Digital Platform for Confidential Complaint Resolution: Empowering Anonymity in Online Reporting

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Abstract - This report explores an innovative anonymous authentication system designed for academic services within the university environment. The primary objective of this proposed system is to safeguard students' identities when reporting instances of academic misconduct within the university system. The system comprises two fundamental sub-systems: one dedicated to user management and the other focusing on file management for feedback submitted by students.

The "User Management" system facilitates tasks such as new enrollment, registration verification, and key distribution to system users. Meanwhile, the "Student Feedback" system assists users in providing feedback, encrypting and describing files, and submitting feedback. The file encryption process employs the Attribute-Based Encryption (ABE) algorithm. Both systems are interconnected through a confidential API.

In the testing phase of this study, data from Pune University's community service participants in the year 2023 were utilized. The tests covered processes such as anonymous authentication, encryption, file description, key distribution, feedback submission, and feedback status. The evaluation produced positive results, indicating that the user authentication process takes only 4.6 seconds, while sending feedback requires 6.4 seconds.

*Key Words***:** *Anonymous Authentication, Student Feedback, Academic Service, Distributed System,MD5, online , complaint , management , respond.*

1. INTRODUCTION

Basic foundation of good complaint handling process depends on the strength of the framework. Effective complaint applications is developed also referring to the framework. Hence, research related to the complaint handling framework keep on growing with the objective to improve the complaint handling process. Prior research, such as proposed an integrative multi-level framework and a dyadic dataset to improve the complaint handling process. The findings suggested applying an adaptive approach to avoid misallocation of attention, energy, and resources. Moreover, complaint managem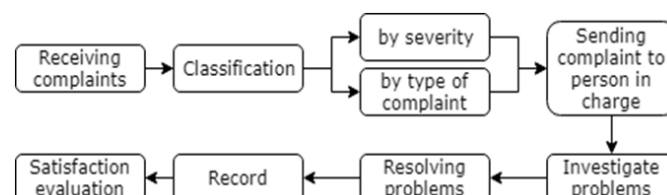ent system should easily access by the customer and responsiveness by allowing staff to manage complaints instantly .Furthermore, presented a framework of complaint handling system for a Japanese restaurant chain. The presented framework is replacing the current complaint handling through process reengineering to improve the complaint handling process. Additionally, applied the theory of reasoned action and the theory of planned behaviour to predict which factors can clarify consumers' intentions to complaint when service failure occur. As well, presented a framework for extracting customer opinions from websites and transforming them into product specification data. The presented framework enables to include customer opinions efficiently with new product development processes and to design online customer centers to collect and analyse useful information.

2. BACKGROUND

 A. Complaint process
A complaint is a User expression of dissatisfaction. The complaint can be a written or oral communication to a responsible person . User Complaint Management might affect the level of Student satisfaction, therefore many colleges usually have a process to handle complaints with the purpose of doing the maximize User satisfaction.

Complaint management process is a set of operations that used to handle complaints in college in order to resolve problems. The procedures for handling complaints are as follows:

B. Advantages

- Students need not go directly to the Complaint registration office to register complaints
- Encourages students to fire a complaint without fear.
- Greater confidentiality and transparency in Complaint fire procedure.
- Helps to build harmonious atmosphere in campus with openness and trust.
- Automates entire complaint process right from registration to closure.
- Advantage over paper-based systems as secure complaint portal can alert students/staff/other staff immediately on the grievance, action taken etc.
- Improved communication by way of SMS to the mobile.

3. SYSTEM ARCHITECTURE OVERVIEW

The complainant uses the web app to report the problem or complaints. After that, the complaint was sent to process in the cloud computing and store the data in the database. On the staff side, the web application retrieves all the classified complaint from the database, therefore, the responsible person could see all existing complaints via system dashboard. Besides, the responsible person could take notes about the correction method and update the complaint status, then send back to the complainant.

A. Related Works

Many authors extended the work of Berenbeim, Rowe, and Rowe and Baker, on the topic of internal complaint systems. They included: Douglas M. McCabe, William J. Ury, Jeanne M. Brett, and Stephen B. Goldberg. Cathy Costantino and Cristina S Merchant, and Karl A. Slaikeu and Ralph H. Hasson extensively explored issues of designing conflict management systems.

The concept of an integrated conflict management system was conceived and developed by Mary Rowe, in numerous articles in the 1980s and 1990s. She saw the need to offer options for complainants and therefore a linked system of choices within an organizational system.

The idea of a systems approach has endured well. In recent years however, there has been discussion as to whether conflict should be "managed" by the organization—or whether the goal is to understand, deal with and learn from conflict. There is also concern about practical and theoretical issues in "integrating" a system, with some observers preferring the idea of "coordinating" a conflict system. However 2012 research by David Lipsky et al., suggests that an increasing number of corporations see themselves as having "integrated conflict management systems," or "ICMS."

B.   *Existing system*

In the existing system the people must go to the office for any kind of help. The users can post their problems but cannot get the details of the problems and some other services. This system doesn't have much popularity and is not user friendly.

C. Comparison with Existing Systems

The existing systems related to SCMS could be divided into four types, which are a paper form, call center, Electronic Complaint, and mobile app. Fig.   shows the comparison between the main features of SCMS and existing systems.
The strengths or advanced features of SCMS are tracking complaint status, automatic classifying complaint to a proper department, providing several channels to submit the complaint, and preventing duplicated complaints.

	Smart Complaint Management System	E-Complaint (Web, Mobile App)	Paper Form	Call Center
Tracking complaint status	✅	✅	❌	✅
Auto classify complaint	✅	❌	❌	❌
Complaint procedure	E-Form, Chatbot	E-Form	Hand written form	Voice
Prevent user to submit duplicate complaint	✅	❌	❌	❌
Data collection	Database	Database	Paper, File, Document	Voice record

D. Purpose

Online Complaint Management System provides an online way of solving the problems faced by the public by saving time and eradicate corruption , And The ability of providing many of the reports on the system , and add to Facilitate the process of submitting a complaint.
e. Applications

- Secure Complaints management System is used to record, resolve and respond to student/staff/other staff complaints.
- Secure Complaints management system allows for notifications on student/staff/other staff mobile.
- This system provides a secure way of communication Due to online approach of this system student/staff/other staff used this system from anywhere to fire a complaint.
- Data of person who fire a complaint is encrypted in this system.

4. INTERFACES

.A. Software Interfaces Secure Compliant Resolver System:

PHP

Recursive acronym for PHP: Hypertext Preprocessor is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

XAMPP SERVER

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages

B. Communication Interfaces

Website

The admin Registered the HOD and Students also registered it self and Fired a complaints against any faculty of college.

Mobile

Each user of these system may get notification on mobile.

5. COMPLAINT SERVICE RECOVERY

Complaint service recovery (CSR) is responsible to manage complaints and capable of classify the complaint's priority, increase customer satisfaction and improve the quality of services. Past research has identified reliable attributes that being used to handle the complaint. Those attributes are used in the marketing and business domain. After doing some analysis on the existing attributes, identified six reliable attributes that suitable to be used. The attributes are:

Apology - Immediate action from the service provider to the customer on admitting the service failure. This action shows the service provider concern about customers who have experienced the service failure. A service provider that communicates with the customer through an apology may enhance the customer' s perception and believe to the service provider towards the incidents.

Explain - Reasons and details that need to convey to make the customer understand about the failure situation. Explanation is important to help the customers to be aware and take an appropriate precaution to minimize future failure. This also will help the customer to remember about [2012 International Conference on Computer & Information Science (ICCIS) the failure situation which makes them more knowledgeable and if the same situation occurs again they will know what to do.

Response speed - Speed to recognize and identify the problem which this will inform the customer that the service provider aware on failure situation. Immediate response is important to increase the customer satisfaction level and to show their important.

Resolution speed - Time taken to fix or solve the service failure situation. The faster service provider can resolve the service failure the better. Good resolution speed will increase the customer satisfaction and confident level.

Accessibility - Appropriate channel for the customer to report and make complaint if they face with the service failure. The channel should easy access, user friendly and always available for the customer.
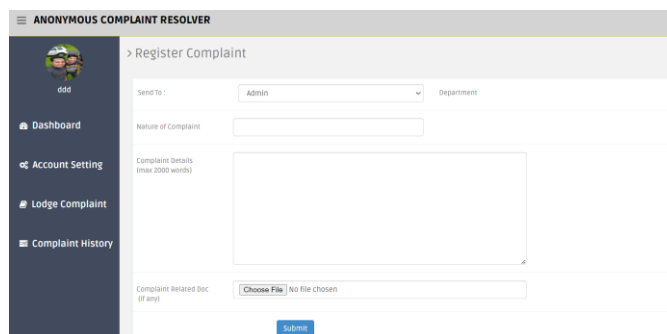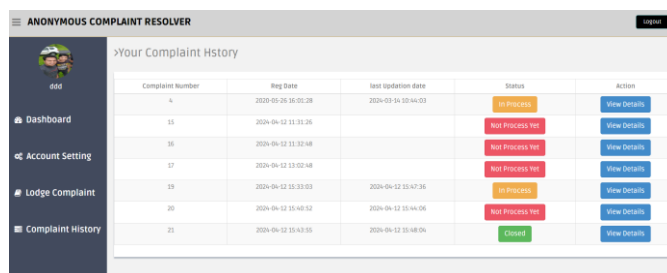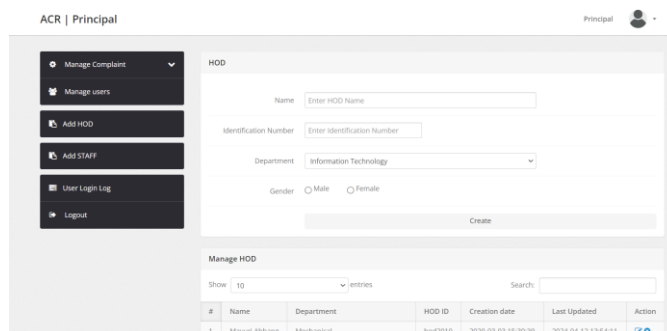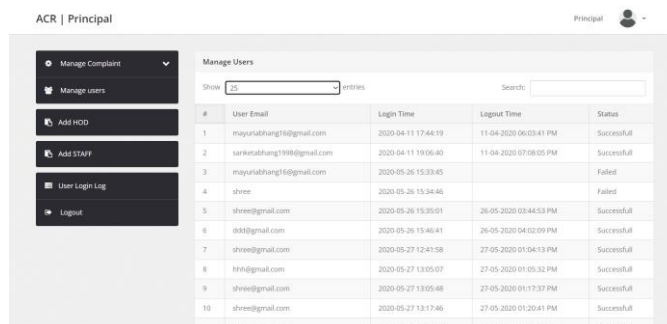
6. GUI/WORKING MODULES

Fig6.1: Lodge Complaints

Fig6.2: Complaints History

Fig6.3: Add HOD/Staff

Fig6.4: User Log

Fig6.5: Manage User

5. CONCLUSION

Development of a web application which can effectively find data, share data and remove data duplicates in the cloud using file checksum. The web application is useful for organizations dealing with highly redundant operations that requires constant copying and storing of data for future reference or recovery purpose. The technique is a part of backup and disaster recoverysolution as it allows enterprises to save data repeatedly and promotes fast, reliable and cost-effective data recovery. For instance, a file that is backed up every week results in a lot of duplicate data and thus, eats up considerable disk space. Data duplicate removal using file checksum run an analysis and eliminates these sets of duplicate data and keeps only what is unique and essential, thus significantly clearing storage space. The key obstacle was all files stored in the database should not contain duplicates of itself. That was encountered by using a software called PHP (Hypertext Pre-processor). The educational benefit of the developed system is a new system was developed to efficiently find data, shares data and remove data duplicates using file checksum in the cloud.

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