

StudyUp: A Virtual Study Group Mobile Application for Learners

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ABSTRACT

StudyUp is a mobile application intended for learners, where the learners will be appropriately placed in a study group according to their similarities, like the topic of interest. They help each other by uploading their study resources. They can ask and answer questions in the group. They can also meet online to review with other students studying the same subject matter or to prepare for upcoming exams, assignments, and projects.

KEYWORDS

CHAPTER I

INTRODUCTION

Rationale of the Study

The concept of e-learning is not new. In fact, in 1960, the University of Illinois created an Intranet for its students where computer terminals were linked for students to access course materials as well as recorded lectures. In 1990, when the Internet was first introduced, many universities started offering courses online. The rapid growth of technologies in the early 2000s helped the accessibility of online learning grow. When the COVID-19 pandemic happened in late 2019 and early 2020, many countries around the world changed their education systems for safety reasons.

One of the learners' problems is having a hard time studying and understanding a lesson or work, and it is in fact very stressful. Running into problems while learning is often accompanied by an emotional response. Emotion, more broadly, plays a vital role in the integration of new knowledge. Struggling with studying and understanding a lesson or work may lead the learner to anxiety, stress, and depression. There may be instances where the learner attempted to find a study group for them to join in order to help them build strong communication skills and eventually lead the learners in understanding the lessons, but was unable to find any study group for them to fit in.

This paper aims to develop StudyUp, a mobile application that will help learners find a study group for them to review and get ready for their upcoming lessons, assignments or projects, and exams. The application will provide convenience to learners who want to remain at home or somewhere where they are comfortable.

Statement of the Problem

One of the challenges that students have is having difficulty studying for a lesson and it's actually very stressful. Running into problems while learning is often accompanied by an emotional response. Emotion, more broadly, plays a vital role in the integration of new knowledge. Struggling with studying and understanding a lesson or work may lead you to have anxiety, stress, and depression.

Having no idea where to find the answers to your questions and whom to ask for help in your lessons, exams, assignments, and projects makes your problem even bigger. You want a study group to help you with your problem, but you have no idea where to find the right study group for you.

Review of Related Works

Students can participate in skill-oriented activities in group learning environments for accumulated knowledge. (Branson, 1991, p.242). When it comes to preparing for

exams or reviewing course materials, study groups are common among undergraduate students. Media of all types gives enhanced improvements in teaching-learning. (A. H. Shahzad et al., 2010). An informal way of conducting it is, for the students would organize a meeting with a few of their classmates inside or outside the school campus. Another is some colleges would coordinate with students to create a formal study group to give the learners more opportunities where the school is organizing the session and often facilitated.

Transitioning online for study groups presents apparent challenges. In the formal study groups, facilitators may need additional training on working with student participants virtually. In general, participants may be located in multiple time zones, and technical issues are bound to occur. (How Students Are Leveraging Online Study Groups, 2020) Doing study groups virtually has its challenges especially when it comes to finding the right platform or applications to use. According to J. Friedman, 2020, a group of about a half-dozen students primarily use Zoom, a popular video conferencing tool, to connect remotely a few times a week.

Project Objective

1. StudyUp will help the students find a study group for them to review and get ready for their upcoming lessons, assignments, projects, and exams.
2. The application will use a K-Nearest Neighbors Algorithm for the student to find the right study group.

The KNN would be based on the following:

- Subject
- School

3. StudyUp will help the students find study resources

4. StudyUp will help the students find answers to their questions

5. The application will use a recommender system for the students to find the right study resources

The recommendations would be based on the following:

- Student's topic of interest
- Most popular study materials of the groups joined

6. StudyUp will let the users feel the convenience of using the app.

Project Scope and Limitation

StudyUp aims to help learners who have difficulty with their studies find a suitable study group for them to review and get ready for their upcoming lessons, assignments or projects, and exams; find study resources; let the users feel the convenience of using the app.

The scope of the application is limited to college students that are having a hard time finding a study group and have difficulty understanding their lessons and topics in school. The application runs only on an Android device, and the mobile device must be connected to the internet.

Chapter II

SOFTWARE REQUIREMENTS AND DESIGN SPECIFICATION

This chapter specifies the user and system requirements that are expected to be accomplished as well as the structure and process of achieving these. It contains sections for the Use Case Diagram, Use Case Narrative, Activity Diagram, Class Diagram, and User Interface Design,

System Environment (*System Use Case Model*)

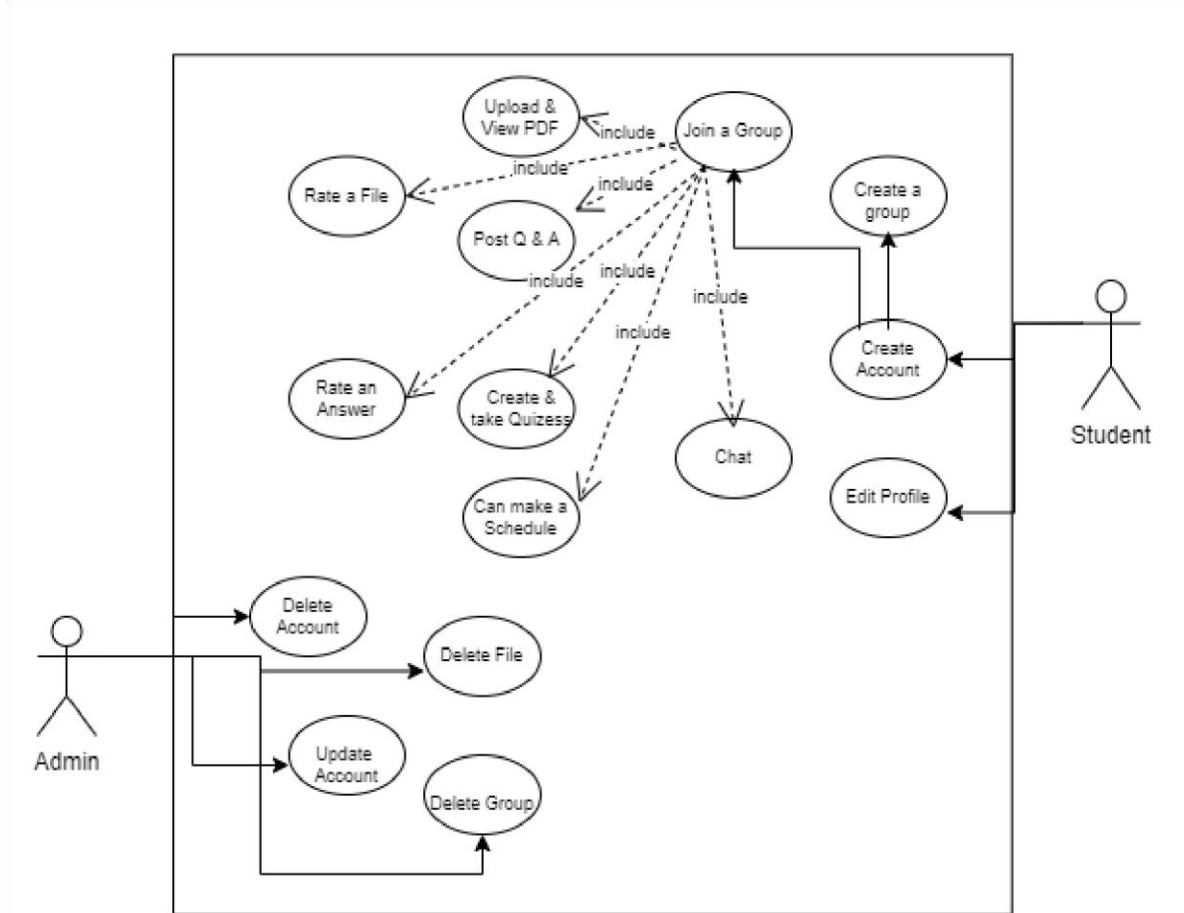


Figure 1: Use Case Model

The figure illustrates the main functionalities of the system. The system has 1 actor who is the student and an administrator.

Functional Requirements Definition (*System Use Case Narrative*)

Use Case: UC001 GROUP CLUSTERING

Actors: College Student

Purpose: This is used to have a study group.

Overview: The system will create a group for the actor.

Type: Required

Pre-condition: The actor has created an account.

Post-condition: The actor will now have a study group assigned by the system.

Flow of Events	
Actor Action	Systems Response
1. The actor will sign-up.	2. The system will display a grouping form.
3. Actor will fill out and submit the form.	4. The system will assign the actor a designated study group.
Alternative Flow of Events	
Actor Action	Systems Response
1. The actor will go to the profile page.	
2. The actor will click the create group.	3. The system will display a form.
4. The actor will click the create group button.	5. The system will create the group.

Table 1: Use Case Narrative for Group Clustering

Use Case: UC002 SEARCH A TOPIC OR GROUP NAME

Actors: College Student

Purpose: This is used to search for a topic or group names.

Overview: The actor will search for a topic or group name on the search bar.

Type: Not required

Pre-condition: There are existing topics and group names in the system.

Post-condition: The actor is able to view the search results.

Flow of Events	
Student Action	Systems Response
1. The student clicks on the search bar.	
2. The actor inputs a keyword and clicks the search button.	3. The system will display the search results.

Alternative Flow of Events	
Actor Action	Systems Response
1. The actor clicks on the search bar.	
2. The actor inputs a keyword and clicks the search button.	3. The system will display the no results available.
Alternative Flow of Events	
Actor Action	Systems Response
1. The actor clicks on the search bar.	
2. The actor inputs a keyword and clicks the search button.	3. The system will display the search results.
4. The actor clicks the filter by post options.	5. The system will display the options.
6. The actor will choose a filter.	7. The system will display the filtered search results.

Table 2: Use Case Narrative for Search a Topic or Group Name

Use Case: UC003 UPLOAD A FILE

Actors: College Student **Purpose:**

This is used to upload a file.

Overview: The actor will upload a file.

Type: Not required

Pre-condition: The actor has a group.

Post-condition: The file is uploaded.

Flow of Events	
Actor Action	Systems Response
1. The actor will click a specific study group.	2. The system will display the inside of the study group.
3. In the files tab, the actor will click the plus button to upload the file.	4. The system will upload the file.

Table 3: Use Case Narrative for Upload a File

Use Case: UC004 VIEW A FILE**Actors:** College Student **Purpose:**

This is used to view a file.

Overview: The actor will view a file.**Type:** Not required**Pre-condition:** The actor has a group**Post-condition:** The actor is able to view a file.

Flow of Events	
Student Action	Systems Response
1. The student will click a specific study group.	2. The system will display the inside of the study group.
3. In the files menu, the student will click a file.	4. The system will display the file.
Alternative Flow of Events	
Actor Action	Systems Response
1. The actor will go to the home page.	2. The system will display the recommended files.
3. The actor will click a specific file.	4. The system will let the actor view the file.

*Table 4: Use Case Narrative for View a File***Use Case: UC005 RATE A FILE****Actors:** College Student **Purpose:**

This is used to rate a file.

Overview: The actor will rate a file.**Type:** Not required**Pre-condition:** The actor has opened a file.**Post-condition:** The actor is able to rate a file.

Flow of Events

Actor Action	Systems Response
1. In the files menu, the actor will click a file.	2. The system will let the actor view the file.
4. The actor will rate and submit it.	3. The system will display a message and let the actor rate the file.
Alternative Flow of Events	
Actor Action	Systems Response
1. The actor will open a specific file on the home page.	2. The system will display the file.
4. The actor will rate and submit it.	3. The system will display a message and let the actor rate the file.

Table 5: Use Case Narrative for Rate a File

Use Case: UC006 VIEW Q & A

Actors: College Student

Purpose: This is used to view Q & A.

Overview: The actor will view the Q & A.

Type: Not required

Pre-condition: There are existing questions in the Q & A.

Post-condition: The actor is able to view the Q & A tab.

Flow of Events	
Actor Action	Systems Response
1. The actor will click the Q & A tab.	2. The system will display the inside of the Q & A.

Table 6: Use Case Narrative for View Q & A

Use Case: UC007 POST A QUESTION

Actors: College Student

Purpose: This is used to post a question.

Overview: The actor will post a question.

Type: Not required

Pre-condition: The actor has a group.

Post-condition: The actor is able to post a question.

Flow of Events	
Actor Action	Systems Response
1. The actor will click the Q & A tab.	2. The system will display the inside of the Q & A.
3. The actor will click the plus button to post a question.	4. The system will post the question.

Table 7: Use Case Narrative for Post a Question

Use Case: UC008 VIEW ANSWERS OF A QUESTION

Actors: College Student

Purpose: This is used to view answers to a question.

Overview: The actor will view the answers to a question.

Type: Not required

Pre-condition: There are existing answers to a question.

Post-condition: The actor is able to view the answers to a question.

Flow of Events	
Actor Action	Systems Response
1. The actor will click the Q & A tab.	2. The system will display the inside of the Q & A.
3. The actor will click a specific question.	3. The system will display the answers.

Table 8: Use Case Narrative for View Answers of a Question

Use Case: UC009 ANSWERING A QUESTION

Actors: College Student

Purpose: This is used to respond to a question.

Overview: The actor will respond to a question.

Type: Not required

Pre-condition: There are existing questions.

Post-condition: The actor is able to respond to a question.

Flow of Events	
Actor Action	Systems Response
1. The actor will click the Q & A tab.	2. The system will display the questions.
3. The actor will click on a specific question.	
4. The actor will respond to the question.	
5. The actor will click submit.	6. The system will post the response.

Table 9: Use Case Narrative for Answering a Question

Use Case: UC010 RATE AN ANSWER

Actors: College Student

Purpose: This is used to rate a file.

Overview: The actor will rate a file.

Type: Not required

Pre-condition: The actor has opened a file.

Post-condition: The actor is able to rate a file.

Flow of Events	
Actor Action	Systems Response

Table 10: Use Case Narrative for Rate an Answer

Use Case: UC011 TAKE A QUIZ

Actors: College Student **Purpose:**

This is used to take a quiz.

Overview: The actor will take a quiz.

Type: Not required

Pre-condition: There are existing quizzes in the group.

Post-condition: The actor can take a quiz.

Flow of Events	
Actor Action	Systems Response
1. The actor will click the quiz tab.	2. The system will display the quizzes.
3. The actor will choose which quiz to take.	4. The system will let the actor take the quiz.

Table 11: Use Case Narrative for Take a Quiz

Use Case: UC012 CREATE A QUIZ

Actors: College Student **Purpose:** This

is used to create a quiz.

Overview: The actor will create a quiz.

Type: Not required

Pre-condition: The actor has a group.

Post-condition: The actor can create a quiz.

Flow of Events	
Actor Action	Systems Response
1. The actor will click the quiz tab	
2. The actor will click the create quiz button.	
3. The actor will submit the quiz that is created.	4. The system will upload the quiz that has been created.

Table 12: Use Case Narrative for Create a Quiz

Use Case: UC013 CONTRIBUTE QUESTIONS IN A QUIZ

Actors: College Student

Purpose: This is used to contribute questions in a quiz.

Overview: The actor will contribute a question in a quiz.

Type: Not required

Pre-condition: There are existing quizzes in the group.

Post-condition: The actor can contribute questions in a quiz.

Flow of Events	
Actor Action	Systems Response
1. The actor will click the quiz tab.	
2. The actor will choose a quiz where contributing questions are available.	
3. The actor will contribute a question	4. The system will add the questions to the quiz.

Table 13: Use Case Narrative for Create a Quiz

Use Case: UC014 VIEW SCHEDULE

Actors: College Student

Purpose: This is used to view schedules in a study group

Overview: The actor will view schedules.

Type: Not required

Pre-condition: There are existing schedules in the group.

Post-condition: The actor can view all meeting schedules in a study group.

Flow of Events	
Actor Action	Systems Response

1. The actor will click the schedule tab.	2. The system will display the schedules.
---	---

Table 14: Use Case Narrative for Schedule

Use Case: UC013 CREATE A SCHEDULE

Actors: College Student

Purpose: This is used to create a schedule.

Overview: The actor will create a schedule.

Type: Not required

Pre-condition: The actor has a group.

Post-condition: The actor can create a schedule.

Flow of Events	
Actor Action	Systems Response
1. The actor will click the schedule tab.	
2. The actor will click the calendar icon.	
3. The actor will select a date and time.	
4. The actor will fill up a form.	4. The system will upload the schedule that has been created.

Table 13: Use Case Narrative for Create a Schedule

Use Case: UC014 JOIN A MEETING

Actors: College Student

Purpose: This is used to join a meeting.

Overview: The actor will join a meeting.

Type: Not required

Pre-condition: There are existing meetings in the group.

Post-condition: The actor can join a meeting.

Flow of Events

Actor Action	Systems Response
1. The actor will click the schedule tab.	
2. The actor will choose and click an ongoing meeting.	3. The system will let the actor join the meeting.

Table 13: Use Case Narrative for Join a Meeting

Use Case: UC015 VIEW REPUTATION

Actors: College Student

Purpose: This is used to view reputation.

Overview: The actor will view reputation.

Type: Not required

Pre-condition: The actor has created an account.

Post-condition: The actor can view reputation.

Flow of Events	
Actor Action	Systems Response
1. The actor will go to profile page.	

Table 15: Use Case Narrative for View Reputation

Use Case: UC016 EARN REPUTATION

Actors: College Student

Purpose: This is used to earn reputation.

Overview: The actor will earn a reputation.

Type: Not required

Pre-condition: The actor has created an account.

Post-condition: The actor can earn a reputation.

Flow of Events	
Actor Action	Systems Response
1.	

Table 15: Use Case Narrative for Earn Reputation

Use Case: UC017 VIEW REVEALS LEFT

Actors: College Student

Purpose: This is used to view reveals left.

Overview: The actor will view reveals left.

Type: Not required

Pre-condition: The actor has created an account.

Post-condition: The actor can view reveals left.

Flow of Events	
Actor Action	Systems Response
1. The actor will go to the profile page.	

Table 17: Use Case Narrative for Reveals

Use Case: UC018 EARN REVEALS

Actors: College Student **Purpose:**

This is used to earn reveals.

Overview: The actor will earn reveals.

Type: Not required

Pre-condition: The actor has created an account.

Post-condition: The actor can earn reveals.

Flow of Events	
Actor Action	Systems Response
1.	

Table 18: Use Case Narrative for Earn Reveals

Activity Diagram

The activity diagram shows the workflow behavior of the system by describing the sequence of actions in the process.

Group Clustering

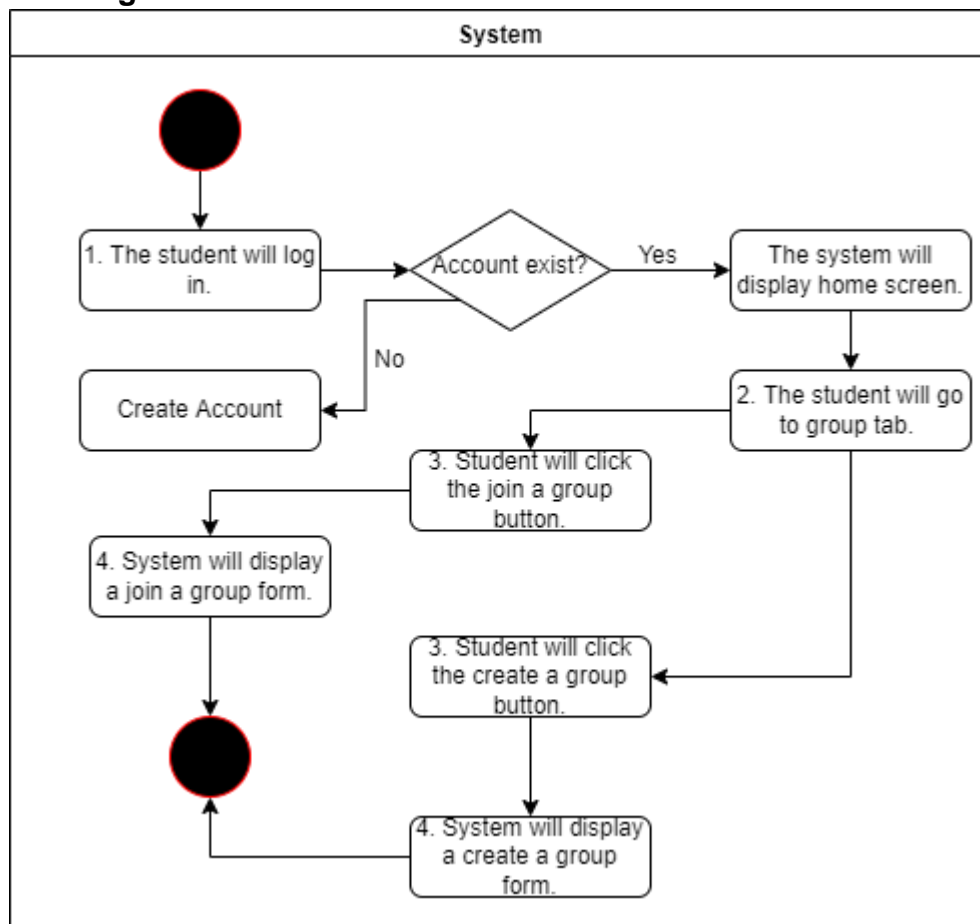


Figure 2: Use Case Model for Group Clustering

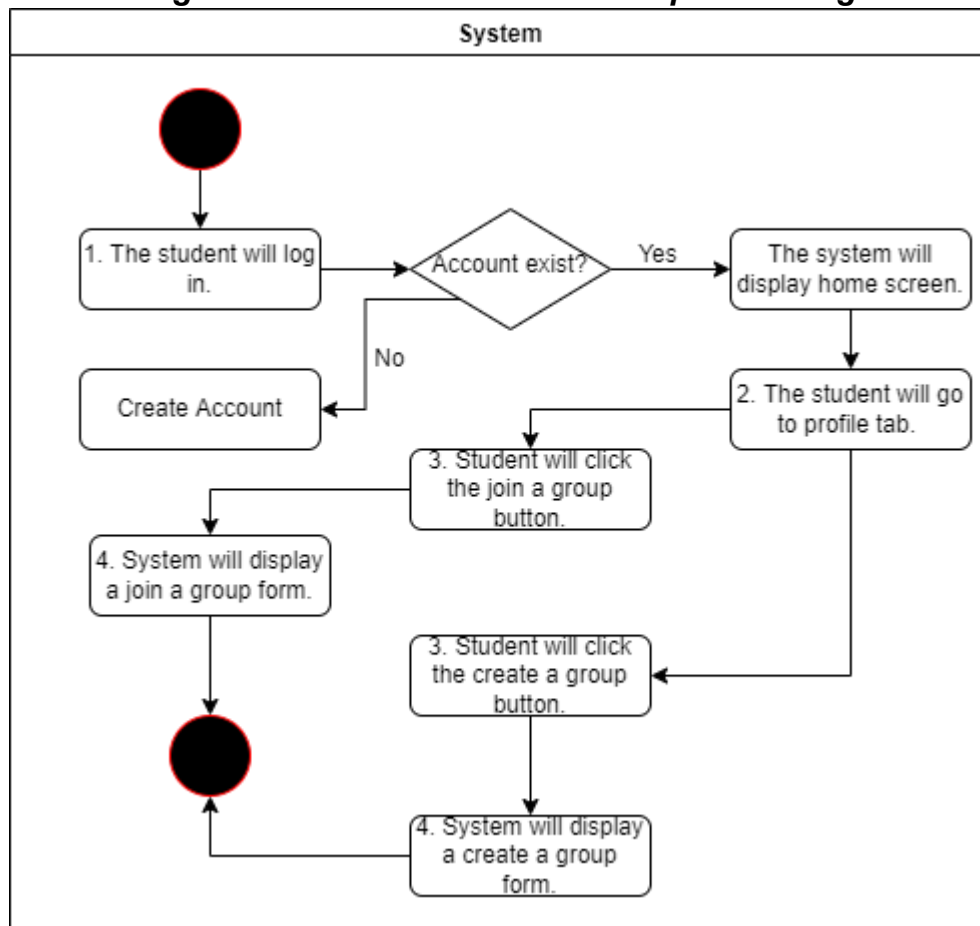


Figure 2: Use Case Model for Group Clustering (Alternative)

Search a Topic or Group Name

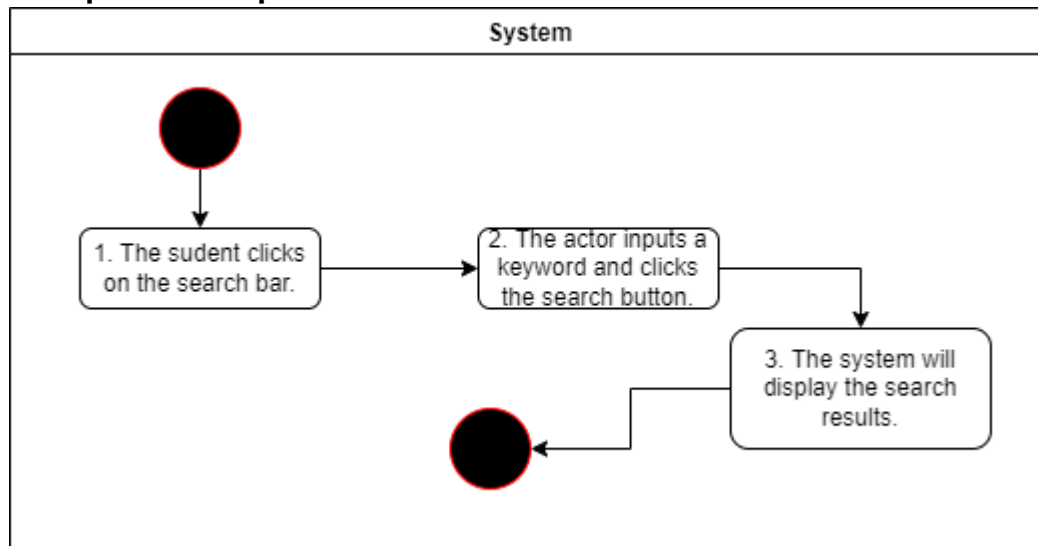


Figure 4: Use Case Model for View a File

Upload a File

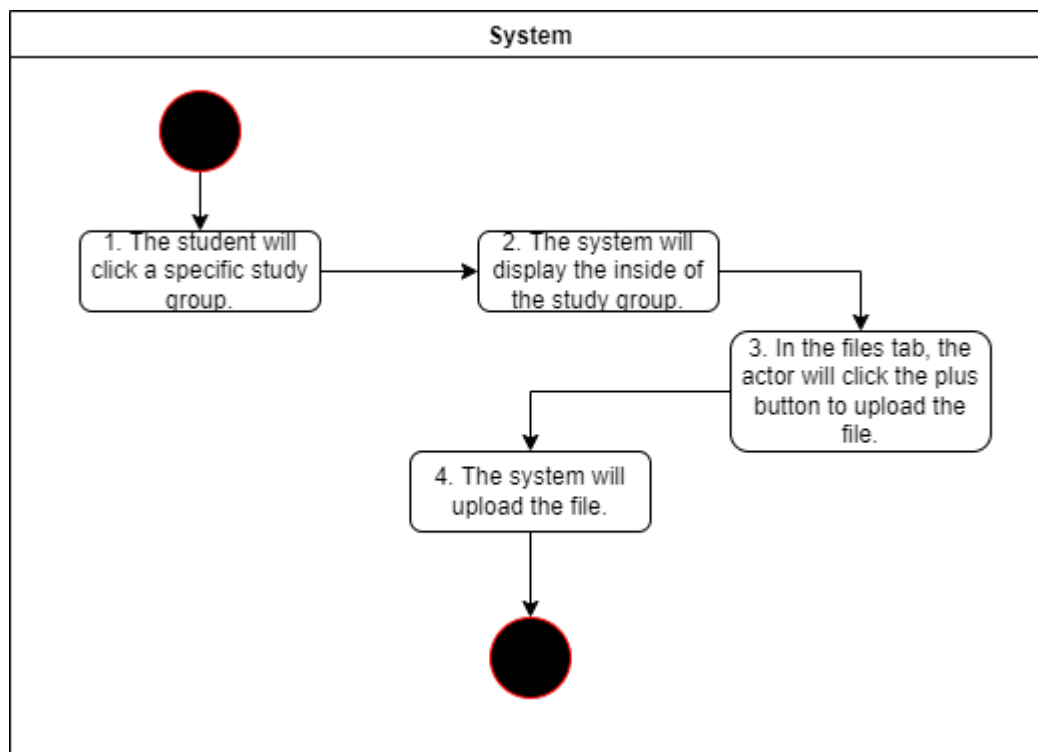


Figure 3: Use Case Model for Upload a File

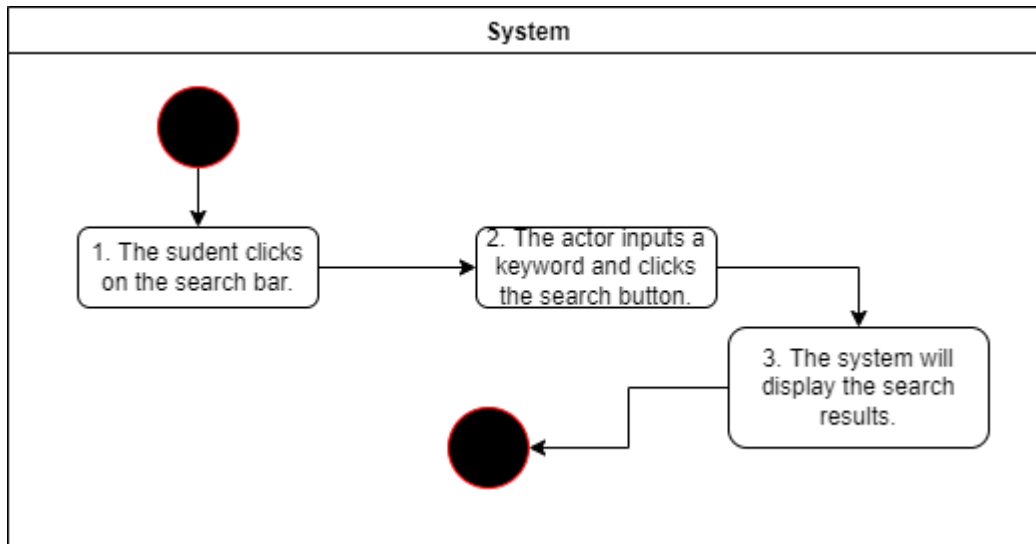


Figure 3: Use Case Model for Upload a File (Alternative)

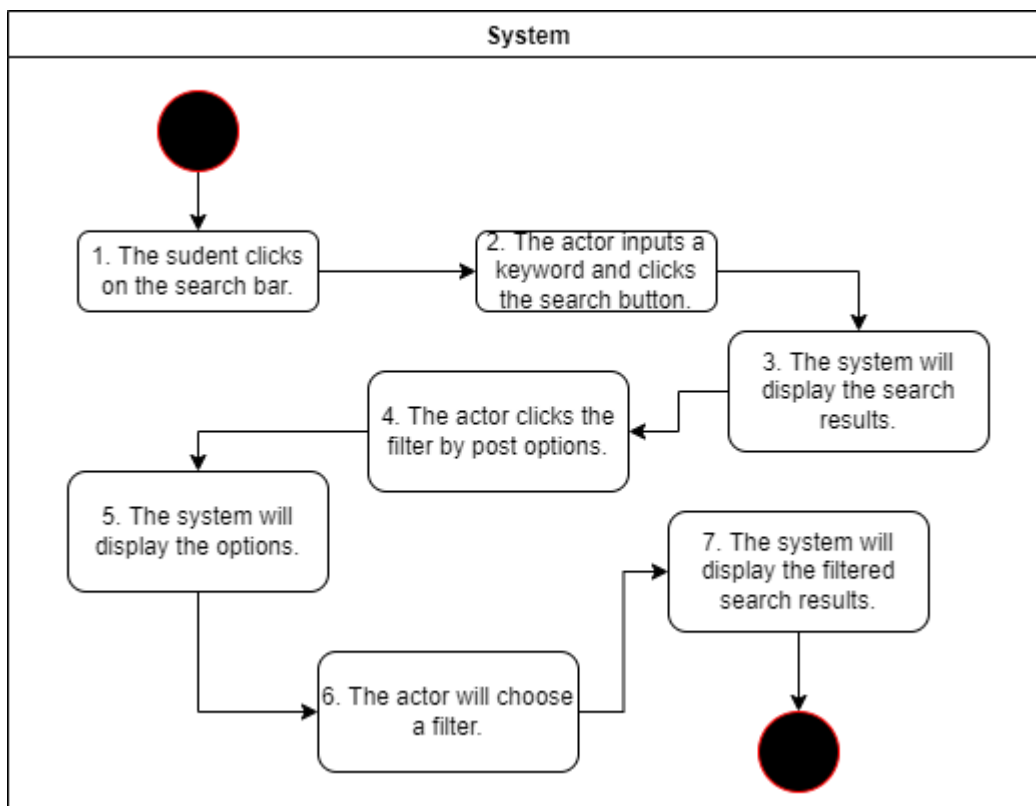


Figure 3: Use Case Model for Upload a File (Alternative)

View a File

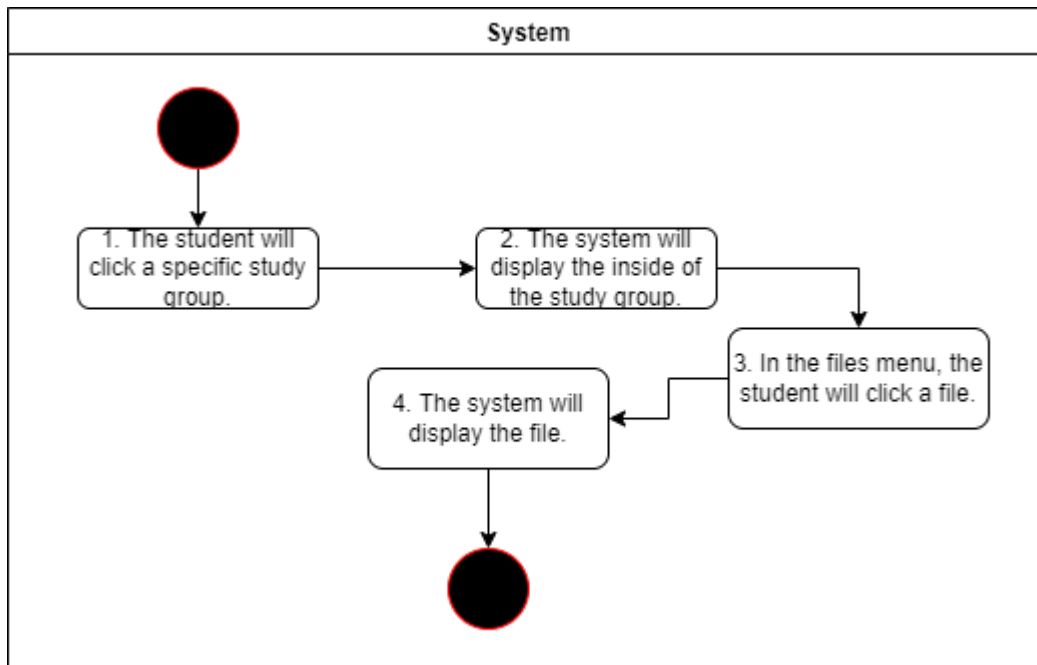


Figure 4: Use Case Model for View a File

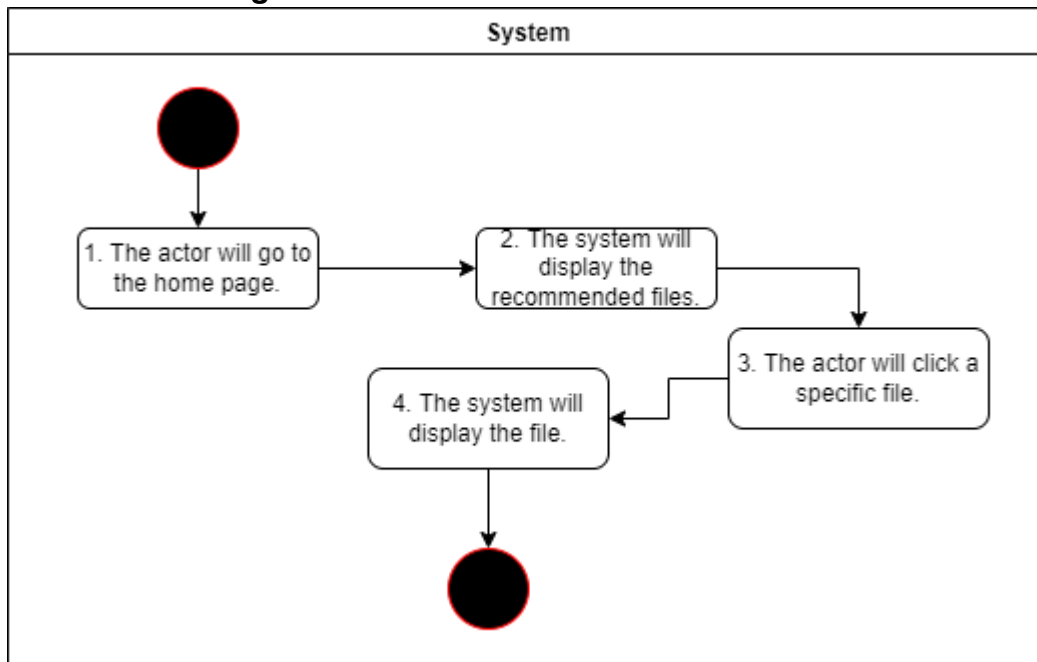


Figure 4: Use Case Model for View a File (Alternative)

View Q & A in a Study Group

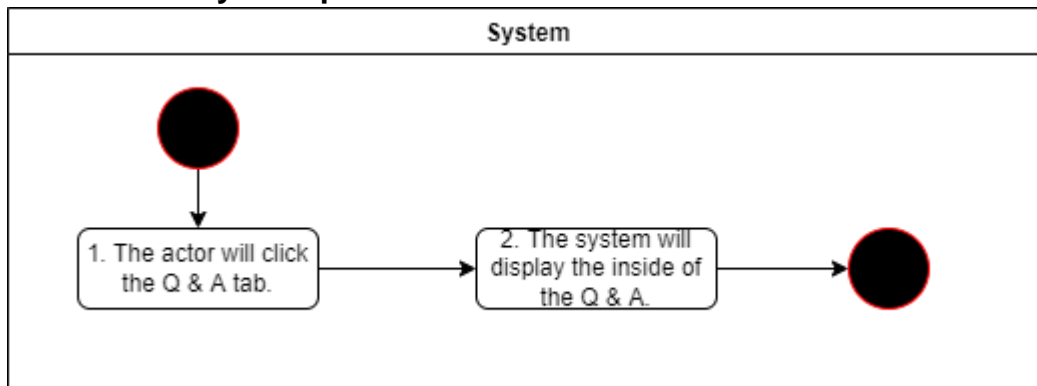


Figure 6: Use Case Model for View Q & A in a study group Study

Responding of Questions in the Q & A in a Study Group

Figure 7: Use Case Model for View Q & A in a study group Study

View Q & A in a Study Group

Figure 8: Use Case Model for View Q & A in a Study Group

Responding of Questions in the Q & A in a Study Group

Figure 9: Use Case Model for Responding of Questions in the Q & A in a Study Group

User Interface Specification



Figure : User Interface Design for the log-in of the application

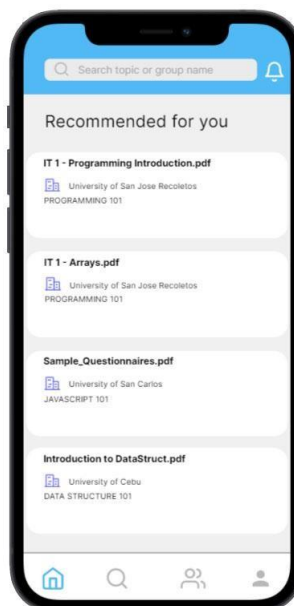


Figure : User Interface Design for the home page of the application

This is the homepage of the StudyUp application. It contains the recommended files for you that are being uploaded by the other users. You can

also search some other study materials using the search bar or the search icon. Besides the search bar is your notification icon where you can access and see your notifications.



Figure : User Interface Design for the Group Page of the Application.

The group page of the application is where you can conduct your group study with other users. It consists of all the files that everyone in the group has shared, Q & A, Quizzes, and the scheduling.

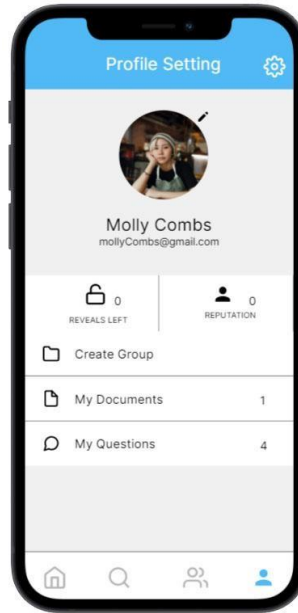


Figure : User Interface Design for the profile page of the application

The profile page is where you'll be able to edit your profile, view how many reveals you have left, your reputation, the number of documents that you shared, the number of questions that you have and it is where you can also create a group and logout.

Non-Functional Requirements

Architectural Design

The architectural Design shows the applications architecture view, where it helps you to identify the applications, database, services, and different interactions.

Data Structure Design (*Class Diagram or Database Design*)

User Interface Design



Figure 15: User interface design for the log-in screen of the app.

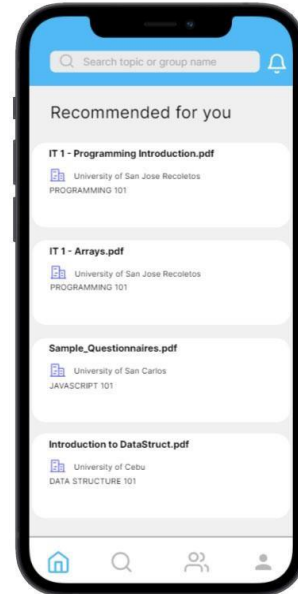


Figure 16: User interface design for the home screen of the app.



Figure 15: User interface design for the group screen of the app.

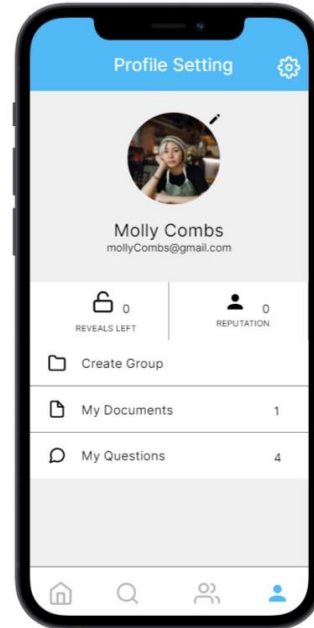


Figure 16: User interface design for the profile screen of the app.

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[Convergence Labs: The Four Cs: Communication, Coordination, Cooperation, and Collaboration](#)