

PRINCIPLES OF SOFTWARE ENGINEERING PROJECT



CCSW-223

Course Aid



Project Members

Khalid Thamir Farsi 2140219 (Leader)
Ghassan Abdulelah Alshareef 2140100
Mohannad Saud Alzahrani 2140674
Salman Muhammad Alharthi 2140986
Abdulaziz Alghamdi 2142427
Saif Mohammed Alabdali 2040110

Course Instructor

Dr. Mohammad Al Harbi

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Introduction

One of the most common things we hear students ask about at the start of every term is where they can find additional resources on a specific course. This usually results in an exceedingly long, tedious, and sometimes fruitless search. With Course Aid, you can find all the resources you need to study for your exams in one place. Instead of searching on different platforms like WhatsApp and Telegram for additional resources on courses they are taking, Course Aid will have a database of educational content from different sources and from different platforms that has been gathered to help students find everything

3 they need to study and ace their exams. It cuts down on

searching time and ensures you're getting the right type of content that will help your grades improve. Course Aid will help students find the resources they are looking for faster and easier than ever before.



Project Description

To tackle the communal problem of searching for additional resources for every course each term, Course Aid would contain several types of course-related resources for every course in a university such as the pdf version of the course's book, past exams, worksheets, videos and so on and so forth. Course Aid has a comprehensive database that is updated regularly to ensure that the content is relevant and up to date.

3. INFORMATION GATHERING

3.1 Interview information

1- Interview with a graduate :

Leader: Mohannad Alzahrani Guest: Faisal Alghamdi

Position: Jeddah Time: 8 PM

Date: 15-8-2021

2- Interview with a student from Jeddah University:

Leader : Ghassan Alshareef Guest: Ahmed Alqahtani

Position: Jeddah Time: 4 PM

Data: 18-8-2021

– Interview with a graduate :

Q1: How much time it takes you to find resources about the subject? and will our application help with that problem??

I don't know honestly, but I think it depends on the subject. Sometimes it takes 15 minutes, and other subjects will take a day.

Q2: how will the application we just talked about will benefit you in your studies?

Students will be able to complete assignments and projects more efficiently as a result, as I mentioned earlier

Q3: how will the application we just talked about will benefit you in your studies?

As a recent graduate, I wish to benefit from the application as well, so I think adding communities for each subject would speed up the process

- Interview with a student from Jeddah University:

Q1: How much time it takes you to find resources about the subject? and will our application help with that problem??

Usually it takes me about 20 to 30 minutes to locate examples and practices for the subject. You know, some times it can be really difficult! It could be that quick to find anything using your app.

Q2: how will the application we just talked about will benefit you in your studies?

Personally, it will help me a lot as a student and motivate me to study more.

Q3: how will the application we just talked about will benefit you in your studies?

A chat feature would be very beneficial to students, for example, helping them to study for exams.

3.2 Interview description:

a. Evaluation of a User Request:

- Leader: Mohannad Alzahrani Guest: Faisal Alghamdi

Position: Jeddah Time: 8 PM

Date: 15-8-2021

- Leader : Ghassan Alshareef Guest: Ahmed Alqahtani

Position: Jeddah Time: 4 PM

Data: 18-8-2021

b. Description of the problem:

The difficulty of finding additional resources for the courses and collecting them, make sure that's valid information

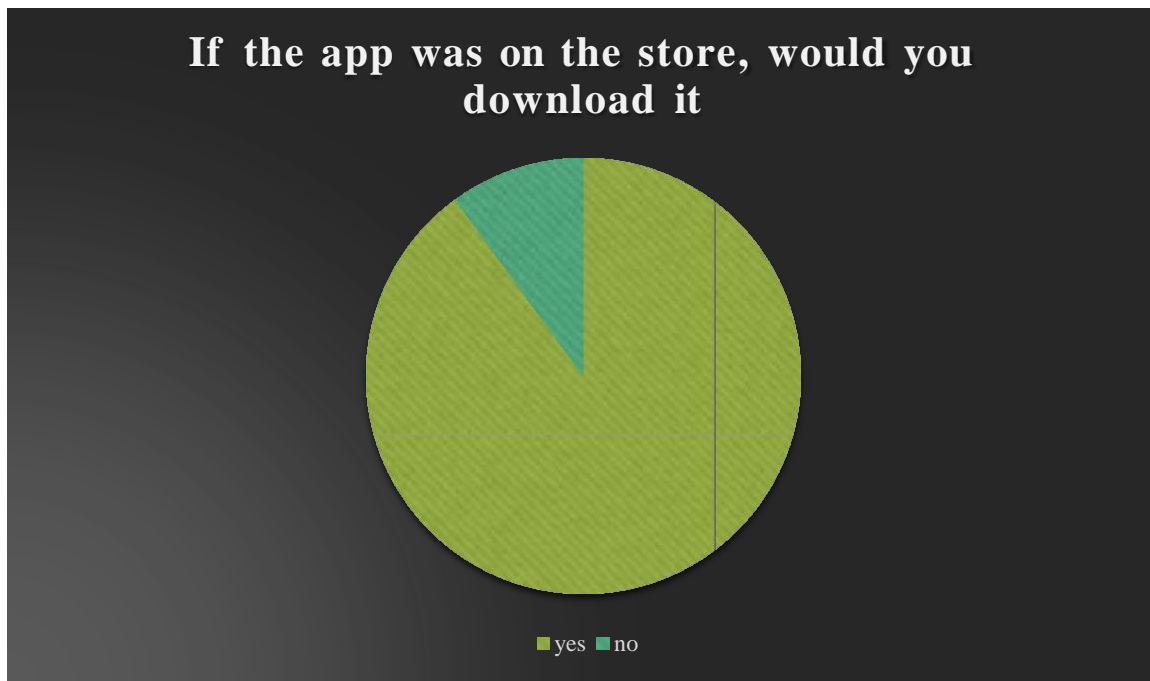
c. Analyst comments:

The application is now stronger and we know what we need to add to make it even better.

3.3 Questionnaire:

We asked 10 UJ students about the application and answers were:

If the app was on the store, would you download it?



4. Planning Phase 1

4.1 The Purpose of the Project:

a. The User Business or Background of the Project Effort

Content

Course Aid collects and organizes all the materials required for all the courses you study in one place. It consists of all types of educational resources; books, videos, worksheets, and everything you need for each course you study. What made us start developing this was what we saw students experience throughout their study years, how a student sometimes can't get all the resources he needs, or he finds them, but they're spread out and unorganized, which can be overwhelming or distracting. Therefore, it can lead to either the student feeling lost by not finding all that he needs or being overwhelmed by the unorganized resources, so he can't use his time efficiently. Once we deliver this product to the user, he can easily access all the resources he needs in one place without distraction or misinformation, leading to a better use of the user's time and effort.

Motivation

Our motivation is to help every student to achieve the best grades possible and succeed in every course they take with ease.

Considerations

Solving this problem is not necessary unless you have a short time to study. Instead of using Google, searching around on the internet may not be helpful

b. Goals of the Project

This project was developed to help every student to have access to all the resources he needs and to become the biggest platform for educational materials in the field.

4.2 Preliminary report:

1- The problem:

It's hard for students now to get the resources they want without taking a long time to search for them and getting distracted with all the bits and pieces they find scattered around without a proper way to collect them or make sure that's valid information. Furthermore, there's misinformation that goes around between the students because there's no one platform that is trusted and provides every material needed by each student.

2- Findings

One of the problems is that sometimes the system terminates students after they graduate from their universities. Also, for graduates when they want to make an account for the first time, it takes a while to register the

3- Recommendation or proposed solution:

On this platform, we are going to try and solve the above problem by gathering resources. books, videos, worksheets, and past exams for each course, and check the credibility of each resource we gather to make sure it contains correct information and is updated to the latest year. Then we organize all the information we gathered on one platform in a way that is simple to understand and accessible to the user with minimal effort.

4- Cost & schedule estimates:

The project will be completed in about two months, with a total of 170 hours (shown in the table below)

Phases	Description	Time (week)	Time (hours)	Cost 300 SR per hours
specification	Defining what the system will do	2 week	15 hours	4500 SR
Design the system	Design the structure of the system and the system interface	3 week	50 hours	15000 SR
Implementation	Coding	5 week	90 hours	27000 SR
validation	Verify the system	1 week	15 hours	4500 SR
Maintenance	Bug fixes and fixing the weak points	5 month	-	-
TOTAL	-	2 month	170 hours	51000 SR

5. PLANNING PHASE 2

5.1. The feasibility study

All the materials needed for any course you take are gathered and organized by Course Aid in one location. It includes all different kinds of learning materials, including books, videos, and everything you require for any course you do. We began creating this after observing students' struggles to find all the resources they require during their academic careers, or to find them but find that they are dispersed and disorganized, which can be stressful. As a result, the student may feel lost or overwhelmed by the disorganized resources, making it difficult for him to utilize his time effectively. The user can quickly access all the resources he requires once we give this solution to him.

5.2. report writing

1- Problem Definition:

It's hard for students now to get the resources they want without taking a long time to search for them and getting distracted with all the bits and pieces they find scattered around without a proper way to collect them or make sure that's valid information. Furthermore, there's misinformation that goes around between the students because there's no one platform that is trusted and provides every material needed by each student.

2- scope objectives of "Course Aid":

Helps students to gather recourses of any course in one place, also saves a lot of time for students who have more then one course where it gets harder and harder to find recourses, students can follow more then one course and they also get notified whenever a new book, video or worksheets gets uploaded to the Course Aid.

All these features come with no cost for students, Finally, Course Aid helps students organize their time with less stress and save time.

3- Alternative Solution:

Spending hours on the internet looking for material, asking other students for papers or worksheets, looking for books in the library

4- Cost and benefits of Alternatives:

Phases	Description	Time (week)	Time (hours)	Cost 300 SR per hours
specification	Defining what the system will do	2 week	15 hours	4500 SR
Design the system	Design the structure of the system and the system interface	3 week	50 hours	15000 SR
Implementation	Coding	5 week	90 hours	27000 SR
validation	Verify the system	1 week	15 hours	4500 SR
Maintenance	Bug fixes and fixing the weak points	5 month	-	-
TOTAL	-	2 month	170 hours	51000 SR

5- Software impacts:

Students can save a lot of time by using our app with the searching feature, students can search by courses and interact with its material, also this platform will get updated constantly and will keep the students notified whenever a new content gets uploaded, which makes students use this platform more than any other.

6- Potential Changes in the Organization:

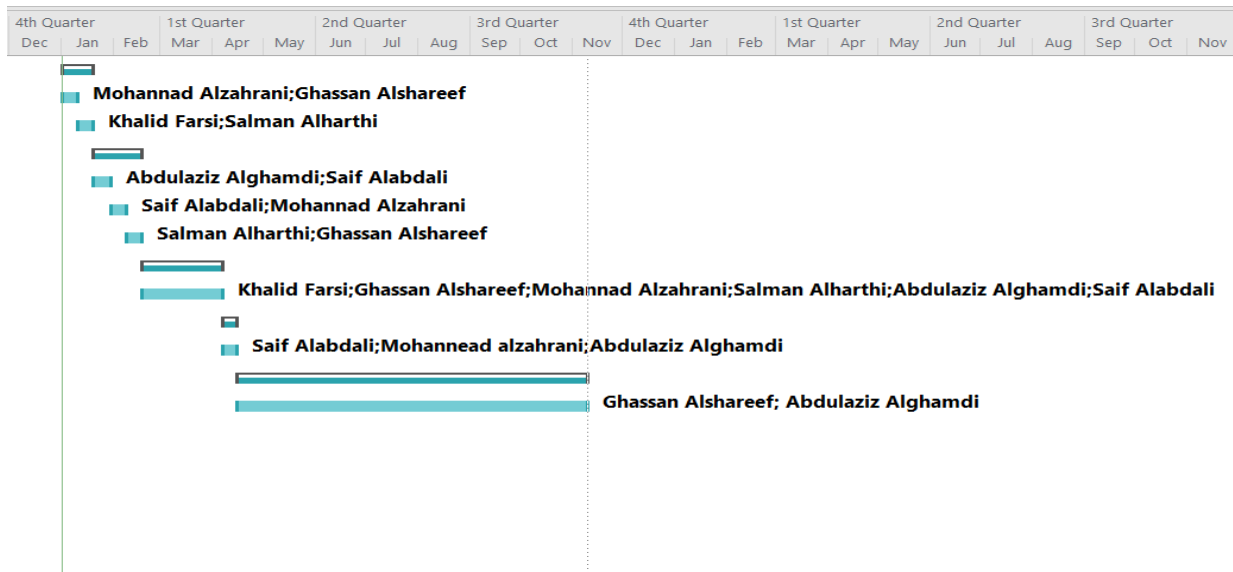
By using our system, the students will be less disorganized and less stressed about finding the resources they need, students can access to different types of media which helps them for their studies.

7- Recommended Alternative of the course of Action:

our recommendation if our platform is not available is: asking other students for papers or worksheets.

5.3. Project plan:

Task Mode ▾	Task Name ▾	Duration ▾	Start ▾	Finish ▾	Predecessors ▾	Resource Names ▾
🚀	🔧 Specification	14 days	Mon 1/2/23	Thu 1/19/23		
🚀	Interviews	7 days	Mon 1/2/23	Tue 1/10/23		Mohannad Alzahrani
🚀	Analysis	7 days	Wed 1/11/23	Thu 1/19/23		Khalid Farsi;Salman Alharthi
🚀	🔧 Design the system	21 days	Fri 1/20/23	Fri 2/17/23		
🚀	System Interface	7 days	Fri 1/20/23	Mon 1/30/23		Abdulaziz Alghamdi
🚀	Website Logo	7 days	Tue 1/31/23	Wed 2/8/23		Saif Alabdali;Mohannad Alzahrani
🚀	System Database	7 days	Thu 2/9/23	Fri 2/17/23		Salman Alharthi;Ghassan Alshareef
🚀	🔧 Implementation	35 days	Sat 2/18/23	Thu 4/6/23		
🚀	coding	35 days	Sat 2/18/23	Thu 4/6/23		Khalid Farsi;Ghassan Alshareef
🚀	🔧 Validation	7 days	Fri 4/7/23	Sat 4/15/23		
🚀	Verify the system	7 days	Fri 4/7/23	Sat 4/15/23		Saif Alabdali;Mohannad Alzahrani
🚀	🔧 Maintenance	150 days	Sun 4/16/23	Thu 11/9/23		
🚀	Bug fixes	150 days	Sun 4/16/23	Thu 11/9/23		Ghassan Alshareef



6.1. Stackholders definition:

A. The Client:
University

B. The Customer:
Students

C. Other Stakeholders:
Programmers, students, the university, Courses provider

Scope Of the Work:

The Current Situation:

A. Content:

It is difficult to find authentic information about a certain subject or a course in general. Students must search through websites and social media, and sometimes these activities can take time.

B. Motivation:

Searching for information on the Internet can take a long time and can be exhausting at times as well. Sometimes, it can get worse, and you end up not being able to find the exact information you're looking for, or you end up being worried about the source's reliability.

The application we developed will solve this problem for students in a wide range of courses.

The Context of The Work:

A. Content:

the system we are presenting contains a piece of authentic information from a reliable source that student can benefit from, they will be able to find materials from every course and help them study for exams, help solve Homework, etc.

Everyone can join and create an account using their student ID. They can benefit from the application and use the chat feature for example to communicate with other students in the course

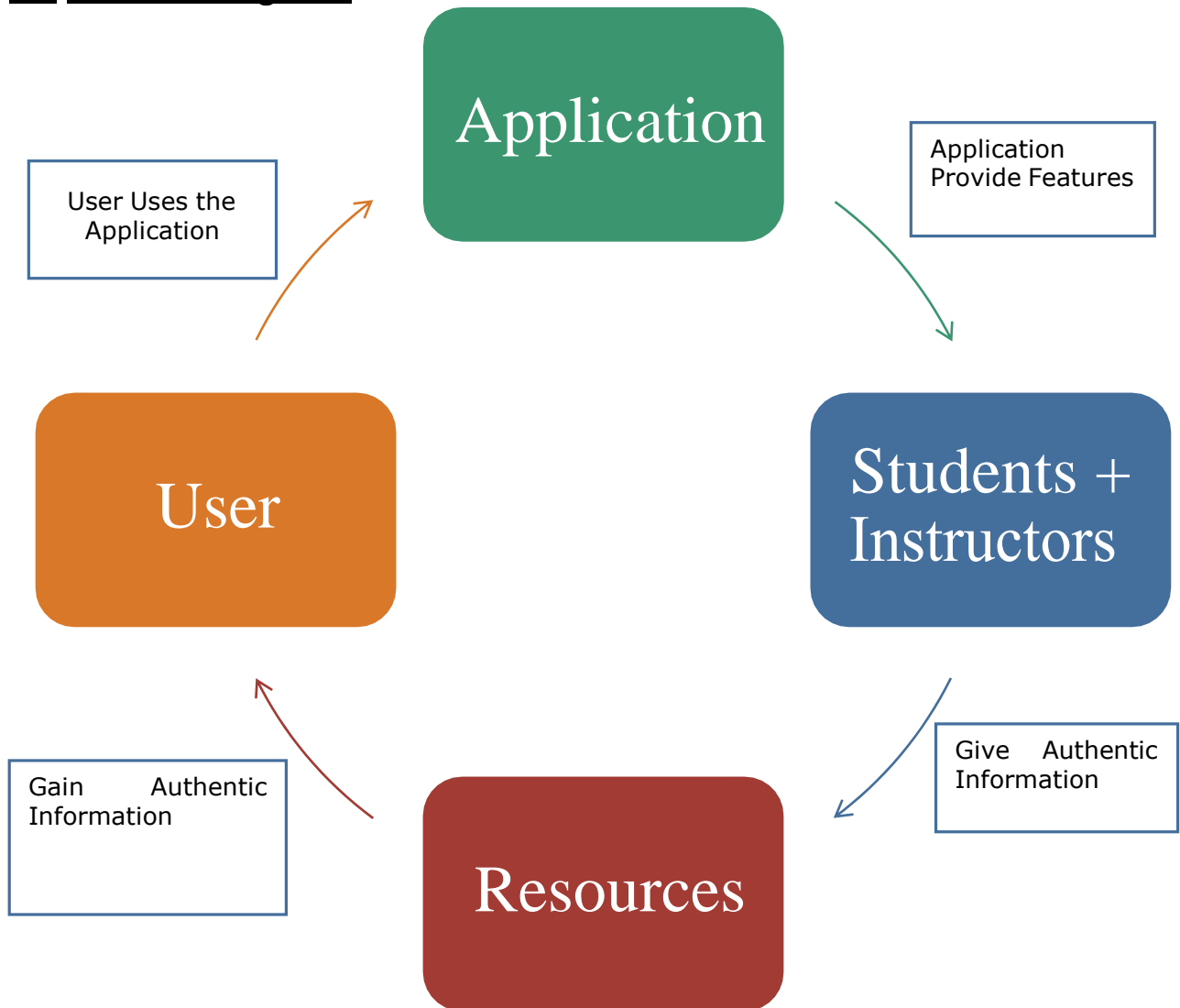
B. Motivation:

We developed our application so that the user could find information so easily and save so much time. In addition, the user could also be able to communicate with previous doctors of the course and even an educated student about the subject matter at hand. This was once we finished developing it.

Using this application, everyone will be able to find the information they need more easily, and in a more accessible manner.

There are several benefits that can be gained from it, and we will work hard to improve it.

6.2 Context Diagram:



6.3 Event Table

Event Name	Input And Output	Summery
Sign In	Sign In (In)	User Sings into Course Aid
View Courses	View Courses (Out)	User Views Courses
Choose Course	Choose Course (In)	User Chooses Courses Available
Course Content	Course Content (Out)	User Interacts Course Content
Watch Session	Watch Session (Out)	User Watches Sessions
Adding Course Resource	Adding Course Resource (In)	User Add Course Resources
Chat Section	Chat Section (In and Out)	User Can Interact With Other User With The Chat Features

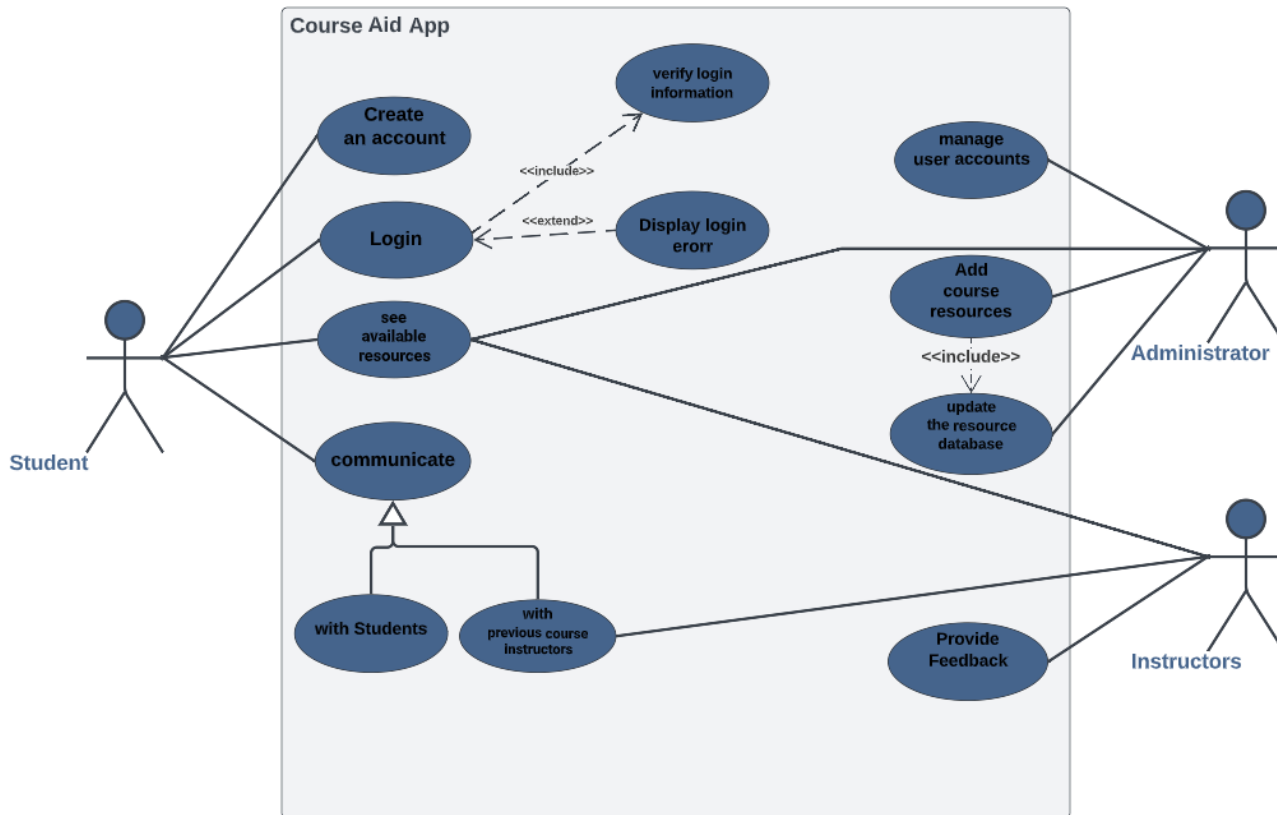
6.4 Functional requirement:

ID	Requirement Definition
FR1	Create an account
FR1.1	The ability for students to create an account using their student ID
FR2	Resource Database
FR2.1	The system shall have a comprehensive database of educational resources such as books, videos, and worksheets for different courses
FR3	Search System
FR3.1	The system shall have an organized and easily searchable system for accessing resources
FR4	Chat Feature
FR4.1	The system shall allow students to communicate with other students and previous course instructors
FR5	Data Update
FR5.1	The system shall have the ability to update the database regularly to ensure that the content is relevant and up to date

6.5 Non-Functional requirements:

ID	Requirement Definition
NFR1	User-friendly Interface
NFR1.1	Easy navigation for the user
NFR2	High Availability
NFR2.1	The system should be highly available and reliable
NFR3	Scalability
NFR3.1	Ability to handle a large number of users
NFR4	Security
NFR4.1	Measures to protect user data and prevent unauthorized access
NFR5	Compatibility
NFR5.1	The system should be compatible with different devices and operating systems
NR6	Performance Optimization
NR6.1	Fast load times and efficient resource retrieval

6.6 Use Case Diagram:



6.7 Use Case Analysis:

UC1: Create an Account	
Scope:	Students
Level:	Create an account in the system
Primary Actor:	Students
Precondition:	Student has a valid student ID
Stakeholders and Interests:	Students, Administrator
Scenario:	
1-	Student enters their student ID
2-	System verifies the student ID
3-	System creates an account for the student

UC2: Login	
Scope:	Students
Level:	Allows students to access their account
Primary Actor:	Students
Precondition:	Student must have a valid account
Stakeholders and Interests:	Students, Administrator
Scenario:	
1-	Student enters their login information
2-	System verifies the login information
3-	System grants access to the student's account

UC3: See Available Resources

Scope:	Students, Instructors, Administrator
Level:	Allows the access to resources
Primary Actor:	Students
Precondition:	User has logged in to the system
Stakeholders and Interests:	Students, Instructors, Administrator
Scenario:	
1-	Student logs into their account
2-	System displays available resources
3-	Student selects a resource to access

UC4: Communicate

Scope:	Students, Instructors
Level:	Allows the communication with other students and previous course instructors
Primary Actor:	Students
Precondition:	Student must have a valid account
Stakeholders and Interests:	Students, Instructors
Scenario:	
1-	Student logs into their account

UC5: Manage User Accounts

Scope:	Administrator, Students instructors)
Level:	Allows managing of user accounts
Primary Actor:	Administrator
Precondition:	Administrator must have valid login credentials
Stakeholders and Interests:	Administrator, Students
Scenario:	
1-	Administrator logs into the system
2-	System displays a list of user accounts
3-	Administrator selects an account to manage (delete, update)

UC6: Add Course Resources

Scope:	Administrator, Students
Level:	addition of new resources to the resource database
Primary Actor:	Administrator
Precondition:	Administrator must have valid login credentials
Stakeholders and Interests:	Administrator, Students
Scenario:	
1-	Administrator logs into the system
2-	Administrator navigates to the resource management page
3-	Administrator can add new resources to the resource database

UC7: Update Resource Database

Scope:	Administrator, Students
Level:	Updating of resources
Primary Actor:	Administrator
Precondition:	Administrator must have valid login credentials
Stakeholders and Interests:	Administrator, Students
Scenario:	
1-	Administrator logs into the system
2-	Administrator navigates to the resource management page
3-	Administrator can edit and update resources in the resource database

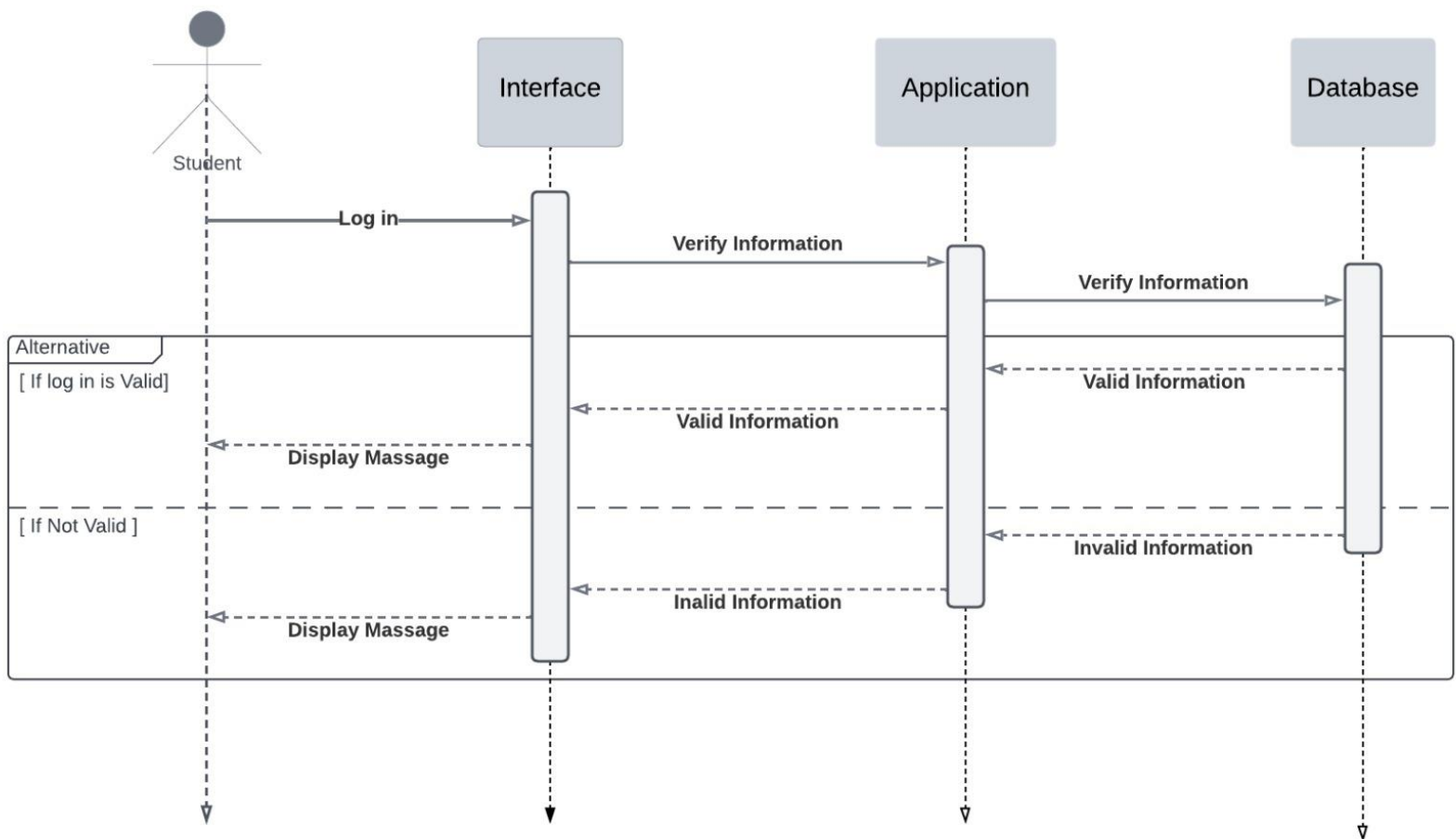
UC8: Provide Feedback

Scope:	Instructors, Students
Level:	Providing feedback to students
Primary Actor:	Instructors
Precondition:	Instructor is logged in to the system
Stakeholders and Interests:	Instructors, Students
Scenario:	
1-	Instructor logs into the system
2-	Instructor navigates to the feedback management page
3-	Instructor can provide feedback to students on their coursework

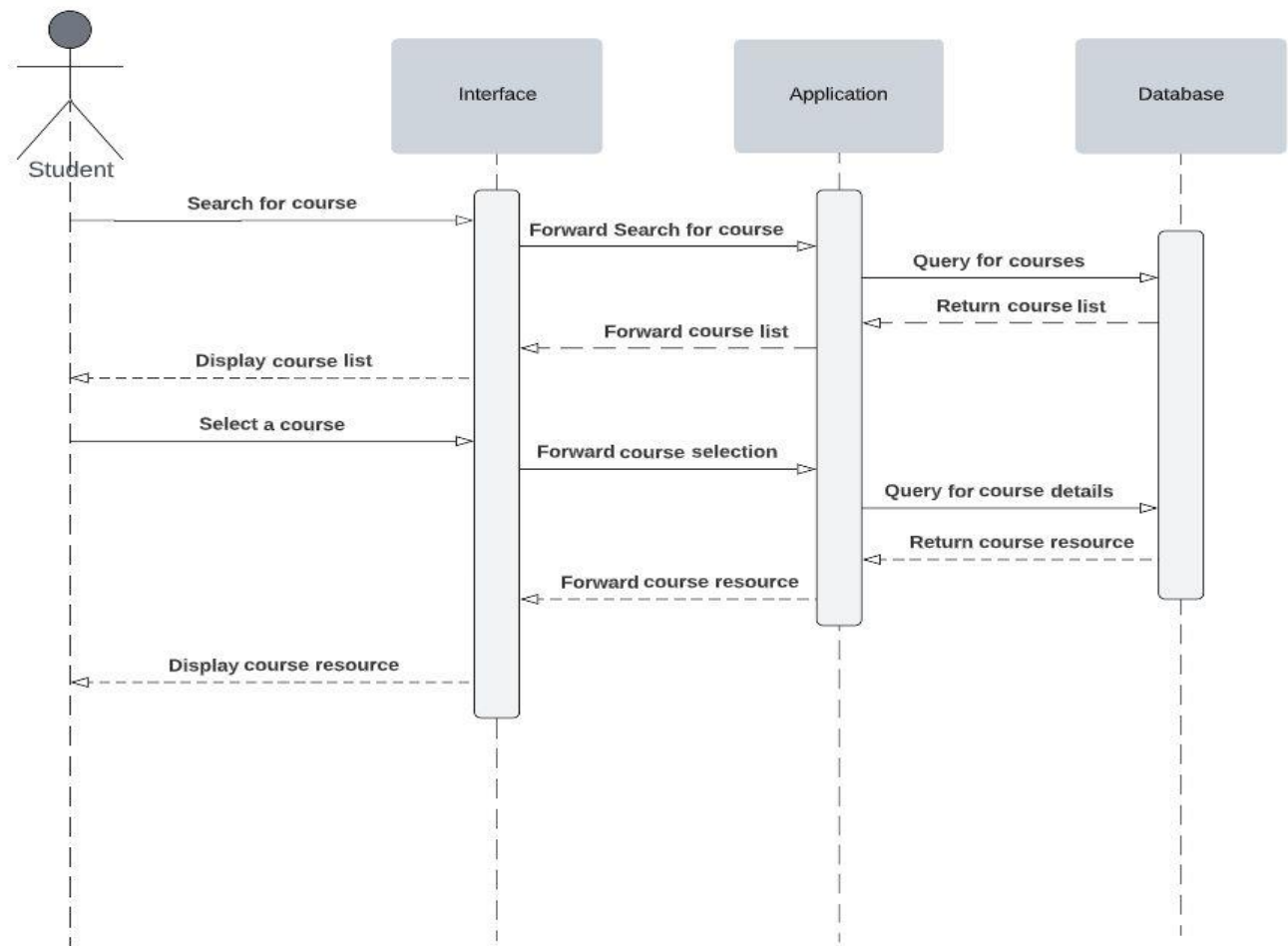
7. Analysis Phase 2

7.1 System Sequence Diagram

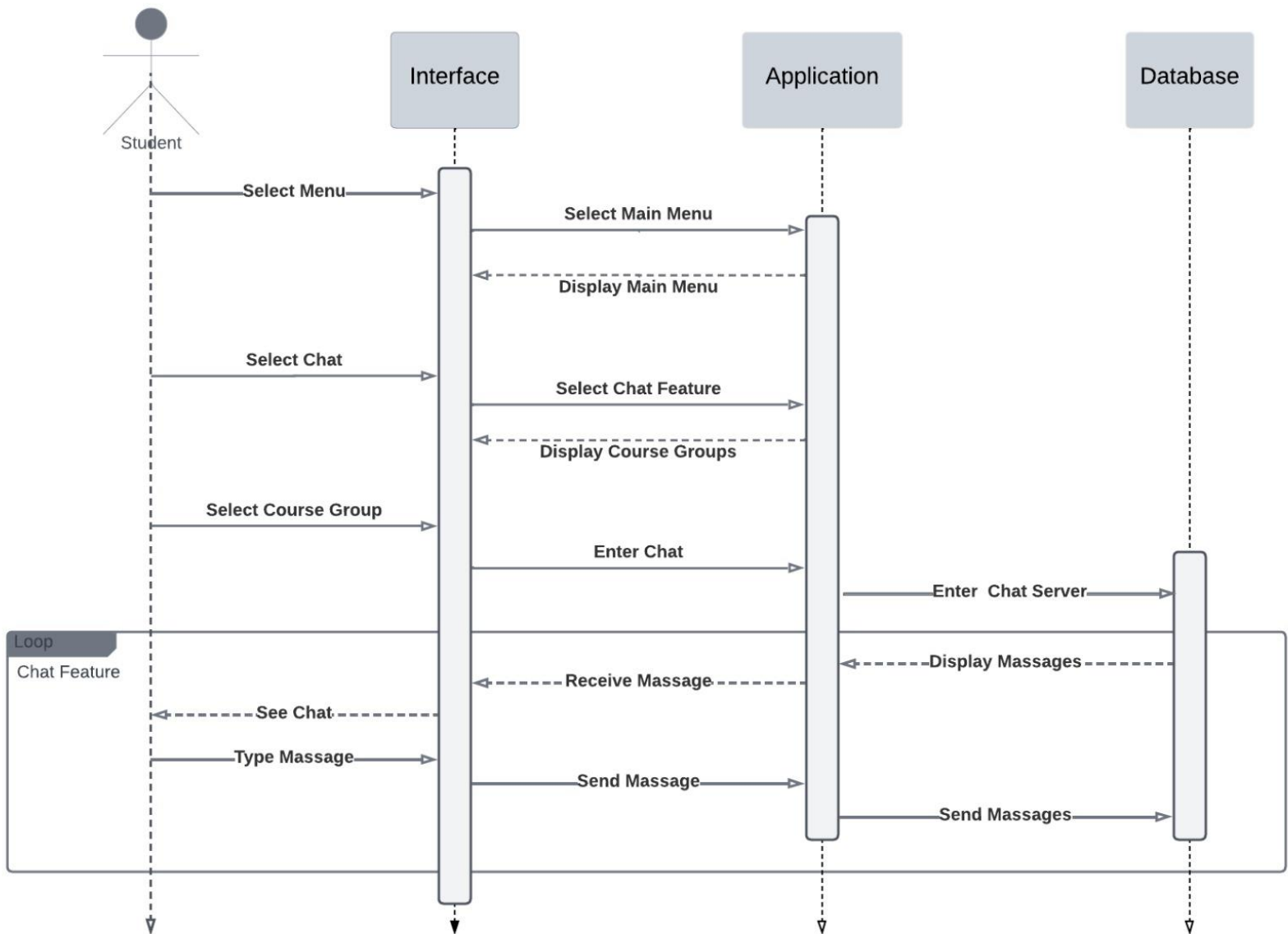
1- Use case (Login)



2- Use case (Search)

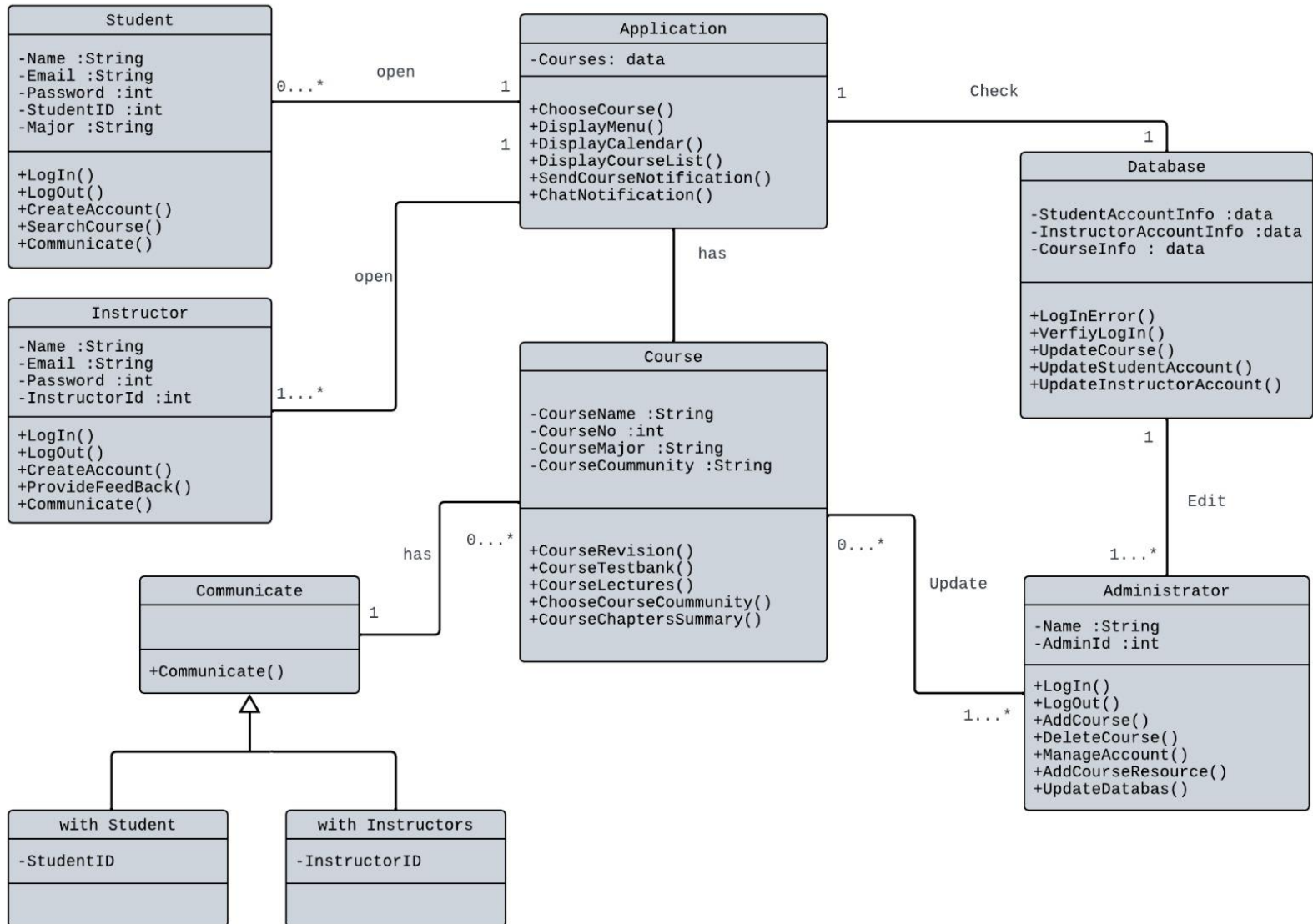


3- Use case (chat)



8. Modeling Phase

8.1 Class Diagram



- Class definition

Class name	Definition
Communicate	It represents the communication between students and instructors through the use of the Communicate class.
Administrator	We represent administrators' capabilities that they have as a result of the implementation of this class
Course Class	You can search for a particular course class and you can view all the resources like revision, chapters summaries, and lectures for that particular course
Database Class	All the information associated with each account is stored on a single database called a database class
Application	Shows the courses, chat menu, and allows you to utilize and view every element of the system
Instructors Class	Contains information such as a user's name, password, email address, instructor ID, and other attribute information about their account. It also contains information about the capabilities of an instructor and how he uses the Applications.
Student	This class is used to represent a user in the system, it contains information such as the student's name and ID.

Conclusion:

In conclusion, Course Aid is a comprehensive and user-friendly platform that offers a Centralized solution for students to access educational resources for their courses. It eliminates the tedious and time-consuming process of searching for resources from various sources and help students stay organized and focused. With Course Aid, students can access all the materials they need in one place, including books, videos, and worksheets, ensuring they get the right information to improve their grades. The platform's aim is to support students in achieving the best possible outcomes. and to become the leading provider of educational materials. Course Aid is free for students and offers a stress-free way to organize their time.