

GRADUATION PROJECT I (IS498)

BS Project Committee Assistance Software



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Abstract

In this project we aim to aid the IS department project committee in automating their work of managing the proposals and assigning each group to a project, so the website will organize committee's work and make it easier by providing an easy interface and automatic ranking system and other features, the website will calculate the priority of each group according to their GPA average and assign them a project to work on so they can finish IS 498 course and inform the IS department of each group and their respective project and faculty member, we used the waterfall methodology to complete our work and used: Use case diagram, Entity relationship diagram, Activity diagrams, Sequence diagrams and Class diagram to illustrate our work and better understand it, and we will be implementing the website in the next semester in graduation project II (IS499).

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CHAPTER 1: INTRODUCTION

1.1 Introduction:

Every year the IS department project committee goes through a long and tedious process of assigning each group to a faculty member the process as is, wastes time and students may need a lot of guidance on how the process works.

The process is very prone to human error, so we want to automate this process and make it as easy as possible, and ultimately limit unnecessary email usage for both the students and faculty members.

We also plan on providing the students with guidelines, FAQ, and the project handbook and provide the IS department with the collected data form these processes ready to be analyzed to help them make better decisions.

1.2 Motivations:

We ourselves have faced difficulties in understanding the process of assigning each group to a proposal and it's respective faculty member because it is not clear and not practical enough, and we find that some groups don't get any of the projects they have chosen in their top 10 selections because a faculty member submitted a proposal when he has reached his maximum workload, which means the proposal isn't valid anymore, another problem is that we usually see some students who might not find a group that matches their skills and knowledge or may not find a group at all then they would go to the committee for help or may ask redundant questions that may waste the committee's time which can be easily answered in one place, so we want to fully automate this process and hopefully make it a better experience for all parties involved.

1.3 Workflow of Current System:

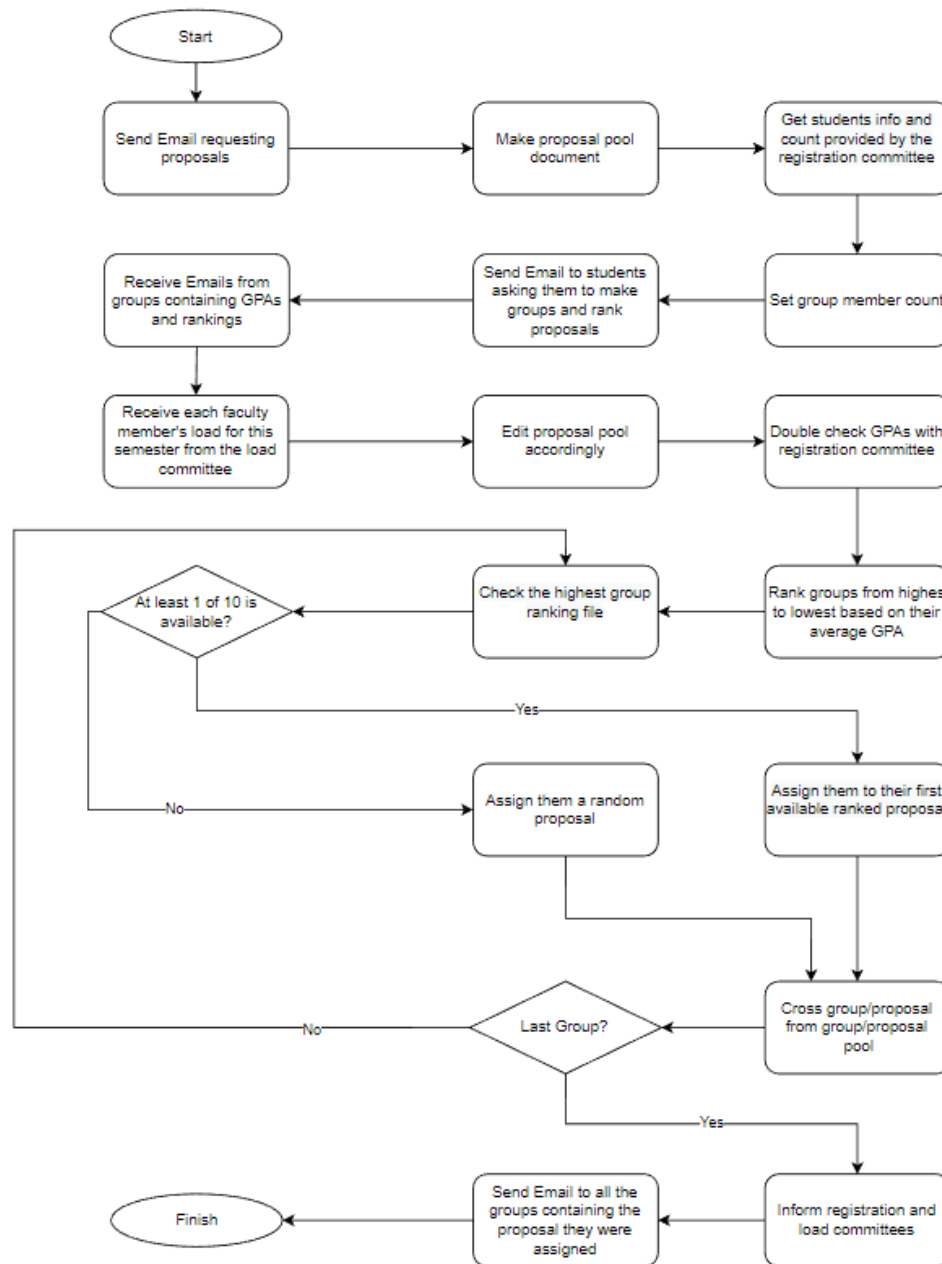


Figure 1: Workflow of current system

It's clear that the current manual system is not practical enough, our website aims to facilitate and automate the entire process for committee members and avoid any errors that may occur from human element.

1.4 Objectives:

- Limit user error
- Limit Email usage
- Easier work and less workload for committee members
- Organizing committee's work
- Provide a chat room for the group and their supervising faculty members
- Provide data ready to be analyzed
- Provide automatic ranking system
- Provide an easy interface
- Check faculty member's loads to determine if they are available
- Make project details and requirements clear
- Make handbook, Guideline, and FAQ easily accessible

1.5 Positional Users:

User	Description
Students	Who will use the website to view project proposals details and rank their top 10 desired proposal.
Faculty members	Who will post proposals and wait to be assigned a group.
Committee member	Who will manage the system: Authorize students, manage proposals, etc.

Table 1: Positional Users:

1.6 Gathering Data:

We collected information related to this project from our advisor Dr. Bader Alkhamees who was previously head of the project committee, and we interviewed Dr. Ashraf, they answered our questions about the committee's work and walked us through the entire process of the current system, including how the committee members, faculty members and students play their parts in the current system and the problems that could occur since the system is impractical and manual, They also told us the features that could better automate the committee's work.

1.7 Gantt Chart:

Project Start:	11/09/2022	
Today:	11/09/2022	
Display Week:	1	

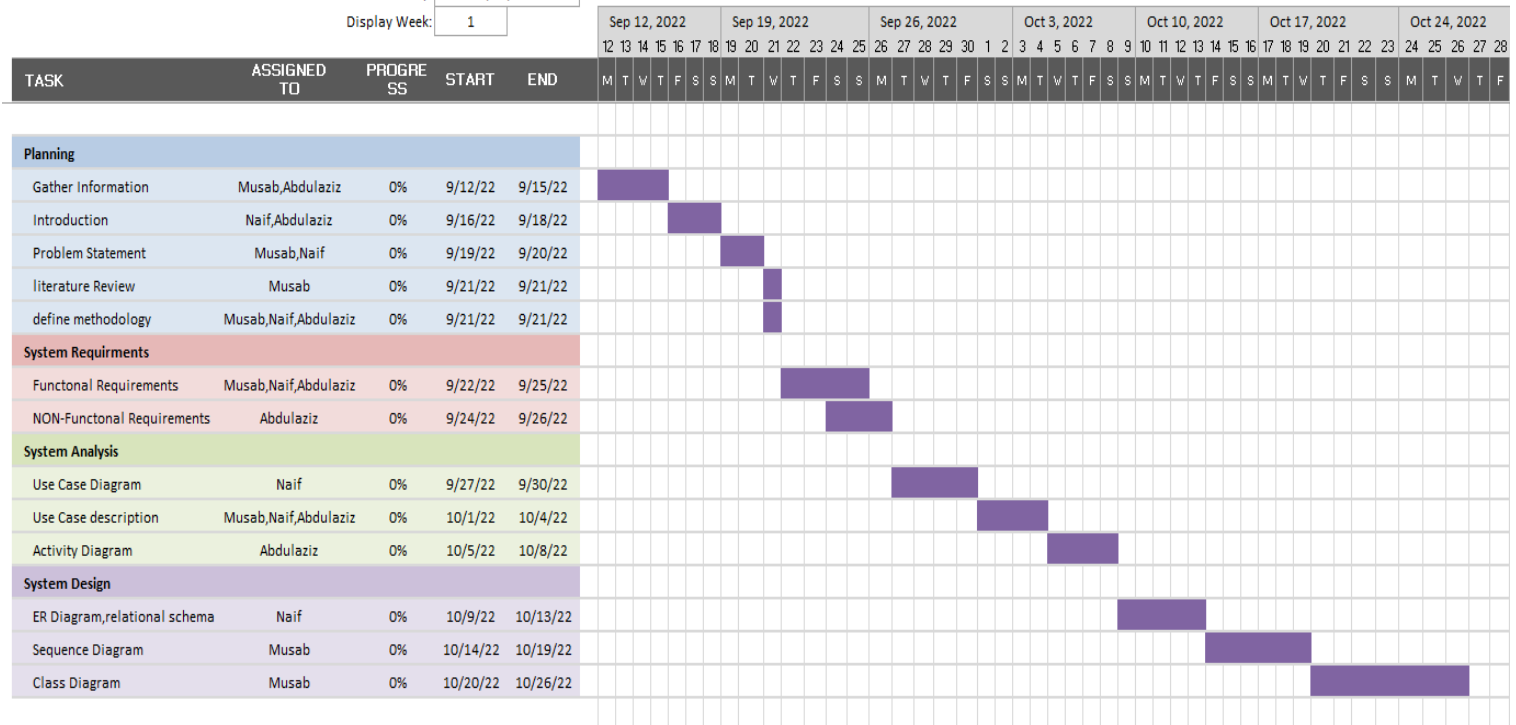


Figure 2: Gantt chart

CHAPTER 2: LITERATURE REVIEW

2. Universities desirable majors ranking

يجب ترتيب كل التخصصات

الرغبات

التخصصات المتاحة

كلية الإدارة والأعمال - المحاسبة
كلية علوم الحاسب والمعلومات-علوم الحاسب
كلية علوم الحاسب والمعلومات - الشبكات وأنظمة الاتصالات
كلية علوم الحاسب والمعلومات - نظم معلومات
كلية التربية الخاصة
كلية الإدارة والأعمال - الأنظمة
كلية الإدارة والأعمال - الاقتصاد
كلية الإدارة والأعمال - التمويل الدولي
كلية الإدارة والأعمال - تقنيات التسويق والابتكار
كلية اللغات والترجمة - لغة إنجليزية
كلية الإدارة والأعمال - إدارة أعمال
كلية العلوم- العلوم الرياضية
كلية العلوم - الأحياء
كلية اللغات والترجمة - لغة فرنسية
كلية التربية - علم النفس
كلية التماهيم والفنون - تماهيم وخيول
كلية الخدمة الاجتماعية - خدمة اجتماعية
كلية التربية - الطفولة المبكرة
كلية الآداب - اللغة العربية وآدابها
كلية الآداب - الدراسات الإسلامية
كلية العلوم- الفيزياء
كلية العلوم - الكيمياء
كلية المجتمع - تصميم المواقع (درجة البكالوريوس)
كلية المجتمع - البرمجة (درجة البكالوريوس)
كلية المجتمع - إدارة المكتبات (درجة البكالوريوس)
كلية المجتمع - إدارة الأعمال (درجة البكالوريوس)
كلية المجتمع - التسويق (درجة البكالوريوس)

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Figure 5: Ranking majors

This is another example very similar but instead it is used to priorities majors after finishing the first common year, it calculates your GPA plus some other parameters that will be used in a set formula that is very much different for every university to determine your major.

3. Noor:



Noor is a system provided by the Ministry of Education to be the intermediate between the ministry and related individuals: students and teachers.

مستخدمين قيد التعيين طلب التعيين

بياناتي

إسم المعلم : ناصر
رقم الهوية : 76
إدارة التعليم : الإدارة العامة للتعليم بمنطقة الرياض

لتغيير ترتيب قطاع معين، انقر على السهم المجاور لإسم القطاع.
لتغيير ترتيب الشرائح داخل قطاع معين، انقر على إسم القطاع.

القطاع		
الرياض (الرياض)	⬅	
حريملاء (الرياض)	⬅	➡
ضرماء والمزاحمية (الرياض)	⬅	➡
ثائق (الرياض)	⬅	➡
شوية (الرياض)	⬅	➡
رماح (الرياض)	⬅	➡
نساج (الرياض)	⬅	➡
هجرة سعد (الرياض)	⬅	➡
الحقة (الرياض)	⬅	➡

عدد السجلات الكلي: 9

حفظ

Figure 6: Noor changing region

Noor allows teachers to rank their preferred regions to teach in, and the system ranks the teachers based on their job performance, years of experience and whether they are needed in a specific region or not, to give them priority on the regions they chose.

We would like to take inspiration from these examples, so we hope that our contribution can be used to make a better system in the future.

CHAPTER 3: SYSTEM DEVELOPMENT METHODOLOGY & REQUIREMENTS

3.1 System Development Methodology:

Agile:

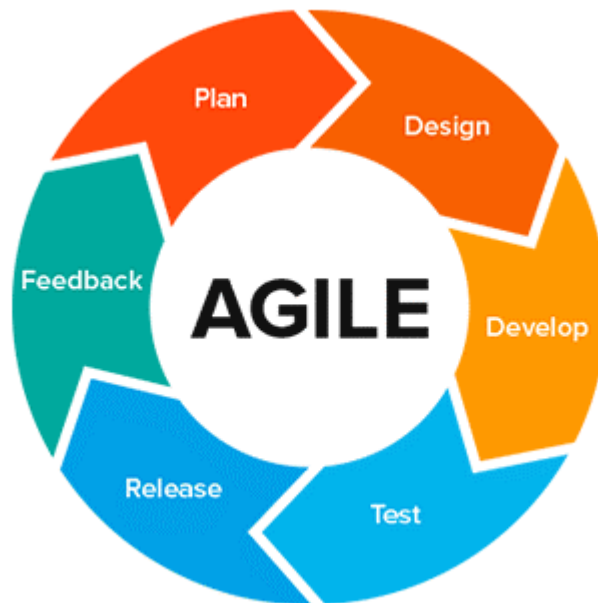


Figure 7: Agile model

The Agile model was primarily designed to help a project to adapt to change requests quickly. So, the main aim of the Agile model is to facilitate quick project completion. Sometime agility is required to accomplish tasks. Agility is achieved by fitting the process to the project, removing activities that may not be essential for a specific project. Also, anything that may waste time and effort is avoided.

In the Agile model, the requirements are decomposed into many small parts that can be incrementally developed. The Agile model adopts Iterative development. Each incremental part is developed over an iteration. Each iteration is intended to be small and easily manageable and can be completed within a couple of weeks only. At a time one iteration is planned, developed, and deployed to the customers. Long-term plans are not made.

Waterfall:

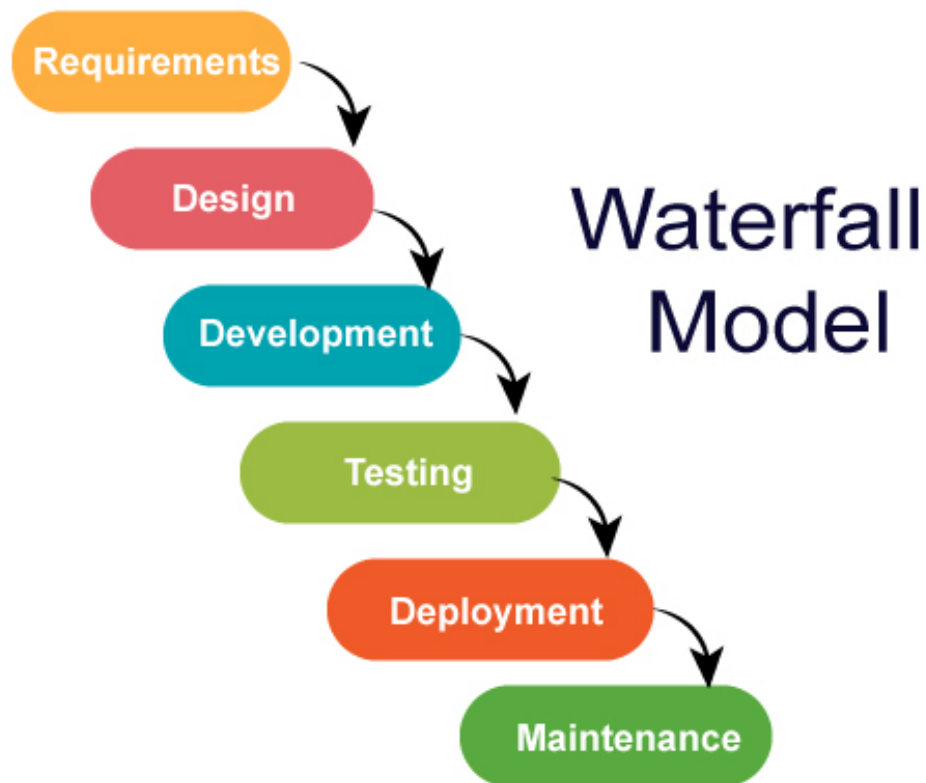


Figure 8: Waterfall model

The Waterfall methodology is a sequential development process that flows like a waterfall through all phases of a project (analysis, design, development, and testing, for example), with each phase completely wrapping up before the next phase begins.

The Waterfall methodology depends on the belief that all project requirements can be gathered and understood upfront. The project manager does their best to get a detailed understanding of the project sponsor's requirements.

3.2 Waterfall vs Agile:

	Waterfall	Agile
Sequential	✓	
Flexible		✓
Defined requirement	✓	
Suited to small projects	✓	
Continually evolving		✓
Fixed project scope	✓	

Table 2: Waterfall vs Agile

3.3 Why Did We Decide to Use The Waterfall Model?

We believe that the waterfall is more suitable for our project because of these reasons:

- The project doesn't have ambiguous requirements.
- We offer a clear picture of how things will proceed from the outset.
- We have clients who seem unlikely to change the scope of the project once it is underway.

Since we have clearly defined processes, design, and time requirements, then the Waterfall method is the way to go, if the project itself is conducive to those constraints.

3.4 Functional Requirements:

Faculty member:

#	Requirement	Description
1	Register	Faculty members should be able to register into the website by entering his KSU email, password.
2	Log-In	Faculty members should be able to login into the website by entering his KSU email, password.
3	Add proposal	Faculty members should be able to add proposals for the groups to choose from.
4	View group	Faculty member should be able to view the group members assigned to him.
5	Contact group	Faculty member should be able to contact group members assigned to him.
6	Delete proposal	Faculty members should be able to delete proposals.
7	Submit evaluation	Faculty members should be able to submit evaluation of the group members.

Table 3: Faculty member Functional requirements

Student:

#	Requirement	Description
1	Register	The student should be able to register into the website n by entering his KSU email, password.
2	Log-In	The student should be able to login into the website by entering his KSU email, password.
3	Rank proposals	The group leader ranking proposal from 10 to 1 (priority list).
4	View group	Student should be able to view his group members.
5	Contact group	Group members should be able to contact each other, and the faculty member assigned to the group.
6	Create group	Student should be able to create a group.
7	Send Invitation	Send invitation to other students to join the group.
8	Leave group	Student should be able to leave his group.
9	Respond to invitation	Student should be able to accept or decline invitation.
10	Submit report	Group leader will be able to submit the report after the group have finished working on the project.

Table 4: Student functional requirements

Committee member:

#	Requirement	Description
1	Log-In	The committee member should be able to login into the website by entering his KSU email, password.
2	Set load	The committee member will enter faculty members workload for this semester.
3	Set student count	The committee member will decide how many students per group.
4	Set deadline	The committee member will enter deadline for registration period.
5	Publish proposals	The committee member selects desired proposals based on the load table.
6	Authorize student	The committee members will enter students who are permitted to register in the system to deny students who didn't sign up for the course.

Table 5: Committee member functional requirements

3.5 Non-Functional Requirements:

#	Requirements	Description
1	Security	<ul style="list-style-type: none">The system is protected by username and password with at least 8 Characters have at least one capital char and special char.Email authentication will only allow university's emails to be used with matching id.
2	Availability	The system will run 24/7 till registration period ends.
3	Usability	The system will provide a user friendly interface.
4	Performance	The system will be light and responsive.
5	Reliability	The system will run consistently with no errors.
6	Integrity	The system will use military grade encryption.

Table 6: Non-Functional requirements

CHAPTER 4: SYSTEM ANALYSIS

4.1 Use Case Diagram:

A use case diagram is a dynamic or behavior diagram in UML. Use case diagrams model the functionality of a system using actors and use cases. The system performs a set of actions, services, and functions.

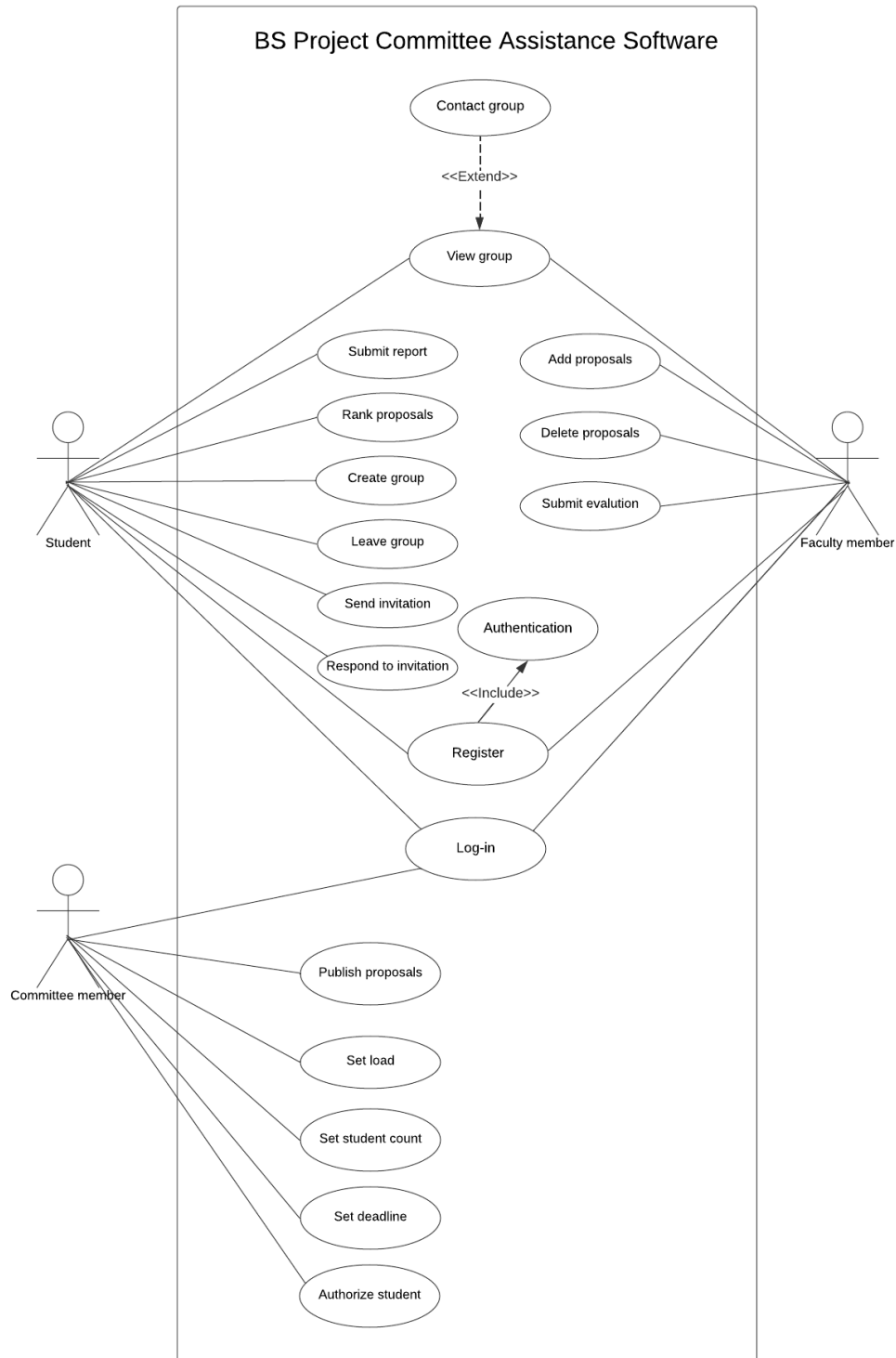


Figure 9: Use case diagram

4.2 Use Case Description:

A use case is a written description of how users will perform tasks on your website. It outlines, from a user's point of view, a system's behavior as it responds to a request. Each use case is represented as a sequence of simple steps, beginning with a user's goal, and ending when that goal is fulfilled.

Use Case Name	Register	
Triggering Event	User wants to register.	
Brief Description	Fill in the required information and the system will validate it.	
Actors	Student, Faculty member.	
Related Use Cases	Login, authenticate.	
Stakeholders	Student, Faculty member.	
Preconditions	User must be authorized by Committee member. User must provide valid information.	
Postconditions	User will be able to login.	
Flow of Activities	Actor	System
	1. User will fill in required information	1.1 System will validate the information 1.2 System will inform the user that an account has been created
Exception Conditions	User already exists Incomplete required information	

Table 7: Register use case description

Use Case Name	Log-In	
Triggering Event	User wants to login	
Brief Description	Fill in the required information and the system will validate it.	
Actors	Student, faculty member, & Committee member.	
Related Use Cases	Register	
Stakeholders	student, faculty member, Committee member.	
Preconditions	User account must exist.	
Postconditions	The system display home page.	
Flow of Activities	Actor	System
	1. User will fill in required information	1.1 System will validate the information 1.2 System will take the user to the homepage
Exception Conditions	Username or password incorrect	

Table 8: Log-In use case description

Use Case Name	Publish proposals	
Triggering Event	The system receives the load table from Load committee member.	
Brief Description	Committee member selects desired proposals based on the load table.	
Actors	Committee member.	
Related Use Cases	Set deadline, Add proposal, & Rank proposal.	
Stakeholders	Student.	
Preconditions	Deadline must be set, Proposals must be available, Load must be set.	
Postconditions	Students will be able to view and rank proposals.	
Flow of Activities	Actor	System
	1. User will publish proposals	1.1 System will make Proposals viewable to the students
Exception Conditions	Proposals not added.	

Table 9: publish proposals use case description

Use Case Name	Set load	
Triggering Event	Load committee finalizes faculty member's load table.	
Brief Description	Committee member will enter how many hours faculty member is working this semester.	
Actors	Committee member.	
Related Use Cases	None.	
Stakeholders	Faculty members.	
Preconditions	None.	
Postconditions	System will decide if a faculty member should be relived or not .	
Flow of Activities	Actor	System
	1 User will enter hours	1.1 System will show faculty members who can't be assigned a group to work on the proposal
Exception Conditions	None.	

Table 10: Set load use case description

Use Case Name	Set student count	
Triggering Event	Committee member wants to set the number of members in group after proposal submission deadline.	
Brief Description	Choose the number of members in a group.	
Actors	Committee member.	
Related Use Cases	None.	
Stakeholders	Student.	
Preconditions	None.	
Postconditions	System sets group member count limit.	
Flow of Activities	Actor	System
	1 User will fill desired number	1.1 System will calculate the number of groups 1.2 System will display number of groups to user 1.3 System will take the user to the homepage
Exception Conditions	Less than 2.	

Table 11: Set student count use case description

Use Case Name	Set deadline	
Triggering Event	Committee member wants to set the date of last day of entry	
Brief Description	Select the desired date for faculty members adding proposals and for group rankings, etc.	
Actors	Committee member.	
Related Use Cases	None.	
Stakeholders	Faculty members, Student.	
Preconditions	None.	
Postconditions	System set date of last chance to entry.	
Flow of Activities	Actor	System
	1. User will fill desired dates	1.1 System will update and display the dates on the homepage for all related users 1.2 System will take the user to the homepage
Exception Conditions	Less than 4 weeks from current date.	

Table 12: Set deadline use case description

Use Case Name	Authorize student	
Triggering Event	Registration committee provides table of students who have graduation project course this semester.	
Brief Description	Committee member wants to allow only the student who are taking this course to register.	
Actors	Committee member.	
Related Use Cases	Register.	
Stakeholders	Student.	
Preconditions	None.	
Postconditions	System allows only these students to register	
Flow of Activities	Actor	System
	1. User will enter students id	1.1 System will allow these students to register
Exception Conditions	None.	

Table 13: Authorize student use case description

Use Case Name	Add proposal	
Triggering Event	Project committee sends request for proposal to faculty members before each semester starts.	
Brief Description	Faculty will add a proposal from the system.	
Actors	Faculty member.	
Related Use Cases	None.	
Stakeholders	Student, faculty members.	
Preconditions	Within specified submission time window.	
Postconditions	System displays these proposals to the student	
Flow of Activities	Actor	System
	1. User will add proposal	1.1 System will add the proposal to the database 1.2 System will take the user to the homepage
Exception Conditions	Faculty member can't add more than 2 proposals. Can't add the same proposal twice.	

Table 14: Add proposal use case description

Use Case Name	Delete proposal	
Triggering Event	Faculty member will want to delete his proposals.	
Brief Description	Faculty will delete a proposal from the database.	
Actors	Faculty member.	
Related Use Cases	None.	
Stakeholders	Student, faculty members.	
Preconditions	Faculty member should have at least one submitted proposal.	
Postconditions	Proposal is deleted.	
Flow of Activities	Actor	System
	1 User will select proposal	1.1 System deletes proposal from database 1.2 System confirms deletion 1.3 System will take the user to the homepage
Exception Conditions	Deadline has passed.	

Table 15: Delete proposal use case description

Use Case Name	Submit evaluation	
Triggering Event	The faculty member wants to submit group evaluation.	
Brief Description	After the group members have finished working on the project the faculty member evaluates their work and send the evaluation to the system.	
Actors	Faculty member.	
Related Use Cases	None.	
Stakeholders	Student, faculty member.	
Preconditions	Before deadline.	
Postconditions	Notify group members of evaluation.	
Flow of Activities	Actor	System
	1. User enter group evaluation	1.1 System assigns the evaluation to the group members 1.2 System will take the user to the homepage
Exception Conditions	Group already evaluated.	

Table 16: Submit evaluation use case description

Use Case Name	View group	
Triggering Event	Faculty member/ student would want to view the group he is assigned/invited to.	
Brief Description	Faculty member/student will view the members of the group he is assigned/ invited to.	
Actors	Faculty member, student.	
Related Use Cases	None.	
Stakeholders	Student, faculty members.	
Preconditions	A group must be assigned first.	
Postconditions	None.	
Flow of Activities	Actor	System
	1. User will select view group	1.1 System will display member and supervisor of the group to user
Exception Conditions	None.	

Table 17: View group use case description

Use Case Name	Contact group	
Triggering Event	Faculty member/ student wants to contact the members of the group he is assigned to.	
Brief Description	Faculty member/student will send a message to the members of the group he is assigned to.	
Actors	Faculty member, student.	
Related Use Cases	View group.	
Stakeholders	Student, faculty members.	
Preconditions	A group must be assigned first.	
Postconditions	A message will be sent to the selected member.	
Flow of Activities	Actor	System
	1 User will select group 2 User will type a message and send it	1.1 System will display the group to user 2.1 System will send the message to group members
Exception Conditions	None.	

Table 18: Contact group use case description

Use Case Name	Submit report	
Triggering Event	The group leader wants to submit project report.	
Brief Description	The group leader will submit the report after the group members have finished working on the project.	
Actors	Student.	
Related Use Cases	None.	
Stakeholders	Student, Faculty member.	
Preconditions	Before deadline.	
Postconditions	None.	
Flow of Activities	Actor	System
	1. User submits the report	1.1 System assigns the report to the group 1.2 System will take the user to the homepage
Exception Conditions	Report already submitted.	

Table 19: Submit report use case description

Use Case Name	Rank proposals	
Triggering Event	Group members want to choose project proposal to work on.	
Brief Description	Ranking top 10 proposals according to group desire.	
Actors	Student.	
Related Use Cases	Add proposal, Publish proposal.	
Stakeholders	Student, faculty members.	
Preconditions	Student must be in a group.	
Postconditions	Assigning proposal to group.	
Flow of Activities	Actor	System
	1. User ranks top 10 desired proposals 2. User confirm changes	1.1 System displays ranking 1.2 Asks user to commit changes
Exception Conditions	Ranking less or more than 10 proposals.	

Table 20: Rank proposals use case description

Use Case Name	Create group	
Triggering Event	Student wants to create a group.	
Brief Description	Student will create a group to work with for the project.	
Actors	Student.	
Related Use Cases	Send invitation.	
Stakeholders	Student, Faculty member.	
Preconditions	The student must not be a member of an existing group.	
Postconditions	Student can't create another group.	
Flow of Activities	Actor	System
	1 User will select create group tab	1.1 System will create a group 1.2 System will display the group interface to the user
Exception Conditions	None.	

Table 21: Create group use case description

Use Case Name	Leave group	
Triggering Event	User wants to leave a group.	
Brief Description	Student will leave his group.	
Actors	Student.	
Related Use Cases	Respond to invitation, create group.	
Stakeholders	Student.	
Preconditions	The student must be a member in an existing group.	
Postconditions	Student will no longer be a part of a group.	
Flow of Activities	Actor	System
	1. User will select leave group tab 2. User will confirm	1.1 System will prompt user to confirm 2.1 System will remove user from the group
Exception Conditions	None.	

Table 22: Leave group use case description

Use Case Name	Send invitation	
Triggering Event	User wants to add members to his group.	
Brief Description	Student will send an invitation to a desired student	
Actors	Student.	
Related Use Cases	Respond to invitation	
Stakeholders	Student.	
Preconditions	The student must be a leader in an existing group, The recipient shouldn't be in a group.	
Postconditions	None.	
Flow of Activities	Actor	System
	1. User will choose the student he would like to join his group	1.1 System will send prompt to the other student 1.2 System will notify the group leader of the response
Exception Conditions	The group is full.	

Table 23: Send invitation use case description

Use Case Name	Respond to invitation	
Triggering Event	User will want to interact with an invitation	
Brief Description	Student will either accept or decline the invitation.	
Actors	Student.	
Related Use Cases	Send Invitation.	
Stakeholders	Student.	
Preconditions	None.	
Postconditions	Change student status	
Flow of Activities	Actor	System
	1. User will select a response	1.1 System will inform the sender of the response 1.2 System will update student status
Exception Conditions	Student not responding in the allotted time.	

Table 24: Respond to invitation use case description

4.3 Activity Diagram:

An activity diagram visually presents a series of actions or flow of control in a system like a flowchart or a data flow diagram, Activity diagrams are often used in business process modeling.

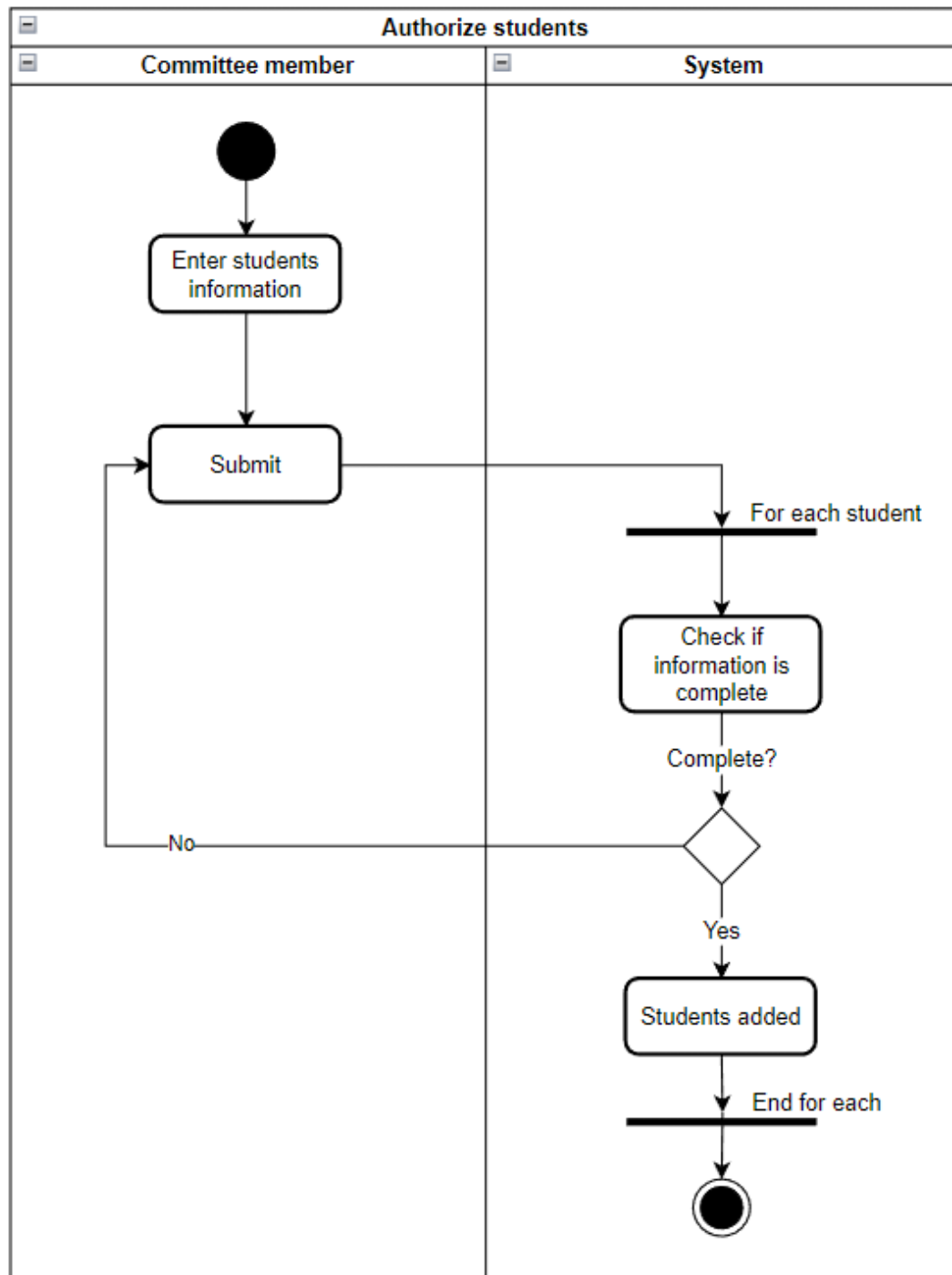


Figure 10: Authorize students Activity Diagram

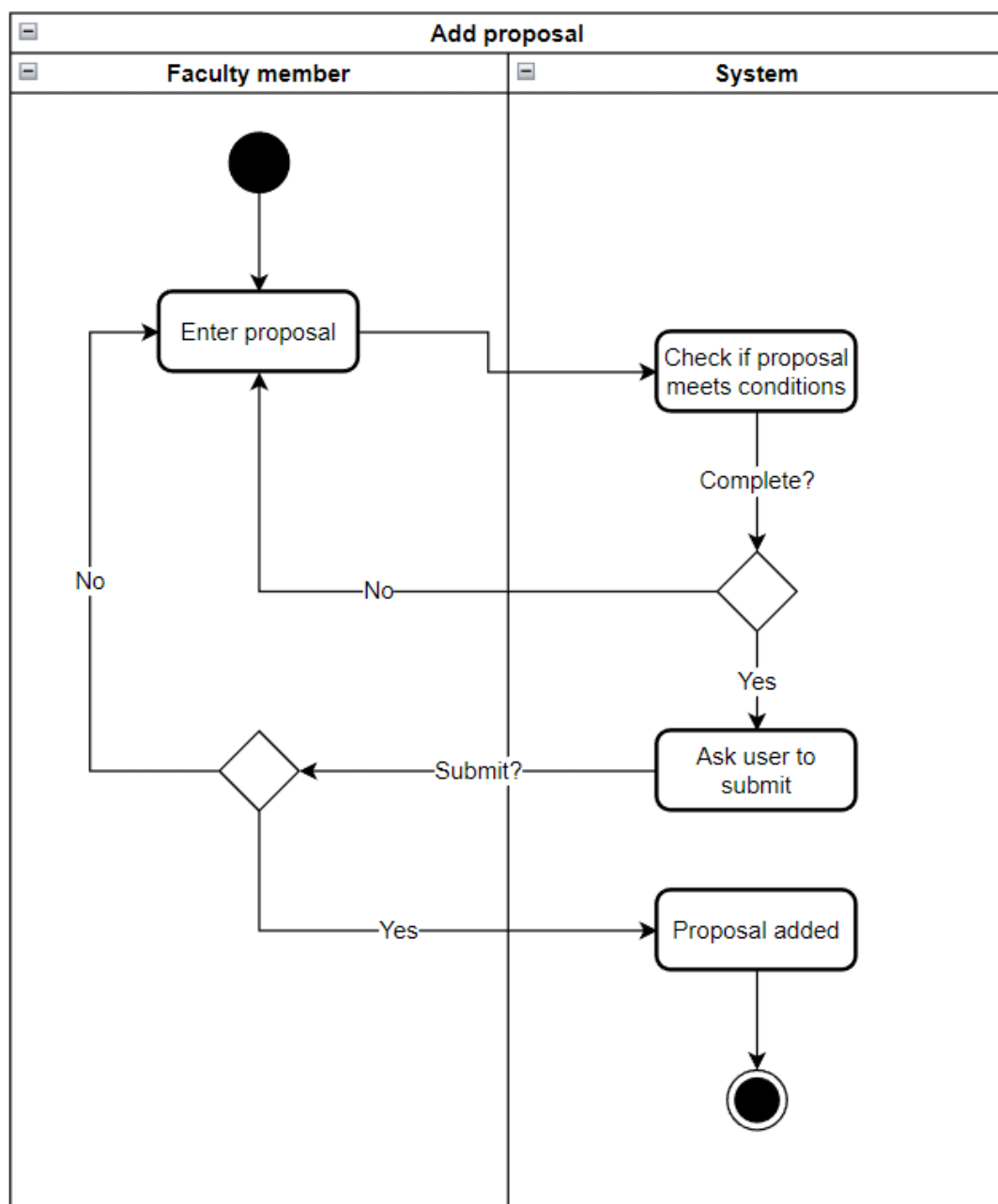


Figure 11: Add proposal Activity Diagram

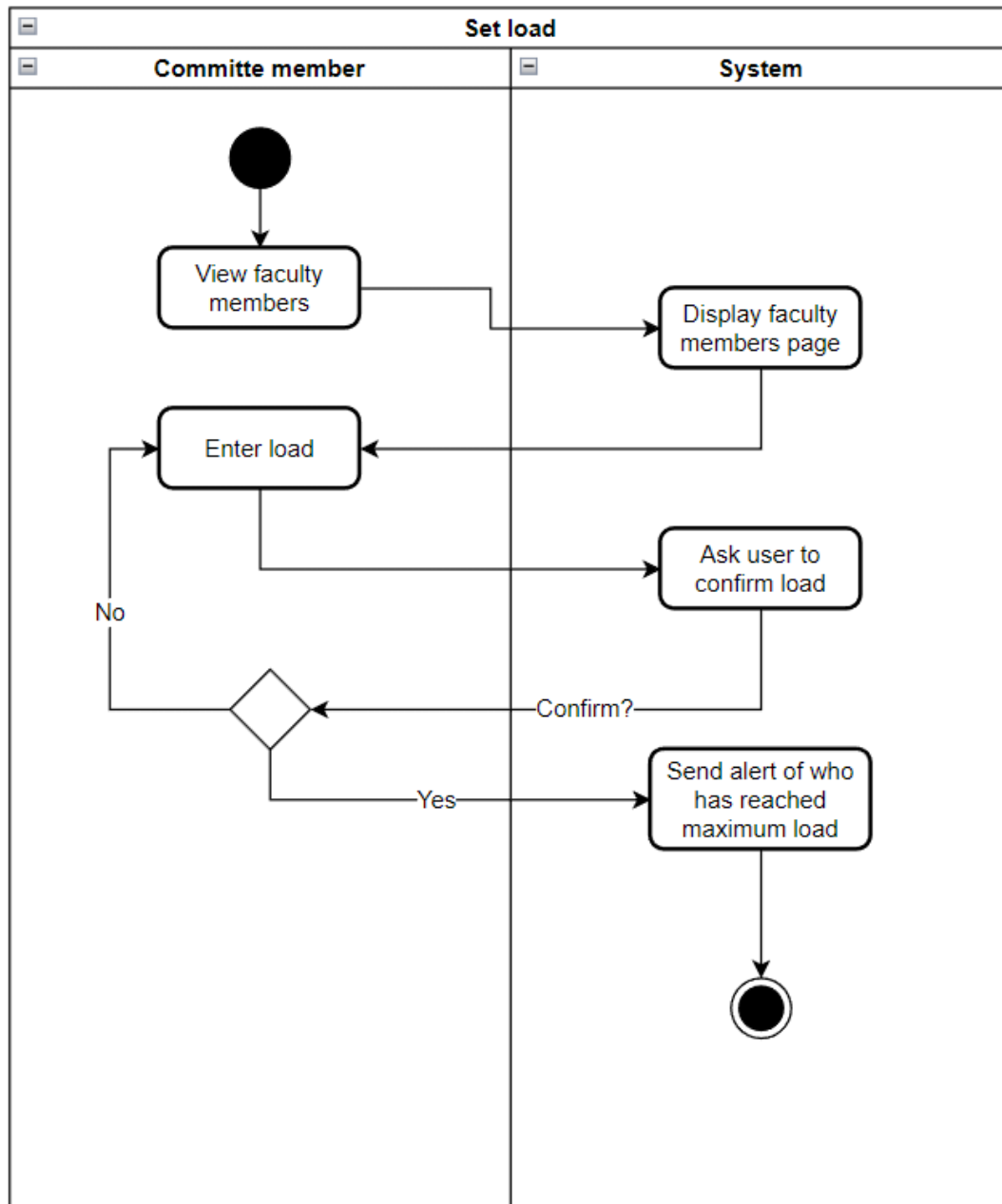


Figure 12: Set load Activity Diagram

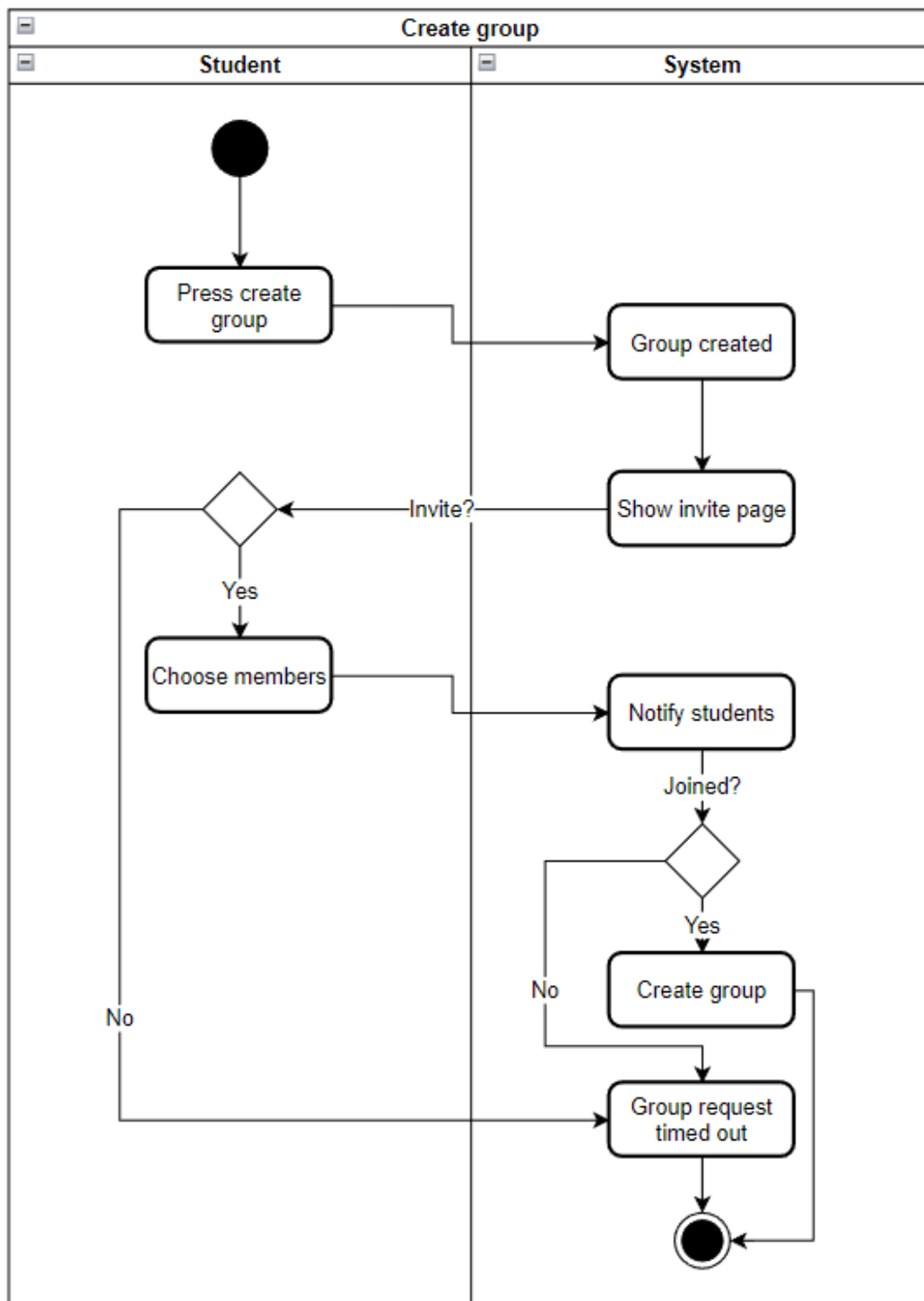


Figure 13: Create group Activity Diagram

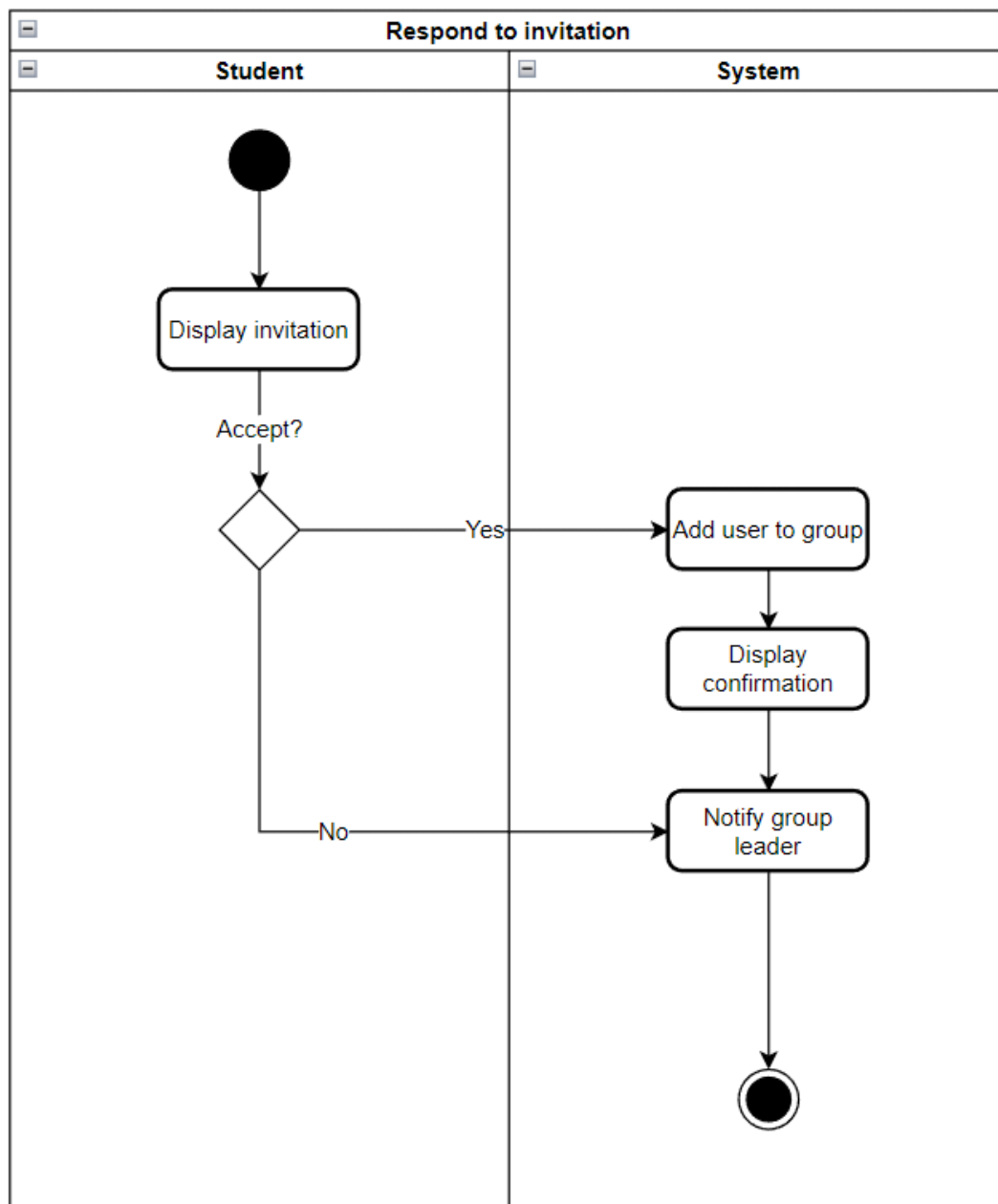


Figure 14: Respond to invitation Activity Diagram

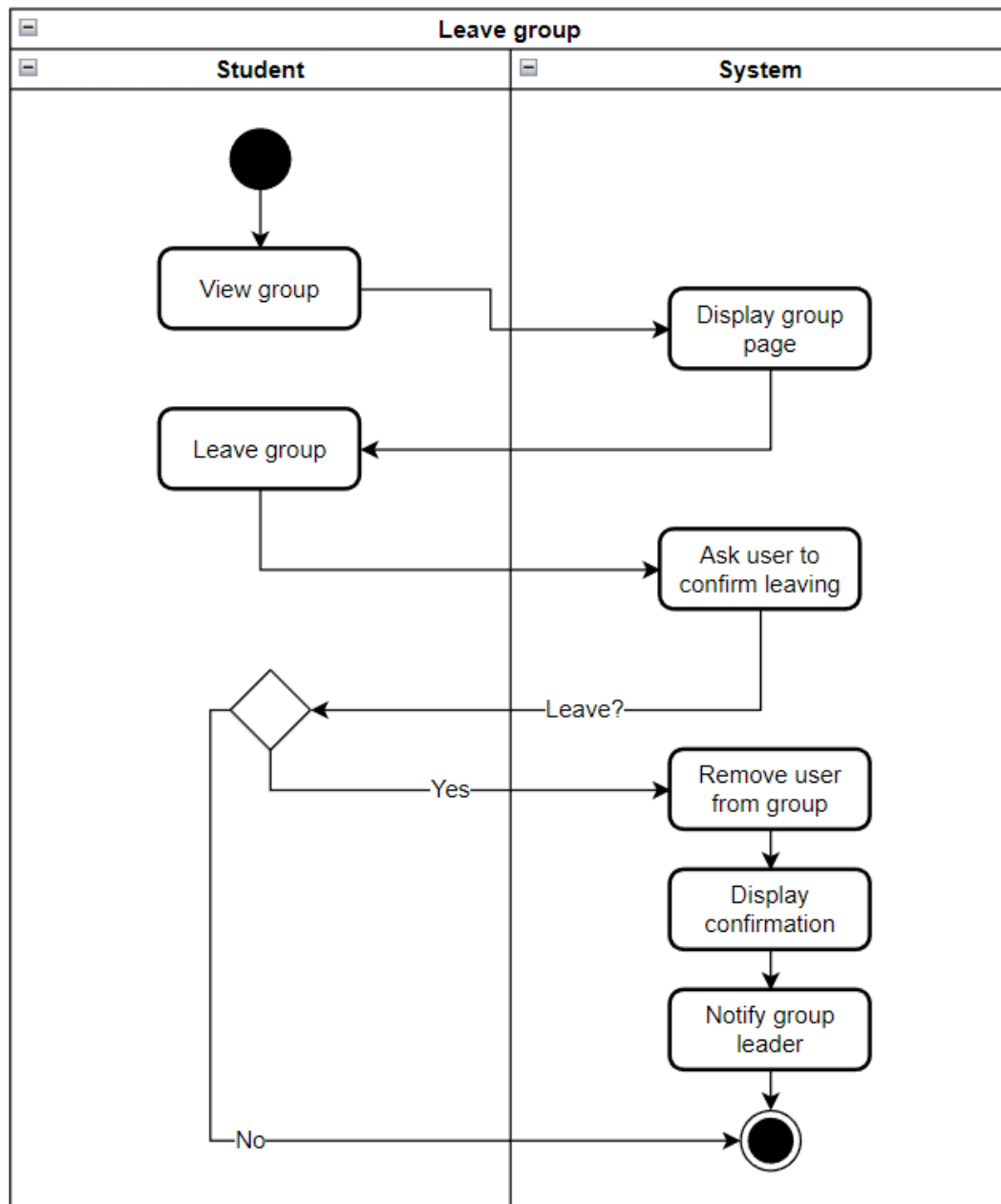


Figure 15: Leave group Activity Diagram

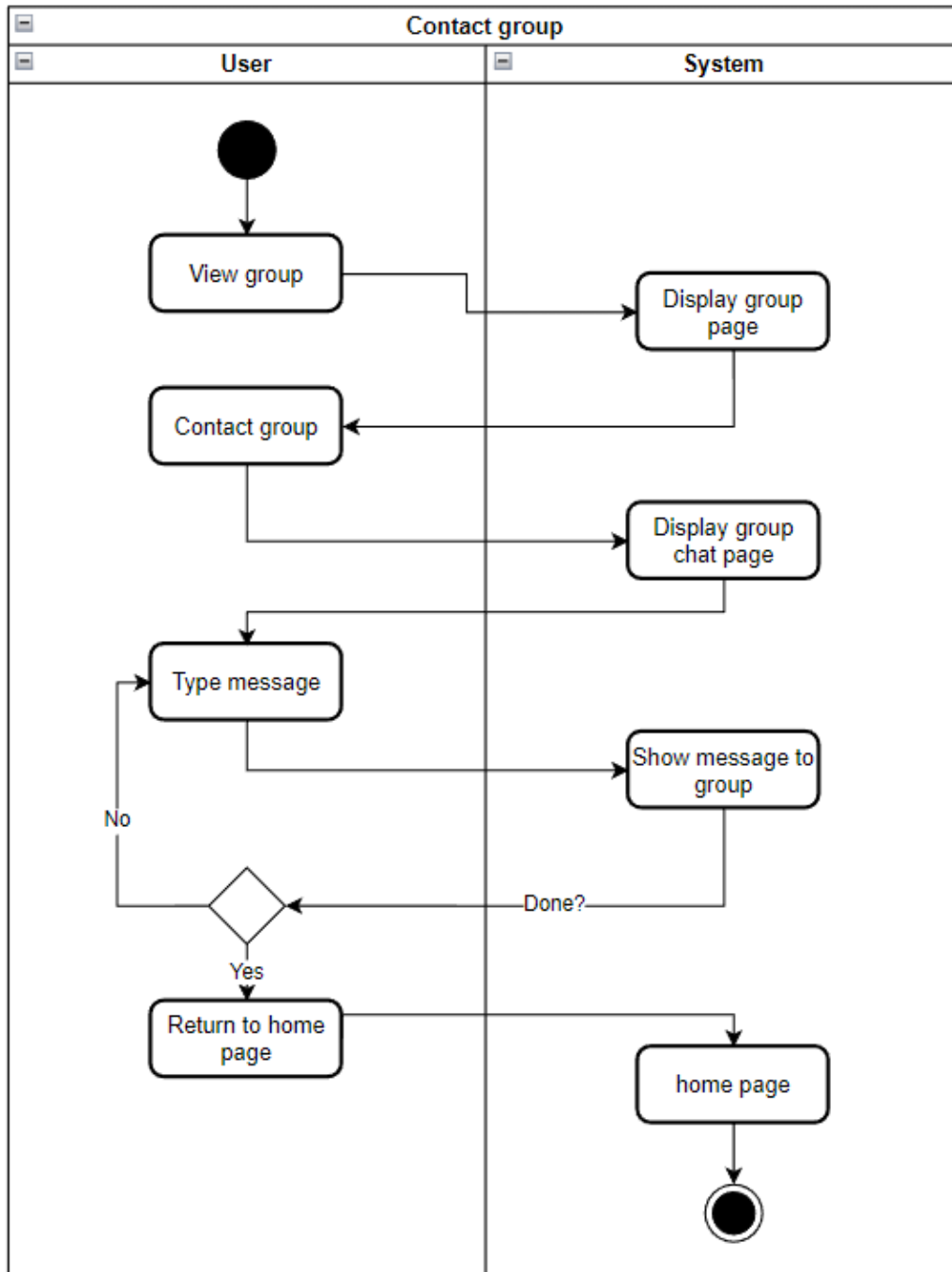


Figure 16: Contact group Activity Diagram

CHAPTER 5: SYSTEM DESIGN

5.1 Entity Relationship Diagram:

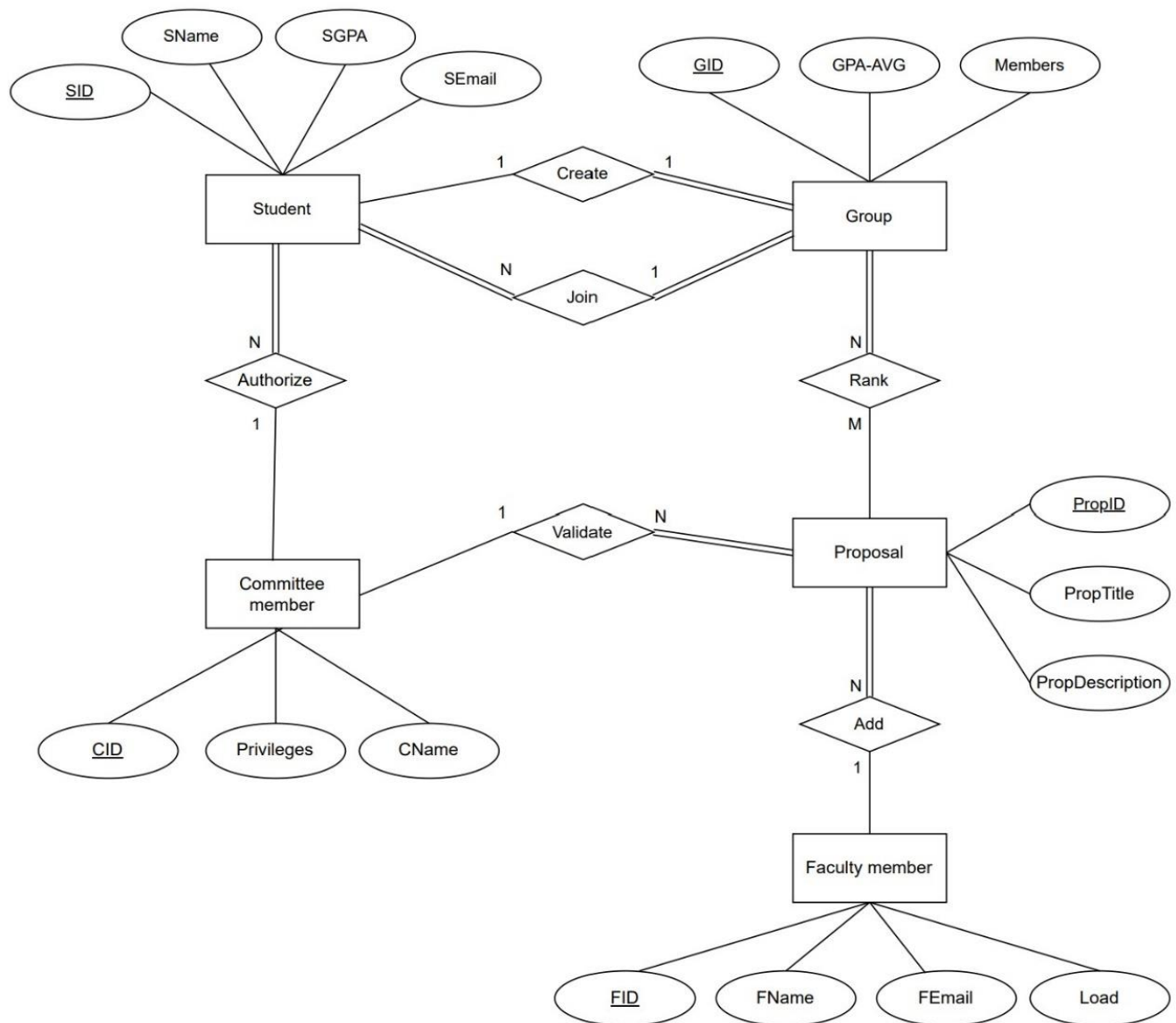


Figure 17: Entity Relationship Diagram

5.2 Relational Schema:

Committee member

<u>CID</u>	Privileges	CName
------------	------------	-------

Student

<u>SID</u>	SName	SGPA	SEmail	CID	GID
------------	-------	------	--------	-----	-----

Group

<u>GID</u>	GPA-AVG	Members	SID
------------	---------	---------	-----

Rank

<u>GID</u>	<u>PropID</u>
------------	---------------

Proposal

<u>PropID</u>	ProName	PropDescription	FID	CID
---------------	---------	-----------------	-----	-----

Faculty member

<u>FID</u>	FName	FEmail	Load
------------	-------	--------	------

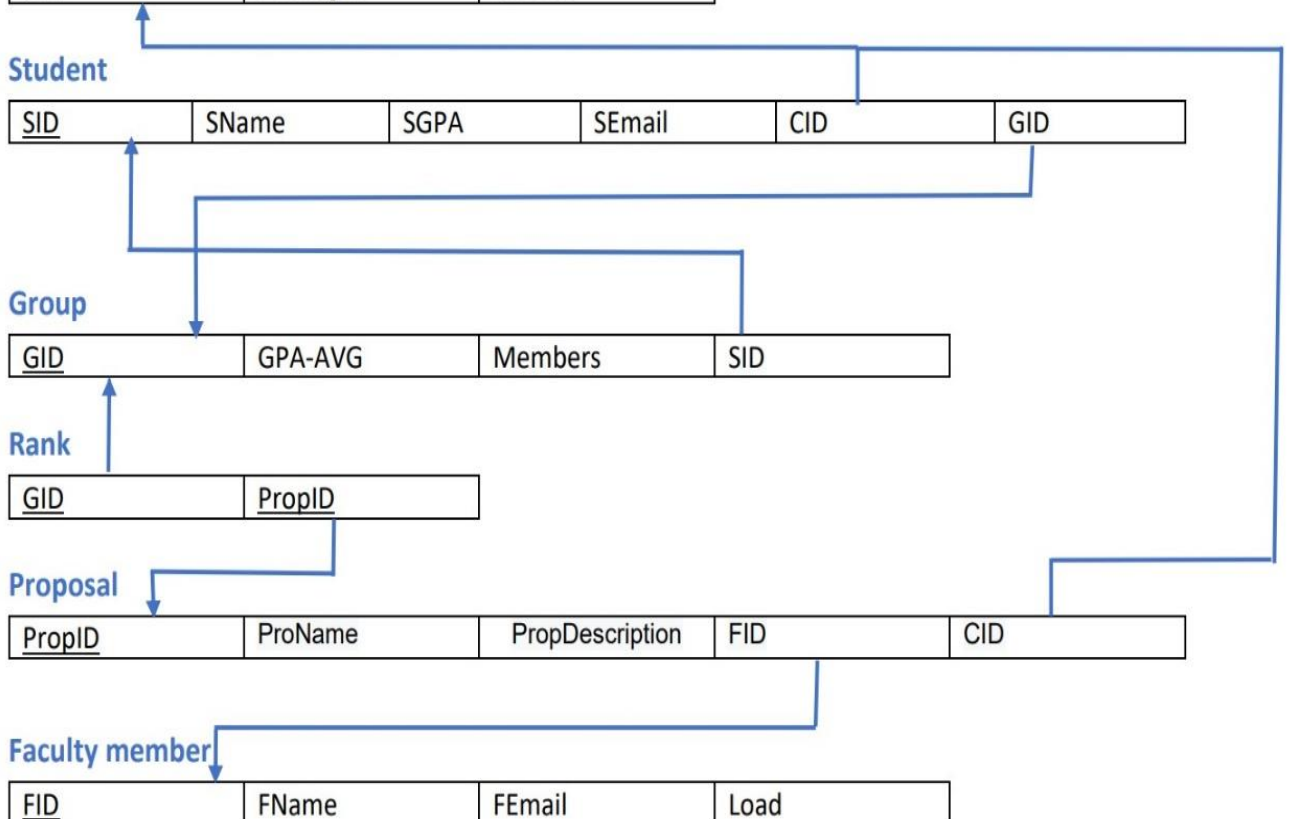


Figure 18: Relational Schema

5.3 Sequence Diagram:

Sequence Diagrams are interaction diagrams that detail how operations are carried out, Sequence Diagrams are time focus, and they show the order of the interaction visually by using the vertical axis of the diagram to represent time what messages are sent and when.

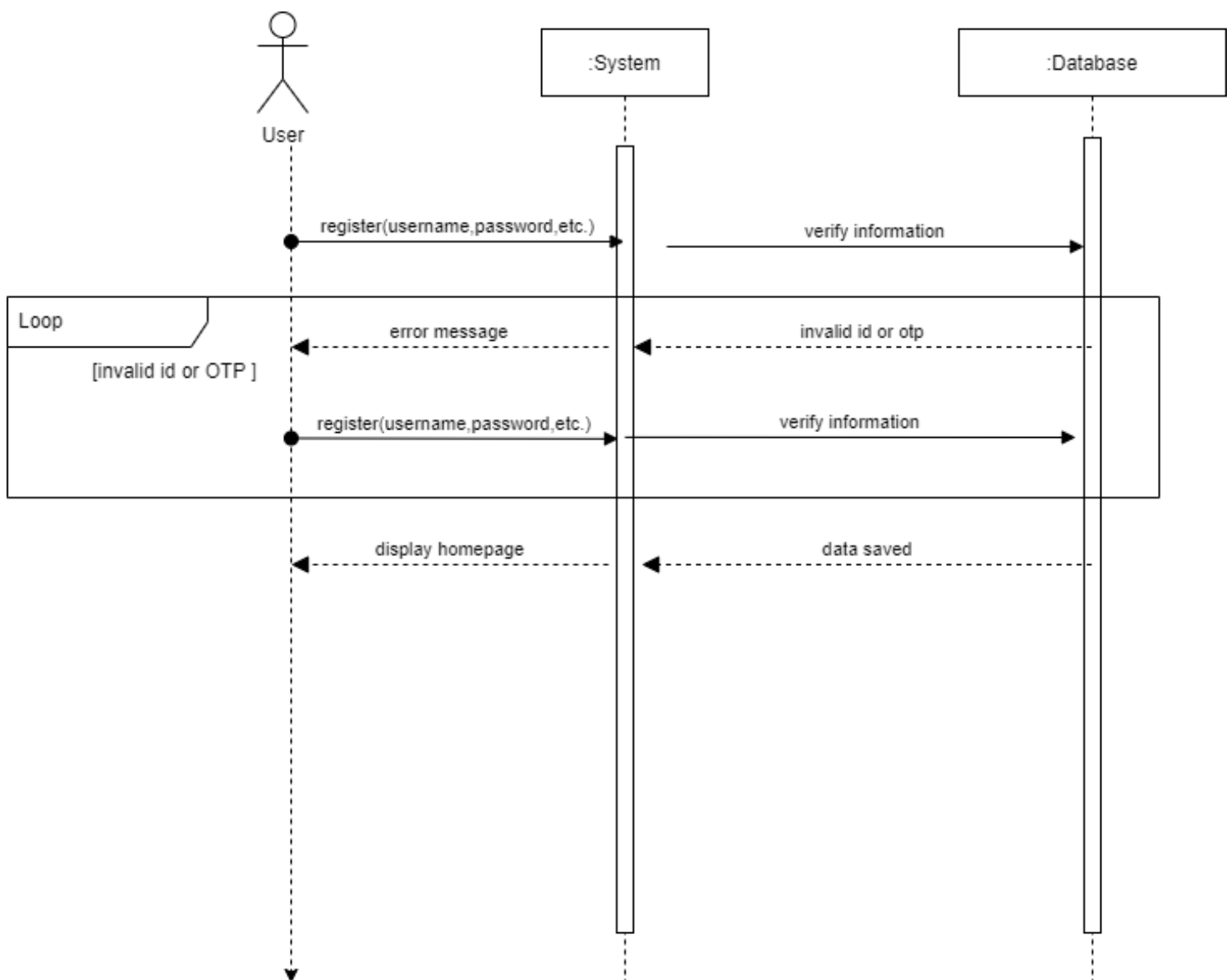


Figure 19: Registration Sequence Diagram

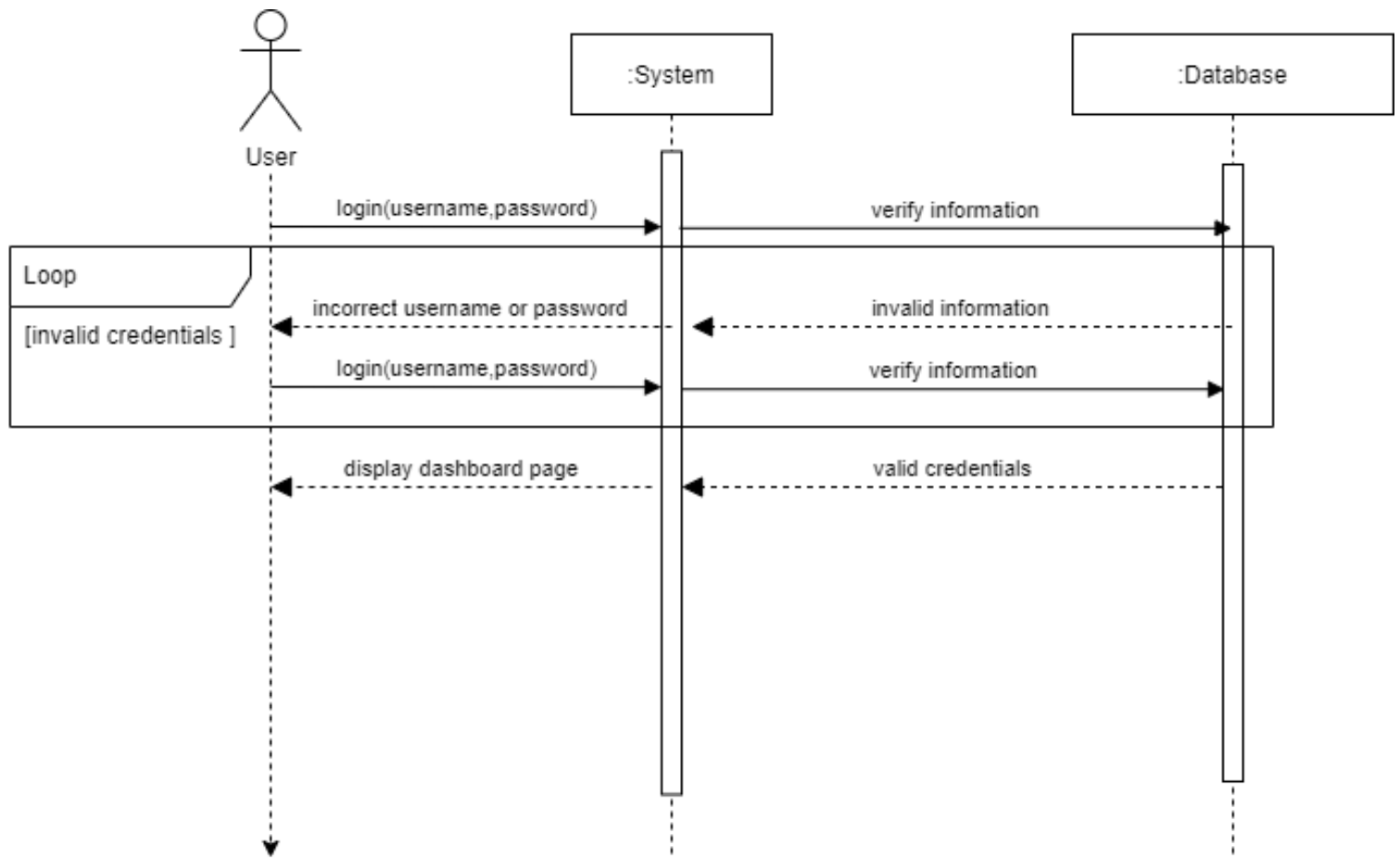


Figure 20: login

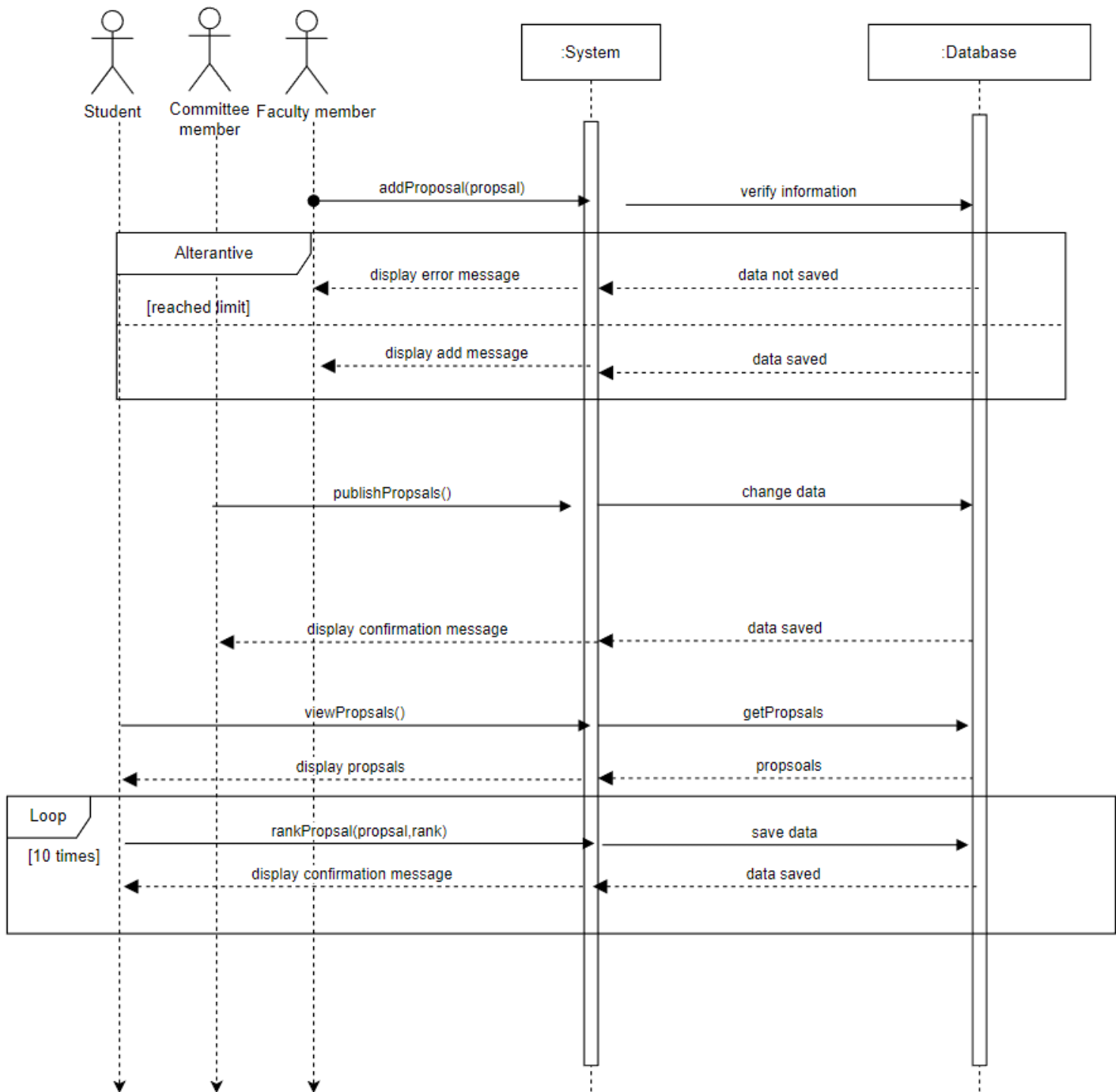


Figure 21: Proposal addition Sequence Diagram

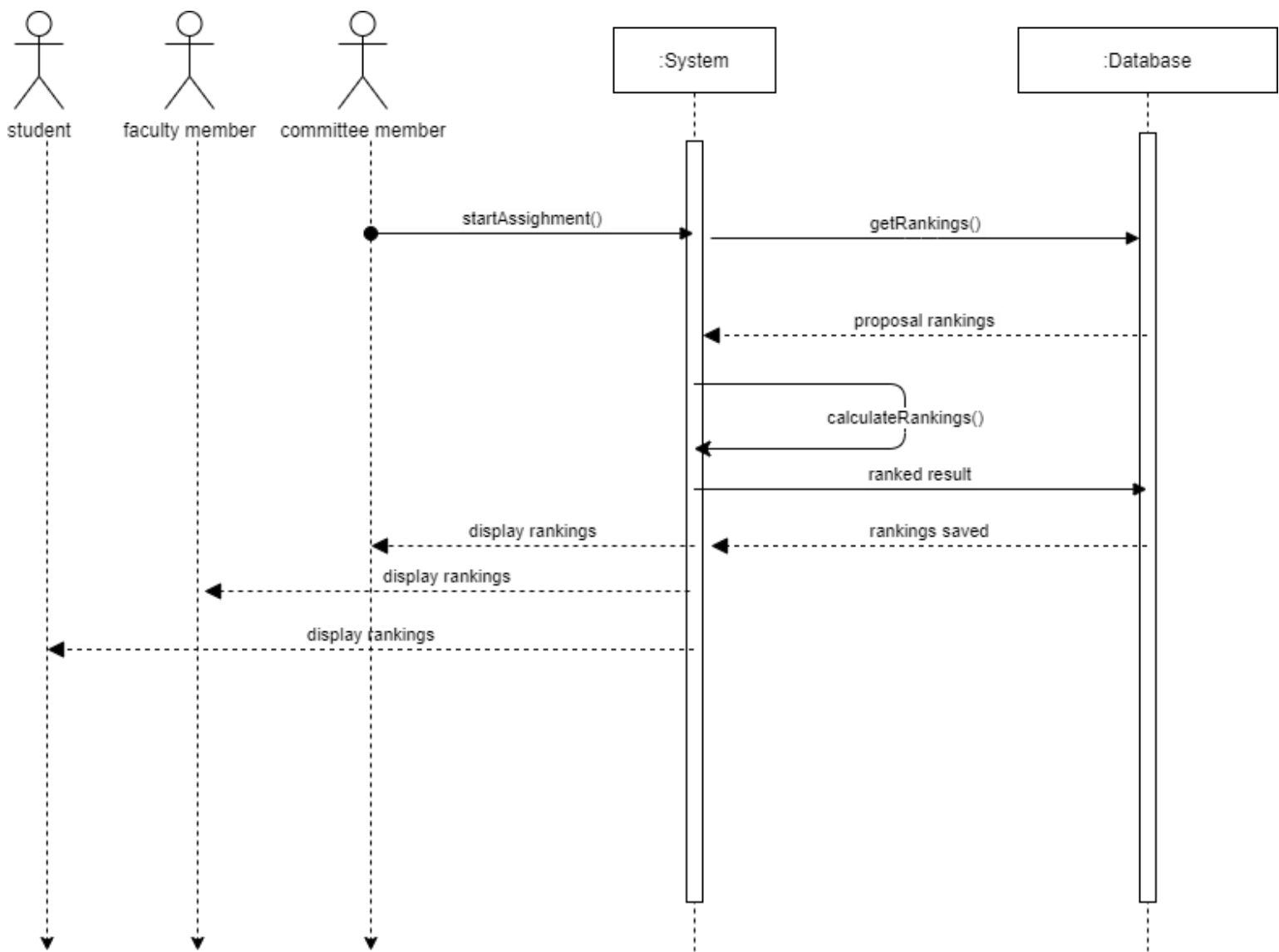


Figure 22: Assigning Proposals Sequence Diagram

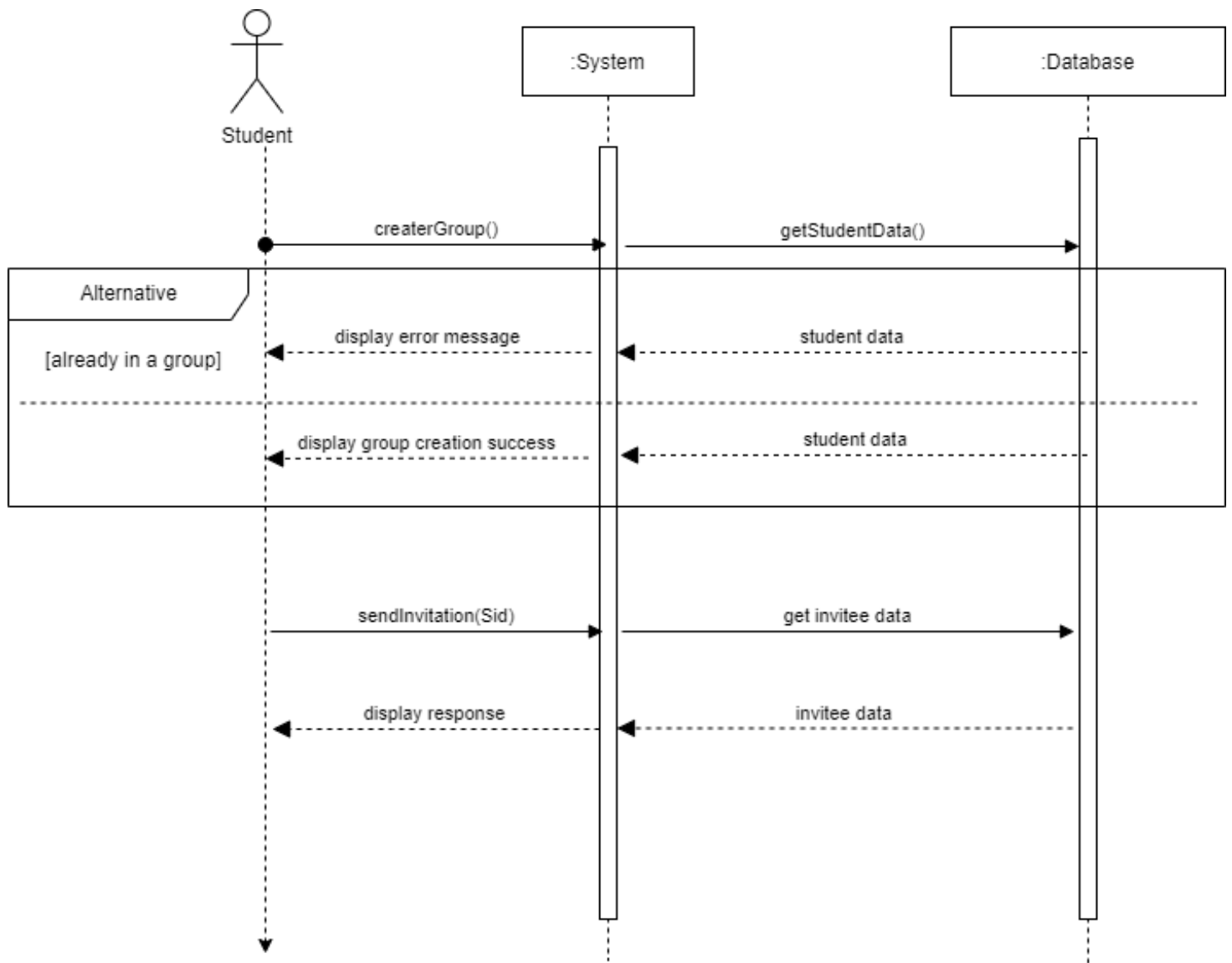


Figure 23: Group interactions Sequence Diagram

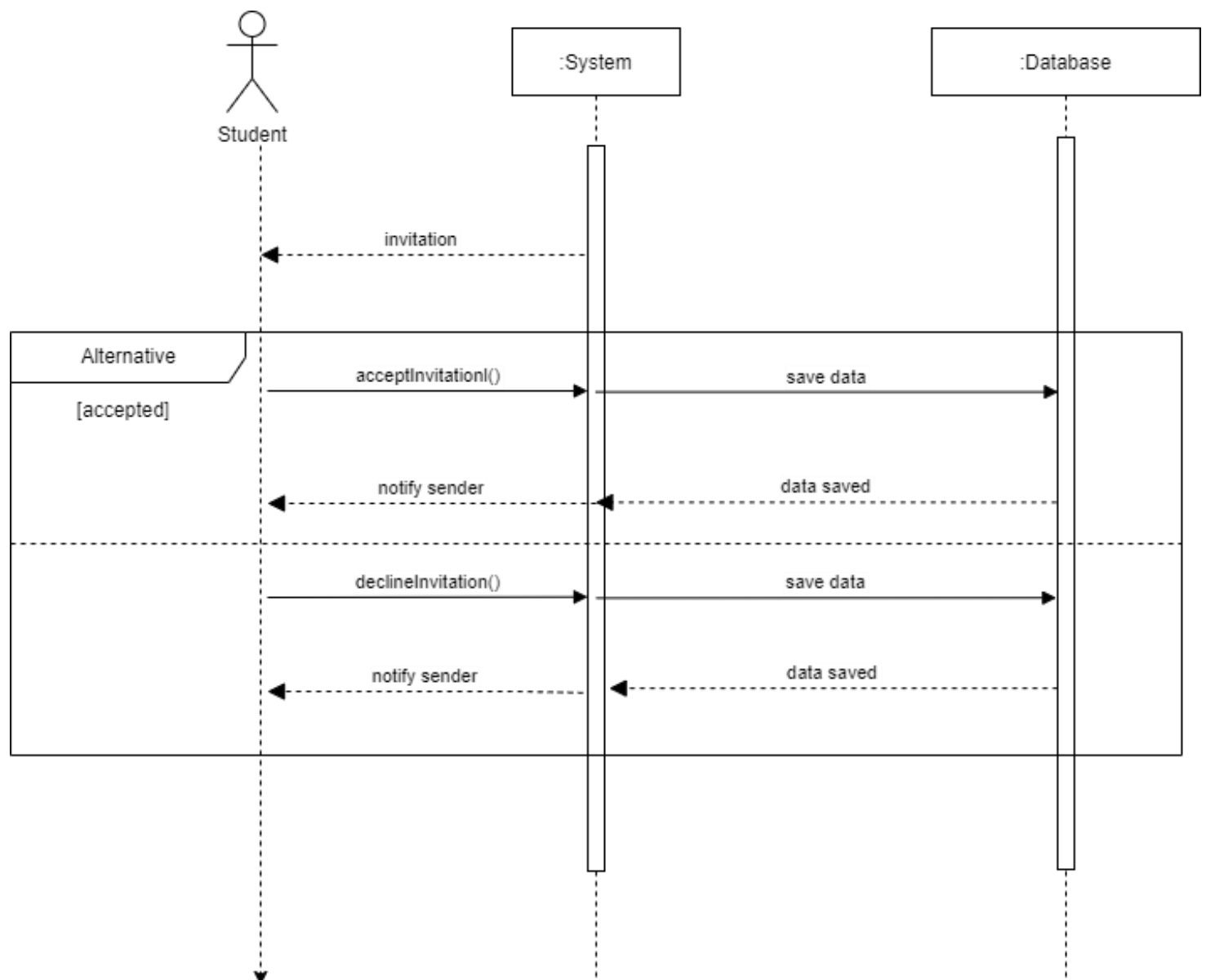


Figure 24: Invitation Response

5.4 Class Diagram:

The class diagram is static, it represents the static view of an application, the class diagram is not only used for visualizing, describing, and documenting different aspects of a system but also for constructing executable code of the software application.

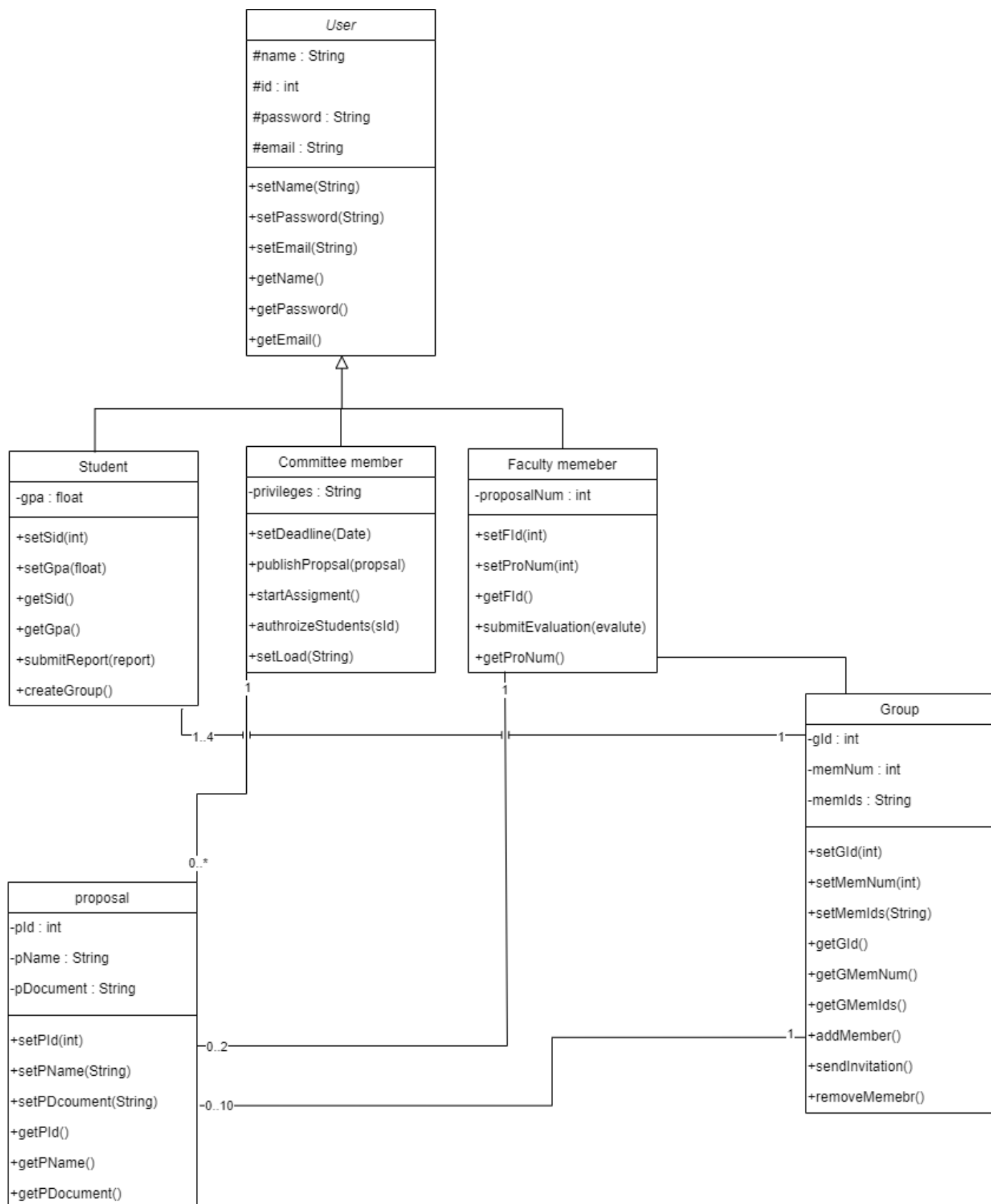


Figure 25: Class Diagram

CHAPTER 6: CONCLUSION

6.1 Social Impact:

Our project would make communications between the committee, faculty members, and students much easier than before, and allow students to pair up more effectively.

6.2 Ethical Impact:

Protecting the rights of the committee members, faculty members and students by providing a safe website for the process of registration and log-in, ensuring the information they provide about them is not used for anything unethical.

6.3 Legal Impact:

This website is compatible with the bylaws and regulations of the College of Computer and Information Sciences, as well as the university.

6.4 Global Impact:

After we apply and run our website on the College of Computer and Information Sciences, we hope to transfer this experience to the level of universities in Saudi Arabia, and then to all universities in the world, and that will create a great impact around the world.

6.5 Security Impact:

No person will be allowed to access another user's information and its credentials and data linked to the user account, whether it was a faculty member or a student, committee members will have more privileges than the other users, but we will keep logs of every transaction to ensure security on the website.

6.6 Conclusion:

In this part of the project, we have studied the requirements, analyzed, and designed the system. Going forward we hope that our vision can be realized in the second half of the project (Implementation phase), to achieve that and meet the committee's time expectations we have decided to go with python's framework flask, it's lightweight, scalable, and uses a single page approach that is known to be very fast and responsive, we are looking forward to the next part of this project, we hope it offers us unique challenges and more opportunities to learn and advance our skillset.

6.7 Reference List:

- 1- <https://business.adobe.com/blog/basics/waterfall>
- 2- <https://www.smartsheet.com/agile-vs-scrum-vs-waterfall-vs-kanban>
- 3- <https://www.rbu-admit.edu.sa/>
- 4- <https://noor.moe.gov.sa/>
- 5- <https://dev.to/amigosmaker/what-is-flask-used-for-2do5>
- 6- <https://www.justinmind.com/blog/single-page-vs-multi-page-websites-design-battle/>