

**MASENO UNIVERSITY**

**SCHOOL OF COMPUTING AND INFORMATICS**

DEPARTMENT OF INFORMATION TECHNOLOGY

# **THE E-BURSARY SYSTEM**

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**PROJECT PROPOSAL SUBMITTED TO THE SCHOOL OF COMPUTING AND INFORMATICS IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

**MASENO UNIVERSITY**

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# **DECLARATION**

This project proposal is our original work and has not been submitted to any other institution of higher learning for any award. Additionally, all materials herein which are not our work have been identified.

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# **ABSTRACT**

There is a need to have a system with the necessary resources to help in filling, storing, and keeping track of the Students Organization of Maseno University (SOMU) bursary application scheme at Maseno University. With a population of over 15, 000 students, automating the whole process from application, vetting and allocation of bursaries to students would reduce paperwork for both students and the involved staff while still saving the time the students would spend queuing to submit forms. In the 21st century, making queues to submit forms ought to be something of the past. The E-Bursary aims to fill the gap by having a digital bursary management system for Maseno University’s SOMU funded scheme.

Maseno University is taken to be one of the best public universities in the country teaching Information Technology. They not only teach the students in the school of computing but also all those in other different faculties. In the university currently, bursary applications are conducted so manually that the students get to download the bursary forms from the university website, after which they are expected to fill them. After having all the forms filled, the students have to submit the forms physically to the person in charge of the same. Afterwards, the person in charge has to manually go through the applications one by one eliminating those who have attached wrong files or rather forged their applications or in one way do not qualify for the loan. Having done all that, the students have to wait for so long without the knowledge of whether their applications were verified or not since the only way to know is through the student’s portal where fee usually reflects.

The E-Bursary system is web-based. This is because the majority of the students own smartphones or even laptops which can however access websites when connected to a network. A student will be required to visit the website once the bursary application is open, register then sign in. Afterwards, the student will have to apply for the loan via the platform given to him/her then submit the application. Once submitted, students will be prompted into a dashboard where they can keep track of the whole process.

If this system is adopted in the whole university, students will have a comfortable and easy bursary application experience with a system that eases the whole process as well as serves fairness to every suitable applicant since manual handling of forms would be done away with completely. Additionally, there will be a reduction of paperwork since no one will be required to print or submit any hard copies.

# **ACKNOWLEDGEMENT**

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# **CHAPTER ONE**

## **INTRODUCTION**

## **1.1 BACKGROUND INFORMATION**

In any institution of higher learning, technology plays a major role in aiding smooth and efficient learning as well as operations of the institution, Maseno University being of no exception. One of the main goals is ensuring that the sharing and access of information is easy to all persons in the university. Therefore, being in the twenty-first century, it would be extremely important for higher institutions to adapt to the ever-changing technological trends to help them in sharing and access of information.

Maseno University is among the largest higher learning institutions in Kenya. With such a population, the ratio of students to subordinate staff stands at approximately 500:1. As it is evident, the student-staff interaction is a challenge and especially when it comes to rendering of services to the students. Students at times have complaints which may require immediate action by the staff. In the event that the staff are occupied at that moment, the issue may end up not solved, causing inconveniences. It is for that reason, a system is needed to fill in the gap identified above. The system will provide a platform where students would skip all the middlemen involved in the bursary application process and promote transparency in the complete bursary management cycle from application to disbursement to beneficiaries.

The challenge of having the students walk into offices to get a stamp from the authorized staff which at times is to no avail since they may be occupied at that particular time or not present, creates a delay to the whole bursary application process. The system would also provide a platform where all the rejected applicants would get notified as to why their applications were rejected. This would play a big role to the students since they may correct their mistakes if at all they are granted a second chance to apply.

Having such a platform would provide students with easy time and minimize the chances of causing a commotion in any office trying to submit their forms before the deadline and also bring about transparency of the whole bursary application process. To have such a platform implemented, it would bring about convenience and transparency in the whole process.

## **1.2 PROBLEM STATEMENT**

There has been a noticeable increase in the number of complaints raised by Maseno University students who want to apply for the Students Organization of Maseno University bursary funded scheme. Students lack a convenient system for application whereby they have to download and print forms which are costly. The students have to physically submit the forms to the respective offices where the forms are repeatedly reported lost, neglected or even mishandled. The staff holding the respective offices may at times not be present or occupied to serve the students at that particular time.

## **1.3 OBJECTIVES**

The following are the objectives of this proposed Maseno E-Bursary Project:

* To identify the functional modules in a Bursary Management System.
* To design an E-Bursary Management System.
* To code the E-bursary Management System.
* To test the functionality of the E-Bursary Management System.

## **1.4 LIMITATIONS**

The following are the limitations of this proposed Maseno E-Bursary project:

* For the student to access the system, he/she must have access to an internet connection.
* The system also can only be accessed using an internet-enabled device such as a smartphone, a laptop, or a desktop computer.
* The student must be computer literate to be able to navigate through the website with ease.

## **1.5 JUSTIFICATION**

At the university level, students need access to resources quickly and efficiently. This is very fundamental in the development of their skills and time management as they may need to be performing other different activities. Having this kind of resources available on their mobile phones, laptops, or desktop computers increases efficiency. In addition, students in the faculty of computing in any institution should be able to understand the technological trends and their effects and be able to solve an existing problem using the best algorithm that addresses the issue. Thus, having a web-based application that fetches resources, executes the fetched resources, and provides updated information to the end-user in no time is very essential.

This proposed project will aid in offering students a platform to apply, track their bursary status, and a forum to present their complaints and get quick feedback from the staff. Elimination or reduction of long queues in SOMU offices will be possible because each student will be able to directly apply and track the whole process using their gadgets.

The proposed application will also assist the staff in vetting the applications and responding to complaints from students in a much easier and faster way. The staff will also be able to upload any news to the beneficiaries via the dashboard provided to them. The students will then be able to find all the uploaded updates in the web application and download them. The application will be a handy tool for the students because it will enable them to apply for the bursary in time and criticize delays of any kind.

# **CHAPTER TWO**

## **LITERATURE REVIEW**

## **2.1 INTRODUCTION**

Traditionally, services have been conducted face to face in such a way that for one to get any service their physical appearance would be very important. However, the wide distribution of computers, mobile phones, and communication technologies has made the whole process much simpler. Since the arrival of mobile phones in the 1980s, they have been widely used by people of all ages all around the world (Arceneaux, 2005). It could be said that the whole world is becoming mobile; mobile phones and personal computers are not only communication devices but also portable and private pieces of technological equipment. Nowadays, mobile technologies are becoming increasingly networked. Such technologies can be used creatively in different areas. Using mobile technologies in organizations like learning institutions is a clear example of such an innovation. Laptops, Personal Computers, and even mobile phones equipped with internet connection have created the need for digitizing services such as job applications, learning processes and even conducting businesses. Internet-enabled communication devices can help students to access resources and services anytime, anywhere as long as they have an internet connection.

## **2.2 THE SCOPE OF REVIEW**

At the university level, students need access to internet-available resources in a fast and convenient way. This is very fundamental in not only the development of their skills and class performance but also aims to bring the university services right into their devices. Having the services accessible via internet is a good practice. In addition, for the students in the faculty of Computing and Informatics in any institution, they should be able to understand the advancement of technological trends and their effects and come up with solutions for the existing problems employing the best algorithms that address the issues at hand. Thus, having a website application that fetches resources, processes them, and generates the output to both the students and involved staff in a more efficient way is good to them.

## **2.3 CRITERIA USED**

This literature review will be based on research about systems previously done, and which are related to this proposed system. The major focus will be on web-based applications that assist people apply for bursaries or any kind of funding online. Several web-based bursary application systems will be reviewed and investigated on how they have assisted people in the application processes. All the data collected about the various web-based applications will be analyzed and based on the analysis, the proposed system will be proved feasible or infeasible.

With the above at hand, existing literature will be subjected to investigation on web-based bursary application programs. The key concepts of the applications outlined, major relationships or patterns noted, key strengths and weaknesses identified and the research gaps will be outlined. The paper ends with a summary of agreements and disagreements in the literature, areas for further research, and the overall perspective.

## **2.4 HISTORICAL BACKGROUND**

Many web-based applications have been developed for mobile platforms. Over the last few years, these applications have been the focus not only of technical interests, but also marketing and business campaigns.

Recently, many researchers have focused on mobile and web technologies. This literature review will be based on a research about the systems previously done, and which are related to this proposed system. The major focus on the same will be on bursary management applications which are already in existence whereby each of their strengths and weaknesses will be determined. The E-bursary system is a web-based application that can be accessed using mobile phones, laptops, desktop computers or generally any internet enabled device with the capabilities to surf through the web. The difference between the E-bursary system and the current bursary application system is that E-Bursary system can be accessed anywhere at any time as long as you have internet connection while the current one entails physically submitting the forms to the respective offices.

**2.5 APPROACHES**

Approaches towards this review will be based on the web-based application systems that assist people in making their various applications processes online such as loan applications. Therefore the functionality of these websites will be determined and their strengths and weaknesses evaluated.

To achieve this, both a questionnaire and an interview research methodologies will be used to clarify the research inquiry and if the inquiry is imperative or not.

## **2.6 PREVIOUS STUDIES**

After doing a broad research, the following web-based bursary/loan application systems were found to assist people making online applications. Such applications include:

**Mwala NG-CDF Online Bursary Application System**

It’s a bursary management system developed for Mwala Constituency students in Machakos County who are in higher learning institutions to help them apply for the NG-CDF funded bursary scheme online. Any student from the same constituency can apply for the bursary from anywhere in the world. The system is designed in such a manner that only students from the defined constituency can apply (Mwala NG-CDF Online Bursary , 2020). When the application process is open, the system generates bulk messages to all the registered students informing them that the application is open. On disbursement, the system also generates bulk messages to the parents informing them that their child was awarded a certain amount of money from Mwala CDF.

However, despite being such a helpful system, with it comes some drawbacks namely:

* The system doesn’t give the students a platform to file their complaints if at all they have any.
* In the event an application is dismissed, the applicant doesn’t get any message communicating to them why their application was dismissed.

**Higher Education Loans Board (HELB)**

HELB is a statutory body which was established in 1995 by an Act of Parliament ‘Higher Education Loans Board Act’ in Kenya. The body has a system through which the government supports students in higher learning institutions by financing their education. The system allows for students from colleges and universities to apply for loans. The system also keeps track of the student’s educational progress and after completing their studies, the students are then expected to repay the loan awarded to them by the government (Higher Education Loans Board, 1995). The board also has a system which allows students who need more funding to appeal for the same.

The drawbacks of this system however includes:

* This system does not provide a platform through which students can file complaints and for that reason they end up sending their complaints to HELB via their social media handles.
* For a student to apply for a loan from the Helb board, he or she must own a Kenyan Identification Card causing a limitation to the students who have had the chance to join higher learning institutions before attaining the age of 18 years.

## **2.2 GENERAL CONCLUSIONS**

After analysis of the review was done, the findings were that there is not yet any website that can solve the problem existing in the Students Organization of Maseno University (SOMU) bursary scheme fully. Therefore, there will be the need for a system that will assist students of Maseno University to have a convenient and transparent bursary application process.

## **2.3 CONCLUSIONS**

In conclusion, the above literature review shows that there are efforts to assist students to have a convenient and transparent loan/bursary application systems. Some have even gone an extra mile of providing a platform where the students can contact the support team in case of any issue. Unfortunately, most of these platforms are not for student-based environments.

Having such a platform would bring about convenience and transparency in the loan or bursary application process. This would bring about the best user experience with the system due to the user friendliness.

As a result this literature review permits and qualifies the implementation of a bursary management system which will not only fill the existing gap but also improve the user experience with a more user-friendly, convenient and transparent system.

# **CHAPTER THREE**

## **RESEARCH DESIGN AND METHODOLOGY**

## **3.1 INTRODUCTION**

Examining the variables related to Kenya education System and the enhancement of technology in the world and the contribution of these variables to the improvement of learner achievement demands a dynamic research that is firmly rooted in both qualitative and quantitative epistemologies. This is necessary to ensure respondents (Students, Staff and the Education System) in a study of this magnitude and complexity are not denied their subjective views on the phenomena being studied while the objectivity of the entire research enterprise is guaranteed. In line with this thinking, this study is based on mixed methods research approach which is explained in detail in the following sections.

## **3.2 RESEARCH PROCESS SUMMARY**

After identification of the research problem or an area of interest, the researcher has to identify appropriate method(s) to approach the problem. In order to give direction to this study, the research process shown below was adopted. The research process provides a summary of the important issues that were taken into consideration and reviewed before undertaking the research. The different steps in the diagram serve as a basis from which to consider the following: the philosophical orientation of the researcher, the research approach adopted, appropriate research strategies, the research time lines that are under review and the data collection techniques employed by the researcher.

**FIGURE 3.1 RESEARCH PROCESS SUMMARY**

**PHASE 0**

**Preparation**

**PHASE 1**

**Literature Review**

**PHASE 2**

**Theories and Assessment Tools**

**PHASE 3**

**Data Gathering**

**PHASE 4**

**Data Analysis and Conclusions**

1. Project Plan

2. Research Methodology

1. Historical Information

2. Industry Information

3. Review of the related studies

1. Theoretical foundation

2. Questionnaire based on the chosen model

1. Questionnaire distribution

2. Gathering of answered questionnaires

1. Analysis of Maseno E-bursary

2. Recommendation for future works

Figure 1.0 Research Process Summary 1

## **3.3 RESEARCH DESIGN**

Durrheim (Durrheim, 2006) describes research design as a strategic framework for action that serves as a bridge between research questions and the execution or implementation of the research. Helen (Dulock, 1993) defines it as a blueprint or a plan specifically created to answer the research question and to control variance. According to Leedy (Leedy, 1997), research design is a plan for study, providing the overall framework for collecting data. Quantitative research, according to Van der Merwe (van der Merwe, 1996), is a research aimed at testing theories, determining facts, demonstrating relationships between variables and predicting outcomes. Quantitative research uses methods from natural sciences that are designed to ensure objectivity, generalizability and reliability (Weinreich, 1996) .

The techniques used in quantitative research include random selection of research participants from the study population in an unbiased manner, the standardized questionnaire or intervention they receive and statistical methods used to test predetermined hypotheses regarding the relationship between specific variables. The researcher in quantitative research, unlike in the qualitative model where he/she is regarded as a great research instrument due to his/her active participation in the research process, is considered as being external to the actual research, and the results are expected to be replicable, no matter who conducts the research.

Qualitative research aims to address questions concerned with developing an understanding of the meaning and experience dimensions of humans’ lives and social worlds (Fossey, 2002). Aspers and Corte define qualitative analysis as an iterative process in which improved understanding to the scientific community is achieved by making new significant distinctions resulting from getting closer to the phenomenon studied (Aspers & Corte, 2019).

## **3.4 SYSTEM REQUIREMENTS GATHERING AND ANALYSIS**

### **3.4.1 REQUIREMENT GATHERING: DATA COLLECTION**

This is a mixed methods research where both qualitative and quantitative methods of data collection were used to study the variables related to Kenya Education System and the enhancement of the technology in the world and the contribution of these variables to the improvement. Given this focus, questionnaires and interviews were used to collect data. According to Van der Merwe (van der Merwe, 1996) , in theoretical studies, the researcher produces his/her evidence to support arguments from existing facts or information.

### **QUESTIONNAIRES**

A questionnaire is a form containing a set of questions, especially addressed to a statistically significant number of subjects, and is a way of gathering information for a survey. It is used to collect statistical information or opinions about people. The Oxford Advanced Learner’s Dictionary (Mitton, 1992)defines a questionnaire as a written or printed list of questions to be answered by a number of people, especially as part of a review. For the purpose of this study, the questionnaire formed the first data collection method. The questionnaire was administered to 100 students from different faculties in the whole varsity.

#### **3.4.1.1 CONSTRUCTION AND THE STRUCTURE OF THE QUESTIONNAIRES**

Structured questionnaires were used as research instruments for the first section of this study. Two different questionnaires were constructed, one for students and another one for staff personnel and Student Organization of Maseno University (SOMU) leaders. The purpose of the questionnaire for students was to find out how they apply for the SOMU funded bursary and their perception with regard to the role of technology in the university. The purpose of the questionnaire for the staff personnel and SOMU leaders was to gather information concerning their perception with regard to the role of technology in the bursary application process and how they deliver their services to students.

#### **3.4.1.2 DISTRIBUTION AND COLLECTION OF THE QUESTIONNAIRES**

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