A MOBILE APPLICATION FOR A COMPLAINTS MANAGEMENT SYSTEM FOR THE MOUNTAIN TOP UNIVERSITY

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2021

DECLARATION

I hereby declare that this project has been written by me and is a record of my own research work. It has not been presented in any previous application for a higher degree of this or any other University. All citations and sources of information are clearly acknowledged by means of reference.

_____

OGUNDARE, OLUWATOYOSI STEPHEN

_____

Date

CERTIFICATION

This Project titled, **A MOBILE APPLICATION FOR A COMPLAINT MANAGEMENT SYSYTEM FOR THE MOUNTAIN TOP UNIVERSITY**, prepared by **OGUNDARE OLUWATOYOSI STEPHEN** in partial fulfillment for the requirements for the degree of **BACHELOR OF SCIENCE (Computer Science)**, is hereby accepted.

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Accepted as partial fulfilment of the requirements for the degree of BACHELOR OF SCIENCE (Computer Science)

DEDICATION

This Project is dedicated to God Almighty, my late Dad and to my Mum.

ACKNOWLEDGEMENTS

I owe my profound, best and impeccable gratitude to God Almighty who gave me the strength, time, courage and divine wisdom with outstanding provision to me from the beginning to the completion of this work. I express gratitude to my supervisor, Dr. (Mrs.) Chinwe P. Igiri God bless you Ma and to my HoD Dr. M.O. Adewole. My heart-felt gratitude also goes to the Dean, College of Basic and Applied Sciences Dr. Ofudje, and all other staff members of the department of Computer Science: Prof. Idowu, P. A., Dr. Kasali, F. A., Mr. J. A. Balogun, Mr Ebo, and other members of staff.

I acknowledge the constant support of my mentors who had contributed to my academic achievement. They include Late Pst. Oluwadare, S., Mrs. Oluwadare, C.O., I pray God would continue to increase her knowledge. I will forever be grateful and give a special thanks you to my mum Mrs Oluwadare, C. O. and to Dr. D.K. Olukoya, who sacrificed wealth and enjoyable moments of their lives for the sake of my success; and my siblings: Oluwatosin, Tolulope and Oluwatomilayo for their prayers and support. Lastly, I specially appreciate my loving, wonderful and glowing Best-Friend, Miss, Oluwadolapo H., for her love, patience, support, words and actions taken to ensure I complete this programme in time. I love her and God will continue to bless her. I would not forget to remember all the students in the Department of Computer Science and Mathematics, for making my stay a worthwhile, I say God bless you all richly.

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ABSTRACT

Academic development may be of different concerns in the academic community in order to facilitate social and educational system functioning. Several problems in the learning setting that should be adequately addressed for an efficient educational system to take place requires critical attention. The inability of students to communicate their complaints to the school is a major challenge in Mountain Top University.

This mobile application for a Complaint Management System could be used at the university to mitigate some of these challenges. It evolved from the online file keeping system used to gain and get necessary information and data in the institution. With the help of the internet, mobile devices could be used to send complaints to the school management which the administrator could access at ease. This project work was built with React Native, Node.Js and Firebase for the front-end, middle tier and database respectively. It would be a central hub for the easy submission of complaints. As the use of computers and mobile systems are growing fast globally, introducing the electronic system for communicating and passing valid information would enable institutions to fit into the current global trend. Other more secured authentication methods (Single-factor, Two-factor, multi-factor authentication) could be used to secure complaints management systems in future work.

The application performed all it's was said it will accomplish which was taking complains.

The application was seen as an important factor to the school in conclusion

KEY WORDS: *Complaints, Management, Automated, Academic, College, Students, Institution, Registration, Mobile Application.*

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CHAPTER ONE

1.1 INTRODUCTION

A complaint is an expression or statement of dissatisfaction by one or more students with an institution's action, inaction, or service standards given by or on behalf of the school, on or off-campus, the student(s) have not been able to settle through informal channels. The implementation of this system does not generally deal with issues about an admission decision or a complaint against the function of student representatives.

(According to Samuel, 2018), when a complaint involves various issues that do not clearly fit into the category of complaint, the issues may be considered together with written consent from all parties. The institution reserves the authority, depending on the specific circumstances of each occurrence, to either suspend one procedure pending the outcome of the other or to opt out of one operation in favour of the other.

1.2 BACKGROUND OF THE STUDY

Academic development may be of different concerns in the academic community in order to facilitate social and educational system functioning. Several problems in the learning setting that should be adequately addressed for an efficient educational system to take place requires critical attention, such as the university's complaints management system. This dilemma had triggered a slew of issues for academic advancement around the board. This project explores a variety of options for managing and resolving academic complaints in order to promote this strategy. This involves the need for administrators to make every effort to address any potential or

real academic grievances or issue been reported, as formally as possible, when the opportunity arises.

(Wilkinson M. a., 2005) defined complaint handling methods as a result of the labour relations environment in the 1960s and 1970s, when there was a more explicit struggle for workplace control. This had two major consequences. To begin with, it established the need for explicit techniques so that all experts were aware of them, as well as the decision-makers who oversee tacit rules and the actions that could be taken against them if these guidelines were charged. Furthermore, it sparked a greater emphasis on the clarity and continuity of executive actions in determining the demonstrations, Marchington and (Wilkinson, 2005). The aim of the complaint management system's mobile application is to maintain an efficient, timely, and fair complaint handling system that is easily accessible and free to complainants (students). This initiative outlines the policy and procedures for managing and addressing grievances, as well as appealing for an adverse case. In order for this process to take place, the mechanism that would manage complaints and appeals must be automated. Automation is the concept of using a computer system to perform activities or processes such as circulation, execution, and so on. In response to Marcus's assertion, the design and implementation of an online complaint management system may provide significant benefits to users (Marcus, 2000). Students have the right to register a complaint about any unit, function, or service provided by the institution or on its behalf. Given the necessity of filing complaints, which are almost usually made on a regularly, an online system to assist quick complaint submission and rapid decision making is required. As a result, an online student complaint management system was critical.

1.3 STATEMENT OF THE PROBLEM

We identified that the report slot that was on the school's website has been taken off. Although before then, it was just stated as a comment or recommendation box. We feel it is not capable of addressing all the users (admin and students) issues. Also, it was generally opened to the public. The complaint management system is proposed as a mobile application to address students' issues in the university.

1.4 AIM AND OBJECTIVES OF THE STUDY

The aim of this project is to develop a mobile application for managing complaints with the following specific objectives:

a. to identify the requirement to implement a local content system for the university community;
b. to design the system using flutter frame work;
c. to implement the system and deploy the system for MTU students.

1.5 SCOPE OF THE STUDY

The project is designed for the Mountain Top University internal use. The mobile application requires internet. The platform is structured to allow students to log in and submit grievances and requests for management's response.

1.6 SIGNIFICANCE OF THE STUDY

This study would enhance the current system, which is manual and difficult to track complaints in the University. It would also improve the database system, help its performance, and also protect the data. The new system would save time, minimize improper complaint treatment, and strengthen student, lecturer and management relationships. The system is portable and user friendly, as students can log in at any time and management can respond to student grievances more easily.

In summary, It would provide a convenient platform for students to file complaints, help management get information about complaints and they could come up with a quick decision in resolving it.

1.7 ORGANIZATION OF THE RESEARCH

There are five chapters to this study project. The introduction, background of the study, statement of the problem, goal and objectives of the work. Also, the significance, scope, organization of the research, and definition of terms are all covered in Chapter One. The second chapter focuses on the literature review and covers theoretical background as well as other scholars' contributions on the subject. The third chapter is about system analysis and design. It describes the research technique utilized in the system's development. The fourth chapter covers system implementation and documentation, programming language selection, and system implementation requirements. Chapter five focuses on the study's overview, limitation, conclusion, and suggestions.

1.8 DEFINITION OF TERMS

Basic entities for this research are as follows:

MOBILE APPLICATION

A mobile application is a piece of software designed and implemented to be used on small, wireless computing devices like smartphones and tablets, rather than desktop or laptop computers.

MANAGEMENT

A process of efficiently and successfully organizing, leading, inspiring, and regulating an organization's human, financial, physical, and information resources in order to achieve its goals.

DATABASE

A computer-based structured collection of data that can be accessed and used in a variety of ways.

RELATIONAL DATABASE

Is a type of database that stores and makes available data points that are related to one another. The table's columns include data attributes, and each record normally contains a value for each attribute, making it easier to link data points together.

COLLEGE

This is an environment in a school, a division in a university which consists of administrators and other paramount staffs, whose facilitate teaches and offer degrees in different academic fields.

ACADEMIC

Academic is a term used to describe things that have to do with schoolwork, college work, and university work, especially work that involves studying and reasoning.

REGISTRATION

At the start of an academic year, the process of enrolling in a college or university, selecting classes, and paying fees.

LECTURER

This is a person who tutors or gives lectures to a student or set of students in an institution. It can also be called an occupation.

COMPLAINT

The act of expressing dissatisfaction with a situation.

DISCRIMINATION

Unfair treatment of an individual or group, often due to discrimination based on color, ethnicity, age, religion, or gender.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION TO RELATED CONCEPTS

This chapter provides a review of literature on the factors influencing the successful implementation of a Complaints Management System CMS. The presentation of this chapter begins with the conceptual review, review of related literature and the summary of the literature reviewed. In conventional institutions, complaints systems are considered a vital source of information. (Weke, 2018). As a result, since the complaint management is regarded as crucial source of information consumer satisfaction. Any measure of complaint behaviour should be based on satisfaction. A complaint management is a system that allows customers, students and staff to register their dissatisfaction with the organization or institution that is what is project is all about. The main goal of this project is to get in the issues happening within the university and to meet up the needs of staff and students in the school (Weke, 2018).

2.2 RELATED WORKS

(Ciesla, 2019) developed a “Complaint Management System in Building Material Factory”. The goal of the study was to confirm the hypothesis that excellent complaint management could be one of a company's competitive advantages in the field of logistic customer service. The essay's theoretical section establishes the framework for the complaint management procedure as an integral part of customer service's post-trade sales process. Assumptions concerning the complaint management system

are created based on manufacturing business in the construction industry (Ciesla, 2019). Guidelines for a successful design and execution. It described how to handles complaints simply and effectively. It is limited to Complaints relating to materials used in building factories and other building projects.

(Azahari, 2018) developed an "ICT Management System". Because ICT is increasingly being used in various activities, this study focuses on the ICT component of the Complaint Management System. The use of ICT in education is critical not only for improving student teaching and learning experiences but also to help members of the educational institute, as well as to increase productivity, efficiency, and effectiveness. In any firm, employee performance is critical. The purpose of this case study is to learn more about how ICT and equipment maintenance concerns are received, addressed, and resolved. The study was able to diagnose several issues, including decision-making procedures, communication strategies, and personnel, based on the findings. Liza (Azahari, 2018). The study offered several findings, advice on how to deal with issues including systematic decision-making method, a matrix of responsibility assignment, and installing, a collection of information technology infrastructure. It is limited to Complaints relating to materials used in building factories and other building projects.

(Osaiga Felix Isibor, 2014) developed a "Complaint Management System for Nigeria Service Industry". The goal of this study was to look into how consumers in Nigeria's restaurant and transportation service industries felt about the complaint management system (CMS). A structured questionnaire was developed and sent to 400 clients from

each sub-sectors. SPSS was used to conduct the mean analysis and a Z-test to elicit their thoughts on CMS to the data obtained at a 0.05 significance level. The results show that the overall assessment of CMSs is moderately positive and satisfied. There is also a significant disparity in the outcomes. CMS maintenance, between the restaurant and transportation, with the restaurant's upkeep. Transportation is less well-known than CMS. On the other hand, both samples performed better. The most essential component was interactional justice, which was followed by the time/speed sub-dimension of distributive justice (Osaiga Felix Isibor, 2014). Based on the findings of this study, we recommend that businesses adopt initiatives to educate and re-educate employees about the importance of swift service and timely resolution of customer complaints. Given that consumer complaints are beneficial as part of their marketing plan, businesses should encourage their customers. to draw the attention of retailers and producers to their problems (Osaiga Felix Isibor, 2014).

(Nasr O. A., 2015) developed an “Online Management System(s)”. The Online Complaint Management System (OCMS) is a system that enables citizens to resolve complaints online, saving time and preventing corruption. 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 making business changes. Osman A. (Nasr O. A., 2015). Consumer complaint management, often known as online complaint management (OCM), is a management technique that evaluates, analyzes, and responds to customer concerns. Consumer complaints, requests, and any other input are tracked, resolved, and responded to

using complaint management software. This project has the same focus just like my work, but the only major difference is that it is outside the educational field.

(Szczerba, 2017) developed an "Information and Communication Technologies in Complaints Management System". Information and Communication Technologies (ICT) is globally appreciated and it is dominating every sector of the economy. Despite this, their full potential has yet to be realized. One of these areas where ICT is used to a limited extent is complaint management. A method of collecting and processing big data associated with manufactured products and services supplied is the current issue in an era of rising customer or consumer expectations and requirements. This data set analysis can accept a variety of different types of data, which can then be converted into knowledge, (Szczerba, 2017). However, to achieve this, ICT must be used to integrate the flow of information about the manufacturing process or the provision of services with a complaint database. With the use of mobile devices, M2M, and the Internet of Things, the article resetting ways of acquiring data sets at various stages of the complaint management process. A communication problem in complaint management is also described, taking into account the emerging interference, which is directly related to employee data entry. As a result, a set of solutions in the field of information and communication technologies has been developed to improve complaint management effectiveness, facilitate decision-making, and contribute to the creation of competitive advantage in the market (Szczerba, 2017).

(Khan, 2018) developed an “IoT based Smart Waste Bin to Track Dustbin and Public Complaint Management System”. The study looked at the prevalence of Hepatitis C in the general population of District Swat, Khyber Pakhtunkhwa province, Pakistan, from January to October 2017. (Khan, 2018), A total of 1415 people were tested, with 74 (5.22%) of them showing signs of HCV infection. A total of 1415 people were tested. Males made up 759 (53.6%) of the total, while females made up 656 (46.4%). 32 of the 74 infected people (5.22 per cent). There were 42 males and 42 females in the group. The group with the most people who are HCV antibody positive were the ones between 36 and 55 years old (21 and 17 i.e. 7 per cent and 6.9 per cent) (Khan, 2018).

(Kadry, 2019) developed an “Electronic-Customer Compliant Management System (E-CCMS) - a Generic Approach”. The primary goal of this research was to determine the degree of correlation between customer complaint behaviours and complaints about the goods or services they receive. As a result, the paper proposes a generic Customer Complaint Management System approach that can be effective in reducing customer complaints by encouraging customers to participate in quality control of services or goods provided to them. (Kadry, 2019) To retrieve specific data, the "Service" has been used to connect various databases from various platforms. The system starts by discussing service implementation and web application interface development. The "Service" is then used to connect the three major Services in the proposed e-complaint web service. These services were investigated to obtain data from citizens and employees, as well as learn more about how they work. They were

then added to the web application, one for each operation that uses the service to restore data.

(Tag-Eldeen, 2018) Assessing the Impact of "Complaints Management System in Hospitality Organizations in Egypt: A Customer-organization Perspective". The purpose of this research is to look into the concept of complaints management, its importance, and the different approaches to implementing and dealing with it in Egyptian hospitality operations. The methodology used in this study drew on both primary and secondary sources. Secondary data provided the theoretical framework for the research after a thorough literature review. (Tag-Eldeen, 2018) The primary qualitative data came from semi-structured phone interviews that covered the various stages, issues, and approaches to the complaints management system. Operational customer service managers from a purposive sample of Egyptian hotel companies took part in the interviews. The findings of this study highlight the importance of implementing a proper complaints management system in hotel operations, highlight the various stages of the complaints process, and investigate the customer-organization relationship. Finally, it encourages hospitality professionals to create a vision and strategies for developing a complaints management system that supports and improves operational quality, as well as customer and employee retention programs (Tag-Eldeen, 2018).

(Mekimah, 2019) developed "Diagnosing the Reality of Customer Complaints Management System According to International Standards ISO 10002 in Algeria Telecom Company". The goal of this study was to evaluate the reality of the Algeria Telecom Company, Skikda Agency's customer complaint management system

following international standards ISO 10002 (Mekimah, 2019). On a sample of 96 workers in the study institution, the analytical descriptive approach and the case study method were used, with checklists as the primary source of data collection and analysis of strengths. An interview was used as a secondary source to support this claim (Mekimah, 2019). To test the study's hypotheses, we used the statistical program SPSS, which includes a set of statistical methods for analyzing the responses and opinions obtained. This project was made and based on to diagnosis of the Reality of Customer Complaints Management systems in the Telecommunication sector in (Mekimah, 2019).

(Thilakarathne, 2020) developed an "AI-based Public Complaint Management Chatbot". The project's goal is to develop an online public complaint management system with an AI-based Chatbot that allows residents to make smart and efficient complaints about issues in their neighbourhoods. This is an AI public based Complaint Management System that focuses on the public.

(Cetin, 2018) developed a "Customer Complaints Management; A Conceptual View". The goal of this article is to draw attention to customers, who, despite the "customer is king" mentality that pervades business strategies, are frequently overlooked in practice. The advantages of listening to customer complaints will set the company apart from its competitors, but this advantage requires a level of expertise that is not readily available to all operators (Cetin, 2018). Much theoretical knowledge that occurs on complaint management and examined the concept of customer complaints earlier in this article, then addressing issues such as the contribution provided to the

company's reasons for complaints and grievances listening earlier in this article. This is an online system based to get feedback from customers in terms of complaint and positive views about a particular set of thing(s) it was not stated to be limited to a private sector, but for my proposed project, it has a limited set of people who are allowed or granted access into inputting complaints in the system (Cetin, 2018).

(Margareth Mapunda, 2018) developed an "Exploring Students' Complaints Management In Higher Learning Institutions In Tanzania-Lessons From The College Of Business Education". 43 respondents were chosen from four academic departments using judgmental sampling: the academic office, the dean of students' office, the registrar's office, and the quality assurance office. Students and staff members who have direct access to student complaints were used as respondents in this study. (Margareth Mapunda, 2018). According to the findings, the majority of students (90 per cent) believe that colleges do not do enough to handle their complaints, with over 65per cent of their complaints being handled ineffectively (Margareth Mapunda, 2018). According to the study, colleges should use complaints to improve their daily operations, thereby resolving previously unknown issues.

(Samuel, 2018) developed an "Online Student Complaints Information Management System". The system was needed to address issues such as the accumulation of complaint files, the inability to retrieve complaint information when needed, delays in processing complaints and resolving issues, and the inefficiency of the manual method of submitting complaints. (Samuel, 2018) The study's goals include automating the students' complaint management process by developing an online

system for easy complaint submission, designing a system to help management view submitted complaints by querying the database, and designing a system to help students who have submitted complaints receive feedback. In software development, the spiral development model is used. The programming language used is PHP (PHP Hypertext Pre-processor), and the database is MySql. An online student complaint management system was found to be a critical system in institutional management. It acts as a central hub for the easy submission of complaints and the subsequent receipt of feedback in response to those complaints. (Samuel, 2018). More research into online student complaint management systems should be done, and the manual method of handling student complaints should be automated, according to the suggestion

2.8.1 SUMMARY OF RELATED WORKS

Table 2.1: Summary of Related Works

S/No.	Author(s)	Title of Paper	Method used	Limitation
1.	Osaiga Felix Isibor, and Edith Odia (2014)	Complaint Management System for Nigeria Service Industry.	Waterfall	Limited to Nigeria Industrial Services.
2.	Osman A. Nasr (2015)	Online Management System(s).	Agile	Online Management System(s).
3.	Beata Szczerba (2017)	Information And Communication Technologies In Complaints Management System.	Agile	It is a way of sending Information only through technological means.
4	Ajmal Khan (2018)	IOT based Smart Waste Bin to Track Dustbin and Public Complaint Management System.	Extreme	It is only limited to dustbin tracking at a particular environment and only with Hepatitis C.
5	Ashraf Tag-Eldeen (2018)	Assessing the Impact of Complaints Management System in Hospitality	Waterfall	It was only made to emphasize the significance of a proper management system for an

		Organizations in Egypt: A Customer-organization Perspective.		hotel.
6.	Filiz Asian Cetin (2018)	Customer Complaints Management; A Conceptual View.	Agile	For companies and bodies that deals with stuffs that relates with customers/goods.
7.	Liza Azahari (2018)	ICT Management System.	Agile	It is limited to the educational sector and the members in the institution. It cannot be used by companies and other non-educational bodies.
8.	Margareth Mapunda and Nasibu Rajabu (2018)	Exploring Students' Complaints Management In Higher Learning Institutions In Tanzania-Lessons From The College Of Business Education.	Agile	It is a system made for only Tanzania-Lessons From The College Of Business Education, that makes it non-usable to other institutions and other organizations within the country.
9.	Samuel, Samuel Etim (2018)	Online Student Complaints Information Management System.	Agile	This particular project is limited to the polytechnic of Uyo and its members.
10.	Esraa A. Afify and Mona A. Kadry	Electronic-Customer Compliant Management	Extreme	It is only based on an electronic system and without electric

	(2019)	System (E-CCMS) - a Generic Approach.		supply, a customer cannot make a complain.
11.	Maria Ciesla (2019)	Complaint Management System in Building Material Factory.	Agile	This project was developed in Poland and it was designed and implemented for material building factories that are based within the country.
12.	Sabri Mekimah (2019)	Diagnosing the Reality of Customer Complaints Management System According to International Standards ISO 10002 in Algeria Telecom Company.	Extreme	It is limited to the International Standards ISO 10002 in Algeria alone and cannot be used outside that region.

13.	Umesha Thilakarathne (2020)	AI based Public Complaint Management Chatbot.	Agile	It is an open system that can only be used by the public, it cannot be used as a private complaint management system.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.1 INTRODUCTION

The analysis and design of systems are discussed in this chapter. A description of the existing system, an analysis of the proposed system, and a design for the proposed system are all included. The methodology refers to the methods used to collect data in order to complete the study.

3.2 RESEARCH METHODOLOGY

The internet and journals were used to gather information for the study. The contributions of other researchers on the topic were examined in order to gain relevant information. In addition, methods such as interviewing, observation, and documenting were employed to obtain data. Some students were interviewed in order to acquire relevant information. The research findings were used to develop the new system.

The extreme development approach was utilized to create the system. Design and prototyping are included in the extreme development approach. The model is broken down into four steps, as follows: The development process includes processes such as designing, coding, testing, and listening. The case study also provided useful information for the development of the system.

3.3 ANALYSIS OF THE EXISTING SYSTEM

Students can report their problems to a complaint box in the existing system on the school's website but on my last check, it seemed to have been taken off the page of the school. Students can, however, direct their complaints to the student affairs office, which will take

the appropriate action to resolve the issue. It's also worth mentioning that there is no infrastructure in place to effectively monitor student complaint data and engage with students wirelessly.

3.3.1 ADVANTAGES OF THE EXISTING SYSTEM

1. It is directly on the school's website.

2. It gives people the will to express what they got on their minds without being scolded in any form, most especially the students.

3.3.2 DISADVANTAGES OF THE EXISTING SYSTEM

1. The entire process of a student submitting a complaint and receiving a response takes a long time since it is just a box for feedback placed on the website of the school.

2. Students have no online alternative for submitting complaints or receiving feedback; they must always visit offices to report difficulties; and the university has no central structure for managing student complaints.

3. Responding to complainants promptly.

3.4 ANALYSIS OF THE PROPOSAL SYSTEM

The proposed system is an online system that has the following features:

1. Objections from students are submitted.

2. Student input on each complaint reported is evaluated.

3. Complaints are reviewed by an administrator.

3.4.1 ADVANTAGES OF PROPOSAL SYSTEM

The following are some of the advantages of the proposed system:

1. It will act as a central repository for student grievances.

2. It will make it easier for students and school administrators to communicate.

3. It will make it easy to provide feedback on concerns that have been submitted.

4. It will cut down on the quantity of paperwork required in complaint scenarios.

3.5 SYSTEM DESIGN

The system design includes the database design, input layout as seen in Figure 3.1 and Figure 3.2, and algorithm design (Program Activity Diagram) in Figure 3.3 and Figure 3.4, as well as the database design, system architecture, and use case diagram.

3.5.1 INPUT LAYOUT

The input layout object is created using an array of input-element descriptions and a pointer to the produced shader.

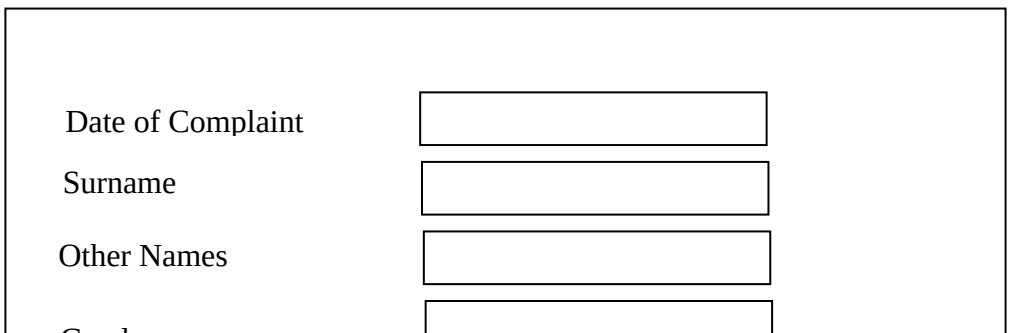


Figure 3.1: Complaint submission input layout

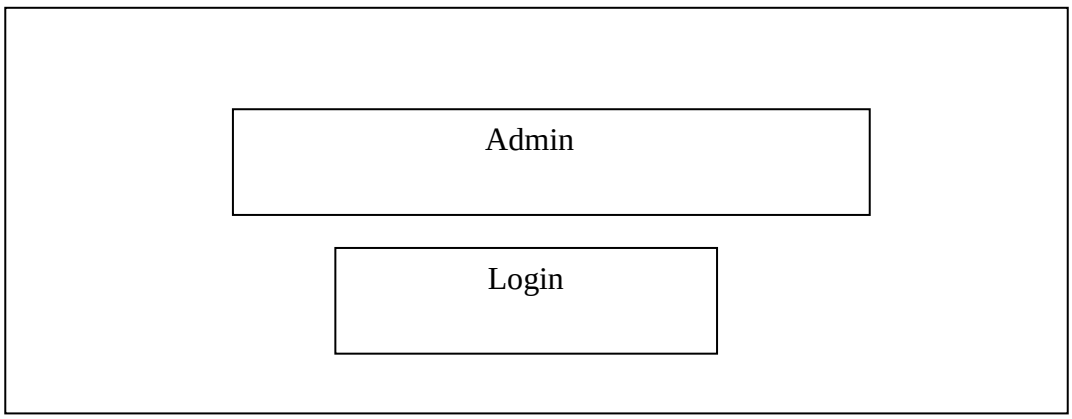


Figure 3.2: Admin login input layout

3.5.3 ALGORITHM

Step 1 – Start

Step 2 – Display Home page

Step 3 – Input Choice

Step 4 – If choice is submit complaint go to step 5

Step 5 – Display submit complaint form

Step 6 – Input complaint details

Step 7 – Submit to database

Step 8 – If choice is admin go to step 9

Step 9 – Input admin password

Step 10 – Display admin panel

Step 11 – Input Admin menu choice

Step 12 – If choice is view complaints go to step 13

Step 13 – Display all registered complaints

Step 14 – If choice is quit go to step 15

Step 15 – Stop

3.5.4 PROGRAM ACTIVITY DIAGRAM

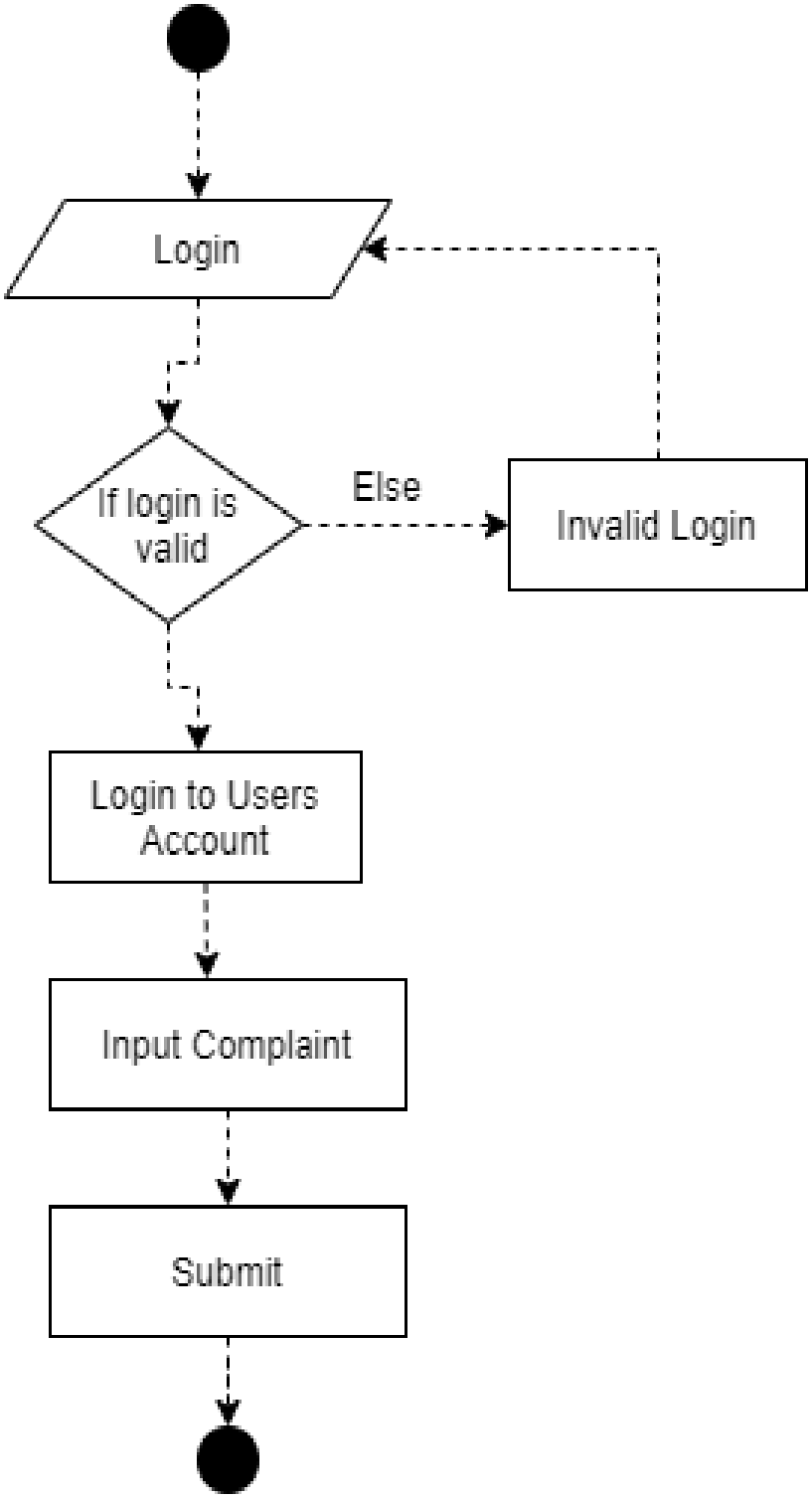


Figure 3.3: Activity Diagram for Student

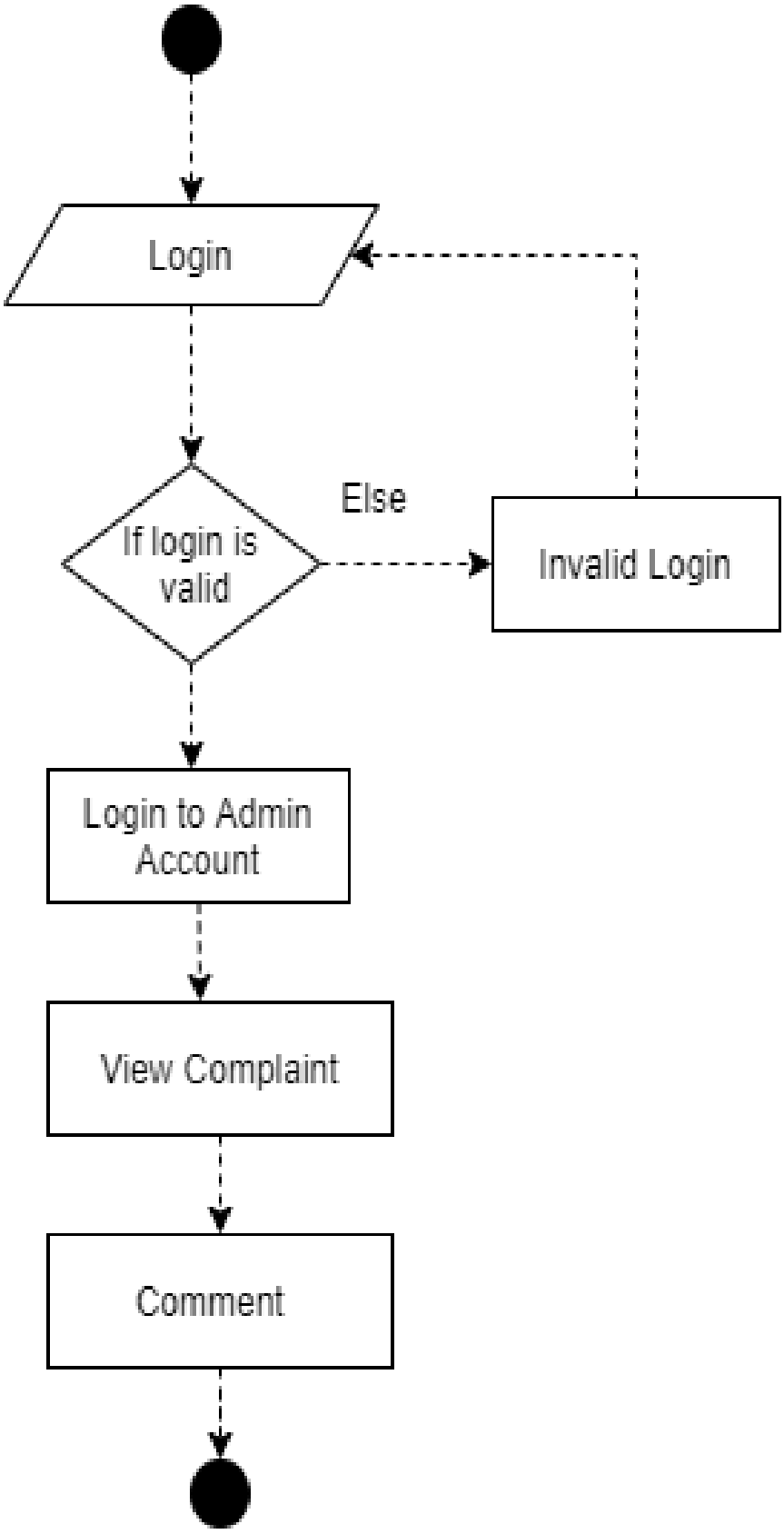


Figure 3.4: Admin Activity Diagram

3.5.5 SYSTEM ARCHITECTURE

Table 3.1: Database Design

Field	**Data type**
Date_of_complaint	Date
Surname	String
Other_names	String
Gender	String
Department	String
Level	Number
Registration_number	Number
Complaint	String
Submitted by	String

3.5.6 SYSTEM ARCHITECTURE

The front end, middle tier, and database are the three main components of the system. The diagram below depicts the architecture. The presentation tier is the web page that the user sees when they visit the site, and the middle tier is used to handle the data collected from the front end as well as enable database connectivity as seen in Figure 3.5. The data collected on the front end is stored in the database. In addition, the front end can use the intermediate tier to get information from the database.

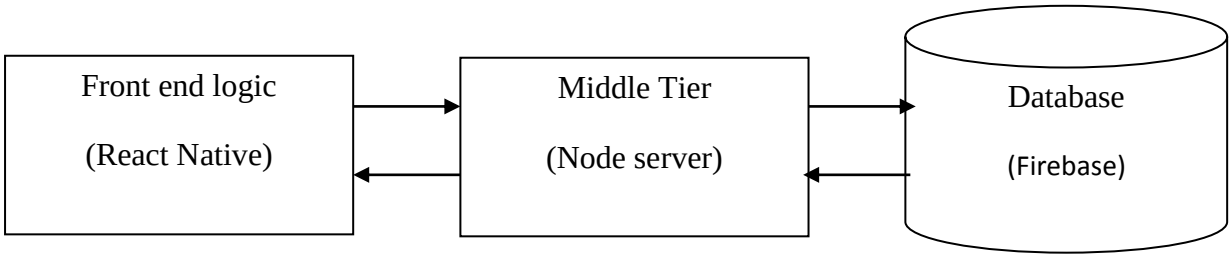


Figure 3.5: Architecture of the System

3.5.7 USE CASE MODEL

Use case model is used to represent the components of the proposed system and the actors in the system, as seen in Figure 3.6.

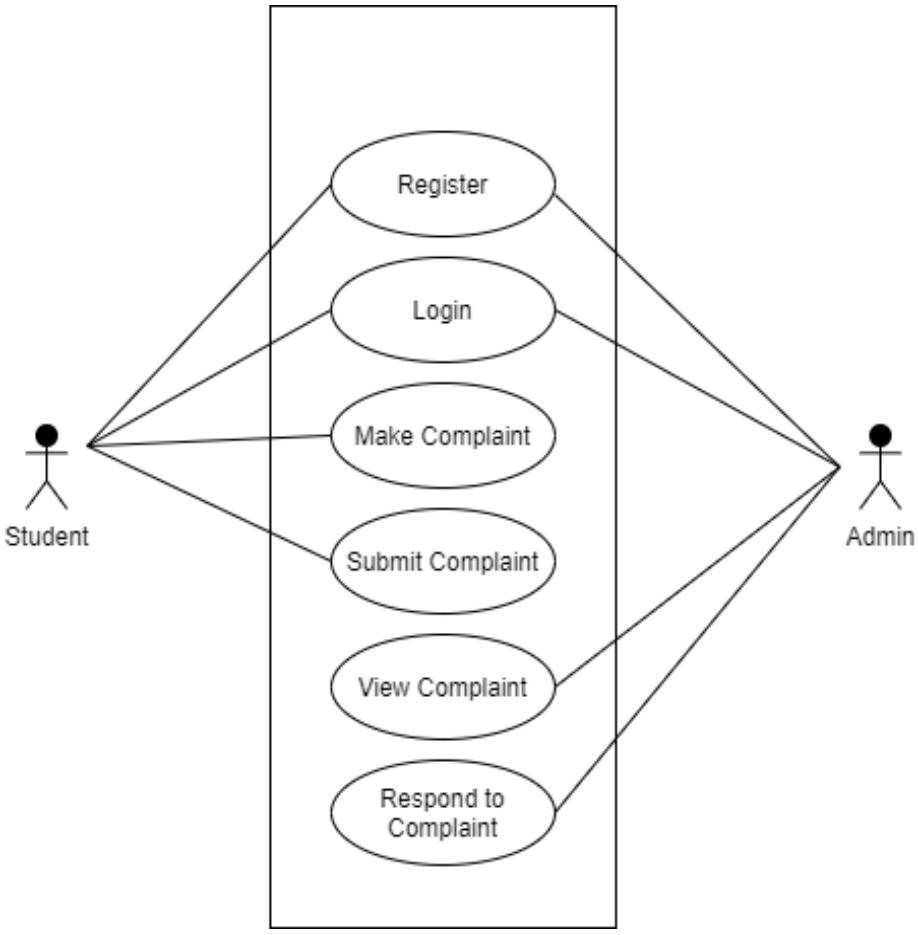


Figure 3.6: Use case diagram of proposed system

3.6 DESIGN DETAILS

The user interface UI was implemented with react native and different libraries like native base, fire base tools, yup etc. The back-end authentication logic was implemented with firebase and a node Js server.

3.7 SOFTWARE DEVELOPMENT LIFE CYCLE

The iterative and incremental model was adopted and used for the development of the system. In this model, the iterative process begins with a simple implementation of a small set of software requirements and iteratively enhances the evolving versions until the entire system is implemented and ready for deployment. An iterative life cycle model does not attempt to begin with a full requirements specification. Instead, development begins with only part of the software specified and implemented, which is then reviewed to identify additional requirements. This process is then repeated and at the end of each iteration model, a new version of the software is produced. Pendharkara, Parag C.; Rodgerb, James A.; Subramanian., Girish H (November 2008) The systems development life cycle idea applies to a wide range of hardware and software configurations since a system might be built of hardware only, software exclusively, or a combination of both. (Pendharkara, Rodgerb, & Subramanian., November 2008)

3.8 METHOD OF DATA COLLECTION

The method of data collection used for this project work are from both primary and secondary sources.

3.8.1 PRIMARY SOURCE

This method of data collection was used to collect data from some students of Mountain Top University. Some of them asked about how they lay their complains in the school.

CHAPTER FOUR

SYSTEM IMPLEMENTATION AND RESULT

4.1 INTRODUCTION

The focus of this chapter is on the system's implementation, it demonstrates the information of implementing a Complaints Management System. The development environment, implementation architecture, software testing, and documentation alternatives are all discussed. Designing and implementing a Complaints Management System considers some aspect which attempt to provide alternatives to the issues recognized and indicated in information systems. It describes the tools used in developing and implementing the system. These tools assisted in system design and development of the system’s primary idea and functionality to accomplish its defined mission. Weke, Samuel (2018).

It describes a variety of functionalities step by step beneath every module with their outputs. The entire notion is a system, which are set of things working together as components of a mechanism or an interconnecting system, which are set of matters working collectively as parts of mechanisms or an interconnecting system, it is a set of interacting or interdependent issue forming a set of elements to other elements.

4.2 SYSTEM IMPLEMENTATION

System implementation is the process of establishing how an information system should be constructed (physical system design), as well as ensuring that the information system is

operational and used, and that it meets quality standards i.e., quality assurance (uky.edu). These are system settings that a system must have in order to execute a hardware or software program smoothly and efficiently. This section provides an overview of the methods used to actualize the system designed specified in the previous section. The proposed software was implemented using a software framework (react-native) that allows for cross-platfrom development of web applications, so as to ensure that the software runs smoothly on both Android and system devices, the system design diagram is shown in Figure 4.1. The implementation was divided into three main parts which are the front-end, back-end and the database. Below are the implementations:

4.2.1 THE FRONT-END

This is the user interface design (conceptatech.com). The front-end was designed using Adobe XD and then it was implemented using react-native frame work in JavaScript.

4.2.2 THE BACK-END

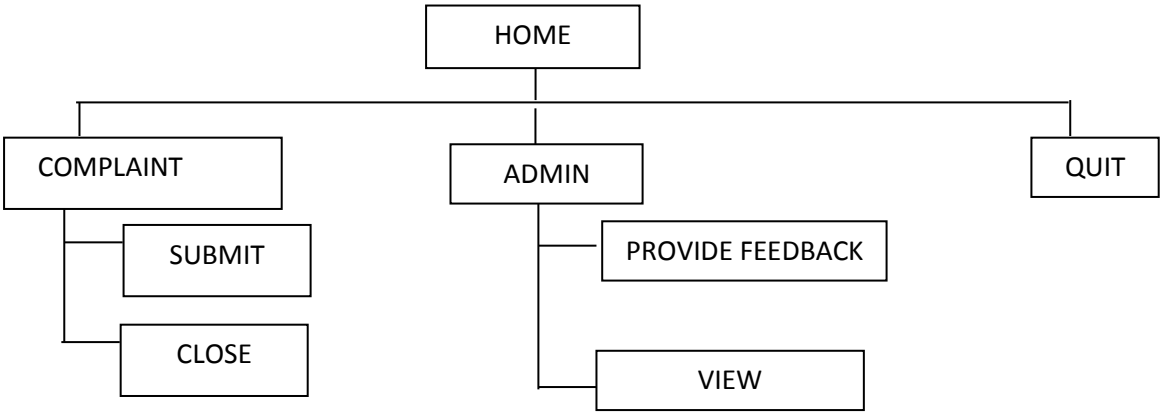
This is the server, application and database that work behind the scenes to deliver information to the user (conceptatech.com). The back-end was implemented using firebase.

4.2.3 DATABASE

It was built using firebase.

4.2.4 IMPLEMENTATION ARCHITECTURE

Figure 4.1: System Design Diagram



4.3 HOW THE SYSTEM WORKS

The application works based on the functional and non-functional requirements. This application includes the core phases of software development lifecycle.

4.3.1 FUNCTIONAL REQUIREMENT

This section describes the system's anticipated features. To execute a number of high-level tasks. For the planned use of this application, the following specifications are expected.

A. Submit Complaint: This is the module that enables students to submit their complaints.

B. View Feedback: This is where the student checks if feedback has been provided for submitted complaint.

C. Admin: This module enables the website administrator to accomplish the following:

i. Provide Feedback: This is where the administrator can submit feedback for every complaint submitted.

ii. Views Complaints: This module enables the user to view submitted complaints by students and also query the database.

D. Quit**:** This is when the user closes the website by clicking on the close button of the browser window.

4.3.2 NON-FUNCTIONAL REQUIREMENT

This deals with the characteristics of the system, which cannot be expressed as functions. The system should be able to accommodate a minimum of hundred users at the same time. The system should be able to grant access to users whose details are registered or whose details are in the database of the system. Also;

1. **The system UI ought to be responsive.**
2. **Users ought to be authenticated with valid credentials before gaining access to the system.**
3. **All users generated content ought to be stored on a secure cloud data storage.**

4.4 SYSTEM REQUIREMENT

For the efficient use of the system, certain hardware components and software components must be present on the system. The system requirement is made up of the software and hardware parts that makes the system to be developed effectively.

4.4.1 SOFTWARE REQUIREMENT

Software requirement is a condition or capability that a user must have in order to solve a problem or accomplish a goal. It can also be said to be condition or capability that a system or system component must meet or possess in order to meet the requirements of a contract, standard, specification, or other legally binding document

One of the key elements in building a system is the section of compatible software. The following software are recommended for the successful implementation of the system.

Front-end technologies: `	React Native
Backend technologies:	Firebase
Version Control Tool:	Git-hub
Local Server:	Node.Js
IDE:	Visual Studio Code
Web Browser:	Google Chrome, Mozilla Firefox.

4.4.2 HARDWARE REQUIREMENT

Hardware requirements is a hardware device's specifications Most hardware only has requirements for operating systems or compatibility (Computerhope.com). Hardware configuration is an important factor to put in mind when developing a system. Insufficient random-access memory may affect the speed and efficiency of the entire system. The processor should be powerful to handle the entire operations. The hard disk should also have sufficient capacity to store the file and application.

RAM: 2 GB (Minimum)

Hard disk: 8 GB (Minimum)

Operating System 64bits

4.5 SCREENSHOT OF THE PAGES IMPLEMENTED

The screenshots of the implemented pages show the different views of the users depending on their roles with a brief description of what it entails. It consists of the Authentication Pages, Admin Dashboard, Patients Dashboard, Doctors Dashboard, Nurse Dashboard and Record Officer Dashboard.

4.5.1 AUTHENTICATION PAGES

The authentication pages consist of both the sign-up and login page.

a.) SIGN-UP PAGE

This is the first page that appears when the URL of the HMS is typed in any browser. The sign-up form is where the users register their credentials before giving them access to their privileges. The sign-up form contains a field to create account if it is the first time a student is visiting the web application. the name, email, password and role as it is shown in Figure 4.2. When the sign-up form is submitted, the system redirects the users to their respective dashboard based on the roles selected.

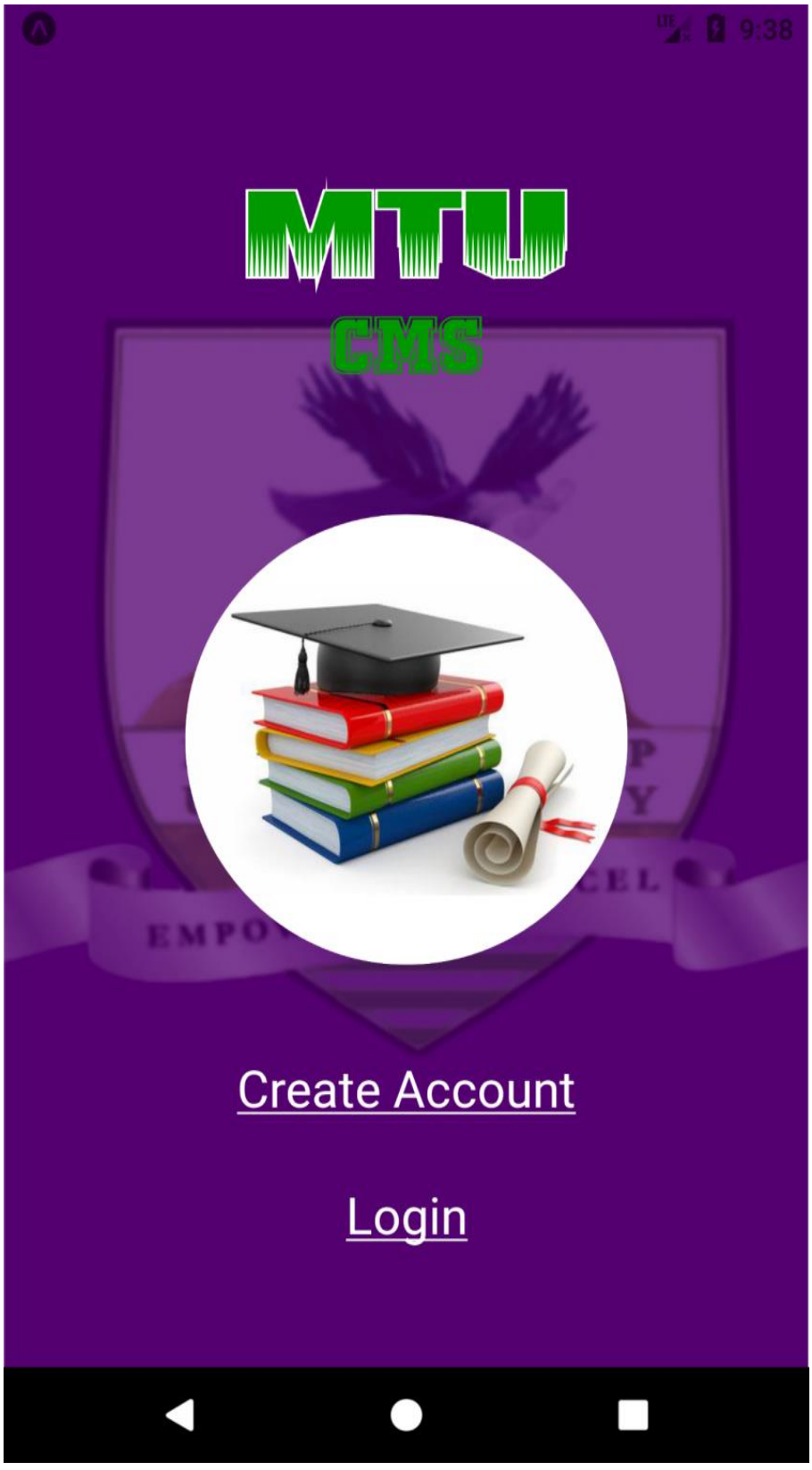


Figure 4.2: Sign-up Page

b.) REGISTRATION PAGE

This page is where Individuals (students) register or create an account so as to gain access to the system on their own, before getting the opportunity to login and make their complains. It contains the full name, matric number, college, department, level email, password and submit button as it is seen in Figure 4.3 below.

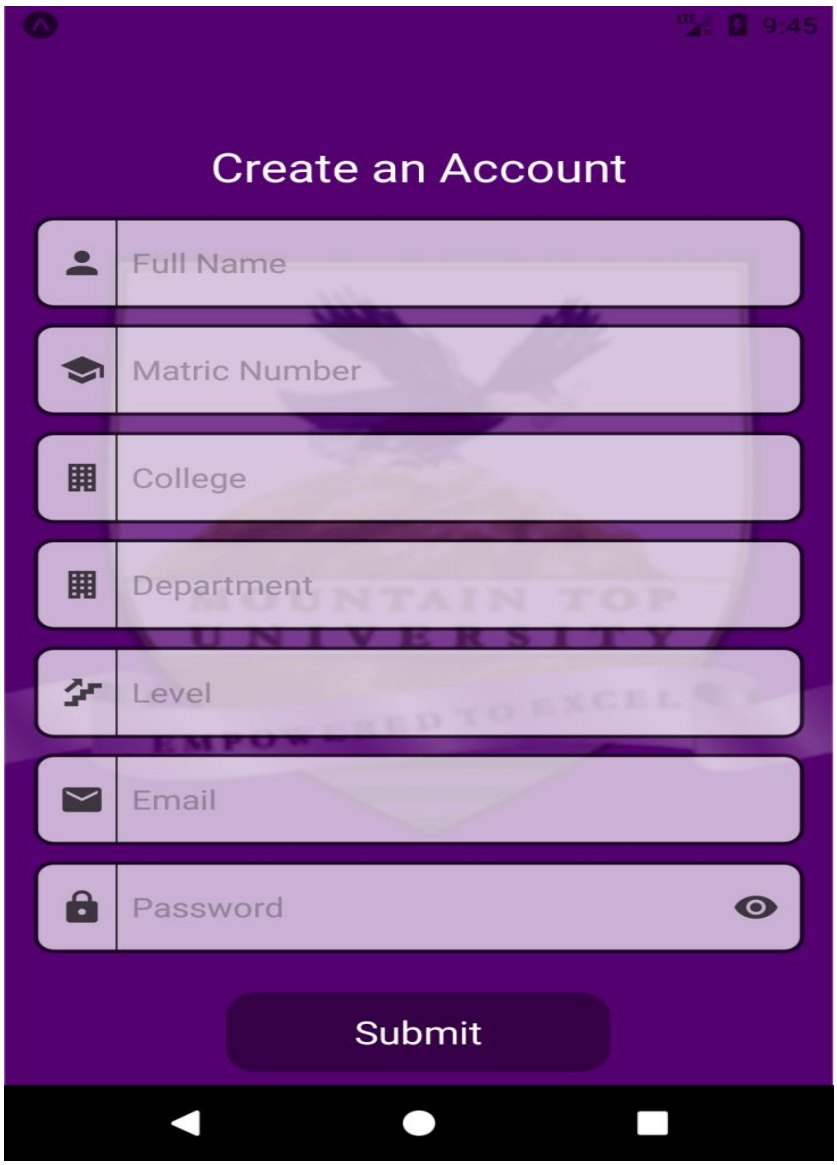


Figure 4.3: Registration Page

c.) LOGIN PAGE

The login form is used to authenticate users' credentials before giving them access to their privileges. The login form contains a field for the email and another for the password as it is seen in Figure 4.4. When the login form is submitted, the code checks that the credentials are authentic, given the user access to the restricted page. If a user is not authenticated correctly, they will not be able to proceed past the login form.

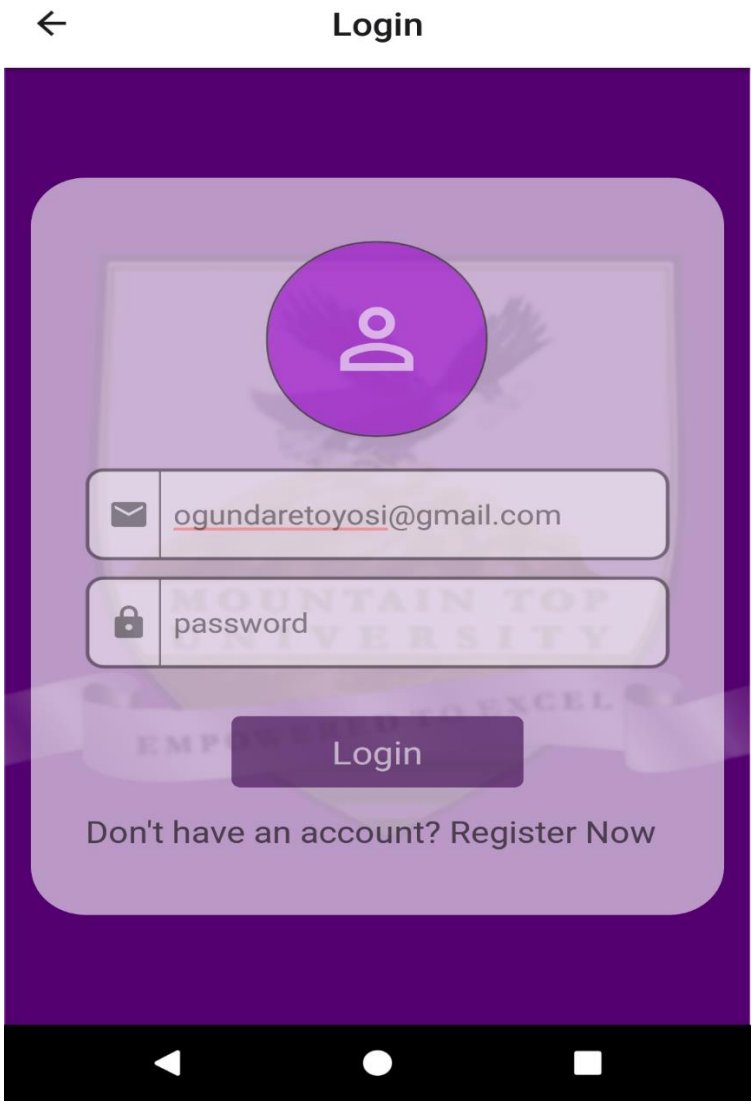


Figure 4.4: Login Page

iv.) Complaints Page

This is the page in which students make their complains, it consists of the name of the complainant, the date in when the complaint was made, the topic(title) of complaints, the nature of complaints, suggestion(s) from the student on what can be done to resolve the issue that is being thrown or typed down on the page, and then we have the post complaint which stands has the submit button, which is at the last part in the page. Figure 4.5 shows and gives a better explanation about how it is.

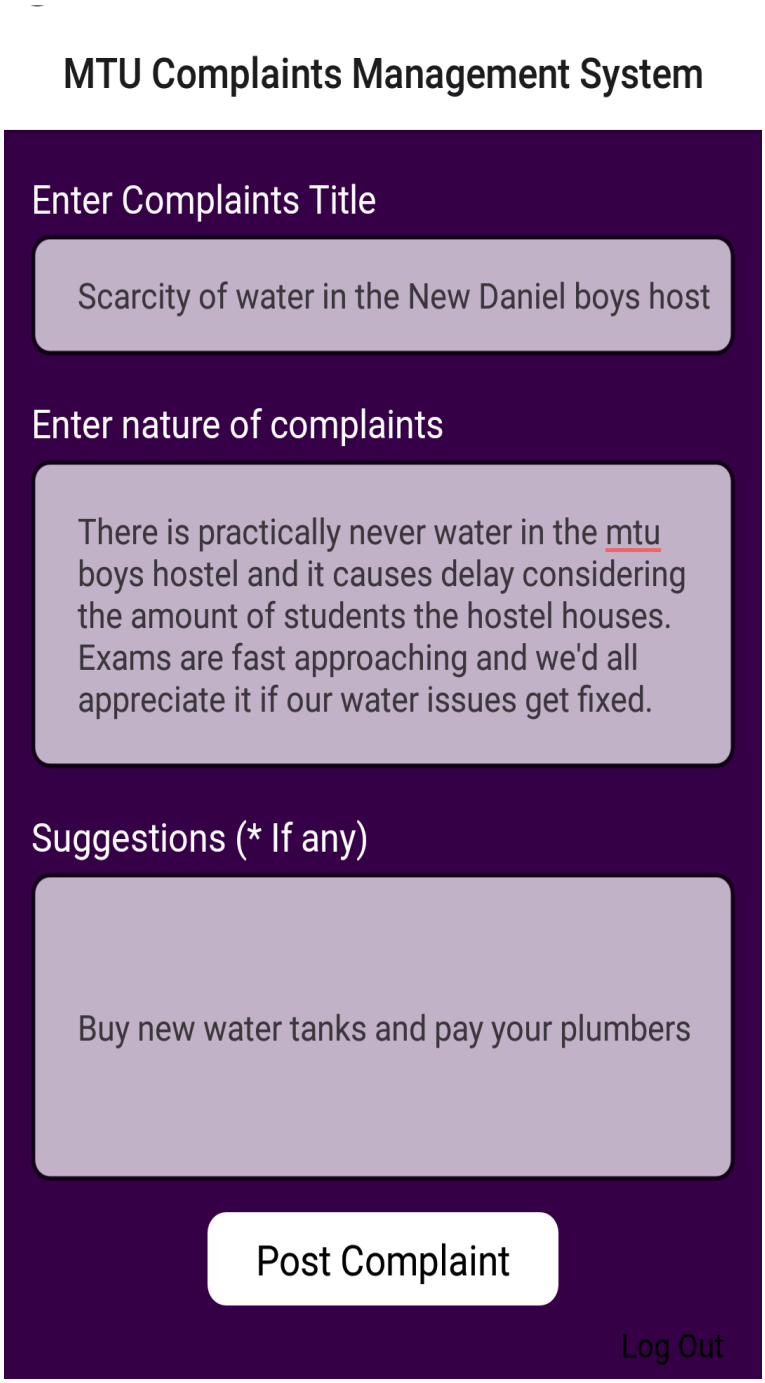


Figure 4.5: Complaints Page

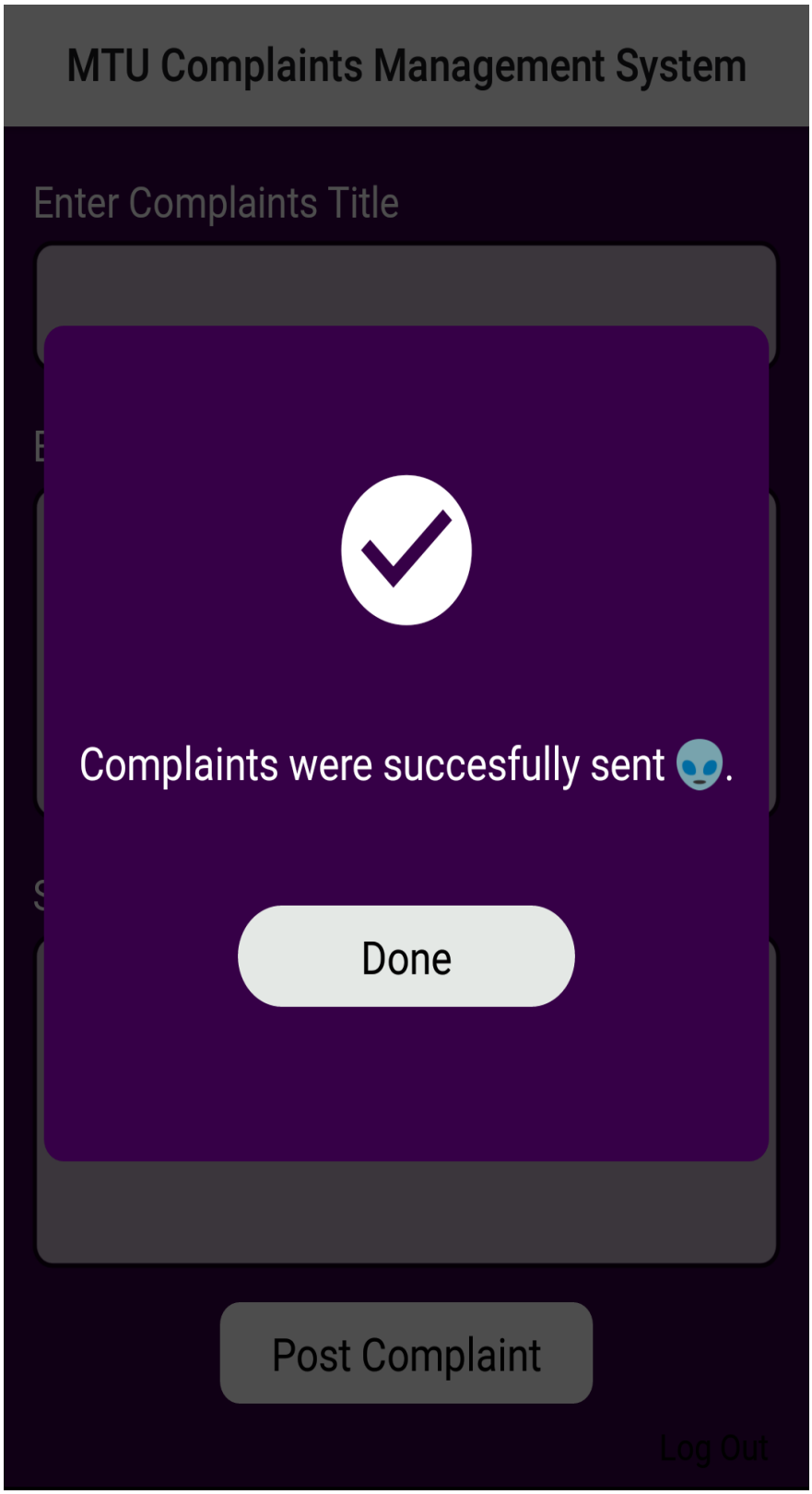


Figure 4.6: Submitted Complaints

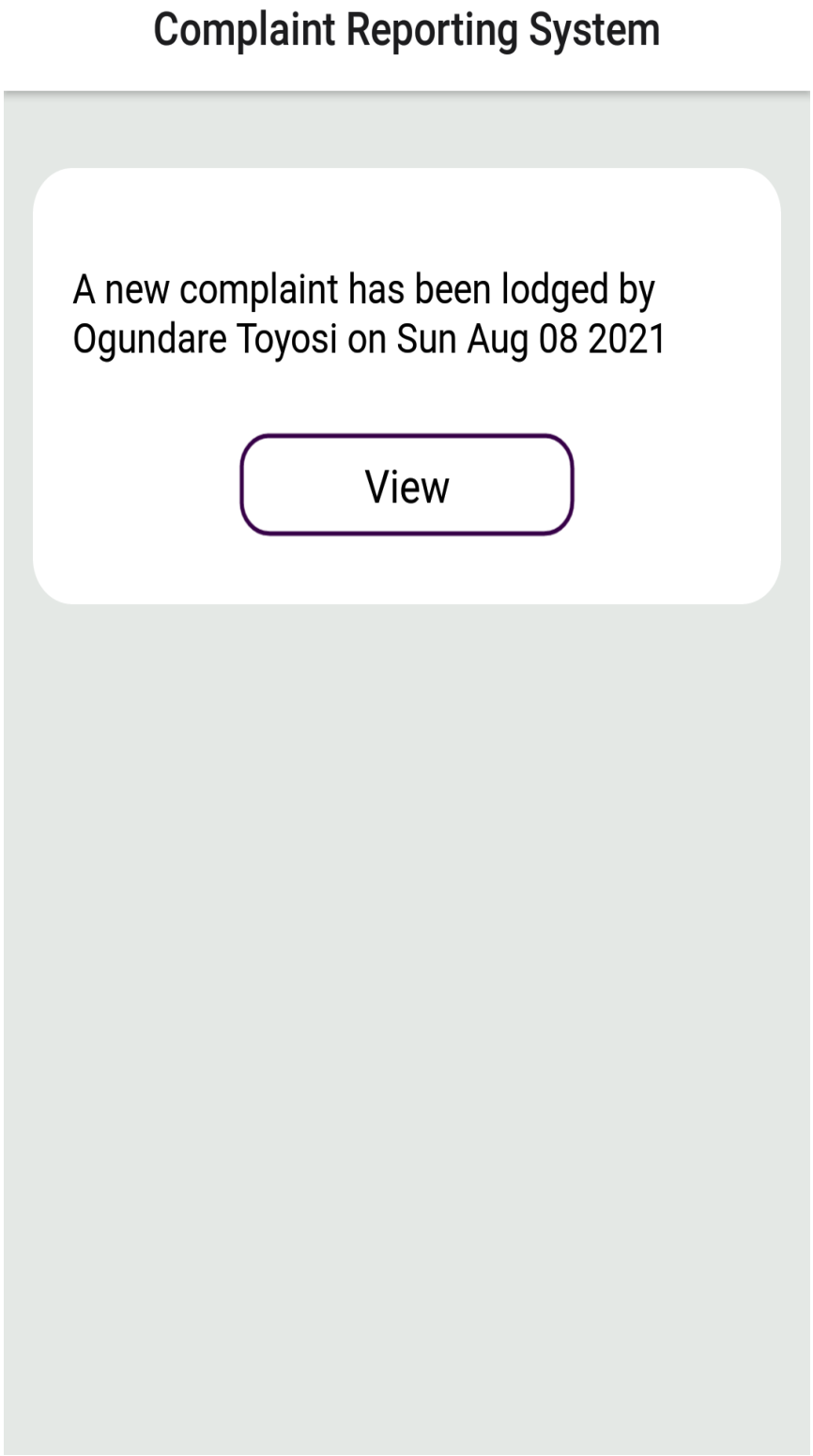


Figure 4.7: Received Complaints

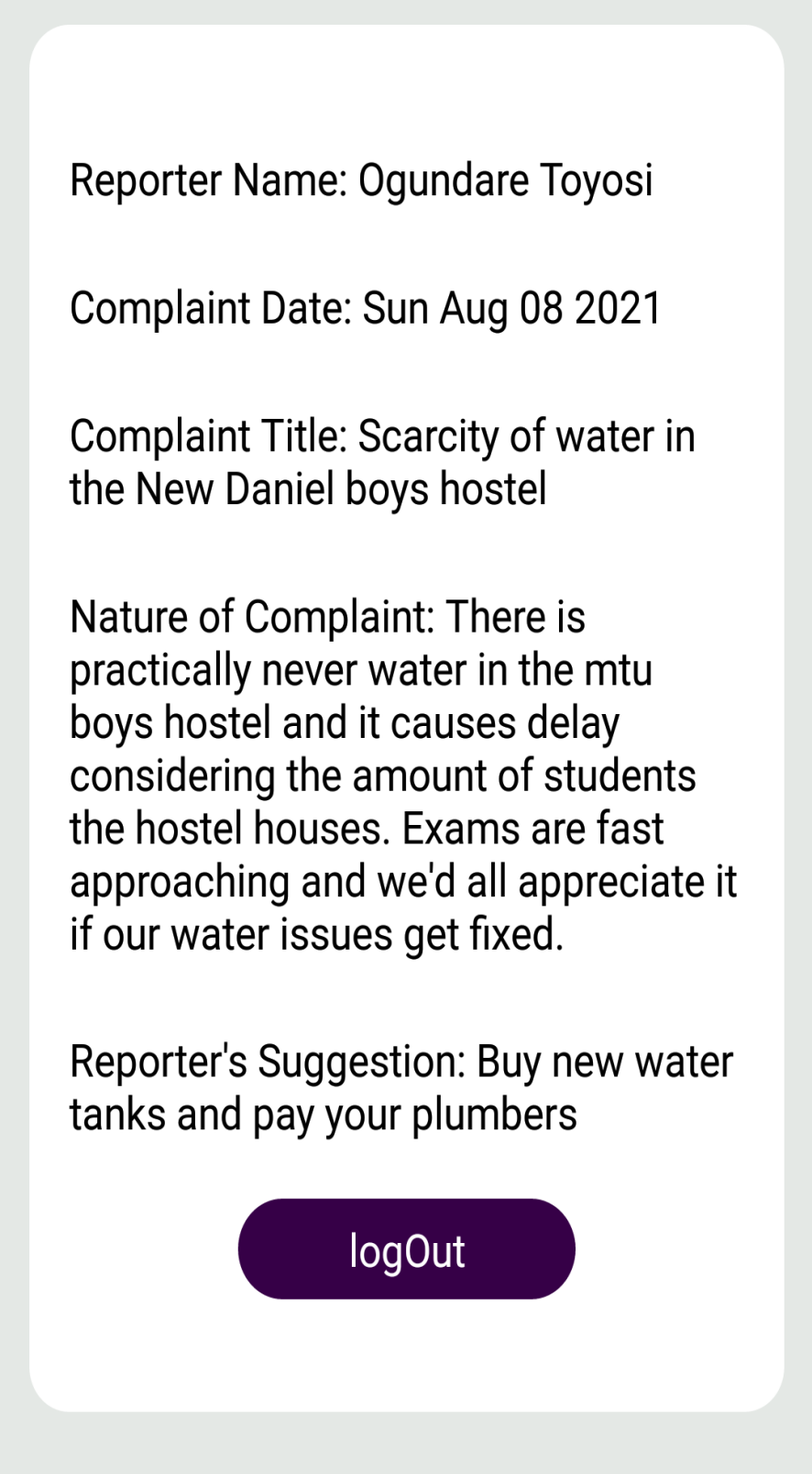


Figure 4.8: Viewed Complaints

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

Having reviewed the challenges encountered through the process use of files in getting down complaints, this proposed system is believed to help eradicate the problems associated with students finding it hard to reach out for help in terms of making their complaints by the introduction of an online complaints management system which will make documentation more efficient and effective for serving the students and even the institution better and to have a more developed way of carrying out operations and solutions to things happening within the university environment.

The complaints management system adds amazing values to the lives of both students and the administration as it aids in reduction of workload in terms of going around to get information about things happening in different department of the school and reduction of students being around the admin and Information Communication Technology department of the school ICT. It can capture data, store, and view, add and delete records into the database when required. On the long run during the development of this system, some challenges where encountered, some of them includes bad network connection, with the poor wifi connection being faced within the school. Contribution of knowledge, the study's limitations, a summary, a conclusion, and helpful recommendations are all presented in this chapter.

"Test cases" were used to build and test the application software for an online student complaint management system. It is user-friendly and provides the essential options for the

user to do the needed tasks. The application software satisfies the information needs to a considerable extent. The system was designed to meet both current and future needs, and it is exceedingly adaptable. Instant access, increased productivity, optimal resource use, effective complaint data management, and operational simplifications are all aims achieved by the software. Processing time is cut in half, and important data is gathered faster. User-friendly, portable, and expandable in the future.

5.2 CONTRIBUTION TO KNOWLEDGE

The main contribution of knowledge was the ability to implement an online complaints management system using the React-Native Framework. With the help of this framework, the system is user friendly, it offers ease of access but it is vulnerable. Prevent data leakage and secures the application codes.

5.3 LIMITATIONS

When conducting the research, some challenges were discovered that limited the scope of the study, such as:

1. The system runs a local host server.
2. The system does not automatically resolve complaints.
3. A user must examine the complaints and provide feedback.
4. It is limited to Mountain Top University alone.
5. The only way to protect your account is not to let your password out to anyone.

5.4 CONCLUSION

An online student complaint management system, according to the study's conclusions, is a vital system in the management of institutions. It acts as a central hub for the easy submission of complaints and the subsequent receipt of feedback in response to such complaints. The system works as a management information system, allowing for simple handling of student, department of things concerns and effective communication via the medium or written complaints. This will enable the institution's management to quickly identify the concerns that students are facing and provide potential solutions.

5.6 RECOMMENDATION

It is recommended that institution currently practicing the manual system should switch to the electronic system because it is more efficient and easier to use. Also, since the use of computers is growing fast globally, introducing the electronic system which is the online way of communicating and passing of valid information(s) will enable institutions fit into the current global trend. The following are also recommended.

1. Other types of authentication methods (Single-factor, Two-factor, Multi-factor authentication) can be used for securing complaints management systems.
2. Other types of frameworks (AngularJS, Symfony, ASP.NET) can be used in building online complaints management systems.
3. Other types of database management systems can be used by complaints management systems are Hierarchical database (Navigation file or sitemap of a website), Network

database (Integrated Data Store (IDS), Integrated Database Management System (IDMS), Ramina Database Manager), and Relational database.

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APPENDIX

SOURCE CODE

Code for User Authentication below:

```
import React, { useContext } from "react";

import AuthContext from "./context";

import AsyncStorage from "../auth/storage";

const useAuth = () => {

  const { setUser } = useContext(AuthContext);

  const logIn = (userId) => {

    AsyncStorage.storeToken(userId);

    setUser(userId);

  };

  const logOut = () => {

    setUser(null);

    AsyncStorage.removeToken();

  };

  return { logIn, logOut };
```

```
};

export default useAuth;
```

Code for App below:

```
import React, { useState } from "react";
import ComplaintsScreen from "./Apps/Screens/ComplaintsScreen";
import LoginScreen from "./Apps/Screens/LoginScreen";
import RegisterScreen from "./Apps/Screens/RegisterScreen";
//import firebase from "firebase";
//import firebaseConfig from "./Apps/config/keys";
//import ChatScreen from "./Apps/Screens/ChatScreen";
//import LoginScreen from "./Apps/Screens/LoginScreen";
//import AsyncStorage from "./Apps/auth/storage";
//import AuthContext from "./Apps/auth/context";
//import AppLoading from "expo-app-loading";
import WelcomeScreen from "./Apps/Screens/WelcomeScreen";
export default function App() {
```

```
/*const [user, setUser] = useState();

const [isReady, SetisReady] = useState(false);

const initializeFirebase = () => {

  !firebase.apps.length

    ? firebase.initializeApp(firebaseConfig)

    : firebase.app();

  firebase.firestore().settings({

    host: "localhost:8080",

    ssl: false,

  });

  firebase.firestore.setLogLevel("debug");

};

initializeFirebase();
```