

**DESIGN AND IMPLEMENTATION OF A COMPLAINT
MANAGEMENT SYSTEM**

BY

OREOLUWA ISRAEL

17010301025

SUBMITTED TO

**THE DEPARTMENT OF COMPUTER SCIENCE AND MATHEMATICS,
COLLEGE OF BASIC AND APPLIED SCIENCES, MOUNTAIN TOP
UNIVERSITY, IBAFO, OGUN STATE, NIGERIA**

**IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR
THE AWARD OF BACHELOR OF SCIENCE (B.SC) DEGREE IN COMPUTER
SCIENCE.**

AUGUST 2022

CERTIFICATION

This is to certify that this Project Report titled “**DESIGN AND IMPLEMENTATION OF A COMPLAINT MANAGEMENT SYSTEM**” was carried out by **OREOLUWA Israel**, with the Matriculation Number **17010301025** in partial fulfilment for the award of Bachelor of Science Degree in Computer Science, Mountain Top University Ibafo, Ogun State, Nigeria.

Dr. C. Agbonkhese
Supervisor

Date

Dr. M. O. Adewole
Head of Department

Date

.....
External Supervisor

DEDICATION

This project work is dedicated to the ALMIGHTY GOD for making it possible for me to start up and finish in sound health. Also, it is dedicated to my parents, Mr. & Mrs. Oreoluwa for being supportive in the cause of this project work both financially and spiritually.

ACKNOWLEDGEMENTS

I want to give Almighty God glory for his undying love, protection, undiluted inspiration, faithfulness and strength during the period and for seeing me through the completion of this project. I want to appreciate the efforts of my parents and my sister; your rewards are guaranteed. Also, I wish to use this medium to appreciate my supervisor, Dr. C. Agbonkhese, as well as the Head of Computer Science and Mathematics Department, Dr. M. O. Adewole. My profound gratitude goes to every other member of academic and non-academic staff of the Department. God richly bless you, Amen.

TABLE OF CONTENT

CERTIFICATION	i
DEDICATION	ii
ACKNOWLEDGEMENTS	iii
LIST OF FIGURES	vi
ABSTRACT	vii
CHAPTER ONE	1
INTRODUCTION	1
1.1 BACKGROUND TO STUDY	1
1.2 PROBLEM STATEMENT	3
1.3 AIM AND OBJECTIVES OF STYDY	3
1.4 SCOPE OF STUDY	3
1.5 METHODOLOGY	4
1.6 ORGANIZATION OF WORK	4
CHAPTER TWO	5
LITERATURE REVIEW	5
2.1 Definition and Concept of Complaint	5
2.2 Complaint Behaviour Customer	6
2.3 Handling Complaint	9
2.4 Post-complaint Behaviour	11
2.5 Online Complaint Management System	12
2.6 Concept of Complaint Management System within a University Community	15
2.6.1 Academic Complaint	15
2.6.2 Non-Academic Complaint	17
2.7 Benefit of Having an Internal Complaints Management System	18

2.8	The Values for Complaints and Appeal Management Policy	18
2.8.1	Student Complaint Against Staff :	19
2.8.2	The need for Complaint Registration and Appeal System	19
2.8.3	Submission of the formal Complaint:	20
2.8.4	Motivation for Registration and Appeal System.....	20
2.9	Related Work	22
CHAPTER THREE.....		24
SYSTEM ANALYSIS AND DESIGN		24
3.0	Synopsis	24
3.1	Analysis of the Existing System.....	24
3.2	Limitation of the Existing System.....	25
3.3	The Proposed System.....	25
3.5	Design and Implementation Methodology	26
3.6	System Development Lifecycle Approach.....	30
3.8	Categories of Design	38
3.9	Database Table	40
CHAPTER FOUR.....		44
SYSTEM IMPLEMENTATION, TESTING AND INTEGRATION		44
4.0	Synopsis	44
4.1	Choice of Programming Language	44
4.2	The System Main Menu Implementation.....	46
Features		47
Public		47
Users		47
Admin		48
4.3	System Testing and Integration.....	55
4.4	The Test Plan.....	55
4.5	Findings and Discussion	56
CHAPTER FIVE.....		57
SUMMARY, CONCLUSION AND RECOMMENDATION		57
5.1	Summary	57
5.2	Conclusion.....	58
5.3	Recommendation.....	58
5.4	Further Work.....	58

LIST OF FIGURES

Fig1. 1 Waterfall model.....	32
Fig1. 2 Use Case Diagram for handling complaint for both student and administrator.....	34
Fig1. 3 Architectural Design of proposed New System	35
Fig1. 4 shows the entire flow chart for Student login page and appeal registration.....	36
Fig1. 5 shows the entire Page for final implementation of an appeal process for admin.....	37
Fig 2. 1 Login Page.....	49
Fig 2. 2 Student Sign up Page.....	50
Fig 2. 3 Admin Sign Up Page.....	51
Fig 2. 4 User Dashboard	52
Fig 2. 5 Category Page.....	53
Fig 2. 6 Sub Category Page	54

ABSTRACT

This study aimed at the design and implementation of an electronic complaint management system for Mountain Top University. The existing system is characterized with several anomalies such as inaccurate reports, lack of privacy in lodging complaints, lack of adequate feedback mechanism and unnecessary delays. The proposed system was designed to overcome all these challenges found in the existing system.

Data relating to complains management was collected from the student's affairs department of the University, which was used to design a model for complaint management using some Unified Modelling Language (UML) tools such as Use Case diagrams and Activity Diagram. The model was implemented using PHP, CSS, Ajax/ JavaScript, and mySql.

The system developed was thereafter tested using a black box testing technique in order to observe the functionality of the system.

The study concludes that the computerized complaint management system, if deployed, would efficiently eliminate all the challenges associated with the existing system of complaint management at MTU, and increase the productivity of the administrative processes of the University at large.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO STUDY

An educational growth can be of different apprehensions in an educative atmosphere to encourage a social and functioning educational system. For an educative system to be functional, there are some standing issues that must be resolved, taking into consideration the issue of complaint management system in this great university. These issues have generated lots of problem and work for the university in different aspect of the educational system. Institutions like this great university which have quite a large number of students receives a very large amount of complains per day and these complaints has to be documented, filled and stowed for forthcoming use. To support this approach, the project provides solution that can be used to manage and resolve complain issues in this great institution.

Marcington *et al* (2005) described method of handling complaint as a product of labor relations environment in the 60s and 70s when there was a more explicit struggle for control in the workspace. This had two main effects; firstly, it created the prerequisite for clear skill so that all specialists knew and resolves that oversee implicit rules and moves that may be made against them when these guidelines were changed.

In general, consumer requirements and expectations are diverse, making it difficult for any firm to adequately satisfy its clients or customers. In any firm, mistakes and failures are inevitable and frequent (Kim et al.,2010). Finding the sources of problem regions and resolving them, however, requires work. Customers of any firm have diverse perspectives on its offerings. Dissatisfaction and

potential complaints emerge when customer expectations and actual experiences differ (Ngai et al., 2007).

Customer complaints are an obvious sign of displeasure and present a problem for the business. Instead of trying to stop them from complaining, businesses can take action to lower the number of unhappy customers (Stauss & Seidel, 2019). The defensive marketing tenet is adhered to in this. Defensive marketing aims to keep current customers satisfied with the proper goods and services for a longer period of time.

Focus has turned to defensive marketing methods that aid in client retention as a result of rising competition, consumerism, and the influence of social media in the services and manufacturing sectors. A robust complaint management system is necessary for a competitive framework to keep customers for a longer period of time (Stauss & Seidel, 2019). As a result, complaint management becomes a valuable instrument for successful and efficient customer relationship management. Since the 1970s, study into complaints has become more popular. However, there hasn't been much consistent research in this field. It is crucial to return to the subject of complaint management and learn from the extensive literature.

Efficacy of complaint management system would emerge as key determinant of the firm's competitive position and therefore this research may prove timely for organizations, practitioners and researchers in this present era.

A complaint management system can be a very effective mechanism for handling complain which is easily accessible and tendered to the complainants (students). This project explains the procedure and steps which will be used for handling and resolving complains that turns up within the institution vicinity. In relation to what has been said, it is promising for the design and implementation of an online complaint management system to serve the users optimally. (Marcus *et al.*, 2020).

1.2 PROBLEM STATEMENT

Complaints are inevitable in every organization; they increase as the size of the organization increases. Existing techniques for managing complaints in university system are based on manual approach such as the use of Memos, which are always prone to errors accompanied by series of delays as well as the lack of tracking and adequate feedback mechanism. When complaints are inadequately managed, they result in series of complex problems ranging from frustration on the part of the service providers to dissatisfaction on the part of the complainers. This eventually results in depletion of organization performance. Therefore, the need for electronic complaints management system, hence this study

1.3 AIM AND OBJECTIVES OF STYDY

This study is aimed at designing and implementing a model for the management of complaints.

The specific objectives of the study are to:

- i. Study the existing system and collect data relating to complaint management,
- ii. Design a model for complaint management based on (i) above,
- iii. Implement the model designed in (ii) above, and
- iv. Test the system in (iii).

1.4 SCOPE OF STUDY

This study designed and implement a complaint management system for students-related complaints within Mountain Top University (MTU).

1.5 METHODOLOGY

The existing complaint management system at Mountain Top University was understudied in order to fully understand the procedures involved in filling complaints as well as its management. Also, data relating to complaint management was collected from the student's affairs department of MTU, using interview-driven questionnaire. A model for complaint management was thereafter designed using Unified Modelling Language (UML) tools such as use case diagram and activity diagrams. The designed model was then implemented using PHP, HTML, CSS, JavaScript, and MySQL programming languages. Finally, the developed complaints management system was tested using black box testing technique.

1.6 ORGANIZATION OF WORK

Chapter one focused on the introductory part of the complaint management system which entails the background to study, the problem statement, aim and objectives, scope of work and methodology.

Chapter two focused on the review of the complaint management system, looking at previous works that has been recorded in recent years, also looking at the concept of an online complaint management system. Chapter three focused on the system analysis and design methodology of the system. This involves analyzing the previous system with the proposed system with the use of interview-driven questionnaire. Chapter four focused on the implementation of the proposed system which involves the use of programming languages like PHP, Java Script, and SQL. Chapter five presents the summary of the study, as well as the conclusion and recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Definition and Concept of Complaint

A complaint is a negative expression of dissatisfied customer or consumer, about the product, services and organization's action (Ngai et al., 2007). According to Tronvoll (2007), it is an action taken by a dissatisfied individual, which involves communicating something unwanted or unacceptable regarding a product or service. Complaints are a proof of customer dissatisfaction. Most simple definition of complaints is 'it is a statement that something is unsatisfactory or unacceptable' (Oxford Dictionary, 2011).

Fornell & wernerfelt (1987) define complaints as an attempt of the customer to change the unsatisfactory purchase experience. The method and process through which businesses consistently address consumer issues is known as complaint management. It entails receiving, investigating, resolving, and preventing customer complaints as well as recovering the customer, according to Hansen et al. (2009). This phenomena is important since complaints are never treated favorably by businesses and they constantly discourage recording complaints, which increases customer misery and unhappiness (Stauss & Seidel, 2019). In the end, a cumbersome system for registering and processing complaints alienates the consumer, which lowers the number of complaints but leaves behind unhappy customers. Due to the effect of social media, which has given consumers more power to express and share their unhappiness, customer complaints have recently increased somewhat. Additionally, the competitive environment created by post-globalization (after 1991) has made customers more demanding and businesses more aware of the value of responding to customer complaints. Dissatisfied customers can easily let other customers know about their bad experience by clicking and switching to competitor brands or stores. Customer complaint management is

essential in this situation for both businesses and clients. Additionally, businesses gain useful information from client complaints, which helps them improve their future products and performance. It is crucial to consider complaint management as a powerful marketing intelligence tool as well as a means of addressing complaints. Data obtained through such procedures can be used to, among other things, categorize different types of complaints, identify subpar goods or services, group complainants according to different demographic characteristics, and find patterns in complaints. Without a doubt, academics and practitioners must pay attention to this subject.

This analysis can offer helpful guidance on the subject. This review's two goals are to first present a comprehensive framework for complaint management. Second, to list untapped areas of the complaint management phenomenon that should be the subject of future research.

2.2 Complaint Behaviour Customer

The Primary aspect to consider in customer complaint behaviour is dissatisfaction (Singh & Pandya, 1991). When the expectations are not fulfilled by the experience, the situation makes a customer dissatisfied. Discontent is the primary cause of complaints, although dissatisfaction alone does not always lead to complaints. Customer complaint behavior is influenced by numerous additional human and environmental factors (Singh & Pandya, 1991). Many businesses want to limit the number of complaints, but this objective only makes sense if one moves forward with the presumption that all unhappy customers complain (Stauss & Seidel, 2019). The majority of clients do not file formal or structured complaints. As a result, businesses typically are only aware of a small portion of true issues. Because disgruntled customers weigh costs and benefits before filing a complaint, non-complaining behavior happens (Huppertz, 2007). They may feel that complaining

would be pointless or take too much effort at times, or they may feel lost as to where to complain (Stauss & Seidel, 2019). Due to two factors, the fact that most dissatisfied customers do not file complaints has significant economic implications. First, a significant portion of noncomplainers quit the business right away without giving the company the chance to save the relationship by restoring customer satisfaction, and second, focusing only on the number of complaints registered in the business creates a distorted picture and undervalues the negative customer experience (Stauss & Seidel, 2019). Varied clients have different ways of expressing their disappointment. While many authors have attempted to define the concept of expression of dissatisfaction, Hirschman's (1970) work continues to be the de facto definition of the response to dissatisfaction through the model of Exit, Voice, and Loyalty. Exit is a destructive reaction to dissatisfaction because it involves ending the relationship with the product or service, voice is a positive reaction because it involves expressing complaints about the product or service, and loyalty is a positive, passive reaction because it involves doing nothing.

According to earlier research, elements like demographics, psychographics and behavioral traits, culture, and environmental circumstances all have an impact on complaint behavior. According to Tronvoll (2007), customers who use a service or product exhibit pertinent changes in their complaint behavior. Customer discontent with services appears to be higher than with products (Tronvoll, 2007). Age, gender, income, and education are among the demographic characteristics that have been found to have an impact on complaint behavior. This finding is consistent with earlier research by Keng et al. (1995), McColl-Kennedy et al. (2003), and Soares et al. (2017). Women are more likely to voice complaints. Younger customers are more prone to file complaints (Phau, 2004).

Customers from Generation Y (those born after 1981) are more likely to complain because they are tech savvy and frequent social media users (Soares et al. 2017). Higher educated consumers are

more vocal and likely to complain. As clients in the high income group are more inclined to complain, income also has a favorable effect on complaint behavior. In previous studies, several components of complaint behavior, such as the role of social class, religion, and rural and urban classes, have received less attention.

Psychographic and behavioral factors were also found to be related with complaint behaviour. Berry et al. (2014) found that assertive and aggressive customer are highly engaged in complaining. As opposed to conservative consumers who typically do not complain, customers with high levels of self-assurance, individualistic qualities, and interactional behavior are more likely to lodge complaints. As far as nationality or culture is concerned comparative studies such as Park et al. (2014) suggests that in individualistic nations (USA, UK, Germany, France) consumers are likely to complain. In collectivist nation (India, China, Japan, Hong Kong) consumer find it disturbing to voice their complaints, but likely to warn family members and friends (Ngai et al., 2007).

Most of previous studies were conducted in western context (USA, UK, and Germany). Other parts of the globe can be researched for deep understanding of culture influence on complaining behaviour. People in America, a country with a low power dimension, genuinely like complaining in order to enhance quality. (2006) Huang et al. Asian customers are less likely to complain than non-Asian customers, according to research by Ngai et al. (2007; high on power distance). Instead of contacting the businesses or complaining directly, Asian customers preferred to vent to others or leave.

Situational and product-related factors have a considerable impact on a customer's tendency to complain (Bergel & Brock, 2018). According to research by Hamzeli et al. (2006), unhappy customers are more likely to complain about pricey, durable, or long-lasting products. Customers who are very involved in the product are also more inclined to complain, whilst those who are less

involved in the product are more prone to become silent killers (Hamzeli et al., 2017). Since there are so many communication options available nowadays, including social media, email, mail, and telephone, the complaint route or channel of communication is also a crucial problem. There is currently no literature on the relationship between the complaint channel preference and consumer demographics and complaint behavior.

2.3 Handling Complaint

Complaints and the way it is handled by the firms is an important issue because complaints could have negative impact on customer satisfaction and loyalty (Hansen et al, 2010). Inefficient complaint handling procedures could spoil the customer and company relationship. This could increase consumer unhappiness, leading to the spread of bad word of mouth and discouraging new customers from doing business with businesses (Gruber et al 2009).

The most important component in determining how customers see a company's complaint management procedures is the employee's response (Huppertz, 2007). Employees should be given responsibility and authority to serve customers quickly and effectively (Stauss & Seidel, 2019). Today, it's common practice to empower employees. When businesses are aware of what customers want, they may train staff to handle unhappy clients more effectively (Lam & dale, 1999).

Employees that have received training are better able to relate to and understand consumer difficulties. Since the majority of customers dislike the thought of complaining, there is a need to focus on encouraging disgruntled customers to do so. According to Huppertz (2007), businesses should establish rules that encourage customers to file complaints. Focus should be placed on creating user-friendly complaint registration policies that will save customers money, time, and effort while enabling them to expect positive results (Zairi, 2000).

Cook and Macaulay (1997) argued that empowerment is necessary for effective complaint handling. The appropriate customer contact staff must be ready and empowered to manage customer complaints, and all pertinent information contained in complaints must be documented (Stauss & Seidel, 2019).

The idea of an auto reply or scripted response is being developed by businesses today to deal with clients, however the customers desire individualized responses. Customers do not like to be served with auto reply emails and sometimes it may lead to negative emotion. The primary reason behind complaining is that customer wants to be get compensated for the loss perceived by them. Companies can compensate the customers by offering repair, exchange or money back (Johnston, 2001). It serves as strong link for relationship building and gaining customer's confidence that firms really care about them (Gruber et al., 2009) Some of the primary work in the field of organizational response to complaints considered six dimensions (Huppertz, 2007)

- **Timeliness:** Speed of an organization to respond to any complaint.
- **Facilitation:** Policies, procedures and structure a company has to handle complaints.
- **Redress:** The benefit or response that, a complainant receives from an organization.
- **Apology:** Acknowledgement by the organization of the complainant's distress.
- **Credibility:** Organizations willingness to present an explanation for the problem.
- **Attentiveness:** The interpersonal communication and interaction between the organizational representative and complainant.

2.4 Post-complaint Behaviour

Management of complaints appears to be a two-edged sword: on the one hand, it offers a good chance to win back customers; on the other hand, a subpar complaint management process might leave customers unsatisfied indefinitely (Maxham & Netemeyer, 2002). The recourse offered by the company as a solution to their complaint or problem may or may not satisfy the customer and it may once again deepen the gap between customer expectations and organization response (Gelbrich & Roschk, 2011). It is more noticeable in case of services (Kim et al. 2010).

The effective response to complaints is known as service recovery. Service recovery is a crucial success factor for organizations (Blodgett et al., 1997). Organizational response can either reinforce customer relationship or intensify the negative effects of failures (Maxham & Netemeyer, 2002). Customer experience after complaint handling has been underrepresented in the past. Justice dimension is extensively used to study how businesses handle customer complaints (Davidow, 2000). The most popular framework for analyzing what influences satisfaction with complaint handling is now justice theory. A three-dimensional notion of justice has been proposed by previous researchers, taking into account distributive, interactional, and procedural justice (Gelbrich and Roschk, 2011). All three justices have the power to reduce the level of unpleasant emotion felt by customers. It is argued and empirically demonstrated that justice perception fully mediates the association between organizational response and post-complaint satisfaction (Gelbrich & Roschk, 2011).

Distributive justice is outcome justice. It deals with the analysis of benefit received relative to money, time, efforts associated with any complaint (Estelami, 2000). If organization fails to deliver an expected benefit, it led to feeling of unfair among the complainants. In a complaint, customers generally expect refund, apology and compensaton (Davidow, 2000). Principle of distributive justice

is that every customer expects some outcome or result from their complaint attempt. It can be positive or negative but most of the time positive (Estelami, 2000). Interactional justice refers to how customers perceive the way they are treated by firms. Customer perceived positively when employee treat them in the polite way and respectful manner (Gelbrich & Roschk, 2011). Procedural fairness refers to the procedures and methods used to manage consumer complaints, such as response time and information exchange with customers (Tax et al., 1998).

Most of the time-dissatisfied customers expect refund, replacement or compensation from complaint. It has been evident from many studies that compensation has the great impact on customer satisfaction with complaint (Tax et al., 1998). This is not clear that which justice dimension has stronger impact on shaping the favorable post complaining behaviour, but together all justice dimensions are important aspect of post complaining behaviour of customer.

2.5 Online Complaint Management System

Online Complaint Management System (OCMS) is a system that allows the public to solve concerns online, saving time and eradicating corruption.

In multiple studies published in the 1980s and 1990s, Mary Rowe et al. conceptualized and developed the idea of an integrated online complaint management system. She recognized the significance of offering complainants potential options and, as a result, linked systems of selections within an organizational system. In recent years, discussion has been made as to whether complaints should be “managed” by organization or whether it is to be dealt with and learn from the complaint.

However, 2012 research by David Lipsky et al, suggests that an increasing number of cooperation see themselves having “Integrated Complaint Management System” or ICMS.

The complaints management system's purpose is to make it easier to organize, monitor, track, and respond to complaints, as well as to provide the organization with a useful tool for identifying and addressing problem areas, tracking complaints handling performance, and implementing business improvements. Consumer concerns are assessed, analyzed, and responded to using an online complaint management technique. Consumer complaints, requests, and any other input are tracked, resolved, and responded to using complaint management software (Nasr et al., 2015)

Gherwada et al. intend to create an Android Application Mobile interface that can be used to file complaints. The core concept is to make use of current online infrastructure to give a simple, low-cost, and speedy way to file a complaint. Residents would be able to make complaints at any time and from any location under the planned system (Gherwada et al., 2015)

The design of a Voice Enabled Global Positioning System (GPS) based system for reporting traffic complaints on an Android platform is presented by Mhapsekar et al. The complaint is filed using the Global System for Mobile Communications' Short Message Service (SMS) (GSM). By mapping the place where the complaint was submitted, GPS tracking improves the accuracy and competency of the complaint system. This will assist authorities in locating the problem and resolving it as soon as possible. Because the suggested system is voice enabled and Android based on the complainant side, it would serve as a platform for Indian road commuters to send complaints to the necessary authorities in addition to the existing channels, allowing these concerns to be addressed in a timely way (Mhapsekar et al., 2012)

The presence of potholes on the road is one of the leading causes of traffic accidents as well as vehicle wear and tear. Various strategies have been implemented to address this issue, ranging from

manual reporting to authorities to the use of vibration-based sensors to 3D reconstruction utilizing laser imagery. However, all of these approaches have certain limitations, such as high setup costs, detection risk, or inadequate provision for night vision. As a result, the Aparna et al. done a study to see if thermal imaging can be used to identify potholes and how accurate it can be. Following the collection of enough data containing images of potholes in various conditions and weather, as well as the application of augmentation techniques to the data, the convolutional neural networks approach of deep learning was used, which is a novel approach in this problem domain using thermal imaging.

A comparison was also made between the self-built convolutional neural network and some of the pre-trained models. The results demonstrate that utilizing one of the pre-trained convolutional neural networks-based residual network models, pictures were accurately recognized with the best accuracy of 97.08 percent. The findings of this study will be useful in directing future research in this innovative use of thermal imaging in the field of pothole identification.

Kim et al. (2010) research and assess pothole detection methods that have been created in this work, and they offer a viable route for building a pothole detection system that can correctly and efficiently identify potholes. The architecture of a GPS-based Complaint Redressal System is presented by Kandhari et al. A Smartphone application is used to file the complaint. To pinpoint the exact position of the complaint, the Global Positioning System (GPS) sensor included in smart mobile devices is employed. The complaint area is automatically recognized, and the complaint information is transmitted through the internet to a central server. In the online interface, the complaints are then mapped on a map.

Goh et al. describes the architecture of a GPS-based system for reporting thorough fare concerns via the Global System for Mobile Communications (GSM) in a road maintenance management context.

GPS may be used to improve accuracy and efficiency since it allows for the tracking and tracing of the three numbers of a GPS receiver's coordinates, namely longitude, latitude, and altitude. Data such as location, date, and time will be optimized by mapping the position of the roadway problem on a map, so that the proper authorities may identify the spot and get the problems fixed quickly. In addition to current channels, the proposed system would give a more simple and accessible means for road users to communicate complaints to the appropriate authorities, allowing these problems to be addressed quickly (Kandhari and Mohinani,, 2014)

2.6 Concept of Complaint Management System within a University Community

Within the University, community, complaints can be broadly categorized into academic and non-academic.

2.6.1 Academic Complaint

An academic complaint can be described as the expression of dissatisfaction made by a student with a service provided by an Institution or University against a member of the faculty, colleagues, a part-time instructors or lecturer, a teaching or lecturer assistant, security, or an administrator that intentionally violates a university, college, or department code of conduct or mostly treats the student on the assertion of race, state origin, religious conviction, sex, age, handicap, veteran status etc.

Since engaging an assessment or weighing a student's work or performance involves the faculty's decision and is a necessary piece of the faculty' instructing obligations (Leat *et al.*, 2007) complaints from student is inevitable because there will surely be disagreement one way or another.

According to University of Cambridge manual (2016), student complaint procedure allows student to express dissatisfaction about the standard of service provided by the university and it is entitled to

any matriculated student.

There are formal approaches a student can take to make a complaint or issue. The formal position regarding to an appeal against grades rewarded that is allowed and that Board of Examiners' making on examination decisions results are final. Nevertheless, the Board revealed clear confirmation that this approach was not connected consistently over the University. In testing this matter, the Panel got to know that exams can be marked again and the results can be changed due to the fact that there are possibilities of errors and mistakes when previously marking and grading student results. Also, students were allowed to survey evaluations on events; others had their work re-stamped. Course documentation assessed by the board refers to the strategies for students to claim against evaluation results.

The University noticed that student may wish to raise a complaint, problem, Issues or concern regarding the welfare and security of the student.

An academic complaint can also be viewed as a situation when a complaint form is submitted because a student has been harmed by being treated badly or unfairly by Lecturer or administrative personnel of the University or Institution. In order to file an academic complaint, such student must have proof that he/she has been falsely wronged. For example, students might not be given the exact mark he or she deserved to get due to the fact that the lecturer does not like such student. Students may, however, use the informal complaint process to talk with administrative personnel in such institution about the perception or inappropriate behavior. Others include:

- i. Appeal of grading decision (e.g. failure of an assessment piece or subject)

- ii. Elimination from study or continual enrolment

- iii. Findings of accusations of academic student misconduct (e.g. cheating or plagiarism)
- iv. Quality of course conveyance
- v. Outcomes of credit transfer

2.6.2 Non-Academic Complaint

This is a situation where a complaint is made to the authority of the institution or university regarding non-academic problems or issues which affect students security and well-being in such institution.

Non-Academic Complaints combines protests in connection to the following:

- i. Discrimination
- ii. Shamefulness and injustice treatment
- iii. Attack or vilification
- iv. Sexual harassment, other types of harassment by students, Lecturers or any administrative personnel.
- v. Student amenities e.g. Water, Light, Hostel arrangement, hygiene around the hostels.
- vi. Worries about grounds offices, environment, well-being and security or equipment and so forth.

vii. Student Food service.

2.7 Benefit of Having an Internal Complaints Management System

A good complaint management system provides quick response from administrator and will benefit

The student by:

- i. Serving as a fast and efficient means of resolving complains which may arise to student.
- ii. Indicating where problem exist in the administrative system and procure strategic solution to solve such issues
- iii. Highlighting weaknesses in guiding system and zones which may require change
- iv. It gives student assurance that their complaint or issues are taken into consideration and such complains are treated with immediate alacrity.

2.8 The Values for Complaints and Appeal Management Policy

- i. Procedural fairness and regular equity;
- ii. A code of conduct or morals and behavior;
- iii. An administration society free from separation and provocation;

iv. Straightforward arrangements

v. Avenue for response and further investigation.

The policy Code of Conduct guides the Complaints and Complaints Management Policy and procedures were defined by *Ombudsman (2005) et al.*

2.8.1 Student Complaint Against Staff :

Student may feel distressed by the action of some staff members in the course of their day to day activities. Such complaints are unavoidable and may arise in the area such as:

i. Academic matters involving grading, assessment or status

ii. Rejection of student access to data or dishonesty of student's data/research

iii. Professional misconduct towards students

iv. Unfair biased or threatening treatment of students including sexual harassment.

v. Unfavorable actions taken as a process of allegations involving cheating, plagiarism, Fabrications, falsification of record or altered documents

2.8.2 The need for Complaint Registration and Appeal System

To obtain a well-functioning complaint mechanism and appeal registration system, student need to abide under the following process:

- i. Student must have registered their credentials in order to have an account on the Complaint Management System to generate password and login to state their complaints.
- ii. Student must be conversant with the entire student misconduct act provided by the school management/administrator before apply for any appeal.
- iii. Informing students of the procedure and the policy during their course orientation and counselling students to read it at the beginning of a course.
- iv. Allowing the accuser and / or respondent to be accompanied and / or helped by a third party if desired throughout then interrogation from the management/administrator.

2.8.3 Submission of the formal Complaint:

All Complaints must (a) be filed online. (B)Have all documents needed attached with the complaints. All documents could be in PDF format.

Decisions: All decisions issued must be in electronic format and shall include all of the following process:

- i. Verification of what has been said by the student.
- ii. Conclusions and the explanations behind the conclusions arrived at, and
- iii. The strategic solution for the complaint stated.

2.8.4 Motivation for Registration and Appeal System

The preceding manual system cannot be easily traced back due to the possibilities of errors in data, forms, and some other document. The process below helps to increase the effectiveness of complains

to be answered at the appropriate and scheduled time.

The motivation of this system is to undergo the following processes:

- i. To promote peace and unity between the students, staffs and administrator/management.
- ii. To secure life-threatening protection against non-academic complaints (such as sexual harassment, discrimination, student amenities, unfairness and injustice).
- iii. To provide an adequate complaint/grievance website that a student can easily login with their student ID or Matric number and password generating from the complaint control system and issue a complaint for a proper addressing from the management.
- iv. Students will have chances to be involved in the processes of program approval, progress, monitoring and evaluation of the complaints.
- v. Provides a predictable, clear, and credible process to all parties involved, resulting in outcomes that are seen as fair, effective, and fixed.

2.9 Related Work

Sousa et al. covers a case study conducted at an automobile firm that chose a Six Sigma project to respond to a drop-in customer satisfaction regarding complaint response time. The project's goal was to enhance the process of analyzing defective items by identifying the variables that impact the process and proposing modifications to minimize the time required to analyze defective products. The findings are positive, and they may inspire managers in other businesses or even services to implement Six Sigma to improve their customer complaint handling procedures.

Johnston et al. asserts that complaint management should result in customer happiness, but more significantly, it should result in operational and financial performance improvements. Many organizations, it is suggested, neglect the operational value of complaints, and as a result, many complaint systems appear to be focused at appeasing consumers rather than ensuring that issues do not reoccur. The data from an empirical benchmarking study based on a thorough questionnaire filled out by customer service managers in 40 UK organizations is used to calculate the relationships between seven key variables: complaint processes, satisfaction, retention, process improvement, employee attitude and retention, and financial performance. The findings reveal substantial connections between all variables in the model, prompting the development of four acid tests for complaint management. It is argued that rather than just aiming to appease consumers, financial advantages might be better leveraged by bringing about organizational reforms and ensuring complaint processes are "staff-friendly."

Chang et al. describe the theory of reasoned action (TRA) and the theory of planned behavior (TPB) to anticipate which factors influence customers' intentions to complain when they encounter a service failure, whether online or offline. Methodology/design/approach – The instrument of a survey questionnaire was used to collect quantitative data. Data were gathered from 300 potential

consumers in order to determine the impact of attitude, subjective norm, and perceived behavioral control on the intention to complain. Participants were randomly allocated to one of two conditions: online medium or offline medium. To test hypotheses, two stage structural equation modeling was used. Findings – It was discovered that both the TRA and the TPB accurately predict the intention to complain, however the TPB is more robust than the TRA in online media and weaker than the TRA in offline media. [6]

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.0 Synopsis

The chapter deals with methods of data gathering that were used in the process of system study and design of the proposed system. An analysis of the manual system or framework was carried out in order to control the requirement for the complaint and appeal system. Thus, the process of data collections indicates and identify all the major activities and selective sample to pick what actions should be considered for the process of development of the new system. During the information-gathering process, the student used different techniques to study the existing condition. System analysis and design aspect play a major role in the development process. A comprehensive study of the process was fully done, using interview-driven questionnaire. This is just how system called an existing system. Now the existing system is exposed to close study and problem areas are known. The student now functions as a problem solver and tries to sort out the problems associated with complaints management as it were.

3.1 Analysis of the Existing System

The existing system is a manual based system. But this is hardly used in the monitoring process since it cannot be accessed online. Monitoring is done using the customary methods, which contains the use of paper, but in proposed new system we shall automate all the complaints detail online using web-based application, method on how to appeal for any complaints and method of processing registration system will be discuss later in data collection.

3.2 Limitation of the Existing System

The existing system is essentially characterized with the following:

- i. Time consuming and slow: The method of using paper in the process of monitoring complaints is slow and time consuming. For example, the educational staffs have to physically move to individual units to total or tally their book list for any available complaint or issues.
- ii. Too much paper work: This generates a lot of records and keeping them can be a problem in a sense that they can be easily mixed up, making retrieval difficult particularly when the appeal are urgently needed for decision-making and report, complaint registration policy using a manual system are prone to mistakes.
- iii. Lack of security of data and information concern any complaint/issues.
- iv. No monitor rule that support complaints and appeal registration
- iv. To avoid all these restrictions and make the working more appropriately and accurate, the system require to be computerized or automate.

3.3 The Proposed System

In the proposed system, you have adjusted the specific example extend that is changing, in this quick becoming world in which many people needs to get data on the system and all the more over the larger part of them set with most current innovation the essential will be emerging frequently to building a private structure and run ahead of time with the message. Therefore, it is not aware to attempt to count the demonstration of the new system in process of the fact that human energy or power determined to act estimate is looked as labour which overall ought to be submitted in writing code and distributing the system on time.

The proposed system also acquires cost benefits which is analyzed as development cost (this includes the cost of tools and installation, software development cost and workforces cost i.e., staff training on how to use complaint and appeal registration system form on web application) and follow up system analysis on complaints maintenance.

3.5 Design and Implementation Methodology

The design methodology used in the proposed system is the waterfall and parallel as a result of the fact that both methods support the use of the proposed system side by side with the existing system in order to test for the system efficiency. Top-down approach is used as well in the design because it allows the analysis of the system to be carried out one after the other.

This is the part of the system analysis and design stage consecrated around the conFigureuration of design method utilized. Hence, we'll consider the different outline routines developed. A conFigureuration is the first speculation into the development phase for any project or system design. A decent outline or step is intended to promote the system. The look outline is defined as a branch of science that deals with the concept of computation and methods of data processing in digital computers, the design of computer hardware and software, and the use of computer programming

outline sites at the industrial personification of the project building procedure and is linked paying a small amount to the advanced standard that is used in various programming languages such as HTML, MYSQL, PHP, and so on. A flowchart and use case diagram were used, which is primarily the breaking down of a system into its component subsystems and dividing the issue into sections, allowing more than one person to deal with the arrangement or solution to the system. Use case diagram clarified all the details about the user and administrator of the new proposed system.

3.5.1 Software Requirements

- i.** Operating system - Windows 10 is the operating system of choice since it is more stable, has more functions, and is more user pleasant.
- ii.** Database MYSQL - MYSQL is used as a database because it is straightforward to manage and retrieve records using simple queries written in English that are simple to understand and write. HTML is used to write the entire code and develop webpages with cascading style sheets, java script for styling tasks, and hypertext pre-processor (PHP) for server side scripting.

3.5.2 Software Tools Used

The whole Project is divided in two parts the front end and the back end.

Front End: The front end is designed using of HTML, PHP, CSS, Java script

- i.** HTML- HTML or Hyper Text Mark-up Language is the main mark-up language for creating web pages and other information that can be displayed in a web browser. Within the text of a web page,

HTML is expressed as HTML elements, which are composed of tags contained in angle brackets (such as `html`). A web browser's job is to read HTML files and combine them into visually or aurally appealing online pages. By indicating structural semantics for text elements including headers, paragraphs, lists, links, quotes, and other objects, it offers a way to produce structured documents. It has the ability to include scripts that modify the behavior of HTML web pages written in languages like JavaScript.

ii. CSS- A style sheet language called Cascading Style Sheets (CSS) is used to describe the appearance and formatting of a document produced in a mark-up language. The language can be used to style any type of XML document, including plain XML, SVG, and XUL. However, it is most frequently used to style web pages and interfaces written in HTML and XHTML.

Most web pages utilize CSS style sheets to describe how they are presented since CSS is a fundamental web specification. The main purpose of CSS is to make it possible to separate document content from presentational components like layout, color, and font. This division can increase the accessibility of the content, give the definition of presentation features greater freedom and control, allow several pages to share formatting, and lessen the complexity and duplication of the structural content (such as by allowing for table less web design). Additionally, CSS enables the presentation of the same markup page in several styles for various rendering techniques, including on-screen, in print, via voice (when read aloud by a screen reader or speech-based browser), and on Braille-based, tactile devices. It can also be used to make the web page display differently based on the screen size or device being used to view it.

iii. JAVA SCRIPT- A dynamic computer programming language is called JavaScript (JS). It is most frequently utilized as a component of web browsers, whose implementations enable clientside scripts to interact with users, manage browser settings, communicate asynchronously, and change the displayed document content. Additionally, it is employed in server-side programming, the creation of

video games, and the development of desktop and mobile applications. JavaScript is a dynamically typed, prototype-based programming language with first-class functions. C had an influence on its syntax. Although the two languages are totally unrelated and have quite distinct semantics, JavaScript borrows many names and naming practices from Java. The self and Scheme programming languages are the main design inspirations for JavaScript. It supports imperative, functional, and object-oriented programming paradigms, making it multiparadigm.

iv. PHP: A server-side scripting language that is intended for web development but may also be used for general-purpose programming. PHP is now on over 244 million websites and 2.1 million web servers. The PHP Group now produces the reference implementation of PHP, which was founded by Rasmus Lerdorf in 1995. While PHP initially stood for Personal Home Page, it is now a recursive backronym meaning PHP: Hypertext Pre-processor. A web server with a PHP processor module interprets PHP code and generates the resulting web page: Instead of contacting an external file to handle data, PHP commands can be inserted directly into an HTML source document. It has also developed a command-line interface and may be used in standalone graphical applications. Free software known as PHP is distributed under the PHP License. Most web servers support the free deployment of PHP, which is also available as a standalone shell on practically all platforms and operating systems.

Back End- The back end is designed using MySQL which is used to design the databases

i. **MYSQL** - Officially known as "My S-Q-L," but also referred to as "My Sequel," MySQL is the second-most used open-source relational database management system worldwide as of July 2013. (RDBMS). It is named after My Widenius, daughter of co-founder Michael Widenius. SQL, or Structured Query Language, is the abbreviation. The MySQL

development project has released its source code under a number of private agreements as well as the GNU General Public License. One for-profit corporation, the Swedish company MySQL AB, which is now owned by Oracle Corporation, was both the owner and sponsor of MySQL. In addition to being a key part of the widely used LAMP open source web application software stack (and other "AMP" stacks), MySQL is a well-liked database for usage in web applications. "Linux, Apache, MySQL, and Perl/PHP/Python" is referred to as LAMP. MySQL is frequently used in free-software, open-source projects that need a robust database management system. There are various paid editions that are available for commercial usage and provide more capabilities. TYPO3, MODx, Joomla, WordPress, phpBB, MyBB, Drupal, and more programs all use MySQL databases. Additionally, a lot of well-known, massive websites like Wikipedia, Google (though not for searches), Facebook, Twitter, Flickr, and YouTube use MySQL.

3.5.3 Hardware Requirements

- i. Intel core i5 2nd generation is used as a processor because it is fast than other processors and it is very reliable and we can as well run our pc for long time with the Intel core i5. By using this processor we can keep on developing our project without any worries.
- ii. Ram 4 GB is used as it will provide fast reading and writing capabilities and will in turn support in processing.

3.6 System Development Lifecycle Approach

System development life cycle is referred to a methodology for developing systems. It produces a consistent frame work of tasks and deliverables needed to develop systems. The SDLC technique can be shortened to incorporate automated or manual processes, depending on whether the system is

new or an upgrade to an existing system. The SDLC methodology follows a project from an idea developed by the user through feasibility study, systems analysis and design, programming, pilot testing, implementation, and post implementation analysis. The Waterfall Model is the development method that will be used for the complaint management system.

3.6.1 WATERFALL MODEL

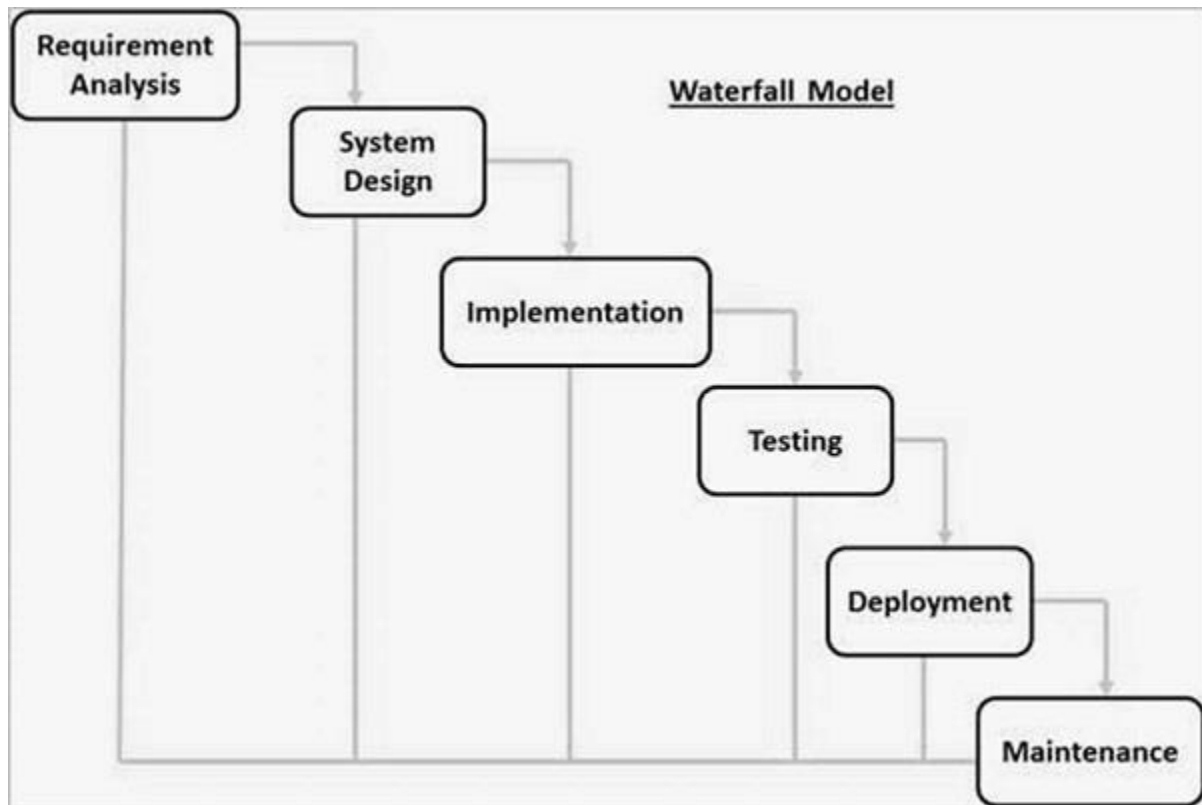


Fig1. 1 Waterfall model

The first Process Model to be introduced was the Waterfall Model. The term "linear sequential life cycle model" is also used to describe it. It is incredibly easy to use and comprehend. There is no overlap between phases in a waterfall model; each step must be finished before the subsequent phase can start.

The first SDLC methodology for software development was the waterfall model. The software development process is depicted using the waterfall model, which follows a linear sequential flow. This implies that a phase of development can only start if the one before it is finished. The phases in this waterfall model do not cross over.

The sequential phases in Waterfall model are –

- **Requirement Gathering and analysis** – During this stage, all potential system needs are gathered and outlined in a requirement specification document.
- **System Design** – This phase studies the need specifications from the first phase and prepares the system design. This system design aids in the specification of hardware and system requirements, as well as the definition of the overall system architecture.
- **Implementation** – The system is first built in discrete programs called units, with input from the system design, and then combined in the next phase. Unit Testing is the process of developing and testing each unit for functioning.
- **Integration and Testing** – Following the testing of each unit created during the implementation phase, the entire system is merged. The entire system is tested for errors and failures after integration.
- **Deployment of system** – Once the product has undergone functional and non-functional testing, it is either published to the market or deployed in the customer's environment.
- **Maintenance** – Various problems can arise in a client environment. Patches are published to address certain problems. Additionally, improved versions of the product are issued. To bring about these changes in the surroundings of the consumer, maintenance is performed.

The progression is perceived as flowing slowly downward (like a waterfall) through the phases as all of these phases are connected to one another. The "Waterfall Model" gets its name because the following phase doesn't begin until the prior phase's established set of goals have been met and it has been approved. Phases in this model don't cross over..

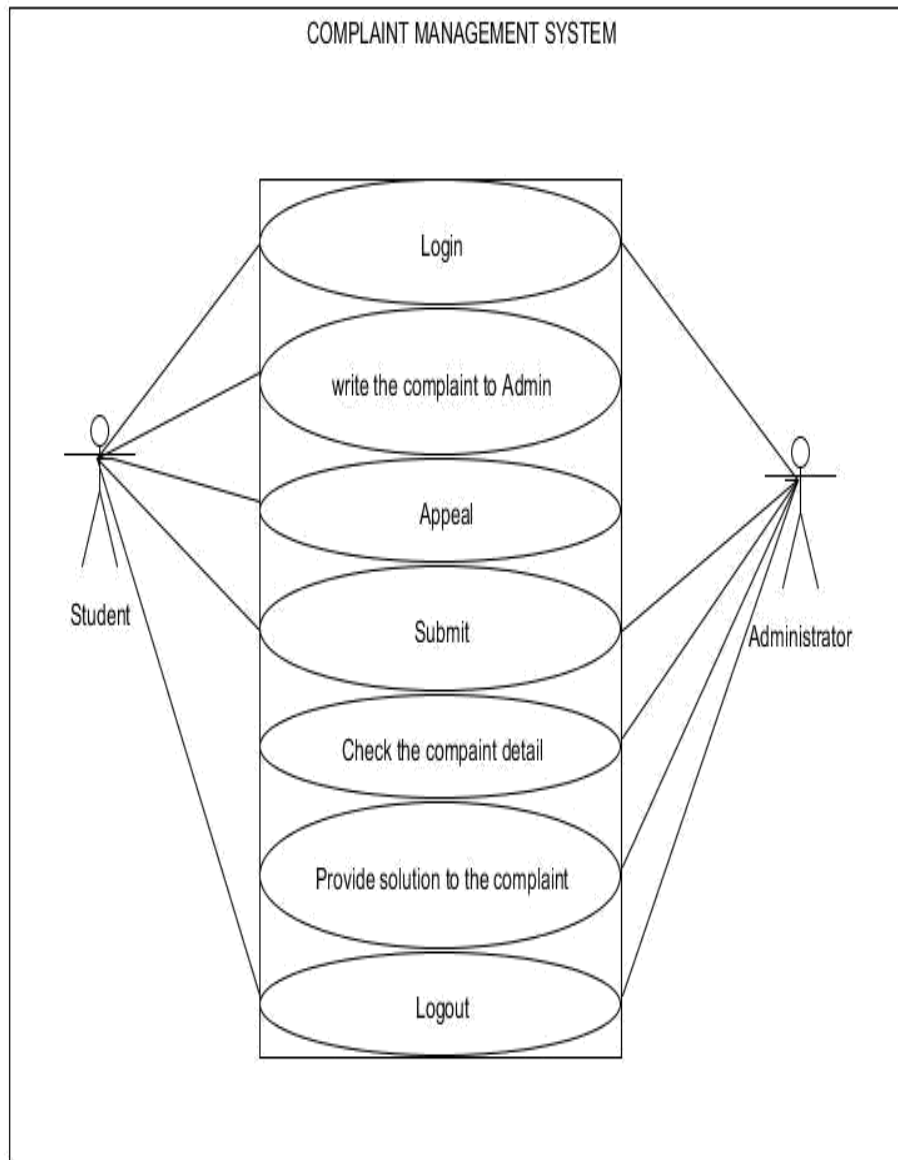


Fig1. 2 Use Case Diagram for handling complaint for both student and administrator.

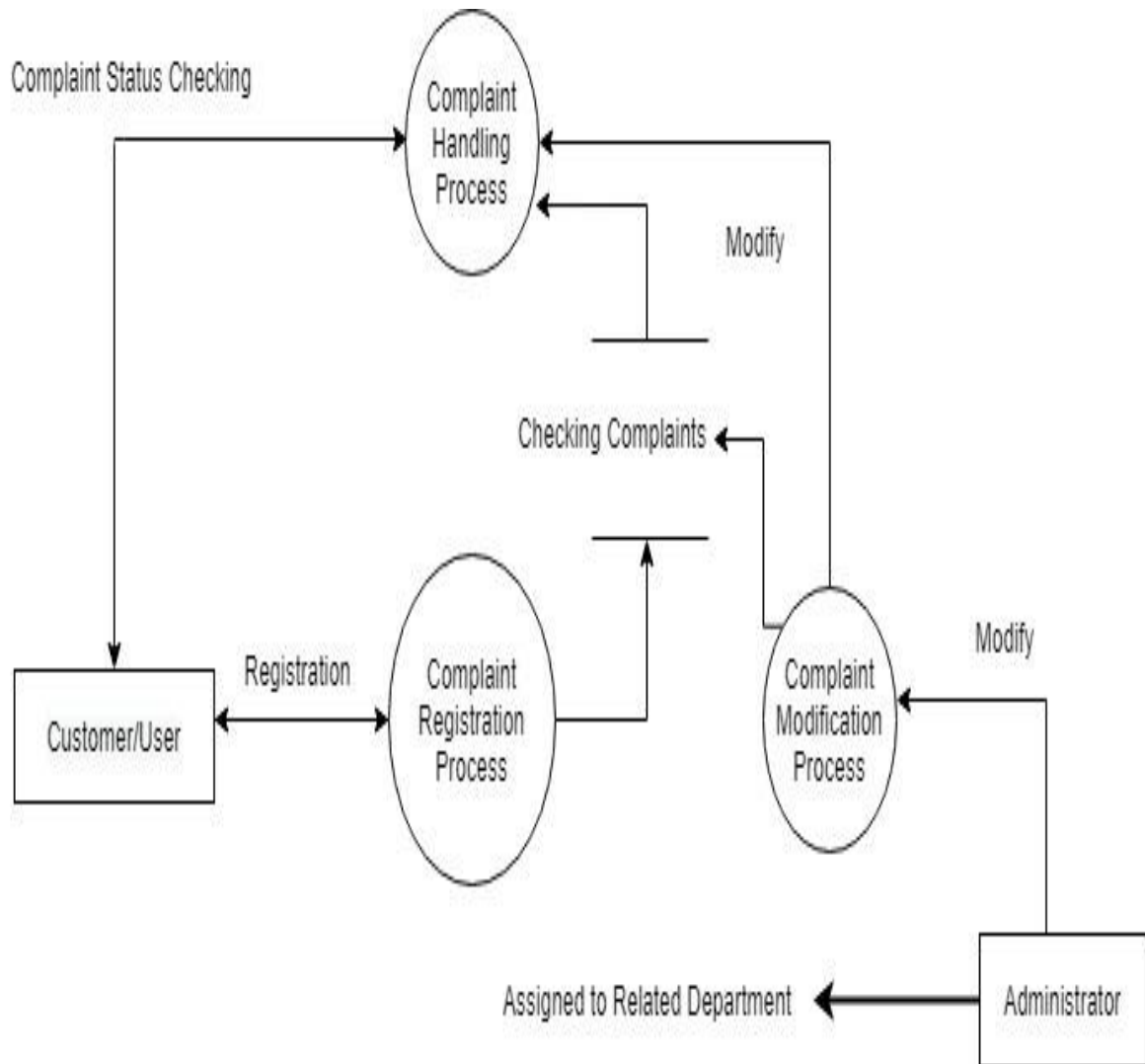


Fig1. 3 Architectural Design of proposed New System

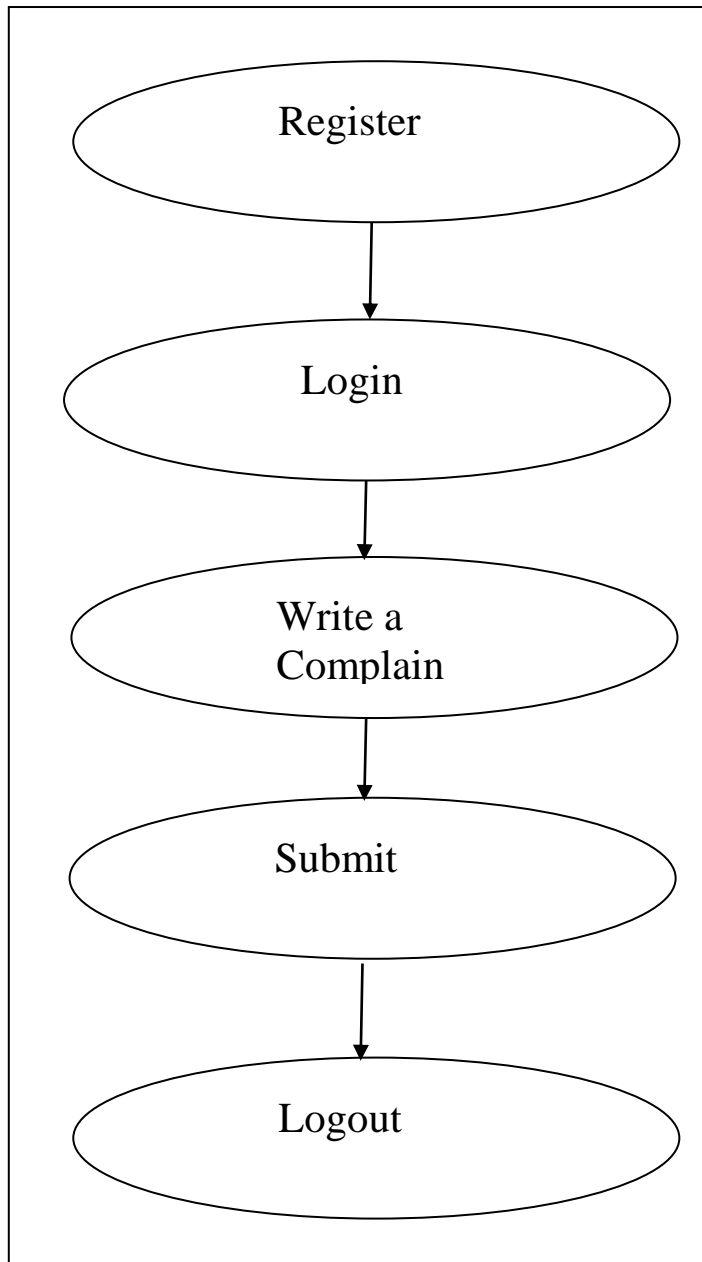


Fig1. 4 shows the entire flow chart for Student login page and appeal registration

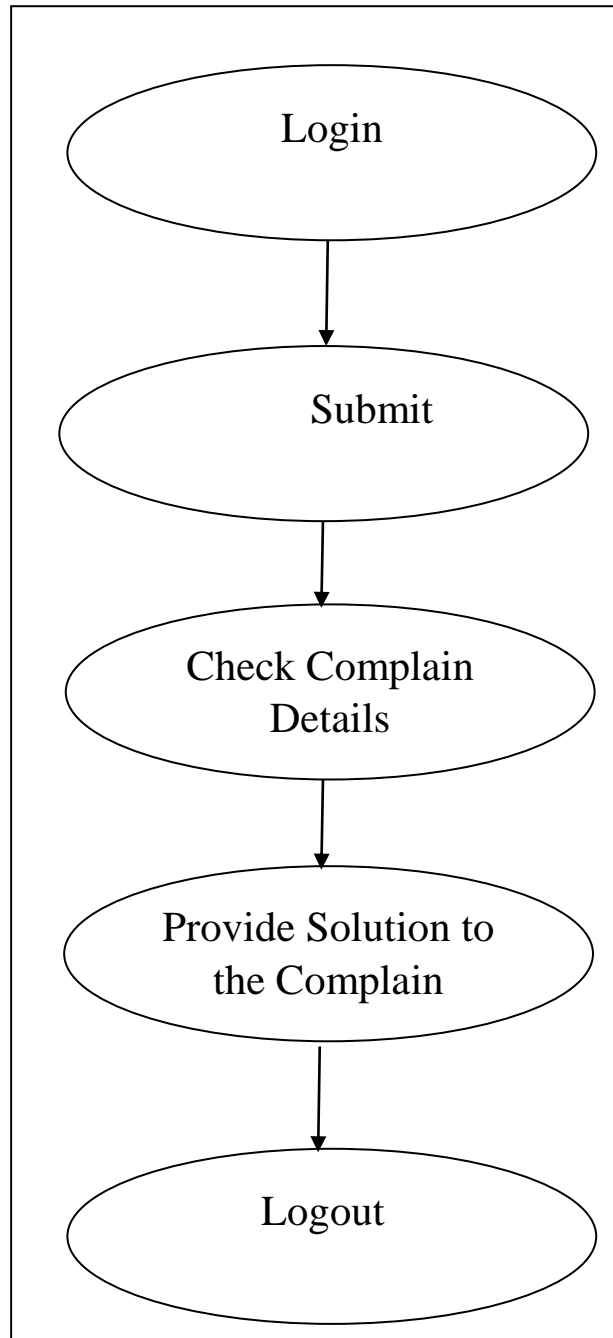


Fig1. 5 shows the entire Page for final implementation of an appeal process for admin

3.8 Categories of Design

3.8.1 Input Design

The input forms are designs generally based on the required data that needs to be stored in the system. The data are apprehended through the keyboard and stored on a magnetic disk in the database for later processing. So, the new system is collected mainly of student logging in the complaint and waiting for management response. The configuration of data likewise focuses on monitoring the measure of evidence obliged, controlling the slips, keeping a strategic distance from rescheduling, avoidance additional steps and keeping the methodology basic intact. Data configuration is the process of translating a user-oriented report of the input into a computer-based system.

3.8.2 Output Design

The output from the main system aimed is generated from the system inputs. More of the output generated is on complaint/grievance information. This involves the resultant documentation generated after processing of data supplied to the system about the appeal and processing system.

The output here can be showed information to the appeal of complaints, student's staff details,

Management/administrator details, registration details etc. change of password etc.

3.8.3 Database Design:

Once the inputs are collected, the obtained data are processed properly for effective use. The data processed is kept in the database as evidence for subsequent use. Any complaint details can be stored into the database for an effective use later.

3.9 Database Table

Table 3.1: Table for Student/User details

S/N	Field name	Type name	Length	Default
1	ID	Int	10	NOT NULL
2	Name	Varchar	60	NOT NULL
3	MatricNumber	Varchar	45	NOT NULL
4	Department	Varchar	45	NOT NULL
5	Phone	Varchar	45	NOT NULL
6	Password	Varchar	45	NULL
7	Email	Varchar	45	NOT NULL
8	DateRegistered	Varchar	45	NOT NULL
9	PasswordChanged	Tinyint	1	NOT NULL

Table 3.2: Student Validator Details

S/N	Field name	Type name	Length	Default
1	MatricNumber	Varchar	20	NOT NULL
2	Department	Varchar	45	NOT NULL
3	Email	Varchar	45	NOT NULL
4	ID	Int	10	NOT NULL

Table 3.3 Admin Details

S/N	Field name	Type name	Length	Default
1	ID	Int	10	NOT NULL
2	Name	Varchar	45	NOT NULL
3	AdminId	Varchar	45	NOT NULL
4	Email	Varchar	45	NOT NULL
5	Phone	Varchar	45	NOT NULL
6	Password	Varchar	45	NOT NULL
7	DateRegistered	Varchar	45	NOT NULL
8	PasswordStatus	Varchar	45	NOT NULL

Table 3.4 Admin Validator Details

S/N	Field name	Type name	Length	Default
1	AdminId	Varchar	20	NOT NULL
2	Department	Varchar	45	NOT NULL
3	Email	Varchar	45	NOT NULL
4	Id	Int	10	NOT NULL

CHAPTER FOUR

SYSTEM IMPLEMENTATION, TESTING AND INTEGRATION

4.0 Synopsis

Implementation is the phase of the project where the hypothetical outline is transformed into a occupied system. It is basically related with user activity or interaction and documentation. Change always happens about the exact time the user is consistently prepared or later. Execution can be mostly means sorting out other system plan into operation, which is the methodology of shifting another reviewed system outline into an operational process.

4.1 Choice of Programming Language

The proposed system is writing with various web application development techniques.

This includes the following:

4.1.1 Hypertext Markup Language (HTML), the regular content positioning dialect for reports on the interrelated registering system known as the World Wide Web. HTML reports are gratified documents that contain two sections: method that is intended to be rendered on a machine monitor; and markup or labels and tag, encoded data that runs the gratified organization on the screen and is for the most part avoided the client to make utilization of the tag. A few labels in a HTML file focus the way positive content, for example, titles will be designed. The improvement of a Hyper Text Markup Language (HTML) and the addition of a Hyper Text Transmission Protocol (HTTP), and shaping World Wide Web in right on time 1990s Terje (2005). This means that since it is possible to access the data on the network, then HTML was used to design the web pages.

4.1.2 mySql:

Chosen because,

- i. Effective in developing database driven web sites or web-based application.
- ii. Is an open program or open-source database, it does not cost any amount of money.
- iii. The most popular database systems in use today are relational databases. A language called Structural Query Language.

MySQL brings the ease of use, scalability, and performance that has made **MySQL** the world's most popular open-source database.

MySQL is the database paradigm and enable **PHP** and Apache to work together to access and display data in a readable format to a browser.

4.1.3 PHP programming language (server-side scripting language)

PHP (Hypertext Pre-Processor) is a server-side web programming language that is widely used for web development. However, there are many languages which are used for web development or web programming. But among all of them PHP is the most popular web scripting language.

PHP language has its roots in C and C++. PHP syntax is most similar to C and C++ language syntax. So, programmers find it easy to learn and manipulate. MySQL is used with PHP as back-end tool. MySQL is the popular online database and can be interfaced very well with PHP. Therefore, PHP and MySQL are excellent choice for webmasters looking to automate their web sites.

This application uses Apache (Wamp Server) and MYSQL to achieve this application.

4.2 The System Main Menu Implementation

- i. Student/Admin Id: It provides a space where a registered student and staff can input their Respective generated ID name or matric number follow by password.
- ii. Password: a security question delivered for a student, staff and administrator to access any information on complaints management system.
- iii. User sign up: a place whereby any member of the university can come in and sign up, provided the particular person is a member of the university.
- iv. Login: a place for any user to login with their Admin/student ID and password

4.3 The Complaints management System Modules

The system was developed using PHP/MySQLi, MySQL Database, HTML, CSS, JavaScript, and Bootstrap. The admin has an important role here, he/she has to approve the complaints about the proceeding processes. He/She is in charge of managing the data in the database such as the category and subcategory of the complaint. The admin is the one who can update the status of each complaint. The users can register their account or system credential at the public side of the system. They can submit their complaint or queries by filling up the form provided in the system. They can also view the history of their complaints where they can see the update of the status of their complaints.

Features

Public

- Portal
- Registration
- User Login
- Recover User Credential

Users

- Secure Login
- Dashboard
- Submit Complaints/Queries
- View Complaints History
- Update Account Details

Admin

- Secure Login
- Manage Complaint
- View Complaint Details
- View Complainant Details
- Update Complaint Status
- View List of Users
- Manage Category
- Manage Sub-Category
- Manage State
- View Users Login Logs
- Update Account Password

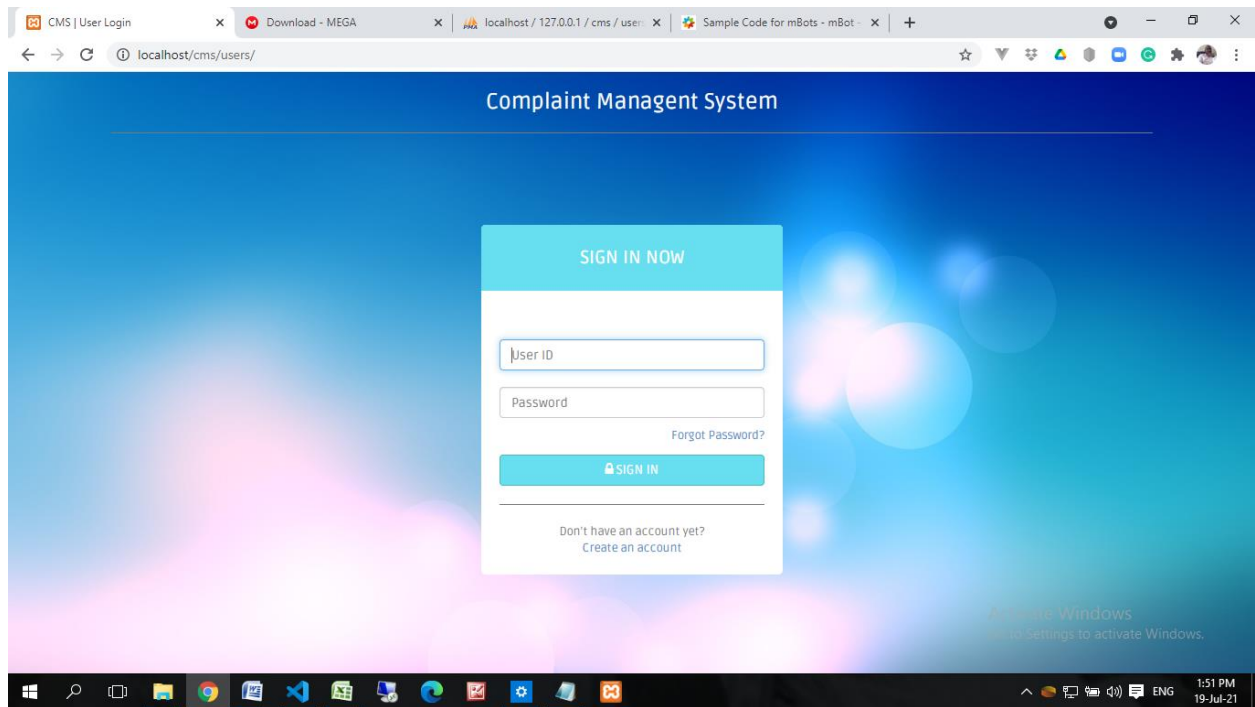


Fig 2. 1 Login Page

4.2 Sign up Page: The user page provided access to users (student, Admin, etc.) to sign up.

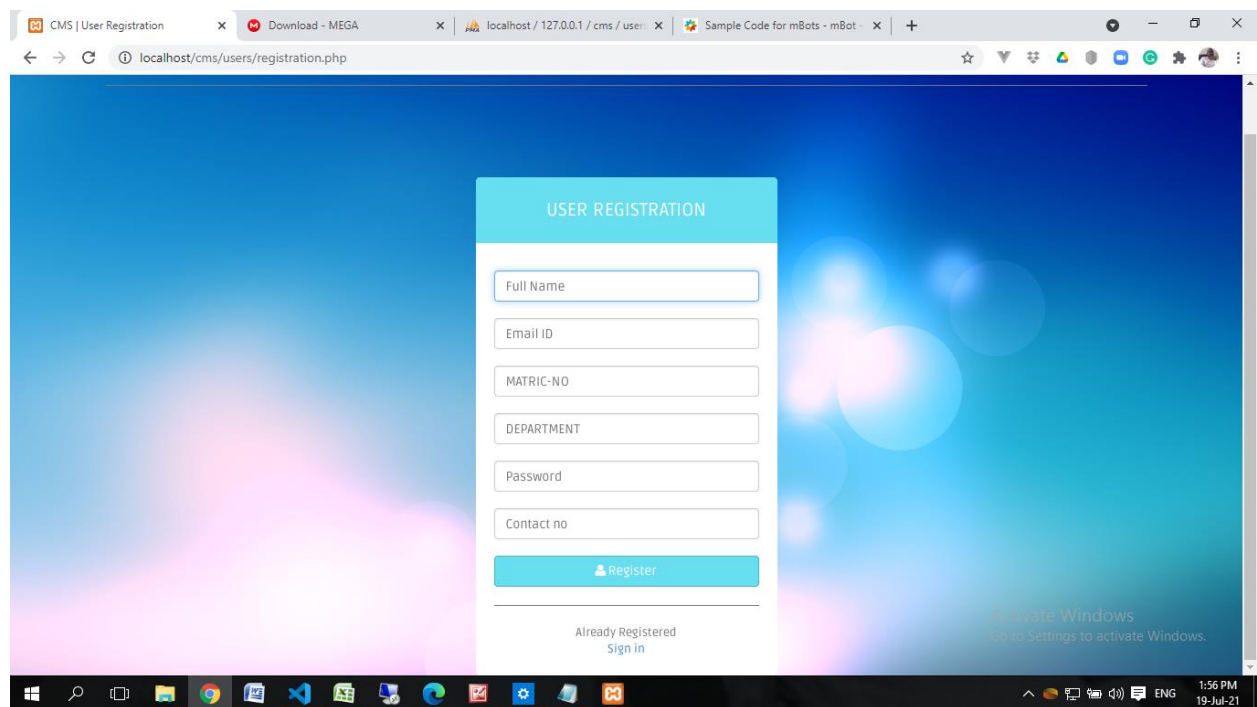


Fig 2. 2 Student Sign up Page

4.3 Admin Page: The Admin page provides access for the admin to sign up

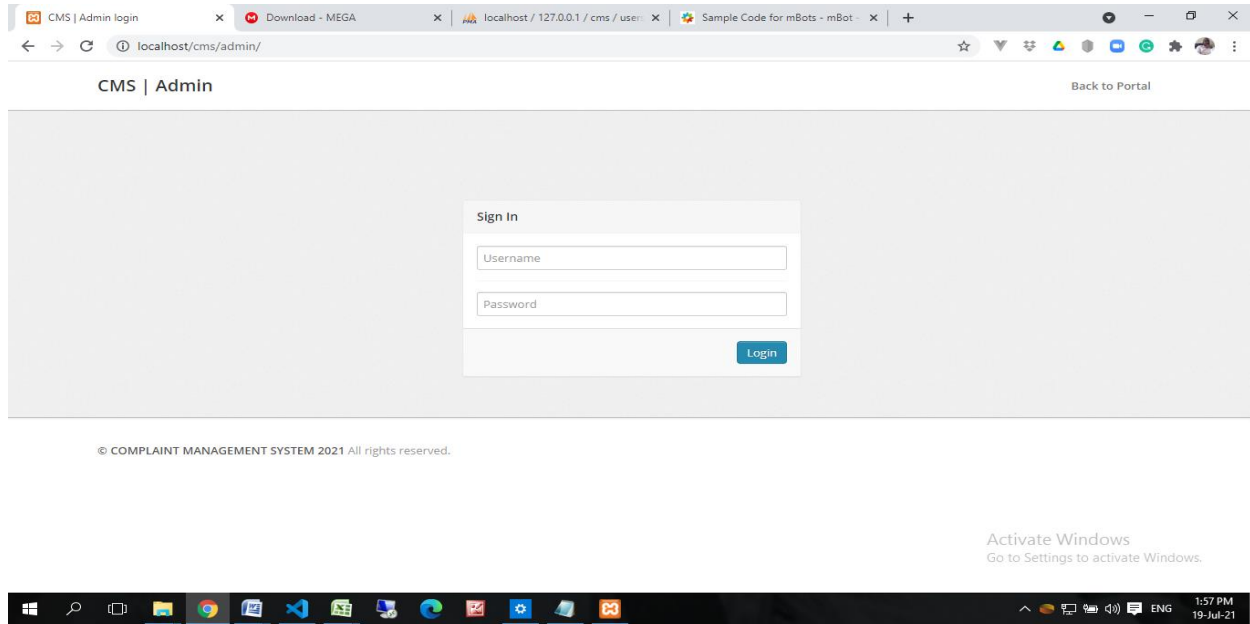


Fig 2. 3 Admin Sign Up Page

4.4 User dashboard: The Admin page provides access for the admin to sign up

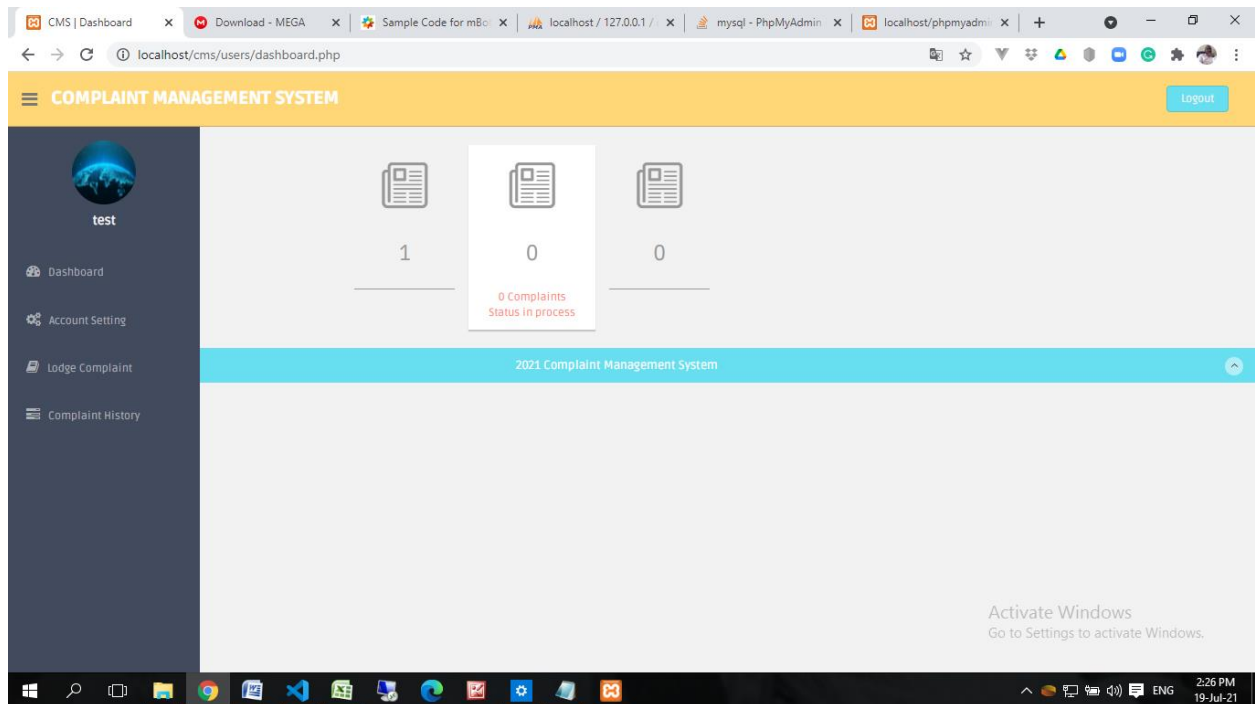


Fig 2. 4 User Dashboard

4.5 Category Page

The screenshot displays the 'Admin | Category' page in a web browser. The page is titled 'CMS | Admin' and shows the user 'Admin' logged in. On the left, there is a sidebar menu with options: Manage Complaint, Manage users, Add Category, Add Sub-Category, Add State, User Login Log, and Logout. The main content area is divided into two sections. The top section, titled 'Category', contains a form with a 'Category Name' input field (placeholder: 'Enter category Name') and a 'Description' text area. A 'Create' button is located below the form. The bottom section, titled 'Manage Categories', includes a 'Show' dropdown set to '10' entries and a search box. Below this is a table with the following data:

#	Category	Description	Creation date	Last Updated	Action
1	Academic Complaint	Complaints regarding to academic issues	2021-07-14 14:34:51		✎ ✚
2	Non-Academic Complaint	Complaints regarding to non academic	2021-07-14 14:39:13		✎ ✚

Fig 2. 5 Category Page

4.6 Sub Category Page

The screenshot displays the 'Sub Category' management page in a CMS. The page is titled 'CMS | Admin' and shows a user profile 'Admin'. On the left sidebar, there are several menu items: 'Manage Complaint', 'Manage users', 'Add Category', 'Add Sub-Category', 'Add State', 'User Login Log', and 'Logout'. The main content area is divided into two sections. The top section is a form for creating a new sub-category, featuring a 'Category' dropdown menu (currently set to 'Select Category') and a 'SubCategory Name' text input field. A 'Create' button is positioned below the form. The bottom section is a table listing existing sub-categories. The table has columns for '#', 'Category', 'Description', 'Creation date', 'Last Updated', and 'Action'. There are four entries in the table, all with 'Action' icons (edit and delete).

#	Category	Description	Creation date	Last Updated	Action
1	Academic Complaint	Result Issues	2021-07-14 14:36:40		✎ ✕
2	Academic Complaint	Result Issues	2021-07-14 14:37:48		✎ ✕
3	Non-Academic Complaint	Hostel Issues	2021-07-14 14:40:08		✎ ✕
4	Non-Academic Complaint	Water Supply Issues	2021-07-14 14:40:43		✎ ✕

Fig 2. 6 Sub Category Page

4.3 System Testing and Integration

This software has been input with information/data and it is working perfectly and admirably. This was carried out during the process of utilization of appropriately chosen information; guarantee resolute quality and precision of yield. The test data comprises of defined Student's close to home restrained elements and complaint points of interest. The separate client names and passwords, ID were utilized to login to the database, mistake message was shown if the staff/understudy ID and secret key are incorrect.

All these varying data used in testing the system's pe new system will achieve its objective and purpose.

The general deployment procedure consists of many interacted activities with possible transitions between them. The integration would be performed using VScode and SQL server. This entails a web server where users can access the site using an internet explorer or any other web browser.

4.4 The Test Plan

Creating a decent and sensibly sound test planning or designing is extremely basic to creating a bug free programming system or software. Test information which has been particularly recognized for utilization in tests, ordinarily of a machine system or programming system. Some information may be used as a part of any supporting path, usually to check that a given set of info to a certain capacity creates some standard result from any data of information.

4.5 Findings and Discussion

The recently generated online complaint management system as represented in section three tackles issues accomplished utilizing the record based manual system as it provides lodgings speedy information era that spares time. The system provided for through access secret key called

password for the objection organizer. The online electronic complaint management system has the ability to help the objection initiator to perform different form and capacities currently observing the exercises of the distinctive protest in the University. The system has the ability to keep up a database of all affirmations in the college by permitting the complaint coordinator to edit, include, perspective, upgrade, erase and produce reports from the database. Thus, if the management system is applied and enhanced, there will be progresses in efficiency of complaints and monitoring by the University management.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

In the existing system, complaints were operating merely manually. A complaint and appeal management system are an innovation or invention approach to improve the service of the student affairs work and it should be well acknowledged or accepted by the university in addition to existing means.

In an extreme exposure, during the investigation work of this project, I was able to realize that the unfailing problem encountered is as a result of improper storage of data/information in the complaints management system.

Essentially, the various problems associated with complaints management was identified in this study, the aim as well as the specific objectives were stated. The methodology for achieving that stated objectives was described. The developed system was finally tested for using an adequate software testing technique.

5.2 Conclusion

In conclusion, the ability of the computerized system to process information faster has made it one of the fastest creating advances. The computerized complaint management system, if deployed, would eliminate all the problems associated with the existing method of complaints management within MTU, as well as any other institutions with similar complaint management business processes.

5.3 Recommendation

I strongly recommend the deployment of this electronic complaint management system in handling complaint-related matters at MTU

5.4 Further Work

Internet usage have finally become portion of our modern-day life and internet is now a very fast and efficient means of data or information dissemination, I hereby recommend the following research work to be carried out in relation to this study:

- i. SMS alert capabilities should be integrated into the system for faster communication
- ii. Further investigation should be carried out to improve an application to this new system that will enable complaint users request services from the facility through SMS services or packages.

REFERENCES

Adepoju S. (2014); Organization of Programming language Java programming language uses

(Unpublished lecture note); Department of computer science, National Open University

Asaba, Delta, state Nigeria.

Automating the appeals and complaints process Retrieved from

<http://www.sungard.com/iworkhealthcarebook/Healthcare>

[whitepaperappealandcomplaint](#)

Bergel, M., & Brock, C. (2018). The impact of switching cost on customer complaint behaviour and service recovery evaluation. *Journal of service theory and practice*, 28(4), 458-483.

DOI 10.1108/JSTP-02-2017- 0035

Berry, R., Tanford, S., Montgomery, R., & Green A. (2014). How we complain: The effect of personalty on consumer complaint channels. *Journal of Hospitality & Tourism Research*, 20(10), 1-28. DOI: 10.1177/1096348014550921

Blodgett, J. G., Hill, D. J., & Tax, S. S. (1997). The Effects of Distributive, Procedural, and ~ Interactional Justice on Postcomplaint Behavior. *Journal of Retailing*, 73(2), 185-210.

Chang, Chiao-Chen and Yang-Chieh Chin. "Comparing consumer complaint responses to online and offline environment." *Internet Res.* 21 (2011): 124-137.e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science

Complaint handling and resolution policy Retrieved 2014 from International Finance Corporation 2121 Pennsylvania avenue, NW Washington, dc 20433, USA Five steps in processing complaint mechanism P 20. Retrieved September 2009 from <http://www.IFC.org>

Davidow, M. (2000). The Bottom Line Impact of Organizational Responses to Customer Complaints.

Davidow, M. (2003). Organizational Responses to Customer Complaints: What Works and What Doesn't. *Journal of Service Research*, 5(3), 225-250. DOI:10.1177/1094670502238917

Defensive marketing strategy by consumer complaint management. *Journal of marketing research*, 24, 337-346.

Definition of academic complaint retrieved from <http://www.admin.cam.ac.uk/univ/so/2016/chapter 02.section 26.html>

Definition of design Retrieved from <http://www.dictionary.reference.com/browse/computer+sciencehttp://www.i.word.com/id ictionary/computer/i20science>

Estelami, H. (2000). Competitive and procedural determinants of Psychographic variables on the theory

Gelbrich, K., & Roschk, H. (2011). A Meta-Analysis of Organizational Complaint Handling and Customer Responses. *Journal of Service Research*, 14(1), 24-43. DOI: 10.1177/1094670510387914

Gherwada, Dhaval , et al. "Mobile Application Interface To Register Citizen Complaint." Mobile Application Interface To Register Citizen Complaint, vol. 01, no. 03, 03 June. 2015.

Gruber, T., Szmigin, I., & Voss, R. (2009). Developing a deeper understanding of the attributes of effective customer contact employees in personal complainthandling encounters. *Journal of Services Marketing*, 23(6), 422-435. DOI 10.1108/08876040910985889

Hamzelu, B., Gohary, A., Nia, S. G., & Hanzae, K.H. (2017). Does involvement shapes consumers response to product failure. *Asia pacific journal of marketing and logistics*, 29(2), 283-304. DOI 10.1108/APJML-03- 2016-0042

Hansen, T., Wilke, R., & Zaichkowsky, J. (2010). Managing consumer complaints: differences and similarities among heterogeneous retailers. *International Journal of Retail & Distribution Management*, 38(1), 6-23. DOI 10.1108/09590551011016304

<http://www.productivitypartners.com.au/>

<http://www.uic.edu/depts/oe/Nondiscrimination.htm>

Huppertz, J. W. (2007). Firms' complaint handling policies and consumer complaint voicing. *Journal of Consumer Marketing*, 24(7), 428-437. DOI 10.1108/07363760710834843

Johnston, Robert. (2001). Linking complaint management to profit. *International Journal of Service Industry Management*. 12. 60-69. 10.1108/09564230110382772.

Journal of Hospitality & Tourism Research, 24(4), 473- 490. DOI 10.1177/109634800002400404

Keng, K. A., Richmond, D., & Han, S. (1995). Determinants of Consumer Complaint Behaviour. *Journal of International Consumer Marketing*, 8(2), 59- 76. DOI: 10.1300/J046v08n02_05

Kim, M. G., Wang, C., Mattila, A. S. (2010). The relationship between consumer complaining behaviour and service recovery. *International Journal of Contemporary Hospitality Management*, 22(7), 975- 991. DOI 10.1108/09596111011066635

M. Leat, (2007) *Exploring Employee Relations*, Butterworth-Heinemann Publishing, Oxford.

Marchington, A. Wilkinson (2005) *Automation of web Application by Human Resource Management at Work* Chartered Retrieved from Institute of Personnel and Development Publishing, London, 2005

Maxham, J. G., Netemeyer, R. G. (2002). Modeling customer perceptions of complaint handling over time: the effects of perceived justice on satisfaction and intent. *Journal of Retailing*, 78, 239-252.

Maxham, J. G., Netemeyer, R. G. (2003). *Firms Reap What They Sow: The Effects of Shared Values and*

Mccoll- Kennedy, J. R., Daus, C. S., & Sparks, B. A. (2003). The Role of Gender in Reactions to Service Failure and Recover. *Journal of Service Research*, 6(1), 66-82. DOI: 10.1177/1094670503254286

Mhapsekar, Aditi & Kulkarni, Priyanka & Nagarsekar, Uma & Kalbande, Dhananjay. (2012).

Voice enabled Android application for vehicular complaint system: Using GPS and GSM-SMS technology. 520- 524. 10.1109/WICT.2012.6409133.

Nasr, Osman & ali, enwa. (2015). Online Complaint Management Systems. International Journal of Science and Research (IJSR). 2. 305-307.

Ngai, E. W. T., Heung, V. C. S., Wong, Y. H., & Chan, F. K.Y. (2007). Consumer complaint behaviour of Asians and non-Asians about hotel services. European Journal of Marketing, 41(11), 1375-1391. DOI 10.1108/03090560710821224

No 14. Retrieved 6 February, 2007. *The Values for Complaints and Appeal Management Policy* Retrieved from

http://www.ombo.nsw.gov.au/publication/PDF/factsheets/FS_PublicSector_14_Natural_Justice.pdf

NSW Ombudsman (2005). Natural justice/proceduralPublicsectoragenciesfactsheetfairnes

of Exit, Voice and Loyalty of Customer Complaints behaviour in banks. Journal of Competitiveness, 7(4),

Ombudsman (2005) The Benefit of having an internal

complaint/complaints System by

<http://m.ombudsman.gov.ie/en/publications/Guidelines-for-public-Bodies/Listen-Respond-Learn-Improve/benefit-of-having-an-internal-complaint-system.html>

Operation of terms Lecturer Definition Retrieved from

<http://www.dictionary.com> and Microsoft Encarta Retrieved

2009. Microsoft Corporation.

Park, S. G., Kim, K., O'Neill, M. (2014). Complaint behavior intentions and expectation of service recovery in individualistic and collectivistic cultures. *International Journal of Culture, Tourism and Hospitality Research*, 8(3), 255-271. DOI 10.1108/IJCTHR-12-2013-0084

Perceived Organizational Justice on Customers' Evaluations of Complaint Handling. *Journal of Marketing*, 67, 46-62.

Phau, I., & Baird, M. (2008). Complainers versus noncomplainers retaliatory responses towards service dissatisfactions. *Marketing Intelligence & Planning*, 26(6), 587-604. DOI 10.1108/02634500810902848

Singh, J. (1991). Industry Characteristics and Consumer Dissatisfaction. *The Journal of Consumer Affairs*, 25(1), 19-56. Singh, J. & Pandya, S. (1991). Exploring the effect of consumer dissatisfaction level on complaint behaviour. *European Journal of Marketing*, 25(9), 7-21.

Soares, R. R., Zhang, T.T., Proenca, J. F., & Kandampully, J. (2017). Why are Generation Y consumers the most likely to complain and repurchase? *Journal of Service Management*, 28(3), 520-540. DOI 10.1108/JOSM-08-2015-0256

Sousa, Sergio & Abreu, Patrícia & Lopes, Isabel. (2012). Using Six Sigma to improve complaints handling.

Stauss, B., Seidel, W. (2019). Effective complaint management. Springer Publication. Student complaint & appeal policy and procedure P 4. Retrieved from Student's Handbook, Procedural for Handling (2013/2014) Complaints and Student Complaint against Staff Retrieved from Federal University of technology, Niger State, Nigeria.

Tax, S. S., Brown, S.W., & Chandrashekar, M. (1998). Customer Evaluations of Service Complaint Experiences: Implications for Relationship Marketing. *Journal of Marketing*, 62(2), 60-76.

Terje H (2005). HTML from Digital text cycles from Medieval Manuscript to Modern Mark up: *Journer of Digital Information* p: 309

Tronvoll, B. (2007). Customer complaint behaviour from the perspective of the service-dominant logic of marketing. *Managing Service Quality: An International Journal*, 17(6), 601-620. DOI 10.1108/09604520710834966

V. K. Kandhari and K. D. Mohinani, "GPS based complaint redressal system," 2014 IEEE Global Humanitarian Technology Conference - South Asia Satellite (GHTC-SAS), 2014, pp. 51-56, doi: 10.1109/GHTC-SAS.2014.6967558.

Zairi, M. (2000). "Managing customer dissatisfaction through effective complaints management systems. *The TQM Magazine*, 12(5), 331-337. DOI 10.1108/09544780010341932