



Campus facilitator Guide

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Computer Science

## **DECLARATION**

I hereby declare that the project entitled submitted for “Campus facilitator guide” is my original work and the project has not formed the basis for the award of any other degree.

Contribution from other sources have been mentioned by clear references.

Signature:

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The research proposal has been submitted in partial fulfillment of the requirements for the award of bachelor’s degree in Business Information Technology at Africa Nazarene University with the approval as the university supervisor.

Signature:

Date:

**VICTORIA MUKAMI**

## **DEDICATION**

This project was created to fulfill a portion of the requirements for the Bachelor of Science in Computer Science degree (BCS). We dedicate this project to our parents, who have never failed to provide us with financial and moral support, for meeting all our needs during the development of our project, and for teaching us that even the most difficult task can be completed if done one step at a time.

## ACKNOWLEDGEMENT

The satisfaction and success of completing this task would be insufficient if heartfelt thanks were not extended to those whose constant guidance, support, and encouragement made this work possible. We were fortunate to receive assistance, support, and encouragement from many people while working on this undergraduate project, and we would like to thank them for their help and support.

First and foremost, we thank the Almighty God, my creator, for guiding us and providing us with the strength, peace of mind, and grace that has brought us this far.

Our second and most heartfelt gratitude goes to our parents, they have been there for us from the beginning, and while their support in this endeavor was expected, it was all we could have hoped for.

Thirdly, I would like to thank Prof. Victoria Mukami, my project supervisor, for providing a tremendous amount of guidance and input throughout the writing of this report.

Next, I would like to thank myself for all the hard work and effort that I have put into completing this work.

Finally, I would like to profess my sincere thanks and gratitude to the school of science and technology, the entire school staff, and all our colleagues with whom we have interacted during our time.

## **ABSTRACT**

Campus facilitator guide is platform that try to solve various issues that new students while joining campus, this is a problem-solving project that allows students to find their way into the campus life which can sometimes feel overwhelming. Therefore, the platform will provide with different options to enable them to succeed academically and socially, from socializing to finding to counseling and more other features.

Through this platform students will be able to socialize, get help from other students their fellow students but most importantly student will increase their academic performance while using this platform, but also get counselling advice with day-to-day problem, since stress and depression has appeared to be among the challenges faced by students nowadays.

In this project the researcher has talked about various challenges that he experienced and how he is going to create a platform that will help improve and solve some of the challenges that the stakeholders are currently facing.

## TABLE OF CONTENT

|                       |     |
|-----------------------|-----|
| Declaration.....      | ii  |
| Dedication.....       | iii |
| Acknowledgements..... | iv  |
| Abstract.....         | v   |
| Table of content..... | vi  |
| List of Figures.....  | vii |
| List of tables.....   | vii |

### **CHAPTER 1: INTRODUCTION.....1**

|                                       |   |
|---------------------------------------|---|
| 1.1 Introduction.....                 | 1 |
| 1.2 Background.....                   | 1 |
| 1.3 Problem statement.....            | 2 |
| 1.4 Significance of the problem ..... | 2 |
| 1.5 Proposed solution .....           | 3 |
| 1.6 Objectives .....                  | 4 |
| 1.7 Research Questions .....          | 5 |
| 1.8 Assumptions .....                 | 5 |

### **CHAPTER 2: LITERATURE REVIEW .....6**

|                                      |    |
|--------------------------------------|----|
| 2.1 Introduction .....               | 6  |
| 2.2 Global literature review .....   | 6  |
| a. Advantage.....                    | 7  |
| b. Disadvantage.....                 | 7  |
| c. Difference/ project Gaps.....     | 8  |
| 2.3 Regional literature review ..... | 8  |
| a. Advantage.....                    | 9  |
| b. Disadvantage.....                 | 9  |
| c. Difference/ project Gaps.....     | 9  |
| 2.4 Local literature review .....    | 10 |
| a. Advantage.....                    | 10 |
| b. Disadvantage.....                 | 11 |

|  |           |
|--|-----------|
| c. Difference/ project Gaps.....                   | 11        |
| 2.5 Summary/Conclusion .....                       | 11        |
| <b>CHAPTER 3: RESEARCH METHODOLOGY .....</b>       | <b>12</b> |
| 3.1 Introduction .....                             | 12        |
| 3.2 Locality of the research .....                 | 14        |
| 3.3 Target group .....                             | 14        |
| 3.4 Sampling techniques and sampling size .....    | 14        |
| 3.5 Data collection method.....                    | 15        |
| 3.6 Data analysis .....                            | 16        |
| 3.7 System analysis and design methods .....       | 16        |
| 3.8 Coding testing.....                            | 17        |
| 3.9 Hardware and Software requirements .....       | 18        |
| 3.10 Budget.....                                   | 20        |
| 3.11 Work plan .....                               | 21        |
| <b>CHAPTER 4: SYSTEM ANALYSIS AND DESIGN .....</b> | <b>22</b> |
| 4.1 Introduction .....                             | 22        |
| 4.2 System requirements .....                      | 22        |
| 4.3 Design constraints .....                       | 24        |
| 4.4 Structured programming .....                   | 24        |
| 4.5 System models .....                            | 25        |
| a. Use case diagram .....                          | 26        |
| b. Context diagram .....                           | 27        |
| c. Data flows diagrams .....                       | 28        |
| d. Data flows level 0 .....                        | 28        |
| e. Data flows level 1 .....                        | 29        |
| h. Class diagram .....                             | 30        |
| f. ERD diagram .....                               | 31        |
| <b>References .....</b>                            | <b>32</b> |

## LIST OF FIGURES & TABLES

|           |                            |    |
|-----------|----------------------------|----|
| Fig. 1.   | SDLC Phase .....           | 12 |
| Fig. 2.   | Use case diagrams .....    | 26 |
| Fig. 3.   | Context diagram .....      | 27 |
| Fig. 4.   | Data flows level 0 .....   | 28 |
| Fig. 5.   | Data flows level 1 .....   | 29 |
| Fig. 6.   | ERD diagram .....          | 30 |
| Fig. 7.   | Class diagram .....        | 31 |
|           |                            |    |
| Table. 1. | Hardware requirement ..... | 18 |
| Table. 2. | Software requirement ..... | 19 |
| Table. 3. | Budget .....               | 20 |
| Table. 4. | Work plan .....            | 21 |



## **CHAPTER I**

### **INTRODUCTION**

#### **1.1. Introduction**

In this chapter, the researcher gives the background of “Campus Facilitator guide” which is just a platform that students can rely on, and most importantly help new student find the way into the campus.

As students we constantly face challenges that might sometimes be related to our studies or personal life, but we do not know how we can address them or where we should look for help, and these problems might induce students to a lot of stress that might cause him or her to poorly perform academically.

Several students here in Kenya, faced challenges after joining campus, their first year and semester are the hardest, and most of them get lost in that process, from university that has quite a lot of students it is hard for them to provide the care the mostly need, and here I am not taking about academic need only but also social and personal issues.

In this project I will try to address some these issues and how we can solve them.

#### **1.2. Background**

School has always been a place where student go to and get some education and the school has taken initiative to help students find their way into the campus by organizing a one-week orientation which is used to guide students and welcome them at campus, but this not enough for a student to fully understand everything around the school and quite many students do not attend this process for various reasons.

School have also taken initiative to address the mental issue of student around campus, but what they do not know is that us students we always have that fear against our authorities and we would not on any circumstance fell comfortable talking about our trouble issues to them unless you are both acquainted which does not happen quite often, therefore you will find students struggling in the own corner without talking about the issues they are facing,

which is quite wrong because the school is supposed to be a place where a student felt safe and can talk about their troubling issues without any fear.

Schools have their own ways of handling these issues which I do not find effective, therefore the need for this platform.

### **1.3. Problem statement**

Due to various reasons including this pandemic, it has been hard for students to find their ways into the campus, to socialize within the campus but even before this pandemic, the old system used to guide students in campus were failing us specially for new students joining the campus, as new student we need someone to guide us and show us around school, or make friends, or find someone to help us with our work and assignments, or when we need counselling advices, we need to be sure that we find someone to talk to, this can be a counsellor, and also we need to be reassured that our conversation will remain private this will enable students to open up about their issues which will then help them improve academically.

Socializing comes in different forms, some of the most common include, people joining clubs, and this can either be drama club, sport club or spiritual groups and the old system used by the school has not been working quite well since a lot of us students feel shy at first, and at the time we do not know how we can join these clubs. It is like we are not aware of things going on at our own school.

For the academic performance, almost 70% of new students perform poorly in their first semester, not because they are not smart or anything, it is just they did not get anybody to guide them and the school welcomes students from abroad, it is hard for them to adjust with an unfamiliar environment with new languages.

Therefore, this platform is aimed to provide all kind of help to all students in any way possible.

### **1.4. Justification of the Problem *Why is it so important to you?***

As once a new student myself and coming from abroad I had various challenges, such as language barriers but the most importantly is the socializing, I mean it is hard as a new student to make friends at school, especially when you are coming from a

foreign country, you basically know no one at school, it just you and your books, which can seem quite overwhelming, since you don't know who you can ask for help.

There is a need for this platform in almost all universities here in Kenya, so that students can have a smooth learning process, because all the issues that I listed above not only affect the students' mental state but also their academic performance.

The implementation of this platform will not only help students but also keep the school's integrity by providing good care for their students no matter the number of students at a university.

### **1.5. Proposed solution**

The proposed solution tries to address these issues in more efficient ways, such that students can find mentors, friends and socialize with other students on this platform but most importantly help the student keep their mental state in check, such that the platform shall have a section where students can communicate with school counselors and other qualified counselors. The platform shall provide the student with various resources (from human resources to books, relevant notes and past papers) to help them increase their academic performance. And the platform will be a group learning space where students can share their interests or course-related challenges and get assistance from other students. I believe that there is a lot we can learn from each other as students.

Another issue I listed above was the issue of awareness, as new students we usually lack someone to show around therefore, it's hard for them to find some of the resources offered by the school, such as joining sports clubs, spiritual groups, drama clubs etc.

We will ease the process by making all the information available on this platform, so that if a student feels the need to join a club, may do so without wasting a lot of time wondering the how, where or what he/she will do to get in.

There are a lot of things we can learn from each other, we spent 4 years in a university if we as students cannot benefit from the opportunity brought to us. On the platform we shall have a space where students can learn and teach each other specific topics such as languages etc. Specially, for international students from non-English-speaking countries, but also every student will be welcomed to learn or teach their language to others.

## 1.6. Objectives

The main goal of this research is to design and develop a platform that new students to while increasing their academic performance while providing them with all necessary resources to so.

To help solve the problems listed above, the platform is to achieve the following objectives:

- a) Help students improve their school performance, by getting them the help the need and these can be done through tutoring and mentor.
- b) Enable student to find a study partner for a certain unit, depending on the topic or course mentioned, help students socialize through joining clubs and school activities.
- c) Providing students with useful resources to their studies, these are past papers, books referrals to our library, other links and maybe some note provided by the lecturers or other students. Additionally, the students will be able to contribute by posting useful resources that might help other students, such as past paper, or electronic books that cannot be found in the school library.
- d) Enable a student to login and get access to all available resource that the platform can affords trough school such as counselling, the student will be able to book for counselling sections as either official name or as anonymous and talk about his or her issues without the fear of privacy or data confidentiality breach. Stress and depression are an issue faced by many students out here and we shall address it as such.
- e) Enable the counselors to come through for their students, by scheduling a counseling section for the students who have booked which can be done online or physical if the student fells confident enough.
- f) The admin should be able to verify the veracity of resources being posted by students on the platform, the admin can delete resources that irrelevant to the learning and the school regulations but also the admin can restrict access to certain resources for a particular student in period well determined.
- g) The Platform will generate a report of students who have joined study groups and what groups the joined, but also it will generate a list of students of have recently joined the platform so that necessary resources can be allocated to them such mentoring guidance etc.

### **1.7. Research Questions**

The following are the project's research questions that are in line with the project's objectives:

- a) How will the system improve student's school performance?
- b) How will the system enable a student to create a study group, join an already existing group or clubs?
- c) How will the system enable student to socialize within school?
- d) How will system enable student to deal with their mental issues?
- e) How will the admins keep track of the groups being created, and some of the activity being done on the platform?

### **1.8. Assumptions and Limitation**

#### a) Assumption

- It's assumed that all students have a basic knowledge of computer and smartphone manipulation and have access to the internet.
- A student can only get the resources for a certain group if and only he/she is registered to that group.
- Both the student and school facility be great beneficiaries of this system.

#### b) Limitation

- The proposed system relies on internet connection to function.
- In order this platform, the user need to be registered in school because we will be using the same credentials.
- The user needs to be conversant with the platform, but the good thing is that the system will be providing a step-to-step guide to enable user to find their way into the system.

## CHAPTER II

### LITERATURE REVIEW

The literature review deals with the topics and the research that would help to understand this project “Campus Facilitator Guide” and evaluate it with the existing systems that are similar. The objective of this literature review is to examine the related work to this project and mechanisms applied in preceding studies.

#### 2.1 Introduction

According to earlier research new students around the world are battling with the issue of stress when joining university (Boston University, 2021), too much pressure is put on them either with the personal issue or academically and find a hard time to fit in an educational institution, this may lead to bad performance and lack of a social life, therefore he/ she may lack someone to help when in need and this is due to ineffectiveness of the manual system, the system currently being used.

To tackle these issues, we decided to build a platform that will be able to provide students necessary adjustment to fit their need, either socializing, improving the school performance or even help them get through hard times, which can be due to depression or stress in their personal life or around the campus.

#### 2.2 Global literature review

**Facebook** is a social networking site that makes it easy for people around the world to connect and share with family and friends online. Initially, it was designed for college students, with the goal of allowing Harvard students to use educational email addresses and photos to connect with other students in the school. Facebook was founded by Mark Zuckerberg when

he was a student at Harvard University in 2004. By 2006, in addition to students, membership was opened to anyone over 13 years old.

It started with one university, moved from one university to another the expanded to millions of other people.

**a) Advantages**

Facebook helps you connects, share with the people in your life, you can connect and find your old school friends and college friends, you can connect with your relatives, you can make new friends from different areas of the world.

Many people especially the students use Facebook chat for group discussions, its ubiquity and widespread adoption makes it the best way to keep up with your social circle and find locals with similar interests. Your school probably has a page for incoming freshman to chat and get to know one another before you arrive on campus. Facebook Messenger is also an easy way to communicate with new friends whose phone numbers you might not have yet.

**b) Disadvantage**

One Is biggest advantage right now with Facebook, is that it become so much popular with less privacy and restriction that people often post harmful content such us sexual content and other horrific image and videos. This affect many other viewing whose intentions was not to view them, but also many people use Facebook day and night without thinking how much time they have wasted on it and that they could have done more important work during that time.

### c) What is different or gap

Facebook is useful and helpful tools, but it becomes harmful if you begin to waste your valuable time because the loss of your precious time can go to other problems, as you spend so much time in commenting, viewing other pictures and unrelated posts from your initial search.

This is a bad thing for students just trying to learn or socialize on the app, because they may get distracted by other posts, that's why my solution is only trying to focus on things that are relevant and essential to the users, and each content varies from one student to another if you don't share the same interest.

There will be no wasting time on the application because each content you will view will be informative, relating to your studies and customized to your needs.

My solution does much more than offering socialization as the key value as compared to Facebook, it also helps students within a certain campus to improve the school grade or performance by offering them a space full of useful resources relating to the study and a private counselling section to help them deal with the school or personal stress that may negatively influence their performance at school but most importantly socializing only within campus, and this is to avoid unrelated and useless posts from non-campus bodies. A socialization to be accomplished with another perspective that what Facebook offers.

### 2.3 Regional literature review.

Although Facebook is global, there are also some other platforms here in Africa that try to solve the problem I am raising in this research, one of them is called “**socialize Africa**” this is a platform which was created to bring the people of Africa and the rest of the world together. It also assists people to socialize with each other and many other more.



But enough about socialization, here I want to take a different aspect of the solution, I want to take about this great platform called **OkpaBac** this literally translate to “You are done with Baccalaureate” in Togolese, this platform was created in 2016 by the Togolese startup OkpaFaces,

**a) Advantage**

According to new research This Togolese platform provides tremendous educational resources to high-school students as they prepare for the Baccalaureate exams. This test is critical because it determines university admission for thousands of students in Togo and across Africa's western Francophone coast. (*10 E-Learning Platforms Transforming Education in Africa*, 2016).

This mobile app contains lesson summaries, sample exams from previous years, and quizzes to test students' knowledge to better prepare them for the exam.

**b) Disadvantage**

Even though it does not cover all the aspect that I am trying to address in this research, this platform only covers the educational aspect which is not enough if the student mind sets aren't at peace, students may get stressed up and have no body to help them deal with the anxiety and stress issues.

But also, this platform does not provide a way for students to socialize with other students.

**c) What is different or gap**

My research tries to cover problem that affect students in different aspect, and this mobile app only help high school students succeed academically but providing them with best resources to prepare them, and forget the most important one, which

the mind state of a students, as a student we normally faces s lots of challenges such as campus and other personally life issues that students don't feel comfortable talking about but affect them emotionally, which can then affect the academic performance no matter how useful the resources provide. But also, it has been observed that the best way to learn is through collaboration (Collaborative learning ,2021), and my research offers that unlike the okpaBac platform.

In my research other fellow students will contribute to each other success, by organizing group meetings and study group for exams or quizzes.

## **2.4 Local literature review**

Eneza to reach' in Swahili, is the educational platform that acts as a virtual tutor and teacher's assistant for thousands of Kenya-based students. Eneza's model is to partner with schools in Kenya to track and assess students' knowledge using the country's most common form of technology: the mobile phone.

Students access educational quizzes, a live 'Ask-a-Teacher' feature, offline access to Wikipedia, a

dictionary and other learning materials via SMS. The platform is specifically geared towards Kenyan primary students in the upper primary grades as they prepare for the test (KCPE) crucial for their entry.

### **a) Advantage**

Personalized learning: You can choose your learning path and study at your own pace. You become more motivated and invested in the course.

### **b) Disadvantage**

Lacks social interaction: E-learning is one of the causes of social isolation because you don't see your teachers and classmates face-to-face anymore. Interaction is very limited to none.

### **c) What is different or gap**

I am trying to solve a large scale problem that affect students in different aspect, and this mobile app only help high school students succeed academically but providing them with best resources to prepare them, and forget the most important one, which the mind state of a students, as a student we normally faces s lots of challenges such as campus and other personally life issues that students don't feel comfortable talking about but affect them emotionally, which can then affect the academic overall performance irrespective of how beneficial the sources provide.

## **2.5 Summary /conclusions**

In this chapter the researcher has talked about the similar project globally, regionally, and locally.

The researcher also identified the gaps and established the need for the current project. From this

chapter it is well understood that all this platform listed above lack some of the aspect I am trying to solve in my research, but also if were to find a system that covers everything is probable done manually therefore the need of the new system.

## CHAPTER III

### METHODOLOGY

This chapter provides a detailed description of the methodology used to complete this project and make it work well. Many methods and discoveries from this area are primarily generated in internet and books and can be improved over future research using other benefits. This method is used to achieve the project goals of achieving perfect results. To evaluate this project, the method-based systems development life cycle (SDLC) is generally three main areas: planning, implementation, and analysis.

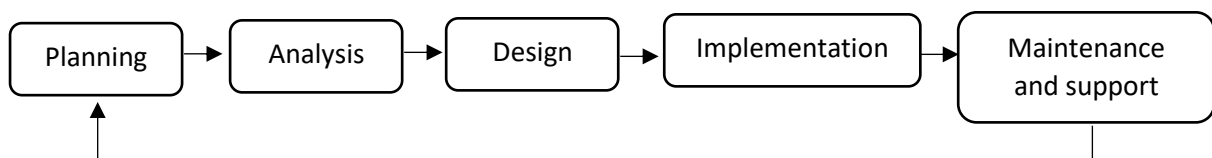


Fig. 1. SDLC phase

This final year project uses three main phases to execute the project, starting with planning, implementing, and testing. All the methods used for retrieving and analyzing data regarding the project related.

#### 3.1 Introduction

In this chapter, the researcher will first review the research methodology. This represents an investigation of the methods involved. This study retrieves information from people who may be involved in, or may be involved in, the proposed task. Researchers will also explore ways to achieve the goals of the system. This includes data collection methods such as observations, interviews, and questions.

This project will be carried out using the Agile Model. The Agile method and methodology are approaches to project management that are used in software development. It is a hybrid of iterative and incremental work sequences with an emphasis on process adaptability and customer satisfaction through rapid delivery of working product. This method uses an incremental approach, in which each increment part is developed iteratively after a timeframe. (Agrawal, 2019)

Agile modeling assists developers in developing a customized software development process that meets their development needs while remaining flexible enough to adapt to future situations. (Agile Modeling: Definition, Core Principles and Advantages, 2021)

The agile model is flexible because it allows for changes in requirements even after development begins, and it is better suited for large-scale projects like mine. The agile model encourages customer interaction and communication among team members, developers, and stakeholders.

The deliverable from each phase is voluminous and are presented to project supervisor for approval and correction, changes can be done at any stage of the development as the project iterate between stages.

The advantage of agile model development is that it allows for more effective communication between teams and clients, increases project flexibility by easily handling unexpected changes at any time, reduces overall development time, increases customer satisfaction through continuous, rapid delivery of a usable product, delivers working software on a regular basis, in weeks rather than months. (Agile Modeling: Definition, Core Principles and Advantages, 2021)

#### **a. Planning**

Planning must be done well to identify all the information and requirements, such as hardware and software. The data gathering phase and the hardware and software requirements are the two key parts of the planning phase.

#### **b. Data collection**

In any field of study, data collecting is a necessary step. At this point, I planned about the project's resources and requirements, as well as literature studies and a strategy for gathering

more data for this study. All the resources were gathered from journals, books, and research papers found in libraries and on the internet.

### **3.2 Locality of the project/ Beneficiary to the project.**

The research is primarily carried out at Kenyan university, more specifically at Africa Nazarene University main campus, which is located off Magadi Road in Nairobi's Ongata Rongai neighborhood. Where the system will resolve issues encountered by a numerous number of students and facilitate the learn experience of students.

### **3.3 Sample (Target group)**

The study's target audience will be students on campus at Africa Nazarene University, which has over 4000 students. However, the researcher envisioned to use this project as way to improve education across the whole country and university, because of the project objective listed the previous chapters.

McNeill (2005) defines a research population as "a large collection of individuals or groups who are the primary focus of a research study." The researcher continues to state that research studies are conducted for the benefit of the public. To draw a sample, one must first know how many people make up the population, as well as the composition of these people or groups.

### **3.4 Sampling method or techniques.**

Sampling is a technique that allows the analyst to select a subset of the population to determine its characteristics.

There are more than 4000 students at Africa Nazarene, and we couldn't have been able to interview everyone, therefore the researcher used the stratified random method sampling which consist of dividing the population into smaller groups known as strata. It improves precision, and a stratified sample often necessitates a smaller sample size, which saves money. I divided the stakeholders into strata, or subgroups.

### **3.5 Data collection method(s)**

This study uses only one main method to collect basic functional information and data for the development of this software.

- a.** Direct interview: This method is required to gather reliable information about how students deal with day-to-day challenges on campus, which primarily affect their academic performance.
- b.** Observation: Since not everyone is willing to sit for an interview this observation method was almost as beneficial as the direct interview.

They provide researchers with methods for detecting nonverbal expressions of feelings, determining who to interact with, understanding how participants communicate with one another, and determining how much time is spent on various activities.

Personal interviews have the primary advantage of involving personal and direct contact between interviewers and interviewees, as well as eliminating non-response rates; however, interviewers must have developed the necessary skills to successfully conduct an interview (Fisher, 2005, Wilson, 2003).

Within the data collection period I have found that there is more to what contribute to a student failure in a certain course, such as not getting enough resources for his/ her study, not having the right group study, language barriers of international students and some local too, bad state of mind (being emotionally troubled).

After doing this data collection, the researcher found out that many study are struggling emotionally, either with school pressure or family problem and even personal. Not having the right people and qualified people to talk in confidence also contribute to their poor academic performance.

### **3.6 Data analysis method(s)**

#### **a. Qualitative Analysis**

The researcher used this method to analyse the data gotten from the collection made in the previous section, this method primarily addresses questions such as 'why,' 'what,' and 'how.' This type of analysis is typically presented in the form of texts and narratives, but it may also include audio and video representations.

In this section, the research had to answer those questions to determine the analysis of the gotten data.

### **3.7 System analysis and design method(s)**

#### **1. System analysis**

System analysis is the process of breaking down a system into its component parts to determine how well those components interact to meet the requirements (Didacus Odiambo, 2018). The system was examined to identify both functional and non-functional requirements which were listed in previous chapters.

#### **2. System design**

The goal of System Design is to develop a technical solution that meets the system's functional requirements.

##### **a. System Design**

The process of designing the elements of a system, such as the architecture, modules, and components, as well as the various interfaces of those components and the data that flows through that system, is known as system design (Didacus Odhiambo, 2018).

##### **b. User Interface Design**

The system will be equipped with a graphical user interface. The system will enable effective machine operation and control from the human end, while the machine simultaneously feeds back information that will aid the operators' decision-making process.



### **c. Design of Input**

The system will include various input field methods, such as forms, that will collect information from customers, such as username and password, and store it in a database.

### **d. Database Development**

It is the arrangement of data in accordance with a database model. The data, such as login credentials, will be stored in a table, and the passwords will be encrypted using MD5, and the data elements in the database will be linked together using relationships.

### **e. Design of Output**

It is often difficult to personalize output in a large information system that serves many users for many different purposes. Based on interviews, observations, cost considerations, and possibly prototypes, it will be possible to design output that addresses the needs and preferences of many, if not all, users.

Users will be able to print, generate reports for administrators such as sales reports, export orders to excel, receive emails when orders are placed, and so on.

## **3.8 Coding and testing**

### **1. Coding**

The system is a web-based system. The system will be developed using these methods and languages:

- a. MySQL:** It is a relational database management system based on SQL – Structured Query Language. The application is used for a wide range of purposes, including data warehousing, e-commerce, and logging applications.

The most common use for MySQL however, is for the purpose of a web database. It can be used to store anything from a single record of information to an entire inventory of available products for an online store.

- b. Hypertext Pre-processor (PHP):** is a server scripting language, and a powerful tool for making dynamic and interactive Web pages.

- c. Javascript: is a programming language commonly used in web development. It is a means to add dynamic and interactive elements to websites.
- d. Cascading Style Sheet (CSS). Cascading style sheets that will be used to format the layout of Web pages.
- e. Hypertext Markup Language revision 5 (HTML5) is markup language for the structure and presentation of World Wide Web contents.

## 2. Testing

The testing plans that will be applied in the system will be unit testing and system testing. Unit testing is where by each unit will be tested separately to ensure there are no errors before proceeding to the next unit. System testing where the functionalities of the system will be tested from an end-to-end perspective.

## 3.9 Hardware and Software Requirements

### a. Hardware requirements

| Hardware             | Minimum Requirements                    |
|----------------------|---|
| Processor speed      | 2.20 GHz                                |
| Memory (RAM)         | 4GB                                     |
| Available Disk Space | <b>500GB</b> Highly recommended         |
| Modem                | Speed of up to 250Mbps                  |
| Display              | Resolution of 1600 × 1200, 16-bit color |
| Processor            | Intel Corei5,i7 or equivalent           |
| Display Adapter      | Average computer graphics               |

*Table 1: Hardware requirements.*

**b. Software Requirements**

Software required include:

| <b>ITEM</b>                           | <b>PURPOSE</b>             |
|---------------------------------------|----------------------------|
| Operating System(Windows 10)          | Establish a user interface |
| Microsoft Office 365                  | For documentation          |
| Xampp                                 | Create a local web server  |
| VS code (Visual studio code)          | Source code editor         |
| Web browser e.g. Chrome, Firefox etc. | Accessing the internet     |
| Windows Defender                      | Computer protection        |

*Table 2: software requirements.*

### 3.10 Budget

| 3.11 | Item               | Description                                  | Qty                  | Cost (per item)<br>(Ksh.) | Total Cost<br>(Ksh.) |
|------|--------------------|--|----------------------|---------------------------|----------------------|
|      | Laptop             | HP EliteBook G1 840 4gb<br>intel 500gb HDD   | 1                    | 45, 000                   | 45, 000              |
|      | External hard disk | Storage device for backing<br>up the project | 1 (500gb)<br>Toshiba | 4, 000                    | 4, 000               |
|      | Network            | Network Provider (Mtaani<br>5mbs)            | 4 months             | 2, 500                    | 10, 000              |
|      | Miscellaneous      |  |                      |                           | 3,000                |
|      | Total              |  |                      |                           | Ksh 62, 000          |

*Table 3: Budget.*

### 3.12 Work Plan

A work plan, according to David Weedmark, is like a road map in that it details the project from start to finish. It will serve two purposes: first, it will help you plan the project as you write it, and second, it will serve as a guide to ensure nothing is overlooked. The workplan is depicted in the form of a Gantt chart below.

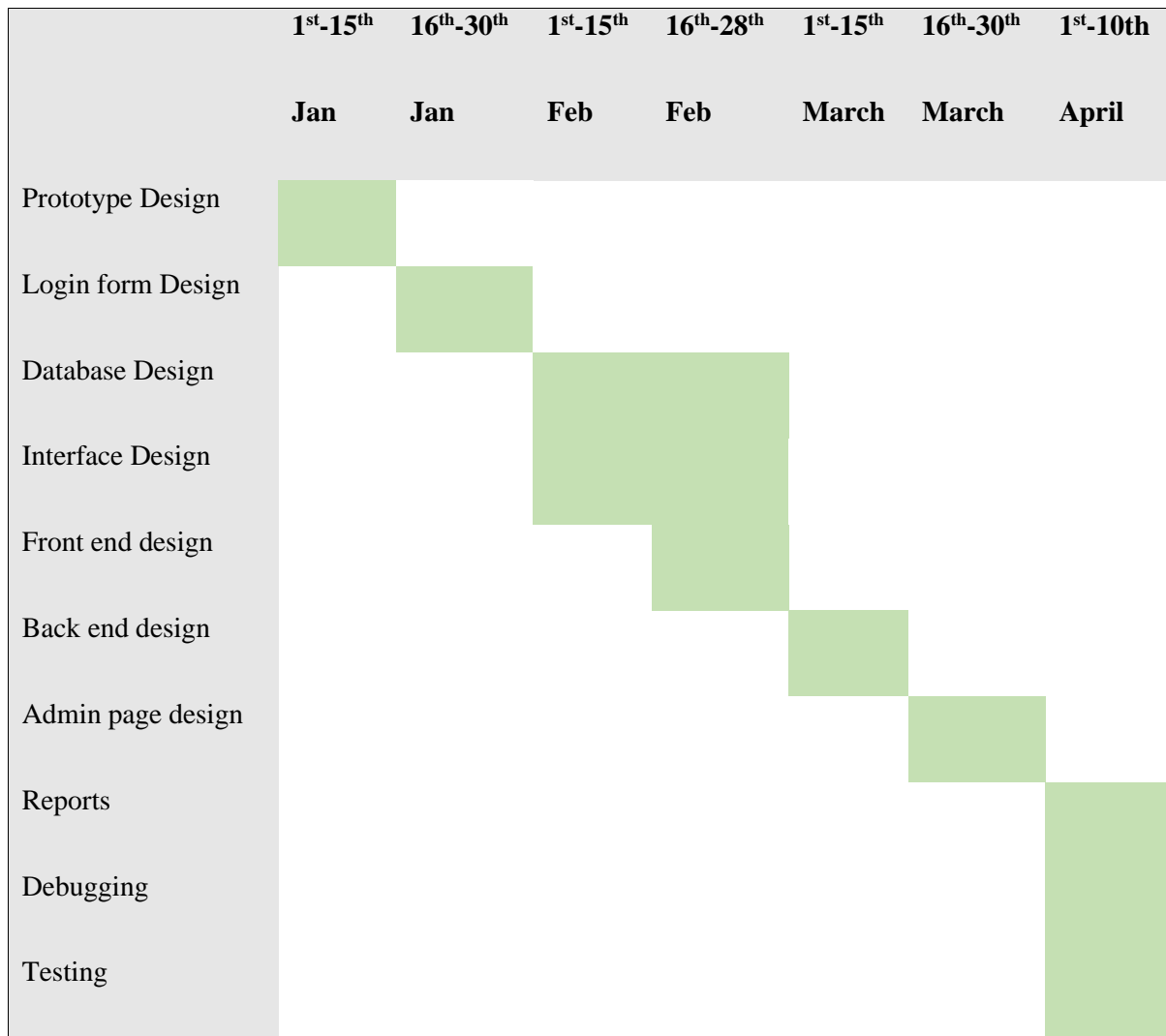


Table 4: work plan.

## **CHAPTER IV**

### **SYSTEMS ANALYSIS AND DESIGN**

#### **4.1.Introduction**

System analysis and design define the specifics that will help the system achieve its goals.

The solution to the creation of a new system is system design. This is a critical aspect that includes several steps such as: System requirements, functional and non-functional requirements, use case diagrams, data flow diagrams, class diagrams, and entity relationship diagrams (ERD).

#### **4.2.System Requirements**

System requirements are statements that identify the functionality that a system requires in order to satisfy the customer's requirements, as well as all of the constraints under which the system will operate and develop. The system requirements are divided into two categories: functional requirements and non-functional requirements.

##### **a. Functional requirements**

These are the system's capabilities; the system aims to provide an efficient interface to the user for managing the app, among other things. The following are some of the functions that must be addressed.

- Students or users will be able to join with the respective identification, identifications that will be provided by the system.
- A students should be able to create and join a group either for study preparation or for learning new materials.

- A students should be able to upload a past paper, or any other relevant links or resources to a certain need.
- The system admin should be to verify the veracity of the resources being posted, and only him or her hold the solemnly permission to delete or suspend a group for a certain period.
- A student should be able to make an appointment with the counselor, the session can either physical or done online.
- A student should be to fill their details, and what they need help in, so that the system admin can know how to help them find a mentor.
- Student should be able to change the status from being a regular student to a mentor.
- The system should be to keep record study groups, students' evolution etc.

#### **b. Nonfunctional requirements**

Non-functional requirements are those that are not directly related to the services provided by the system to its user. This project's non-functional requirements include the following:

- The system, especially the counseling section should be as secure as possible since it is a medium for sensible conversation between the students and the counselor which may contain sensible data
- The system should be user friendly for everyone to use, people from different age or country language can easily get access to it.

- The system should be able to scale because the number of users may increase from time to time.
- The system should be 24/7, with a loading time less than 5seconds to enhance the user experience.
- When a student or user enters the details, the system should be too able to validate those credentials.
- The counselling section should be the most secure part of the application. We value that counselling talks should be kept private.
- The system should be available to authorized user only.
- The system must not lag, because the users using it don't have down-time to wait for it to complete an action.
- All the functions of the system must be available to the user every time the system is turned on

#### **4.3.Design constraints**

The following design constraints must be met by this system system.

- The system must have a very fast processor which reduces inefficiencies for users.
- A reliable internet connection.
- Various browser, such Mozilla Fire, Opera and Chrome are required.
- Database component of the system is critical in this system (My SQL)



#### **4.4.Structured programming**

This is a subset of procedural programming that imposes a logical structure on the program being written to make it more efficient, understandable, and easy to modify.

#### **4.5.System Models**

There are graphical representations of how the system works in this section. Use case diagrams, context diagrams, entity diagrams, data flow diagrams, and class diagrams are just a few examples.

### a. Use Case diagram

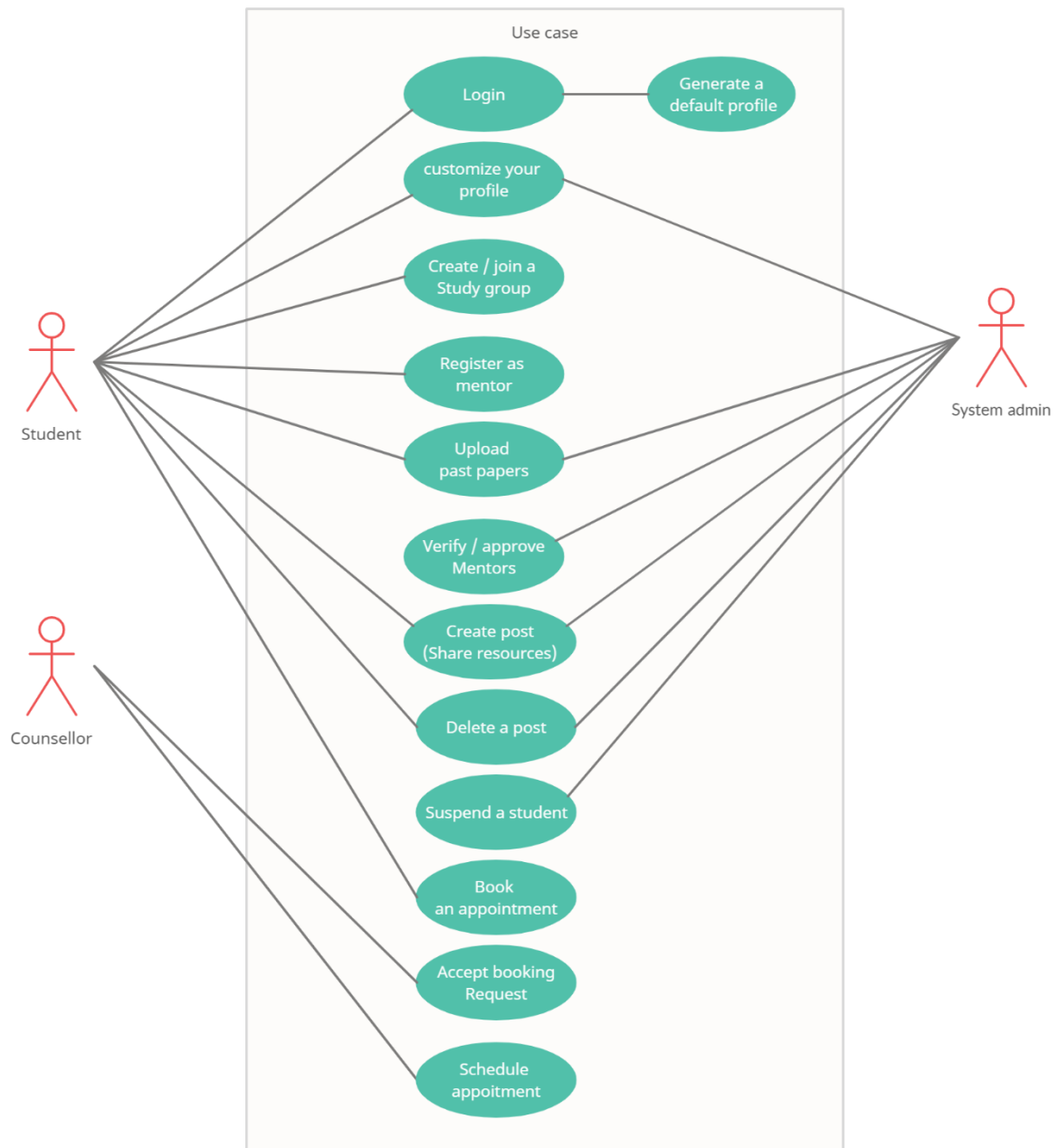
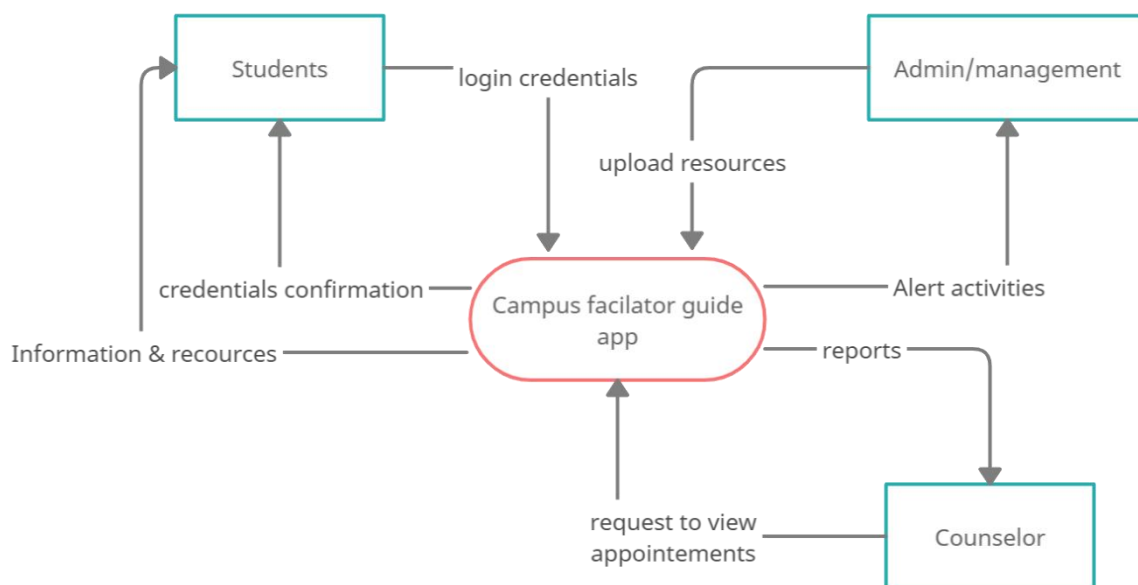


Figure 2: Use Case diagram.

## b. Context Diagrams

A context diagram is a graphical representation of the connection between data and business processes. It illustrates the system under consideration as a single high-level process, followed by the system's relationship with other external entities (systems, organizational groups, external data stores, etc.).



*Figure 3: Context diagram.*

## 4.6.Data Flows Diagrams

### a. Data flows level 0

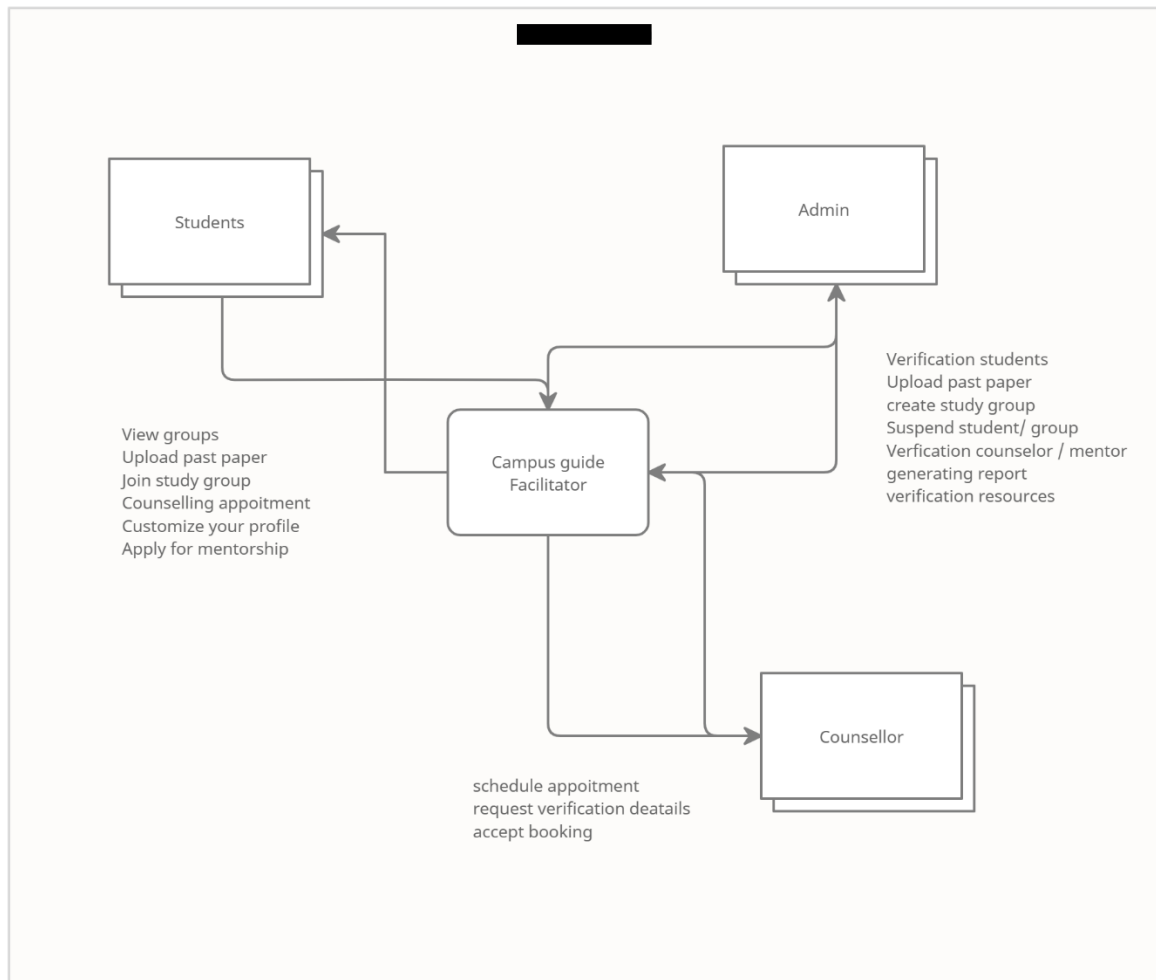


Figure 4: Data flows level 0.

## b. Data flows diagram level 1

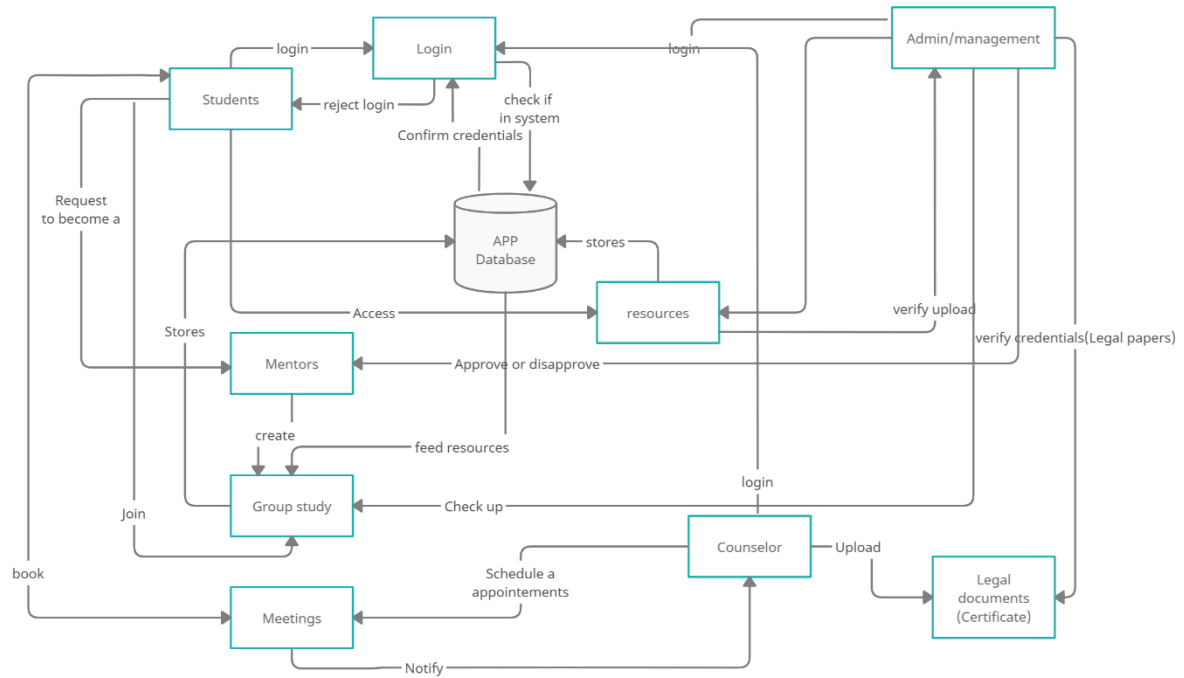


Figure 5: Data flows diagram level 1.

### a. Class Diagram

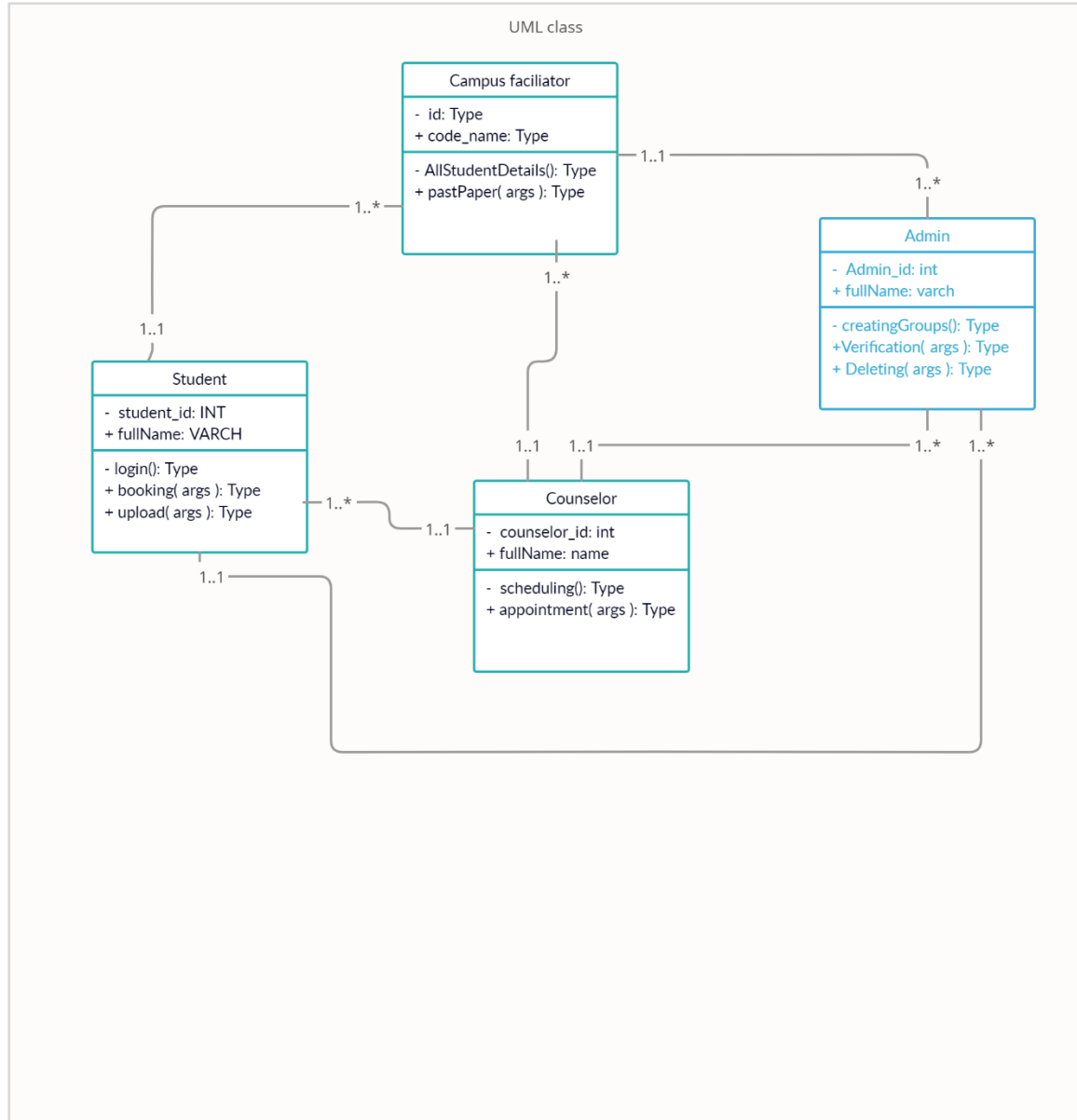


Figure 6: Class diagram.

## b. Entity Relation Diagram

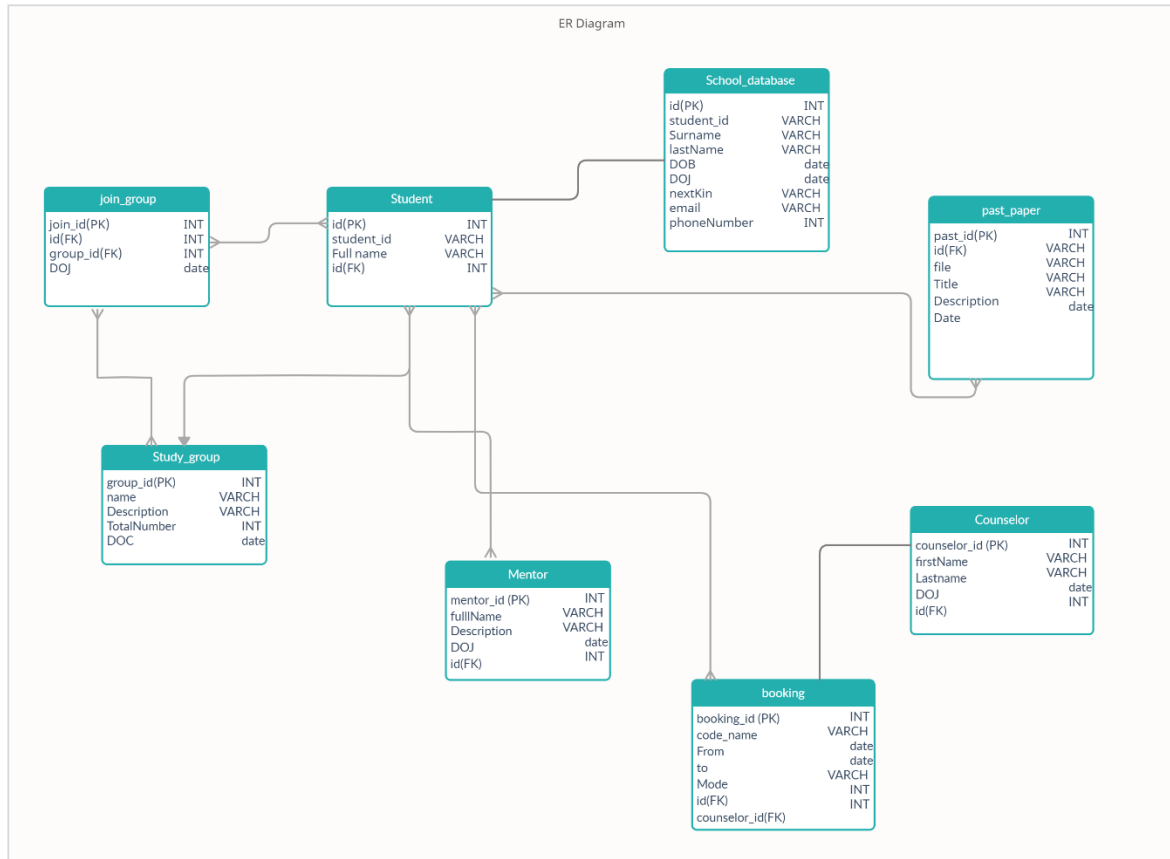


Figure 7: Entity relation diagram.

## CHAPTER V IMPLEMENTATION

## CHAPTER VI CONCLUSION AND RECOMMENDATION

## CHAPTER VII

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## CHAPTER VIII APPENDIX