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Article

Design and Implementation of a Web-Based Student Complaint and Response Management System for Enhancing Administrative Responsiveness in Tertiary Institutions

Osaki Miller Thom-Manuel[1], Jonathan Nyekachi Amadi[2]

1. Department of Software Engineering, Ignatius Ajuru University of Education, Port Harcourt, Rivers State, Nigeria
2. Department of Computer Science, Ignatius Ajuru University of Education, Port Harcourt, Rivers State, Nigeria

* Correspondence: osaki.miller@iaue.edu.ng, Jonathan.amadi@iaue.edu.ng

Abstract: Effective management of student complaints is essential for improving administrative responsiveness and maintaining a transparent academic environment in tertiary institutions. However, many institutions in developing countries still rely on manual or informal methods of handling student grievances, which often result in delays, lack of confidentiality, poor documentation, and inadequate feedback mechanisms. This study presents the design and implementation of a web-based Student Complaint and Response Management System aimed at improving the efficiency and transparency of complaint handling processes in tertiary institutions. The system was developed using a structured system development approach that involved system analysis, design, implementation, and testing. The application was implemented using modern web development technologies including HTML, CSS, and JavaScript for the user interface, PHP for server-side programming, and MySQL for database management. The development and testing environment was supported using XAMPP, which enabled the integration of the web server and database services. The proposed system provides a centralized platform that enables students to submit complaints online, track the status of their submissions, and receive timely responses from authorized institutional personnel. It also incorporates a secure database for storing complaint records, role-based access control for administrative users, and notification features to facilitate communication between students and management. The implementation of the system enhances accountability, improves data management, and supports evidence-based decision-making through proper documentation of student grievances. The results demonstrate that the developed system significantly improves the efficiency, transparency, and responsiveness of complaint management in tertiary institutions. The study concludes that the adoption of web-based complaint management platforms can strengthen institutional governance and promote a more student-centered administrative process.

Keywords: Student Complaint Management, Web-Based System, Tertiary Institutions, Administrative Responsiveness, Information Systems

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1. Introduction

In contemporary higher education, tertiary institutions are expected to operate not only as centers of academic excellence but also as responsive and student-centered communities. Student complaints serve as an important feedback mechanism that enables institutions to identify administrative inefficiencies, academic challenges, and service delivery gaps. Such complaints may relate to academic dissatisfaction, poor

infrastructure, delays in service delivery, staff misconduct, or harassment. When these issues are not effectively addressed, they can negatively affect students' academic performance, psychological well-being, and perception of the institution [1]. Traditionally, many institutions manage student grievances through manual methods such as suggestion boxes, written submissions, or direct reporting to administrative offices. However, these approaches are increasingly inadequate in the digital era due to their lack of efficiency, transparency, and traceability. Emuoyibofarhe et al. [2] reported that students in Nigerian universities have expressed concerns about the current manual complaint handling procedures, citing delayed responses, lack of confidentiality, and insufficient feedback as major challenges. These limitations often discourage students from reporting sensitive issues and contribute to unresolved grievances, which may eventually result in mistrust, poor engagement, or institutional conflicts. The integration of Information and Communication Technology (ICT) into educational administration offers viable solutions to these challenges. Web-based platforms have already transformed several academic processes, including course registration, communication, and learning management. Similarly, digital complaint management systems can enable students to submit grievances online, track the status of their complaints, and receive timely responses from relevant authorities. Such systems enhance accessibility, data management, transparency, and accountability in complaint resolution processes [3]. Institutions that have adopted digital grievance management platforms have reported improved administrative responsiveness and better documentation of complaint records [4].

The COVID-19 pandemic further accelerated the adoption of digital platforms in education. During the lockdown period, institutions relied heavily on online tools such as WhatsApp, Google Meet, and email to sustain academic and administrative operations, highlighting the growing importance of technology-driven systems in educational management [5]. Despite this shift toward digitalization, many tertiary institutions in developing countries still lack a dedicated and structured web-based complaint management system. Existing practices often depend on informal communication channels such as email, which lack centralized data management, automation, and analytical capabilities. Emuoyibofarhe et al. [6] therefore emphasize the need for secure and user-friendly automated platforms capable of managing student grievances effectively. This gap limits institutional capacity to monitor complaint trends, maintain accountability, and implement data-driven administrative decisions. Moreover, the absence of centralized systems restricts the implementation of secure access control mechanisms necessary for handling sensitive complaints [7]. To address these limitations, this study aims to develop a web-based Students Complaint and Response Management System that facilitates secure, transparent, and efficient handling of student grievances in tertiary institutions. Specifically, the study focuses on designing the system architecture, developing the web-based application, implementing a secure database, integrating system components, and evaluating the functionality of the proposed system.

Review of Related Work

The management of student complaints has become an important component of effective governance in tertiary institutions. Complaints provide institutions with valuable feedback that can be used to improve administrative procedures, academic services, and overall institutional performance. With the increasing adoption of information and communication technology in higher education, several researchers have explored digital solutions for managing student grievances more efficiently.

Traditionally, many tertiary institutions relied on manual approaches such as suggestion boxes, written submissions, and face-to-face reporting to administrative offices. However, these traditional methods often suffer from poor documentation, slow response times, and lack of transparency. Anusiuba, Nwankwo, and Eze [4] examined grievance management practices in higher education institutions and observed that

manual complaint systems often lead to delays in resolving student issues and poor documentation of complaints. Their work highlighted the importance of digital platforms in improving grievance handling. However, their study was largely conceptual and did not provide a practical implementation of a web-based complaint system capable of tracking complaints and generating administrative responses, which the present study aims to address.

Similarly, Oguntosin, Adebiyi, and Olatunji [7] developed a secure web-based complaint management system for higher institutions. Their study focused mainly on improving the security of complaint records and protecting user data. While their system improved data security, it lacked comprehensive complaint tracking and interactive feedback mechanisms that allow students to monitor the progress of their complaints. The current study extends this idea by incorporating complaint status tracking and administrative response features that enhance communication between students and institutional authorities.

Emuoyibofarhe, Adeyemi, and Adebayo [8] developed an online student complaint management system designed to automate grievance reporting in Nigerian universities. Their study demonstrated that web-based complaint platforms can significantly improve complaint processing efficiency. However, their system focused primarily on complaint submission and did not adequately address the need for integrated response management and performance monitoring of administrative units. The system proposed in this study incorporates both complaint submission and structured response management, thereby providing a more comprehensive solution.

Adebayo and Abdulhamid [9] designed a web-based complaint management application that allows users to submit complaints through an online portal. Their system improved the process of filing complaints electronically and reduced dependence on manual reporting systems. Nevertheless, the system did not provide advanced administrative tools for monitoring complaint trends or generating reports that could assist institutional management in decision-making. The present study improves on this limitation by incorporating proper complaint documentation and management features that support institutional analysis and accountability.

Okokpujie, Noma-Osaghae, and Ajayi [10] developed a web-based complaint reporting system for university environments. The system allowed students and staff to submit complaints online and enabled administrators to manage complaint records using a centralized database. Although the system improved accessibility and documentation, it lacked automated notification features that could inform users about the progress of their complaints. The current study addresses this limitation by integrating notification and feedback mechanisms that ensure students receive timely responses.

Asriana, Putra, and Nugroho [11] developed a student complaint information system using the Laravel web framework. Their system included complaint submission and administrative management features. However, the system focused primarily on technical implementation and did not emphasize the integration of role-based administrative access controls necessary for managing complaints across multiple institutional units. The proposed system in this study introduces structured role-based access that allows different administrators to handle complaints according to their responsibilities.

Mutiawani, Munadi, and Ardiansyah [12] developed a web-based complaint management platform for university laboratory services. Their system allowed users to submit complaints regarding laboratory facilities and services. While the system improved service monitoring within laboratories, its scope was limited to a specific unit within the institution and did not address institution-wide complaint management. The present study expands the scope by developing a system designed to handle complaints across various departments and administrative units within tertiary institutions.

Laudon and Laudon [13] explained the role of management information systems in supporting decision-making processes within organizations. Their work emphasized that

information systems improve organizational efficiency by providing accurate and timely information to administrators. However, their study focused on theoretical concepts of information systems rather than the design of specific applications such as complaint management systems. The current study applies these theoretical principles in the practical development of a web-based complaint management platform.

Pressman and Maxim [14] discussed structured approaches to software engineering and emphasized the importance of systematic development methodologies in building reliable information systems. Although their work provides valuable guidelines for system development, it does not focus specifically on the implementation of complaint management platforms in educational institutions. The present study applies these software engineering principles in designing and implementing a functional complaint management system.

Sommerville [15] also emphasized the importance of secure system architecture, authentication mechanisms, and database management in software development. While these concepts provide a strong foundation for designing information systems, they do not directly address the challenges associated with managing student complaints within tertiary institutions. This study bridges that gap by applying secure system design principles to the development of a student complaint management system.

Falebita [16] developed a web-based student information management system aimed at improving record management in academic institutions. The system successfully digitized student records and administrative processes. However, it did not include specific modules for handling student complaints or tracking grievance resolution processes. The current research extends the concept of web-based institutional systems by incorporating a dedicated complaint management module.

Doctor [17] proposed an integrated web-based educational management system capable of supporting multiple administrative functions within universities. While the system demonstrated the importance of digital integration in institutional management, it did not provide specialized mechanisms for handling student grievances or facilitating complaint resolution. The present study focuses specifically on complaint management and administrative response processes.

Oyelami and Adeyemo [18] investigated the role of ICT adoption in university administration and found that digital technologies improve service delivery and operational transparency. However, their study was primarily survey-based and did not involve the development of a functional system. The present research contributes to the field by providing a practical implementation of a digital complaint management system.

Abdullahi and Ibrahim [19] examined the use of automated platforms in educational administration and concluded that digital systems enhance communication between students and university management. Despite highlighting the importance of digital communication tools, their study did not propose a structured system specifically designed for managing student grievances. This study addresses that limitation by developing a dedicated complaint management platform.

Okeke and Eze [20] studied the effectiveness of web-based grievance management systems in higher education institutions and found that such systems improve accountability and transparency in administrative processes. However, their study focused on evaluating existing systems rather than designing and implementing a new one. The current research contributes by developing and implementing a fully functional system tailored for tertiary institutions.

Akinyemi and Afolabi [21] investigated the role of digital platforms in improving institutional accountability and decision-making. Their study highlighted the potential of digital technologies to support administrative processes. Nevertheless, their research did not specifically address complaint management systems or the technical architecture required for implementing them. The present study fills this gap by designing and implementing a specialized system for complaint handling.

Onyema, Deborah, and Alsayed [22] examined the impact of the COVID-19 pandemic on education and highlighted the rapid adoption of digital platforms in academic institutions. Although their work emphasized the importance of digital technologies in sustaining educational activities, it did not focus on administrative complaint management systems. The present study contributes to this area by proposing a digital platform that supports grievance handling in tertiary institutions.

Yakubu and Dasuki [23] examined the relationship between digital communication platforms and student engagement in universities. Their study found that institutions that provide transparent digital communication channels tend to experience higher levels of student trust and engagement. However, the study did not explore the design or implementation of a complaint management system. The current research extends this area by developing a platform that facilitates structured communication between students and institutional administrators.

Ogunleye and Adewale [24] examined digital complaint platforms and their impact on service quality in educational institutions. Their findings indicated that centralized complaint management systems help institutions identify recurring problems and improve service delivery. However, their work focused mainly on evaluating service outcomes rather than developing an operational system. The present study addresses this limitation by implementing a functional web-based system.

Ezeani and Ugwu [25] emphasized that digital complaint management systems enhance institutional accountability by maintaining reliable records of grievances and responses. While their research highlighted the benefits of digital complaint systems, it did not provide a detailed system design or implementation framework. The current study therefore contributes by presenting the architecture and development of a working complaint management system.

Balogun and Olanrewaju [26] discussed the role of web-based grievance management platforms in promoting student-centered governance in higher education institutions. Their research emphasized the importance of providing students with digital channels for reporting grievances. However, their study focused primarily on policy recommendations and did not provide technical implementation details. The present study addresses this gap by designing and implementing a complete web-based student complaint and response management system.

Despite the numerous studies conducted in this area, many tertiary institutions—particularly in developing countries—still rely on informal communication channels such as email, messaging applications, or physical complaint boxes to manage student grievances. These approaches lack centralized documentation, structured workflow management, and analytical capabilities required for effective complaint management. Therefore, there is a need for a comprehensive web-based Student Complaint and Response Management System that integrates secure databases, role-based access control, complaint tracking, and automated notification mechanisms. The present study seeks to address this gap by designing and implementing a system that improves transparency, efficiency, and administrative responsiveness in tertiary institutions.

2. Materials and Methods

Methodology

The proposed Web-based Student Complaint and Response Management System adopt the **Object-Oriented Systems Analysis and Design (OOSAD)** methodology. This approach models the system as a set of interacting objects representing real-world entities within the complaint management process. The use of OOSAD supports modular system development, enhances flexibility, and promotes reusability of system components, thereby improving the overall efficiency and maintainability of the developed system.

System Implementation

The system was implemented using modern web development technologies to ensure efficiency, scalability, and ease of use. The front-end interface of the system was developed using HTML and CSS to structure and design the web pages, while JavaScript was used to enhance interactivity and improve user experience within the system interface. The server-side functionality of the application was implemented using PHP, which handles user authentication, complaint processing, and communication between the web interface and the database. For data storage and management, MySQL was used as the database management system. The database stores important information such as student details, complaint records, administrative responses, and system activity logs in a structured format. The development and testing environment was supported using XAMPP, which integrates the Apache web server, PHP interpreter, and MySQL database, allowing the system to be developed and tested locally before deployment. These technologies were selected because they are widely used in web application development, cost-effective, and suitable for developing scalable information systems in academic institutions.

Constraints of the Existing System

1. **Time-consuming processes:** Complaint handling takes longer due to multiple manual stages.
2. **Limited accessibility:** Students must be physically present to submit or follow up complaints.
3. **Poor complaint tracking:** There is no unified system to monitor complaint progress or outcomes.
4. **Error-prone record keeping:** Manual documentation may lead to data loss, duplication, and inaccuracies.
5. **Security risks:** Confidential complaint information may be accessed by unauthorized individuals.
6. **Delayed or inadequate feedback:** Students rarely receive timely responses or updates.
7. **Excessive paperwork:** Heavy reliance on physical documents increases operational cost and environmental impact.

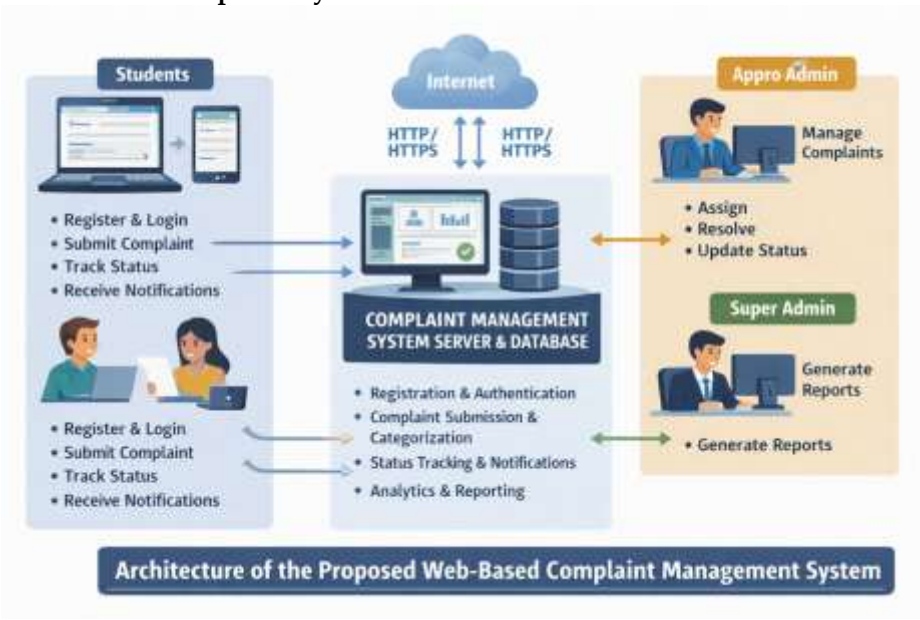
Architecture of the Existing Manual Complaint Handling System

Analysis of the Proposed System

The proposed system automates student complaint management through a web-based platform that allows students to submit and track complaints online while administrators manage, assign, and respond to them via a centralized dashboard. It incorporates complaint categorization, real-time status tracking, notifications, role-based

access control, and basic analytics to improve efficiency, confidentiality, and transparency. All data is digitally processed and stored in a secure database to support multi-user access and informed decision-making.

Architecture of the Proposed System



Justification of the Proposed System

The proposed system addresses the limitations of the manual complaint handling process by introducing an automated and secure web-based platform. It improves efficiency through electronic submission and processing of complaints, enhances transparency with real-time status tracking, and strengthens accountability via activity logging and controlled access. The system ensures data security through role-based authentication, maintains accurate and structured records in a centralized database, and promotes sustainability by eliminating dependence on paper-based documentation.

Input Design:

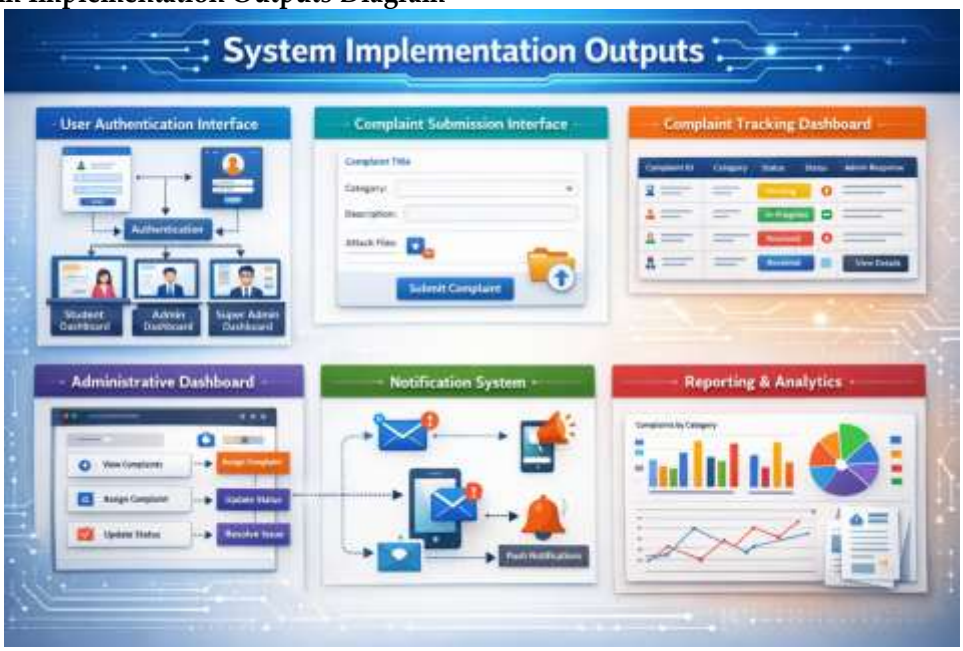
The system input is designed through structured web forms that allow students to register, log in, and submit complaints. Input fields include personal details, complaint category, complaint description, and optional document uploads. Authentication credentials are also captured during registration and login. Administrators input responses, update complaint status, assign complaints to departments, and generate reports. All inputs are validated to ensure accuracy, completeness, and security before being stored in the database.

Output Design:

The system outputs include real-time complaint status updates, automated notifications, response messages, and dashboard summaries. Students receive feedback on their complaints through the system interface. Administrators access analytical reports, complaint statistics, and status summaries via a dashboard. Outputs are presented in clear formats such as tables, charts, and notification alerts to enhance usability and decision-making.

System Implementation

System Implementation Outputs Diagram



The **Web-Based Student Complaint and Response Management System** produces several functional outputs that support efficient complaint management. These outputs allow users to interact with the system and ensure smooth handling of complaints. The system includes a **User Authentication Interface** that enables secure registration and login with role-based access for students, administrators, and super administrators. A **Complaint Submission Interface** allows students to submit complaints, select categories, and upload supporting documents, while each complaint is stored and assigned a unique tracking ID. Students can monitor the progress of their complaints through a **Complaint Tracking Dashboard**, while administrators manage complaints using an **Administrative Dashboard** where they can view, assign, update, and resolve issues. The system also features a **Notification System** that alerts users about complaint updates and responses.

3. Results and Discussion

User Registration and Authentication Results

Test Case	Description	Expected Result	Actual Result	Status
1	User Registration	New user account created successfully	Account created	Passed
2	User Login	User logs in with correct credentials	Login successful	Passed
3	Invalid Login	System rejects incorrect credentials	Access denied	Passed
4	Role Access	Different dashboards for each role	Correct dashboard displayed	Passed

Interpretation: The authentication module successfully provides secure access and role-based control for students and administrators.

Complaint Submission Results

Test Case	Input	Expected Output	Actual Output	Status
1	Complaint with category	Complaint saved in database	Successfully stored	Passed
2	Complaint with attachment	File uploaded successfully	Upload successful	Passed
3	Empty complaint field	Error message displayed	Error displayed	Passed
4	Complaint submission	Unique complaint ID generated	ID generated	Passed

Interpretation: The complaint submission module allows users to submit and store complaints with proper validation.

Complaint Status Tracking Results

Complaint ID	Category	Status	Assigned Admin	Resolution Time
C001	Academic	Resolved	Admin 1	2 Days
C002	Hostel	In Progress	Admin 2	—
C003	Fees	Resolved	Admin 1	1 Day
C004	Examination	Pending	Admin 3	—
C005	Library	Resolved	Admin 2	3 Days

Interpretation: The tracking dashboard allows students to monitor complaint progress and view responses from administrators.

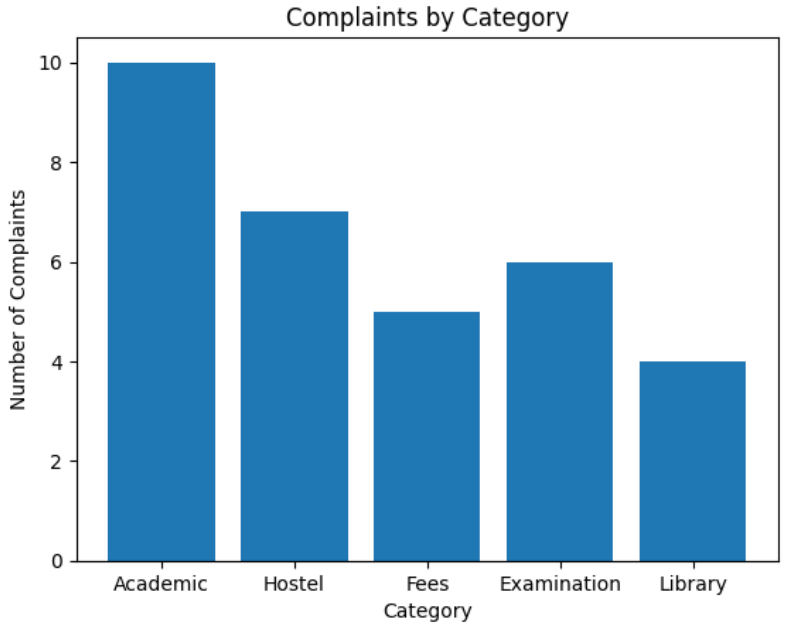


Figure 1. Complaints by Category

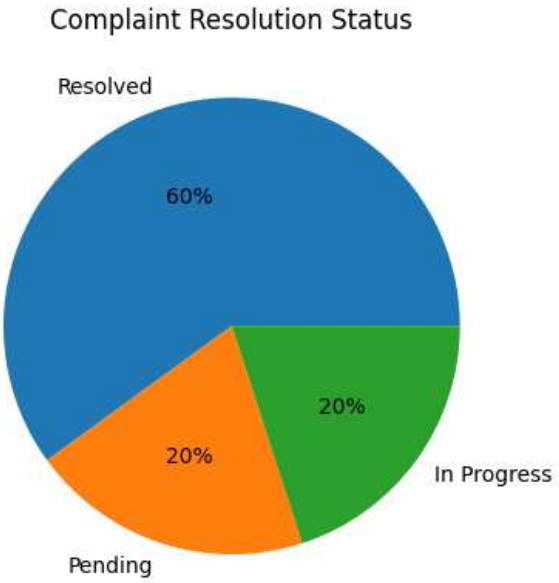


Figure 2. Complaint Resolution Status

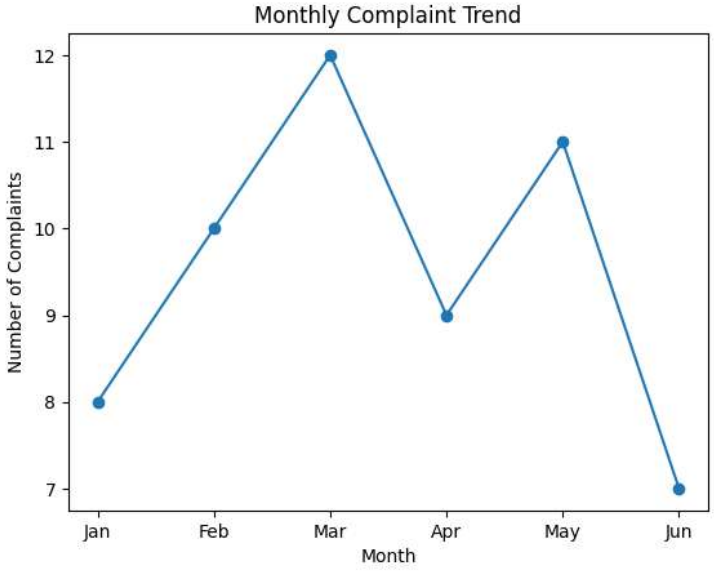


Figure 3. Monthly Complaint Trend

Discussion of Results

The results of the **Web-Based Student Complaint and Response Management System** show that it effectively manages student complaints. The **authentication module** ensures secure access and role-based control, while the **complaint submission and tracking** features allow students to submit complaints, attach documents, and monitor status in real time. The **administrative dashboard** enables efficient assignment, updating, and resolution of complaints. Automated **notifications** keep users informed, and **reporting and analytics** provide insights for management decision-making. Overall, the system improves **efficiency, transparency, responsiveness, and accessibility** compared to traditional manual complaint handling methods.

4. Conclusion

The development and implementation of the **Web-Based Student Complaint and Response Management System** successfully achieved its objectives of providing an efficient, transparent, and automated platform for managing student complaints. The system demonstrates reliable **user authentication**, effective **complaint submission and tracking,** and an **administrative dashboard** that streamlines complaint management. Automated **notifications** and **reporting/analytics** further enhance communication and support informed decision-making. Overall, the system significantly improves upon traditional manual processes by reducing delays, increasing transparency, and ensuring accountability. It provides a **user-friendly and accessible platform** for both students and administrators, promoting timely resolution of complaints and fostering a more organized and responsive institutional environment. The implementation confirms that a web-based approach is a practical and effective solution for managing student complaints. Additionally, **Reporting and Analytics Outputs** generate statistical reports on complaint trends, categories, and resolution time, helping management evaluate system performance and improve decision-making. Overall, these outputs demonstrate the system's ability to enhance **automation, transparency, and efficiency in complaint management**.

Recommendations

To enhance the **Web-Based Student Complaint and Response Management System**, it is recommended to:

1. Regularly update the system for security and functionality improvements.
2. Train users to maximize effective use of the platform.
3. Make the system mobile-friendly for easier access.
4. Improve reporting and analytics for better decision-making.
5. Include a feedback mechanism for continuous improvement.
6. Ensure regular data backups and strong security measures.
7. Design the system to be scalable to accommodate future growth.

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