Adventist University of Central Africa

DIGITAL AUCASA ACTIVITIES MANAGEMENT SYSTEM

CASE STUDY: AUCA (Adventist University of Central Africa)

Afinal year project

Presented in partial fulfillment of the

requirements for the degree of

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

Major in

SOFTWARE ENGINEERING

By

Christian KABERA

**April** 2023

# **PROJECT ABSTRACT**

Research Project for the Bachelor Degree in Information Technology

Emphasis in Software Engineering

Adventist University of Central Africa

**Title: Digital Aucasa Activities Management System**

**Name of this researcher: Christian KABERA**

**Name and the degree of the faculty advisor: Dr SEBAGENZI Jason**

**Date completed: April 2023**

This system will allow AUCASA leaders will be able to utilize the system to keep track of students' issues, events, and strategies. The system will also function as a page for all AUCA students to access and obtain relevant information and opportunities. Significantly, students will have the ability to ask questions and report problems, and the system will assist them in identifying a particular leader who can help address their concerns.

To achieve the project's objectives, the analysis of the existing system was conducted, and issues that students and their leaders experience when recording and post the upcoming events’ measurements were discovered.

Following that, appropriate remedies to the raised issue were presented.

Digital aucasa activities management system is a web-based application that will allow students to access information they need to know about the school and leaders keep accurate record on students’ issues as well as posting on the channel. This will enhance efficient communication between students and student association leaders.

# **DECLARATION**

I, **Christian KABERA**, with Registration No 23025, a student at the Adventist University of Central Africa in Faculty of Information Technology, Department of Software Engineering. I hereby, declare that this research project entitled “DIGITAL AUCASA ACTIVITIES MANAGEMENT SYSTEM”, is entirely the real reflection of my own original work and has not received any previous credit at the Adventist University of Central Africa or any other University or Institution.

Signature: ………………………

Date: ………………….

# **APPROVAL**

I, **Dr Jason SEBANGENZI, Ph.D.,** hereby certify that this project has been done under my supervision and submitted with my approval.

Signature: ………………………

Date: ………………….

# **DEDICATION**

This work is dedicated to my supportive parents,

Friends, and relatives, as well as my supervisor

who provided valuable guidance and support.

Their unwavering support and encouragement

throughout my studies have been greatly appreciated.

I am grateful for their contributions to my personal and academic growth.

# **LIST OF ABBREVIATIONS**

AUCA: Adventist University of Central Africa

AUCASA: Adventist University of Central Africa Students Association

CSS: Cascading Style Sheet

DB: Database

DBMS: Database Management System

HTML: Hyper Text Mark-up Language

HTTP: Hyper Text Transfer Protocol

IDE: Integrated Development Environment

IS: Information System

IT: Information Technology

MVC: Model View Controller

OMG: Object Management Group

OOM: Object Oriented Methodology

OS: Operating System

SDLC: Software Development Life Cycle

PHP: Hypertext Preprocessor

UML: Unified Modeling Language

# **ACKNOWLEDGEMENT**

I am delighted to express my immense gratitude to the Almighty God, who has granted me life and provided for all my needs, even when they differed from my wants. This is just one of the many miracles that God has bestowed upon me.

I would like to extend my heartfelt thanks to the academic staff of the Information Technology department and the entire Administration at the Adventist University of Central Africa. Their dedication and support throughout my stay at the University have been instrumental in the successful completion of this research project. The knowledge I gained from them helped me to conduct this work, and for that, I am forever grateful.

I would also like to thank my supervisor, Dr. SEBAGENZI Jason, for his wise technical advice, suggestions, and corrections, which made this research project fruitful. His guidance and encouragement helped me to navigate through the complexities of this research and gave me the confidence to succeed.

I am profoundly grateful to my parents, siblings, and extended family for their unwavering support and encouragement throughout my studies. Their constant encouragement and motivation inspired me to keep pushing forward, even in the face of adversity. I could not have accomplished this without their support.

I would also like to pass on a cordial thanks to my colleagues at AUCA, who have contributed to making my academic journey a pleasant and enjoyable one. Your friendship and support have been invaluable to me.

Lastly, I would like to express my gratitude to each and every one who directly or indirectly contributed to my studies. Your support and encouragement have played a significant role in my time here at AUCA, and for that, I am immensely grateful.

May you all live long to see the goodness of God our father.

# **CHAPTER 1**

# **GENERAL INTRODUCTION**

**Introduction**

The advancement of technology has brought about significant changes in various sectors, including education. As the demand for innovative solutions to manage student issues and events continues to grow, the need for a reliable system that can track students' problems and strategies has become increasingly important. This is where my project comes in. The system I have developed will serve as an essential tool for student guilds and ministers (leaders) to manage and monitor students' activities and issues effectively. Furthermore, the system will function as a platform for all AUCA students to access relevant information and opportunities. Students will be able to ask questions, report problems, and get help from specific leaders who can address their concerns.

The importance of this system cannot be overstated. With its efficient monitoring and reporting features, it will revolutionize the way AUCA handles student issues and events. The system will improve communication and collaboration among students, guilds, and ministers, resulting in better management of student activities and a more responsive leadership system. Additionally, the system's user-friendly interface and ease of access will ensure that all students can access the necessary information and resources they need. This essay will delve deeper into the potential of this system to transform the way AUCA manages student issues and events, highlighting its impact on the education sector and the benefits it will bring to AUCA students.

**Background of the study**

As a student with a background in information technology, I understand the importance of technology in modernizing and improving various aspects of our society. The use of Information and Communication Technologies (ICT) in Rwanda has been identified as crucial to the country's development, especially in areas where the country has limited minerals. However, I have observed a lack of efficient use of technology in the management of student activities, which is a critical aspect of student development.

The current system used in many institutions of learning is not digitalized, and this poses several challenges. For instance, it is not easy to track student participation in different activities, making it difficult to evaluate the impact of these activities on students. Therefore, I have proposed the development of a digital student activities management system that will leverage advanced technologies such as web portals and mobile applications to improve access to and use of information. This system will make it easier to track student participation in different activities and enable the institution to monitor their progress effectively.

## **Statement of the problem**

Stunting is a serious issue that impacts the growth and development of children, especially in many developing countries such as Rwanda. However, it is not only physical growth that is affected but also cognitive growth, academic achievement, and work outcomes in later life. While Rwanda has experienced impressive economic growth over the past two decades, progress in reducing the level of stunting in smallholder rural children, particularly boys, continues to be a serious concern. Similarly, the best technology university in Rwanda not having a portal that supports students association is also a concerning problem.

The absence of a portal supporting student associations at the best technology university in Rwanda makes it difficult for students to participate in various activities and access information on different opportunities. Furthermore, the process of solving student problems is too long, and sometimes the issues do not get resolved. Communication between leaders and students is key to success, but there is no efficient way to communicate with student association leaders and students vice versa. This lack of communication makes it difficult for students to express their concerns and needs, making it challenging for student association leaders to represent and serve the students effectively. Therefore, there is a need to develop a platform that allows for efficient communication and problem-solving between students and student association leaders. This platform will improve student participation, enhance access to information, and enable effective representation and service to the students.

## **Choice and motivation of the study**

The choice of my project is to develop a digital student activities management system to address the challenges faced by the current system used in many institutions of learning. The lack of digitalization and inefficient management of student activities has created a need to leverage technology to improve access to and use of information, as well as enhance student participation and representation in different activities. The motivation for this study is driven by the need to solve these problems and improve student academic and personal development. By developing this system, we can effectively track student participation, enable efficient communication between student association leaders and students, and provide opportunities for students to access information on different opportunities.

## **Objectives of the study**

### **General objective**

The overall purpose of this study is to develop a web portal that will help in recording Aucasa activities, posting events and submission of students’ queries. Information for better interpretation and help in decision making.

### **Specific objectives**

* To analyze problems within the existing system and build up an improved system.
* To design a database where information regarding the system will be stored.
* To create a system that will be secure so that only authorized people will be granted access.
* To create a friendly and easy to use system.

## **Scope of the study**

This study is to design and develop a digital student activities management system prototype for efficient management of student activities. It will be limited to the interaction between students and association leaders of a specific institution of learning, enhancing communication, and improving student participation and representation in various activities.

## **Methodology and Techniques used in the study**

Methodology is the process used to collect information and data for the purpose of making decisions. The methodology may include publication research, questionnaires, surveys, and other research techniques and could include both present and historical information. The following are techniques and methods used in conducting this research.

**Observation**

In descriptive sociological studies, the observation method has played a significant role. It is the most important and widely used data collection method. The purpose of questionnaire response analysis is to figure out what individuals believe and do base on what they write down. What people say in a discussion with the interviewer reveals the interviewee's replies. Observation is the process of determining what individuals think and do by seeing them express themselves in a variety of circumstances and activities (Akash C.,2019).

**Interview**

The interview as a data-gathering technique is quite popular and widely employed in all fields of social research. In some ways, the interview resembles an oral questionnaire. The interviewee or subject offers the necessary information verbally in a face-to-face relationship rather than writing it down. However, the dynamics of interviewing entail far more than a spoken query (Akash C.,2021).

## **Expected results**

This new system is expected to produce the following output:

* Reduce time wasted in reporting by phone calls and office visiting as well as processing.
* Less amount of money used for students going to submit their inquiries.
* To generate weekly upcoming school events.
* Keep accurate records of students’ inquiries and leaders’ planned activities.

## **Organization of the project**

This research study consists of five chapters which include the following:

The first chapter namely, General introduction will provide the basic information of this study like what made me choose this study and what motivated me, the overview of the problem we intend to solve, the methods and techniques used in collection of data, the objectives, the scope, and the expected output of the study.

The second chapter namely, Analysis of the existing system will mostly emphasize on the description of existing system in depth, its design, its problems, and my proposed solution.

Requirements analysis and design of the new system, the third chapter, will mostly discuss the new system in detail. A brief description of its UML and the design aided by use-case diagrams, sequence diagram, activity diagram, data dictionary diagram, and architecture diagrams.

The fourth chapter called Implementation of the new system will focus mainly on the practical aspect of the study. We will explain how the new system was built by describing and presenting screenshots of my codes as forms of data entry and reports, we will also provide the technologies used to build and develop this software.

The fifth chapter namely, Conclusions and recommendations will conclude my research and will contain recommendations for future development.

# **CHAPTER 2**

# **ANALYSIS OF EXISTING SYSTEM**

**Introduction**

. This chapter will aid us in developing a comprehensive understanding of the current system, which is essential for the development of the new system. We must recognize and emphasize issues with the current system and think through potential improvements if we are to have a clear picture of the new system. We will also go through how activities are monitored and evaluated, to better understand the existing system, we will provide a brief description of the institution, its working principles and values, problems faced within the system, all its features and characteristics and a brief presentation about terms and terminologies used during the development of the project.

## **Description of Current System Environment**

### **Historical Background**

The AUCA students have an organization called AUCASA which operates in both MASORO and GISHUSHU campuses. AUCASA is made up of eight leaders who serve for one year before their mandate expires. The team is headed by a guild president who receives reports from the other members. Two vice presidents are appointed to oversee the MASORO and GISHUSHU campuses, while four ministers are responsible for communication, gender and protocol, sports, and social affairs respectively. Lastly, there is a treasurer to manage finances.

AUCASA has been aiding students for several years, and their duties are ongoing. During their mandate, they perform various activities such as communicating important information from the school administration to the students and vice versa. They are also responsible for addressing and resolving any student problems with the help of the school's support. In addition to communication, they organize events such as football and basketball games, cultural events, and many others.

**Mission**

Provide Christ-centered holistic quality education to prepare for service in this world, and in the life to come.

**Vision**

Become an international center of academic learning with global impact.

## **Description of Current System**

The existing system analysis is the process of examining a business situation for the purpose of developing a system solution to a problem or devising improvements to such a situation. To successfully implement a new system, it is essential to fully understand the existing one. In system analysis, focus is placed more on comprehending the specifics of an existing or proposed system before determining whether the new system is desirable and whether the current system needs to be improved. As a result, system analysis is the act of looking into a system, detecting issues, and using the information to suggest system improvements.

Nowadays the existing system proceeds in manually way. Students has to go looking for their leaders who may also not be available since they are students as well. Uses of WhatsApp when communicating announcements and honestly not all of them are in the groups.

## **Analysis of the current system**

The existing system operates in main features which include the following:

* **Information sharing**: The Aucasa leaders post announcements into WhatsApp groups and students use the same way phone calls, reaching out to the office to submit their questions.
* **Analysis of the issue**: When students submit an inquiry the Aucasa committee seats and finds the solution.
* **Report**: Every leader makes his or her report on monthly basis and submit to the guild president.

**Modelling of Current System**

Diagram

Description automatically generated

### **Problems of the Current System**

Below are the problems encountered after realizing that there would be a better, easier, and faster way of communicating between Aucasa leaders and students.

The current system faces many problems, including the following:

* **Manual System**: Students call leaders even when they are in church, and leaders come up with the events that students don’t have information about.
* **Data Collection**: It is difficult to get immediate and accurate information from Aucasa ministers. Hence poor planning.
* **Wastage of resources**: students shouldn’t pay transport money for reaching out to offices looking for leaders.
* **Lack of Security**: unauthorized personnel can have access to the data and temper with it.
* **Poor Management**: The information of whole aucasa is kept in files of papers which mostly disappears especially when handing over of the committees.
* **Time Consuming**: difficulty when it comes to time management. Students’ records Information processing by recording and filling forms for data entry, it takes long time and delays for finding recorded hardcopy.

## **Proposed Solutions**

According to the mentioned problems above, this new system will bring the following solutions:

* Reduce time wasted in reporting processing and responding.
* Students will be able to submit their inquiries online.
* Upcoming events will be posted online as well.
* Keep accurate records on students’ records.
* Uses manual process of record keeping such as a handwritten document, keeping records inside the drawer that sometimes tends to lose, unsecured storage of all data. I decided to make it online and they will be stored in the database.
* Record keeping will be safe with only authorized personnel getting access to it and retrieving it in the minimum possible time.

## **System requirements**

Functional requirements are those requirements that are easier to be found at the starting moment and non-functional requirements, also called quality requirements define the system properties and constraints.

### **Functional requirements**

The following are some of the functional requirements of the Digital Aucasa Activities Management system:

* The system shall allow new user (AUCASA leader) to create an account.
* The system shall allow existing users to login into the system.
* The system shall allow the administrator to login into the system as an admin.
* The system shall be able to differentiate the user’s and administrator’s responsibilities.
* The AUCASA leader shall be able to record, update, delete, and view the past records regarding his/her case for one only at his serving desk or not any leader who is not concerned.
* The AUCASA leader shall be able to change his or her credentials.
* The administrator shall be able to change his or her credentials.
* All users shall be able to log out of the system.
* RBC should be able to view reports from different health centers.

### **Non-Functional Requirement**

**Security**

* The system must encrypt user passwords.
* The system should provide right privileges according to user type.
* Users have to login to perform any useful action.

**Performance**

* Within 10 seconds, the system must respond to user’s request.
* In the event of outage, the system shouldn't operate for longer than 20 seconds.
* User request will not exceed 2 clicks in maximum to be completed.
* The system will be running for 24 hours a day.

**Accessibility**

* A laptop or other programmed electronic device, such as a computer, phone, or tablet, should be able to access the system.
* Anyone who requires the system should be able to access it online.
* All authorized users must have access to the system processes.

**Maintainability**

* When desired, the system should be simple to maintain.

**Data integrity**

* The user's privacy should be able to be protected by the system.

**Technical**

* The system is a web application project, which include Java with its popular framework known as HIBERNATE and MYSQL as database.
* The system should be running on both Windows and Linux platforms i.e., through application and database servers.
* The database server and the application server should be on different servers.

## **CHAPTER 3**

## **REQUIREMENTS ANALYSIS AND DESIGN OF THE NEW SYSTEM**

## **Introduction**

The study of the current system was done in chapter 2, therefore to create a strong and effective system that satisfies user needs, a proper analysis and clear design are needed, just as a strong foundation is crucial for a strong superstructure.

Typically, system development consists of two key parts:

* **System Analysis**: It is a process of collecting and interpreting facts, identifying the problems, and decomposition of a system into its components. It is conducted for the purpose of studying a system or its parts to identify its objectives. It is a problem-solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose.
* **System Design**: It is a process of planning a new business system or replacing an existing system by defining its components or modules to satisfy the specific requirements. Before planning, you need to understand the old system thoroughly and determine how computers can best be used to operate efficiently.

System Design focuses on how to accomplish the objective of the system.

## **Analysis and Design Methodology**

### **Analysis of the new system**

The system analysis phase provides answers to the questions of who will use the system, what it will do, where it will be utilized, and when. The manager of the possible system and/or systems analysts must write a project proposal before any work on developing a system can start, and it must be submitted to the proper managerial structure within the company.

### **Concepts of objects-oriented methodology**

A system development methodology called object-oriented methodology (OOM) promotes and facilitates the reuse of software components. This methodology permits the efficient reuse of existing components and makes it easier for other systems to share the components of a computer system that is designed on a component basis.

They are two main basic building blocks that are useful in development of the system by using Object Oriented Methodology: Classes and Objects.

A distinct entity with a clearly defined boundary that incorporates states and behavior expressed as a software representation is referred to as an object. It is an instance of a class. A thing, an idea, or an event can all be considered objects. Simply put, a class is a description of a group of objects with common properties and behaviors once you understand what an object implies. (Alan, 2005)

Typically, use cases and abstract definitions of the most crucial objects are used in object-oriented modeling. The Unified Modeling Language is the most widely used language.

### **Unified Modeling Language (UML)**

In the area of software engineering, the Unified Modeling Language (UML) is a general-purpose modeling language that aims to offer a standardized method of visualizing system architecture. A common notation for modeling object-oriented systems is this one.

Grady Brooch, Ivar Jacobson, and James Rumbaugh created it in the 1990s while working at Rational Software. Since the Object Management Group (OMG) adopted it in 1997, this group has been in charge of overseeing it. The International Organization for Standardization (ISO) approved the Unified Modeling Language as a standard for modeling software-intensive systems in 2000.

Unified Modeling Language (UML) combines techniques from data modeling (entity relationship diagrams), business modeling (workflows), object modeling, and component modeling. It can be used with all processes, throughout the software development life cycle, and across different implementation technologies (Louis Rivest, 2002).

The Unified Modeling Language (UML) provides a common method to see a system's architectural blueprints, which may include things like:

* activities
* actors
* business processes
* database schemas
* (logical) components
* programming language statements
* Reusable software components.

UML has synthesized the notations of the Booch method, the Object-modeling technique (OMT) and Object-oriented software engineering (OOSE) by fusing them into a single, common and widely usable modeling language. UML aims to be a standard modeling language which can model concurrent and distributed systems (Jeffrey L. & et al, 1998).

## **Design of the new system**

System design is the first phase of the system development life cycle in which you and the user develop a concrete understanding of how the system will operate.

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements.

### **Use Case Diagram**

Use case diagram is UML diagram which shows some business or software system, its external users (called [actors](http://www.uml-diagrams.org/use-case-actor.html)), and a set of actions (called [use cases](http://www.uml-diagrams.org/use-case.html)) that users of the system should or can perform while using the system. Use case diagrams are used to describe functionality of a system from the point of view of external users (Jeffrey L, 2007).

The use case is made up of a set of possible sequences of interactions between systems and users in a particular environment and related to a particular goal. It consists of a group of elements (for example, classes and interfaces) that can be used together in a way that will have an effect larger than the sum of the separate elements combined

Use case diagrams consist of actors, use cases and their relationships. The diagram is used to model the system/subsystem of an application. A single use case diagram captures a particular functionality of a system.

Use case diagrams are used to gather the requirements of a system including internal and external influences. These requirements are mostly design requirements. Hence, when a system is analyzed to gather its functionalities, use cases are prepared and actors are identified.

The symbols below are used in use case diagram:

**Actor**

An actor specifies a role played by a user or any other system that interacts with the subject.



**Use case.**

The use case is a specification of sequences of actions that a system can perform by interacting with outside actors; it is something an actor wants a system to do and is represented as follows:



**Relationship**

Meaningful relationships between actors and use cases which is a UML association symbol.



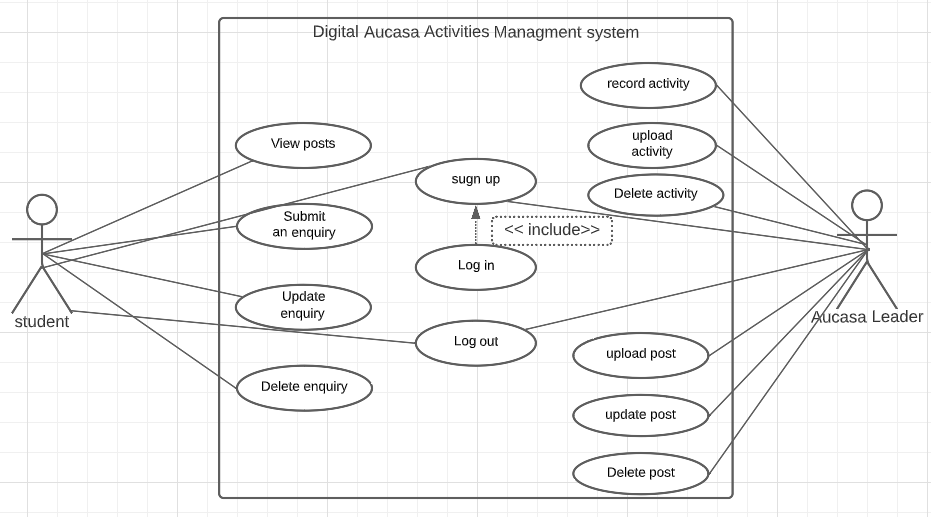
**System boundary**

It is a box drawn around the use case to denote the edge or boundary of the system being modeled.

System boundary

The figure below describes the operations of the new system and the stakeholders through the use case diagram.

**Use case Diagram.**

****

|  |
| --- |
| **Name**: Create account |
| **Actor:** Leader |
| **Description:** This allows the leader to update, delete, view, and modify account |
| **Pre-condition:** Leader should first login in order interact with the system |
| **Post-condition:**  **Delete Leader**  the nurse is removed from the system, or the system fails to remove her.  **Update Leader**  the leader is updated, or the system fails to update the leader. |
| **Normal flow:**  1. The leader requests the page where leaders are displayed.  2. The system displays requested page  3. The guild view the leaders.  Edit/Update leader.  1. The guild press the update button  2. The system displays requested page  3. The guild modifies the leaders ‘information.  4. The system validates, and checks errors based on requirements  5.The system redirects back to the main page contains all leaders with success message  Delete/remove Leader.  1. The guild press the delete button  2. The system prompts a message for deletion  3. The guild confirms the deletion  4. The system prompts a message for deletion  5. The system validates and delete the leader |
| **Alternative flow**:  Delete selected leader.  4. If the information is not valid, the system provides the message indicating the error.  5.If the system fails to delete information displays the failure message  Updating selected leader  4. If the information is not valid, the system provides the message indicating the error  5. If the system fails to update information displays the failure message |

Table 1: Use case description for creating leader.

|  |
| --- |
| **Name**: Create account |
| **Actor:** Student |
| **Description:** This allows the student to update, delete, view, and modify account |
| **Pre-condition:** |Student should first login in order interact with the system |
| **Post-condition:**  **Delete** Student  the student is removed from the system, or the system fails to remove her.  **Update** Student  the student is updated, or the system fails to update the nurse. |
| **Normal flow:**  1. The student requests the page where student is displayed.  2. The system displays requested page  Edit/Update student.  1. The student press the update button  2. The system displays requested page  3. The student modifies the leaders ‘information.  4. The system validates, and checks errors based on requirements  5.The system redirects back to the main page contains all student with success message  Delete/remove Leader.  1. The guild press the delete button  2. The system prompts a message for deletion  3. The admin confirms the deletion  4. The system prompts a message for deletion  5. The system validates and delete the student. |
| **Alternative flow**:  Delete selected student.  4. If the information is not valid, the system provides the message indicating the error.  5.If the system fails to delete information displays the failure message  Updating selected student  4. If the information is not valid, the system provides the message indicating the error  5. If the system fails to update information displays the failure message |

Table 2: Use case description for creating student.

|  |
| --- |
| **Name**: Create post |
| **Actor:** Leader |
| **Description:** This allows the leader to update, delete, view, and modify post |
| **Pre-condition:** Leader should first login in order interact with the system |
| **Post-condition:**  **Delete Post**  A post is removed from the system, or the system fails to remove it.  **Update Post**  the post is updated, or the system fails to update the leader. |
| **Normal flow:**  1. The leader requests the page where post is displayed.  2. The system displays requested page  3. A leader view the post.  Edit/Update post.  1. The leader press the update button  2. The system displays requested page  3. The leader modifies the post ‘information.  4. The system validates, and checks errors based on requirements  5.The system redirects back to the main page contains all leaders with success message  Delete/remove Post.  1. The leader press the delete button  2. The system prompts a message for deletion  3. The leader confirms the deletion  4. The system prompts a message for deletion  5. The system validates and delete the leader |
| **Alternative flow**:  Delete selected leader.  4. If the information is not valid, the system provides the message indicating the error.  5.If the system fails to delete information displays the failure message  Updating selected leader  4. If the information is not valid, the system provides the message indicating the error  5. If the system fails to update information displays the failure message |

Table 3: Use case description for creating post.

|  |
| --- |
| **Name**: Create Activity |
| **Actor:** Leader |
| **Description:** This allows the leader to update, delete, view, and modify activity |
| **Pre-condition:** Leader should first login in order interact with the system |
| **Post-condition:**  **Delete Activity**  An activity is removed from the system, or the system fails to remove it.  **Update Activity**  The activity is updated, or the system fails to update the leader. |
| **Normal flow:**  1. The leader requests the page where post is displayed.  2. The system displays requested page  3. A leader view the activity.  Edit/Update Activity.  1. The leader press the update button.  2. The system displays requested page  3. The leader modifies the activity ‘information.  4. The system validates, and checks errors based on requirements  5.The system redirects back to the main page contains all leaders with success message  Delete/remove Post.  1. The leader press the delete button  2. The system prompts a message for deletion  3. The leader confirms the deletion  4. The system prompts a message for deletion  5. The system validates and delete the leader |
| **Alternative flow**:  Delete selected leader.  4. If the information is not valid, the system provides the message indicating the error.  5.If the system fails to delete information displays the failure message  Updating selected leader  4. If the information is not valid, the system provides the message indicating the error  5. If the system fails to update information displays the failure message |

Table 4: Use case description for creating Activity.

|  |
| --- |
| **Name**: Create Enquiry |
| **Actor:** Student |
| **Description:** This allows the leader to update, delete, view, and modify enquiry. |
| **Pre-condition:** Student should first login in order interact with the system |
| **Post-condition:**  **Delete Enquiry**  An enquiry is removed from the system, or the system fails to remove it.  **Update Eqnuiry**  The enquiry is updated, or the system fails to update the enquiry. |
| **Normal flow:**  1. The Student requests the page where post is displayed.  2. The system displays requested page  3. A leader view the activity.  Edit/Update Activity.  1. The leader press the update button.  2. The system displays requested page  3. The leader modifies the activity ‘information.  4. The system validates, and checks errors based on requirements  5.The system redirects back to the main page contains all leaders with success message  Delete/remove enquiry.  1. The leader press the delete button  2. The system prompts a message for deletion  3. The student confirms the deletion  4. The system prompts a message for deletion  5. The system validates and delete the enquiry. |
| **Alternative flow**:  Delete selected enquiry.  4. If the information is not valid, the system provides the message indicating the error.  5.If the system fails to delete information displays the failure message  Updating selected enquiry.  4. If the information is not valid, the system provides the message indicating the error  5. If the system fails to update information displays the failure message |

Table 4: Use case description for creating .

### 

### **Class diagram**

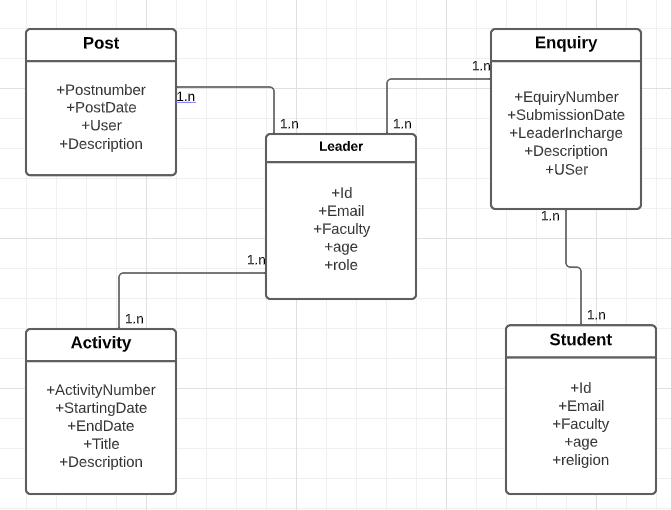
A class diagram is the structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. The figure below shows the class diagram of the national budget preparation information system.

**Benefits of class diagrams**

Class diagrams offer several benefits for any organization. Use UML class diagrams to:

* Illustrate data models for information systems, no matter how simple or complex.
* Better understand the general overview of the schematics of an application.
* Visually express any specific needs of a system and disseminate that information throughout the business.
* Create detailed charts that highlight any specific code needed to be programmed and implemented to the described structure.

**SCHEMA OF CLASS DIAGRAM**



The notations and their definitions that are used in sequence diagram:

|  |  |
| --- | --- |
| Term and definition | Symbol |
| An actor:   * It can be a person or system that derives benefit from and is external to the system. * It participates in a sequence by sending and/or receiving messages. * It is placed across the top of the diagram. |  |
| An object lifeline:   * It participates in a sequence by sending and/or receiving messages. * It is placed across the top of the diagram. |  |
| An activation:   * It is a long narrow rectangle placed on top of a lifeline. * It denotes when an object is sending or receiving messages |  |
| message:   * It conveys information from one object to another. * An operation call is labeled with the message being sent and a solid arrow, whereas a return is labeled with the value being returned and shown as a dashed arrow. |  |

Table 6: Diagram of element