

## Designing a Cloned Online Help Desk System for Cavendish University Uganda

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### Abstract

The COVID-19 outbreak led to a shift from face-to-face to online teaching, thus restricting campus access. The adoption of online teaching and learning forced both lecturers and learners to adopt a number of strategies for learning. Although the transition was embraced, a number of difficulties were encountered by both teaching staff and students. Some of these included the unwilling attitude of some teaching staff and students to migrate to the online platform, the inability to afford internet charges, among others. These problems were either not dealt with in time or not received because of the lack of an online help desk system. This study aimed at collecting data to guide the development of an Online Help Desk system to address the challenges faced by users as they navigate the platform. The adoption of a system development methodology known as Structured System Analysis and Design was done. It is assumed that the newly developed system will provide solutions to arising issues and allow users to highlight problems, learn about user experiences, ease information flow and dissemination, as well as provide a monitoring and evaluation tool for various stakeholders.

**Keywords:** *Online help desk, examination, computer and based application*



## Introduction

With the introduction of e-learning, the adoption of an online help desk system is inevitable. An online help desk system is defined by Salgado et.al (2015) as a collection of one or more programs designed to provide user assistance embedded in a larger program or computer system. It is basically a system for posting online questions and responding to them as well. Salgado et.al (2015) note that a system that permits online questions and answers is a help desk available in a number of systems and software. It provides solutions in regard to system usage and implementation in an educational context. He further states that the system helps students solve problems that arise during lectures. Such systems clarify on the academic doubts students have and provide solutions whenever needed.

Since 2020, when Cavendish University Uganda (CUU) adopted the fully online teaching and learning approach, platform users have not had a central system that receives problems and provides solutions to them. Users have relied on either their individual lecturers, the ICT or DLIT departments for help. If there is a known online help desk system, it is assumed to avoid the escalation of negative behavioral outcomes amongst users. In the context of solving educational challenges, users can know exactly where to go for help and assume solutions with the existence of the system. Challenges can be factored into sections based on their need. This allows the assigned office to identify the need to address in the shortest time possible without creating red tape in responding. Problems also faced by lecturers at any one time as they use the system can also be solved, thus, benefiting the student.

Designing an online help desk system will, therefore, be fully automated and web-based - where a user can have access at anytime and anywhere. The objectives of this study were: 1) to carry out an online survey on what challenges are faced by users, and 2) to develop and design an online help desk beneficial to users

## Related Literature

Gyll and Gyll (2003) define a help desk system as one that is able to create a stable environment where it is easy to make decisions and find solutions to problems. Help Desk Systems have been developed in order to help organizations effectively communicate, organize, track and report issues. The importance of web-based help desk systems is that organizations can access information at anytime and anywhere (Hafifi & Ariza, 2012).

According to Moré et al. (2012), online help systems are categorized into four dimensions 1) Access method - how users input help requests; 2) Data structure - how the help information is organized; 3) Software architecture - how users and the help systems interact; 4) Contextual knowledge - the extent to which the help information is relevant to the environment and the tasks of a specific user. However, this categorization had some hitches; one shortcoming of this categorization was that these dimensions only considered software-related aspects and omitted user interface-related factors (Moré et al., 2012).

In the recent advancements in online help systems, educational institutions have started to incorporate help systems in learning by integrating them as a question and answering systems.

Higher institutions of learning have started introducing open source software, and practical experiences have been reported in various scientific journals. Introductory examples of e-Learning and their effectiveness have been reported. Construction and application of an e-Learning environment are often based on open source packages, such as MoODEL, and Claned, among others (Brill et al., 2002). Since e-Learning offers a learning environment which exceeds spatial and time-based restrictions due to the use of web technologies, its usage has continuously increased every year (Lebedeva & Zaitseva, 2014). All information systems built for the purpose of educational support are summarized under the term, "e-Learning." Installations and operation of an e-Learning environment are already playing an important role in educational facilities, such as universities; anyone can install an e-Learning system without much effort (Moré et al., 2012).

Although online help desk systems are being used by universities worldwide, CUU does not have such a system tailored for that cause. The future and backbone of CUU's e-learning success lies in the success of a developed online help desk system that is tailored around question input, information retrieval and answer extraction. Manning this system is entirely by the ICT docket whose staff are responsible for the communication flow between system users and stakeholders. This, therefore, justifies the development of an online help desk system capable of coping with changing technologies and growing number of users.

### **Methodology**

An online google survey was sent out to users to participate in the study, and the results were used to assess the impact of the shift to online teaching and learning. The survey was triangulated by digital interviews or virtual meetings to identify ways of improvement; thus, feeding into the development of the help desk system. The data was collected by a selected group of persons from the DLIT and ICT departments. The respondents who took part in the study were purposively sampled, also known as judgment sampling, which is a non-random technique that does not need underlying theories or a set number of informants (Ma, 2007). Purposive sampling enables the researcher pick a sample based on his/her own judgment, and fit it to avail the required data.

Questionnaires and interview guides were the main instruments for data collection. The questionnaire was used to collect information from students, and interviews were conducted with lecturers. At least an equal number of students from each faculty, and lecturers took part in the data collection exercise. These methods was assumed to be the most accurate methods of data collection of experiences and real life situations. Out of the targeted 3323 students, 104 lecturers and 10 non-academic staff ( a total 3437 respondents), 357 students, 83 lecturers and 10 non-academic staff (a total 450 respondents) participated in the study. These were sampled using the Yamane sample size determination formula. Questionnaires for students were filled out, and a total of 98 interviews with lecturers were conducted. As shown in Table 1.

**Table 1:** Study Respondents

Category of respondents	Population	Sample	Sampling technique
<b>Students</b>	3323	357	Purposive sampling
<b>Academic staff/lecturers</b>	104	83	Purposive sampling
<b>Non-academic staff/DLIT and IT department</b>	10	10	Purposive sampling
<b>TOTAL</b>	<b>3437</b>	<b>450</b>	

**Source:** primary data 2022.

## **Results and Findings**

### **Designing an online help desk system**

Cavendish University Uganda uses internet to connect lecturers with students within the learning environment. This is done by setting up a selected number of computers to a server which needs authentication to make changes. The first step in ensuring this is done right, is building usability capacity of all stakeholders including students, lecturers and staff (staff include the ICT, DLIT, enrolment and examinations departments). The system is expected to be designed around the outcomes of the aforementioned departments. The requirements for designing the system are dependent on the software and system design which is expected to establish goals, requirements and services of the end user that eventually defines the system architecture. Designing the system depicts activities and actions that support user choice and interaction. This means, the system should ensure that a student can relate with the lecturer in any academic form while using it. Testing and implementing the system involves checking if any graphical interface is compliant with the computers connected to the server, and if it works in accordance to the required user specifications. The system can be designed by using a number of symbols easily enable data flow from the time a user logs in to the time he/she logs out. In respect to the lecturer, he/she is enabled to teach, examine and grant students access to results. For a student, the system can enable him/her to join chat sessions and group discussions, as well as, take tests and exams during the scheduled time, and view results and feedback.

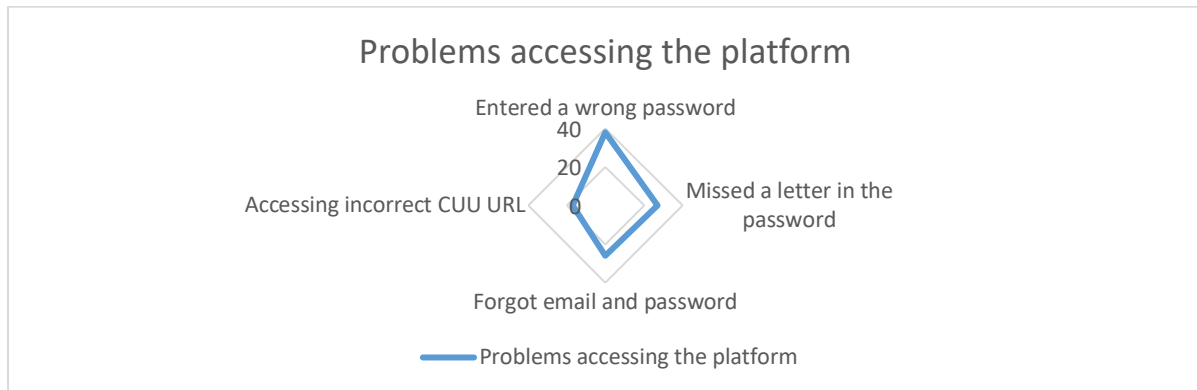
### **Survey on challenges faced by users**

For the online help desk to be designed, one must understand the kind of challenges users face. The following information was collected through the various evaluation reports given to students after every semester. The aim of these evaluations was to identify problems and solutions before the beginning of another semester. The problems identified by students while using the ODEL platform are discussed below.

#### *Inability to log into the ODEL platform*

This is one of the biggest challenges the university under the DL office identified. Approximately 30% of the students (107) highlighted that they could not access the platform because they either entered a wrong password or missed a letter in the password. Other errors included forgetting the email and password; accessing the incorrect CUU ODEL URL; and, using personal email addresses which are not part of the campus firewall system. The identified challenges in relation to logging onto the platform are shown in Figure 1.

**Figure 1:** Inability to access the platform



**Source:** Primary data 2022.

#### 4.1.1.2 Lack of Instant Communication

In an in-person setting, communication happens instantaneously, making it easy for students to get answers and clarify points of confusion. In an e-learning setting, communication is often asynchronous, where a student can log in a complaint and a response is either late, slow or non-existent. At least 18 (5%) students complained about not getting immediate feedback from lecturers. This means there's a communication gap between the lecturer and the student which can easily cause misunderstandings.

Providing feedback is one of the most important and meaningful ways that a lecturer engages with his or her students. When feedback is delayed by additional days or weeks because of an online format, students become confused or uncertain about lecturer expectations and class performance. The ODEL platform has the ability and option to engage students, for example, enables staff to respond to any queries in real-time. The platform, however, does not have the option of alerting a lecturer to respond to the query unless he/she is logged in. If the chat can be tagged to a lecturer's email and/or phone, it is assumed that feedback will not be delayed.

The current ODEL platform was designed to enable students, staff, and admin to interact with the activities on the platform in form of live chat messages, however, students use it to share their individual, group, and class-related problems, but feedback is not in real-time. Students cannot upload certain files to share with others, yet this can be done using various social media platforms like WhatsApp (Hartoyo, 2009). However, Hartoyo commends that although the use of ICT in education, including language teaching and learning, is a positive response

to the development of information and communication technology in the third millennium, there is a new trend in the ICT world which is called the social network. The social network has been defined by many and generally viewed as referring to networked tools that allow people to meet, interact and share ideas, artefacts and interests with each other (Hartoyo, 2009). This social network has opened up new opportunities of interaction and collaboration between teachers and learners.

The use of social networks has become popular in everyday communication. It is sometimes used for collaborative learning, especially in language learning. Social network applications such as Facebook, Twitter, LinkedIn, among others, have been remarkably popular in the communication world (Riyanto, 2013). The most recent popular social network is the WhatsApp application. WhatsApp Messenger is a proprietary, cross-platform instant messaging application for smart phones. In addition to text messaging, users can send each other images, video, and audio media messages (Riyanto, 2013). The chat program for mobile phones allows its users to use their Internet connection to send messages to each other. Smart phones are becoming increasingly popular and WhatsApp is available for almost all Smartphone.

The app service is very similar to text messaging services, however, because WhatsApp uses the internet to send messages, the cost of using WhatsApp is significantly less than texting. One can also use WhatsApp on a desktop by simply logging into the WhatsApp website and downloading the app to a Mac or Windows computer. WhatsApp is popular among teenagers because of its features such as group chatting, voice messages, and location sharing. To use the app, one needs a compatible smartphone or tablet with a sim card, an internet connection, and a phone number. The app uses a phone number as its username, and the account is locked to the phone; however, it's possible to transfer contacts over to new devices. In countries like Ireland, the app is free and charges only apply in a foreign country.

In recent times, WhatsApp has transformed into a pseudo-e-learning platform. Teachers not only share notes or information, but can also make learning videos or videos from YouTube and share them on WhatsApp groups. The application has managed to close the gap in communication. Therefore, it was possible to share problems with the OLDE support staff; instant feedback is always provided since the ODEL staff was put on standby to receive, identify and solve students' ODEL-related problems.

#### *Upload of wrong modules on individual ODEL accounts*

A module is also known as a course unit. Students are requested to register their study course units and course codes every semester. This requirement is basically to help the university understand and share the right modules for students and lecturers on the ODEL platform. The upload of a course unit depends on the input of the course code. If a student registers a wrong course code, a wrong course unit is definitely uploaded. Each faculty usually has a different course code for the same module, which may not be updated onto the ODEL platform. Consequently, students may be assigned a course code by the faculty which may not be the

same as another. At least 18 (5%) of students who participated in the survey reported such a problem at least once during their course of study. However, students who transfer from one university to CUU, also known as exempted students, are usually recorded as new students and may be assigned course units with different codes that they have taken previously. This could be rectified at the time of uploading modules to individual ODEL accounts - the ODEL administrator could rectify this by inputting all codes for a particular course unit onto the platform for uniformity.

#### **4.1.1.4 Delayed upload of ODEL course units and exams**

A total of 143 (40%) of the students mentioned that they experienced a delay in uploading their exams during financial pressure moments. Once a student pays his/her school fees late, the clearance process by the relevant authorities in charge of uploading the exams takes quite some time. Additionally, when exams are uploaded, students do not get immediate updates and feedback from the clearance offices.

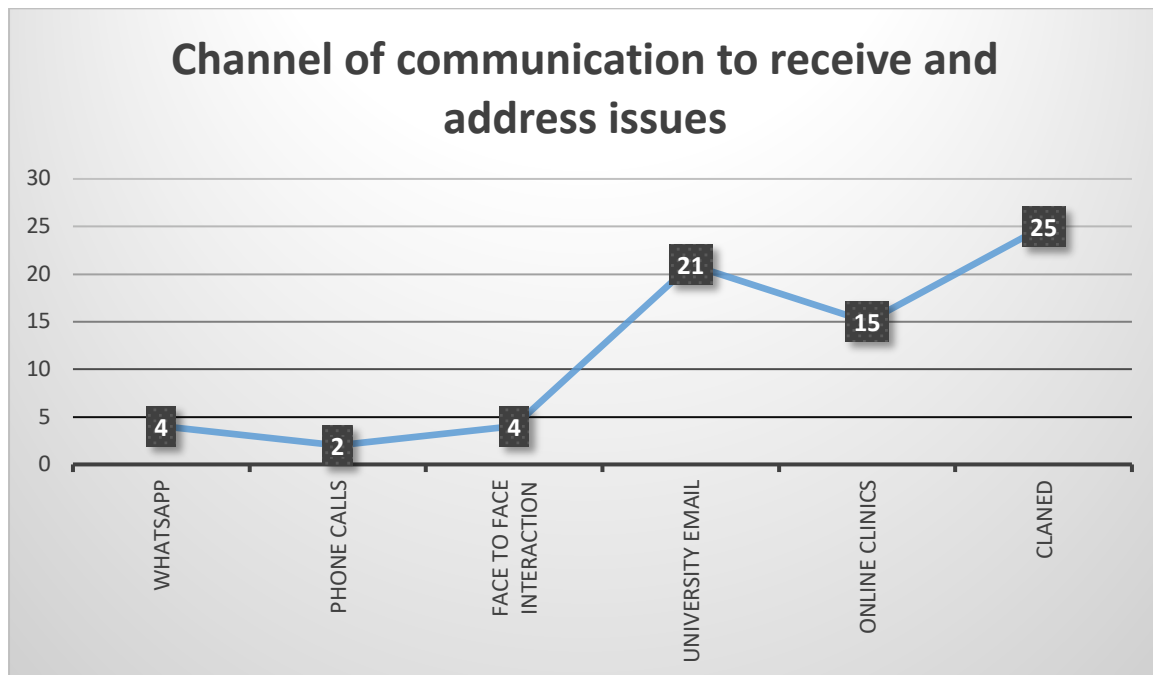
##### *Limited computer skills.*

Limited computer skills affect the effective utilization of e-Learning in public universities. Students possess basic computer skills that enable them to navigate the university e-learning platforms. It is assumed that students acquire computer skills from either the secondary schools that they attend, computer colleges, and/or universities where introductory computer courses are taught as core units. Although CUU, organizes e-Learning sensitization programs for all new students during their orientation week, the skills they acquire are inadequate. Weekly trainings or clinics have been put in place for students, but the turnout is quite low. 18 (5%) of the students mentioned that they did not have the skills to enable them to learn.

##### *Channels used to receive and address student problems*

CUU uses university emails primarily to share information to relevant individuals. Using these particular emails allows users to follow a conversation and understand a discussion in its intended manner. Emails also safeguard against digital threats with best-in-class, multilayered security, as well as engaging students directly and providing clear guidance for doing assignments. Lecturers have been able to streamline workloads by posting and scheduling coursework and building to-do lists in classroom. Unfortunately, when asked how often students access their emails, 71 (15%) said they rarely checked university emails and generally communicated through phone calls and social media platforms such as WhatsApp. This limits the students' ability to to share and receive vital information during their academic journey. This has affected the use of the platform to identify and address student problems.

**Figure 2:** Communication channel to log in student complaints



**Source:** Primary data 2022.

As seconded by Debatur (2020), using online platforms for education purposes is quite challenging. Learners, worldwide, face numerous challenges associated with adaptation to the learning environment, technical issues that slow down the platform, poor time management by users, poor student support, and lack of human support. Solutions to these problems include frequent and clear communication among users, especially teachers and students; having a flexible server infrastructure by optimizing content with adaptive delivery; setting deadlines for quizzes, assignments and forums; and, having an online help desk that not only allows users to state their problem, but, also to look through the frequently asked questions (FAQs) and their responses on a preface visible upon users logging in.

### **Requirements for the online help desk**

Setting up an online help desk system is usually based issues raised by system users. Based on the problems and setbacks identified in the previous section, the development of the CUU online help desk will feature based on the following questions:

1. What support channels are currently used? what channels could be added/eliminated?
2. How big is the CUU IT support team? How many more are needed for each faculty?
3. Does the support team manage the load of the phone calls? What is the average waiting time?
4. What other modes of communication can be used to address challenges?
5. How many repetitive questions are received? How can you organize self-help or self-



service besides the weekly clinics? Do you have FAQs or a Knowledge Base? Will users be able to find the answers themselves? If not, is there assistance from the IT department?

6. What software currently used by CUU could be integrated within the new Help Desk tool?
7. At what stages of implementation should user satisfaction be measured?

### **Developing and designing the online Help Desk system**

The designing of the online help desk is based on identifying, resolving and tracking issues faced by ODEL users at CUU. It is aimed at automating reminders based on issues, setting deadlines and feedback provided. The system is aimed at benefiting students to access, raise complaints and track progress or feedback. The communication channels that could be used through the online help desk include the Claned platform chat, and social media platforms such as WhatsApp, among others. These can be monitored by the relevant IT and DLIT staff. The staff are able to determine what self-help options and automated responses can be used, and who in particular monitors the different aspects of their use. The main aspect of the system is the way information is collected, sent to the relevant problem solvers and feedback sent back to the one who logged in the complaint.

### **Step 1: Input description**

A user must be able to log in and out of the system. This kind of environment allows the user to navigate the system based on preferences. A lecturer can engage with students in real time or later where he/she can view submissions and assess them. Feedback is then provided to student who wishes to monitor course progress. A student is also able to navigate the system to discuss, log in a question and discuss with fellow classmates with the guidance of the lecturer. A student can also log in a complaint by filling out an online complaint form clearly stating the kind of assistance he/she seeks. Options include enrollment, access to modules, exams, missing results and others. Below is an example of a complaint form that can be used by students. This form, as shown in Table 2, can be viewed by the lecturer and relevant staff who can then follow up on the issue raised.

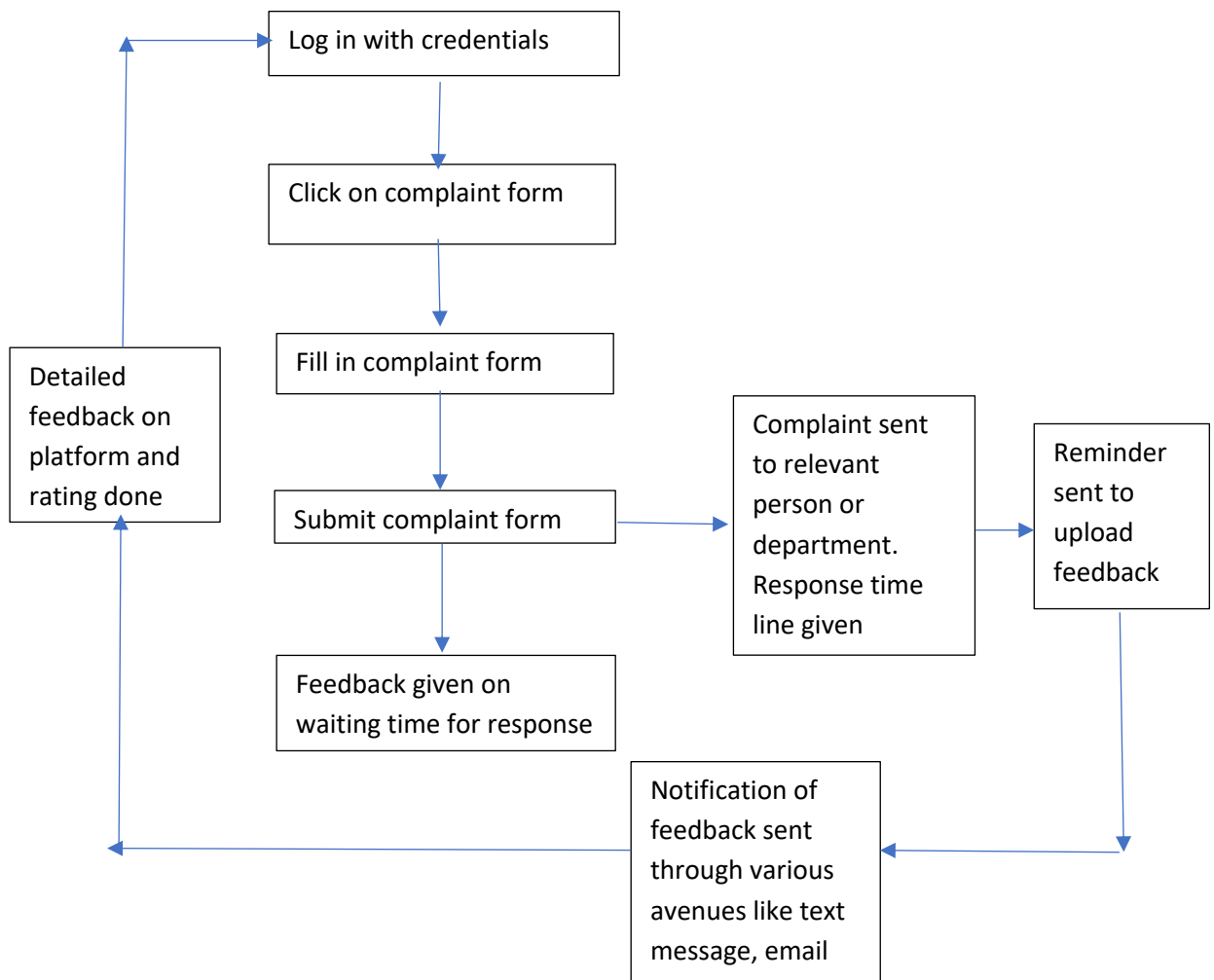
**Table 2:** *Complaint Form*

<p><b>Complaint form</b></p> <p>Name: _____</p> <p>Phone number: _____</p> <p>Email: _____</p> <p>ID number if applicable: _____</p> <p>Course name if applicable: _____</p> <p>Course code if applicable: _____</p> <p>Type of complaint (Tick where appropriate): Finance: Enrolment: Claned:</p> <p>Specify if other: _____</p> <p>Description of complaint: _____</p> <p>Preferred mode of communication to alert you on feedback (SMS, email, WhatsApp etc):</p>
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Source: Primary data 2022

Step 2: Communication system design chart

Figure 3: Design chart



Source: Primary data 2022

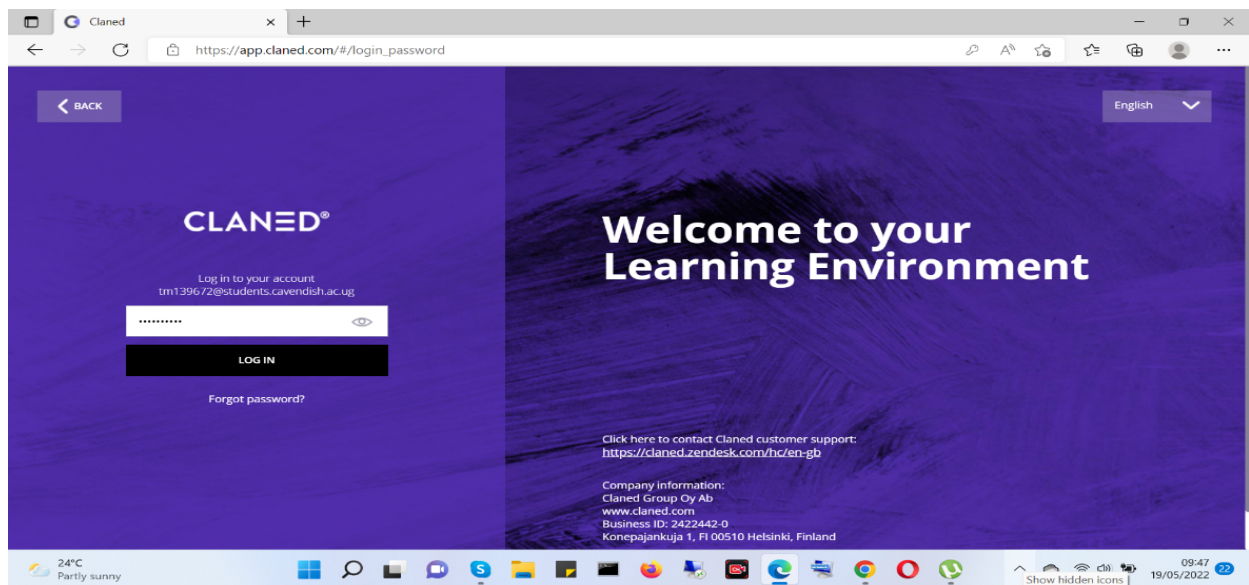
Step 3: Activity system design

Once a complaint has been logged into the system, the responsible person(s) re-directs it to the relevant department through an email with the details of the complainant. A timeline for the complaint to be responded to is also provided. Occasional monitoring of an update is done as a way of following up on the solution. Once a solution is secured, a notification is sent through for one to log onto the platform and view the solution details. A simple feedback form is then requested to be filed out as confirmation that the solution given is satisfactory. The information flow of how a complaint is addressed using the platform is shown in Figure 3.

CUU chose to use the ODEL Claned platform to ensure teaching and learning. The requirements for this include the ability for both students and lecturers to log in and manipulate the system. The system is able to reject or accept log in credentials as well as time particular activities such as accessing CATs and exams and uploading the answers.

For a student to log on to the platform, he/she is required to have the official credentials that include a valid student email address and password. A student can post inquiries in the chat section, as well as, download a question and upload the answers. A student can also view results and feedback of what has been communicated as shown in the Figure 4.

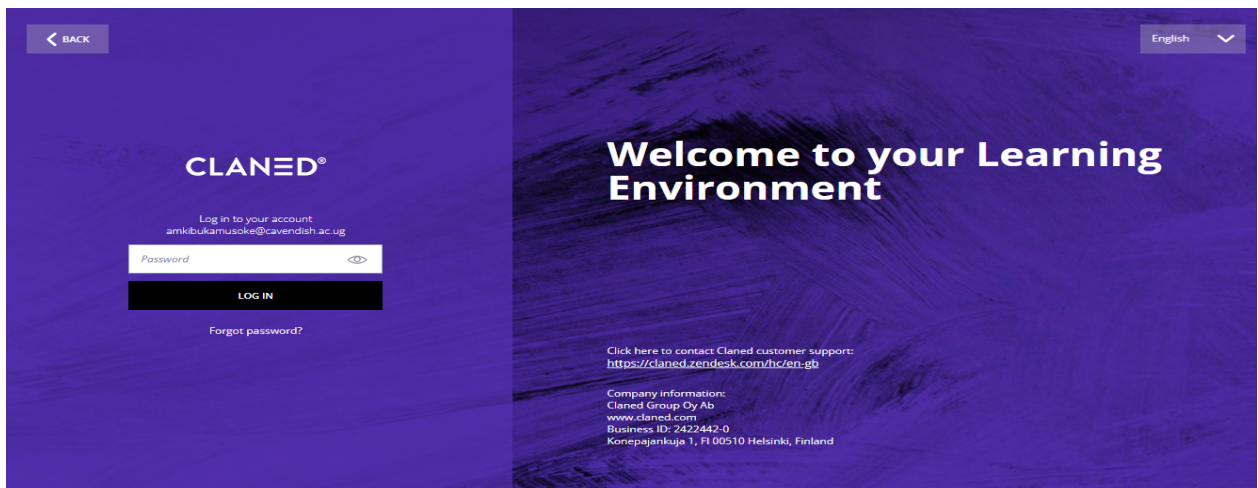
**Figure 4:** Student login page



Note: adapted from the Cavendish University Uganda online platform

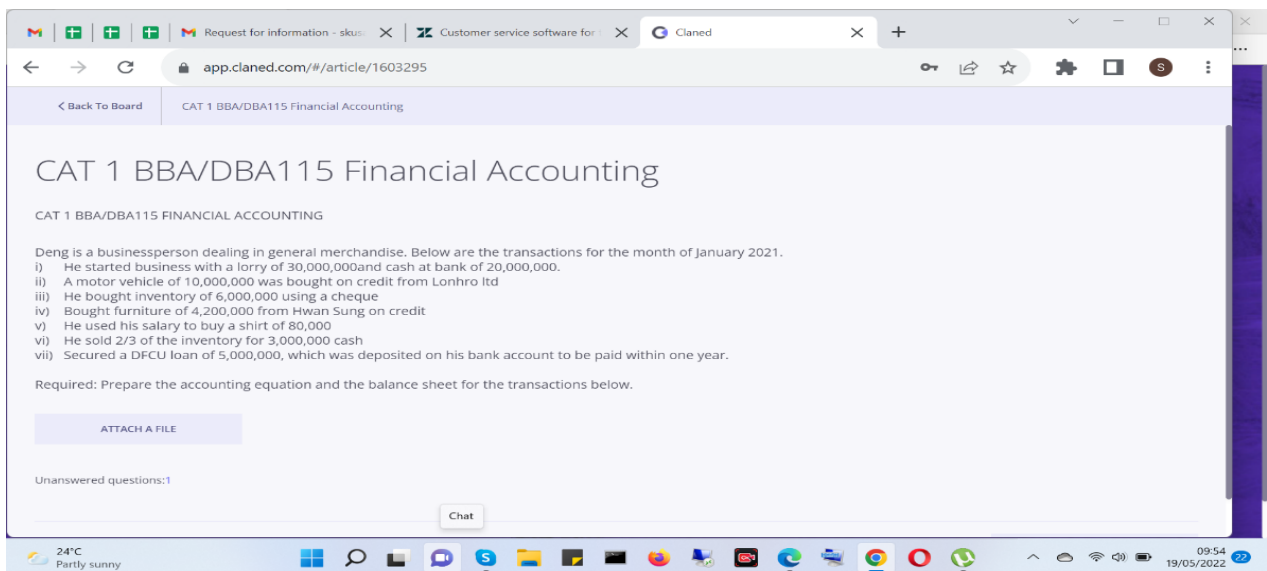
The lecturer should have a user name and password to log in (Figure 5); permission to add or delete content, updated content, ensure continuous assessment of tests (Figure 6) and exams are uploaded (Figure 7), assessed (Figure 8); and, feedback given in real-time (Figure 9). The lecturer can also communicate in the chat.

Figure 5: Lecturer login page



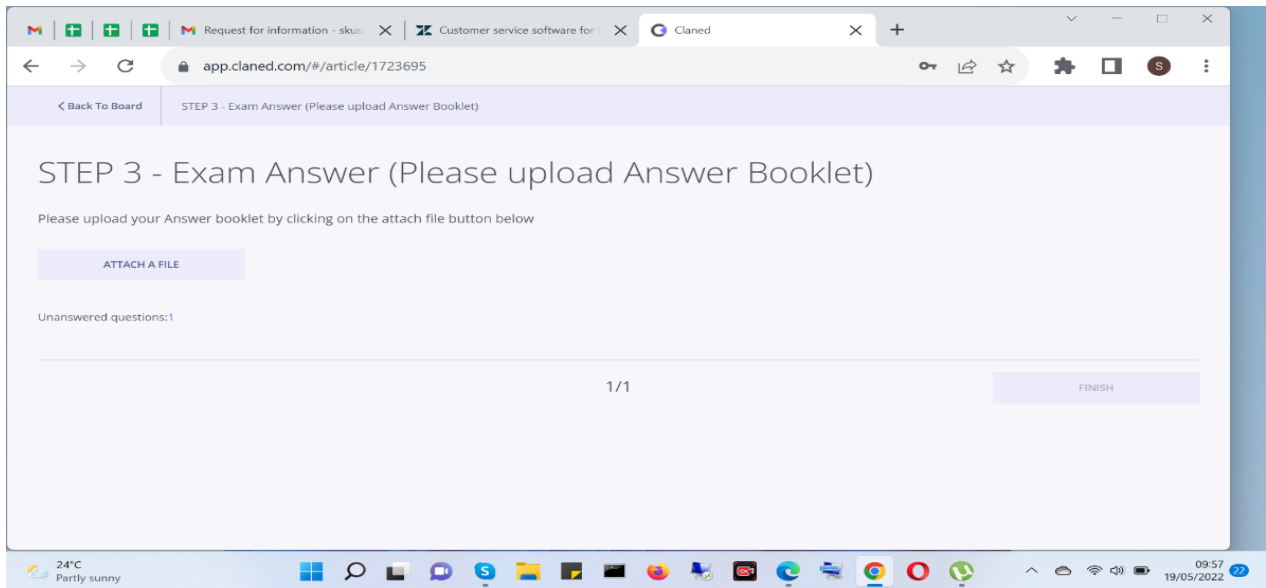
Note: adapted from the Cavendish University Uganda online platform

Figure 6: CAT upload page



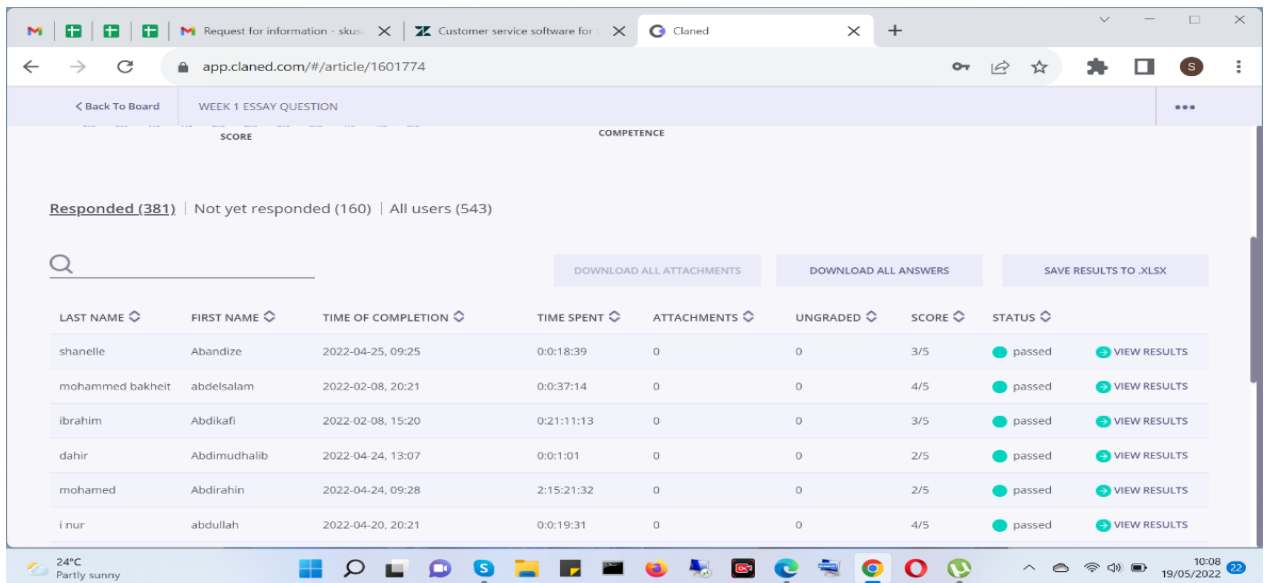
Note: adapted from the Cavendish University Uganda online platform

Figure 7: Exam upload page



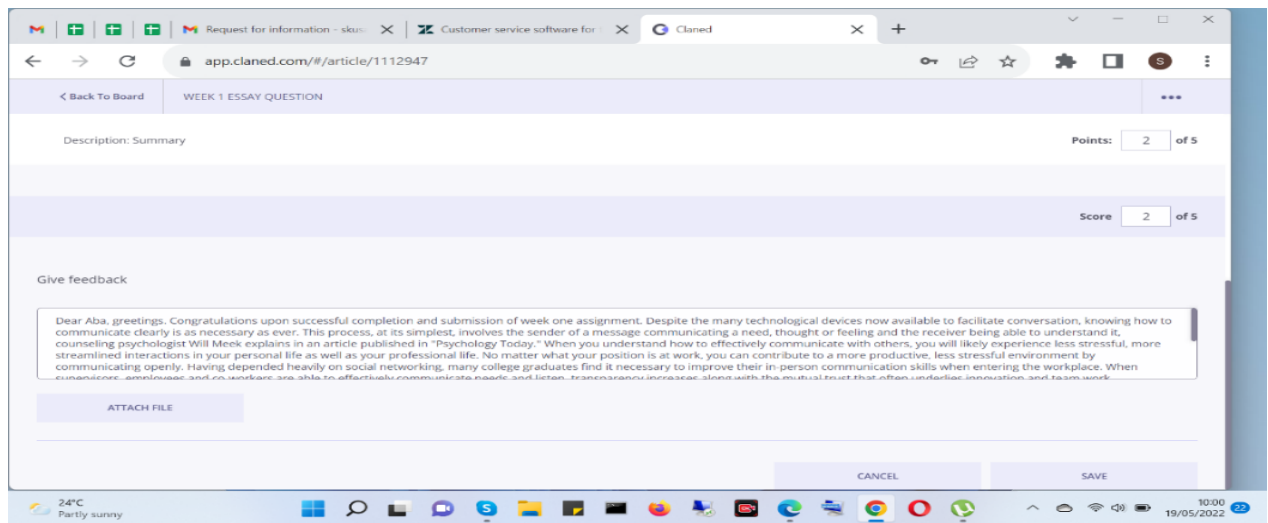
Note: adapted from the Cavendish University Uganda online platform

Figure 8: Results page



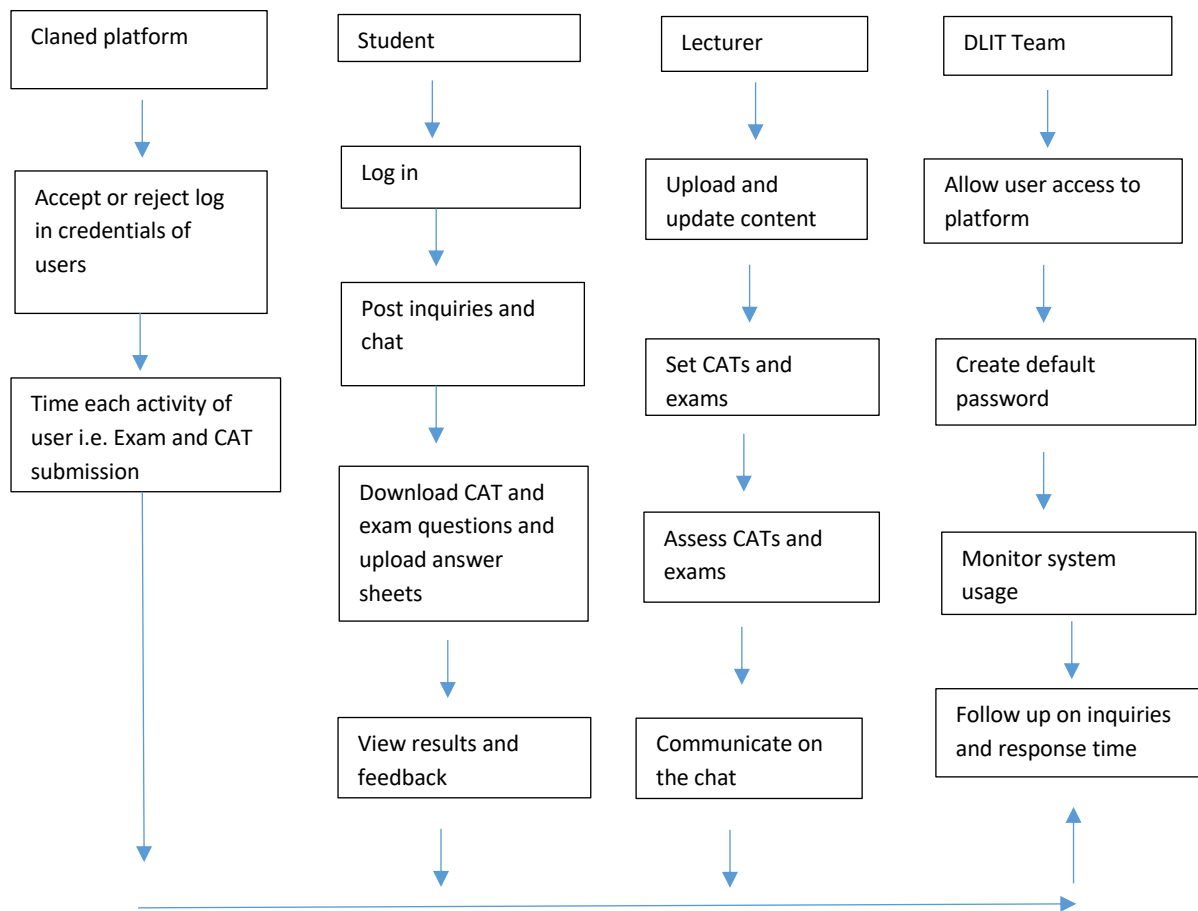
Note: adapted from the Cavendish University Uganda online platform

**Figure 9:** Feedback page



Note: adapted from the Cavendish University Uganda online platform

**Figure 10:** Activity system design chart



Source: Primary data 2022

For the above activities to be done in time, the office responsible (DLIT team) should be able to monitor the activities on the platform. The team allows users to access the platform by creating default passwords; and, follows up on inquiries made through the platform in the shortest time possible. The design for the activities of responsible persons on the system is shown in Figure 10.

## Conclusion

The need for the development of an online help desk system arises from the survey results that showed the lack of monitoring of activities on the platform. This creates a backlog of inquiries and problems that need to be rectified in real-time. The system has a design that improves communication among users and highlights activities that should be carried out by specific offices and individuals to support users in real. It should be noted that more features need to be added to the system to improve and accommodate the teaching and learning process. Through the online help desk system, students will be able to raise their problems to the relevant lecturers, and ICT and DLIT team regarding any academic subject matter. The help desk system will have an option for choosing priority levels as per the student's need, which will notify all stakeholders, and register a response. This will be known as the question and answer system. The system is assumed to ensure efficient and accurate areas for improvement in teaching and learning. It will be scalable to cover all faculties of Cavendish University Uganda.



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