

An Advanced Framework for Streamlining of the Online Grievance Management System using Django Framework

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Abstract-- The proposed system offers a user-friendly interface accessible via web browsers, allowing registered users to submit complaints, track their status, and receive updates on their resolution. It also includes an administrative panel for staff to manage complaints, user accounts, departments, and overall system administration. Key features of the system encompass user authentication, role-based access control, complaint submission forms, dynamic dashboard views for users, an administrative interface, email notifications for updates on complaints, and real-time alerts for immediate actions. Security is a paramount concern, and the system implements robust measures to protect user data, utilizing encryption techniques for sensitive information and Employing Django's built-in security features to prevent common web vulnerabilities. The project undergoes rigorous testing to ensure functionality, usability, and security. Deployment considerations encompass selecting a suitable hosting platform and configuring database management and web server services.

Keywords: Django Framework, College Complaint Management, User-Authentication, Role-Based Access Control, Complaint Submission, Dashboard Views, Administrative Interface.

I. INTRODUCTION

Our web application revolutionizes the complaint management system, providing an interactive, responsive, and user-friendly platform for students to address various issues, from classroom concerns to severe matters like ragging and harassment. To enhance user experience, both students and staff undergo a seamless registration process to access the system. Students can effortlessly lodge complaints, and designated staff, empowered by admin access, can efficiently manage and visualize complaint data through an intuitive bar graph feature.

The admin holds paramount authority, overseeing student and staff information, complaints, and the database. Admin intervention allows for complaint status updates, deletions when necessary, and the removal of users. Notifications are streamlined as solved complaints trigger automatic emails to the concerned students. Additionally, the ability for users to download their complaints in PDF format adds a

practical dimension to our solution. Visual cues, such as color-coded statuses, enhance clarity - green for solved, orange for in progress, and red for pending complaints. Overall, our web application ensures a streamlined, transparent, and efficient process for handling student concerns within educational institutions.

II. LITERATURE SURVEY

There are many online grievance management systems in different domains such as banks, crime, industries, public services, government sector also in ragging and harassment in organizations.

In his study, Dipankar M [1] addresses the challenge of grievance registration effectiveness in complaint management systems. The paper highlights the reluctance of complainants to disclose their identity, hindering authorities from validating grievances. Emphasizing the need for a robust solution, Dipankar M proposes strategies to enhance registration efficacy. The focus is on providing alternatives for anonymity while furnishing authorities with sufficient information to verify complaints. These enhancements aim to strike a balance between privacy concerns and the imperative to authenticate grievances, fortifying the overall effectiveness of the registration process.

In their study, K. Aravindhan, K. Periyakaruppan, Aswini. K, Vaishnavi. S, Yamini. L [2], highlight the importance of providing users with a transparent complaint status-checking mechanism. They stress the need for a user-friendly platform that encourages individuals to submit complaints without hesitation, promoting open communication on any issue. This dual emphasis on accessibility and inclusivity enhances the overall effectiveness of the complaint management system.

Razulaimi Razali and Jafreezal Jaafar's study [3] emphasizes the importance of constructing a robust theoretical framework and having a well-structured design for an effective complaint-handling process. They delve into the theoretical underpinnings of complaint management systems and emphasize the need for a solid foundation to ensure their efficacy. Complaint

handling plays a crucial role in the overall functionality of the system, and the authors' attention to its intricacies highlights this fact. By focusing on the theoretical aspects and the importance of a strong design, Razali and Jaafar lay the groundwork for a complaint management system that can handle real-world complaint handling scenarios with resilience.

III. EXISTING SYSTEM

In the current system, students face significant challenges as they are required to directly approach management authorities or submit complaints in physical boxes, leading to a lack of awareness about the actions taken on their concerns [12]. This manual process not only allows room for fraudulent complaints but also complicates the identification of complainants and may result in the mishandling or misplacement of complaint papers, enabling potential misuse by authority figures [11]. Additionally, the absence of a systematic approach leads to delayed responses, with manual record-keeping demanding considerable time. The restriction on students meeting management authorities, except for class representatives on rare occasions [14], further exacerbates the issue, hindering the swift resolution of student grievances. Complaints lodged with departments often fail to reach the management, leaving numerous issues unaddressed. The inefficiencies in the existing system pose a substantial drawback, emphasizing the critical need for a more streamlined and responsive complaint management mechanism.

IV. PROPOSED SYSTEM

This project aims to create a dynamic web application that facilitates streamlined complaint submission for students across various categories such as classrooms, college facilities, management, faculty concerns, ragging, harassment, and other college-related matters. The initial step involves user registration for both students and staff, ensuring accountability and personalized access. Upon successful registration, users promptly receive confirmation emails. Subsequently, they can log in to the web application, marking the commencement of an efficient and user-friendly platform for registering and managing complaints. This approach ensures a seamless process, enhancing accessibility and responsiveness for students in navigating and utilizing the complaint management system.

Following a successful login, students are seamlessly redirected to an intuitive Dashboard. Here, they can effortlessly submit complaints using a user-friendly form and conveniently track the status of their submissions, distinguishing between resolved and pending issues.

Staff members, equipped with special access granted by the admin, can efficiently update complaint statuses and gain valuable insights through a visually informative bar graph displaying complaint data trends. The bar graph provides staff with a comprehensive and insightful overview of the complaint landscape, facilitating informed decision-making.

Acting as the central authority, the admin holds the highest level of access, overseeing all aspects, including student and staff data, as well as the complaints database. With the capability to delete complaints and manage the student and staff roster, the admin ensures the system's integrity and responsiveness, creating a robust and effective online complaint management framework.

V. METHODOLOGY

The Agile methodology proves highly effective in the development of an Online Complaint Management System web application, providing a flexible and iterative approach to address the evolving needs of users. Adopting Agile principles involves breaking down the development process into short sprints, typically lasting a few weeks, during which specific features and functionalities are prioritized based on user stories. This iterative cycle allows for continuous refinement and adaptation, ensuring that the complaint management system remains responsive to user feedback and changing requirements. Regular stakeholder engagement, including end-users and administrative staff, facilitates ongoing collaboration and feedback, fostering a user-centric approach. The Agile methodology's emphasis on continuous integration, testing, and early delivery of functional increments ensures the reliability and effectiveness of the system. Additionally, the methodology's adaptability to changes accommodates the dynamic nature of complaint management processes, where regulatory requirements or organizational policies may undergo alterations. By prioritizing collaboration, flexibility, and user involvement, Agile proves instrumental in delivering a responsive, reliable and continually improved Online Complaint Management System.

VI. SYSTEM ARCHITECTURE

The Online Complaint Management System is built upon a robust system architecture, leveraging the Django framework for efficient handling and resolution of user grievances. It adheres to a client-server model, where distinct interfaces for students, staff, and administrators facilitate specific functionalities such as complaint submission, status tracking, and system configuration. The server side comprises a web server handling HTTP requests and serving web pages, an application server executing core business logic using Django, and a PostgreSQL database server storing structured data related to users and complaints.

Authentication and authorization modules ensure secure access, with authentication verifying user identities and authorization defining roles and permissions. The Complaint Management Module oversees complaint submission, status tracking, and detailed storage, while the Database Management System, powered by PostgreSQL, effectively manages data storage and retrieval. The Security Layer employs encryption and access controls to safeguard sensitive information, ensuring a secure environment.

Furthermore, a Notification System is seamlessly integrated to provide email notifications regarding complaint status updates and other relevant information, enhancing user communication. This architecture, with its Django framework and PostgreSQL integration, collectively ensures a seamless, secure, and efficient environment for managing user complaints within the online system.

Fig.1 System Architecture

VII. SYSTEM OVERVIEW

The Online Grievance Management System features a user-friendly interface with three key modules: user, staff, and admin. Each module encompasses specific functions, tailoring the system to the distinct needs of users, staff, and administrators.

A. Welcome Page

The page encompasses essential navigation buttons: Home, About, Register, and Login. By clicking the Home link, users can be redirected to the welcoming page, while the About link provides insights into the web application. New users click on the Register link to join the system, while students, staff, and admin utilize the Login link to access the system. This streamlined interface ensures a straightforward and effective user experience.

Fig.2 Welcome page

B. About page

The About page serves as an information hub for the system, detailing its purpose and functionalities. Additionally, it provides users with timelines for complaint resolution based on the type of grievances submitted. This comprehensive approach ensures users are well-informed about the system's objectives and the expected timelines for addressing their specific concerns.

Fig.3 About Page

C. Register Page

The Register page facilitates a seamless onboarding experience for new users to use the Online Grievance Management System. Here, individuals provide essential details such as first name, last name, username, and email. The registration process also involves the creation of a secure password, ensuring a personalized and secure login experience for users. This user-friendly approach streamlines the registration process, enhancing accessibility for individuals joining the system.

Fig.4 Register Page

D. Login Page

Upon clicking the login link, users are redirected to a login page featuring two distinct modules: one for student/staff login and another for admin login. This thoughtful design allows users to select their preferred login category, ensuring an efficient access process to the system.

Fig.5 Login Page

E. Student/Staff Login Page

The Student/Staff Login Page streamlines the login process with dedicated fields for entering a username and password. Additionally, it features convenient hyperlinks for "Forgot Password" and "Register Now." Users encountering password issues can easily reset their password through the Email in Forgot Password page, ensuring a user-friendly and accessible login experience.

Fig.6 Student/Staff Login Page

Fig.7 Forgot Password Page

F. Student Dashboard

Upon successful student login, users are directed to Fig.8, a comprehensive page featuring modules such as Profile, Password Reset, Add Complaints, Unsolved Complaints, and Solved Complaints. This design provides students with convenient access to key functionalities, allowing them to manage their profiles, reset passwords, submit new complaints, and monitor the status of both unsolved and solved complaints from a single, user-friendly interface. By clicking on the profile user can view the profile and if needed user can update the profile.

Fig.8 Student Dashboard

G. Password Reset Page

To enhance security and privacy on the student dashboard, initiating a password change is a straightforward process. By clicking on "Password Reset," students are seamlessly redirected to the password reset page. Here, user verification begins by entering the old password for confirmation. Subsequently, students can input their desired new password, ensuring a secure and personalized login experience. The final step involves the user re-entering the new password for confirmation, solidifying the password change.

Fig.9 Password Reset Page

H. Add Complaint page

Within the Student Dashboard, initiating a complaint is simplified by clicking on "Add Complaint," redirecting users to the dedicated Add Complaint page. On this page, students can effortlessly input essential details such as subject, type of complaint, and description, streamlining the process of registering a complaint. This user-centric approach ensures a straightforward and efficient method for students to voice their concerns within the system.

Fig.10 Add Complaint page

I. Unsolved Complaints Page

By selecting "Unsolved Complaints" within the Student Dashboard, students can view a dedicated page showcasing pending and in-progress complaints. The visual representation of these statuses employs yellow and red colours, as illustrated in Fig.11, facilitating quick identification. Furthermore, users have the convenient option to download detailed complaint information in PDF format if required.

Fig.11 Unsolved Complaints

J. Solved Complaints Page

To view solved complaints, students can easily click on "Solved Complaints" within the Student Dashboard. This action directs them to a dedicated page displaying solved complaints. Solved complaints are distinctly marked with a green color-coded status box, making it clear that the respective complaints have been successfully resolved. Additionally, users can download the complaint details in PDF format if required.

Fig.12 Solved Complaints Page

K. Staff Dashboard/Statistics Page

Upon staff login through "Student/Staff Login," staff members are greeted with the Staff Dashboard, as illustrated in Fig.13. This dashboard is equipped with essential modules, including Statistics, Password Reset, All Complaints, and Solved Complaints. These modules offer staff members comprehensive insights and efficient tools for managing and addressing student complaints within the system.

Upon staff login, the default display is the Statistics page, offering staff members a visual representation of complaint data through a bar graph featuring different colours. This graphical representation provides a quick and insightful overview of the system's complaint landscape. Additionally, the page includes a count of solved, unsolved, and total complaints, enhancing the staff's understanding of the overall status of the complaint management system. These visual and numerical representation aids staff members in making informed decisions and efficiently managing complaints.

Fig.13 Statistics Page

L. Password Reset Page

The Password Reset page for staff members mirrors the design of the student Password Reset page. Both user groups can conveniently change their passwords by confirming their old password, entering a new password, and then confirming the change by re-entering the new password. This consistency in design ensures a uniform and user-friendly experience for both students and staff when managing their login credentials within the system.

Fig.14 Password Reset Page of Staff

M. All Complaints Page

In the "All Complaints" module, staff members gain visibility into both Progressing and Pending complaints. This page empowers staff members to modify the status of any specific complaint as needed. Additionally, staff members can download detailed information for any complaint in PDF format, facilitating efficient management and documentation of the complaint resolution process. This comprehensive functionality enhances the staff's ability to monitor, address, and document complaints effectively within the system.

Fig.15 All Complaints Page of Staff

N. Solved Complaints

The Solved Complaints module for staff members mirrors the design of the Solved Complaints page for students. The main difference lies in staff members' ability to change the status of complaints within this module. This functionality allows staff members to actively manage and update the status of resolved complaints, ensuring accurate and up-to-date records within the system. The consistency in design streamlines the user experience for staff while maintaining the core features of the student-facing module.

Fig.16 Solved Complaints Page of Staff

O. Admin Login

The system utilizes the default Django admin, and upon clicking on the admin login, users are directed to the default Django admin login page. Here, administrators can securely log in by providing their username and password, ensuring a standard and secure authentication process for accessing the admin functionalities within the system.

Fig.17 Admin Login Page

P. Admin Dashboard

Upon admin login, the system displays the admin dashboard (Fig.18). Admins have extensive capabilities in this interface, allowing them to modify complaint statuses, access all user data, delete complaints, remove users, and alter user details. Admins also have the authority to grant staff members access to change the status of student complaints. This comprehensive set of permissions underscores the admin's central role in the overall system, providing them with the tools needed for effective oversight and management.

Fig.18 Admin Dashboard

Q. Users Page in Admin Dashboard

When the admin clicks on the Users sub-module of Authentication and Authorization, the subsequent page (Fig.19) exhibits a comprehensive list of all users. Admins can click on individual user names to visualize specific user data. Moreover, the admin holds the authority to modify user details or remove users if necessary. This functionality provides administrators with a user-centric approach, enabling them to manage user data efficiently within the system.

Fig.19 Users Page in admin

R. Complaints Page

When the admin clicks on the Complaints section, a page similar to Fig.20 is displayed, featuring a comprehensive list of all complaints. Admins can individually click on each complaint to access detailed information and have the ability to change the status of the complaint as needed. This user interface ensures that administrators can efficiently manage and update complaint statuses within the system, streamlining the process of overseeing and addressing user grievances.

Fig.20 Complaints Page

VIII. RESULT

The proposed system serves as a comprehensive platform empowering student to submit and oversee complaints related to diverse aspects such as facilities, classrooms, teaching, management, and instances of ragging or harassment, as well as any other concerns about the college. With an administrative review process, updates on the complaint status are efficiently communicated to students via email, offering a seamless experience for students to track the progress of their complaints through the web application. This approach ensures a transparent and responsive system for issue resolution within the college community.

IX. CONCLUSION

This paper introduces an Online Grievance Management System designed to address student issues across various domains, offering a streamlined process for easy lodging and efficient problem resolution. Students can conveniently track the status of their grievances, whether they are in progress or resolved. The implementation of this system not only facilitates seamless issue resolution but also contributes significantly to the qualitative enhancement of educational organizations.

X. REFERENCES

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