

**ONLINE CLINICAL FEEDBACK SYSTEM FOR TRACKING
CUSTOMER CARE ISSUE**

**CASE STUDY:
KAMPALA INTERNATIONAL UNIVERSITY CLINIC**

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APPROVAL

This is to certify that this report has been prepared under my supervision and is ready for submission

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DEDICATION

I Driwaru Winnyfred dedicate this report to my parents Mr. George Lemeriga and Wikoru Lemeriga for supporting me financially through my entire academic life till completion of this report. My friends Wanyenze Loselah, Okello Dickens, Oscar John Chogo, Waniyo Annet, Mugararu Andrew who helped me a lot in my stay at Kampala international university. I finally dedicate this report to Mr. Bada Joseph Kizito who helped to guide on academic issues throughout my entire studies at Kampala international University.

DEDICATION

I Okello Dickens dedicate this report to my Uncle Mr. Charles Okello (Alfred Opio), My Aunt Brenda Abur and also to Mr. Quirino Omeja, Mrs. Joice Ayugi, and Mr. Juk Alex for supporting me financially through my entire academic life till completion of this report. I extend my dedication of this report to Mr. Martin Okwir, Mr. Nicholas Okwel, Mrs. Harriet Yapi, Jusphine and her family, my brothers Omeja Oscar, Yapi Steven, Ongom Solomon, and to my only sister Nancy Ayugi for their prayers. Special thanks also goes to Opito Joel, My friends Wanyenze loselah, Driwaru Winnyfred, Oscar John chogo, Omare Davies Omwoyo, Mukama Islail, Ogwang Jimmy, Onen Francis who helped me a lot in my stay at Kampala international university.

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Finally I would like to dedicate this report to my beloved late father Mr. Sebastian Yapi who passed away in 1999.

LIST OF TERMS

Customer	Is someone who pays for goods or services.
Data	Is anything given or admitted as a fact on which a research inference is based on; and is actual, or assumed, used for the basis of processing.
Information	Data that has been processed by attaching meanings.
FAQ	A compiled list over the user most frequently asked questions.
Web sites	Consists of electronic pages called web pages (Novak & Hoffman, 1996)
WWW	Is a distributed information-structure consisting documents or Web sites that are hypertext linked.
HTML	Is a language that information on web pages are made
E-mail or electronic mail	Is the exchange of electronic messages on the Internet

ABSTRACT

This project was all about providing feedback. It established secure and better methods for students' of Kampala international university to make consultation online on health issues even if they couldn't go physically to the university clinic. This project was carried to benefit the students of Kampala International University. This study addressed fact that students who were delayed while making queues at the university clinic were able to make online consultation with no costs. The tools used for collecting data in this study was through the interviews, observations made and review of the existing documents. The study introduced the various hardware and software resources to be used for designing a feedback system for Kampala international university clinic to track customer care issues.

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter covered the background, problem statement, purpose of the study, from this that the objectives, research questions and significance of the study were derived. It also included the limitations of the study.

1.1 Background to the study

The introduction of the World Wide Web (WWW) or simply the “Web” in 1993-1994 served as a breakthrough for electronic passive solicitation (Berners-Lee, et al. 1994) initiated a fundamental requirement of passive solicitation. Documents that were consisting of information and graphics were placed on their Web. Many organizations and individuals had websites which contained their web pages. Companies could therefore post a general solicitation for feedback.

Customers and other individuals who accessed the firm’s website could decide to respond to these passive solicitations, as if they were presented with comment cards or toll free telephone numbers (Sampson, 1998).

Sproull and Kiesler (1994) argued that e-mail could not lend itself to passive solicitation of feedback. A customer could not go out and grab an e-mail message that had not been specifically sent to him or her. Companies would put customer response e-mail addresses on product labeling, however, such passive solicitation were through the product not through electronic means.

KIU had various ways of communication that is very easy for students to keep in contact such as phone calls to ask questions or they can either go to the KIU CLINIC office. However, students were not satisfied by the way of communication as it had many weaknesses especially by the way information was delivered. For instance, if a student was to make a call, he or she would not get the exact answer or solution wanted as the person who was responsible to pick up the phone could be very busy working on patients

or the call could be answered by another person from the unit. Meanwhile if they used email which is for the university but not the clinic, students couldn't receive any response in a short period of time

1.2 Statement of problem

A user (customer; in this case a student) who wanted only to get some information had to contact the administrator or any other health worker every time. This became very expensive for a student who was in a very far place like in Nigeria and or Kenya to easily get any health information from the clinic. Just because there existed no system over the internet yet the world has become a global village. Above all, time wastage was another issue in that was not handled by the current paper based system or sometimes no system at all since certain information needed by students were handled by words of mouth only; this was inconvenient and unreliable. Yet an online user friendly feedback system which tracks all customer care issues was meant to be accessible from any part of the world over the internet which makes it convenient, less expensive, less time consuming, for a customer to get any information he or she needed at any time.

1.3 Purpose of the study/Main objective

The project intended to develop a reliable, efficient and easily accessed online clinical feedback system for tracking customer care issues that played a vital role in providing basic health services/ information to the remote village population of KIU students at their door step. This system enabled expert doctors to monitor patients in remote areas of the world.

1.4 Specific objectives

- To investigate the effects of the face to face consultation in comparison to this proposed project

- To analyze the requirements to design a reliable, efficient online feedback system for tracking customer care issues
- To design a database and website for a customer support feedback system that can be accessed over the internet
- To develop online feedback system for tracking customer care issues using PHP and MYSQL database.
- To test online clinical feedback system for tracking customer care issue.

1.5 Research questions

- What are the effects of the face to face consultation in comparison to this proposed project?
- What requirements are needed to design a reliable, efficient online feedback system for tracking customer care issues?
- Which method can be used to test the security of online feedback system for tracking customer care issues?
- How can a database and website for a customer support feedback system that can be accessed over the internet be designed?

1.6 Scope of the study

1.6.1. Geographical scope

The study on online clinical feedback system for tracking customer care issues was conducted in Kampala International University. This meant conducting from the students of the university and the university clinic. The researcher collected data using

questionnaires, interviews, group discussions, and document analysis technique (document review).

The study looked at determining the possibilities of developing an online clinical feedback system for tracking customer care issues compared to the existing paper based system at the Kampala International University clinic.

1.6.2. Time scope

The study was conducted by the researchers within a period of three months. This period of time was relatively adequate for the researches to carryout data collection, analysis and a sample survey design of the system.

1.6.3. System scope/Technical scope

The study only concentrated on Kampala international university clinic which is only part of the operation of Kampala international university. This study only achieved objectives pertaining consultation at Kampala international university from students. However the researchers recommended on the study of other research areas at Kampala international university which could also help the students of the above institution

1.7. Significance of study

The research/study on the online clinical feedback system for tracking customer care issues in Kampala International University clinic was of a great significance on its completion.

- It made it very easy to handle all health related questions submitted by students (or patients who are in this case customers) through the system as is to be availed on the internet since it is to be an online system for providing feedbacks to such questions.

- Still to the students, it reduced wastage of money and time consumption since a student would not have to present him or herself to the clinic simply to ask certain questions when it could be done on the internet at a persons' convenient time.
- The study also yielded data and information that was used for proper planning and decision making at KIU clinic since the system was not only to enable handling of health related questions submitted by students but also suggestions about the clinic that is to say it acted as an online suggestion box.
- The study helped the researchers to gain skills and experience in fact finding, system analysis, design, integration of security to systems and project management among others which will enhance the researchers with the capabilities of being better system developers in future in relation to their field of study and or education.
- The study also enabled the researchers to fulfill one of the requirements needed for the awards of Bachelors degree of Information Technology / Computer Science of school of computer studies; Kampala International University.
- The study also stimulated further researcher related to online clinical feedback system for tracking customer care issues. The recommendations to future researchers help us in coming up with researcher topics that are not researched upon. On the other hand available information was used by researchers while reviewing literature.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter covered the review of literature as an account of knowledge that was established by accredited scholars and experts in the field of study. It involved the systematic identification, location and analysis of documents containing information related to the problem that was investigated. We the researchers intended to use the information from literature review to identify the gaps in the research online clinical feedback system for tracking customer care issues to identify methods, tools and techniques that had been used in the design of online clinical feedback system for tracking customer care issues included strength and weaknesses of those methods, tools and techniques and to identify suggested methods, tools and techniques that needed to be tried out

2.1 Customer care issue/service/support

Customer service was not merely customer relations or how nice frontline workers were to customers. Rather, satisfying or even delighting customers was the goal of excellent customer service. Because customers for different types of services had different needs, customer service strategies would differ and were to be tailored to the target customer.

2.2 customer feedback

Soderlund (1998) argued in more general terms that, feedback was a class of behavior which dealt with the customer's transmission of information. To this end, word-of-mouth was also classified by author to be a subset of this class of behavior. He further argued that that both a "positively bias" and a "negatively bias" were to be expected in feedback behavior but yet feedback behavior but yet feedback behavior was somewhat different. Since it involved in the situation which created the decision to transmit feedback

Soderlund (1998) further advanced his argument to assume a "Zone of difference" also in the case of feedback. He defined this term" Zone of indifference" that meant that, there was expectation of the likelihood of a feedback response to be greater when the

customer's prior expectations were not matched by the perceived performance (negative and positive disconfirmation) compared to the case in which a match didn't not exist (confirmation). Moreover, given this zone of indifference, it was expected that the satisfaction-feedback link was negative in cases of "low" satisfaction and positive in cases of "high" satisfaction.

In arguing their case that positive events produced a stronger response than negative events under certain conditions ("positivity bias", Holmes and Lett (1998) added that customers with positive experiences were more inclined than those with negative experiences to communicate their feelings to others. According to Soderlund (1998), this finding appeared to be consistent with the "Pollyanna principle": pleasantness predominates in communication. One reason was that pleasant items were processed more accurately and efficiently by human perceptual-cognitive structures (cf. Fornell and Westbrook, 1984)

From the above, Soderlund (1998) further suggested that "the basis for interaction with others (the items to discuss) was more accessible when the individual were exposed to a positive event. "Moreover, it was argued by Taylor (1991) that most individuals had a general propensity to strive for interpretation in positive rather than negative terms. That is to say, when people were faced with information or events which challenged their generally positive conceptions, they would try to reinterpret, distort or minimize the negative aspects. In the extreme case, when people encountered something very negative, they would even respond with denial which served to obliterate the memory of the negative experience altogether.

Zairi (2000) maintained that customer satisfaction is not an absolute scenario, but very much depended on interactions; feedback, praise, and yes, complaints. Complaints had to be looked at in a constructive, positive and professional perspective because;

- They were away of receiving feedback from customers and therefore necessary means for putting into action improvement plans.

- They were tools for preventing complacency and harnessing internal competencies for optimizing products and services.
- They were useful way of measuring performance and allocating resources to deal with the deficient area of the business.
- They were useful “mirror” for gauging internal performance and allocating resources to deal with the deficient areas of the business.
- They were useful “mirror” for gauging internal performance against competition and best in class organization.
- They were useful exercise for getting nearer the customer and understanding them better.

He went further to stress that most organizations that face challenges in customer complaints handling:

- Suffered from a lack of systematic approach to complaint handling. Didn't recognize the importance of customer complaints at a strategic level.
- Were ill-equipped in terms of systems and processes for logging in complaints, processing them.
- Were not proficient with measurement and in particular in non-financial areas such as customer satisfaction and complaints
- Had adverse cultures and too much of “blame and reprimand” practices.
- Had not embraced concept of quality management and its related concepts.

2.2.1 Uses of Feedback

Sampson (1998) put forward two most important uses of feedback. He noted that some uses were to be based on ulterior motives such as getting names for mailing list or for other altruistic purpose (i.e. customer serving purpose).

He did focus his attention on feedback uses which improved quality or serve specific customers.

He further hinted that feedback could also be used to track customer perception of current operations (that is to say issues relating to speed and efficiency of service delivery) and also could provide an opportunity for dialogue with the customer.

2.3 Feedback system

It is not uncommon for companies to gather feedback from customers in either active or passively solicited ways. The feedback can take many forms (Including on-site customer complaints). Calls to toll-free customer response phone numbers, and the customer comment cards (Sampson, 1996). Passive solicitation consisted of all appeals made to customers in general without focusing on any specific customer, as with market research. Normally, the sample frame was to be selected with utmost care and diligence in order to avoid biases. Additionally, active effort was adopted to encourage response in order to cater for biases as result of non-response (Sampson, 1998).

Unlike the active solicitation, the company had no control over the sample frame and non response bias of the passive solicitation. (Churchill,1995) added the “certain advantages existed with passive solicitation of feedback. The cost of gathering feedback was low. A passive appeal to each and every customer represented no more cost than the staffing and maintaince of a toll-free telephone line and a sign at the service location or a notice on the product.

However, active solicitation was accomplished at moderate cost (e.g mail surveys) to high cost (e.g. personal interviews)

Sampson (1998) advanced this argument that another advantage of passive solicitation of feedback was in the use of data. Since the data was inherently biased, it was not a useful market research tool in estimating general consensus on the target market. However, the nature of the bias could be exploited. One would assume that customers with exceptionally positive or negative views about accompanly could more likely to respond bias that would be more likely to identify current quality problems than a controlled survey of equal sample size.

Sampson (1998) concluded that “passive data collection was particularly useful in monitoring and controlling quality in the day-to-day operations of the business and identifying ideas for quality improvement”.

2.3.1 Prospects for collecting feedback online in electronic form

Sampson (1998) further noted that collecting feedback in electronic forms opened up great advantages in data collection use. These were identified in the following ways.

Response acknowledgement: with other feedback mechanisms like comment cards, companies were often not quick to respond to feedback though 80 percent of the cards asked for the customer’s address. As most of HTML forms asked of customer e-mail addresses, surely the form designers considered the potential of responding. The case study by Marelli (1995) cited that most companies gathering feedback online immediately send a generic acknowledgment which thanks the customer for the feedback.

Follow-up systems: gathering feedback in an electronic form made it easy to construct a database of requiring follow up. The reviewer of feedback within the company could forward it to the appropriate employee for redress. Proper records could then be kept on when and how the feedback was taken care of. In addition, the customer feedback database could also contain information indicating a date to respond back to the customer about the outcome of complaints or suggestions. “Such database acted as a “tickler file” to assure that no important feedback fell through the cracks”.

Q/A database development: the database could further be developed to find answers to the questions from customer feedback. Such a database could be used by people inside and outside the company. The database could be queried by employees who handled questions and complaints to see if a specific customer had been responded before. Additionally, customers could also query the database to find answers to their queries.

Customer tracking: in situations where customer perceptions of quality are volatile, web-based feedback tracking is evolving to find a solution to this. Automatic storing and

tabulation of evaluations and other opinions gathered from customer feedback could also be generated into histograms and time series charts could further produced upon demands. Companies could then immediately know if shifts in service quality are occurring (Schmenner, 1986). With the automatic opinion tracking, data were collected and analysed in real time, and a customer's opinion feedback was immediately included in the analysis. This allowed the opinion on data and analysis to be much more current, thus allowing the company to respond faster to shifting opinions.

2.3.2 Potential problems and limitations of gathering Web-based customer feedback

A discussion on prospects of web-based customer feedback would not be complete without some discussion on the possible limitations. One of them is bias (Samson,1998). Non response bias was expected with any passively solicited feedback. The fact that present web users tend to be 25-44 year old male graduates also contributed substantially to bias (Cleland,1995).

Again the proliferation of web access could be compared to the adoption of television and telephone. Researchers in developed nations were seldom concerned about the bias in telephone surveys due to the sub-population that didn't have telephones. If the growth of web access continued at present rates, it would not be many years before "Web appliances" became as common as telephone (Sampson, 1998)

Daft and Lengal (1986) also noted that another potential problem with web-based feedback was the inherent impersonal nature of electronic communication. They argued that face to face communication tended to be more personal than telephone communication (lacking the visual element), which tended to be more personal than e-mail (lacking the sound and verbal intonation elements).

Sampson (1998) further stated that HTML form-based communication was even less personal than e-mail since the customer was communicating with a computer, not an individual. However, this provide benefits in anonymity but incurred cost by making the

customer feel like the human element has been removed and customers were nothing more than feedback information providers.

2.3.3 Quality of Customer Feedback system.

Coping potential was the extent to which people anticipated the probable success of their coping effort, given option for coping (Lazarus, 1991). Companies could increase a consumer's coping potential by instituting coping mechanisms which minimized the expected costs of complaining from consumer's standpoint. In terms of increasing the consumer's coping potential, online communication technology had done more than merely adding a channel for complaint. Online communication technology had in fact altered the perceived balance of power between the individual consumer and the company. Besides those terms of increasing the consumer's coping potential steams from the fact it was "lean" medium. Media differ in their ability to convey information (Bodensteiner 1970). Refer Daft & Lengel (1986) stated that oral and synchronous media (face to face and the telephone) were believed to be richer in carrying information than written and asynchronous media (email). This is based on:

- 1) The medium ability to give immediate feedback
- 2) The variety of communication cues
- 3) The personalization of the medium
- 4) The attainable language variety.

Based on criteria above online communication as a written and asynchronous medium falls somewhere between the telephone and non-electronic written communications in terms richness

Therefore, it was concluded that feedback system online was the best way to do feedback or complaint. Other than the criteria mentioned above, the criteria based on Tom (1996) stated the Citizen's Charter Complaints Task Force had summarized these as follow:

Complaint/feedback system should:

- 1) Be easily accessible and well-publicized
- 2) Be simple to understand and use
- 3) Allow speedy handling, with established time limits for action and keep people

Informed of progress

- 4) Ensure a full and fair investigation
- 5) Respect people's desire for confidentiality
- 6) Address all the points issue and provide an effective response and appropriate redress
- 7) Provide information to management so that services can be improved

2.4 Feedback system as a complaint management tool

Mohamed Zairi (2000) suggested that customer satisfaction was not absolute scenario but very much depended on interactions such feedback, praise and complaints. Complaints had to be looked at in a constructive, positive and professional perspective:

- 1) They were way of receiving feedback from customer and therefore necessary means for putting into action improvement plans.
- 2) They were a tool for preventing complacency and harnessing internal competencies for optimizing products and services.
- 3) They were a useful way of measuring performance and allocating resources to deal with the deficient areas of the business.

Example of best practice in complaints management was Boeing Airlift and Tanker Programs, Boeing A & T use different approaches to handling customer complaints. Amongst the key aspects of Boeing's complaints handling system were the following:

- 1) Service standards set jointly with the customer and linked to their processes.
- 2) Proactive management of customer contacts and complaint resolution through joint teams.
- 3) Teams handling of complaints are facilitated by a systematic management meeting process that involves the customer as a partner.
- 4) Teams with customer interfaces maintained logs of customer complaints, issues, concerns and warranty claims.
- 5) Complaints management assessments were correlated with other customer satisfaction data to give teams feedback on the quality of complaint management.

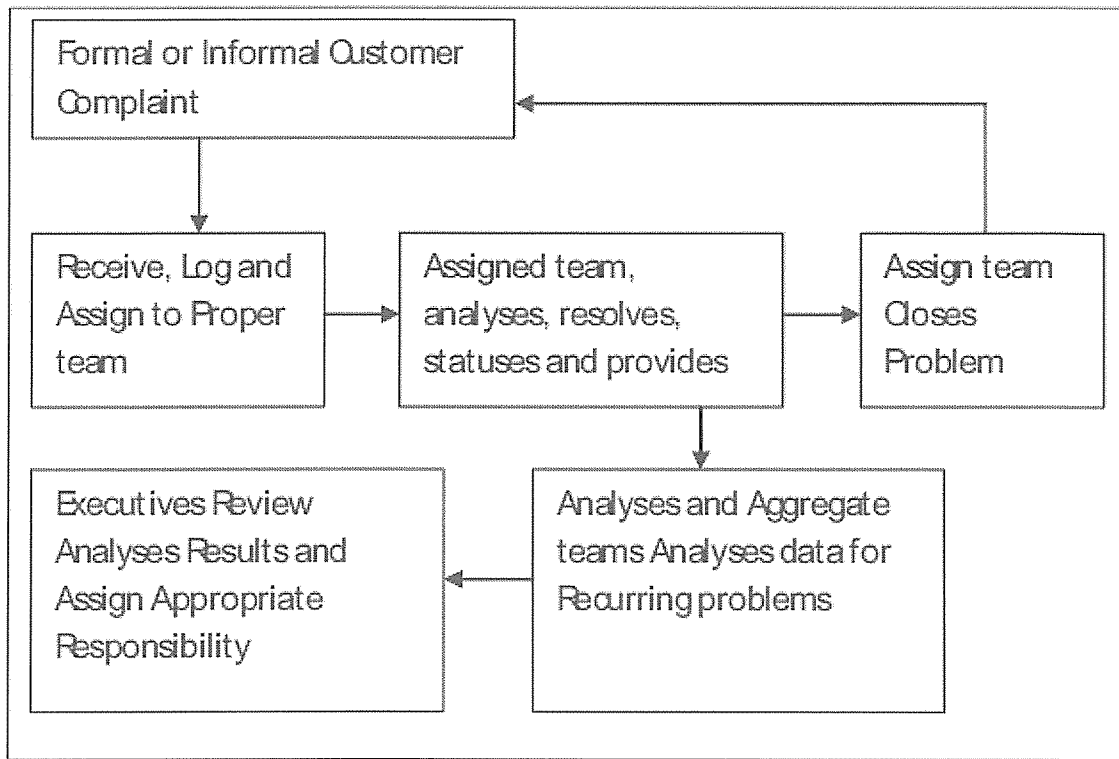


Figure 1: Complaint Management (Mohamed Zairi, 2000)

In e-CRM, one of important component was resolving customer complaint. As showed in figure 1 by resolution customer complaints, customer achieved satisfaction. Model proposed by (Mohamed Zairi, 2000) formed the basis for this project.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter discussed the methods that the Researchers employed to collect data and designed the proposed system. It included the area of study, data collection instruments, processing and analysis; system development method, and limitations of the study

3.1 Research Design

We the researchers used qualitative method of data collection because it was the most appropriate and convenient method for the nature of the study. In this study, the problem and user requirements were gathered directly from users' experience through their narration, physically, and through document review.

3.2 Area of study

The study was conducted in Kampala International University. The reason for choosing KIU for the case study is simply because Kampala International University had a twenty four (24) hour working clinic that provided medical services to students that could make the researchers to easily get and compile local data in the area of study that is to say Kampala International University. In addition to that, the area of study is in the same university where we the researchers had pursued our bachelor degrees from that made it cheaper for the researchers in terms of money to be spent on transport

3.3 Data collection

We the researchers gathered data in the course of conducting the research on the online clinical feedback system for tracking customer care issues. The researchers gathered both primary and secondary data. The data collected enabled us to find answers to research questions mentioned in chapter one.

3.3.1. Primary data

Primary data was gathered from the respondents. The respondents included both the staff of KIU clinic and students of KIU: around ten (10) working staff members of KIU clinic, one hundred fifty (150) students from different colleges of Kampala International

University and five (5) random sampled support staff members of the university. Primary data was gathered from the students through the use of interviews and observation.

Researchers had to collect primary data because;

It was basic data, unbiased information, Original data, Data direct from the students.

However the researchers realized the primary had it's problems such as; Large volume of data, Huge volume of students, Time consuming, Direct and personal intervention had to be there.

3.3.2. Secondary data

Secondary data refers to the existing data that investigators or authors collected or/and wrote for a purpose other than that research or study (O'sullivan and Russel, 1989). The researcher gathered secondary data from text books, pamphlets, Journals and magazines but more especially from the Internet .Researchers had come up with the conclusion that secondary data was necessary because;

Authors else had already spent the necessary time and money to gather and, possibly, analyze it but this had it's short comings of namely;

It didn't include the opinions of our prospects and students.

It didn't fully focus on our needs.

3.4 Data collection Instruments

The researchers used self-administered interview guides as one of the fact finding (data collection) instruments. Interviews were used in fact finding (data collection) from which researchers had to ask questions and obtained response from respondents from Kampala International University clinic department and from selected students (who are customers) of the institution that is Kampala International University.

Not only that, Observation was used by the researchers where they had to see how the Kampala international university clinic operated, observed the behavior of the students and the health personnel at the University clinic

Finally document review was used as a secondary instrument of data collection; here researchers would actually review published data which were relevant to the topic of study.

Note that the researchers would mainly use interviews, observation and document analysis as the main tools for collecting data though observation will also be used.

3.4.1 Interviews

The researchers' interview guide was used not only with managers and staff of KIU clinic but also students of Kampala International University. The researchers carried out face-to-face interviews with the respondents. The researchers would also properly explain to the respondents why they intended to carry out that study; the researchers also explained the importance of the study and its expected outcome to the respondents. Here researchers would give the respondents freedom to give their answers since interviews will counter the weaknesses of questionnaires by allowing researchers to probe, prompt, clarify, and observe non-verbal cues which are which are important techniques for acquiring accurate data due to the freedom given to the interviewee (respondent).

The researchers used interviews because of the following reasons;

- They were useful to obtain detailed information about personal feelings, perceptions and opinions
- They could allow more detailed questions to be asked
- They could achieve a high response rate
- Ambiguities could be clarified and incomplete answers followed up
- Precise wording could be tailored to respondent and precise meaning of questions clarified (eg for students with English as a Second Language)
- Interviewees could not be influenced by others in the group
- Some interviewees would be less self-conscious in a one-to-one situation.

However the interview conducted has its shortcomings that included;

- It was very time-consuming: setting up, interviewing, transcribing, analyzing, feedback, reporting
- Different interviewers couldn't understand and transcribe interviews in different ways

3.4.2 Observation

Observation as a data collection instrument was used to help the researchers see how the current system was being used right from the time when a student directs a question to the clinic, or give a suggestion in manual way up to the time when he/she gets the feedback from the clinic. The researchers had to observe the time it took for all these to occur. This helped the researchers to gather data and information that would not be easily obtained by other methods therefore the researchers had to understand how the existing paper based clinical feedback system for tracking customer care issues works.

The researchers also used observation because of the following reasons;

- It was easy to collect data where and when an event or activity was occurring.
- Didn't rely on student's willingness or ability to provide information

However the observation conducted has its shortcomings that included;

- Susceptible to observer bias
- Susceptible to the "hawthorne effect," that is, people usually perform better when they
- Didn't increase your understanding of why people behave as they do.

3.4.3 Document review

Available relevant document in the field of study especially online documents was reviewed by researchers. That helped the researchers to collect important data which could not be collected easily and cheaply by other data collection instruments to be used by the researchers. It would also enable the researchers to find solutions and improvements that were needed for development of a reliable, efficient and easily accessed online clinical feedback system for tracking customer care issues.

3.5 Procedures for collecting data

The researchers obtained an introductory letter from the college sciences and technology, Kampala International University. The introductory letter enabled we the researchers to be granted permission to conduct the study at the study area. The letter aimed at introducing the researchers to the respondents to access targeted clusters. The letter

aimed at creating a report between the researcher and the respondents. After landing on the first respondent in a given cluster, the respondent would be asked to direct the researchers to the next respondent

3.6 Data Analysis

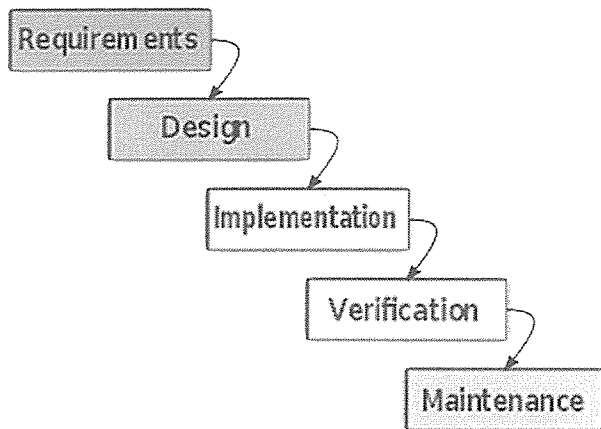
The interview guide were thoroughly cross-checked by the researchers for completeness and data cleaning was done to ensure that only important data was analyzed, all the needed information was captured. The data from interviews, observation, survey and document review was analyzed basing on the researcher' reasoning in relation to the background and objectives of the project. The researcher got the information from the data collected and then used graphs, charts and or tables to present it.

3.7 System Development Method

Here, the researchers considered product lifecycle model which describes all sequences of activities carried out in a software project and the relative order of the activities. But in this case the researchers considered waterfall model which encompasses all the activities required to define, develop, test, deliver, and maintain a software product.

3.7.1 Waterfall model

This is a classical lifecycle model that is widely known, understood and used in software development processes in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of Requirement analysis, Design, Implementation, Verification, testing and Operation & Maintenance. These series can be seen below;



The researchers used this development cycle due to some following reasons stated below;

- Waterfall model was simple to implement and also the amount of resources required for it were minimal.
- In this model, output was generated after each stage (as seen before), therefore it had high visibility
- This methodology was significantly better than the haphazard approach to develop software. It provided a template into which methods of analysis, design, coding, testing and maintenance could be placed..
- It reinforced good habits; that was define before design and design before coding.
- Deadlines could be set for the completion of each phase and evaluation could be done from time to time, to check if project was going as per milestones

CHAPTER FOUR

SYSTEM'S ANALYSIS AND DESIGN

4.0 Introduction

This chapter represents the conceptual, logical and physical designs of the proposed Online Feedback System of Kampala international University Clinic.

Here the system is studied to the most detail and analyzed. System analysis is concerned with becoming aware of the problem, identifying the relevant and decisional variables, analyzing and synthesizing the various factors and determining an optimal or at least a satisfactory solution or program of action.

4.1 Brief review of the existing system

Kampala international University has a clinic of which had basically use of paper files and the students lined or made queues in order to conduct the doctor on the health issues. In the existing system, the transactions are done only manually but in and this let to slowing down the whole process of get treatment and consultation. However in the proposed system this delay has been totally eliminated

4.2 Problems with Existing System/Manual consultation

The existing system in place has several disadvantages. Here the transactions are done only manually but in and this let to slowing down the whole process of get treatment and consultation leading to increased number of death among students. However in the proposed system this delay has been totally eliminated

4.3 Desired system

The purpose of the disability support system is to serve people, not to maintain institutional services. This section addresses the personal outcomes/benefits that are expected in a system that is consistent with inclusion, participation and citizenship.

4.4.0 Functional Requirements

This functional requirements document describes sample procedures that potentially assisted individuals us the researcher of the developed web sites that include information. With proper design and operation, KIU online feedback system web site has the potential

to enhance the exchange of information between Students and the concerned medical personals properties at the local, state, regional, and national levels.

Functional requirements of this Kampala international university online feedback System are what the system should be able to do. These functions were clearly defined as:

- Personalization Functions: Registration and Sign-In, enabling a user to sign up etc.
- Transactional Functions: User interface integration with backend systems for students consultation
- Security Functions: A secure registration page created, passwords are secured.
- Register students online.
- Provide a database for storing all the registration details.
- Allow a unique username
- On successful login using correct Username and Password, students allowed to make a consultation.
- Clinic administrator should be able to view consultations of students online.

4.4.1 Technical Requirements Defined: In order to ensure the web site created supported the number of users who will visit it and ensure the functionality works properly, technical requirements were specified as below;

- Limited volumes of users when hosted
- Operating availability
- Unlimited Database Sizes (for storing content)
- Any kind of Browser to support, including browser resolutions

The more requirements that are defined and documented up front, the more likely the web site was built properly. By not clearly defining requirements, the web site was not providing the proper functionality or supports the volume of users who visit it. The next step was to take these requirements and begin to design an Information Architecture and a Web Site Functional Specification. The plan for implementing functional requirements is detailed in the system design.

4.4.2 Non Functional Requirements

Non-functional requirements were requirements that specified criteria that were used to judge the operation of Kampala international university online feedback system for the clinic, rather than specific behaviors. This was contrasted with functional requirements that defined specific behavior or functions. The plan for implementing non-functional requirements was detailed in the system architecture.

In general non-functional requirements define how a system is supposed to be ie the constraints to the system's operation Non-functional requirements can also be called qualities of a system. Other terms for non-functional requirements are "constraints", "quality attributes", Execution qualities, such as security and usability, which are observable at run time. Defined below were some of the non-functional requirements for Kampala international university online feedback system.

- Maintainability,
- Extensibility
- Scalability,
- Reliability
- Faster execution speed
- User-friendly interfaces. It has user-friendly interface which makes it easy to be learned or used. This because the system allows users to initiate the feedback process and to operate with little or no training.
- The system is also open for further modification.

4.4.3 Hardware/software Requirements

Kampala international university online feedback system website took much more than most people thought. It was all about ensuring that you had the relevant hardware and software tools required to design a good and appealing website.

- One of the most important tools we needed was a computer. A computer to be used for web design should have a large hard disk and Random Access Memory, high processing speed and large storage capacity to be able to process the large video files.

- The next thing we needed was a server wambserver
- Relevant software for instance Dreamweaver and Microsoft front page need to be available before any progress can be made in construction of the site.
- Antivirus or software that prevents the website from external threats. At the same time, you will need to backup your website from time to
- Depending on the content we had put in the website, we also needed databases. Creating a database required use of certain software to achieve our objective
- Web browsers – IE8, Firefox, Chrome, Opera and Safari. So I can check that the page views ok across a variety of platforms.
- Shockwave installer – For my picture editing. The above were our choices for hardware and software,

4.4.4 Organization Requirement

Every organization has plans and requirements that determine how it will progress into the future. The strategic planners and management of the organization, in consultation with staff, determine most of these requirements. Others are externally imposed, such as the legislation the organization is required to comply with.

4.5.0 User Requirement

This specified the requirements the user expected from software to be constructed in this software project. An important and difficult step of designing a software product was determining what the customer actually wanted it to do. These user requirements included;

- Being able to register and login into(Kampala international university online feedback system)
- Being able to make their consultations online
- Being able to make them get the answers to what they had consulted online
- A system that is easy to learn, use and convenient.
- A system that can carry out validation, i.e. one that prompts user on entering unusual command or data format inconsistent with performance expectations.

- A system that is faster in processing and producing real time results
- A system that can limit access to authorized users only.

4.5.1 Target Users

Target users are specific group of people within the target of Kampala international university online clinic feedback system. The target users for this system were the students for Kampala international University who are still undertaking their courses

4.6 Systems design

Systems design the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. One could see it as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering.

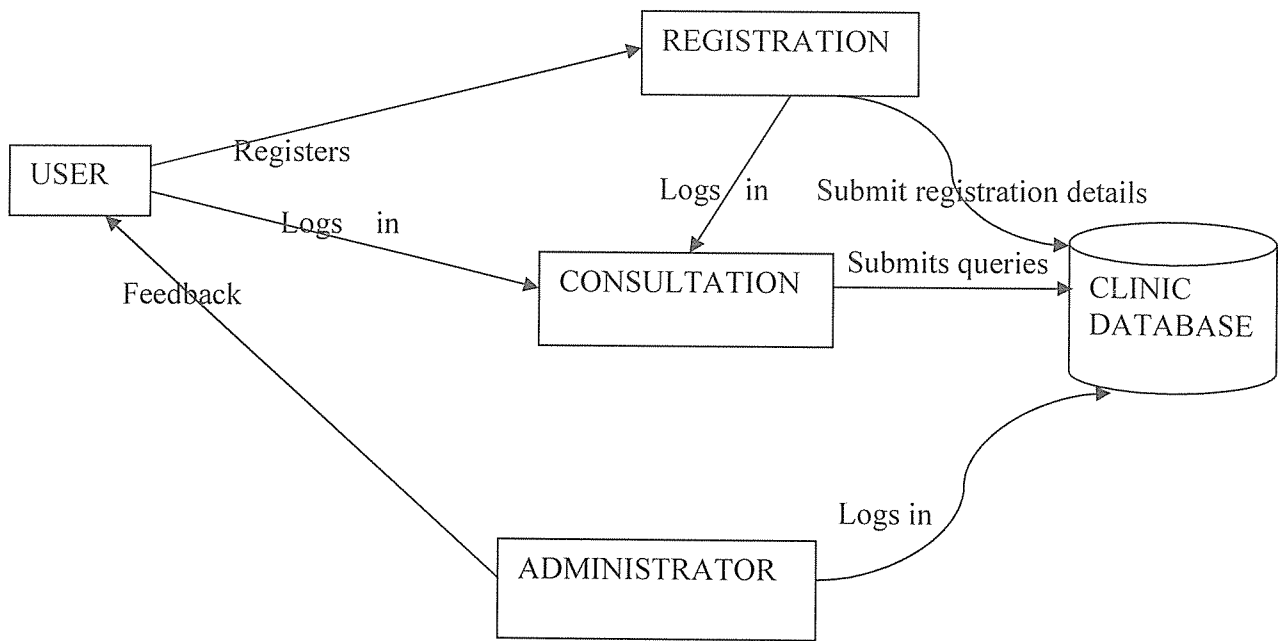
Design is the first step into the development phase for any engineered product or system. Design is a creative process. A good design is the key to effective system. The term “design” is defined as “the process of applying various techniques and principles for the purpose of defining a process or a system in sufficient detail to permit its physical realization. The system design develops the architectural detail required to build a system or product. As in the case of any systematic approach, this software too has undergone the best possible design phase fine tuning all efficiency, performance and accuracy levels. The design phase is a transition from a user oriented document to the programmers or database personnel. System design goes through two phases of development: Logical and Physical Design.

4.6.1 Logical design

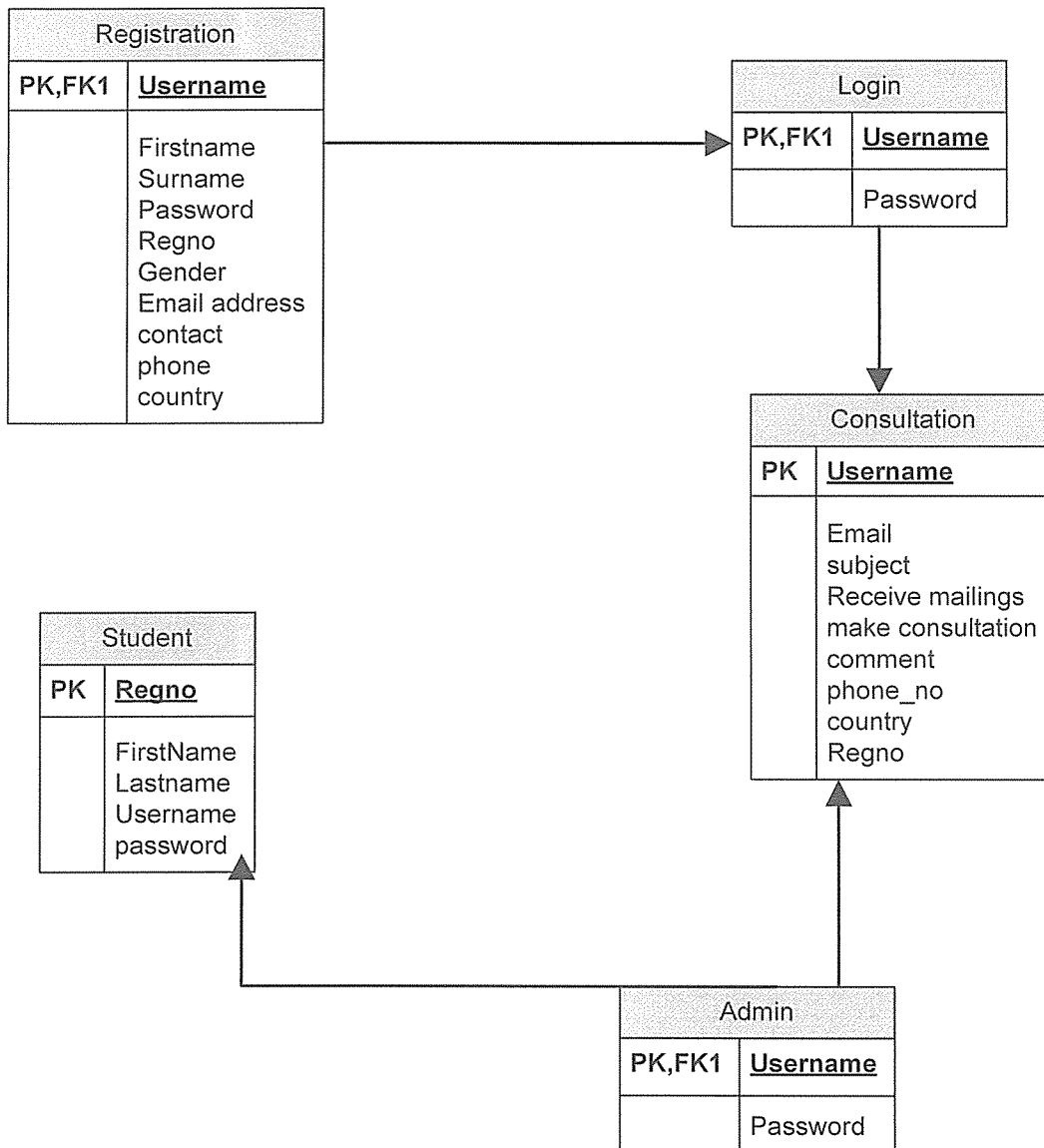
The logical design of Kampala international university online clinic feedback system pertains to an abstract representation of the data flows, inputs and outputs of the system. This was conducted via modeling, using an over-abstract (and sometimes graphical) model of the actual system. In the context of systems design are included. Logical design includes ER Diagrams i.e. Entity Relationship Diagrams and process design and data flow of the proposed system.

DATA FLOW DIAGRAM

Below shows the data flow of the proposed system;

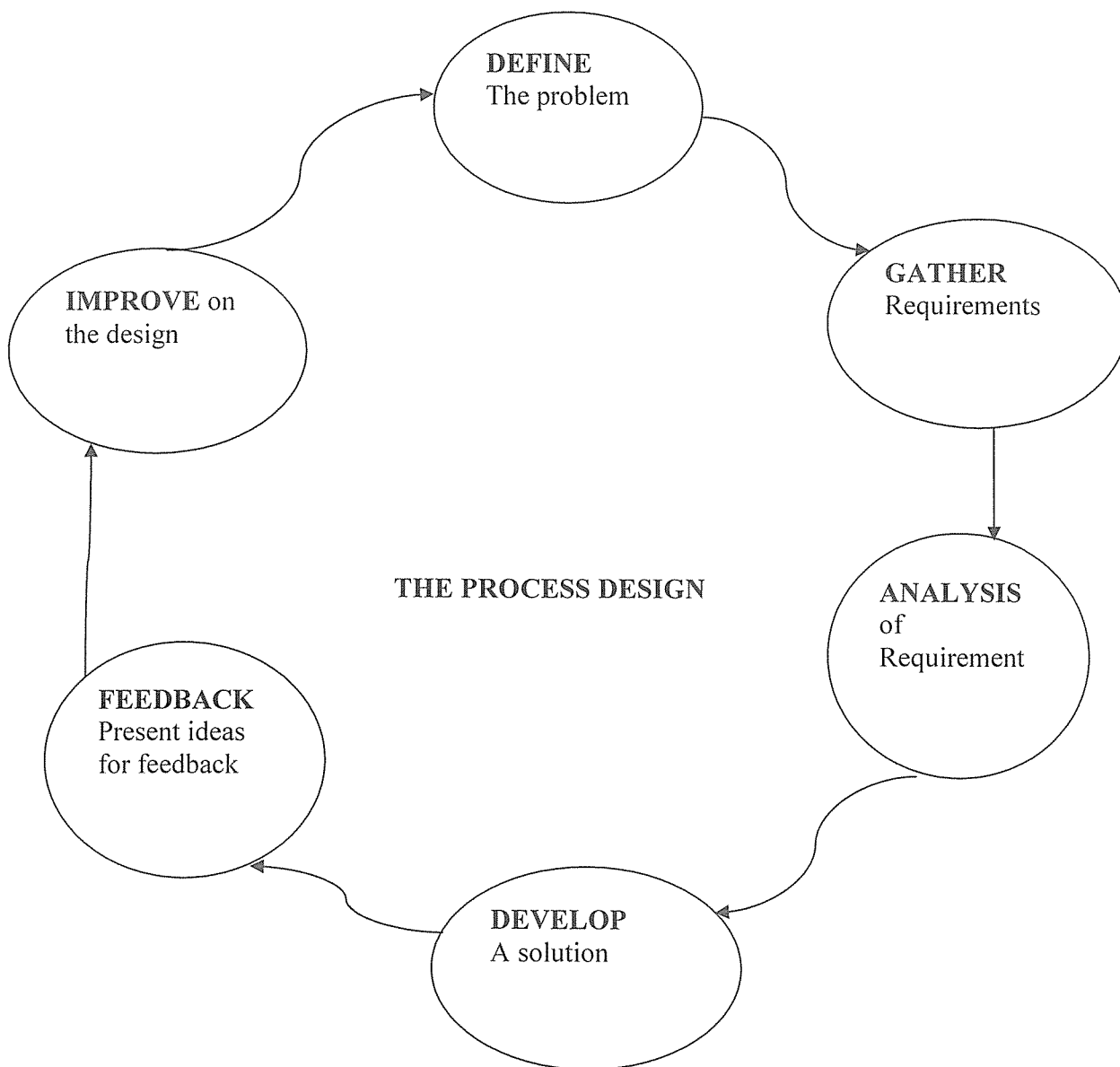


ENTITY RELATIONSHIP DIAGRAM



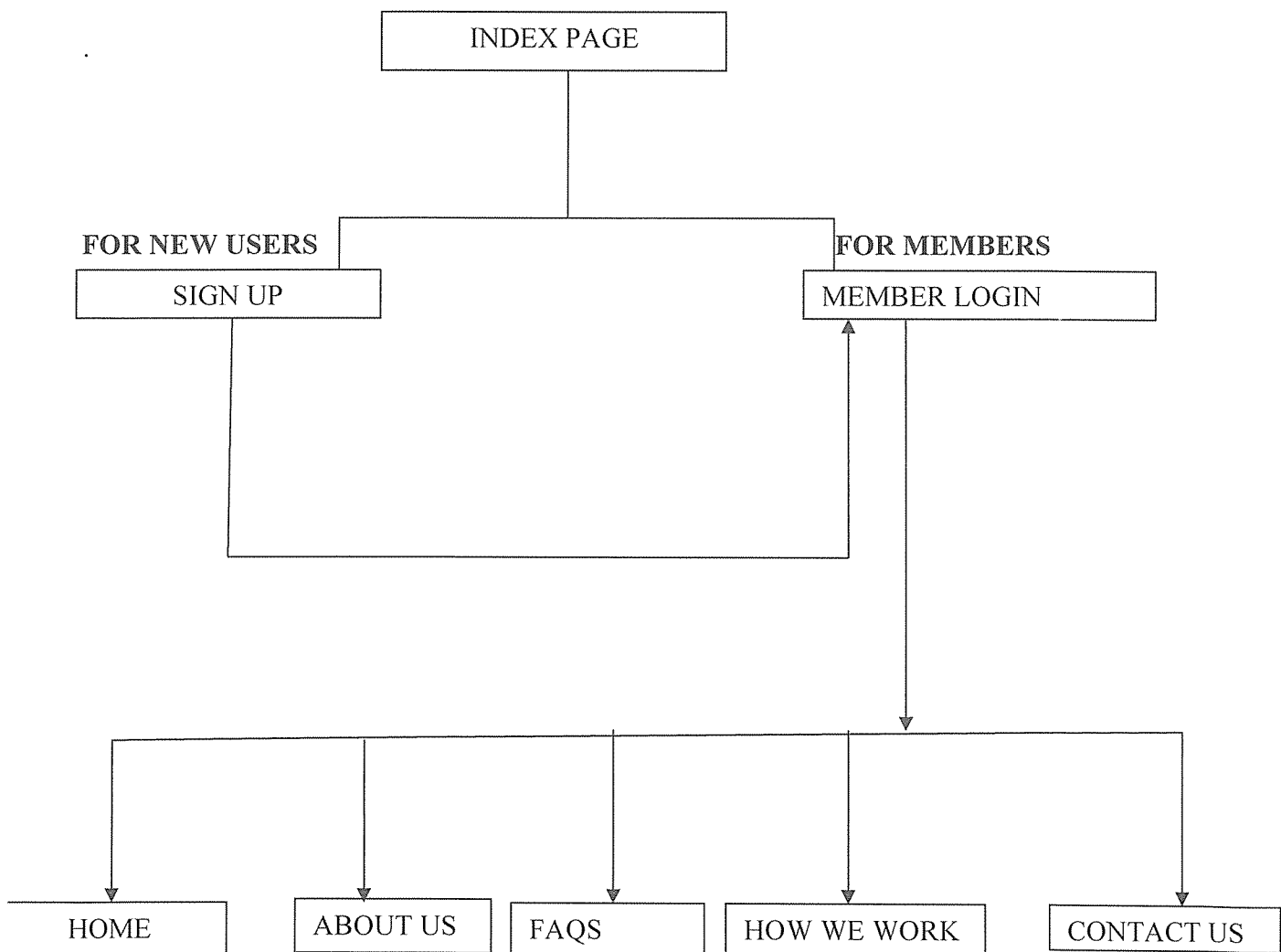
4.6.2 Process Design

Kampala international university online clinic feedback system Process Design was concerned with how data could move through the system, and with how and where it was validated, secured and/or transformed as it flew into, through and out of the system. At the end of the systems design phase, documentation was developed describing the three sub-tasks was produced and made available for use in the next phase. The process design of Kampala international university online clinic feedback system was defined as below



SITE MAP OF THE PROPOSED SYSTEM

The site map of the proposed system can be seen below; this helps the user in navigating the website;



4.7.0 Physical design

Kampala international university online clinic feedback system has physical design relates to the actual input and output processes of the system. This was laid down in terms of how data was input into a system, how it was verified/authenticated, how it was processed, and how it was displayed as output.

4.7.1 User Interface Design

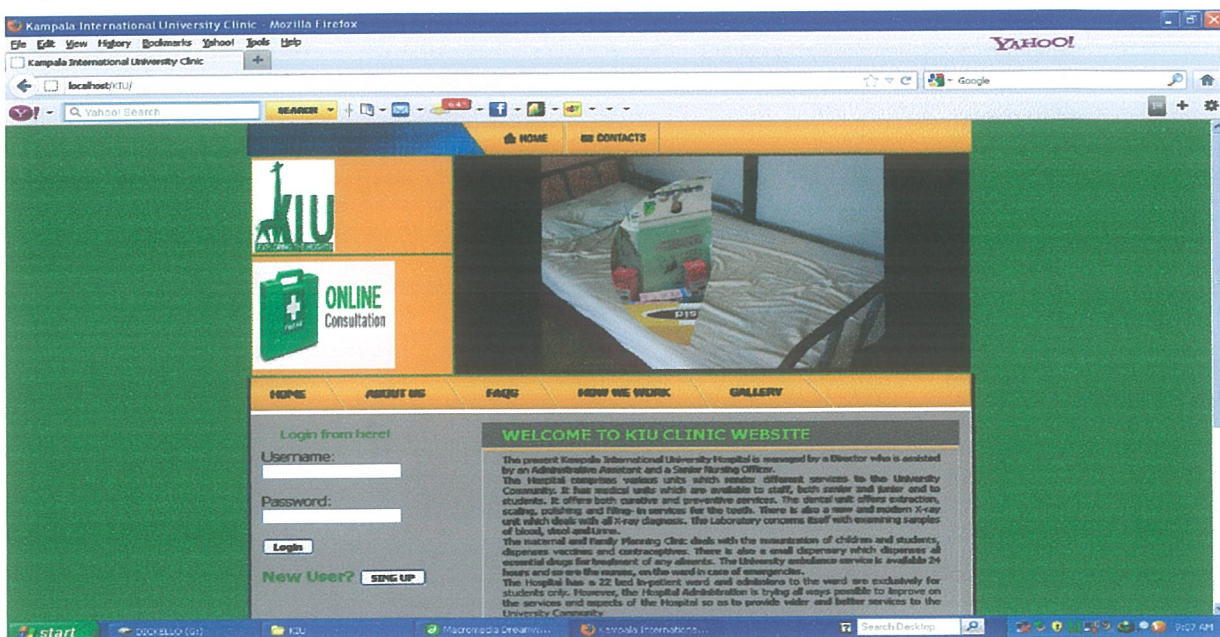
User Interface Design for Kampala international university online clinic feedback system was concerned with how students' added information to the system by submitting consultations and with how they were replied. User interface for Kampala international university online clinic feedback system provided a means of:

- Input, allowing the students to manipulate a system
- Output, allowing the system to indicate the effects of the students' manipulation

Below are the screen shots of the user interface of the Kampala international university online clinic feedback system;

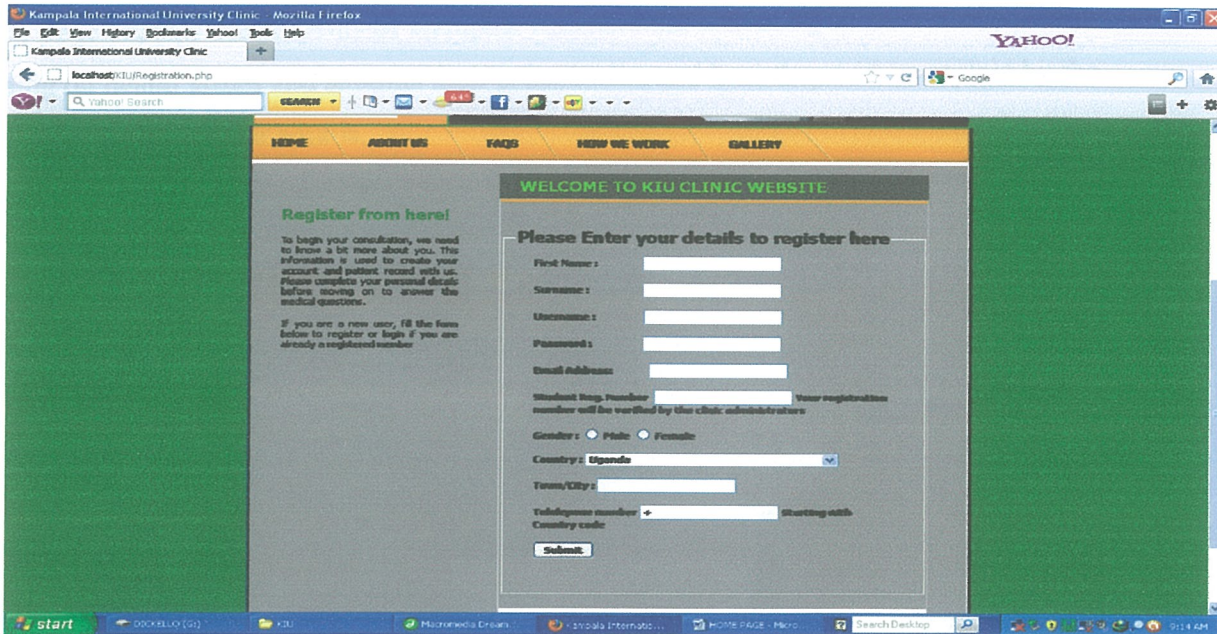
HOME PAGE

Home page of Kampala international university online clinic feedback system enabled the students to login in the Website if they were already registered but if not registered it they were to register or Sing up by filling the form and this is a link in the next page.



SIGN UP/REGISTRATION PAGE

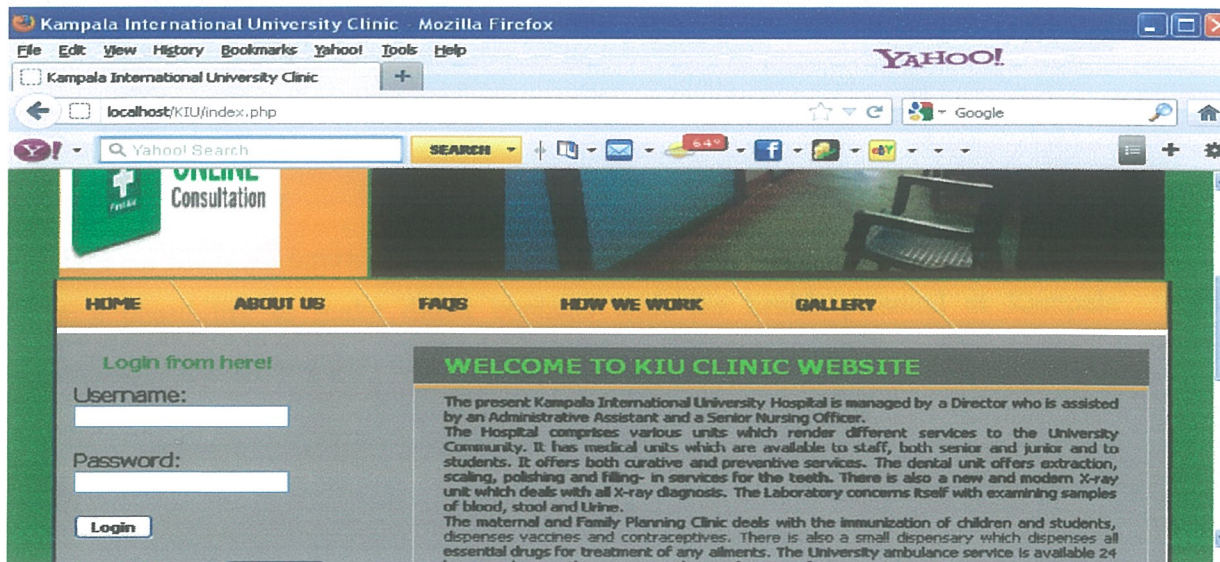
This was a link to on the home page. This enabled the students of Kampala international university to register online so that they accessed the whole information of Kampala international university clinic by login in the website.



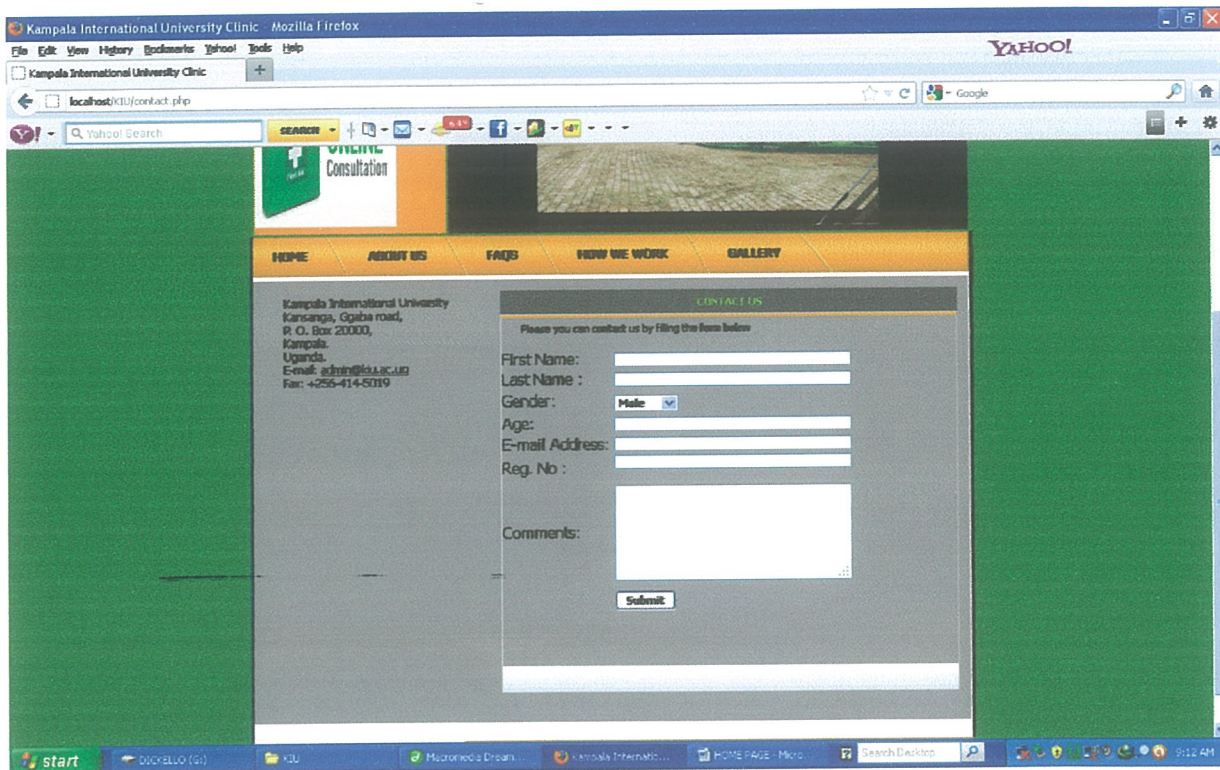
The screenshot shows a web browser window titled "Kampala International University Clinic - Mozilla Firefox". The address bar shows "localhost/KIU/Registration.php". The page has a navigation menu with links: HOME, ABOUT US, FAQS, HOW WE WORK, and GALLERY. The main content area is titled "WELCOME TO KIU CLINIC WEBSITE". On the left, there is a section "Register from here!" with text explaining the registration process. On the right, there is a registration form titled "Please Enter your details to register here" with fields for First Name, Surname, Username, Password, Email Address, Student Reg. Number, Gender (Male/Female), Country (Uganda), Town/City, Telephone number, and Country code. A "Submit" button is at the bottom of the form.

LOGIN PAGE

Kampala international university online clinic feedback system has the login page from which the students could get access to how to make consultations online.



The screenshot shows a web browser window titled "Kampala International University Clinic - Mozilla Firefox". The address bar shows "localhost/KIU/index.php". The page has a navigation menu with links: HOME, ABOUT US, FAQS, HOW WE WORK, and GALLERY. The main content area is titled "WELCOME TO KIU CLINIC WEBSITE". On the left, there is a section "Login from here!" with fields for Username and Password, and a "Login" button. On the right, there is a text block describing the hospital's services, including medical units, dental services, laboratory, and maternal and family planning clinic.



4.7.2 Data Design

Kampala international university online clinic feedback system Data Design was concerned with how the data was represented and stored within the system. These can be seen in tables below;

Table 1: Registration Table

```
mysql> desc registration;
```

Field	Type	Null	Key	Default	Extra
First_name	varchar(48)	NO		NULL	
Surname	varchar(48)	NO		NULL	
Username	varchar(48)	NO		NULL	
Password	varchar(48)	NO		NULL	
Email_address	varchar(28)	NO		NULL	
StudentReg_no	varchar(28)	NO		NULL	
Gender	varchar(11)	NO		NULL	
Postcode	varchar(28)	NO		NULL	
Country	varchar(28)	NO		NULL	
Town_City	varchar(28)	NO		NULL	
Preferred_contact_number	varchar(28)	NO		NULL	
Mobile_Tel	varchar(28)	NO		NULL	

```
12 rows in set (0.27 sec)

mysql>
```

Table 2:Login table

c:\wamp\bin\mysql\mysql5.5.20\bin\mysql.exe

```
mysql> desc login;
```

Field	Type	Null	Key	Default	Extra
username	varchar(20)	NO		NULL	
password	varchar(20)	NO		NULL	

2 rows in set (0.09 sec)

```
mysql>
```

Table 3: Consultation table

c:\wamp\bin\mysql\mysql5.5.20\bin\mysql.exe

```
mysql> desc consultations;
```

Field	Type	Null	Key	Default	Extra
comment_about	varchar(15)	NO		NULL	
subject	varchar(40)	NO		NULL	
comment	varchar(5000)	NO		NULL	
username	varchar(40)	NO		NULL	
email	varchar(40)	NO		NULL	
phone_no	varchar(15)	NO		NULL	
country	varchar(60)	NO		NULL	
to_recieve_health_nailings	varchar(5)	NO		NULL	

8 rows in set (0.13 sec)

```
mysql>
```

Table 4: Contact us table

c:\wamp\bin\mysql\mysql5.5.20\bin\mysql.exe

```
mysql> desc contact_us;
```

Field	Type	Null	Key	Default	Extra
First_name	varchar(20)	NO		NULL	
Last_name	varchar(20)	NO		NULL	
Gender	varchar(8)	NO		NULL	
Birthday	date	NO		NULL	
Email_address	varchar(40)	NO		NULL	
Reg_no	varchar(15)	NO		NULL	
Comments	varchar(1000)	NO		NULL	

7 rows in set (0.03 sec)

Table 5: Admin login table

```
c:\wamp\bin\mysql\mysql5.5.20\bin\mysql.exe

mysql> desc adminlogin;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| username   | varchar(20)   | NO   |     | NULL    |       |
| password   | varchar(30)   | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.16 sec)

mysql>
```

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter introduced brief findings, conclusion and recommendations concerning the data collected about the problem under study. The recommendations are based on we the researcher's analysis and interpretation .The objective of this study is to determine and describe a better means of solving student consultation for health issues using online feedback system.

5.1 Findings/ Discussion of the study

5.1.1 Achievements

The project was to a greater extend successful in determining its objectives stipulated in the earlier chapters. Each stage had presented its own achievements. These were achievements met as below;

- Collecting information from Kampala international clinic and the entire student's body was successful as which helped the researcher in analyzing the data collected covered by the first objective
- The study enables the students to successful register online and login in the website.
- The study was able to make the student of Kampala International University to submit their consultations online regardless of where they stay.
- The study enabled the administrators to view various consultations made by students and answer them back successful.

5.1.2 Limitations of research project

- Financial constraints. A lot of money was required by the researchers for buying materials such as computer, pens, papers for carrying out the research; for

transport to the research field; for collecting data, and for printing, binding, photocopying, among others.

- Hostile respondents – some respondents were harsh and they didn't want to be asked; others wanted money in return for them to provide the necessary information to the researcher else provide wrong information.
- Time constraints – the time given by the university was not be enough to properly complete the research in depth.
- When collecting information from Kampala international clinic and the entire student's body we found out that they were not prepared for, however the general consensus of opinion of those who replied seemed to be vague (Not clear)
- The responses we received, however introduced some other problems we didn't investigate.
- When coming up with the system, we realized that there was incompatibility problems with the operating system which we used much some software were compatible. We the researchers also realized also the system could be implemented as a real-time system though we came up with a feedback on consultation which perhaps may take some time.
- We realized that there was reluctance, lack of interest showed by the some of the Kampala international university clinic personnel and the some students.

5.2 Conclusion

The manual Consultation used by students' of Kampala international University where by a student who wanted only to get some information had to contact the administrator or any other health worker every time which became very expensive for students who were in very far places like in Nigeria and or Kenya to easily get any health information from the clinic just because there existed no system over the internet.. This study determined and described a better means through which this problem has been solved. Above all, time wastage was another issue was handled through.

With this study carried out there is user friendly system which helps to track customer care issues that is the students of Kampala international university.

Pertaining what was discovered out the research concludes that, Kampala international university online clinic feedback system operates in a web based environment

5.3 Recommendations

Despite its limitations of Kampala international university clinic feedback system, this study should be able to solve the problems which were to be addressed. We the researchers recommend the following:

- **Training;** this is essential in that it enables the operation of Kampala international university clinic feedback system.
- **Conversion:** Parallel conversion is recommended whereby the face to face consultation can operate along side with the Online Kampala international university feedback system for tracking care issues
- **Evaluation:** The implementation of this system should be tested to ensure that transition process works satisfactory and efficiently. If it does not perform to it's objectives, corrective action can be taken.

5.3 Improvements

We the researchers have argued that certain elements in this project left the scope for further development. With almost any project which includes software component, a list of future enhancements could be endless. In this case we will only highlight the general areas where extra work would benefit the project;

- Modifying this system to real-time system whereby chat is included in the project.
- Modifying this system this system in way that student's being able to recover their password in a short time not after some time by providing answers which corresponds to the security questions which were asked while signing UP.
- There should be payment made for consultation by non-Kampala international university students, and this could embedded in the system to generate more Income for the university.

- Administrators should be able to search the details of an individual user

5.4 Future Research Area

- Automated phone based feedback system
- A secure password encryption system
- A secure online system with an SMS

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APPENDICES

APPENDIX I: GUIDELINE QUESTIONS ASKED DURING THE PROCESS OF GATHERING REQUIREMENT AND OBSERVATIONS MADE.

Some Guideline questions during the interview for:

STUDENTS

- a. Have you ever made consultation at Kampala international university clinic?
- b. How many times have you ever made consultation at Kampala international university clinic?
- c. How successfully was the consultation if you did?
- d. How long did the consultation take you?
- e. Do you think it is interesting to make consultations online?
- f. If yes, why?/ If no, why not?
- g. What is your comment about Kampala international university clinic Services?

HEALTH PERSONNEL AT KAMPALA INTERNATIONAL UNIVERSITY CLINIC

- I. How is working with student's of Kampala International University?
- II. How often do students of Kampala International University consult you on health issues?
- III. How many student's consult you successfully in day?, if there are consultation made.
- IV. Do you think designing a system for students of Kampala International University could help you?
- V. If yes what are reasons and if no what are reasons?

Observations made

Observations were made in the following areas during the time of data collections.

- Student's attitudes were observed as they line up at the Kampala international university clinic. Students had the negative attitude towards making queues at the clinic even when they had to consult for something little just because they felt tired.

- The whole process (Especially the time taken by each Student) during time of students' consultation and treatment was also observed. That is to say very few students were handled in day basing on issues on health consultation.
- The health personnel at Kampala international university clinic were observed to be very tired of answering students' consultation and yet they could answer students at their own time through their emails.

