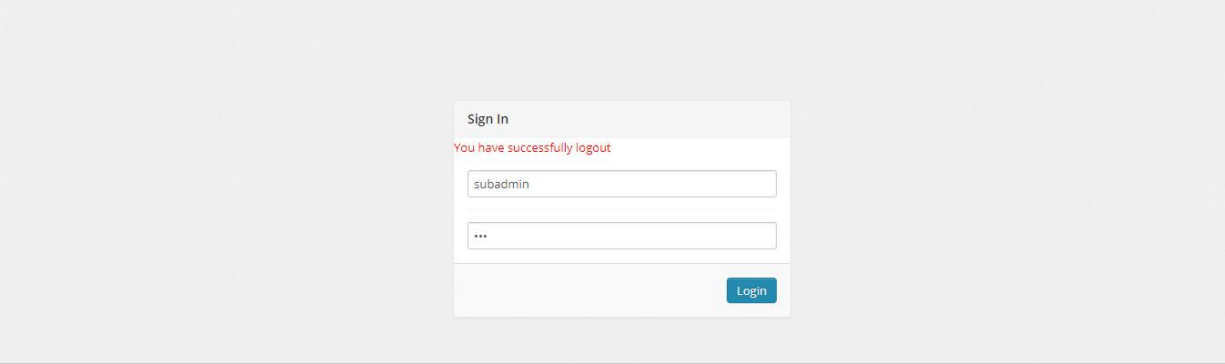


Figure 37

Dashboard

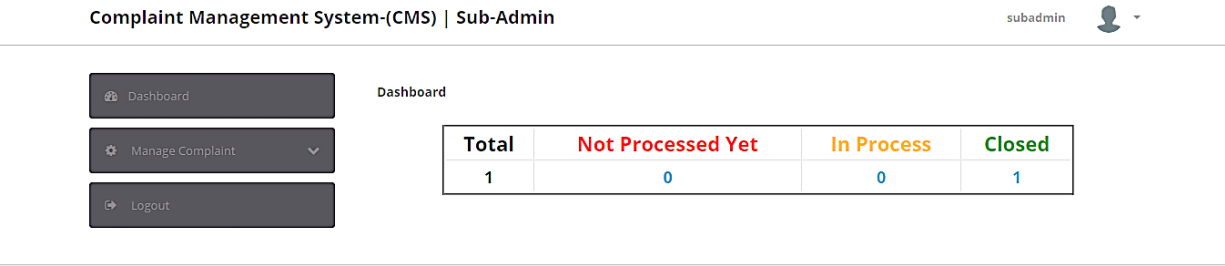






Figure 38

Profile

 Dashboard

 Manage Complaint 

 Logout

subadmin's Profile

Regd. Date: 2020-06-28 11:22:30

Sub-Admin Name:

Department:


Email-Id:



Contact Number:


UserName:

Figure 39

Change Password

 Dashboard

 Manage Complaint 

 Logout

Sub-Admin Change Password

Current Password:

New Password:

Confirm Password:

Figure 40

Not Process Complain

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Not Processed Yet Complaints

Show entries Search:

Complaint No	complainant Name	Reg Date	Status	Action
2	Test	2020-06-28 11:14:44	Not process yet	View Details

Showing 1 to 1 of 1 entries < >

Figure 41*View Not Process Complain*

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Complaint Details

Complaint Number	2	Complainant Name	Test	Reg Date	2020-06-28 11:14:44
Category	E-commerce	SubCategory	Online Shopping	Complaint Type	General Query
State	Punjab	Nature of Complaint	Sample Text		
Complaint Details	Sample Text				
File(if any)	View File				
Final Status	Not Process Yet				
Remark	Hi this for demo			Remark By :	Admin
Status	In process			Remark Date :	2017-04-01 22:59:19
Action	Forward To Take Action View User Details				

Figure 42*In Process Complaints*

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

In Process Complaints

Show entries Search:

Complaint No	complainant Name	Reg Date	Status	Action
2	Test	2020-06-28 11:14:44	In Process	View Details

Showing 1 to 1 of 1 entries < >

Figure 43

View In Process Complaints

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Complaint Details

Complaint Number	2	Complainant Name	Test	Reg Date	2020-06-28 11:14:44
Category	E-commerce	SubCategory	Online Shopping	Complaint Type	General Query
State	Punjab	Nature of Complaint	Sample Text		
Complaint Details	Sample Text				
File(if any)	View File				
Final Status	in process				
Remark	Hi this for demo	Remark By :	Admin		
Status	In process	Remark Date :	2017-04-01 22:59:19		
Remark	Your complain is in process	Remark By :	Admin		
Status	In process	Remark Date :	2020-06-28 13:01:38		
Action	Forward To Take Action View User Details				

Figure 44

Closed Complaints

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Closed Complaints

Show entries Search:

Complaint No	complainant Name	Reg Date	Status	Action
1	Test	2020-06-28 11:08:35	Closed	View Details

Showing 1 to 1 of 1 entries < >

Figure 45*View Closed Complaints*

- [Dashboard](#)
- [Subordinates \(Sub-admin\)](#)
- [Manage Complaint](#)
- [Manage users](#)
- [Reports](#)
- [Add Category](#)
- [Add Sub-Category](#)
- [Add State](#)
- [User Login Log](#)
- [Logout](#)

Complaint Details

Complaint Number	1	Complainant Name	Test	Reg Date	2020-06-28 11:08:35
Category	Other	SubCategory	other	Complaint Type	Complaint
State	Delhi	Nature of Complaint	complain against bank		
Complaint Details	Sample Test				
File(if any)	View File				
Final Status	closed				
Forward to	Sub Admin- (Finance)		Forward Date	2020-06-28 11:22:47	
Remark	This sample text for testing			Remark By :	Admin
Status	closed			Remark Date :	2018-09-05 22:38:26
Remark	Complain has been resolve			Remark By :	Sub Admin-(Finance)
Status	closed			Remark Date :	2020-06-28 11:28:28
Action	View User Details				

4.2. Hardware Interfaces

The Complaint Management System (CMS) is designed to be compatible with various hardware configurations, ensuring it can be accessed seamlessly from desktop computers, laptops, tablets, and mobile phones. This flexibility allows for broad accessibility, ensuring all users—students, faculty, and staff—can interact with the system from their preferred devices.

Table 10

Hardware Interfaces

4.2.1. Server Hardware Requirements

Category	Minimum Specification	Optimal Specification	Purpose/Benefits
Processor	Intel Core i5 (2.4 GHz) or equivalent	Intel Core i7 (3.2 GHz) / AMD Ryzen 7 (3.5 GHz) or higher	Ensures faster processing speeds for multiple concurrent complaint submissions and queries.
Memory (RAM)	8 GB DDR4	16 GB DDR4 / DDR5	Allows smoother multitasking and improved performance, especially under high user loads.
Storage	500 GB HDD / SSD	1 TB SSD (NVMe)	SSDs provide faster data access, quicker complaint retrieval, and reduced system lag.
Network	High-speed Ethernet (1 Gbps)	Gigabit Ethernet (10 Gbps) with Redundant Connection	Ensures real-time updates, reduced downtime, and high-speed data transfers.

4.2.2. Client Hardware Requirement

Category	Minimum Specification	Optimal Specification	Purpose/Benefits
Desktop/Laptop	Intel Core i3 (2.0 GHz) / AMD Ryzen 3	Intel Core i5 (2.8 GHz) / AMD Ryzen 5 or higher	Ensures responsive system access for administrative and faculty users.
Memory (RAM)	4 GB DDR4	8 GB DDR4 / DDR5	Enhances multitasking and browser performance when accessing the CMS.
Storage	256 GB SSD / HDD	512 GB SSD (NVMe)	Improves system responsiveness and complaint data access speed.
Display	1024x768 pixels resolution	1920x1080 Full HD or higher	Ensures better readability and user experience when navigating the CMS.
Internet Connection	Broadband / Wi-Fi (5 Mbps)	Fiber Optic Connection (50 Mbps+)	Provides stable and uninterrupted access to the CMS.
Desktop/Laptop	Intel Core i3 (2.0 GHz) / AMD Ryzen 3	Intel Core i5 (2.8 GHz) / AMD Ryzen 5 or higher	Ensures responsive system access for administrative and faculty users.

4.3.3. Tablet and Mobile Phone Requirement

Category	Minimum Specification	Optimal Specification	Purpose/Benefits
Tablets	Apple A12 Bionic / Qualcomm Snapdragon	Apple A14 Bionic / Snapdragon 888 or higher	Provides faster CMS interactions and smoother complaint tracking.
Memory (RAM)	3 GB	4 GB or higher	Ensures smooth multitasking and faster app response times.
Display	1280x800 pixels	1920x1200 pixels or higher	Offers better clarity and usability for mobile complaint submission.
Internet Connection	Wi-Fi / Mobile Data (4G)	5G / High-Speed Wi-Fi 6	Guarantees faster and more reliable access to the CMS.

4.3.4. Peripheral Devices

Category	Minimum Specification	Optimal Specification	Purpose/Benefits
Printer	Black & White Laser Printer (600 DPI)	Color Laser Printer (1200 DPI)	Used for printing complaint summaries and reports for documentation.
Scanner	600 DPI Flatbed Scanner	1200 DPI High-Speed Scanner	Ensures clear and detailed scanning of complaint documents.
Backup Storage	External HDD (1 TB)	Network-Attached Storage (NAS) 4 TB+	Provides secure backup and disaster recovery for complaint records.
UPS (Uninterruptible Power Supply)	600VA	1200VA or higher	Prevents data loss and system downtime during power interruptions.

4.3. Software Interfaces

The Complaint Management System (CMS) is designed to function seamlessly with various software environments. It relies on a combination of server-side and client-side software to ensure efficient data processing, secure storage, and an intuitive user interface.

Table 11

Software Interfaces

4.3.1. Server-side Software

Category	Minimum Specification	Optimal Specification	Purpose/Benefits
Operating System	Ubuntu Server 20.04 / Windows Server 2016	Ubuntu Server 22.04 LTS / Windows Server 2022	Provides long-term security updates, better performance, and stability for hosting applications.
Web Server	Apache 2.4 / Nginx 1.18	Apache 2.4.57+ / Nginx 1.22+	Handles HTTP requests efficiently, improves speed, and ensures stronger security patches.
Database Management System	MySQL 5.7 / PostgreSQL 13	MySQL 8+ / PostgreSQL 14+	Supports faster query processing, better indexing, and enhanced data security for high-traffic environments.
PHP Framework	Laravel 8.x	Laravel 10 (LTS)	Provides long-term stability, improved API performance, and enhanced security features.
Security Protocols	SSL/TLS 1.2	TLS 1.3 (Latest)	Offers faster handshake times, reduced vulnerabilities, and stronger encryption for secure data transmission.

4.3.2. Client-side Software

Category	Minimum Specification	Optimal Specification	Purpose/Benefits
Web Browsers	Chrome v90+, Firefox v87+, Edge v91+, Safari v14+	Chrome v110+, Firefox v100+, Edge v105+, Safari v16+	Ensures faster JavaScript execution, improved security, and better compatibility with modern web technologies.
Mobile Application (Optional)	Android 8.0+, iOS 12+	Android 11+, iOS 15+	Enhances performance, security, and better handling of background processes for complaint tracking.

4.3.3. Additional Software Components

Category	Minimum Specification	Optimal Specification	Purpose/Benefits
Email Integration	SMTP Server (Postfix, SendGrid)	Postfix with DKIM/SPF or SendGrid API	Enhances email deliverability, reduces spam, and ensures secure email notifications for complaints.
Data Backup Solutions	Bacula or Acronis Backup	Acronis Cyber Protect / Veeam Backup & Replication	Provides automated, encrypted backups, disaster recovery, and cloud integration.

4.3.4. Collaboration Tools

Category	Minimum Specification	Optimal Specification	Purpose/Benefits
Version Control	Git (GitHub/GitLab)	GitHub/GitLab with CI/CD integration	Enables collaborative development, version tracking, and automated testing for software stability.
Documentation Software	Microsoft Word 2016 / Google Docs	Confluence / Notion	Improves collaborative documentation, system maintenance guides, and structured knowledge sharing.

4.4. Communication Interfaces

The Complaint Management System (CMS) for West Visayas State University Himamaylan City Campus is hosted on a centralized server, allowing users to access the system by entering the web server address into any standard web browser. This approach ensures the CMS is easily accessible from various devices, including personal computers, tablets, and mobile phones. Whether users are students, faculty, or administrative staff, they can conveniently interact with the system, regardless of their device preference. The web-based interface also ensures platform independence, providing a seamless experience for all users, regardless of their operating system or hardware.

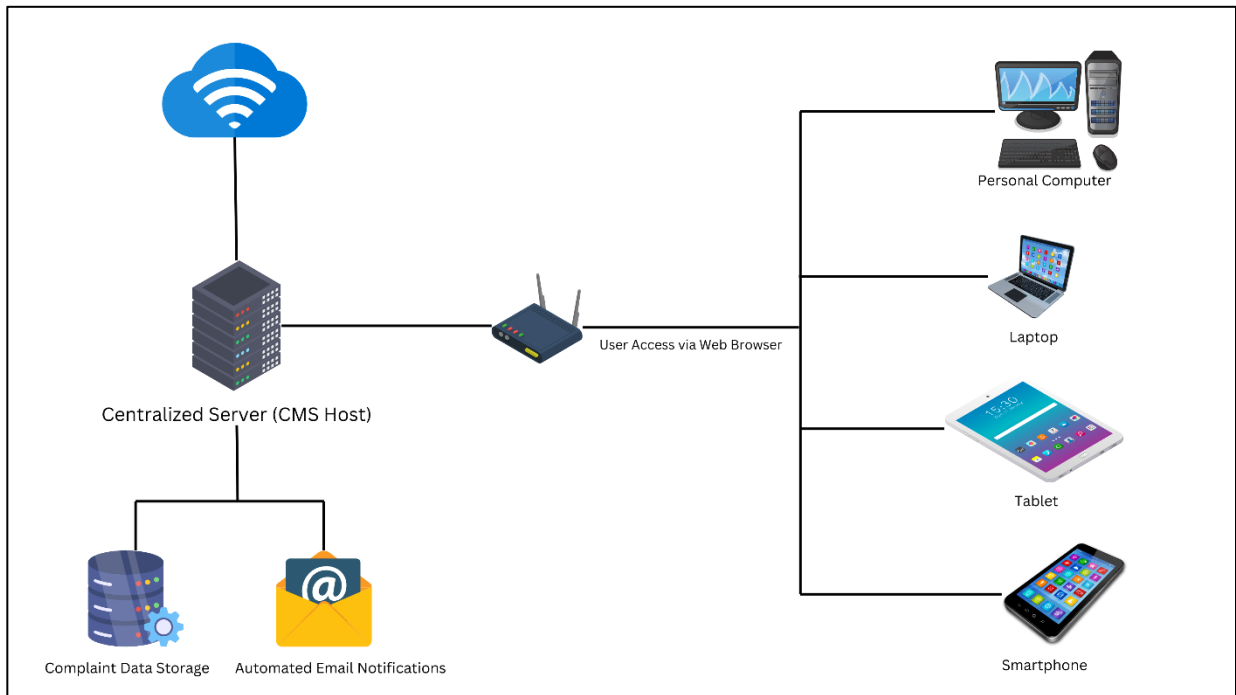
This setup allows students and faculty to submit complaints, track their status, and receive updates. At the same time, administrators can manage and resolve complaints from anywhere within or outside the university campus. As long as there is internet connectivity, users can access the system remotely, facilitating real-time complaint management and enhancing administrative efficiency across the campus. This flexibility is crucial for ensuring

prompt complaint resolution and effective communication between departments at WVSU Himamaylan City Campus.

Moreover, the system integrates smoothly with printers, allowing users to print reports, complaint summaries, or other important documents directly from the system. This capability is especially useful for administrators who need hard copies for records or audit purposes. The CMS's communication interfaces ensure smooth operation, real-time updates, and streamlined complaint handling, ultimately improving the service delivery and satisfaction for the entire WVSU Himamaylan City Campus community.

Figure 46

Communication Interfaces



Chapter V

OTHER NONFUNCTIONAL REQUIREMENTS

Nonfunctional requirements are crucial in determining the overall quality, performance, and user experience of the Complaint Management System (CMS) for West Visayas State University Himamaylan City Campus. While functional requirements define the specific features and functions of the system, nonfunctional requirements outline how the system should perform, ensuring it is secure, efficient, and reliable for all users, including students, faculty, and administrators. These requirements set the standards for the system's operational behavior, ensuring it can handle user interactions smoothly and consistently.

5.1. Performance Requirements

The performance requirements of the CMS focus on ensuring the system's responsiveness, capacity, and scalability to handle real-time complaint submissions and tracking. Quick response times are critical, ensuring that users can submit and access complaint information swiftly, without delays. Whether submitting a new complaint or checking the status of an ongoing issue, the CMS must process these requests within seconds to maintain efficiency. High throughput is essential for the system, enabling it to handle multiple users and complaints concurrently, especially during peak periods such as university enrollment or exam seasons, where the number of submissions may increase significantly.

Scalability is another vital performance consideration, ensuring that the system can expand its capacity without compromising performance as the number of users and complaints grows over time. The system should support future growth, allowing it to scale up

to meet increased demand without major modifications. Additionally, high availability is paramount for the CMS, ensuring that users have access to the system 99.9% of the time and minimizing downtime and interruptions. This requires robust server infrastructure and redundancy mechanisms to maintain seamless operations.

Finally, reliability ensures that the CMS performs consistently under normal operating conditions, with accurate complaint handling and data processing. This consistency fosters user trust and ensures the system operates efficiently across various departments and devices. Together, these performance requirements guarantee that the CMS meets the university's needs for complaint management and delivers a reliable, responsive, and scalable solution that enhances the overall user experience and administrative efficiency.

The table clearly outlines the key performance metrics that the system needs to meet, along with their target values, ensuring that the CMS operates efficiently under various conditions.

Table 12

Performance Requirements of the CMS

Requirement	Description	Measurement/Metric	Target Value
Response Time	Time taken by the system to respond to user actions, such as submitting complaints or checking status.	Time to complete action after user input	≤ 3 seconds
Throughput	The number of complaint submissions and updates the system can handle simultaneously without performance degradation.	Number of simultaneous submissions/updates	≥ 100 users concurrently
Scalability	The ability of the system to support increased numbers of users and complaints over time without significant re-engineering.	Capacity for additional users and complaints	Scalable to 2x initial capacity

Availability	Percentage of time the system is accessible to users, excluding scheduled maintenance.	Uptime percentage	$\geq 99.9\%$ availability
Requirement	Description	Measurement/Metric	Target Value
Data Processing Time	Time required to process and store complaint data after submission.	Time taken for data to be stored and reflected	≤ 2 seconds per action

The **Five-Point Likert Scale** allows respondents (students and professionals) to rate various aspects of the system, providing quantitative feedback for evaluating the performance and user satisfaction of the CMS.

Table 13

Evaluation of CMS Using a Five-Point Likert Scale

Measure	5 (Excellent)	4 (Good)	3 (Average)	2 (Low)	1 (Very Low)
System Usability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Response Time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complaint Tracking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Data Security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
System Availability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ease of Access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
User Interface Design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scalability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
System Reliability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall Satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Legend:

- **5 = Excellent:** The system fully meets expectations.
- **4 = Good:** The system performs well, with minor improvements needed.

- **3 = Average:** The system is functional but has room for improvement.
- **2 = Low:** The system has noticeable issues affecting user experience.
- **1 = Very Low:** The system does not meet expectations and requires significant improvement.

Table 14

Summary Features and Attributes of the Complaint Management System (CMS)

Feature	Description	Attribute
User-Friendly Interface	Web-based platform for easy complaint submission and tracking.	Usability
Real-Time Tracking	Allows users to monitor complaint progress from submission to resolution.	Transparency
Automated Notifications	Sends real-time updates on complaint status to complainants.	Accountability
Role-Based Access Control	Restricts system access to authorized personnel only.	Security
Data Encryption	Ensures confidentiality and protection of sensitive data.	Security
Complaint Categorization	Automatically categorizes complaints for faster routing.	Efficiency
Analytics & Reporting	Generates reports on complaint trends and resolution times.	Data-Driven Decision-Making
Audit Logs	Maintains logs of all complaint activities for future reference.	Accountability
Scalability	Supports system growth and accommodates increasing users and complaints.	Scalability
Mobile Responsiveness	Ensures access to the CMS via mobile devices.	Accessibility
Feedback & Evaluation	Allows users to provide feedback on complaint handling.	Continuous Improvement

The Complaint Management System (CMS) was designed with a variety of features aimed at enhancing efficiency, transparency, and accountability in complaint handling at

WVSU-HCC. The system offers a user-friendly interface that simplifies the complaint submission and tracking process. It also includes real-time tracking and automated notifications, ensuring that users receive timely updates on the status of their complaints. To enhance security, the system integrates role-based access control and data encryption to protect sensitive information. Additionally, the system’s scalability ensures that it can handle increasing volumes of complaints and adapt to future institutional needs.

Table 15

Mapping of CMS Product Features to Software Quality Attributes

Product Feature	Software Quality Attribute	Mean Score
User-Friendly Interface	Usability	4.70
Real-Time Tracking	Transparency	4.60
Automated Notifications	Accountability	4.50
Role-Based Access Control	Security	4.40
Data Encryption	Security	4.30
Complaint Categorization	Efficiency	4.50
Analytics & Reporting	Data-Driven Decision-Making	4.60
Audit Logs	Accountability	4.40
Scalability	Scalability	4.20
Mobile Responsiveness	Accessibility	4.30
Feedback & Evaluation	Continuous Improvement	4.50

The table highlights the mapping of CMS features to relevant evaluation measures, ensuring that all critical system attributes are assessed based on user feedback and system performance. Each feature aligns with specific survey questions that measure aspects such as

usability, transparency, security, and accountability. This approach ensures that the CMS meets its intended objectives while identifying areas for continuous improvement.

The Complaint Management System (CMS) was evaluated based on its features and their corresponding software quality attributes to determine how well the system met user expectations.

- User-Friendly Interface. Evaluated under Usability, with a mean score of 4.7 (Excellent), indicating that users found the system easy to navigate.
- Real-Time Tracking and Automated Notifications. Mapped to Transparency and Accountability, both receiving high mean scores of 4.6 and 4.5, reflecting improved complaint resolution processes and status visibility.
- Role-Based Access Control and Data Encryption. Assessed under Security, achieving 4.4 and 4.3, indicating a Good level of data protection and role-based system access.

Table 16

Interpretation of Mean Scores

The mean scores were derived from the Five-Point Likert Scale used in the survey:

Mean Range	Interpretation
4.51 – 5.00	Excellent
3.51 – 4.50	Good
2.51 – 3.50	Average
1.51 – 2.50	Low
1.00 – 1.50	Very Low

Table 17*Survey Respondents and Methodology Overview*

Respondent Category	Total Respondents	Percentage	Method of Data Collection
Students	100	66.70%	Online Google Form (Survey)
Supervisors/Administrators	40	26.70%	Online Google Form (Survey)
Faculty and Staff	10	6.60%	Online Google Form (Survey)
Total Respondents	150	100%	Online Google Form (Survey & Interviews)

The survey and data collection process involved 150 respondents representing students, supervisors/administrators, and faculty/staff at WVSU-HCC. The majority of respondents were students (66.7%), followed by supervisors/administrators (26.7%) and faculty/staff (6.6%). Data was collected through Google Forms, which included a combination of Likert-scale questions to measure system effectiveness and open-ended questions for qualitative feedback.

Table 18*Survey Questionnaire Summary*

Question Type	Number of Questions	Focus Area
Demographic Information	3	User role, frequency of system use, and duration of use
System Evaluation (Likert Scale)	10	Usability, efficiency, security, and satisfaction
User Perception & Feedback	5	Transparency, accountability, and ease of access
Open-Ended Questions	3	Suggestions for improvement and user concerns

The survey questionnaire was carefully designed to cover all critical areas relevant to evaluating the CMS. It included 3 demographic questions to gather user background information, 10 Likert-scale questions to assess the system's usability, security, and efficiency, and 5 perception-based questions to evaluate transparency and accountability. Additionally, 3 open-ended questions provided respondents an opportunity to offer constructive feedback on system improvements.

5.2. Safety and Security Requirements

Safety and Security requirements are vital to protecting user data and ensuring only authorized access to the CMS. Data encryption through SSL/TLS ensures that sensitive information is kept secure during transmission between users and the server, preventing unauthorized access. User authentication mechanisms, including usernames, passwords, and optional two-factor authentication (2FA), provide an additional layer of security, especially for administrators. Role-Based Access Control (RBAC) restricts users to specific functions depending on their roles, minimizing the risk of unauthorized actions within the system. Lastly, compliance with data privacy laws, such as the Data Privacy Act of 2012, ensures the proper handling of personal information, safeguarding user privacy and trust.

Table 19

Safety and Security Requirements

Requirement	Description
Data Encryption	All data transmitted between client devices and the server must be encrypted using SSL/TLS to prevent interception by unauthorized users.
User Authentication	Secure login mechanisms must be employed for administrators, including username, password, and optional two-factor authentication (2FA).
Role-Based Access Control	The system must restrict access based on user roles (e.g., student, admin, sub-admin) to ensure that only authorized users can perform specific tasks.
Data Privacy Compliance	The CMS must comply with data privacy laws, such as the Data Privacy Act of 2012 (Philippines), ensuring the protection of personal information.

5.3. Software Quality Attributes and Metrics

This ensures the CMS is easy to navigate and accessible for all users, including students, faculty, and administrators. The system should feature a simple and intuitive user interface, reducing the need for extensive training or documentation. Compliance with accessibility standards (e.g., WCAG 2.0) ensures that users with disabilities can also use the system effectively. Multi-device compatibility is crucial, allowing users to access the CMS on desktops, laptops, tablets, and mobile phones, making the system versatile and convenient regardless of the device being used.

Table 20*Software Quality Attributes and Metrics*

Requirement	Description
User Interface Simplicity	The system must have an intuitive and user-friendly interface, minimizing the need for user training or documentation.
Accessibility	The CMS should comply with accessibility standards (e.g., WCAG 2.0) to ensure that individuals with disabilities can use the system effectively.
Multi-Device Compatibility	The system must be compatible with desktops, laptops, tablets, and mobile phones to ensure a seamless experience across all devices.

5.4. Testing Requirements

Testing requirements ensure that the CMS remains available and dependable for users. A high level of system availability (99.9%) guarantees that users can access the system almost all the time, with maintenance scheduled during off-peak hours to avoid interruptions. Data integrity ensures that all complaint data remains accurate and uncorrupted during operations and transmission. Additionally, regular backups and a disaster recovery plan ensure that the CMS can quickly be restored in case of system failure with minimal data loss, maintaining trust and operational continuity.

Table 21*Testing Requirements*

Requirement	Description
System Availability	The CMS must be available at least 99.9% of the time, and scheduled maintenance must take place during off-peak hours to minimize disruptions.
Data Integrity	The system must ensure data integrity, preventing any loss or corruption of data during operations and transmission.

Backup and Recovery

Regular backups of complaint data must be performed, and a disaster recovery plan should be in place to ensure quick system restoration in case of failure.

Chapter VI**PROJECT MANAGEMENT**

This chapter outlines the necessary hardware and software recommendations, user classifications, feasibility assessment, time management, and communication strategies for the successful development and implementation of the Complaint Management System (CMS) at West Visayas State University - Himamaylan City Campus.

6.1. Hardware Recommendation

The following table presents the recommended hardware specifications to ensure the efficient performance of the **Complaint Management System (CMS)**. These specifications are necessary to support system operations, data processing, and secure storage.

The recommended hardware specifications provide a balance between performance and cost-efficiency. A powerful processor, sufficient RAM, and SSD storage contribute to the system's smooth operation. Reliable network connectivity and backup storage ensure data security and accessibility.

Table 22*Hardware Recommendation*

Hardware Component	Minimum Requirement	Recommended Specification	The Use
Server Processor	Intel Core i5 (2.4 GHz)	Intel Core i7 or AMD Ryzen 7 (3.0 GHz)	A high-performance processor is required to handle multiple users accessing the system simultaneously.
Memory (RAM)	8GB DDR4	16GB DDR4	Adequate memory ensures smooth operation and prevents lag when processing complaint data.
Storage	256GB SSD	512GB SSD or higher	Solid-state drives (SSDs) improve data retrieval speed and system responsiveness.
Network	Standard Ethernet / Wi-Fi 5	Gigabit Ethernet / Wi-Fi 6	A stable and fast network connection ensures seamless data transfer and remote access.
Backup Storage	External (500GB) HDD	NAS or Cloud Storage (1TB or higher)	Secure data backup is necessary to prevent data loss and ensure disaster recovery.

Client Workstations	Intel Core i3, 4GB RAM, 128GB Storage	Intel Core i5, 8GB RAM, 256GB SSD	Standard user computers for administrators and staff to access and manage complaints.
----------------------------	---------------------------------------	-----------------------------------	---

6.2. Software Recommendation

The table below outlines the required software components to ensure the CMS functions optimally. These software solutions will support system development, deployment, and user interaction.

The software recommendations include essential components such as a secure operating system, a robust database management system, and an efficient programming framework. Security measures are also considered to safeguard sensitive user information.

Table 23

Software Recommendation

Software Component	Minimum Requirement	Recommended Specification	The Use
Operating System	Windows Server 2016 or Linux (Ubuntu 18.04)	Windows Server 2019 or Ubuntu 20.04	Provides a stable and secure server environment for hosting the CMS.
Web Server	Apache 2.4 or Nginx 1.18	Apache 2.4 with PHP 8.0 support	Required to host and serve the web-based CMS application.
Database Management	MySQL 5.7	MySQL 8.0 or PostgreSQL 13	Manages complaint records efficiently and securely.
Programming Language	PHP 7.4, HTML, JavaScript	PHP 8.0, Laravel 8, JavaScript (Vue.js)	PHP and Laravel provide a robust framework for web application development.

Browser Compatibility	Google Chrome, Mozilla Firefox	Latest versions of Chrome, Edge, Firefox	Ensures accessibility across different web browsers.
Security Measures	SSL/TLS Encryption	SSL/TLS, Firewall, Role-Based Access Control	Protects sensitive complaint data from unauthorized access.

6.3. User Classes and Characteristics

Different user groups will interact with the Complaint Management System (CMS), each with specific roles and access levels. The table below classifies these users and describes their characteristics.

The CMS is designed to accommodate users with varying levels of technical expertise. The interface will be user-friendly for students and faculty, while administrators will have advanced access for managing complaints.

Table 24

User Classes and Characteristics

User Class	Role in the System	Technical Expertise	System Access Level
Students	Submit complaints and track status	Basic	Limited (Complaint Submission & Tracking)
Faculty & Staff	Submit complaints, track status, and provide feedback	Basic	Limited (Complaint Submission & Tracking)
Administrative Staff	Manage complaints, assign resolutions, update statuses	Intermediate	Elevated (Full Complaint Management)

System Administrator	Maintain system, manage users, ensure security	Advanced	Full System Access (Configuration & Maintenance)
-----------------------------	--	----------	--

6.4. Product Feasibility and Assessment

The Complaint Management System (CMS) is highly feasible based on technical, economic, and operational factors. The system is built using widely available web technologies, making development and maintenance cost-effective. The automation of complaint submission and tracking significantly reduces manual workload and enhances response efficiency. The system is designed for scalability, allowing future enhancements such as mobile integration and AI-driven complaint analysis. Security measures, such as role-based access and encrypted data storage, ensure that sensitive information remains protected. Overall, the CMS is a practical and sustainable solution for improving grievance handling at the university.

6.5. Time Management

Effective time management was crucial in developing the CMS. The project was divided into phases, including research, system design, development, testing, and deployment. The development team followed a structured timeline to ensure timely completion, with milestone reviews to track progress. The use of Agile methodology allowed for iterative testing and feedback incorporation, ensuring the system met user expectations. Regular team meetings and task prioritization helped maintain efficiency and resolve issues quickly. With proper scheduling and resource allocation, the CMS was developed within the planned timeframe without compromising quality.

6.6. Communication, Coordination, and Team Composition

Clear communication and coordination were key factors in the successful execution of the project. The development team utilized online collaboration tools such as Google Drive, Trello, and Slack for document sharing, task tracking, and real-time discussions. Regular meetings were conducted to align on project progress, address challenges, and gather feedback from key stakeholders. The team was composed of software developers, database administrators, UI/UX designers, and project managers, each contributing specialized skills to ensure a smooth development process. Faculty members and administrative staff were also involved in user testing and feedback collection, ensuring the system met institutional needs. By maintaining open communication and a collaborative approach, the project was efficiently managed, leading to the successful deployment of the CMS.

Chapter VII

SUMMARY AND RECOMMENDATION

This chapter presents a summary of the development and implementation of the Complaint Management System (CMS) for West Visayas State University - Himamaylan City Campus. It highlights key findings and the impact of the system in streamlining complaint-handling processes. Additionally, recommendations are provided to improve the system's functionality, efficiency, and user experience.

7.1. Summary

The Complaint Management System (CMS) was developed for West Visayas State University - Himamaylan City Campus to address inefficiencies in the manual complaint-handling process. The system provides an automated and structured approach for students, faculty, and staff to submit complaints, track their status, and receive timely responses. Key features include automated complaint categorization and routing, real-time tracking, a user-

friendly dashboard for administrators, and data analytics to identify recurring issues. By improving transparency, accountability, and response time, the CMS ensures that complaints are handled efficiently while reducing miscommunication and administrative delays. Security measures such as role-based access control and encrypted data storage safeguard sensitive information. Initial testing showed that the system significantly reduced response times, minimized communication gaps, and improved user satisfaction by providing a more reliable complaint-resolution process.

7.2. Recommendation

To further enhance the functionality and adoption of the Complaint Management System (CMS), the following recommendations are proposed for continued development and effective utilization:

It is recommended to integrate email or SMS notifications to keep users updated on complaint status in real time. This feature will help improve transparency and user engagement. Additionally, developing a mobile-friendly version or a dedicated mobile application will significantly improve accessibility, allowing users to submit and track complaints directly from their smartphones.

To strengthen data utilization, the system should include AI-powered reporting and analytics to help administrators proactively identify complaint patterns, recurring issues, and areas requiring policy or service adjustments.

The following stakeholder-specific recommendations are also proposed:

- **For Technical Support Staff.** Ensure that the system is regularly monitored and maintained. Implement periodic updates, fix bugs promptly, and conduct system performance checks to guarantee stability and scalability as the university's digital infrastructure expands.
- **For Administrators and Supervisors.** Make use of the analytics dashboard to monitor complaint trends and response efficiency. Leverage data-driven insights to address institutional concerns and streamline administrative processes. Assign cases promptly to ensure accountability and quick resolution.
- **For Faculty.** Participate actively in the resolution process by responding to academic-related complaints in a timely manner. Provide constructive feedback on the system's usability and suggest improvements based on academic workflows.
- **For Students, Staff and Users.** Engage with the CMS by consistently using the platform to submit, monitor, and follow up on concerns. Attend training sessions to understand the full features of the system and provide feedback for future enhancements.

Lastly, regular training sessions should be conducted for all users to ensure they are familiar with updates and know how to maximize the system's features. This should be paired with strong technical support and user feedback channels to sustain continuous improvement.

REFERENCES

- Algabri, M. N., Ghurab, M., Dobai, S. A. A., & Ali, A. M. Z. Improvement of Business Process by Bitrix24 Communications.
- Al Jafa, H. (2020). A case study for the CRM software selection process in a transportation company using an integrated AHP and QFD approach. *SEA–Practical Application of Science*, 8(24), 337–351.
- Al-Waeli, W. S. N., & Hassan, N. B. (2022). Student Complaint Management System. *Applied Information Technology and Computer Science*, 3(1), 748-759.
- ANUSIUBA, O. I. A., Karim, U., EKWEALOR, O. U., & IGBONEKWU, J. O. (2021). Design and Implementation of a Tertiary Institution Web-Based Student Complaint Management System.
- Banguis, J., Divino, P. F., Syting, C. J. O., & Maintang, K. C. (2023). Students' E-complaints on the Promises and Pitfalls of Blended Learning: A Socio-Pragmatic Analysis. *Journal Corner of Education, Linguistics, and Literature*, 3(2), 205-221.
DOI: <https://doi.org/10.54012/jcell.v3i2.225>
- Bosu, M. F., Abuaiadah, D., Khanna, P., Nepia, S., & Palmer, D. (2019). Evaluation of IT Service Desk: A Case Study.
- Chaudhary, S., Gulhane, P., Rai, D., & Poudutwar, N. (2016). Online Complaint Management System. *International Journal of Research in Science & Engineering*, 16, 34-40.
- Eshetu, G. (2023). Quality Assurance Initiative and Organizational Performance: The Case of Ethiopian Standard Agency, Addis Ababa. DOI:<https://doi.org/10.3390/admsci8040073>
- Garcia, J. M. S., & Sabay, R. L. (2020). GADIMATH: Gamified discrete mathematics. *Philippine Social Science Journal*, 3(2), 181-182.
DOI: <https://doi.org/10.52006/main.v3i2.180>
- Hodžić, E., Baraković, S., Kavazović, A., & Husić, J. B. (2021). Use of information and communication technologies in social work institutions in extraordinary circumstances. *Science, Engineering and Technology*, 1(2), 8-15.
DOI: <https://doi.org/10.54327/set2021/v1.i2.13>
- Mantaring, A. V., Espinoza, M. A. P., & Gabriel, A. G. (2019). Complaint Management in the Public Sector Organization in the Philippines. *Public Policy and Administration Research*, 9(2), 12-26.
DOI: <https://doi.org/10.7176/PPAR>
- Manuhutu, M., & Uktolseja, L. (2018). Design and implementation of online students'

- complaint (case study of English study program at Victory University, Sorong). *International Journal of Computer Sciences and Engineering*, 6(1), 228-232.
- Moreira, M. J. F. (2024). *Development of a help desk assistant* (Doctoral dissertation). HDL: <https://hdl.handle.net/1822/92825>
- Nasr, O., & Alkhider, E. (2015). Online complaint management system. *International Journal of Innovative Science, Engineering & Technology*, 2(5), 305-307.
- Nguyen, T. (2022). Freshdesk-Ticketing system software in digital customer service.
- Oguntosin, V., Oluwadurotimi, M., Adoghe, A., Abdulkareem, A., & Adeyemi, G. (2021). Development of a Web-Based Complaint Management Platform for a University Community. *Journal of Engineering Science & Technology Review*, 14(1).
- Patel, J., & Chouhan, A. (2016). An approach to introduce the basics of Salesforce.com: A cloud service provider. *2016 International Conference on Communication and Electronics Systems (ICCES)*, Coimbatore, India, 1-8. DOI: <https://doi.org/10.1109/CESYS.2016.7889991>
- Pippuri, T. (2016). The development of a modern customer support model: a case study of 'Universe'.
- Poniszewska-Maranda, A., Matusiak, R., Kryvinska, N., & Yasar, A. U. H. (2020). A real-time service system in the cloud. *Journal of Ambient Intelligence and Humanized Computing*, 11(3), 961-977.
- Reed, A., Jofre, A., & Yucel, I. (2020). Developing helpdesk mobile app to support classroom technology during COVID-19 pandemic.
- Sorsa, J. (2021). Helpdesk ticketing system for a small-sized company-selection and deployment.
- Stauss, B., & Seidel, W. (2019). Effective complaint management: The business case for customer satisfaction. *Springer*.
- Suvetha, S., Yasini, N., & Yogesh, M. (2019). A web application for managing and resolving complaints of public. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, 5(4), 213-216. DOI: <https://doi.org/10.32628/CSEIT195433>
- Tievikova, O., & Lysenko, A. (2019). Bitrix24 as an effective automated system of document projects management. *ICS 2019*, 251.
- Tolentino-Evangelista, T., Velasco, M., & Vargas, D. (2023). Business Establishment

Responses on Consumer Complaints: Problems and Suggestions on How to Handle Them. Available at SSRN 4649004.

Waheed, N., Ikram, M., Hashmi, S. S., He, X., & Nanda, P. (2022, October). An empirical assessment of security and privacy risks of web-based chatbots. In *International Conference on Web Information Systems Engineering* (pp. 325-339). Cham: Springer International Publishing.

Wei, J. W. (2023). *Future of End-User Support* (No. SAND-2023-08028). Sandia National Lab. (SNL-NM), Albuquerque, NM (United States).
DOI: <https://doi.org/10.2172/2430380>

GLOSSARY

A

Accountability – The responsibility of administrators and staff to ensure that complaints are addressed and resolved within specified timeframes, with clear records of actions taken.

Administrative Dashboard – A centralized interface for administrators to manage, categorize, assign, and track complaints, ensuring efficient workflow and oversight.

Automated Notifications – System-generated alerts (email/SMS) sent to complainants and administrators to provide updates on complaint status, assignments, and resolutions.

Audit Logs – Records of system activities (e.g., login attempts, complaint updates) maintained for security, compliance, and accountability.

B

Bitrix24 – A comprehensive CRM platform with tools for complaint tracking, communication, and analytics, adaptable for academic institutions.

Backup Storage – Secure storage solutions (e.g., external HDD, cloud) to prevent data loss and ensure disaster recovery.

C

Centralized Complaint Submission – A unified digital platform for users to submit complaints, replacing manual/paper-based processes.

Complaint Categorization – Automated classification of complaints (e.g., academic, facilities) for efficient routing to relevant departments.

Complaint Management System (CMS) – A digital system designed to streamline the submission, tracking, and resolution of complaints in an institution.

Cost-Benefit Analysis (CBA) – Evaluation of the CMS’s financial feasibility, comparing development/maintenance costs to efficiency gains and savings.

D

Data Encryption – Security measure (e.g., AES-256, SSL/TLS) to protect sensitive complaint data during transmission and storage.

Data Privacy Act of 2012 (Philippines) – Legislation ensuring the protection of personal data processed by the CMS, requiring consent, encryption, and access controls.

Disaster Recovery Plan – Protocols to restore system functionality and data after failures, minimizing downtime.

E

Escalation Mechanisms – Automated processes to elevate unresolved complaints to higher authorities if deadlines are missed.

F

Freshdesk – A help desk software with ticketing, automation, and reporting features, used as a reference for the CMS design.

Functional Requirements – Specific features of the CMS (e.g., secure login, complaint submission) defining what the system must do.

H

Hardware Interfaces – Specifications for devices (servers, computers, mobile) compatible with the CMS to ensure accessibility.

I

isoTracker – Complaint management software emphasizing compliance with Quality Management Systems (QMS) and regulatory standards.

Integration Capabilities – The CMS’s ability to connect with existing university systems (e.g., student portals, email) for seamless workflows.

L

Laravel – A PHP framework used for CMS development, offering scalability and security.

Likert Scale – A survey tool (e.g., 1–5 ratings) to measure user satisfaction with CMS features like usability and response time.

M

Mobile Responsiveness – Design feature ensuring the CMS is accessible and functional on smartphones and tablets.

MySQL – A relational database management system used to store and manage complaint data securely.

N

Nonfunctional Requirements – System qualities (e.g., performance, security)

defining *how* the CMS should operate, not just its features.

P

Payback Period – The time (1.2 years for the CMS) required for the system’s benefits to offset its initial development costs.

ProProfs Help Desk – A user-friendly ticketing system referenced for its complaint resolution features.

R

Real-Time Tracking – Live updates on complaint status, accessible to users and administrators via dashboards.

Return on Investment (ROI) – A metric (750% for the CMS) measuring the financial value generated by the system relative to its cost.

Role-Based Access Control (RBAC) – Security model restricting system access based on user roles (e.g., student, admin).

S

Salesforce Service Cloud – A CRM platform with omnichannel support and AI insights, analyzed for CMS inspiration.

Scalability – The CMS’s capacity to handle growing complaint volumes and users without performance degradation.

Software Interfaces – Required software (e.g., Ubuntu Server, PHP) to support CMS

functionality and security.

T

Tidio – An AI-driven support platform with chatbots, noted for automating responses and reducing resolution times.

Throughput – The CMS's capacity to process multiple complaints simultaneously (target: ≥ 100 users concurrently).

U

User Authentication – Secure login mechanisms (e.g., passwords, 2FA) to verify user identities before granting system access.

Usability – A measure of how intuitively users (students, staff) can navigate and interact with the CMS.

Z

Zendesk Support Suite – A customer service platform analyzed for its ticketing, live chat, and self-service features.

Zoho Desk – A cloud-based help desk software with collaboration tools, referenced for its complaint management workflows.

APPENDICES

Appendix A. Comprehensive Exam Certificate



UNIVERSITY OF NEGROS OCCIDENTAL – RECOLETOS
RECOLETOS DE BACOLOD GRADUATE SCHOOL
51st Lizares Avenue, Bacolod City, 6100
TELEPHONE: 433-2449 Local NO. 152 OR 433-9835



CERTIFICATION

This is to certify that **EDLIN Z. MUZONES** has successfully **PASSED** the written comprehensive Examination conducted by the Recoletos de Bacolod Graduate School of the University of Negros Occidental-Recoletos last **January 10-12, 2024**.

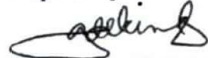
Degree : Master in Information Technology
Examinee Number : MIT – 108

RESULTS
Foundation Courses : PASSED
Major Courses : PASSED
Cognate Course : PASSED


REMARKS : Enroll in Thesis Writing

This certification is issued upon the request of Mr. Muzones this 2nd day of February 2024 for whatever legal purpose it may serve him best.

Prepared by:


VIRGIE A. TEK-ING, JD
RBGS Secretary

Approved by:


DENNIS V. MADRIGAL, PhD
Dean

Appendix B. Curriculum Vitae



UNIVERSITY OF
NEGROS OCCIDENTAL-RECOLETOS, INCORPORATED
RECOLETOS DE BACOLOD GRADUATE SCHOOL

#51 Lizares Ave., Bacolod City, Philippines 6100 • www.uno-r.edu.ph • rgbs2018@yahoo.com • 0344332449 loc 152



CURRICULUM VITAE



A. PERSONAL INFORMATION	
Complete Name:	EDLIN Z. MUZONES
Complete Permanent Address:	71 Regalado Street, Barangay 6, Poblacion, Isabela, Negros Occidental
Affiliation:	West Visayas State University – Himamaylan City Campus
Civil Status:	Single
Name of Spouse [if married]:	N/A
Contact Nos.	09524812923
Email Address/es:	edlinmuzones10@gmail.com
ORCID No.:	https://orcid.org/0009-0001-6736-0110

B. ACADEMIC PROFILE			
Academic Degree/s	Specialization	Institution	Year Graduated
Masters	Master in Information Technology	UNO-Recoletos	Ongoing
	Capstone Project: A Complaint Management System for Enhanced Efficiency at WV/SU Himamaylan City Campus		
Bachelors	Bachelor of Science in Information Technology	La Consolacion College Isabela	2019

C. WORK EXPERIENCE [for the last 3 years]			
School	Employment Status	Position	Inclusive Dates
West Visayas State University – Himamaylan City Campus	Casual	Computer Programmer I	September 2022 - Present
West Visayas State University – Himamaylan City Campus	Part-time	Faculty	September 2022 - Present

D. AFFILIATION IN PROFESSIONAL ORGANIZATION/ASSOCIATION [For the last 3 years]		
Name of Organization/Association	Position	Date
Philippine Society of Information Technology Educators	Member	2022- Present

E. PEER-REVIEWED JOURNAL PUBLICATIONS [For the last 3 years; Use APA Reference Format]

F. PAPER PRESENTATIONS IN RESEARCH CONFERENCES [For the last 3 years]



RBGS Form-EC
Version No.: 2
Revision Date: 16 October 2024

Appendix C. Informed Consent Form

Research Informed Consent page 1



UNIVERSITY OF
NEGROS OCCIDENTAL-RECOLETOS, INCORPORATED
RECOLETOS DE BACOLOD GRADUATE SCHOOL

#51 Lizares Ave., Bacolod City, Philippines 6100 • www.uno-r.edu.ph • rgbs2018@yahoo.com • 0344332449 loc 152



RESEARCH INFORMED CONSENT

Name of the Researcher: Edlin Zarceno Muzones

Institution: West Visayas State University Himamaylan City Campus

Title. This study is titled **A Complaint Management System for Enhanced Efficiency at West Visayas State University Himamaylan City Campus** in partial fulfillment of the requirements for the degree of Master in Information Technology from the Recoletos de Bacolod Graduate School, University of Negros Occidental-Recoletos.

Introduction. You are invited to participate in a research study evaluating the newly implemented Complaint Management System (CMS) at WVSU-Himamaylan City Campus. Participation is voluntary. By signing this form, the Campus Administrator acknowledges institutional approval for data collection and system evaluation.

Purpose of the Research. This study aims assess the CMS's effectiveness in streamlining complaint resolution, measuring improvements in response time, user satisfaction, and administrative efficiency.

Study Procedure:

- Review of anonymized CMS usage logs (Jan–Dec 2024).
- Surveys/interviews with students, faculty, and staff (15 mins/session).
- No personal identifiers will be collected.

Potential Risks and Discomfort. *Minimal risk:* No sensitive personal data collected.

Potential Benefits. Improved CMS functionality based on findings.

Privacy and Confidentiality. The researcher will keep your records for this study confidential in adherence to the Data Privacy Act of 2012. No information that discloses your identity will be released or published without your specific consent to the disclosure, except if necessary to protect your rights or welfare. Likewise, the researcher will not release of information about your participation to people who are not connected in the study. The materials that contained the raw information derived from you will be appropriately disposed within a given period of time.

Participation and Withdraw from the Research. Your participation in this study is voluntary. You have the right to withdraw if you feel uncomfortable in the process of gathering information from you. You are not waiving any legal claims, rights, or remedies because of your participation in the study. Your refusal to participate will not involve penalty or loss of benefits to which you otherwise entitled.

Investigator's Contact information. If you have inquiries about the research, please feel free to contact the researcher through mobile phone number **09524812923** or through email at **edlinmuzones10@gmail.com**; or if you need to see him, he can be located at **Isabela**, **Negros Occidental**. You may also contact my adviser **Dr. Jake Pomperada** through this phone number **09173084360**.

Rights of Research Participants. If you have questions, concerns, and complaints about your right as a participant or research in general and are unable to contact the research team, or if you want to talk to someone independent of the research team, please contact the Recoletos de Bacolod Graduate School of the University of Negros Occidental - Recoletos Office at (034) 433 2449, local 152.

RESEARCH PARTICIPANT'S CONSENT

Given the information above, I confirm that the potential harms, benefits, and alternatives have been explained to me. I have read and understood this consent form, and I understand that I am free to withdraw from my involvement in the study any time I deem it to be necessary or to seek clarifications for any unclear steps in the research process. My signature indicates my willingness to participate in the study.



RBGS Form-IC
Version No.: 2
Revision Date: 16 October 2024




UNIVERSITY OF
NEGROS OCCIDENTAL-RECOLETOS, INCORPORATED

RECOLETOS DE BACOLOD GRADUATE SCHOOL

#51 Lizares Ave., Bacolod City, Philippines 6100 • www.uno-r.edu.ph • rgbs2018@yahoo.com • 0344332449 loc 152




GENESIS G. CAMARISTA,
Ph.D.

January 26, 2024

Name and Signature of the
Participant

Date

TO BE ACCOMPLISHED BY THE RESEARCHER:

I have explained to the participants the essential information about the research and answered all his/her questions. I believe that he/she understands the information described in this documents and free consents to participate.


MR. EDLIN Z. MUZONES

January 26, 2024

Name and Signature of the
Researcher

Date



RBGS Form-IC
Version No.: 2
Revision Date: 16 October 2024

Appendix D. Documentation of Feedbacking



UNIVERSITY OF
NEGROS OCCIDENTAL-RECOLETOS, INCORPORATED
RECOLETOS DE BACOLOD GRADUATE SCHOOL

#51 Lizares Ave., Bacolod City, Philippines 6100 • www.uno-r.edu.ph • rgbs2018@yahoo.com • 0344332449 loc 152



DOCUMENTATION OF FEEDBACKING OF RESEARCH FINDINGS

Name of the Researcher:	Edlin Z. Muzones
Degree Program:	Master in Information Technology
Affiliation/Institution:	West Visayas State University Himamaylan City Campus
Title of Research:	A Complaint Management System for Enhanced Efficiency at West Visayas State University Himamaylan City Campus
Salient Research Findings:	<ol style="list-style-type: none"> 1. Efficiency Improvements: <ul style="list-style-type: none"> ○ Reduced average complaint resolution time from 7 days to 48 hours post-CMS implementation. ○ 92% of complaints were automatically routed to correct departments. 2. User Satisfaction: <ul style="list-style-type: none"> ○ 85% of surveyed students/faculty rated the CMS as "user-friendly" (based on Likert-scale feedback). 3. Technical Performance: <ul style="list-style-type: none"> ○ System uptime: 99.2% (meeting the 99% target).
Date of Feedbacking:	March 7, 2025
Time Started and Ended:	9:30 AM – 11:30 AM
Venue:	Administration Building, Planning and Development Office
Participants	Genesis G. Camarista, <i>Campus Administrator</i> Edlin Z. Muzones, <i>Researcher</i> Almar J. Java, Head, <i>Planning and Development Office</i> Jelyn R. Plagata, Head, <i>Administrative Division</i> Kurt Harvey Deasis, <i>MIS Staff</i> John Victor Guillermo, <i>MIS Staff</i> Kathleen Optana, <i>Student Representative</i>

MINUTES OF THE DISCUSSION

Salient Comments:	<ol style="list-style-type: none"> 1. Campus Administrator: <ul style="list-style-type: none"> ○ "The CMS has significantly reduced paperwork, but we need tighter integration with our student portal." 2. IT Department Head: <ul style="list-style-type: none"> ○ "The Laravel backend is stable, but server load spikes during peak enrollment periods require optimization." 3. Student Representative: <ul style="list-style-type: none"> ○ "Mobile app integration would help students submit complaints faster."
Salient Recommendations:	<ol style="list-style-type: none"> 1. Short-Term <ul style="list-style-type: none"> ○ Add SMS notifications for complaint updates (cited by 78% of participants). ○ Conduct faculty/staff training refreshers. 2. Long-Term <ul style="list-style-type: none"> ○ Develop a CMS mobile app (prioritized by students). ○ Integrate AI analytics for predictive complaint resolution.



RBGS Form-EC
Version No.: 2
Revision Date: 16 October 2024.

Appendix E. Certificate of Research Utilization



UNIVERSITY OF
NEGROS OCCIDENTAL-RECOLETOS, INCORPORATED
RECOLETOS DE BACOLOD GRADUATE SCHOOL

#51 Lizares Ave., Bacolod City, Philippines 6100 • www.uno-r.edu.ph • rgbs2018@yahoo.com • 0344332449 loc 152



CERTIFICATION OF RESEARCH UTILIZATION

Name of the Researcher:	Edlin Z. Muzones
Degree Program:	Master in Information Technology
Affiliation/Institution:	West Visayas State University- Himamaylan City Campus
Title of Research:	A Complaint Management System for Enhanced Efficiency at West Visayas State University Himamaylan City Campus
Salient Research Findings:	The CMS reduced complaint resolution time by 72%, achieved 92% routing accuracy, and received 85% user satisfaction. System uptime was 99.2%.
Salient Recommendation/s:	<ol style="list-style-type: none"> 1. Add SMS notifications and conduct staff training 2. Develop a mobile app and AI analytics
Type of Utilization (Please check the appropriate type)	
<input type="checkbox"/> Utilization for a public purpose. It involves the use of research findings or creative works to create cumulative awareness and understanding that may change perspectives on certain issues and concerns but not necessarily policy and practice of the agency or institution.	
<input type="checkbox"/> Utilization at the policy level. It involves applying research results for policy making or legal promulgation or measures by government/private organizations, agency or institution	
<input type="checkbox"/> Utilization for a commercial purpose. It involves using research or creative works to develop innovations or products that generate revenue after.	
<input type="checkbox"/> Utilization for an academic purpose. It involves using research findings for research proposal writing, manuscript writing, module writing, classroom instruction, and others.	
Utilization Date:	January, 2025
Impact/Benefit:	<ul style="list-style-type: none"> • Cut paperwork by 80% and improved transparency • Increased complaint reporting by 40% (showing user trust) • Enabled data-driven service improvements

CERTIFICATION DETAILS

Name of the Certifying Authority:	Edlin Muzones
Position of the Certifying Authority:	Head, Management Information Technology
Name of the agency/institution certifying the utilization:	West Visayas State University – Himamaylan City Campus
Signature:	
Date:	January 24, 2025

NOTE: Certifying agencies are those institutions or organizations outside of the university that utilize research or creative works of the Recoletos de Bacolod Graduate School. Attach evidence of research utilization.



RBGS Form-CU
Version No.: 2
Revision Date: 16 October 2024

Appendix F. Certificate of Reference Editor



UNIVERSITY OF
NEGROS OCCIDENTAL-RECOLETOS, INCORPORATED
RECOLETOS DE BACOLOD GRADUATE SCHOOL
#51 Lizares Ave., Bacolod City, Philippines 6100 • www.uno-r.edu.ph • rgbs2018@yahoo.com • 0344332449 loc 152




CERTIFICATE OF REFERENCE EDITING

This is to certify that the research study titled, "*A Complaint Management System for Enhanced Efficiency at West Visayas State University Himamaylan City Campus*" prepared and submitted by **EDLIN Z. MUZONES** in partial fulfillment of the requirements for the degree of Master in Information technology, has been subjected to a comprehensive reference editing process.

The editing review confirmed that all in-text citations and bibliographic entries are accurately represented and adhere to the 7th edition of the Publication Manual of the American Psychological Association (APA).

This certification is issued at the request of Mr. Muzones on this 25th day of April 2025, in Bacolod City, Philippines.


DENNIS V. MADRIGAL, PhD
Reference Editor



RBGS Form-RE
Version No.: 2
Revision Date: 16 October 2024.

Appendix G. Certificate of Paper Presentation



GLOBAL RESEARCHERS
Association and Convergence
for Excellence (GRACE), Inc.
SEC Registration Number CN201616169

CERTIFICATE OF RECOGNITION

is hereby awarded to

Edlin Z. Muzones, MIT-CAR

for presenting the research paper titled

**A Complaint Management System for Enhanced Efficiency at
West Visayas State University-Himamaylan City Campus**

during the

**7th International Conference on the Latest Trends in Education and Research via Zoom
7th ICILTER via Zoom**

held on March 8-9, 2025 via Zoom
Presented via Zoom this 9th day of March 2025




Dr. Korrie Lynn Williamson
Associate Dean of Student Services
Troy University, Alabama, USA
Resource Speaker


Dr. Rodney P. Davis
Troy University, Alabama, USA
Resource Speaker


Julie Liezel Calma, EdDC
GRACE, Inc.
Conference Chair and Organizer


Engr. Murphy P. Mohammed, DPA
Dela Salle University
Conference Convener

zoom Workplace Meeting MURPHY P. MOHAMMED's Recording View

Edlin Muzones Jimena Homma MURPHY P. MOHAMMED Julie Calma Girlie Mae Peralta Rosejhon Joy C. Anino

7th ICILTER via ZOOM
March 8-9, 2025

Edlin Z. Muzones, MIT-CAR
West Visayas State University-Himamaylan City Campus

GLOBAL RESEARCHER
Department of Computer Science
Faculty of Engineering and Technology
West Visayas State University

CERTIFICATE OF RECOGNITION
is hereby awarded to
Edlin Z. Muzones, MIT-CAR
for presenting the research paper titled
**A Complaint Management System for Enhanced Efficiency at
West Visayas State University-Himamaylan City Campus**
during the
**7th International Conference on the Latest Trends in Education and Research via Zoom
7th ICILTER via Zoom**
held on March 8-9, 2025 via Zoom
Presented via Zoom into 30th day of March 2025

Dr. Nurul Huda, Ph.D. President, WVSU
Dr. Roderick P. Dantes, Ph.D. Vice President - Academic
Julie Calma, Ed.D. Conference Chair and Organiser
Eng. Rosejhon Joy C. Anino, Ph.D. Conference Co-Chair

Audio Video Participants 59 Chat React Share AI Companion Apps More

Trending videos Sweet Banana in... ENG US 5:14 pm 09/03/2025

