e-Reklamo: A Complaint Management System using Naive Bayes Algorithm

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Bachelor of Science in Information Technology

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ETHICAL CONFORMITY SHEET

We have reviewed the Code of Ethics and affirm that this research will conform to the ethics code, particularly with respect to:

__ Informed Consent to Research
__ Offering Inducements for Research Participation
__ Deception in Research
__ Debriefing
__ Reporting Research Results
__ Plagiarism

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ABSTRACT

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Technology's quick development has completely changed how people interact, communicate, and work together on a global scale. Technology has an impact on academic growth and development in the educational sector, necessitating the implementation of an efficient complaint management system within universities. Effective complaint handling is essential to maintain the peace and happiness within the university. Resolving complaints quickly and efficiently can encourage peacefulness among students, parents, and school administrators, and improve educational achievements.

An automated classification method employing machine learning techniques is suggested to address the wide range of complaints from students and faculty that are experienced in colleges.

The Naïve Bayes Algorithm is chosen for classifying complaints due to its ease of use and excellent accuracy. Complaint management personnel may resolve complaints more quickly and effectively by automating the classification process, leading to improved service delivery and customer satisfaction.

It is important to recognize that the Naïve Bayes Algorithm has a limit in terms of its performance. Despite this drawback, the method is a good option for complaint classification due to its benefits, such as simplicity in implementation and real-time processing capacity.

In conclusion, implementing a machine learning-based method for classifying complaints can improve the precision and efficacy of complaint handling in academic institutions. Educational institutions can enhance academic performance and general well-being among students and staff members by immediately handling complaints and promoting a safer and more supportive learning environment.

ACKNOWLEDGEMENTS

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This research has been made possible by the guidance, supervision, cooperation, and participation of the following: to our Almighty God for giving us knowledge and wisdom and keeping the researchers safe while conducting this research. To our Parents for the financial provision and for giving the researchers sound advice to inspire us to do our best throughout this whole research process.

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Together, we sincerely acknowledge, appreciate, and give thanks to the people mentioned above, who contributed to the success of this research.

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Chapter 1

THE PROBLEM AND ITS BACKGROUND

Introduction

The evolution of technology has changed people's way of life. People can now readily interact, exchange information, and collaborate worldwide via websites, e-mail, instant messaging systems, social networking sites, and other internet-based communication tools. It significantly impacts academic growth and educational development of the students, and from many problems in the academic environment to create a social and practical educational system. Academic development is essential in an educational context because it supports social and practical learning systems. If an effective educational system is established, school officers must address the issue of the University's complaints management system.

Effective Complaint Management is essential for any organization that values customer satisfaction and retention. Organizations can improve customer loyalty and build a positive reputation by promptly addressing customer complaints and working to resolve them to the satisfaction of the customer. In contrast, neglecting customer complaints or failing to address them adequately can lead to customer dissatisfaction, ultimately resulting in a loss of business.

Positive relationships among students, parents, and school officials are essential for achieving and maintaining the highest educational outcomes. However, school officials are only sometimes optimal in carrying out their duties in school. It encourages the public to offer feedback or concerns so that school officials can enhance their services. Schools usually provide a platform for the public to make concerns, either directly through the complaint service counter or indirectly through the complaint officer's contact number.

Background of the Study

The timely resolution of complaints is crucial in any organization, especially educational institutions. Complaints are important stakeholders' input that point out areas of worry, displeasure, or issues that require addressing by each University. So, each complaint/report submitted varies. Therefore, the first step of the complaint resolution process is classifying every complaint. It is intended to make complaint handling more effective and efficient.

Classifying each complaint or report that comes in is undoubtedly a big task, especially if many of them come in simultaneously. Unfortunately, this can lead to less efficient performance for complaint management officers. As a result, it is required to automatically classify complaint reports so that the process becomes more accessible, faster, and more precise, making complaint management officers' performance time more efficient. This can be accomplished by employing machine learning approaches or a particular algorithm.

One of the main advantages of Naive Bayes is its simplicity and ease of implementation, making it a common choice for many classification tasks. It is also relatively fast and efficient, making it suitable for use in real-time applications. However, there are significant drawbacks to Naive Bayes. One of the key drawbacks is that it assumes feature independence, which indicates that the presence or absence of one characteristic does not affect the presence or lack of another. This can occasionally result in less accurate results than alternative algorithms that do not make this assumption.

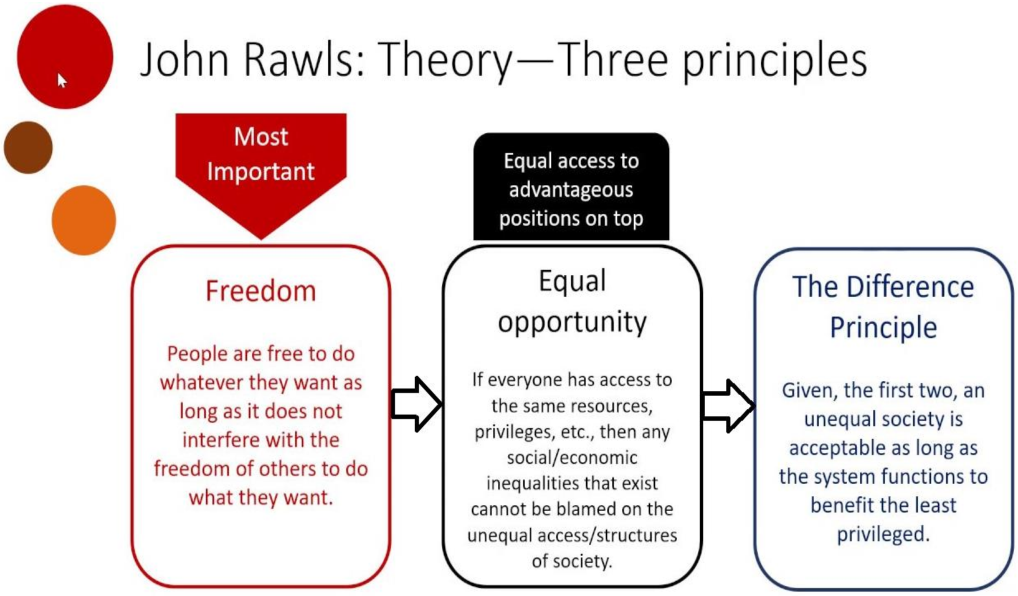
In this study, the Naïve Bayes Classifier algorithm is used to classify complaints/reports. Naïve Bayes Classifier is a simple algorithm but can classify with high accuracy. Moreover, Naïve Bayes Classifier is known to have a degree of accuracy and works better than other classifier algorithms.

Theoretical Framework

Rawlsian Justice Theory

Rawlsian justice theory, commonly known as justice as fairness, is a political philosophy founded by philosopher John Rawls. The theory is founded on the premise that a fair society is one in which all citizens' basic rights and freedoms are respected, and in which the distribution of economic and social goods is ordered to benefit the least advantaged members of society.

Rawls contends that a fair society is one in which the laws and institutions are decided behind a "veil of ignorance," in which individuals are unaware of their class, race, gender, natural assets, and abilities. This thought experiment is intended to ensure that the concepts of justice are chosen impartially, without favoritism.



John Rawls: Theory—Three principles

Most Important

Equal access to advantageous positions on top

Freedom

People are free to do whatever they want as long as it does not interfere with the freedom of others to do what they want.

Equal opportunity

If everyone has access to the same resources, privileges, etc., then any social/economic inequalities that exist cannot be blamed on the unequal access/structures of society.

The Difference Principle

Given, the first two, an unequal society is acceptable as long as the system functions to benefit the least privileged.

Figure 1: ***Rawlsian Justice Theory***

Digitalization Theory

The "digitalization of complaint theory" refers to the application of principles of social justice and fairness in the digital realm, particularly in the context of online interactions and the use of technology. This can include issues related to privacy, access to information, and the distribution of digital resources and opportunities. One aspect of the digitalization of complaint theory is addressing the "digital divide," which refers to the unequal distribution of access to technology and the internet.

It also includes ensuring that marginalized communities have access to affordable internet and devices. Another aspect of the digitalization of complaint theory is addressing online harassment and hate speech, which can disproportionately affect marginalized groups. This can include developing policies and tools to moderate online content and ensure that everyone can participate in online communities safely and free from discrimination.

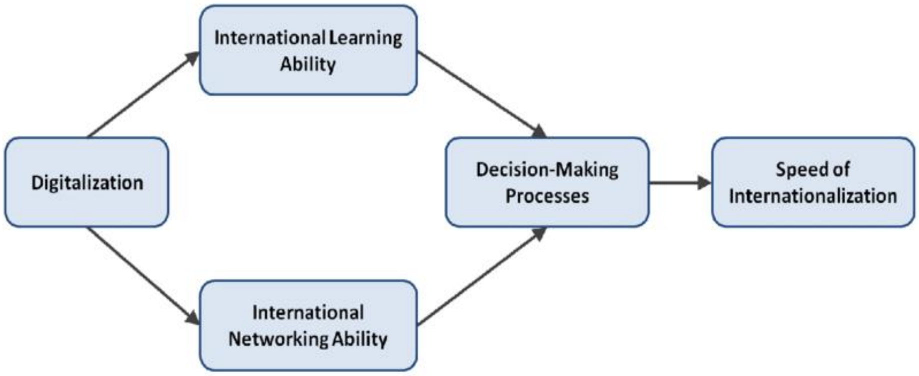

International Learning Ability
Digitalization
Decision-Making Processes
Speed of Internationalization
International Networking Ability

Figure 2: ***Digitalization Theory***

Technology Acceptance Model

The TAM (Technology Acceptance Model) is a theoretical framework that describes how people acquire and use technology. According to the paradigm, two important aspects influence a person's acceptance and usage of technology: perceived usefulness and perceived ease of use.

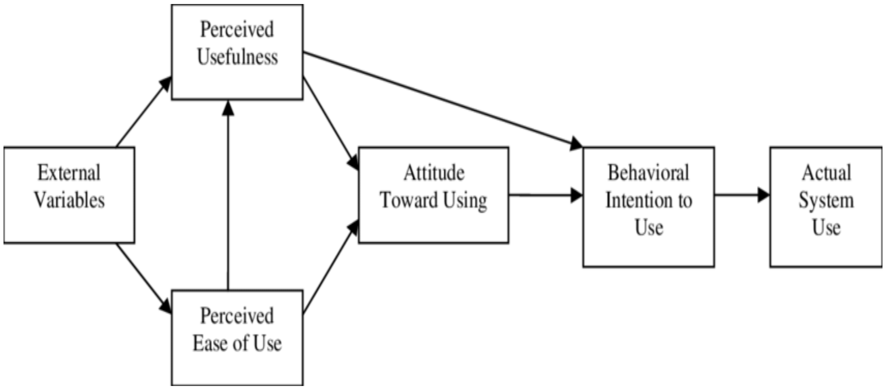
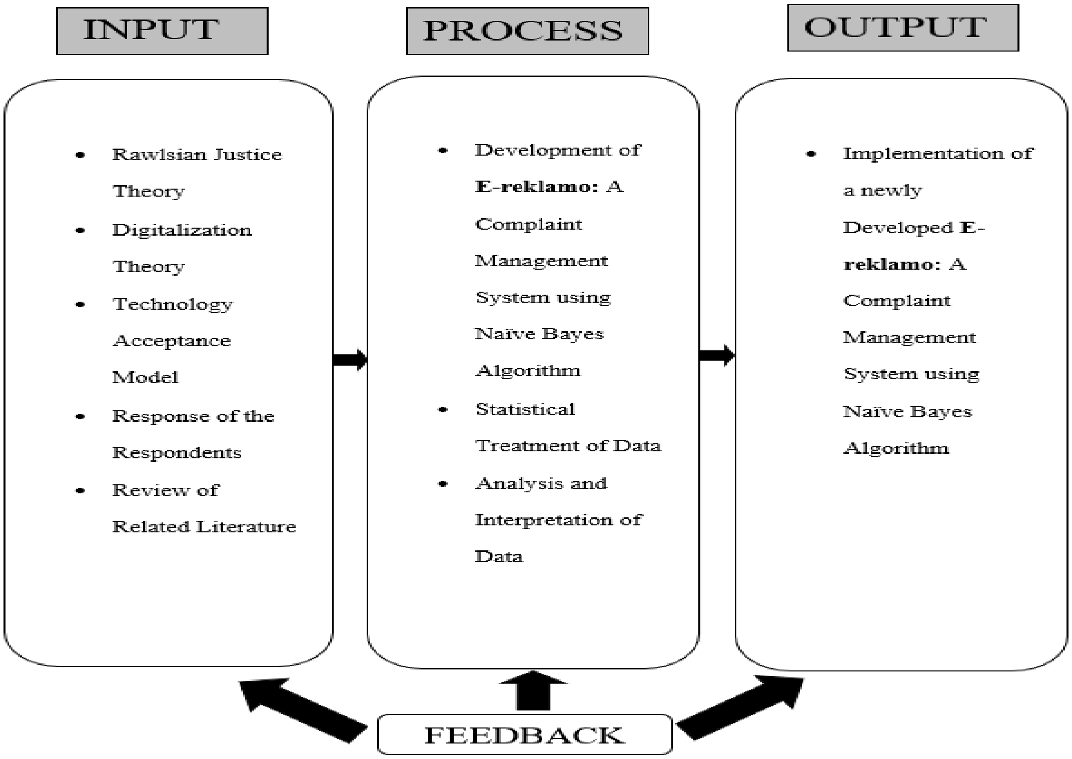

Perceived Usefulness
External Variables
Attitude Toward Using
Behavioral Intention to Use
Actual System Use
Perceived Ease of Use

Figure 3: ***Technology Acceptance Model Theory***

Conceptual Framework

Based on the theories and models that are presented above, the conceptual framework is developed. The Input-Process-Output Model was used to conceptualize the model of the general system.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FEEDBACK

Figure 4: ***Conceptual Framework***

The Input in the Conceptual Framework consists of three theories such as Rawlsian Justice Theory, Digitalization Theory, and TAM Model. It is also having a response from the respondents which are the students, faculty members and department heads/administrators. The Review of Related Literature which is also considered to serve as a guide in conducting this kind of study.

For the Process, the researcher will develop a Web-based Complaint Management System using Naive Bayes Algorithm. After the development, the researcher will conduct and evaluate the data that is being gathered from different respondents. These procedures will be done to obtain the target outcome of the study.

And lastly for the Output, the researcher will implement the newly developed **eReklamo:** A Complaint Management System using Naive Bayes Algorithm.

Statement of the Problem

The research entitled *"**e-Reklamo: A Complaint Management System using Naive Bayes Algorithm**"* aims to evaluate the main problems and challenges that are being experienced by students. The researcher seeks answers on the following questions:

1. What are the benefits of using a complaint management system in a university?
2. What is the level of awareness of the respondents on monitoring complaints inside the university in terms of:
    a. Incident Report
    b. Familiarity with School Policies
    c. Immediate Reporting
    d. Response Time

3. What is the level of satisfaction of the respondents in the newly developed app “Complaint Management System” in terms of:
    a. Functionality
    b. Ease of use
    c. Usefulness
    d. Security
4. Is there a significant difference between the level of awareness and the level of satisfaction in the newly developed app “Complaint Management System”?
5. What are the possible recommendations to further improve the Complaint Management System?

Scope and Limitation

This study focuses on the implementation of the newly developed Complaint Management System to easily classify complaints from university personnel, including students and faculty member and classified into predefined categories such as discrimination, academic issues, facility issues, and other safety concerns.

The respondents for this study are the people at the Polytechnic University of the Philippines - Quezon City Branch. Survey Questionnaire through Google Forms is the research instrument that is being used by the researcher to gather the necessary information needed in this study.

For the software development, the researcher will use the following: HTML, CSS, and JavaScript to conduct the front end of the system, while MySQL and PHP will serve as the back end of the proposed system.

Significance of the Study

The result of the study will benefit the following:

For Students. It can lead to improved problem-solving and resolution of issues, which can help to create a more positive and effective learning environment.

For Parents. It can provide a sense of trust and confidence in the school's ability to handle issues, which can lead to greater engagement and involvement in the educational process.

For Faculty Members. It can help increase their satisfaction in the workplace by addressing their issues.

For School Administrators. It can help to identify and address problems early on before they escalate, which can save time and resources. It can also improve the overall culture and climate of the school by creating a more open and responsive environment.

For Future Researchers. It can provide valuable data and insights about the issues and challenges that students, parents, and administrators face in the educational system. This can inform and guide future research, policy, and practice in the field of education.

Definition of Terms

To comprehend the words easily that the researcher used in the study, it is better to understand the different terms.

COMPLAINT - A statement that a situation is unsatisfactory or unacceptable.

THEFT - The action or crime of stealing.

ALGORITHM – It is a procedure used for solving a problem or performing a computation. Algorithms act as an exact list of instructions that conduct specified actions step by step in either hardware- or software-based routines.

NAIVE BAYES ALGORITHM - It is one of the simplest and most effective Classification algorithms that can make quick predictions. It is a probabilistic classifier, which means it predicts based on the probability of an object.

HYPERTEXT MARK-UP LANGUAGE (HTML) – A standardized system for tagging text files to achieve font, color, graphic, and hyperlink effects on World Wide Web pages.

CASCADING STYLE SHEET (CSS) – CSS is used to style and layout web pages to alter the font, color, size, and spacing of your content, split it into multiple columns, or add animations and other decorative features.

JAVASCRIPT – A dynamic programming language that's used for web development, in web applications, for game development, and lots more. It allows you to implement dynamic features on web pages that cannot be done with only HTML and CSS.

MySQL – A vast amount of information in a corporate network to add, access, and process data stored in a computer database, you need a database management system such as MySQL Server.

PHP (**Hypertext Preprocessor**) - is a popular server-side scripting language primarily used for web development. It is a powerful and versatile language that is designed to be embedded within HTML code and executed on a web server. PHP code is processed by the server, generating dynamic web pages that can be sent to the client's browser for display.

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter provides the supporting details and information to fully understand the research. The researcher will present the relevant literature, studies, synthesis, and systems that the researcher used to strengthen the study.

RELATED LITERATURE AND STUDIES

Complaint Management

A literature review provides a summary and explanation of the entire and current state of knowledge on a particular topic as contained in academic books and journal articles. A complaint is a negative expression of a dissatisfied customer or consumer about the product, services, and organization's action. According to Kumar & Kaur (2019). It is an action taken by a dissatisfied individual, which involves communicating something unwanted or unacceptable regarding a product or service. It defines complaints as an attempt by the customer to change the unsatisfactory purchase experience. Complaint management is the process and procedure by which companies systematically handle customer problems.

This phenomenon is crucial because organizations have never taken complaints seriously and have always discouraged customers from filing complaints, causing further distress and discontent (Stauss & Seidel, 2019). Eventually by creating a complex system of complaint registering and handling dissatisfied customers. Customer complaints have increased in recent years due to the influence of social media. Lovely Singh Bhadouria, et. al. (2021) stated that a Complaint Management System is a modern product development tool that is widely used by all businesses and management. It offers an online solution to the public's problems, saving time and eliminating wrongdoing. The goal of the complaint management system is to make it easier to coordinate, monitor, track, and handle complaints.

According to Advocacy Research (2021), it is essential to register complaints before they can be managed. When you have a complaint, it is necessary to obtain the specifics and produce evidence when possible. According to Kolsky's data, most complainants either keep their dissatisfaction issues bottled up or discuss them with other individuals who may become disappointed. According to Surbhi (2018), management is the process of managing and controlling the operations of an organization, regardless of its form, kind, structure, or size. It is the act of creating and sustaining an atmosphere in which people of a company may collaborate and achieve business objectives efficiently and effectively.

We can define Complaint Management as the process of regulating concerns of dissatisfaction or unhappiness voiced by complainants. Complaint management allows for the effective handling and control of issues raised by complainants. Management guides a group of people working in an organization, directing their efforts toward a common purpose (Surbhi, 2018). It is quite difficult to understand what someone is thinking. It is possible that most individuals are content with your services, but some of them are not. Therefore, it is essential to create a functional complaint management system that ensures good rapport with the people. Complaint management requires the development of methods, as well as the determination of where complaints should be received, how to respond to input, and which departments or individuals the criticism should be delivered to (IONOS, 2019).

An effective Complaint Management System is essential for offering good complainant service. It assists in the measurement of complainant satisfaction and serves as a valuable source of information and feedback for service improvement. Complainants are frequently the first to notice when something isn't working properly (Ombudsman, 2020). Furthermore, it is worth noting that Complaint Management Systems are extremely important in organizations where complainants are prioritized because they help to understand what complainants are thinking, establish more friendship between administrator and complainant, and, most importantly, ensure maximum complainant satisfaction. The database in Complaint Management Systems keeps track of complainant records and complaints. This can be used to improve the relationship between the complainant and the admin. Poor service organizations, according to Stone (2019), are difficult to conduct business with. They developed a complaint management system that can minimize customer dissatisfaction and encourages customers to participate in controlling the quality of the service provided.

The system's goal was to make complaints easier to organize, monitor, manage, and address, as well as to offer organizations an effective tool for keeping records of complaint data and using data to identify problem areas and improve service. The system includes two modules: one for the user and one for the administrator. As a result, the system has a client-server relationship. Each user has a distinct identity, which is represented by the user email ID.

Student Complaint Behavior

Universities are dealing with growing competition and declining enrollments, forcing higher education officials to look within to improve students service standard (Pavlov, 2020). According to DeSeCo, higher education institutions are dealing with a changing student culture, which is shown in part by a more consumer-minded student. Institutions, in general, attract a diverse group of students with a wide range of interests, experiences, and aspirations. When these expectations are not satisfied, today's students are more effective and smarter than their predecessors in filing complaints.

With increased enrollment competition, managing student satisfaction has become a great concern. Dissatisfied students, like those in most professional situations, have a variety of options and tools at their disposal, some of which can be detrimental to the university. When students file a complaint with an institution, the information gathered should be regarded as incredibly valuable data that can benefit the business (Collaborator, 2022).

In recent years, there has been a greater emphasis on the emotions that students experience when conflicts arise (Valente & Lourenco, 2020). According to Heath, H., and

R. G. Smith. (2019) When confronted with conflict or a general lack of communication, students may exhibit a variety of behaviors. When attempting to address a dissatisfying student experience, students may seek the assistance of a third party or pursue more legal procedures. These acts must not only be addressed, but their core causes must also be understood. Service failures can have a wide range of managerial consequences for academic leaders. There is an urgent need to understand how students react to negative events. This will ultimately help to provide students with the best positive experience, which is becoming an emphasized focus in a service setting like education, where students evaluate intangible services over time (Sutherland, 2018).

According to Yuke (2018), complaints that include external factors are sometimes the most difficult for institutions to handle. These practices can result in the student avoiding the institution, frustrated word-of-mouth talks, or complaints to outside agencies. Institutional expenditures related to complaints include the loss of one or more students as well as additional income loss to cover the cost of maintaining the student and the labor cost of dealing with the complaint itself (Garcia & Weiss, 2020). These occurrences can also provide important information, such as the reasons for a downturn in school performance, the root causes of these conflicts, and an awareness of the genuine expenses connected with managing complaints (Garcia & Weiss, 2020).

Academic leaders must be more straightforward about their intention to promote conflict resolution among students. This allows the institution to resolve challenges and develop long-term relationships (Keibel, 2021). There is widespread agreement that students are increasingly considering themselves as customers and aligning with the expectations of other service users. Satisfaction ratings with the student's experience focus attention and have been linked to students' post-consumption attitudes toward education in general. Student conflict and complaint behavior has evolved into a sophisticated relationship component with a greater emphasis on the student experience (Gamage, Dehideniya, Ekanayake, 2021).

Fairness and Loyalty as a Theory

Fairness and loyalty, as a theory, represent fundamental moral principles, as expressed in developmental and evolutionary approaches to moral cognition. Infants support both distributive and retributive justice. According to Carpenter & Bradley (2018) student communications, outlooks, and actions are influenced by the perceived service they receive. For example, when an institution properly communicates with a student about a topic, it can positively influence the outcome. When students view a proposed settlement to be a forced procedure, they will make more self-serving decisions rather than being more susceptible to compromise (Carpenter, Bradley, 2018; Khan et al., 2020).

If the student believes that more attractive options are accessible, they are inclined to escalate the situation. In the views of the student, an unfair decision puts into question the perspective of students, as consumers of education that are normally supposed to maintain (Khan et al., 2020). If the communicated explanation/resolution contains a perceived excuse or appears to justify a particular point of view, it can influence the entire process in either way. The more efficient and effective the communication process, the more likely the student will see conflict resolution as the sole realistic solution (Carpenter, Bradley, 2018; Khan et al., 2020).

SYNTHESIS OF THE REVIEWED LITERATURE AND STUDIES

A complaint is a negative expression of a dissatisfied customer or consumer about the product, services, and organization's action. It is also proof of customer dissatisfaction. Customer complaints have increased in recent years due to the influence of social media. The simplest definition of a complaint is 'it is a statement that something is unsatisfactory or unacceptable.

The Complaint Management System is a modern product development tool that is widely used by all businesses and management. It offers an online solution to the public's problems, saving time and eliminating wrongdoing. The goal of the complaint management system is to make it easier to coordinate, monitor, and handle complaints.

Chapter 3

RESEARCH METHODOLOGY

In this chapter, it discusses the Research Design, Research Instruments, Data Collecting Procedures, and Statistical Treatment used to analyze the gathered data. The researcher also discusses how they choose and how many respondents are needed in data gathering. After gathering the data, it explains how the instruments are formulated, necessary, and interpreted in the study. This section also describes the method used to conduct the study.

Research Design

The Research Design that the researcher used in this study is descriptive sampling and developmental research design. The methods in the study are quantitative and qualitative approaches along with the system development process.

Locale of the Study

The researcher collects the data from the population of Students and Faculty Members located at the Polytechnic University of the Philippines - Quezon City Branch. They are chosen to criticize the proposed system.

Population, Sample Size, and Sampling Technique

The population size is 47 estimated Students, and 3 estimated Faculty Members. Determining the number of population and using it to determine the sample size resulted in a total of 50 respondents.

Simple Random Sampling will be used to select the respondents in conducting the study and the researcher will choose them at random.

RESPONDENTS	SAMPLE	PERCENTAGE
STUDENTS	47	94%
FACULTY MEMBERS	3	6%
TOTAL	50	100%

*Table 1**: Sample Size and Percentage of Respondents***

Research Instrument

The Research Instrument used in this study would be the Web-based Application that the researcher will develop, together with the Survey Questionnaire through Google Forms that is aligned to the Statement of the Problem. The researcher will use the Likert Scale Technique to give equivalent interpretations. The Scale, Range, and Verbal Equivalents for interpreting the weighted mean in terms of level of frequency are shown in the table below. The mean is calculated using the interval between the **highest (5)** and **lowest (1)** scores.

LIKERT SCALE	RANGE	VERBAL INTERPRETATION
5	4.50 – 5.00	Very Highly Satisfied
4	3.50 – 4.49	Highly Satisfied
3	2.50 – 3.49	Moderately Satisfied
2	1.50 – 2.49	Slightly Satisfied
1	1.00 – 1.49	Not Satisfied

*Table 2: **Likert Scale Interpretation***

Data Gathering Procedure

The Researcher will conduct a survey on the Students and Faculty Members. The Survey Questionnaire will be distributed the link of Google Forms and explain the important matters before they answer the questionnaire.

After gathering the needed data, the researcher will compute and interpret the results of the survey with the use of tables.

1. **Formulation of Data Questionnaire and Survey Forms**

   The researcher will evaluate the key problem to create a proper survey questionnaire which will help the respondents to answer it with ease.

2. **Validation and Distribution of Data Questionnaire and Survey Forms**

   The questionnaire that the researcher prepared will review and check it to ensure that the questionnaire is related to the study and produces the appropriate outcome. When the survey forms are approved, the researcher will distribute the survey link to the respected respondents.

Ethical Considerations

- Obtaining consent from participants to participate in a study by providing sufficient information, including its aim, methods, potential risks and benefits, and participants' rights.
- Preventing illegal access, use, or disclosure of participants' personal information and data.
- Assuring the study's scientific validity and that data is collected and processed in a thorough and unbiased manner.
- Making certain that participants are treated with dignity and that their autonomy is respected throughout the study.

Statistical Treatment

The following statistical tools will be used in the analysis and interpretation of data.

Sample **Size** is a frequently used term in statistics and market research. It is well known especially when you’re surveying a large population of respondents.

$$\text{Sample size} = \frac{\dfrac{z^2 \times p\,(1-p)}{e^2}}{1 + \left(\dfrac{z^2 \times p\,(1-p)}{e^2 N}\right)}$$

Figure 5: ***Sample Size Formula***

Where:

n = Sample Size

N = Population Size

e = Margin of Error

p = Sample Proportion

z = Critical Value z

Percentage is another way of expressing a portion. It is equal to the proportion times 100. This was used to provide the relative distribution of respondents according to some variables.

$$P = \frac{f}{N} \text{ X } 100\%$$

Figure 6: ***Percentage Formula***

Where:

P = Percentage

f = Number of Respondents

N = Total number of Respondents

A **Weighted Mean** is a kind of average. It will be used to describe the perception of the respondents on each indicator by assigning a particular value to a particular response**.**

$$W = \frac{\sum_{i=1}^{n} w_i X_i}{\sum_{i=1}^{n} w_i}$$

Figure 7: ***Weighted Mean Formula***

Where:

M = Weighted Mean

f = Frequency

x = Corresponding Remark

∑(fx) = Summation of the multiplied variables

n = Total Number of Respondents

A **T-Test** will be performed to determine whether there is any significant difference between the level of awareness and the level of satisfaction in the newly developed app “Complaint Management System

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^{2}}{n_1} \quad \frac{s_2^{2}}{n_2}}}$$

*Figure 8: **T-test Formula***

Where:

t = T value

x̄1 = Observed Mean of 1st Sample

x̄2 = Observed Mean of 2nd Sample

s1 = Standard Deviation of 1st Sample

s2= Standard Deviation of 2nd Sample

n1 = Size of 1st Sample

n2 = Size of 2nd Sample

Software Development and Process

The researcher will develop a web-based system. In developing the system, the common mark-up and programming languages that the researcher will use are HTML, CSS, JavaScript, PHP and for the database is MySQL. Agile Software Development Life Cycle was used by the researcher to determine its effectiveness and improve the quality for the user.

Agile Software Development Life Cycle (**SDLC)** is the development methodology used in the study. **SDLC** is a method to design, develop and test high-quality software. The primary aim of SDLC is to produce high-quality software that fulfills the customer requirement within time and cost estimates. In the study conducted by Naga Malleswari et al. (2018) it shows that the biggest benefits of Agile SDLC are flexibility, advanced collaboration, continuous improvement, user-friendly and changing processes.

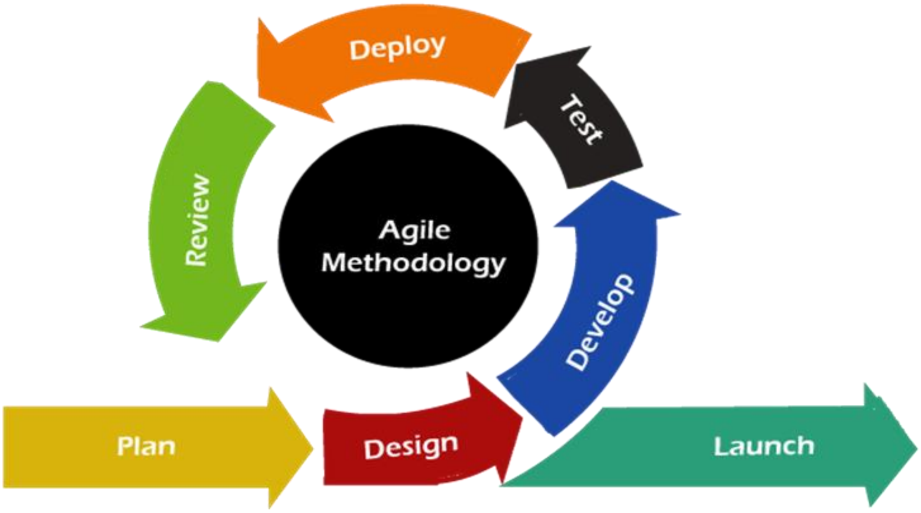


Figure 9: ***Agile Software Development Life Cycle Model***

Planning - In this phase, the researcher must plan the requirements such as the steps in creating the system as well as the platform to be used to develop it.

Design – After the planning phase, the researcher will start to identify the project, understand the system, and how it will be designed so that it will fit for the user's requirements before it is implemented.

Develop – This is the process where the work begins, the researcher will develop the system by using the mark-up and programming languages.

Test – In this phase, the system will undergo the test procedure, investigate for possible bugs, and examine the performance of the system.

Deploy – This phase focused on how the application should be deployed to the respondents.

Review – The researcher will review the system by using the gathered information such as the feedback from different respondents and evaluate the results of the research.

Launch – It is the final step wherein it is fully investigated and there’s no possible bugs on the system. It is ready to be used by different individuals.

Chapter 4

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This research chapter presents a comprehensive analysis and interpretation of the collected data to address the research questions posed in the problem statement. The study involved fifty (**50**) respondents from two distinct categories: Students and Faculty Members. The data has been organized according to specific research questions, and this chapter provides insights into the respondents' perspectives in having a complaint management system.

Section 1: Benefits of having a Complaint Management System in a University

This part examines the benefits of having a Complaint Management System in a University among respondents. It highlights its effectiveness in addressing different issues that might occur within the university.

Section 2: Awareness of the respondents in monitoring a complaint inside the University.

In this part, it tackles the level of awareness among the respondents regarding monitoring a complaint inside the University. Key insights are drawn from their perspectives and highlight different areas of awareness.

Section 2.1: Satisfaction of the respondents in newly developed app "Complaint Management System"

In this section, the focus shifts to discussing the satisfaction of the respondents in newly developed app in terms of Functionality, Ease of Use, Usefulness, and Security. Their response provides better and helpful feedback on the system's feasibility and user-satisfaction.

Section 3: Recommendations for better improvement of newly developed app "Complaint Management System"

The final section focuses on possible recommendations on the newly developed app. Their insights also provide valuable feedback that helps the system with further improvement.

This chapter offers a comprehensive examination of the data collected, providing valuable insights into the perspectives of Students, Faculty Members, and Department Heads/Administrator on implementation of Complaint Management System. By addressing the challenges and proposing enhancements to the monitoring system, this research contributes to improving educational institutions' overall efficiency and effectiveness.

Section 1. **Benefits of using a Complaint Management System in a University**

STATEMENT	MEAN RESPONSE	INTERPRETATION
It promotes a culture of open communication, respect, and accountability by expressing their concerns and contributing to the university's overall success.	4.78	High
Empowers individuals by assuring them that their concerns will be listened to and addressed promptly.	4.48	Moderate
By providing a structured platform to express their concerns, it helps individuals to prevent minor issues from getting worse that could disrupt	4.6	High

the campus community.		
It encourages students to report safety concerns, unwanted behaviors, and incidents more frequently.	4.74	High
Encourages a culture of learning and growth, as the university can use feedback from complaints to identify areas for improvement and implement necessary changes.	4.78	High
Provides a supporting document for incident reports.	4.6	High
Offers a convenient online complaint submission option for incident reports.	4.58	High
Easier Communication.	4.66	High
Enhances the management of safety incidents and behavioral issues.	4.7	High
It builds trust and confidence in the university's ability to address issues.	4.7	High
TOTAL	**4.662**	**High**

*Table 3***: Benefits of using a Complaint Management System in a University**

The table presents observed benefits by faculty and students regarding the Complain Management System that is interpreted with the Mean of the answers of total of fifty (50) respondents. The two highest means are that “It promotes a culture of open communication, respect, and accountability by expressing their concerns and contributing to the university’s overall success”, and “Encourages a culture of learning and growth, as the university can use feedback from complaints to identify areas for improvement and implement necessary changes” with the mean of 4.78 which is interpreted as High. Other benefits come with a mean score around 4.50 above which is interpreted as High, while “Empowers individuals by assuring them that their concerns will be listened to and addressed promptly” has a mean score of 4.48 that is interpreted as Moderate.

Section 2.1. **Level of awareness of the respondents in monitoring complaints inside the University**

CATEGORY	MEAN RESPONSE	INTERPRETATION
Incident Report	3.765	Moderately Aware
Familiarity with School Policies	3.765	Moderately Aware
Immediate Reporting	3.91	Moderately Aware
Response Time	3.9	Moderately Aware
TOTAL	**3.835**	**Moderately Aware**

Table 4: **Level of Awareness of the respondents**

The table presents the level of awareness of the respondents in monitoring complaints inside the University. Each statement was rated on a scale, and the mean response was calculated to scale the level of awareness. The first category is for the level of awareness in **“Incident Report”** which has a mean score of 3.765 which is interpreted as *Moderately Aware*. The second category is the level of awareness in **“Familiarity with School Policies”** which has a mean score of 3.765 which is interpreted as *Moderately Aware***.** The third category is the level of awareness regarding “**Immediate Reporting”** which has the total score of 3.91 that is the highest mean among the four categories which is also *Moderately Aware***.** The last category is the **“Response Time”** which is the second highest mean with the mean score of 3.9 which is *Moderately Aware***.** The overall mean of the four categories is 3.835 which is interpreted as *Moderately Aware* which concludes the awareness level of the respondents regarding the Complaint Management System.

Level of Awareness in terms of Incident Report

STATEMENT	MEAN RESPONSE	INTERPRETATION
I am aware of the university's incident reporting system.	3.84	Moderately Aware
I know how to initiate the process to report incidents within the university.	3.76	Moderately Aware
The system effectively tracks and records the progress and status of complaints.	3.66	Moderately Aware
The university provides all the necessary features to effectively address and manage complaints.	3.98	Moderately Aware
TOTAL	3.81	Moderately Aware

Table 5: **Level of Awareness in terms of Incident Report**

The table indicates the level of Awareness of the respondents when to comes to the Incident Report of the Complaint Management System. The Table has shown a total of 3.81 mean score which means the respondents are Moderately Aware regarding their familiarity with the school policies. The highest is the statement with "The university provides all the necessary features to effectively address and manage complaints" with a mean score of 3.98, the second highest is the "I am aware of the university's incident reporting system" with a mean score of 3.84, followed by "I know how to initiate the process to report incidents within the university" for a mean score of 3.76 and "The system effectively tracks and records the progress and status of complaints" with a mean score of 3.66 which are all Moderately Aware.

Level of Awareness in terms of Familiarity with School Policies

STATEMENT	MEAN RESPONSE	INTERPRETATION
I am familiar with the university's policies and guidelines related to handling complaints and incidents.	3.9	Moderately Aware
I have received information regarding the university's policies and guidelines.	3.68	Moderately Aware
The university provides easily accessible information about its complaint handling policies.	3.64	Moderately Aware
The University actively encourages students and staff to be familiar with its policies and guidelines.	3.84	Moderately Aware
TOTAL	**3.765**	**Moderately Aware**

Table 6: **Level of Awareness in terms of Familiarity with School Policies**

The table indicates the level of Awareness of the respondents when to comes to Familiarity with School Policies of the Complaint Management System. The Table has shown a total of 3.765 mean score which means the respondents are Moderately Aware regarding their familiarity with the school policies. The highest is the first statement with "I am familiar with the university's policies and guidelines related to handling complaints and incidents" with a mean score of 3.9, the second highest is the "The University actively encourages students and staff to be familiar with its policies and guidelines" with a mean score of 3.84, followed by "I have received information regarding the university's policies and guidelines" for a mean score of 3.68 and "The university provides easily accessible information about its complaint handling policies" with a mean score of 3.64 which are all Moderately Aware.

Level of Awareness in terms of Immediate Reporting

STATEMENT	MEAN RESPONSE	INTERPRETATION
I am likely to report an incident or complaint immediately after it occurs.	4	Moderately Aware
I feel confident that my report will be treated with confidentiality and without fear of retaliation.	3.8	Moderately Aware
The university has effective communication channels that facilitate immediate reporting of complaints.	3.86	Moderately Aware
I believe that immediate reporting of incidents and complaints can help prevent further escalation.	3.98	Moderately Aware
TOTAL	**3.91**	**Moderately Aware**

Table 7: **Level of Awareness in terms of Immediate Reporting**

The table indicates the level of Awareness of the respondents when to comes to the Immediate Reporting of the Complaint Management System. The Table has shown a total of 3.91 mean score which means the respondents are Moderately Aware regarding the Immediate Reporting of the Complaint Management System. The highest is the first statement with “I am likely to report an incident or complaint immediately after it occurs” with a mean score of 4, the second highest is the “I believe that immediate reporting of incidents and complaints can help prevent further escalation” with a mean score of 3.98, followed by “The university has effective communication channels that facilitate immediate reporting of complaints” for a mean score of 3.88 and “I feel confident that my report will be treated with confidentiality and without fear of retaliation” with a mean score of 3.84 which are all Moderately Aware.

Level of Awareness in terms of Response Time

STATEMENT	MEAN RESPONSE	INTERPRETATION
The university promptly responds to reported incidents and complaints	3.98	Moderately Aware
I am aware of the expected response time for different types of complaints within the university.	3.88	Moderately Aware
The university ensures clear communication about the progress and resolution of reported complaints.	3.9	Moderately Aware
I believe that a timely response from the university demonstrates its commitment to addressing complaints effectively.	3.84	Moderately Aware
TOTAL	**3.9**	**Moderately Aware**

Table 8: **Level of Awareness in terms of Response Time**

The table indicates the level of Awareness of the respondents when to comes to the Response Time of the Complaint Management System. The Table has shown a total of 3.9 mean score which means the respondents are Moderately Aware regarding the Response Time of the Complaint Management System. The highest is the first statement with "The university promptly responds to reported incidents and complaints" with a mean score of 3.98, the second highest is the "The university ensures clear communication about the progress and resolution of reported complaints" with a mean score of 3.9, followed by the second statement with "I am aware of the expected response time for different types of complaints within the university" for a mean score of 3.88 and the fourth statement with "I believe that a timely response from the university demonstrates its commitment to addressing complaints effectively" with a mean score of 3.84.

Section 2.2. **Level of Satisfaction in the newly developed app "Complaint Management System"**

CATEGORY	MEAN RESPONSE	INTERPRETATION
Functionality	4.62	Highly Satisfied
Ease of Use	4.555	Highly Satisfied
Usefulness	4.55	Highly Satisfied
Security	4.65	Highly Satisfied
TOTAL	**4.59375**	**Highly Satisfied**

Table 9: **Level of Satisfaction in the newly developed app**

The table presents the level of satisfaction of the respondents in monitoring complaints inside the University. Each statement was rated on a scale, and the mean response was calculated to scale the level of awareness. The fourth category namely, "Security" when it comes to the level of satisfaction has the highest mean score with the mean score of 4.65 which is Highly Satisfied, followed by "Functionality", "Ease if Use", and "Usefulness" with the mean score of 4.62, 4.555, and 4.55 respectively which are all Highly Satisfied with an overall mean of 4.5937.

Level of Satisfaction in terms of Functionality

STATEMENT	MEAN RESPONSE	INTERPRETATION
The buttons of the system are clickable allowing the correct path of navigation.	4.78	Highly Satisfied
The system is easy to navigate, allowing users to quickly access the required functions.	4.5	Highly Satisfied

The system effectively tracks and records the progress and status of complaints.	4.56	Highly Satisfied
The system provides all the necessary features and functions to effectively address and manage complaints.	4.64	Highly Satisfied
TOTAL	**4.62**	**Highly Satisfied**

*Table 10***: Level of Satisfaction in terms of Functionality**

The table presents the level of satisfaction of the respondents in monitoring complaints inside the University. Each statement was rated on a scale, and the mean response was calculated to scale the level of satisfaction. The first statement “The buttons of the system are clickable allowing the correct path of navigation” has the highest mean with a mean score of 4.78 which is interpreted as Highly Satisfied. The second highest is the “The system provides all the necessary features and functions to effectively address and manage complaints” with a mean score of 4.64, followed by “The system effectively tracks and records the progress and status of complaints” and “The system is easy to navigate, allowing users to quickly access the required functions” with mean score of 4.56 and 4.5, which are all Highly Satisfied. The Complaint Management System shows a highly satisfactory level of satisfaction with regards to the functionality of the system with an overall mean of 4.62.

Level of Satisfaction in terms of Ease of Use

STATEMENT	MEAN RESPONSE	INTERPRETATION
Navigating through the system and finding the necessary functions is easy.	4.68	Highly Satisfied
The instructions and prompts provided within the system are clear and understandable.	4.44	Moderately Satisfied
The system is responsive and operates smoothly without any technical issues.	4.54	Highly Satisfied
The system provides convenient and accessible options for uploading supporting documents or evidence.	4.56	Highly Satisfied
TOTAL	**4.555**	**Highly Satisfied**

Table 11: **Level of Satisfaction in terms of Ease of Use**

The table presents the level of satisfaction of the respondents in monitoring complaints inside the University. Each statement was rated on a scale, and the mean response was calculated to scale the level of satisfaction. The statement "Navigating through the system and finding the necessary functions is easy" shows a mean score of 4.68 which is interpreted as Highly Satisfied. This is the statement with the highest satisfaction level according to the conducted survey when it comes to Ease of Use. Followed by "The system provides convenient and accessible options for uploading supporting documents or evidence" and "The system is responsive and operates smoothly without any technical issues" with a mean score of 4.56 and 4.54, respectively.

The lowest mean is for the statement "The instructions and prompts provided within the system are clear and understandable" with a mean score of 4.44 which is interpreted as Moderately Satisfied. This shows that the system has a problem with regards to its prompts in instruction on how to use the system. However, the system navigation gains the highest satisfactory level with 4.68. The overall mean for the level of satisfaction for the Ease of Use is 4.555, which is interpreted as Highly Satisfied.

Level of Satisfaction in terms of Usefulness

STATEMENT	MEAN RESPONSE	INTERPRETATION
The system supports the implementation of fair and consistent processes for resolving complaints.	4.72	Highly Satisfied
The system helps improve overall satisfaction and trust among users in the complaint resolution process.	4.42	Moderately Satisfied
The system making it more efficient and timesaving.	4.48	Moderately Satisfied
The system enhances user satisfaction and confidence in the complaint resolution process.	4.58	Highly Satisfied
TOTAL	**4.55**	**Highly Satisfied**

*Table 12***: Level of Satisfaction in terms of Usefulness**

The table presents the level of satisfaction of the respondents in monitoring complaints inside the University. Each statement was rated on a scale, and the mean response was calculated to scale the level of satisfaction. The statement with the highest mean is “The system supports the implementation of fair and consistent processes for resolving complaints” with the mean score of 4.72 which is interpreted as Highly Satisfied. Followed by “The system enhances user satisfaction and confidence in the complaint resolution process” with a mean score of 4.58 which is also interpreted as Highly Satisfied, and the last two are “The system making it more efficient and timesaving” and “The system helps improve overall satisfaction and trust among users in the complaint resolution process” with a mean score of 4.48 and 4.42, respectively, which are both Moderately Satisfied. The overall Mean of the Satisfaction Level of the users to the Complaint Management System with its Usefulness is 4.55 which is interpreted as Highly Satisfied.

Level of Satisfaction in terms of Security

STATEMENT	MEAN RESPONSE	INTERPRETATION
The system ensures the confidentiality of user data and complaint details.	4.74	Highly Satisfied
The system adheres to relevant data protection regulations and industry best practices.	4.62	Highly Satisfied
The system employs encryption and secure protocols to safeguard data during transmission.	4.66	Highly Satisfied
The system maintains backup and recovery procedures to protect against data loss or system failures.	4.58	Highly Satisfied
TOTAL	4.65	Highly Satisfied

*Table 13***: Level of Satisfaction in terms of Security**

The table presents the level of satisfaction of the respondents in monitoring complaints inside the University. Each statement was rated on a scale, and the mean response was calculated to scale the level of satisfaction. The statement with the highest mean score is "The system ensures the confidentiality of user data and complaint details" with a mean score of 4.74, followed by "The system employs encryption and secure protocols to safeguard data during transmission" with a mean score of 4.66, "The system adheres to relevant data protection regulations and industry best practices" with a mean score of 4.62, and "The system maintains backup and recovery procedures to protect against data loss or system failures" with a mean score of 4.58 which are all interpreted as Highly Satisfied with the overall mean of 4.65. This shows that the users are Highly Satisfied with the Security measures of Complaint Management System.

Section 3. **Recommendations for System Improvement**

STATEMENT	MEAN RESPONSE	INTERPRETATION
Develop a mobile-responsive version of the system to allow users to access and use it on various devices.	4.76	Highly Recommended
Enable incident recording using any device, allowing users to report incidents using their preferred technology.	4.48	Moderately Recommended
Implement a function to notify and escalate incidents based on their severity.	4.52	Highly Recommended
Allow for anonymous reporting, ensuring individuals can submit reports without disclosing their	4.62	Highly Recommended

identities.		
Enable offline functionality for the system, allowing it to operate without an internet connection on devices.	4.62	Highly Recommended
Improve the reporting and analytics capabilities of the system to provide comprehensive insights into complaint trends, facilitating data-driven decision-making.	4.5	Highly Recommended
Continuously update and enhance the system's security measures to safeguard sensitive data and protect against potential threats or breaches.	4.56	Highly Recommended
Access real-time summaries of performance to gain immediate insights.	4.64	Highly Recommended
Optimize the system's interface to be intuitive and user-friendly, ensuring ease of use for all users.	4.48	Moderately Recommended
Implement real-time notifications to keep users updated on the progress and status of their complaints.	4.68	Highly Recommended

Table 14: **Recommendation for System’s Improvement**

The table presents the level of satisfaction of the respondents in monitoring complaints inside the University. Each statement was rated on a scale, and the mean response was calculated to scale the level of awareness. The recommendation with the highest mean belongs to the “Develop a mobile-responsive version of the system to allow users to access and use it on various devices” with a mean score of 4.76 which is interpreted as Highly Recommended. Followed by “Implement real-time notifications to keep users updated on the progress and status of their complaints” with a mean score of 4.68. Third highest mean is “Access real-time summaries of performance to gain immediate insights” with a mean score of 4.64. Next are “Allow for anonymous reporting, ensuring individuals can submit reports without disclosing their identities” and “Enable offline functionality for the system, allowing it to operate without an internet connection on devices” with a mean score of 4.62.

These are the five (5) of the highly recommended recommendations according to the tallied answers from 50 respondents, and the lowest among the recommendations are “Enable incident recording using any device, allowing users to report incidents using their preferred technology” and “Optimize the system's interface to be intuitive and user-friendly, ensuring ease of use for all users” with a mean score of 4.48 which is Moderately Recommended. Followed by “Improve the reporting and analytics capabilities of the system to provide comprehensive insights into complaint trends, facilitating data-driven decision-making” with a mean score of 4.5, “Implement a function to notify and escalate incidents based on their severity” with a mean score of 4.52, and “Continuously update and enhance the system's security measures to safeguard sensitive data and protect against potential threats or breaches” with a mean score of 4.56.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATION

Summary of Findings

The Complaint Management System (CMS) website is developed to provide a smooth, fast, and efficient way for the Students and Faculty to file complains with regards to the issues in the school with regards to their personal or school related complains relate to the school. The system is for the developers and administrators to easily manage and organize, take respective action, and pay attention to the complaints of the students. Through this management system, there is a systematic and effective way to express the complaints based on the severity of the problems and to easily analyze the data for the most problems regarding the school. The Complaint Management System provides a smooth and easily understandable User Interface with also protects the security of the students and faculty that are filing complaints. With this, the data and complaints is managed and organized in a simple website.

The Complaint Management System (CMS) shows highly satisfactory level with all the as aspects of the website itself such as its Functionality, Usefulness, Ease of Use, and its Security with an overall mean score of 4.59375 which is Highly Satisfactory with the Security providing the highest aspect of satisfactory. However, the level of awareness of the user respondents to the Incident Reporting, Familiarization with School Policies, Immediate Reporting, and Response Time shows a lower result in the survey, giving 3.835 overall mean which means Moderately Aware. The two highest benefits of the Complaint Management System (CMS) according to the survey are “It promotes a culture of open communication, respect, and accountability by expressing their concerns and contributing to the university’s overall success”, and “Encourages a culture of learning and growth, as the university can use feedback from complaints to identify areas for improvement and implement necessary changes" with the mean of 4.78 which is interpreted as High.

Section 1: Benefits of having a Complaint Management System in a University

This part gathers the information and examines the thoughts of the user respondents regarding to the benefits of using the Complaint Management System, having "It promotes a culture of open communication, respect, and accountability by expressing their concerns and contributing to the university's overall success", and "Encourages a culture of learning and growth, as the university can use feedback from complaints to identify areas for improvement and implement necessary changes" as the two highest and mostly seen benefits by the user respondents.

Section 2: Awareness of the respondents in monitoring a complaint inside the University.

This section the data is gathered in order to tally and analyze the data regarding to the awareness of the students and faculty when it comes to the system and also the familiarization of the incident reports and response time, and how they are aware about Incident Reporting, Familiarization with School Policies, Immediate Reporting, and Response Time shows an overall mean in the survey with 3.835 which means Moderately Aware.

Section 2.1: Satisfaction of the respondents in newly developed app "Complaint Management System"

In this section, the focus will be the overall satisfaction of the user respondents when it comes to the functionality, Usefulness, Ease of Use, and the Security of the Complaint Management System. The study shows highly satisfactory level with the as aspects of the system regarding to its Functionality, Usefulness, Ease of Use, and its Security with an overall mean score of 4.59375 which is Highly Satisfactory with the Security providing the highest aspect of satisfactory.

Section 3: Recommendations for better improvement of newly developed app "Complaint Management System"

The final section focuses on possible recommendations on the newly developed app. Their insights also provide valuable feedback that helps the system with further improvement.

This chapter evaluates the results gathered from the conducted research and survey regarding the Complaint Management System from the perspective of the user respondents such as Students and Faculty members. By addressing and identifying the use, benefits, and overall functionality of the system, this promotes the enhancing and improving of management system of complaints in the universities, systematic and smooth flow of complains, and immediate and quick action and response to the severity of complaints by the students or faculty.

Conclusion

The researchers have come to the following conclusions based on the data supplied in the analysis of the findings and computed means for each group for each question: Respondents emphasized some favorable acknowledgment of the advantages of a university's complaint management system. They concluded that creating a welcoming climate at universities depends more on having a system like this to handle concerns. They also acknowledged the fairness and transparency of putting this System in place for the benefit of future policy improvements of the University.

Based on the awareness of the respondents regarding monitoring complaints within the University, it can be observed that their level of awareness is moderate in several areas. These areas include incident reporting, familiarity with school policies, immediate reporting, and response time. The University should focus on improving and developing such key instances to enhance a culture of effective complaint management.

For the level of satisfaction among the respondents, they are highly satisfied in having a Complaint Management System with various aspects of the system, including its functionality, ease of use, usefulness, and security. The high satisfaction levels can be attributed to the effectiveness of the Complaint Management System in efficiently addressing and resolving complaints. The system’s functionality allows users to report and track complaints with ease, while its user-friendly interface ensures a smooth and hassle-free experience for both students and faculty members. The system's usefulness makes it more organized and transparent that leads to quicker response times and better. And lastly in terms of security, the System assures respondents that their personal information and concerns are handled securely.

The respondents' valuable feedback and suggestions for the improvement of the Complaint Management System are interesting. Their feedback indicates a strong level of satisfaction with the current system, and they are moderately to highly satisfied with the proposed recommendations for future enhancements. One important recommendation in the system is to have a mobile version of CMS that allows users to access and use it on different devices. Another important recommendation is to enhance the system's notification and communication features. Providing real-time updates on the status of complaints and resolution progress can instill confidence in users and keep them informed throughout the process. Respondents provide more valuable feedback that the researchers may use as a reference.

In conclusion, most responses from respondents show the importance of having a complaint management system. The research shows that there is no significant difference between the level of awareness and the level of satisfaction among respondents. This suggests that the University has effectively communicated the presence and benefits of the CMS to the students as well as to the faculty members. Continuously improving and updating this system based on user feedback will further enhance its positive impact and contribute to the overall growth and success of the institution.

Recommendation

Based on the findings and analysis presented in the research, several valuable recommendations can be proposed to enhance the **Complaint Management System (CMS)** and improve its overall effectiveness in handling complaints. These recommendations aim to address challenges, optimize functionalities, and ensure user satisfaction and acceptance of the system.

1. **Develop a Mobile-Friendly Version**: Creating a responsive and mobile-friendly version of the CMS will enable users to access and utilize the system seamlessly on various devices, including smartphones and tablets. This enhancement can increase user accessibility and satisfaction.

2**. Access real-time summaries of performance to gain immediate insights**: This will ensure that the complaints are monitored correctly and provide suitable information for better and immediate response.

3**. Implement real-time notification:** Enhancing the system's notification capabilities to provide real-time updates on the status of complaints and the progress of their resolution will keep users informed throughout the process. Implementing automated email alerts or in-app notifications can ensure timely communication and instill confidence in users about the complaint handling process.

4. **Implement a function to notify incidents based on their severity:** Implementing a function to notify incidents based on their severity is a highly valuable addition to the Complaint Management System. This feature ensures that complaints are promptly identified and classified according to their severity levels, allowing for immediate responses and appropriate actions.

5. **Continuous update and enhancing the system's security:** Having this kind of recommendation is very valuable, to safeguard those sensitive data and avoid instances such as data breaches and potential threats toward the system.

By implementing these recommendations, the **e: Reklamo** system can transform into a highly valuable and efficient tool for managing various complaints within the University and enhancing the system's capabilities, allowing for better and more immediate responses to complaints.

Appendix A - Survey Questionnaire

SURVEY QUESTIONNAIRE (e-Reklamo)

Research Title: **“e-Reklamo: A Complaint Management System using Naive Bayes Algorithm”**

PART I.

Name (**Optional**): ____

Direction: Please choose an appropriate category on the following information below.

Are you a:

☐ Student.

☐ Faculty Member.

☐ Department Head/Admin.

☐ Others.

1. What are the benefits of using a complaint management system in a university? **You can select more than 1 answer and rank it from (5) is the highest and (1) is the lowest.**

_____1. It promotes a culture of open communication, respect, and accountability by expressing their concerns and contributing to the university's overall success.

_____2. Empowers individuals by assuring them that their concerns will be listened to and addressed promptly.

_____3. By providing a structured platform to express their concerns, it helps individuals to prevent minor issues from getting worse that could disrupt the campus community.

_____4. It encourages students to report safety concerns, unwanted behaviors, and incidents more frequently.

_____5. Encourages a culture of learning and growth, as the university can use feedback from complaints to identify areas for improvement and implement necessary changes.

_____6. Provides a supporting document for incident reports.

_____7. Offers a convenient online complaint submission option for incident reports.

_____8. Easier Communication.

_____9. Enhances the management of safety incidents and behavioral issues.

_____10. It builds trust and confidence in the university's ability to address issues.

PART II.

1. What is the level of awareness of the respondents in monitoring complaints inside the university in terms of:

1- Not Aware	**2**- Slightly Aware	**3**- Moderately Aware	**4**- Highly Aware	**5**- Very Highly Aware

INCIDENT REPORT	**5**	**4**	**3**	**2**	**1**
1. I am aware of the university's incident reporting system.					
2. I know how to initiate the process to report incidents within the university.					
3. The system effectively tracks and records the progress and status of complaints.					
4. The university provides all the necessary features to effectively address and manage complaints.					
FAMILIARITY WITH SCHOOL POLICIES					
1. I am familiar with the university's policies and guidelines related to handling complaints and incidents.					
2. I have received information regarding the university's policies and guidelines.					
3. The university provides easily accessible information about its complaint handling policies.					
4. The University actively encourages students and staff to be familiar with its policies and guidelines.					
IMMEDIATE REPORTING					

1. I am likely to report an incident or complaint immediately after it occurs.					
2. I feel confident that my report will be treated with confidentiality and without fear of retaliation.					
3. The university has effective communication channels that facilitate immediate reporting of complaints.					
4. I believe that immediate reporting of incidents and complaints can help prevent further escalation.					
RESPONSE TIME					
1. The university promptly responds to reported incidents and complaints					
2. I am aware of the expected response time for different types of complaints within the university.					
3. The university ensures clear communication about the progress and resolution of reported complaints.					
4. I believe that a timely response from the university demonstrates its commitment to addressing complaints effectively.					

2. What is the level of satisfaction of the respondents in the newly developed app “Complaint Management System” in terms of:

1- Not Satisfied	**2-** Slightly Satisfied	**3-** Moderately Satisfied	**4-** Highly Satisfied	**5-** Very Highly Satisfied

FUNCTIONALITY	**5**	**4**	**3**	**2**	**1**
1. The buttons of the system are clickable allowing the correct path of navigation.					
2. The system is easy to navigate, allowing users to quickly access the required functions.					
3. The system effectively tracks and records the progress and status of complaints.					
4. The system provides all the necessary features and functions to effectively address and manage complaints.					
EASE OF USE					
1. Navigating through the system and finding the necessary functions is easy.					
2. The instructions and prompts provided within the system are clear and understandable.					
3. The system is responsive and operates smoothly without any technical issues.					
4. The system provides convenient and accessible options for uploading supporting documents or evidence.					
USEFULNESS					
1. The system supports the implementation of fair and consistent processes for resolving complaints.					
2. The system helps improve overall satisfaction and trust among users in the complaint resolution process.					
3. The system making it more efficient and timesaving.					
4. The system enhances user satisfaction and confidence in the complaint resolution process.					

SECURITY					
1. The system ensures the confidentiality of user data and complaint details.					
2. The system adheres to relevant data protection regulations and industry best practices.					
3. The system employs encryption and secure protocols to safeguard data during transmission.					
4. The system maintains backup and recovery procedures to protect against data loss or system failures.					

PART III.

1. What are the possible recommendations to further improve the Complaint Management System? **You can select more than 1 answer and rank it from (5) is the highest and (1) is the lowest.**

_____1. Develop a mobile-responsive version of the system to allow users to access and use it on various devices.

_____2. Enable incident recording using any device, allowing users to report incidents using their preferred technology.

_____3. Implement a system to notify and escalate incidents based on their severity.

_____4. Allow for anonymous reporting, ensuring individuals can submit reports without disclosing their identities.

_____5. Enable offline functionality for the system, allowing it to operate without an internet connection on devices.

_____6. Improve the reporting and analytics capabilities of the system to provide comprehensive insights into complaint trends, facilitating data-driven decision-making.

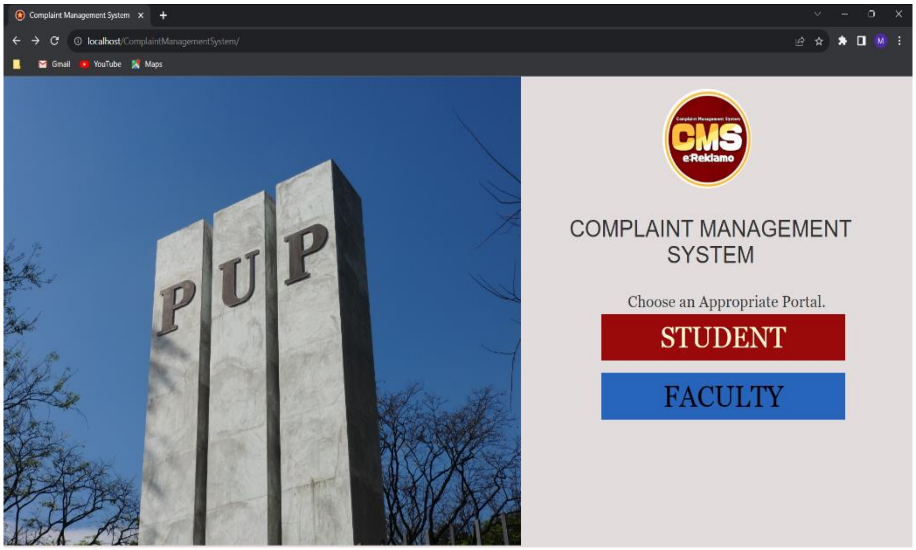
_____7. Continuously update and enhance the system's security measures to safeguard sensitive data and protect against potential threats or breaches.

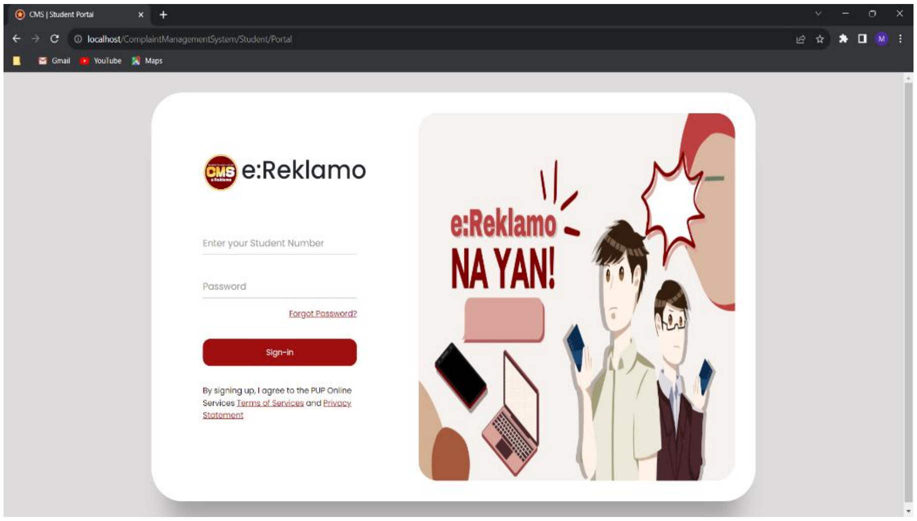
_____8. Access real-time summaries of performance to gain immediate insights.

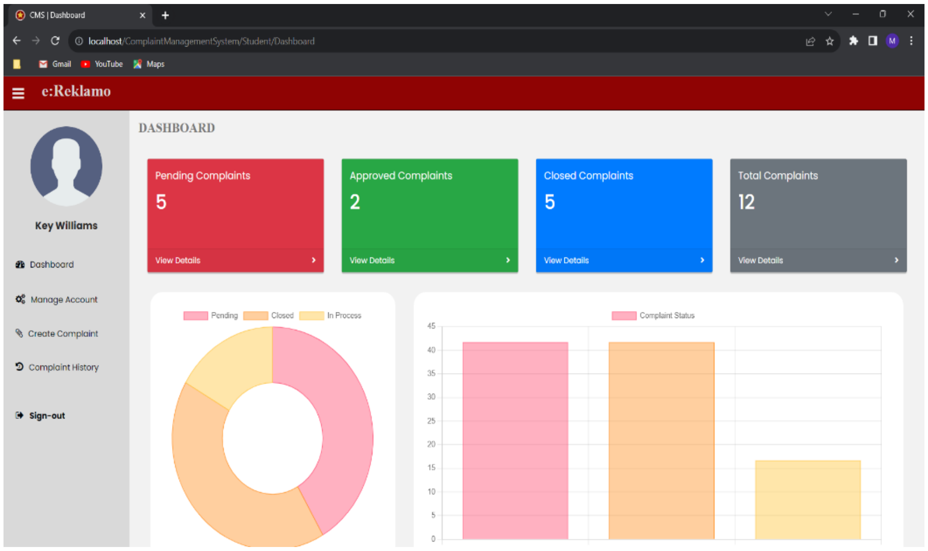
_____9. Optimize the system's interface to be intuitive and user-friendly, ensuring ease of use for all users.

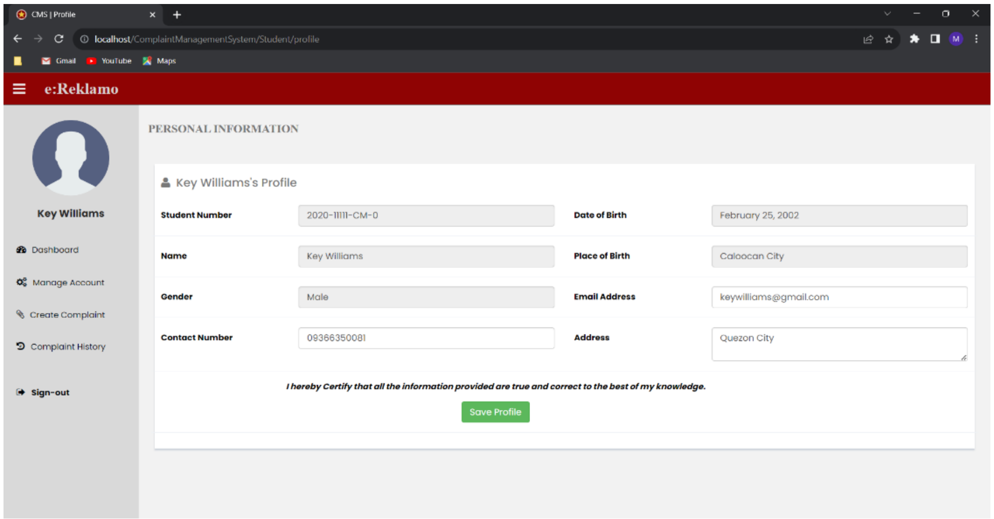
_____10. Implement real-time notifications to keep users updated on the progress and status of their complaints.

Appendix B – System Snapshot


Complaint Management System
localhost/ComplaintManagementSystem/
Gmail
YouTube
Maps
PUP
CMS
e:Reklamo
COMPLAINT MANAGEMENT SYSTEM
Choose an Appropriate Portal.
STUDENT
FACULTY


CMS | Student Portal
localhost/ComplaintManagementSystem/Student/Portal
Gmail
YouTube
Maps
e:Reklamo
Enter your Student Number
Password
Forgot Password?
Sign-in
By signing up, I agree to the PUP Online Services Terms of Services and Privacy Statement
e:Reklamo
NA YAN!


CMS | Dashboard
localhost/ComplaintManagementSystem/Student/Dashboard
Gmail
YouTube
Maps
e:Reklamo
DASHBOARD
Key Williams
Dashboard
Manage Account
Create Complaint
Complaint History
Sign-out
Pending Complaints
5
View Details
Approved Complaints
2
View Details
Closed Complaints
5
View Details
Total Complaints
12
View Details
Pending
Closed
In Process
Complaint Status
45
40
35
30
25
20
15
10
5
0

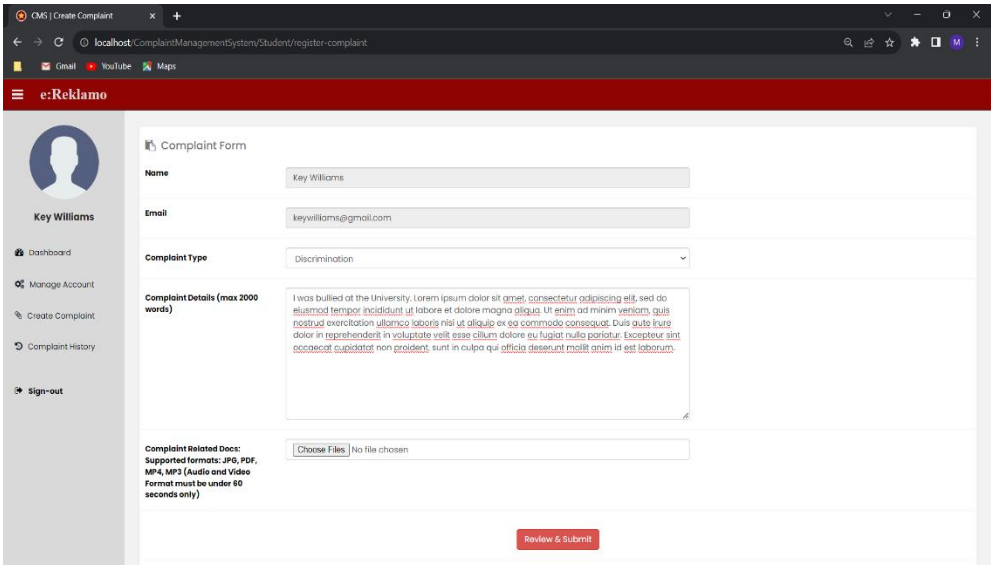

CMS | Profile
localhost/ComplaintManagementSystem/Student/profile
Gmail
YouTube
Maps
e:Reklamo
Key Williams
Dashboard
Manage Account
Create Complaint
Complaint History
Sign-out
Save Profile

PERSONAL INFORMATION

Key Williams's Profile

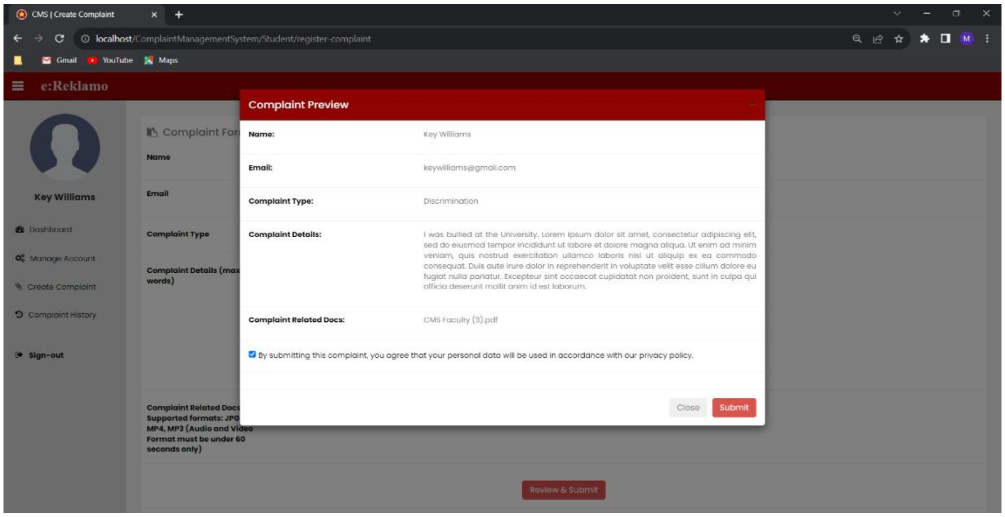
Student Number	2020-11111-CM-0	**Date of Birth**	February 25, 2002
Name	Key Williams	**Place of Birth**	Caloocan City
Gender	Male	**Email Address**	keywilliams@gmail.com
Contact Number	09366350081	**Address**	Quezon City

I hereby Certify that all the information provided are true and correct to the best of my knowledge.


CMS | Create Complaint
localhost/ComplaintManagementSystem/Student/register-complaint
Gmail
YouTube
Maps
e:Reklamo
Key Williams
Dashboard
Manage Account
Create Complaint
Complaint History
Sign-out
Choose Files
Review & Submit

Complaint Form

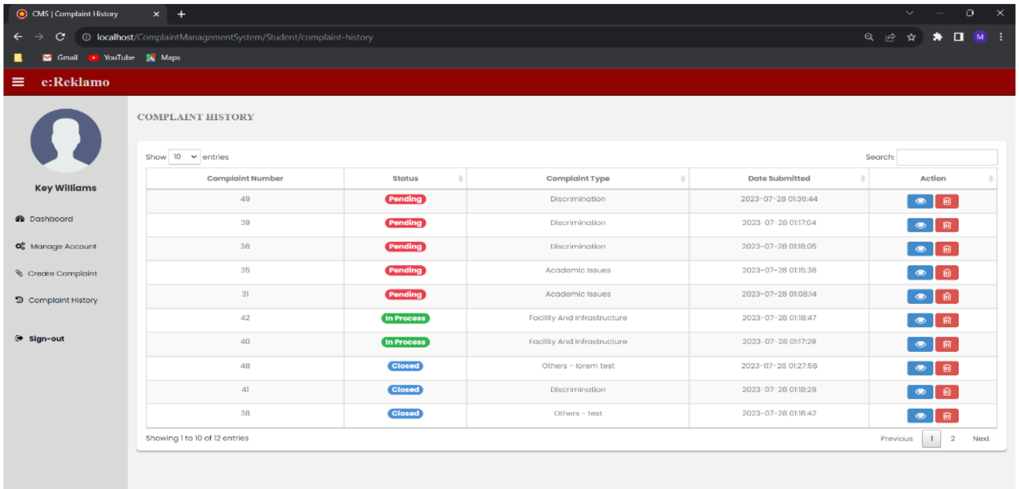
Name	Key Williams
Email	keywilliams@gmail.com
Complaint Type	Discrimination
Complaint Details (max 2000 words)	I was bullied at the University. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
Complaint Related Docs: Supported formats: JPG, PDF, MP4, MP3 (Audio and Video Format must be under 60 seconds only)	No file chosen


CMS | Create Complaint
localhost/ComplaintManagementSystem/Student/register-complaint
Gmail
YouTube
Maps
e:Reklamo
Key Williams
Dashboard
Manage Account
Create Complaint
Complaint History
Sign-out
Close
Submit
Review & Submit

Complaint Preview

Name:	Key Williams
Email:	keywilliams@gmail.com
Complaint Type:	Discrimination
Complaint Details:	I was bullied at the University. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
Complaint Related Docs:	CMS Faculty (3).pdf

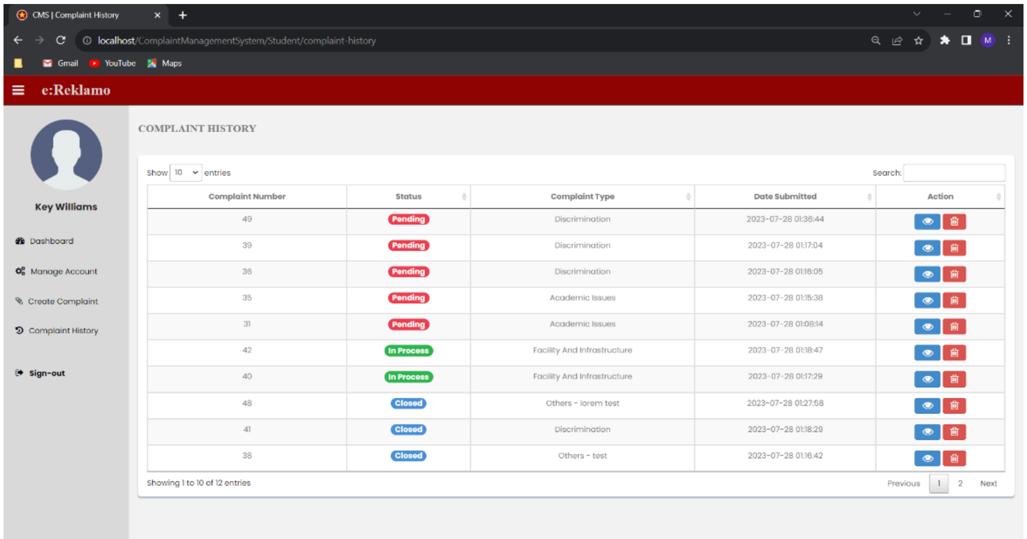
☑ By submitting this complaint, you agree that your personal data will be used in accordance with our privacy policy.


CMS | Complaint History
localhost/ComplaintManagementSystem/Student/complaint-history
Gmail
YouTube
Maps
e:Reklamo
Key Williams
Dashboard
Manage Account
Create Complaint
Complaint History
Sign-out
Show 10 entries
Search:
Previous
1
2
Next

COMPLAINT HISTORY

Complaint Number	Status	Complaint Type	Date Submitted	Action
49	Pending	Discrimination	2023-07-28 01:36:44	👁 🗑
39	Pending	Discrimination	2023-07-28 01:17:04	👁 🗑
36	Pending	Discrimination	2023-07-28 01:16:05	👁 🗑
35	Pending	Academic Issues	2023-07-28 01:15:38	👁 🗑
31	Pending	Academic Issues	2023-07-28 01:08:14	👁 🗑
42	In Process	Facility And Infrastructure	2023-07-28 01:18:47	👁 🗑
40	In Process	Facility And Infrastructure	2023-07-28 01:17:29	👁 🗑
48	Closed	Others - lorem test	2023-07-28 01:27:58	👁 🗑
41	Closed	Discrimination	2023-07-28 01:18:29	👁 🗑
38	Closed	Others - test	2023-07-28 01:16:42	👁 🗑

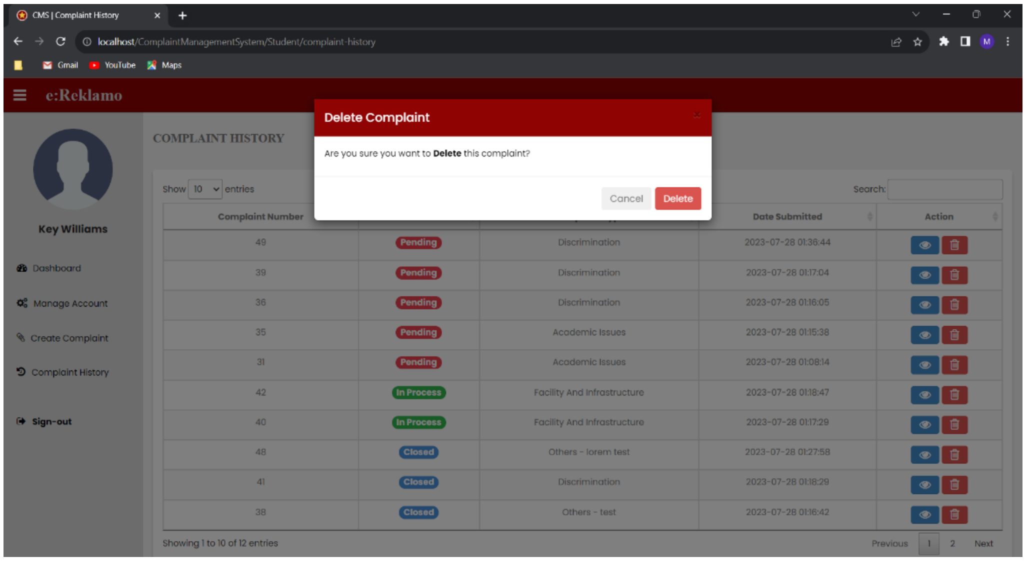
Showing 1 to 10 of 12 entries


CMS | Complaint History
localhost/ComplaintManagementSystem/Student/complaint-history
Gmail
YouTube
Maps
e:Reklamo
Key Williams
Dashboard
Manage Account
Create Complaint
Complaint History
Sign-out
Show 10 entries
Search:
Previous
1
2
Next

COMPLAINT HISTORY

Complaint Number	Status	Complaint Type	Date Submitted	Action
49	Pending	Discrimination	2023-07-28 01:36:44	👁 🗑
39	Pending	Discrimination	2023-07-28 01:17:04	👁 🗑
36	Pending	Discrimination	2023-07-28 01:16:05	👁 🗑
35	Pending	Academic Issues	2023-07-28 01:15:38	👁 🗑
31	Pending	Academic Issues	2023-07-28 01:08:14	👁 🗑
42	In Process	Facility And Infrastructure	2023-07-28 01:18:47	👁 🗑
40	In Process	Facility And Infrastructure	2023-07-28 01:17:29	👁 🗑
48	Closed	Others - lorem test	2023-07-28 01:27:58	👁 🗑
41	Closed	Discrimination	2023-07-28 01:18:29	👁 🗑
38	Closed	Others - test	2023-07-28 01:16:42	👁 🗑

Showing 1 to 10 of 12 entries


CMS | Complaint History
localhost/ComplaintManagementSystem/Student/complaint-history
Gmail
YouTube
Maps
e:Reklamo
Key Williams
Dashboard
Manage Account
Create Complaint
Complaint History
Sign-out
Show 10 entries
Search:
Cancel
Delete
Previous
1
2
Next

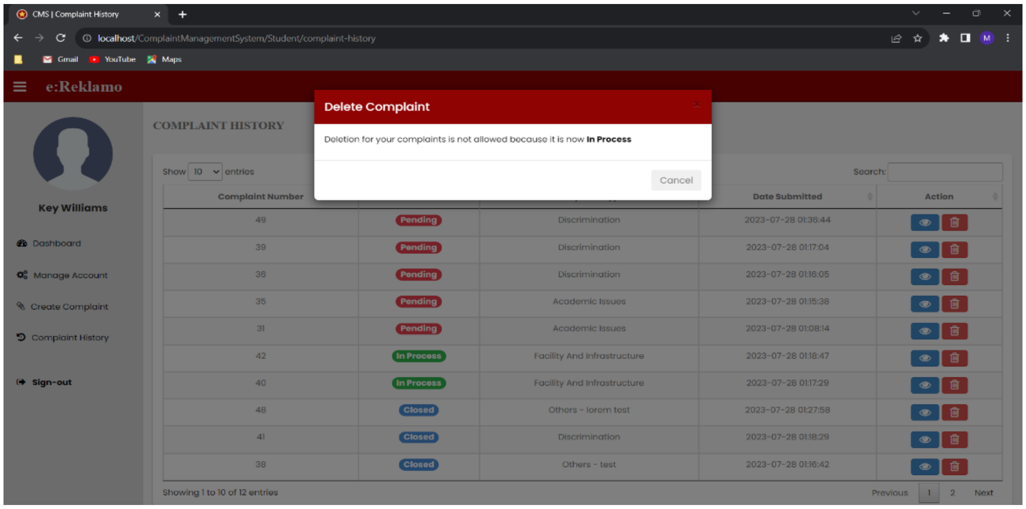
Delete Complaint

Are you sure you want to **Delete** this complaint?

COMPLAINT HISTORY

Complaint Number			Date Submitted	Action
49	Pending	Discrimination	2023-07-28 01:36:44	👁 🗑
39	Pending	Discrimination	2023-07-28 01:17:04	👁 🗑
36	Pending	Discrimination	2023-07-28 01:16:05	👁 🗑
35	Pending	Academic Issues	2023-07-28 01:15:38	👁 🗑
31	Pending	Academic Issues	2023-07-28 01:08:14	👁 🗑
42	In Process	Facility And Infrastructure	2023-07-28 01:18:47	👁 🗑
40	In Process	Facility And Infrastructure	2023-07-28 01:17:29	👁 🗑
48	Closed	Others - lorem test	2023-07-28 01:27:58	👁 🗑
41	Closed	Discrimination	2023-07-28 01:18:29	👁 🗑
38	Closed	Others - test	2023-07-28 01:16:42	👁 🗑

Showing 1 to 10 of 12 entries


CMS | Complaint History
localhost/ComplaintManagementSystem/Student/complaint-history
Gmail
YouTube
Maps
e:Reklamo
Key Williams
Dashboard
Manage Account
Create Complaint
Complaint History
Sign-out
Cancel

Delete Complaint

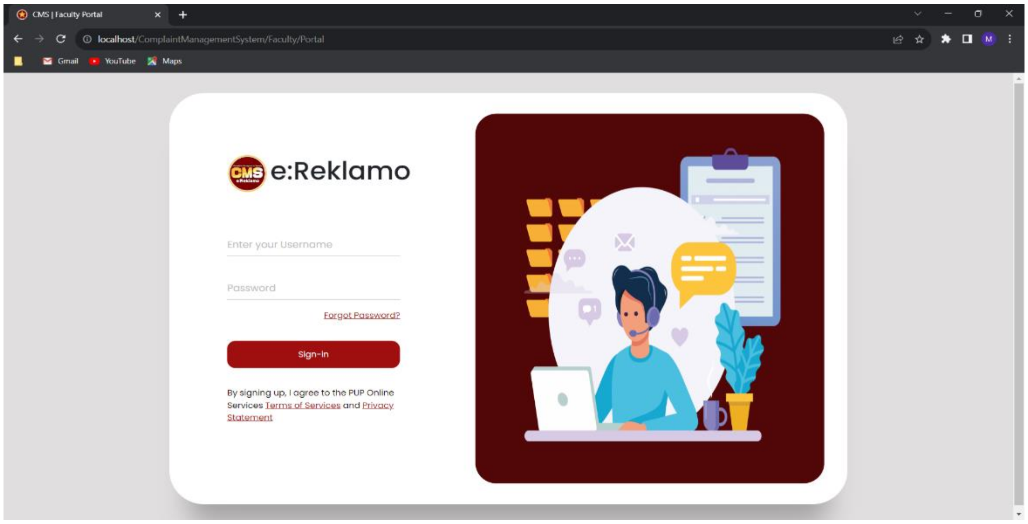
Deletion for your complaints is not allowed because it is now **In Process**

COMPLAINT HISTORY

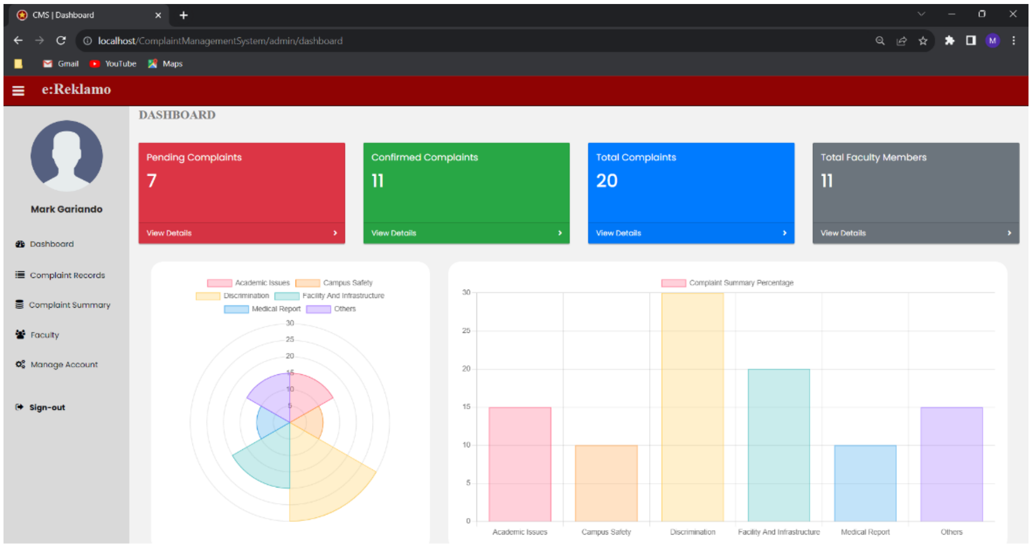
Show 10 entries Search:

Complaint Number			Date Submitted	Action
49	Pending	Discrimination	2023-07-28 01:36:44	
39	Pending	Discrimination	2023-07-28 01:17:04	
36	Pending	Discrimination	2023-07-28 01:16:05	
35	Pending	Academic Issues	2023-07-28 01:15:38	
31	Pending	Academic Issues	2023-07-28 01:08:14	
42	In Process	Facility And Infrastructure	2023-07-28 01:18:47	
40	In Process	Facility And Infrastructure	2023-07-28 01:17:29	
48	Closed	Others - lorem test	2023-07-28 01:27:58	
41	Closed	Discrimination	2023-07-28 01:18:29	
38	Closed	Others - test	2023-07-28 01:16:42	

Showing 1 to 10 of 12 entries


CMS | Faculty Portal
localhost/ComplaintManagementSystem/Faculty/Portal
Gmail
YouTube
Maps
CMS
e:Reklamo
Enter your Username
Password
Forgot Password?
Sign-In

By signing up, I agree to the PUP Online Services Terms of Services and Privacy Statement


CMS | Dashboard
localhost/ComplaintManagementSystem/admin/dashboard
Gmail
YouTube
Maps
e:Reklamo
DASHBOARD
Mark Gariando
Dashboard
Complaint Records
Complaint Summary
Faculty
Manage Account
Sign-out
Pending Complaints
7
View Details
Confirmed Complaints
11
View Details
Total Complaints
20
View Details
Total Faculty Members
11
View Details
Academic Issues
Campus Safety
Discrimination
Facility And Infrastructure
Medical Report
Others
30
25
20
15
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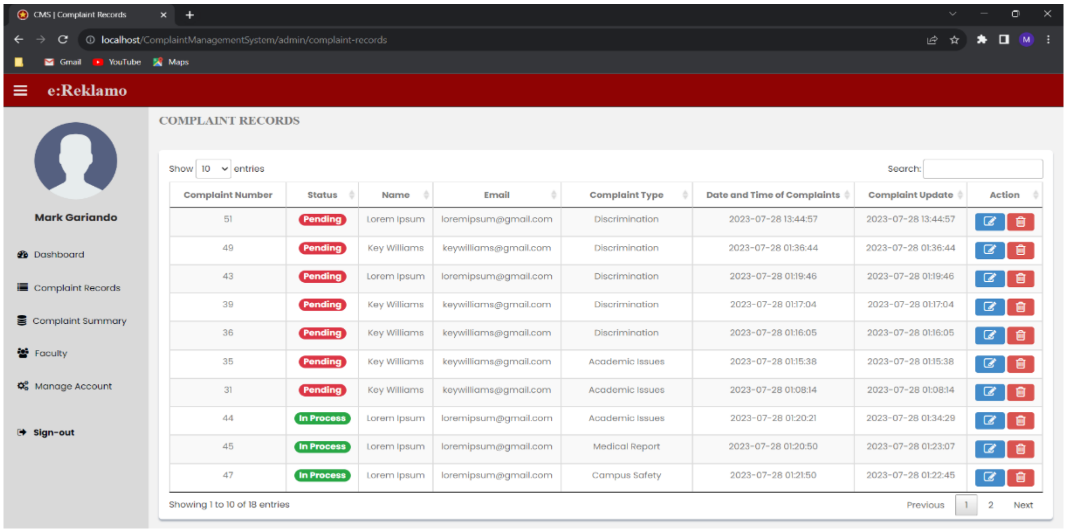
Discrimination
Facility And Infrastructure
Medical Report
Others


CMS | Complaint Records
localhost/ComplaintManagementSystem/admin/complaint-records
Gmail
YouTube
Maps
e:Reklamo
Mark Gariando
Dashboard
Complaint Records
Complaint Summary
Faculty
Manage Account
Sign-out

COMPLAINT RECORDS

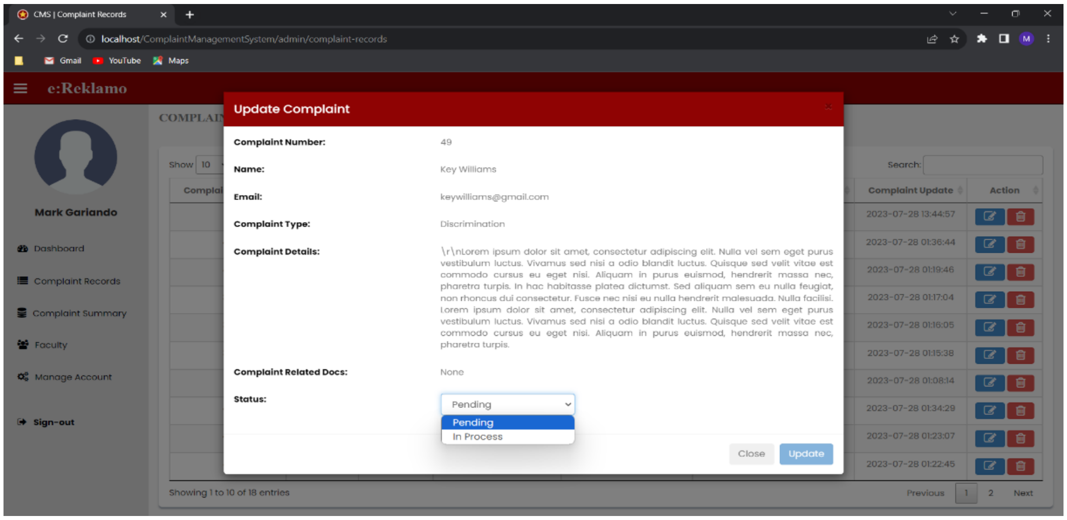
Show 10 entries

Search:

Complaint Number	Status	Name	Email	Complaint Type	Date and Time of Complaints	Complaint Update	Action
51	Pending	Lorem Ipsum	loremipsum@gmail.com	Discrimination	2023-07-28 13:44:57	2023-07-28 13:44:57	
49	Pending	Key Williams	keywilliams@gmail.com	Discrimination	2023-07-28 01:36:44	2023-07-28 01:36:44	
43	Pending	Lorem Ipsum	loremipsum@gmail.com	Discrimination	2023-07-28 01:19:46	2023-07-28 01:19:46	
39	Pending	Key Williams	keywilliams@gmail.com	Discrimination	2023-07-28 01:17:04	2023-07-28 01:17:04	
36	Pending	Key Williams	keywilliams@gmail.com	Discrimination	2023-07-28 01:16:05	2023-07-28 01:16:05	
35	Pending	Key Williams	keywilliams@gmail.com	Academic Issues	2023-07-28 01:15:38	2023-07-28 01:15:38	
31	Pending	Key Williams	keywilliams@gmail.com	Academic Issues	2023-07-28 01:08:14	2023-07-28 01:08:14	
44	In Process	Lorem Ipsum	loremipsum@gmail.com	Academic Issues	2023-07-28 01:20:21	2023-07-28 01:34:29	
45	In Process	Lorem Ipsum	loremipsum@gmail.com	Medical Report	2023-07-28 01:20:50	2023-07-28 01:23:07	
47	In Process	Lorem Ipsum	loremipsum@gmail.com	Campus Safety	2023-07-28 01:21:50	2023-07-28 01:22:45	

Showing 1 to 10 of 18 entries

Previous
1
2
Next


CMS | Complaint Records
localhost/ComplaintManagementSystem/admin/complaint-records
e:Reklamo

Update Complaint

Complaint Number: 49

Name: Key Williams

Email: keywilliams@gmail.com

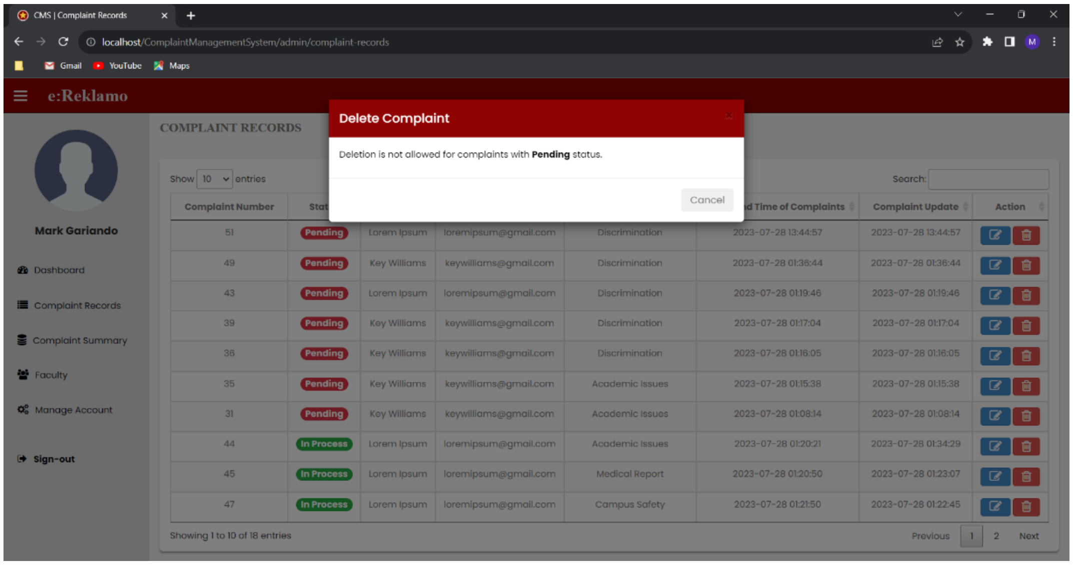
Complaint Type: Discrimination

Complaint Details: \r\nLorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla vel sem eget purus vestibulum luctus. Vivamus sed nisi a odio blandit luctus. Quisque sed velit vitae est commodo cursus eu eget nisi. Aliquam in purus euismod, hendrerit massa nec, pharetra turpis. In hac habitasse platea dictumst. Sed aliquam sem eu nulla feugiat, non rhoncus dui consectetur. Fusce nec nisi eu nulla hendrerit malesuada. Nulla facilisi. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla vel sem eget purus vestibulum luctus. Vivamus sed nisi a odio blandit luctus. Quisque sed velit vitae est commodo cursus eu eget nisi. Aliquam in purus euismod, hendrerit massa nec, pharetra turpis.

Complaint Related Docs: None

Status: Pending

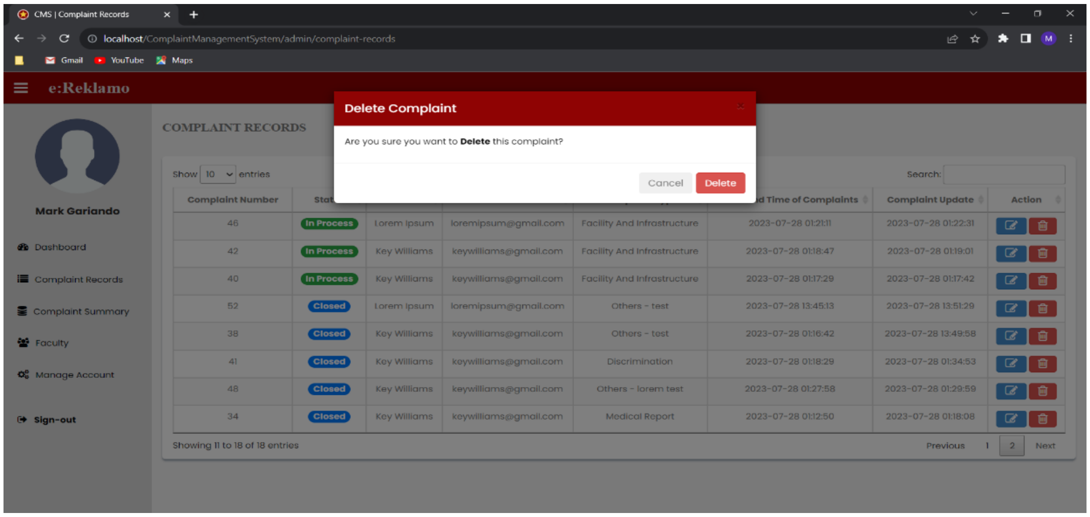
Pending
In Process
Close
Update


CMS | Complaint Records
localhost/ComplaintManagementSystem/admin/complaint-records
e:Reklamo

Delete Complaint

Deletion is not allowed for complaints with **Pending** status.

Cancel


CMS | Complaint Records
localhost/ComplaintManagementSystem/admin/complaint-records
Gmail
YouTube
Maps
e:Reklamo
Mark Gariando
Dashboard
Complaint Records
Complaint Summary
Faculty
Manage Account
Sign-out
Show 10 entries
Search:
Cancel
Delete
Previous
1
2
Next

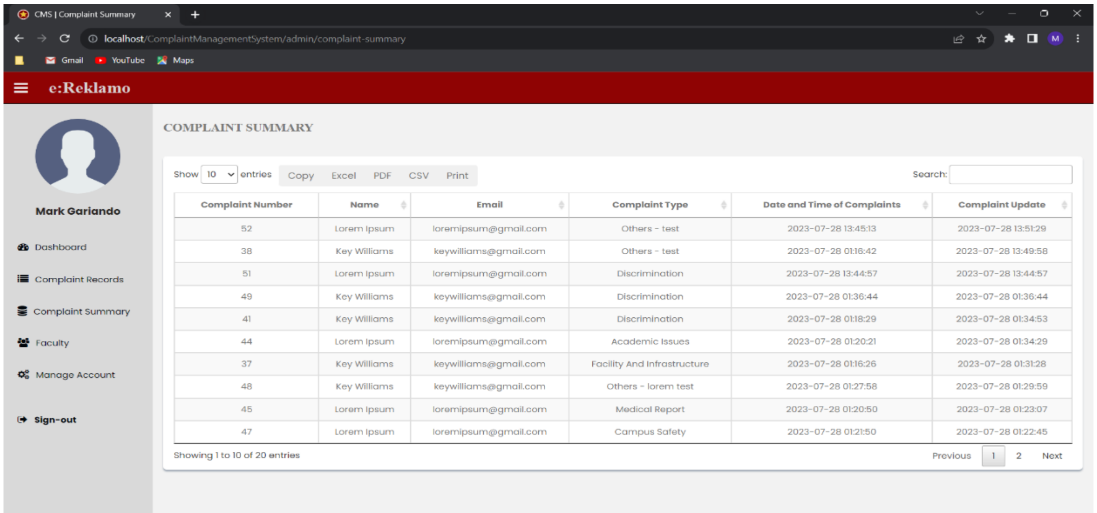
Delete Complaint

Are you sure you want to **Delete** this complaint?

COMPLAINT RECORDS

Complaint Number	Stat				d Time of Complaints	Complaint Update	Action
46	In Process	Lorem Ipsum	loremipsum@gmail.com	Facility And Infrastructure	2023-07-28 01:21:11	2023-07-28 01:22:31	
42	In Process	Key Williams	keywilliams@gmail.com	Facility And Infrastructure	2023-07-28 01:18:47	2023-07-28 01:19:01	
40	In Process	Key Williams	keywilliams@gmail.com	Facility And Infrastructure	2023-07-28 01:17:29	2023-07-28 01:17:42	
52	Closed	Lorem Ipsum	loremipsum@gmail.com	Others - test	2023-07-28 13:45:13	2023-07-28 13:51:29	
38	Closed	Key Williams	keywilliams@gmail.com	Others - test	2023-07-28 01:16:42	2023-07-28 13:49:58	
41	Closed	Key Williams	keywilliams@gmail.com	Discrimination	2023-07-28 01:18:29	2023-07-28 01:34:53	
48	Closed	Key Williams	keywilliams@gmail.com	Others - lorem test	2023-07-28 01:27:58	2023-07-28 01:29:59	
34	Closed	Key Williams	keywilliams@gmail.com	Medical Report	2023-07-28 01:12:50	2023-07-28 01:18:08	

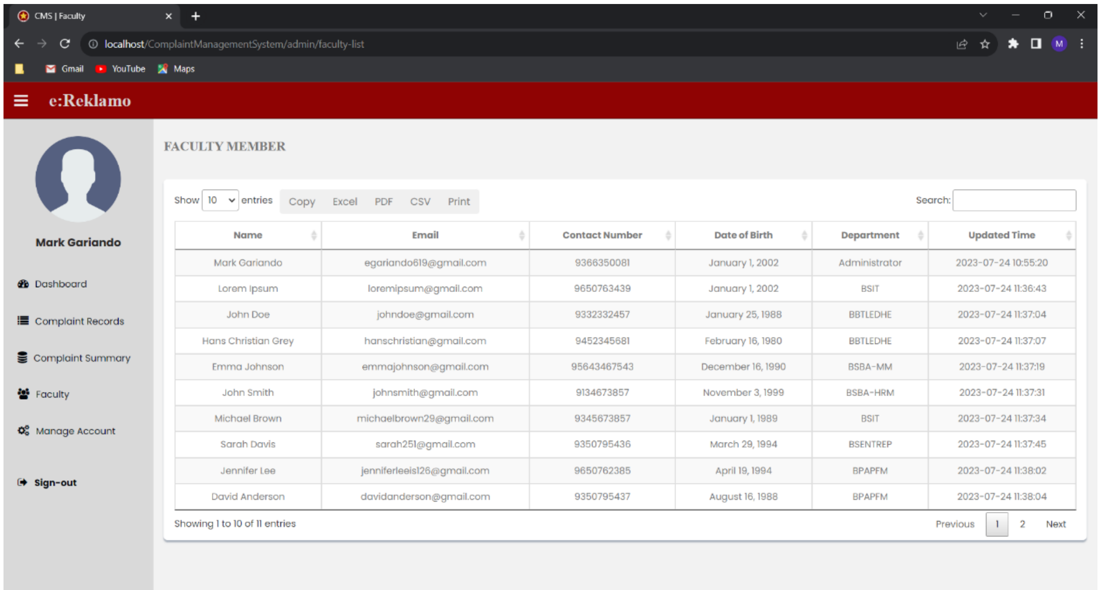
Showing 11 to 18 of 18 entries


CMS | Complaint Summary
localhost/ComplaintManagementSystem/admin/complaint-summary
Gmail
YouTube
Maps
e:Reklamo
Mark Gariando
Dashboard
Complaint Records
Complaint Summary
Faculty
Manage Account
Sign-out
Show 10 entries
Copy
Excel
PDF
CSV
Print
Search:
Previous
1
2
Next

COMPLAINT SUMMARY

Complaint Number	Name	Email	Complaint Type	Date and Time of Complaints	Complaint Update
52	Lorem Ipsum	loremipsum@gmail.com	Others - test	2023-07-28 13:45:13	2023-07-28 13:51:29
38	Key Williams	keywilliams@gmail.com	Others - test	2023-07-28 01:16:42	2023-07-28 13:49:58
51	Lorem Ipsum	loremipsum@gmail.com	Discrimination	2023-07-28 13:44:57	2023-07-28 13:44:57
49	Key Williams	keywilliams@gmail.com	Discrimination	2023-07-28 01:36:44	2023-07-28 01:36:44
41	Key Williams	keywilliams@gmail.com	Discrimination	2023-07-28 01:18:29	2023-07-28 01:34:53
44	Lorem Ipsum	loremipsum@gmail.com	Academic Issues	2023-07-28 01:20:21	2023-07-28 01:34:29
37	Key Williams	keywilliams@gmail.com	Facility And Infrastructure	2023-07-28 01:16:26	2023-07-28 01:31:28
48	Key Williams	keywilliams@gmail.com	Others - lorem test	2023-07-28 01:27:58	2023-07-28 01:29:59
45	Lorem Ipsum	loremipsum@gmail.com	Medical Report	2023-07-28 01:20:50	2023-07-28 01:23:07
47	Lorem Ipsum	loremipsum@gmail.com	Campus Safety	2023-07-28 01:21:50	2023-07-28 01:22:45

Showing 1 to 10 of 20 entries


CMS | Faculty
localhost/ComplaintManagementSystem/admin/faculty-list
Gmail
YouTube
Maps
e:Reklamo
Mark Gariando
Dashboard
Complaint Records
Complaint Summary
Faculty
Manage Account
Sign-out
Show 10 entries
Copy
Excel
PDF
CSV
Print
Search:
Previous
1
2
Next

FACULTY MEMBER

Name	Email	Contact Number	Date of Birth	Department	Updated Time
Mark Gariando	egariando619@gmail.com	9366350081	January 1, 2002	Administrator	2023-07-24 10:55:20
Lorem Ipsum	loremipsum@gmail.com	9650763439	January 1, 2002	BSIT	2023-07-24 11:36:43
John Doe	johndoe@gmail.com	9332332457	January 25, 1988	BBTLEDHE	2023-07-24 11:37:04
Hans Christian Grey	hanschristian@gmail.com	9452345681	February 16, 1980	BBTLEDHE	2023-07-24 11:37:07
Emma Johnson	emmajohnson@gmail.com	95643467543	December 16, 1990	BSBA-MM	2023-07-24 11:37:19
John Smith	johnsmith@gmail.com	9134673857	November 3, 1999	BSBA-HRM	2023-07-24 11:37:31
Michael Brown	michaelbrown29@gmail.com	9345673857	January 1, 1989	BSIT	2023-07-24 11:37:34
Sarah Davis	sarah251@gmail.com	9350795436	March 29, 1994	BSENTREP	2023-07-24 11:37:45
Jennifer Lee	jenniferleeis126@gmail.com	9650762385	April 19, 1994	BPAPFM	2023-07-24 11:38:02
David Anderson	davidanderson@gmail.com	9350795437	August 16, 1988	BPAPFM	2023-07-24 11:38:04

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